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The Regional Municipality of Durham Report

To:	Finance and Administration Committee
From:	Commissioner of Finance
Report:	#2022-F-23
Date:	December 13, 2022

Subject:

Recommended 2023 Water and Sanitary Sewer User Rates

Recommendations:

That the Finance and Administration Committee recommends to Regional Council:

A) That the 2023 Regional Water and Sanitary Sewer User Rates increase by 4.3 per cent for an average residential customer effective January 1, 2023, with the Regional water rates increasing by 3.6 per cent and the Regional sanitary sewer rates increasing by 5.0 per cent from the 2022 user rate levels as set out in Attachment #1 and Attachment #2 of this report respectively;

B) That the 2023 Raw Water rates for the Whitby raw water customer be increased by 3.6 per cent as set out in Attachment #1 of this report, effective January 1, 2023;

C) That the 2023 water charges for the Sun Valley Heights Homeowners Co-operative Water System be as set out in Attachment #3 of this report, effective January 1, 2023;

D) That the 2023 Regional Water and Sanitary Sewer Systems Miscellaneous Fees and Charges be as set out in Attachment #4 of this report, effective January 1, 2023;

E) That the 2023 fee schedule for laboratory services at the Regional Environmental Laboratory located at the Duffin Creek Water Pollution Control Plant be as set out in Attachment #5 of this report, effective January 1, 2023; 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, 2023 including background on the parameters used in determining the recommended rates. This report is presented concurrently with the 2023 Business Plans and Budget and Nine-Year Capital Forecast for the Consolidated Water Supply and Sanitary Sewerage Systems report (Report #2022-F-22) which describes the proposed 2023 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 2022 so that they can be implemented with the first customer billings commencing early January 2023.

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 2023 water and sanitary sewer user fees and related charges will be considered by the Finance and Administration Committee on December 13, 2022 and by Regional Council on December 21, 2022, was provided in local newspapers throughout the Region on November 3rd and November 24th, 2022 and was posted on the Region’s website.

2. 2023 Recommended Water and Sanitary Sewer User Rate Increases

2.1 The recommended 3.6 per cent water user rate increase and 5.0 per cent sanitary sewer user rate increase (4.3 per cent combined for an average residential customer) supports an increase in net user rate supported expenditures of 3.9 per cent for water and 5.1 per cent for sanitary sewage.

2.2 The current 2022 and recommended 2023 Water and Sanitary Sewer User Rates are provided in Attachment #1 and Attachment #2 of this report, respectively. The recommended 2023 Regional Water and Sanitary Sewer Rates represent a combined increase of approximately 4.3 per cent or $45.92 annually for an average residential customer.

2.3 The recommended user rates are based on the proposed 2023 operating and capital costs and associated financing which are outlined in detail in the 2023 Business Plans and Budget and Nine-Year Capital Forecast for the Consolidated Water Supply and Sanitary Sewerage Systems report (Report #2022-F-22), as well as customer and consumption projections described below.

2.4 For water, the recommended user rate increase of 3.6 per cent is required to finance a proposed 2023 net user rate supported budgeted net expenditure increase of $4.6 million or 3.9 per cent over 2022, which will allow for:

- A net operating cost increase of $3.0 million mainly for:
    - significant inflationary increases including chemicals and utilities;
    - annual economic increases;
    - annualization of 9.001 full-time equivalent positions (FTEs) approved in 2022;
    - 4.806 new FTEs proposed for 2023;
    - enhancements to the Region's utility locate program to ensure compliance with the *Ontario Underground Infrastructure Notification System Act, 2012;* and
    - annualization of the licensing, consulting and cloud hosting fees for Maximo, the Region's maintenance management system and preliminary consulting work to position the Region to migrate to Maximo Application Suite before 2025.
- A $1.6 million increase in the user rate capital program contribution; and
- Debt servicing costs funded from water user rates that are largely consistent with the 2022 costs.

2.5 For sanitary sewer, the user rate increase of 5.0 per cent is required to finance a proposed 2023 user rate supported budgeted net expenditure increase of $5.9 million or 5.1 per cent over 2022, which will allow for:

- A net operating cost increase of $3.9 million mainly for:
    - significant inflationary increases including chemicals and utilities;
    - Annual economic increases;
    - Annualization of 7.519 FTEs approved in 2022;
    - 3.583 new FTEs proposed for 2023; and
    - annualization of the annual licensing, consulting and cloud hosting fees for Maximo, the Region's maintenance management system and preliminary consulting work to position the Region to migrate to Maximo Application Suite
- A $2.9 million increase in the user rate capital program contribution;
- A decrease in debt servicing costs funded by user rates of $0.8 million mainly due to debt retirement for Water Pollution Control Plant incinerators.

3. Basis for the Proposed 2023 User Rates

3.1 Figure 1 summarizes the projected data used to develop the 2023 user rates.

Figure 1
Projected Data Used to Develop 2023 Water & Sanitary Sewerage User Rates

Parameter	Water	Sanitary Sewerage
Customers		
• Number	184,950	180,179
• Growth from 2022 Actual	1.00%	1.05%
Consumption / Flow		
• Cubic Metres (millions)	56.32	54.18
• Change from 2022 Budget	0.0%	0.0%
User Rate Revenue Requirements		
• Total Expenditures	$122,818,256	$123,442,582
• Increase from 2022 Budget	3.9%	5.1%
User Rate Change Requirement		
• Per cent	**3.6%**	**5.0%**
• Impact on Revenue of 1% Rate Change	**$1,186,000**	**$1,175,000**

3.2 Impact of a 1 per cent Rate Change – any change in either expenditures or other revenues by $1,186,000 for water or by $1,175,000 for sanitary sewer is equivalent to a 1 per cent change in the respective user rate.

3.3 The 2023 growth in the number of customers is projected at 1.00 per cent for water and 1.05 per cent for sanitary sewer. This is consistent with the growth in the number of customers projected for 2022.

3.4 Billed water consumption for 2023 is projected as follows:

- **Overall –** Total billed 2023 water consumption and sanitary sewage flows are projected to be relatively unchanged from the 2022 Budget due to projected residential component decreases being offset by increases in the industrial, commercial, institutional (ICI) consumption component.

- **Residential** – Residential consumption represents almost 80 per cent of water consumption. Residential water consumption has two components: Base 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 adjusted to an annual basis. This data excludes seasonal summer usage.

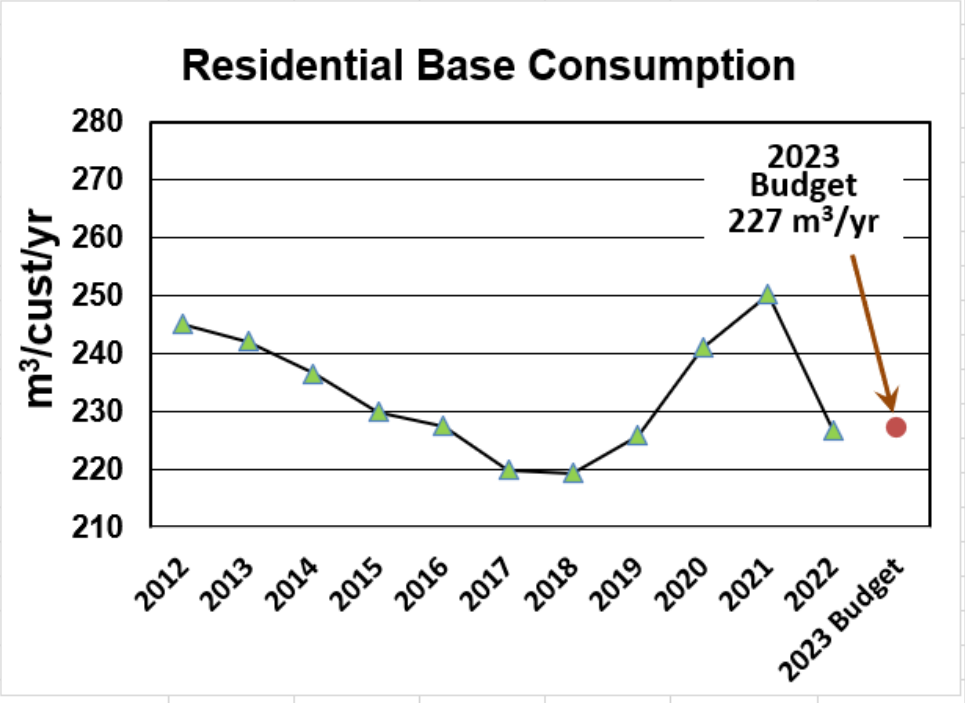
Figure 2 illustrates the Residential Base Consumption trend for the last 11 years. From 2000 until 2017 Residential Base Consumption per customer steadily decreased at a rate of about 2.4 per cent per year. Contributing factors to this decline in Base Consumption include the water efficient fixtures required in new construction by the Provincial Building Code and the popularity of more water efficient appliances.

In 2018 data suggested a levelling off of Residential Base Consumption at 219 m^3/customer/year (similar to 2017), followed by increases to 226 m^3/customer/year in 2019 and 241 m^3/customer/year in 2020 and peaking in 2021 at 250 m^3/customer/year. This year (2022) the level has dropped back to 227 m^3/customer/year which is very close to pre-COVID-19 levels (2019).

For 2023 budgeting purposes it is assumed that residential base consumption will be consistent with the current level of 227 m^3/customer/year (a decrease from the 233 m^3/customer/year budgeted for 2022).

Should actual Residential Base Consumption be lower than projected in 2023, funding from the Water Rate Stabilization Reserve Fund and the Sewer Rate Stabilization Reserve Fund may be required to finance any resulting deficits.

Figure 2
Residential Base Consumption



Total residential consumption also includes a seasonal component (not graphed above). The projected seasonal usage for 2023 is 13 m^3/customer/year, an increase from the 12 m^3/customer/year budgeted for 2022. The projected 2023 seasonal consumption of 13 m^3/customer/year is consistent with average historical levels.

Thus, the total residential consumption is 240 m^3/customer/year (Base at 227 m^3/customer/year + Seasonal at 13 m^3/customer/year). Based on this and water customer growth of 1.0 per cent (sewer 1.05 per cent), total residential water consumption is budgeted to decrease by 1.0 per cent (sewer to decrease by 1.1 per cent) from 2022 budget levels.

- **Non-Residential (ICI) Consumption Share** – ICI (industrial, commercial & institutional) consumption trends this year indicate year-end consumption marginally higher than budgeted due to increases in consumption by larger users. This has been reflected in the projected ICI consumption class with water increasing by 3.6 per cent from 2022 Budget levels (sewer to increase by 4.0 per cent).

4. Customer Impacts

4.1 **Average Residential Customer Bill Impact** – Based on the assumptions outlined above for customer growth and consumption and the proposed budgetary increases, the 2023 water user rates are proposed to increase by 3.6 per cent and sanitary sewer user rates are proposed to increase by 5.0 per cent over the approved 2022 user rate levels. The combined proposed water and sewer user rates results in an increase of $11.48 or 4.3 per cent on a quarterly bill ($45.92 per annum) for the average residential customer as outlined in Figure 3.

Figure 3

2023 Proposed Regional User Rate Charges *Typical Residential Customer Impact*			
Average Water Consumption:	52,800 gallons/year 240.0 m^3/year		
Billings ($/quarter)			
	2022 Actual	**2023 Proposed**	**Increase**
Water	$126.73	$131.29	$4.56 3.6%
Sewer	$138.15	$145.07	$6.92 5.0%
Total ($/quarter)	$264.88	$276.36	$11.48 4.3%
Annual Billing ($/year)	**$1,059.52**	**$1,105.44**	**$45.92 4.3%**

4.2 **Large Industrial Customer Impact** - The proposed 2023 water and sanitary sewer user rates result in a bi-monthly increase of $4,122 or 4.5 per cent for a large industrial customer (a customer in the top 25 users) using 227,272 m^3 annually (50 million gallons) as outlined in Figure 4.

Figure 4

2023 Proposed Regional User Rate Charges ***Large Industrial Customer Impact***			
Average Water Consumption:	50,000,000 gallons/year 277,272 m^3/year		
Billings ($/bimonthly)			
	2022 Actual	**2023 Proposed**	**Increase**
Water	$35,944	$37,242	$1,298 3.6%
Sewer	$56,426	$59,250	$2,824 5.0%
Total ($/bimonthly)	$92,370	$96,492	$4,122 4.5%
Annual Billing ($/year)	**$554,220**	**$578,952**	**$24,732 4.5%**

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

5.1 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.

5.2 **Residential customers -** Of 13 larger municipalities across Ontario, Durham's 2022 Regional water and sanitary sewer charges are below the average at the 5th lowest.

5.3 **Large users** – Similarly, of the 13 larger municipalities, the Region's 2022 water and sanitary sewer rates were the 2nd lowest for a large user. The Region's declining block rates reflect the Region's reduced unit cost of servicing large customers (the lowest was London which also has declining block rates for large customers).

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 1.0 per cent of the average Oshawa Census Metropolitan Area (CMA) 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. Staff 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 **Attachment #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 2023 raw water rate is proposed to increase by 3.6 per cent, aligned with the increase in the potable water rate and is included in Attachment #1. The proposed 2023 raw water rate is approximately 38.2 per cent of the 3rd block potable water rate.

6.2 **Attachment #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 their quarterly bill be increased to $447.00 (an increase of $3.00 or 0.7 per cent).

6.3 **Attachment # 4 – Recommended Miscellaneous Fees & Charges** – This schedule includes a number of water and sewer system related fee categories, which are each reviewed annually. One change is recommended for 2023.

- **Item 38** – **Fire Flow Tests** – The Region will carry out Fire Flow Tests on hydrants upon request for the fees specified in Item 38. Such tests may be requested for insurance purposes. However, going forward the Region will no longer offer this service during winter months (November 1 to April 30) due to problems that may arise during freezing temperatures.

6.4 **Attachment #5 – Recommended Laboratory Fees** – The recommended 2023 Fee Schedule for Laboratory Services at the Regional Environmental Laboratory, located at the Duffin Creek Water Pollution Control Plant, is provided in Schedule 5. No changes are recommended to the existing 2022 fees for 2023. The Lab Fees are currently undergoing a review which will help inform potential fee changes for 2024.

7. Projected User Rate Considerations Over the Forecast Period (2024 – 2032)

7.1 Based upon projections to 2032 (excluding the impacts of Bill 23), 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. Staff will be working on determining the growth and financial impacts of Bill 23 which are anticipated to impact future user rate increases. Impacts will be primarily accommodated beginning in the 2024 Business Plans and Budget and will be reflected in future Business Plans, Budgets and Nine-Year Capital Forecasts.

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 2023 proposed user rates assume a decrease in residential base consumption to 227 m^3/customer/per year from 233 m^3/customer/year. This decrease, at least in part, is attributable to the reversal of the impact that the COVID-19 pandemic had on residential base consumption with individuals working and students attending school virtually from home. Although it is expected that while school activities will return to historical levels, workers will not to the same extent. It remains to be seen what the long-term impact is on residential consumption, but generally it is expected to level off. On the non-residential side (ICI), current trends are hopeful. However, trends can change quickly and future Business Plans and Budget and User Rates must be adjusted as required to reflect economic realities;
- Market price impacts and volatility, including energy costs, chemicals and related equipment and supplies, currently reflect high inflation rates which is driving up costs; 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 2024 to 2032 Capital Forecast is discussed in the 2023 Business Plans and Budget and Nine-Year Capital Forecast for the Water Supply and Sanitary Sewerage Systems report (Report #2022-F-22).

8. Schedules of Rates & Fees

8.1 The following recommended Durham Region 2023 water and sanitary sewer user rates, fees and charges are set out in Attachment #1 through Attachment #5 of this report:

- The recommended 2023 Water User Rates are 3.6 per cent higher than the 2022 rates and are set out in Attachment #1.
- The recommended 2023 Raw Water Rate for the Whitby raw water customer is 3.6 per cent higher than the 2022 rate and is set out in Attachment #1.
- The recommended 2023 Sanitary Sewage User Rates are 5.0 per cent higher than the 2022 rates and are set out in Attachment #2.
- The recommended 2023 Water Rate for the Sun Valley Heights Homeowners Co-operative Water System is set out in Attachment #3.
- The recommended 2023 Water & Sanitary Sewer Systems Miscellaneous Fees & Charges are set out in Attachment #4.
- The recommended 2023 Fee Schedule for Laboratory Services at the Regional Environmental Laboratory located at the Duffin Creek WPCP is set out in Attachment #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 2023 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 2023 Regional Water and Sanitary Sewer User Rates reflect a combined increase of 4.3 per cent for an average residential customer effective January 1, 2023, with the Regional water rates increasing by 3.6 per cent and the Regional sanitary sewer rates increasing by 5.0 per cent.

10.2 The proposed combined water and sanitary sewer user rate increase results in an increase of $11.48 on a quarterly bill ($45.92 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 decreasing to 227 m^3/customer/year and seasonal usage increasing slightly to 13 m^3/customer/year (total 240 m^3/customer/year).

10.4 The 2023 Proposed Business Plans and Budget for Consolidated Water Supply and Sanitary Sewerage Systems can be accommodated within the 2023 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

Attachment #1: Recommended 2023 Water User Rates

Attachment #2: Recommended 2023 Sanitary Sewer User Rates

Attachment #3: Recommended 2023 Water Charges for the Sun Valley Heights Homeowners Co-operative Water System

Attachment #4:	Recommended 2023 Water & Sanitary Sewer Systems Miscellaneous Fees & Charges
Attachment #5:	Recommended 2023 Fee Schedule for Laboratory Services at the Regional Environmental Laboratory Located at the Duffin Creek Water Pollution Control Plant
Attachment #6:	2023 Water and Sanitary Sewer User Rates – Detailed Report
Attachment #7:	Background on Water and Sanitary Sewer User Rates

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

Attachment #1 - Recommended 2023 Water User Rates

REGIONAL MUNICIPALITY OF DURHAM

Water User Rate Schedule — 2023 Rate Increase = 3.6%

Monthly

Effective January 1, 2023

Volumetric Charges

Block	Consumption Range				Current 2022		Proposed 2023	
	From		To	Units				
First Block	0	to	45	cubic metres/month	$1.148	/cubic metre	$1.189	/cubic metre
	0	to	10,000	gallons/month	$5.217	/1,000 gallons	$5.405	/1,000 gallons
	0	to	1,600	cubic feet/month	$3.250	/100 cubic feet	$3.367	/100 cubic feet
Second Block	46	to	4,500	cubic metres/month	$0.976	/cubic metre	$1.011	/cubic metre
	10,001	to	1,000,000	gallons/month	$4.437	/1,000 gallons	$4.597	/1,000 gallons
	1,601	to	160,000	cubic feet/month	$2.764	/100 cubic feet	$2.864	/100 cubic feet
Third Block		Over	4,500	cubic metres/month	$0.896	/cubic metre	$0.928	/cubic metre
		Over	1,000,000	gallons/month	$4.073	/1,000 gallons	$4.220	/1,000 gallons
		Over	160,000	cubic feet/month	$2.537	/100 cubic feet	$2.629	/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	2022	2023	2022	2023	2022	2023
Standard	Standard	$19.29	$19.98	n/a	n/a	n/a	n/a
1-inch	25-mm	$39.20	$40.61	$65.00	$68.00	$14.89	$15.43
1 ½-inch	38-mm	$83.43	$86.43	$125.00	$130.00	$20.02	$20.74
2-inch	51-mm	$180.17	$186.66	$241.00	$250.00	$38.74	$40.13
2 ½-inch	64-mm	n/a	n/a	n/a	n/a	$51.34	$53.19
3-inch	76-mm	$316.73	$328.13	$413.00	$428.00	$68.07	$70.52
4-inch	102-mm	$629.78	$652.45	$815.00	$844.00	$136.15	$141.05
5-inch	127-mm	n/a	n/a	n/a	n/a	$182.80	$189.38
6-inch	152-mm	$1,170.47	$1,212.61	$1,489.00	$1,542.00	$251.40	$260.45
8-inch	203-mm	$1,995.40	$2,067.23	$2,447.00	$2,535.00	$418.89	$433.97
10-inch	254-mm	$3,247.08	$3,363.97	$3,876.00	$4,016.00	$668.44	$692.50
12-inch	305-mm	n/a	n/a	n/a	n/a	$942.46	$976.39

Flat Rate (includes consumption)

	Current 2022	Proposed 2023
Monthly/unit	$45.38	$47.01
Quarterly/unit	$136.14	$141.03
Annually/unit	$544.56	$564.12

Other - Raw Water Rate — Recommended Raw Water Rate Increase: 3.6%

		Current 2022		Proposed 2023	
All volumes	cubic metres	$0.342	/cubic metre	$0.355	/cubic metre
	gallons	$1.556	/1,000 gallons	$1.612	/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.

Attachment #2 - Recommended 2023 Sanitary Sewer User Rates

REGIONAL MUNICIPALITY OF DURHAM

Sewage User Rate Schedule — 2023 Rate Increase = 5.0%

Monthly

Effective January 1, 2023

Volumetric Charges

Block	Consumption Range				Current 2022		Proposed 2023	
	From		To	Units				
First Block	0	to	45	cubic metres/month	$1.925	/cubic metre	$2.021	/cubic metre
	0	to	10,000	gallons/month	$8.750	/1,000 gallons	$9.188	/1,000 gallons
	0	to	1,600	cubic feet/month	$5.451	/100 cubic feet	$5.724	/100 cubic feet
Sewer rate expressed as a % of water rate					*167.7%*		*170.0%*	
Second Block	46	to	4,500	cubic metres/month	$1.694	/cubic metre	$1.779	/cubic metre
	10,001	to	1,000,000	gallons/month	$7.700	/1,000 gallons	$8.085	/1,000 gallons
	1,601	to	160,000	cubic feet/month	$4.797	/100 cubic feet	$5.037	/100 cubic feet
Sewer rate expressed as a % of water rate					*173.5%*		*175.9%*	
Third Block		Over	4,500	cubic metres/month	$1.424	/cubic metre	$1.495	/cubic metre
		Over	1,000,000	gallons/month	$6.472	/1,000 gallons	$6.796	/1,000 gallons
		Over	160,000	cubic feet/month	$4.032	/100 cubic feet	$4.234	/100 cubic feet
Sewer rate expressed as a % of water rate					*158.9%*		*161.0%*	

Basic Charges ($/month)

Meter	Service Charge		Minimum Charge		Flat Rate/unit	
	Current 2022	Proposed 2023	Current 2022	Proposed 2023	Current 2022	Proposed 2023
Standard	$7.55	$7.93	No minimum charge		$51.30	$53.87
All other sizes						
Monthly	$7.55	$7.93	$51.00	$54.00	$51.30	$53.87
Quarterly	$22.65	$23.79			$153.90	$161.61
Annually	$90.60	$95.16			$615.60	$646.44

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.

Attachment #3 - Recommended 2023 Water Charges for the Sun Valley Heights Homeowners Co-operative Water System

Sun Valley Home Owners Co-Operative 2023 Projected Costs		
Cost Item	**Budget 2022**	**Projected Cost 2023**
	$	**$**
Hydro Electricity	2,000	2,000
Property Taxes	600	600
Laboratory Costs	2,255	2,255
Operator & Reports	17,634	17,900
Vehicle	2,870	2,870
Operation Materials	2,600	2,600
Machinery and Equipment	1,550	1,600
Maintenance Materials & Other	600	600
TOTAL	**30,109**	**30,425**
Property owners	17	17
Charges per Property Owner (billings are sent quarterly)		
Monthly	**$148**	**$149**
Quarterly	**$444**	**$447**
Annually	**$1,776**	**$1,788**

Attachment #4 - Recommended 2023 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)

Item Number & Description	By-Law Schedule Reference		Existing 2022 Charges		Recommended 2023 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

Item Number & Description	By-Law Schedule Reference		Existing 2022 Charges		Recommended 2023 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 per cent 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, to 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.					

Item Number & Description	By-Law Schedule Reference		Existing 2022 Charges		Recommended 2023 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:** During normal Regional working hours:	F1	E1			
- 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:					
- Shut Water Off			120.00		120.00
- Turn Water On			120.00		120.00
- Shut Off & Turn On During Same Call			120.00		120.00
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 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		231.00		231.00

Item Number & Description	By-Law Schedule Reference		Existing 2022 Charges		Recommended 2023 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 per cent		2 per cent
33) For Final Collection Notification prior to tax roll transfer action (lien) being taken.	F22	E18	25.00 for both		25.00 for both
34) Lien Administration Fee	F15	E11	50.00 for both		50.00 for both
35) Installation and removal of anti-tampering devices on fire hydrants & curb stops	F16		138.00		138.00
36) Cross Connection Control Program Test Report	New		25.00		25.00
37) Water from Water Supply Plants, Water Pollution Control Plants, Works Depots & Bulk Filling Stations	F17				
- /cubic metre			3.23		3.23
- /1,000 gallons			14.69		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					

Item Number & Description	By-Law Schedule Reference		Existing 2022 Charges		Recommended 2023 Charges
	Water By-law #89-2003	Sewer By-law #90-2003	Water $	Sewer $	Note: Changes are in Bold $
38) Fire Flow Tests: - Full test - May 1 – Oct 31 **(Service not offered Nov 1 – Apr 30)** - Opening Hydrants - May 1 – Oct 31 **(Service not offered Nov 1 – Apr 30)**	F18		467.20 320.30		467.20 320.30
39) Sewage Surcharge and Compliance Agreements		E12		1,885.00	1,885.00
40) 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
41) Copies of By-laws Water System, Sewer System and Sewer Use (+ Applicable taxes)	F19	E13	20.50/copy		20.50/copy
42) Sewer TV Inspection Reports and Videos per report or video (+ Applicable taxes)		E14		21.51	21.51
43) Sewer Use By-law Agreement extra strength waste ($/kg.)		n/a		0.53	0.53
44) Sewer Appeal Application per request		E15		1,200.00	1,200.00

Attachment #5 - Recommended 2023 Fee Schedule for Laboratory Services at the Regional Environmental Laboratory Located at the Duffin Creek Water Pollution Control Plant

	THE REGIONAL MUNICIPALITY OF DURHAM		
	2023 FEES AND CHARGES		
	WORKS DEPARTMENT - ENVIRONMENTAL LABORATORY		
			2023 Rates Unchanged
Item #	Description / Test For	2022 Rate (before appl. Taxes)	2023 Rate (before appl. Taxes)
	Laboratory Fees Page 1 of 8		
	ONTARIO DRINKING WATER REGULATION 170/03 PACKAGES		
	Microbiological		
1	Presence/Absence Test (P/A for TC, EC)	$15.00	$15.00
2	Treated Water (P/A, HPC or BKD)	$27.00	$27.00
3	Well Water/Raw/Reg.319 (TC, EC)	$28.00	$28.00
4	Well Water/Treated/Distribution (TC, EC, HPC)	$39.00	$39.00
5	Single test by membrane filtration (e.g. MFHPC, MFTC)	$14.00	$14.00
6	Test for E. coli by membrane filtration	$15.00	$15.00
7	**All Parameters required under O.Reg. 170/03 Schedule 23 plus additional metals**	$83.00	$83.00
	(Al, As, B, Ba, Cd, Co, Cr, Cu, Fe, Hg, Mn, Mo, Ni, Pb, Sb, Se, U, Zn)		
8	**Inorganic Ions required under O.Regulation 170/03**	$82.00	$82.00
	(F, NO2, NO3, Na)		
	Inorganic Ions required under O.Reg. 170/03 plus additional Ions		
9	(Hardness*, Ca, Mg, Na, K, Ammonia, F, Cl, Br, NO2, NO3, PO4, SO4)	$82.00	$82.00
10	(Nitrite, Nitrate)	$54.00	$54.00
11	(Sodium)	$36.00	$36.00
12	(Fluoride)	$36.00	$36.00
13	(Lead testing as required under O.Regulation 170)	$37.00	$37.00
14	(Lead testing as required under O.Regulation 243) - For Standing & Flushed	$155.00	$155.00
15	**Organic Chemical THMs (Trihalomethanes)**	$105.00	$105.00
	Bromodichloromethane (bromoform), Dibromochloromethane (chloroform), THM (total)		
16	**All Parameters required under Schedule 24**	$1,552.00	$1,552.00
	(Includes all Parameters described under the following test CODES listed in this book -		
	VOC, OC, TRIAZ, OP, PHENAC, CHLORPHEN, CARBUREA, GLYPH, DIPARA, PCB)		
17	**Combined Package York Region Drinking Water Package A**	$1,768.00	$1,768.00
	(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

2023 FEES AND CHARGES

WORKS DEPARTMENT - ENVIRONMENTAL LABORATORY

2023 Rates Unchanged

Item #	Description / Test For	2022 Rate (before appl. Taxes)	2023 Rate (before appl. Taxes)
	Laboratory Fees Page 2 of 8		
	MICROBIOLOGICAL TESTS		
	O.Regulation 170/03		
18	Presence/Absence Test (P/A for TC, EC)	$15.00	$15.00
19	Treated Water (P/A, HPC or BKD)	$27.00	$27.00
20	Well Water/Raw/Reg.319 (TC, EC)	$28.00	$28.00
21	Well Water/Treated/Distribution (TC, EC, HPC)	$39.00	$39.00
22	Raw Water Intake, Municipal (TC, EC, BKD)	$34.00	$34.00
23	Treated/Distribution Water (TC, EC, BKD, HPC)	$44.00	$44.00
24	Single test by membrane filtration (e.g. MFHPC, MFTC)	$14.00	$14.00
25	Test for E. coli by membrane filtration	$15.00	$15.00
	New Mains		
26	New Water Mains (TC, EC, BKD, HPC)	$44.00	$44.00
	Waste Water		
27	E.coli (Final Effluent)	$17.00	$17.00
28	E.coli (Sludge / Cake)	$32.00	$32.00
29	Faecal Streptococci	$17.00	$17.00
30	Final Effluent (TC, EC)	$32.00	$32.00
31	Final Effluent (TC, EC, FS)	$42.00	$42.00
	Recreational Water		
32	E.coli (Lake/Beach/Creek/Pond/River)	$17.00	$17.00
33	Lakes / Bathing beaches (TC, EC, FS)	$39.00	$39.00
34	Any Single Membrane Filtration Test (eg. FC - MFFC, AE - MFAE, PS, SA etc.)	$26.00	$26.00
	Raw and Treated Water		
35	Algae Enumeration and Identification	$103.00	$103.00
36	Algae Cells	$103.00	$103.00
37	Algae by Microscopic Particulate Analysis	$515.00	$515.00
38	Microcystin	$158.00	$158.00
39	F Specific Coliphages	$206.00	$206.00
	Protozoa Testing		
40	Cryptosporidium and Giardia (MBCG)	$840.00	$840.00
41	Cryptosporidium, Giardia and Microscopic Particulate Analysis (MBCGMPA)	$1,133.00	$1,133.00
42	Pigment Bearing Algae and Diatoms (MBPBAD)	$515.00	$515.00
43	Cryptosporidium, Giardia and Pigment Bearing Algae and Diatoms (MBCGPBAD)	$1,133.00	$1,133.00
	Mycology (Fungi)		
44	Fungal Enumeration	$26.00	$26.00
45	Fungal Identification (Consultation Required)	$134.00	$134.00
46	Air Quality (Microbial - Bacteria, Yeasts & Molds)	$77.00	$77.00
47	Enumeration of Bacteria, Yeast and Molds by RODAC plates (BHI & SAB/MEA)	$77.00	$77.00
	Sterility (Spore) Testing		
48	Bacillus subtilis (DRY)	$52.00	$52.00
49	Bacillus stearothermophilus (STEAM)	$52.00	$52.00
	Other Bacteriological Groups		
50	Private Wells (TC, EC)(Signed Report faxed next day)	$79.00	$79.00
51	Iron Bacteria - Presence/Absence	$77.00	$77.00
52	Sulphur Bacteria - Presence/Absence	$77.00	$77.00
53	Iron & Sulphur Bacteria - Presence/Absence	$129.00	$129.00
54	Microscopic Examination	$103.00	$103.00
55	Crypto/Gardia Additional Filter Processing	$412.00	$412.00

THE REGIONAL MUNICIPALITY OF DURHAM

2023 FEES AND CHARGES

WORKS DEPARTMENT - ENVIRONMENTAL LABORATORY

Item #	Description / Test For	2022 Rate (before appl. Taxes)		2023 Rates Unchanged 2023 Rate (before appl. Taxes)	
	Laboratory Fees Page 3 of 8				
	GENERAL INORGANIC TESTS				
		Water	**S/S/S**	**Water**	**S/S/S**
56	pH, Conductivity, Alkalinity Total (CaCO3)	$28.00	$34.00	$28.00	$34.00
57	Alkalinity, Total (CaCO3)	$17.00	$22.00	$17.00	$22.00
58	Alkalinity, Total (CaCO3) (plus hydroxide, carbonate and bicarbonate)	$21.00	$27.00	$21.00	$27.00
59	Conductivity	$12.00	$17.00	$12.00	$17.00
60	pH	$12.00	$17.00	$12.00	$17.00
61	Fluoride by Ion Selective Electrode	$22.00	$28.00	$22.00	$28.00
62	Total Residual Chlorine	$12.00	$20.00	$12.00	$20.00
63	Free Residual Chlorine	$12.00	$20.00	$12.00	$20.00
64	Colour	$17.00	$20.00	$17.00	$20.00
65	Turbidity	$17.00	$20.00	$17.00	$20.00
66	Biochemical Oxygen Demand (BOD5)	$37.00	$44.00	$37.00	$44.00
67	Carbonaceous Biochemical Oxygen Demand (cBOD5)	$37.00	$44.00	$37.00	$44.00
68	Chemical Oxygen Demand (COD)	$33.00	$39.00	$33.00	$39.00
69	Dissolved Organic Carbon (DOC)	$30.00	$39.00	$30.00	$39.00
70	Total Organic Carbon	Subcontractor's Rate		Subcontractor's Rate	
71	Cyanide (Total)	$42.00	$49.00	$42.00	$49.00
72	Cyanide (Free)	$42.00	$49.00	$42.00	$49.00
73	Phenol	$39.00	$47.00	$39.00	$47.00
74	Sulphide (H2S)	$39.00	$47.00	$39.00	$47.00
75	Dissolved Solids, Ashed Dissolved Solids, Voltaile Dissolved Solids*	$27.00	N/A	$27.00	N/A
76	Suspended Solids (SS)	$16.00	$18.00	$16.00	$18.00
77	Suspended Solids, Ashed Suspended Solids, Volatile Suspended Solids*	$22.00	$25.00	$22.00	$25.00
78	Total Solids (TS)	$14.00	$16.00	$14.00	$16.00
79	Total Solids, Ashed Total Solids, Volatile Total Solids*	$20.00	$22.00	$20.00	$22.00
80	Dissolved Solids, Suspended Solids, Total Solids	$37.00	$44.00	$37.00	$44.00
81	Total Oil & Grease	$55.00	$65.00	$55.00	$65.00
82	Total / Mineral / Animal & Vegetable* Oil & Grease	$83.00	$100.00	$83.00	$100.00
	Ion Chromatography				
83	Hardness*,Ca,Mg,Na,K,Ammonia,F,Cl,Br,NO2,NO3,PO4,SO4	$82.00	$99.00	$82.00	$99.00
84	F,Cl,Br,NO2,NO3,PO4,SO4	$54.00	$64.00	$54.00	$64.00
85	Hardness*,Ca,Mg,Na,K,Ammonia	$54.00	$64.00	$54.00	$64.00
86	Any One of the Above Single Elements by IC	$36.00	$42.00	$36.00	$42.00
	Nutrients by Segmented Flow Analyzer				
87	NH3+NH4, PO4, NO2, NO2+NO3, TKN, TP	$102.00	$122.00	$102.00	$122.00
88	NH3+NH4, PO4, NO2, NO2+NO3	$61.00	$73.00	$61.00	$73.00
89	TKN, TP	$61.00	$73.00	$61.00	$73.00
90	Any One of the Above Single Nutrients by SFA	$40.00	$48.00	$40.00	$48.00
91	Ultra Low Dissolved PO4 (clean water only)	$68.00	N/A	$68.00	N/A
	Metals				
92	Mercury (Hg) by Cold Vapour AA	$37.00	$44.00	$37.00	$44.00
93	Acid Soluble Metals by ICP (Al, Fe, Mn, Pb, Zn)	$42.00	N/A	$42.00	N/A
94	Cation Scan by ICP (Ca, Mg, Na, K, Hardness*)	$54.00	N/A	$54.00	N/A
95	Heavy Metals Scan by ICP: Al, As, Cd, Co, Cr, Cu, Fe, Mn, Mo, Ni, Pb, Se, Sb, Zn	$56.00	$66.00	$56.00	$66.00
96	Heavy Metals Scan by ICP: As, Cd, Co, Cr, Cu, Mo, Ni, Pb, Se, Zn	N/A	$66.00	N/A	$66.00
97	Regulation 170 Metals: Al, As, B, Ba, Cd, Co, Cr, Cu, Fe, Mn, Mo, Ni, Pb, Sb, Se, U, Zn	$79.00	N/A	$79.00	N/A
98	Any One of the Above Single Metals by ICP-OES or ICP-MS	$37.00	$44.00	$37.00	$44.00
99	(Lead testing as required under O.Regulation 170)	$37.00	N/A	$37.00	N/A
100	(Lead testing as required under O.Regulation 243)	$77.00	N/A	$77.00	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

2023 FEES AND CHARGES

WORKS DEPARTMENT - ENVIRONMENTAL LABORATORY

Item #	Description / Test For	2022 Rate (before appl. Taxes)	2023 Rates Unchanged 2023 Rate (before appl. Taxes)
	Laboratory Fees Page 4 of 8		
	INORGANIC MONITORING PACKAGES		
	DRINKING WATER		
101	**Drinking Water Package #1**	$100.00	$100.00
	(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*)		
102	**Drinking Water Package #2**	$154.00	$154.00
	(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*)		
103	**Drinking Water Package #2 with expanded metals**	$180.00	$180.00
	(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*)		
104	**Drinking Water Package #3**	$270.00	$270.00
	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		
105	**Surface Water**	$407.00	$407.00
	(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)		
106	**Filtration of Raw Landfill samples**	$37.00	$37.00
	*Calculation included (no charge).		

THE REGIONAL MUNICIPALITY OF DURHAM

2023 FEES AND CHARGES

WORKS DEPARTMENT - ENVIRONMENTAL LABORATORY

Item #	Description / Test For	2022 Rate (before appl. Taxes)	2023 Rates Unchanged 2023 Rate (before appl. Taxes)
	Laboratory Fees Page 5 of 8		
	INORGANIC MONITORING PACKAGES		
	SEWAGE & INDUSTRIAL WASTE		
107	**Monitoring Package #1**	$44.00	$44.00
	(BOD5, suspended solids)		
108	**Monitoring Package #2**	$103.00	$103.00
	(BOD5, susp. solids, total kjeldahl nitrogen, total phosphorus)		
109	**Monitoring Package #2 plus Metals**	$166.00	$166.00
	(BOD5, susp. solids, total kjeldahl nitrogen, total phosphorus		
	Al, As, Cd, Co, Cr, Cu, Fe, Mn, Mo, Ni, Pb, Sb, Se, Zn)		
110	**Monitoring Package #3**	$154.00	$154.00
	(BOD5, susp. solids, total kjeldahl nitrogen, total phosphorus		
	ammonia+ammonium, nitrite, nitrite+nitrate, diss. phosphate)		
111	**Monitoring Package #3 plus Metals**	$217.00	$217.00
	(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)		
112	**Monitoring Package #4**	$204.00	$204.00
	(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)		
113	**Monitoring Package #4 plus Metals**	$307.00	$307.00
	(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		
114	**Sludge Monitoring Package #1**	$120.00	$120.00
	(total solids, total kjeldahl nitrogen, total phosphorus,		
	ammonia+ammonium, nitrite, nitrite+nitrate, diss. phosphate)		
115	**Sludge Monitoring Package #1 plus Metals**	$183.00	$183.00
	(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)		
116	**Sludge Monitoring Package #2 (Agrisludge)**	$210.00	$210.00
	(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)		
	SEWER USE BY-LAW		
117	**Complete Inorganic Package**	$490.00	$490.00
	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		
	*Calculation included (no charge).		

THE REGIONAL MUNICIPALITY OF DURHAM

2023 FEES AND CHARGES

WORKS DEPARTMENT - ENVIRONMENTAL LABORATORY

2023 Rates Unchanged

Item #	Description / Test For	2022 Rate (before appl. Taxes)	2023 Rate (before appl. Taxes)
	Laboratory Fees Page 6 of 8		
	ORGANIC MONITORING PACKAGES		
	DRINKING WATER / SURFACE WATER / GROUNDWATER & WASTEWATER		
118	**THMs (Trihalomethanes)**	$105.00	$105.00
	Bromodichloromethane (bromoform), Dibromochloromethane (chloroform), THM (total)		
119	**BTEX by Purge & Trap GC/MS**	$83.00	$83.00
	benzene; m, p-xylene; toluene; Ethylbenzene; O-xylene		
120	**Taste & Odour**	$258.00	$258.00
	geosmin; 2-isobutyl-3-methoxypyrazine; 2,3,6-trichloroanisole; 2-methylisoborneol (MIB); 2-isopropyl-3-methoxypyrazine; 2,4,6-trichloroanisole		
121	**Haloacetic Acids (Disinfection By-Products)**	$309.00	$309.00
	bromochloroacetic acid; dichloroacetic acid; monochloroacetic acid; dibromoacetic acid; monobromoacetic acid; trichloroacetic acid		
122	**Volatile Organic Compounds**	$132.00	$132.00
	benzene; bromodichloromethane; bromoform; bromomethane; carbon tetrachloride; chlorobenzene; chlorodibromomethane; chloroethane; chloroform; chloromethane; tetrachloroethylene (perchloroethylene); 1,2-dibromoethane (ethylene dibromide); 1,2-dichlorobenzene; 1,3-dichlorobenzene; 1,4-dichlorobenzene; 1,1-dichloroethane; 1,2-dichloroethane; 1,1-dichloroethylene; methyl tert-butyl ether (MTBE); methyl ethyl ketone (MEK); methyl isobutyl ketone (MIBK); 1,1,1,2-tetrachloroethane; cis-1,2-dichloroethylene; trans-1,2-dichloroethylene; dichloromethane; 1,2-dichloropropane; cis-1,3-dichloropropylene; trans-1,3-dichloropropylene; ethylbenzene; Styrene; 1,1,2,2-tetrachloroethane; toluene; 1,1,1-trichloroethane; 1,1,2-trichloroethane; trichloroethylene; trichlorofluoromethane; vinyl chloride; o-xylene; m, p-xylene; THM (Total); xylene (Total); 2-hexanone; acetone; 1,2,4-trichlorobenzene		
123	**1,4-Dioxane Purge and Trap**	$83.00	$83.00
124	**Benzo(a)pyrene (GCMS)**	$110.00	$110.00
	PESTICIDE / HERBICIDE ANALYSIS		
125	**Organochlorine Pesticides**	$127.00	$127.00
	aldrin; a-BHC; b-BHC; g-BHC (Lindane); a-chlordane; g-chlordane; p,p' – DDD; p,p' – DDE; p,p' – DDT; o,p' – DDT; dieldrin; endosulphan I; endosulphan II; endosulphan sulphate; endrin; heptachlor; heptachlor epoxide; methoxychlor; mirex; oxychlordane; trifluralin; toxaphene		
126	**Triazine Herbicides**	$110.00	$110.00
	alachlor (Lasso); ametryn; atraton; atrazine; cyanazine (Bladex); desethyl atrazine; desethyl simazine; metolachlor; metribuzin (Sencor); prometon; prometryn; propazine; simazine		
127	**Organophosphorus Pesticides**	$110.00	$110.00
	chlorpyrifos (Dursban); chlorpyrifos-methyl (Reldan); diazinon; dichlorvos; dimethoate; ethion; fenchlorphos (Ronnel); guthion (Azinphos-methyl); benzo(a)pyrene; malathion; methyl parathion; mevinphos (Phosdrin); parathion; phorate (Thimet); terbufos		
128	**Phenoxy Acid Herbicides**	$166.00	$166.00
	2,4-dichlorophenoxyacetic acid (2,4-D); bromoxynil; dicamba; diclofop-methyl; MCPA; picloram		
129	**Chlorophenols**	$166.00	$166.00
	2,4-dichlorophenol; 2,4,6-trichlorophenol; 2,3,4,6-tetrachlorophenol		
130	**Carbamate & Phenyl Urea Pesticides/Herbicides**	$247.00	$247.00
	Carbaryl; Diuron; Carbofuran; Triallate		
131	**Glyphosate**	$205.00	$205.00
132	**Diquat (Paraquat)**	$205.00	$205.00

THE REGIONAL MUNICIPALITY OF DURHAM

2023 FEES AND CHARGES

WORKS DEPARTMENT - ENVIRONMENTAL LABORATORY

Item #	Description / Test For	2022 Rate (before appl. Taxes)	2023 Rates Unchanged 2023 Rate (before appl. Taxes)
	Laboratory Fees Page 7 of 8		
	ORGANIC MONITORING PACKAGES		
133	**PCB Analysis**	$83.00	$83.00
	Polychlorinated Biphenyls		
134	**PAHs (Polynuclear Aromatic Hydrocarbons) by GC/MSD**	Subcontractor's Rate	Subcontractor's Rate
	Acenaphthene; Acenaphylene; Anthracene; Benzo(a)anthracene; Benzo(a)pyrene; Benzo(b)fluroanthene; Benzo(g, h, i)perylene; Benzo(k)fluoranthene; 1-Chloronapthalene; Chrysene; Dibenz(a, h)anthracene; Fluoranthene; Fluorene; Indeno (1,2,3-cd)pyrene; 1-Methylnaphthalene; 2-Methylnaphthalene; Naphthalene; Phenanthrene; Pyrene		
	Open Characterization (Semi-quantitative)		
135	Volatiles (Scans for Volatile Organic Compounds)	$258.00	$258.00
136	Extractables (Scans for Extractable Organic Compounds)	$309.00	$309.00
	Industrial Sewer Use By-law Acid/Base/Neutral Compounds		
137	di-n-butylphthalate; bis(2-ethylhexyl)phthalate;	$221.00	$221.00
138	Polychlorinated Biphenyls	$83.00	$83.00
	SEWER USE BYLAWS		
139	**Industrial Sewer Use By-law Volatile Organic Compounds**	$139.00	$139.00
	1,1,2,2, -tetrachloroethane; 1,2-dichlorobenzene; 1,4-dichlorobenzene; benzene; chloroform; cis-1,2-dichloroethylene; dichloromethane; ethylbenzene; methyl ethyl ketone (MEK); m/p-xylene; o-xylene; styrene; tetrachloroethylene; toluene; trans-1,3-dichloropropylene; trichloroethylene; xylene (Total)		
140	**Industrial Sewer Use By-law Nonylphenols & Ethoxylates (Subcontracted)**	Subcontractor's Rate	Subcontractor's Rate
	Nonylphenol; nonylphenol ethoxylates		
141	**Durham/York/Peel Sewer Use By-law Organic Package***	$436.00	$436.00
	1,1,2,2, -tetrachloroethane; 1,2-dichlorobenzene; 1,4-dichlorobenzene; benzene; chloroform; cis-1,2-dichloroethylene; dichloromethane; ethylbenzene; methyl ethyl ketone (MEK); di-n-butyl phthalate; PCB (Total); m/p-xylene; o-xylene; styrene; tetrachloroethylene; toluene; trans-1,3-dichloropropylene; trichloroethylene; xylene (Total); bis (2-ethylhexyl) phthalate		
	* If nonyl phenol/nonyl phenol ethoxylates req'd, please request as add-on to package		
	OTHER PACKAGES		
142	**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		
143	**PFAS/PFOS (Solid Phase Extraction Method)**	$600.00	$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)		

THE REGIONAL MUNICIPALITY OF DURHAM

2023 FEES AND CHARGES

WORKS DEPARTMENT - ENVIRONMENTAL LABORATORY

Item #	Description / Test For	2022 Rate (before appl. Taxes)	2023 Rates Unchanged 2023 Rate (before appl. Taxes)
	Laboratory Fees Page 8 of 8		
144	**Legal Sample Fees and Legal Storage Fees**		
	Samples submitted under legal chain of custody - per sample	$281.00	$281.00
	(To maintain an unbroken chain of custody for samples that may be used for litigation)		
145	Extended storage for legal samples (longer than 30 days) - per container per month	$5.00	$5.00
	(Samples will be stored free of charge for 30 days from the date of final report)		
146	Court testimony by Regional Environmental Laboratory staff	To be determined case-by-case	
147	Mileage for appearance - per kilometre (actual)	$0.58	$0.58
	Miscellaneous		
148	Sub-contractor Fee	Subcontractor's Rate	Subcontractor's Rate
	Report re-issue Fees:		
149	- Current Year	$10.00	$10.00
150	- Previous 2 years	$25.00	$25.00
151	- Prior Archives	$100.00	$100.00
	Sample Treatment		
152	Chlorine quenching	$26.00	$26.00
153	Oil & Grease additional extraction	$26.00	$26.00
154	Shipping (Sample Containers)	Actual cost	Actual cost
155	Sample filtration if required	$26.00	$26.00

Regional Municipality of Durham

2023 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 consistently 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).

This report is being considered by Finance and Administration Committee and Council concurrently with the 2023 Business Plans and Budget for the Consolidate Water Supply and Sanitary Sewerage Systems report (Report #2022-F-22). The recommended user rates are based on operating costs, capital costs and financing as outlined in Report # 2022-F-22.

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

The proposed 2023 user rates must be approved in 2022 so they can be implemented with the first customer billings commencing early January 2023. 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.

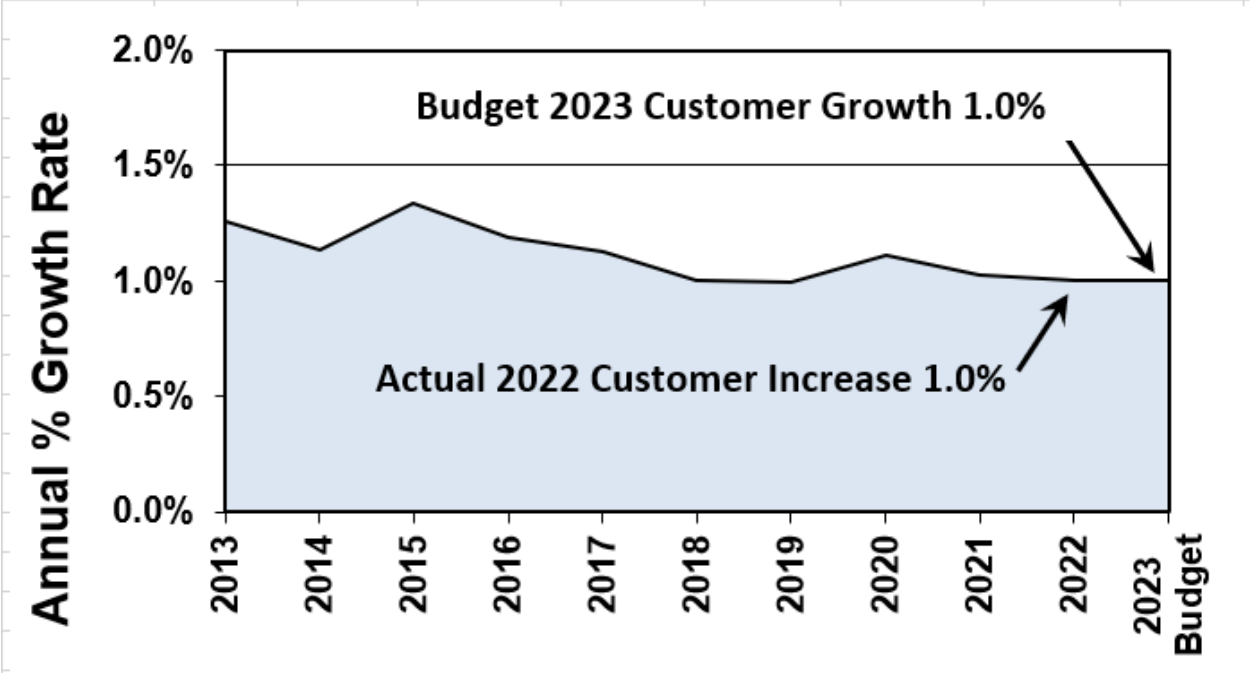
1.3 Public Notification Provided

The proposed 2023 water and sanitary sewer user rates, fees and related charges will be considered by the Finance and Administration Committee on December 13, 2022 and by Regional Council on December 21, 2022. Public notification of this schedule was provided in local newspapers throughout the Region on November 3rd, 2022 and November 24th, 2022. Notification was also posted on the Region’s website. This notice advises of the public of their 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 2013 to 2022 and Budget 2023 (**mid-year data**) is graphed in Exhibit 1. Mid-year figures are used for rate calculation purposes as they represent the "average" number of customers for the year.

Exhibit 1 - Annual Per Cent Growth in Water Customers (2013 to 2022 Actuals and 2023 Budget)



Annual water customer growth peaked at about 4.0 per cent in 2004. Since then, growth decreased to 1.0 per cent in 2018 and has remained around this level.

There were 183,119 water customers and 178,307 sanitary sewer customers in June 2022. 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 2023 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 growth rates as projected for the 2022 User Rates).

The actual water, sanitary sewer and fire line customer data from 2013 to 2022 and the projected 2023 budget are provided in Exhibit 2.

Exhibit 2 - Water & Sanitary Sewer Customers (2013 to 2022 Actuals and 2023 Budget)

	Water			Sewage			Fire Lines
		Increase Over Previous June			Increase Over Previous June		
Year	Total	Number	Percent	Total	Number	Percent	Total
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	181,340	1,842	1.0%	176,562	1,805	1.0%	1,988
2022	183,119	1,779	1.0%	178,307	1,745	1.0%	2,008
2023 Budget	***184,950***	***1,831***	***1.00%***	***180,179***	***1,872***	***1.05%***	***2,027***

The total number of residential and ICI (industrial, commercial and institutional) water customers are projected to increase by 1,831 in 2023 (sewer customers by 1,872).

The projected customer growth for 2023 is:

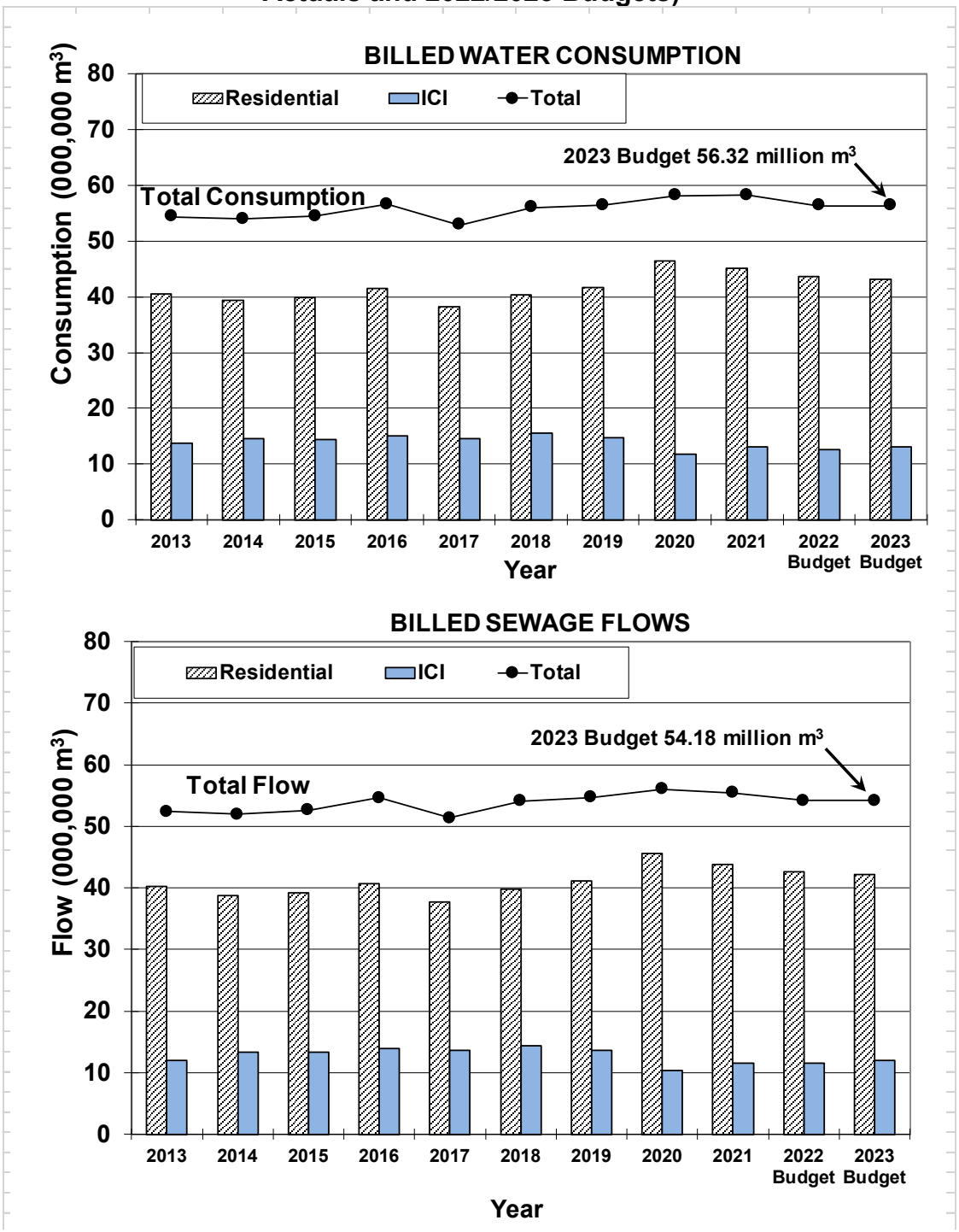
- **<u>Water:</u> increases by +1,831 customers (+1.00 per cent) to a total of 184,950 customers**
- **<u>Sanitary Sewer:</u> increases by +1,872 customers (1.05 per cent) to a total of 180,179**

3 Water Demand – Some Growth

3.1 Historical Consumption

Exhibit 3 graphs the 2013 to 2021 actual and 2022 and 2023 budgeted residential, ICI and total volumes billed to customers for water supply and sanitary sewerage. Additional information on the basis of the 2023 budget projections for consumption is provided in the following sections.

Exhibit 3 - Billed Water & Sanitary Sewer Volumes (2013 to 2021 Actuals and 2022/2023 Budgets)



3.2 Residential versus ICI Consumption Share

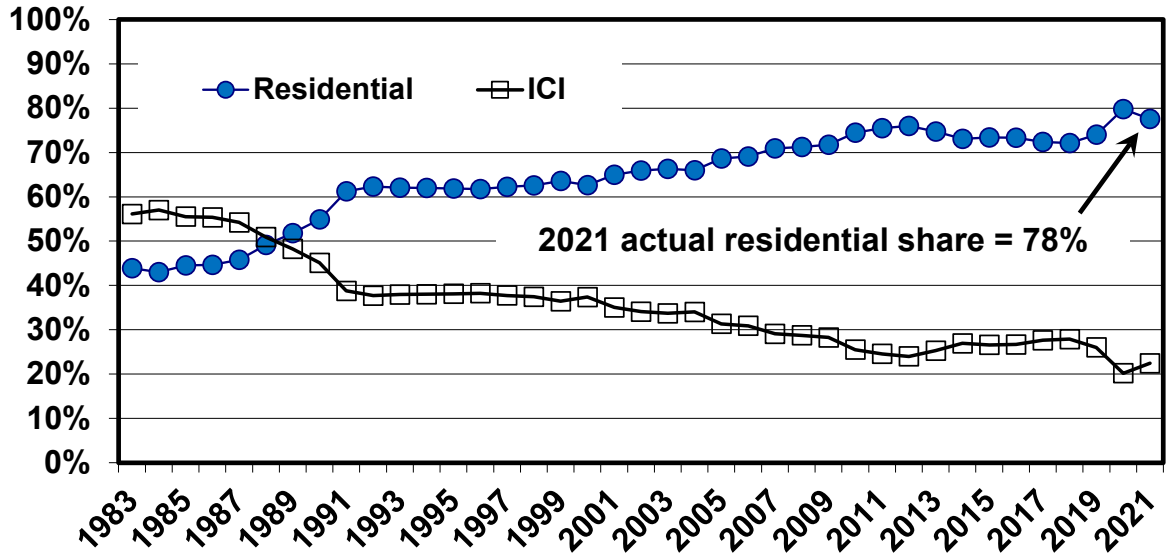
Prior to 2012 there was a steady increase in the share of consumption by residential customers and a corresponding decrease in the share of consumption by industrial/commercial/institution (ICI) customers. Residential usage grew from about a 44 per cent share in 1983 to a 76 per cent share in 2012. The 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. The shares remained fairly constant for several following years.

Residential share increased somewhat to 74% in 2019 with consumption reductions at General Motors and more significantly in 2020 to almost 80% as a result of many employees working from home due to the COVID-19 pandemic. Residential share has dropped off somewhat to 78% in 2021 as some residents moved back to the workplace.

Annual consumption share is illustrated in Exhibit 4.

Exhibit 4 - Residential versus ICI Water Billed Volume Share (1983 to 2021 Actual)



Consumption in the Region's three rate blocks (which are based on volume used) is broken down as follows:

- **1st block** (including all residential and ICI up to 45 m^3/month or 10,000 gallons/month) - Residential usage is billed at 1st block rates and these customers represent the majority of usage. Total 1st block consumption for all customers represented 82.6 per cent of all usage in 2021 (ICI 5.0 per cent + Residential 77.6 per cent).

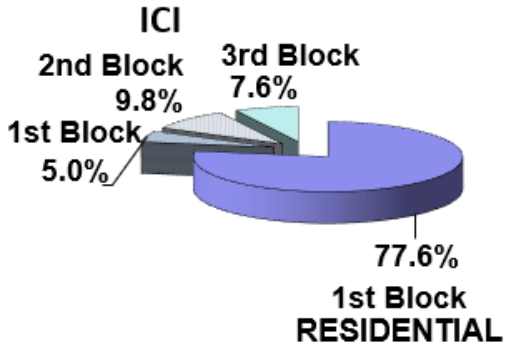
- **2nd block** (ICI 46 to 4,500 m^3/month or 10,001 to 1,000,000 gallons/month) – This segment's consumption increased to about 9.8 per cent of the total (from 9.4 per cent in 2021).

- **3rd block** (ICI over 4,500 m^3/month or 1,000,000 gallons/month) – Large user consumption share increased from about 5.8 per cent of total usage in 2020 to about 7.6 per cent in 2021.

All residential consumption is billed at 1st block rates. ICI water users, depending on usage volume, may enter the 2nd and 3rd rate blocks.

The distribution of actual 2021 consumption by block and customer class is illustrated in Exhibit 5.

Exhibit 5 - Water Consumption Share by Block (2021 Actual)



3.3 Residential Consumption – Return to More Normal Levels Budgeted

The Region tracks the average level of water usage per residential customer annually (i.e., cubic metres per customer) and, along with projected residential customer growth, uses this as a basis for projecting the total annual volume of residential water usage billed.

Note that individual residential customers include single family dwellings, duplexes, apartment buildings and condominium townhouses and consumption per residential customer represents a blend of the different categories.

Total residential consumption is made up of two components: day-to-day or "Base" usage plus extra "Seasonal" usage in the summer. Both are considered when making residential consumption projections.

- **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 – 2000 to 2018 - Although the number of residential customers continues to grow, Base (day-to-day) usage per customer had been decreasing from about 320 m^3/customer/year in 2000 to 219 m^3/customer/year in 2018. This steady drop in usage by residential customers tended to offset the impact on total residential consumption from the addition of new customers. The steady decrease in Base usage per customer up to 2018 is apparent in Exhibit 6 below.

2019 to 2021 - Contrary to historical expectations and trends, Base Usage per residential customer started increasing in 2019. In 2020 and 2021 Base Usage increased significantly with Base Usage reaching a peak of 250 m^3/customer/year in 2021. The 2020/2021 increases coincided with the shift to more individuals

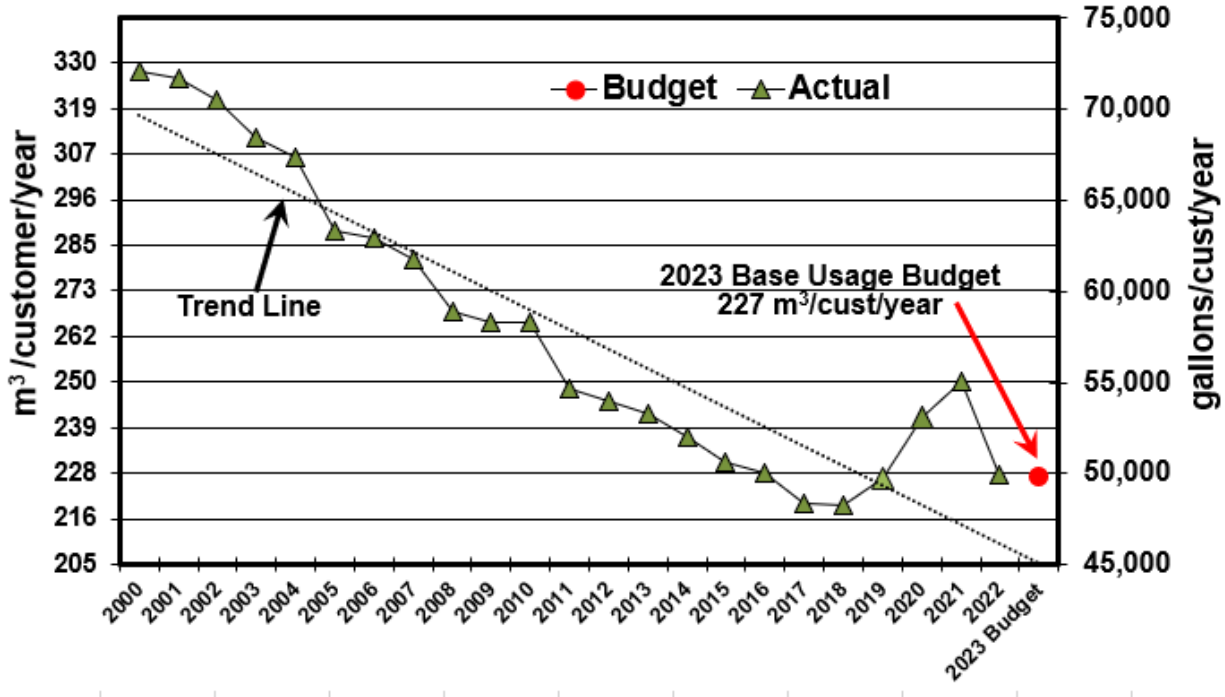
working and studying at home as a result of the COVID-19 pandemic.

2022 -When budgeting for 2022 it was expected that students and employees would not remain at home in the same numbers as 2021 and the high levels of Base Usage would not continue. Base Usage for 2022 was budgeted at 233 m^3/customer/day. Assumptions proved accurate as an analysis of actual 2022 residential consumption indicates a drop in Base Usage back to 227 m^3/customer/day and close to 2019 pre-pandemic levels.

2023 Budget - It is expected that Base Usage has now returned to more normal levels and in 2023 is likely to be similar to current (and 2019) levels. As a result, the 2023 Budget residential Base Usage level has been projected at the current actual level of 227 m^3/customer/day.

Historical 2000 to 2022 Base Usage and Budget 2023 are graphed below in Exhibit 6.

Exhibit 6 - Base Annual Residential Water Usage per Customer
(2000 to 2022 Actuals and 2023 Budget – Excludes seasonal usage)



Seasonal Usage - Seasonal consumption is 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 was budgeted at 6.5 m^3/customer/year, which lies in the bottom 30 per cent of summer usage levels, similar to a wet summer. For the 2021 budget seasonal usage was increased to 10 m^3/customer/year and for the 2022 budget it was further increased to 12 m^3/customer/year. For 2023 Budget it has been increased slightly to 13 m^3/customer/year, which is consistent with historical averages.

Total Usage – Total usage per residential customer (including base usage plus an allowance for seasonal usage) wasbudgeted at 245 m^3 (53,900 gallons) per year for 2022. For 2023 budgeting purposes, due to the projected decrease in base usage and an increase in seasonal usage per customer, total residential usage is budgeted at 240 m^3 (52,800 gallons) per residential customer.

	Per Customer		Total Annual	
Type of Usage	2022 Budget	2023 Budget	2022 Budget	2023 Budget
Cubic Metres				
Basic	233.0	227.0		
Seasonal Allowance	12.0	13.0		
Total	245.0	240.0	43,641,000	43,183,000
Gallons			(000)	(000)
Basic	51,260	49,940		
Seasonal Allowance	2,640	2,860		
Total	53,900	52,800	9,601,000	9,501,000

Based on the projected number of residential customers this is equivalent to total budgeted 2023 residential consumption of 43,183,000 m^3 (9,501,000,000 gallons).

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.

Historical Factors - The downward trend in residential **base usage** (day-to-day consumption) was 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 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

(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		2020	
	m3	gallons	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	n/a	n/a
Green Demonstration Project	161	35,420	155	34,100	143	31,460	146	32,050	160	35,160	157	34,590
GDP% versus Region Average	79%		74%		75%		75%		n/a		n/a	
Summer Precipitation	Wet		Very Dry		Average		Average		Wet		Average	

Annual 2015 to 2018 consumption data for the homes in the Demonstration Project have been compared with the average Regional consumption in detached single family dwellings (SFD). Consumption in the Demonstration Project homes averaged about 25 per cent less than the Regional SFD average (2019 & 2020 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 water use per customer as conservation measures continue to be adopted.

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 Increased Usage by Larger Customers

ICI consumption for the 2022 Budget and proposed 2023 Budget for water and sanitary sewer by consumption block are detailed below.

1st Block ICI – All ICI customers pay for at least some of their consumption at first block rates. About 24% of ICI consumption billings were at 1st block rates in 2021. It is projected that by year-end 2022 first block ICI consumption will be close to budget levels. 2022 first block consumption to date is below historic levels, but similar to 2020. Given the similarity, the 2022 budget consumption is used for 2023.

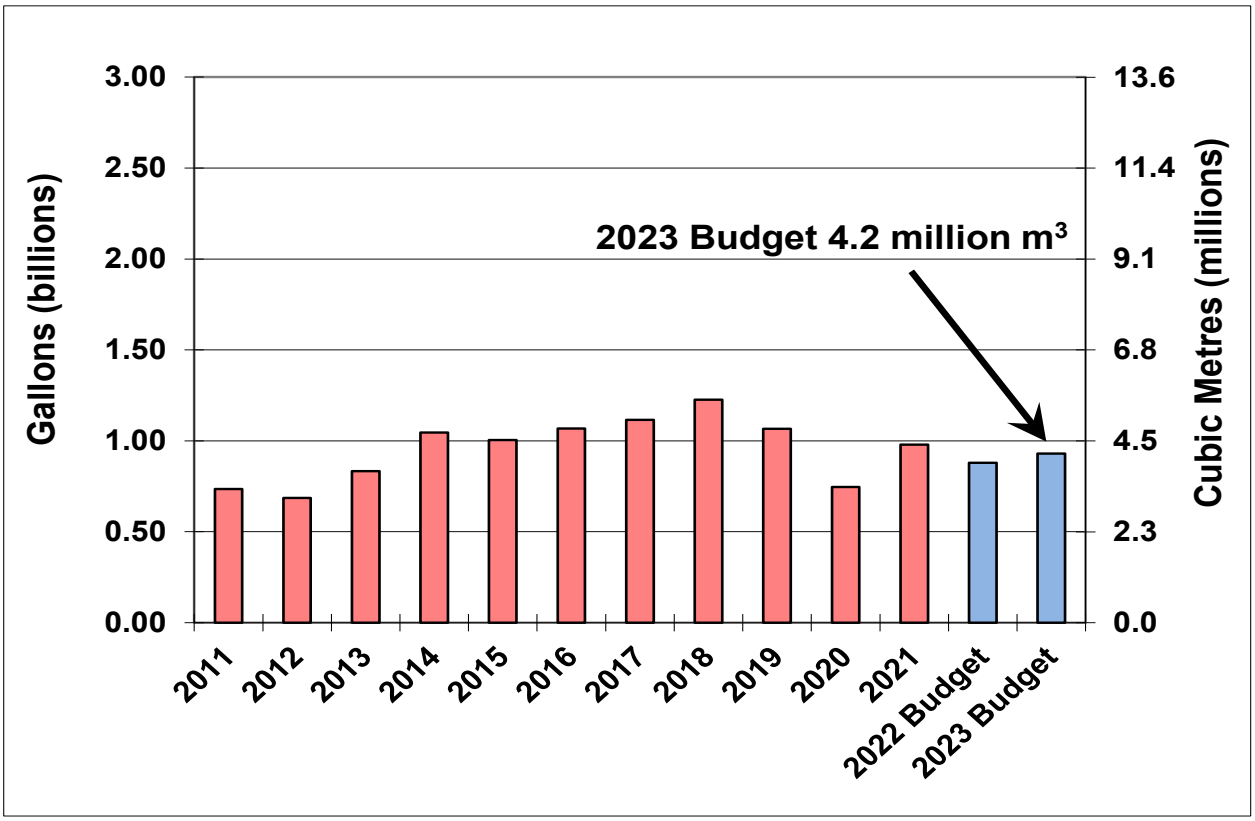
2nd Block ICI – Many ICI customers use enough water that at least some of their consumption is billed at 2nd block rates. In 2021 billings at 2nd block rates represented 47% of ICI consumption billings. 2nd block consumption to date is trending higher than budget. It is projected that in 2023 2nd block consumption will be higher than 2022 budget levels (water +4.0%; sewer +4.6%).

3rd Block ICI – There were 27 customers which reached 3rd block rates for at least one billing in 2021 of which 15 were industrial, five utilities, five hospitals and two community facilities.

3rd block consumption is showing an even more robust percentage increase in 2022 to date than the 2nd block. A significant factor is increased consumption by GM with production starting in late 2021 (vehicle production was shut down at the end of 2019).

2011 to 2021 actuals along with 2022 and 2023 budgeted 3rd block consumption is graphed in Exhibit 7. 2023 Budget 3rd block consumption levels are projected to increase versus 2022 Budget levels (water +5.7%; sewer +6.3%).

Exhibit 7 - 3rd Block Water Consumption (2010 to 2020 Actuals and 2022 and 2023 Budget)



Total ICI – Based on the foregoing 2023 Budget ICI consumption is projected as follows (Exhibit 8).

Exhibit 8 - ICI Water & Sewer Consumption Summary (2022 & 2023 Budget)

	Water		Sewer	
Type of Usage	2022 Budget	2023 Budget	2022 Budget	2023 Budget
Cubic Metres				
1st Block	3,000,000	3,000,000	2,909,000	2,909,000
2nd Block	5,682,000	5,909,000	4,955,000	5,182,000
3rd Block	4,000,000	4,227,000	3,636,000	3,864,000
Total	12,682,000	13,136,000	11,500,000	11,955,000
Gallons (000)				
1st Block	660,000	660,000	640,000	640,000
2nd Block	1,250,000	1,300,000	1,090,000	1,140,000
3rd Block	880,000	930,000	800,000	850,000
Total	2,790,000	2,890,000	2,530,000	2,630,000

3.5 Total Consumption

Actual Consumption/Flow for 2017 to 2021 and Budget for 2022 and 2023 are shown in Exhibit 9.

Exhibit 9 - Water Consumption & Sanitary Sewer Flows (2017 to 2021 Actuals and 2022/2023 Budgets)

	Water			Sewage		
Year	**Residential**	**ICI**	**Total**	**Residential**	**ICI**	**Total**
Cubic Metres*						
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
Change	*11.2%*	*-19.9%*	*3.1%*	*10.9%*	*-23.3%*	*2.4%*
2020 Actual	46,390,988	11,740,457	58,131,445	45,626,620	10,439,394	56,066,014
Change	*-2.7%*	*11.2%*	*0.1%*	*-4.0%*	*11.1%*	*-1.2%*
2021 Actual	45,132,878	13,055,305	58,188,183	43,813,954	11,600,261	55,414,214
2022 Budget	**43,641,000**	**12,682,000**	**56,323,000**	**42,677,000**	**11,500,000**	**54,177,000**
Change	***-1.0%***	***3.6%***	***0.0%***	***-1.1%***	***4.0%***	***0.0%***
2023 Budget	**43,183,000**	**13,136,000**	**56,319,000**	**42,227,000**	**11,955,000**	**54,182,000**
Gallons (000)*						
2022 Budget	**9,601,000**	**2,790,000**	**12,391,000**	**9,389,000**	**2,530,000**	**11,919,000**
Change	***-1.0%***	***3.6%***	***0.0%***	***-1.1%***	***4.0%***	***0.0%***
2023 Budget	**9,501,000**	**2,890,000**	**12,391,000**	**9,290,000**	**2,630,000**	**11,920,000**
*** Note: 1 cubic metre = 220 Imperial gallons OR 1,000 gallons = 4.54 cubic metres**						

A projected decrease in residential consumption is offset by projected ICI increases with the combined result that 2022 and 2023 total budget consumptions are about equal for both water and for sewer.

The 2023 water consumption and sanitary sewer flow projections are based on:

- Number of customers increasing (water +1.0%; sewer +1.05%);
- Total residential usage decreasing (water -1.0%; sewer -1.1%);
- Usage by ICI customers increasing (water +3.6%; sewer +4.0%).

Taking the foregoing into account, 2023 volumes billed is budgeted as follows:

- Water consumption at 56,319,000 cubic metres (56,319 ML)
- Sewer flow at 54,182,000 cubic metres (54,182 ML)

4 Recommended 2023 Water and Sanitary Sewer User Rates

The recommended 3.6 per cent water user rate Increase (Attachment #1) and 5.0 per cent sanitary sewer user rate increase (Attachment #2) are needed to finance the proposed 2023 Consolidated Water Supply and Sanitary Sewerage Systems Business Plans and Budget.

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 supply 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, reserves, 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 supply and sanitary sewer system costs.

4.2 User Rate Revenue Requirements

The proposed preliminary 2023 water and sanitary sewerage net expenditure budgets require a water rate increase of 3.6 per cent and a sanitary sewer rate increase of 5.0 per cent (average residential customer combined increase 4.3 per cent).

A breakdown of the proposed preliminary 2023 budget expenditures and revenues, including user rate revenue requirements, is summarized in Exhibit 10 for water supply and Exhibit 11 for sanitary sewerage.

Additional information on the 2023 Business Plans and Budget is available in Report #2022-F-22: 2023 Business Plans and Budget and Nine-Year Capital Forecast for the Consolidated Water Supply and Sanitary Sewerage Systems.

4.2.1 Water Supply System

The proposed preliminary 2023 user rate supported water supply system revenue required is summarized in Exhibit 10. The proposed 2023 water system user rate revenue requirement of $122.82 million represents an increase of $4.62 million or 3.9% over 2022 budget levels, and is generated by a combination of:

- **User Rate Increase** - The proposed 3.6 per cent water rate increase generates $4.27 million in additional revenues;
- **Customer Growth** - Customer growth adds $0.44 million, offsetting a rate increase by 0.4 per cent; and
- **Consumption** – Although total consumption is projected to be similar in 2023 to 2022, the fact that Residential consumption component is billed at the highest (first block) rate and is projected to decrease results in a net decrease in total consumption-related revenue. The projected decrease in

residential consumption-related revenue is estimated to result in the need for an additional $0.08 million which accounts for about 0.1 per cent of the increase in revenues requirement.

4.2.2 Sanitary Sewerage System

The proposed preliminary 2023 user rate supported sanitary sewerage system revenue required is summarized in Exhibit 11. The proposed 2023 sanitary sewer system user rate revenue requirement of $123.44 million represents an increase of $5.94 million or 5.1% compared to 2022 budget levels, and is generated by a combination of:

- **User Rate Increase** - The proposed 5.0 per cent sanitary sewer rate increase generates an additional $5.94 million in revenue;

- **Customer Growth** - Customer growth adds $0.37 million, offsetting the rate increase by 0.4 per cent; and,

- **Consumption** – The situation described above related to water consumption revenues is even more pronounced in the sewer system since a higher proportion of sewer revenues is consumption-related. The projected decrease in residential consumption-related revenue is estimated to result in the need for an additional $0.31 million which accounts for about 0.3 per cent of the increase in revenues requirement.

Exhibit 10 - Revenues Required from 2023 Water User Rates

Budget Category	2022 Approved Budget ($)	2023 Proposed Preliminary Budget ($)	Increase/(Decrease) ($)	Increase/(Decrease) (%)
A) Operations (net costs)				
Operations, Maintenance & Administration	73,879,580	77,149,398		
Less Other Revenues	(3,339,635)	(3,622,713)		
Operations from Current User Rates	**70,539,945**	**73,526,685**	**2,986,740**	**4.2%**
B) Tangible Capital Assets (gross costs)				
Construction of Municipal Services	120,103,999	120,878,270		
Operations Capital	6,812,818	23,319,463		
Total Capital Program	126,916,817	144,197,733		
Less Financing & Recoveries Applied				
- Development Charge Reserve Fund - Residential	(63,792,982)	(68,205,444)		
- Development Charge Reserve Fund - Commercial	(2,420,268)	(2,461,628)		
- Development Charge Reserve Fund - Industrial	(1,607,001)	-		
- Debenture Financing	-	(15,666,667)		
- Other Financing	(66,668)	-		
Total Non User Rate Financing	(67,886,919)	(86,333,739)		
Capital Program from User Rates Revenue Sources	59,029,898	57,863,994		
Less User Rate Financing (Debt/Reserves)				
- Asset Management Reserve Fund	(5,622,700)	(5,763,270)		
- Servicing of Employment Lands Reserve	(683,600)	-		
- REL Equipment Replacement Reserve	(63,000)	(40,000)		
- Treatment Plant/Rate Stabilization Reserve Fund	(5,881,966)	(3,643,816)		
Total User Rate Financing	(12,251,266)	(9,447,086)		
Current User Rates Capital Program/Contributions	**46,778,632**	**48,416,908**	**1,638,276**	**3.5%**
C) Debt				
Expenditure	1,311,799	1,311,732		
Less Development Charge Reserve Funds Applied	(437,092)	(437,069)		
Debt from User Rates	**874,707**	**874,663**	**-44**	**0.0%**
D) Current User Rate Revenue Requirements				
Total Expenditures	202,108,196	222,658,863	20,550,667	
Less Total Revenues & Recoveries	(83,914,912)	(99,840,607)	(15,925,695)	
Total Current User Rate Revenues Required	**118,193,284**	**122,818,256**	**4,624,972**	**3.9%**
Equivalent Water User Rate Increase		**3.6%**		
E) Impact of Changes in Customers & Consumption on Rate Increase				
Factors Affecting Revenues		**Revenue Change ($)**	**Rate Increase**	
Expenditures - Increased revenue needed		4,624,972	3.9%	
Consumption - Residential drop increases rate needed		82,700	0.1%	
Customers - Growth reduces revenue needed		(439,000)	-0.4%	
Added Revenue From Rate Increase		**4,268,672**	**3.6%**	

Exhibit 11 - Revenues Required from 2023 Sanitary Sewer User Rates

Budget Category	2022 Approved Budget ($)	2023 Proposed Preliminary Budget ($)	Increase/(Decrease) ($)	Increase/(Decrease) (%)
A) Operations (net costs)				
Operations, Maintenance & Administration	115,177,675	125,879,369		
Less Other Revenues	(37,019,830)	(43,836,528)		
Operations from Current User Rates	**78,157,845**	**82,042,841**	**3,884,996**	**5.0%**
B) Tangible Capital Assets (gross cost)				
Construction of Municipal Services	138,660,200	126,309,236		
Operations Capital	4,803,728	18,483,877		
York Durham Capital	4,101,000	2,710,000		
Total Capital Program	147,564,928	147,503,113		
Less Financing & Recoveries Applied				
- Development Charge Reserve Fund - Residential	(25,702,792)	(36,202,813)		
- Development Charge Reserve Fund - Commercial	(2,340,749)	(2,609,080)		
- Development Charge Reserve Fund - Industrial	(191,900)	(1,874,400)		
- Debenture Financing	-	(15,666,668)		
- Other Financing	(63,414,660)	(40,690,977)		
Total Non User Rate Financing	(91,650,101)	(97,043,938)		
Capital Program from User Rates Revenue Sources	55,914,827	50,459,175		
Less User Rate Financing				
- User Rate Debenture	-	-		
- Asset Management Reserve Fund	(9,275,200)	(11,107,100)		
- Servicing of Employment Lands Reserve	(509,200)	-		
- REL Equipment Replacement Reserve	(750,000)	(475,000)		
- Equipment Replacement Reserve Fund	(44,250)	(40,000)		
- Treatment Plant/Rate Stabilization Reserve Fund	(9,825,633)	(442,237)		
Total User Rate Financing	(20,404,283)	(12,064,337)		
Current User Rates Capital Program/Contributions	**35,510,544**	**38,394,838**	**2,884,294**	**8.1%**
C) Debt				
Expenditures	13,027,552	12,093,963		
Less Development Charge Reserve Fund	(9,195,572)	(9,089,060)		
Net Debt from User Rates	**3,831,980**	**3,004,903**	**-827,077**	**-21.6%**
D) Current User Rate Revenue Requirements				
Total Expenditures	275,770,155	285,476,445	9,706,290	
Less Total Revenues & Recoveries	(158,269,786)	(162,033,863)	(3,764,077)	
Total Current User Rate Revenues Required	**117,500,369**	**123,442,582**	**5,942,213**	**5.1%**
Equivalent Sewer User Rate Increase		**5.0%**		
E) Impact of Changes in Customers & Consumption on Rate Increase				
Factors Affecting Revenues		**Revenue Change ($)**	**Rate Increase**	
Expenditures - Increased revenue needed		5,942,213	5.1%	
Consumption - Residential drop increases rate needed		307,800	0.3%	
Customers - Growth reduces revenue needed		(374,500)	-0.4%	
Added Revenue From Rate Increase		**5,875,513**	**5.0%**	

4.3 Recommended Water Rates (Attachment #1) and Recommended Sanitary Sewer Rates (Attachment #2)

Based on the foregoing projections of customers (Section 2), consumption (Section 3) and budgets (Section 4 above), as summarized in Exhibit 12, it is recommended that water rates be increased by 3.6 per cent and sewer rates by 5.0 per cent.

Exhibit 12 - Projected Data Used to Develop 2023 Water & Sanitary Sewer User Rates

Parameter	Water	Sanitary Sewage
Customers		
- Number	184,950	180,179
- Growth from 2022 Actual	1.00%	1.05%
Consumption/Flow		
- Cubic metres (millions)	56.32	54.18
- Change from 2022 Budget	0.0%	0.0%
User Rate Revenue Requirements		
- Total Expenditures	$122,818,256	$123,442,582
- Increase from 2022 Budget	3.9%	5.1%
User Rate Change Required		
- Per cent	**3.6%**	**5.0%**
- Impact on Revenue of 1% Rate Change	**$1,186,000**	**$1,175,000**

The recommended 2023 water rates are in Attachment #1 and sewer rates in Attachment #2 to this report.

The user rates are expressed on a monthly basis in Attachment #1 and Attachment #2, however, service charges for each bill are based on the actual number of days each customer's bill covers between meter reading dates. Customers' billing periods may vary, so daily service charge rates are applied. The daily rates are equivalent to the approved monthly rates, are calculated as shown in the adjacent table (using the 2022 standard meter service charge as an example). The service charge may vary on individual bills depending on the actual number of days covered by the bill, but over time the charges are equivalent to the approved monthly rates.

Calculation of Daily Equivalent Water Service Charge		
Monthly Water Service Charge	$19.29	per month
Months per Year	12	months
Annual Equivalent SC	$231.48	per year
Days per Year	365	days
Daily Equivalent Service Charge	$0.6342	per day

5 Other Fees & Charges Recommendations

5.1 Recommended 3.6 per cent Raw Water Rate Increase (Attachment #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, older, raw water system which supplied two customers located on South Blair Street. This system is no longer in operation. One of the customers switched to potable water in 2018 and the other in late 2019. This leaves Gerdau Ameristeel Corporation as the only remaining raw water customer, albeit historically the largest and the only raw water customer served by the more recently built system. The Region may consider additional raw water customer(s) in the future.

The raw water sales from 2019 to 2021 actuals, 2022 projected and 2023 Budget are provided in Exhibit 13:

Exhibit 13 - Raw Water Consumption (m^3)

Gerdau Ameristeel				
Actual 2019	Actual 2020	Actual 2021	Projected 2022	**Budget 2023**
597,084	738,440	619,280	605,950	**600,000**

Note (1) Volume higher due to timing of bills with new billing system (i.e. billed sooner after readings taken).

Consumption by Gerdau has remained fairly constant in recent years at about 600,000 m^3 annually. This is the volume budgeted for 2023.

Note that the 2020 billing of 738,440 m^3 actually covers more than a year as the new billing system, implemented in late 2019, reduced the time between meter reading and billing, causing a temporary increase in the billings reported in 2020.

The volume of raw water supplied is metered and customer(s) are charged for this volume based on the approved raw water volumetric rate.

Operating costs related to the raw water system are fully recovered by means of the raw water rate, which is reviewed and updated annually as required. The raw water volumetric rate is included in Attachment #1. On an ongoing basis the raw water rate fully recovers the costs associated with operating the raw water system, including pumping and main maintenance.

It is recommended that the 2023 raw water rate be adjusted in tandem with the potable water rate increase of 3.6 per cent. The recommended raw water rate is shown in Attachment #1 – Recommended 2023 Water User Rates.

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

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.

- As directed by Regional Council, Works staff will be providing an update on this system at a Works Committee meeting in early 2023.

The recommended charges for the Sun Valley Heights Homeowners Co-operative Water System are provided in Attachment #3 – Recommended 2023 Water Charge for the Sun Valley Heights Homeowners Co-operative Water System.

- The charge is based on actual Sun Valley Heights system costs;

- The 2023 costs are projected at $30,425; and

- It is recommended that the 2023 rate be $447/ quarter ($149 monthly; $1,788 annually), an increase of $3.00 or 0.7 per cent from the 2022 rate.

5.3 Recommended Miscellaneous Fees & Charges (Attachment #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 2022 (current) and 2023 (recommended) are set out in Attachment #4 – Recommended 2023 Water & Sanitary Sewer Systems Miscellaneous Fees & Charges of this report.

The fees and charges are based on tracking actual costs over time. For 2023, the following change is recommended (bolded in the Attachment):

- **Item 38** – **Fire Flow Tests** – The Region will carry out Fire Flow Tests on hydrants upon request for the fees specified in Item 38. Such tests may be requested for insurance purposes. However, going forward the Region will no longer offer this service during winter months (November 1 to April 30) due to problems that may arise during freezing temperatures.

5.4 Recommended Regional Environmental Laboratory Charges (Attachment #5)

The Regional Environmental Laboratory (Regional Lab) is located at the Duffin Creek Water Pollution Control Plant. Durham Region shares the ownership of the Regional Lab with the Region of York. It is operated by Durham Region. The Regional Lab has the capability of carrying out a wide variety of tests and analyses.

The existing 2022 and recommended 2023 laboratory fees/charges are set out in Attachment #56. The objective of the fees/charges is to recover the cost of operating the Regional Lab commensurate with the cost of carrying out the various tests. Attachment #5 lists 155 tests. No changes are recommended to the existing 2022 fees for 2023. The Lab Fees are currently undergoing a review which will help inform 2024 fee levels.

6 Customer Impact

6.1 User Rate Impact on Customers of Various Sizes - Summary

Water and sewer charges to various sized customers are provided in Exhibit 14.

Exhibit 14 - Rates Impact on Customers of Various Sizes

								Water Rate Increase =				**3.6%**
								Sewer Rate Increase =				**5.0%**
								Average Residential Combined Increase =				**4.3%**
Customer Category			**2022 Billing**			**2023 Billing**			**Increase**			
Gallons/yr	**m^3/year**	**Meter Size**	**Water**	**Sewage**	**Total**	**Water**	**Sewage**	**Total**	**Water**	**Sewage**	**Total**	**%**
			Quarterly Billings ($/qtr)									
20,000	91	Standard Meter	83.96	66.40	150.36	86.97	69.73	156.70	3.01	3.33	6.34	4.2
52,800	**240**	**Avg Std Meter**	**126.73**	**138.15**	**264.88**	**131.29**	**145.07**	**276.36**	**4.56**	**6.92**	**11.48**	**4.3**
60,000	273	Flat Rate	136.13	153.90	290.03	141.02	161.61	302.63	4.89	7.71	12.60	4.3
100,000	455	Standard Meter	188.31	241.41	429.72	195.06	253.50	448.56	6.75	12.09	18.84	4.4
			Bimonthly Billings ($ bimonthly)									
100,000	455	Standard Meter	125.54	160.94	286.48	130.04	169.00	299.04	4.50	8.06	12.56	4.4
200,000	909	Standard Meter	423.94	677.76	1101.70	439.20	711.68	1150.88	15.26	33.92	49.18	4.5
5 million	22,730	2" Meter	4,074	6,452	10,526	4,220	6,776	10,996	146	324	470	4.5
50 million	227,270	4" Meter	35,944	56,426	92,370	37,242	59,250	96,492	1,298	2,824	4,122	4.5
150 million	681,820	6" Meter	104,910	164,292	269,202	108,696	172,516	281,212	3,786	8,224	12,010	4.5

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”). Note that the billings customers receive are calculated based

on actual consumption as registered on customers' water meters and number of days represented by each bill (which may vary from bill to bill depending on dates of meter readings).

6.2 User Rate Impact on Average Residential & Small ICI Customer

6.2.1 Impact of Recommended 2023 Rates versus 2022 Rates

The impact on a typical residential customer of the proposed 2023 water and sanitary sewer user rate charges are shown below in Exhibit 15.

Exhibit 15 - Impact of Proposed Water and Sanitary Sewer User Rate Increases on an Average Residential / Small ICI Customer

	Billings		Increase	
	2022 ($)	2023 Proposed ($)	($)	(%)
Based on 240 m^3/yr (52,800 gal/year) Consumption				
Water	126.73	131.29	4.56	3.6%
Sewage	138.15	145.07	6.92	5.0%
Total ($/quarter)	264.88	276.36	11.48	4.3%
Annual Billing ($/year)	1,059.52	1,105.44	45.92	4.3%

A residential customer who used the same annual average residential per customer consumption of 240 m^3 (52,800 gallons) in both 2022 and 2023 would have a bill increase of 4.3 per cent. This equates to an increase of $11.48 quarterly (residential customers are billed quarterly) or $45.92 annually.

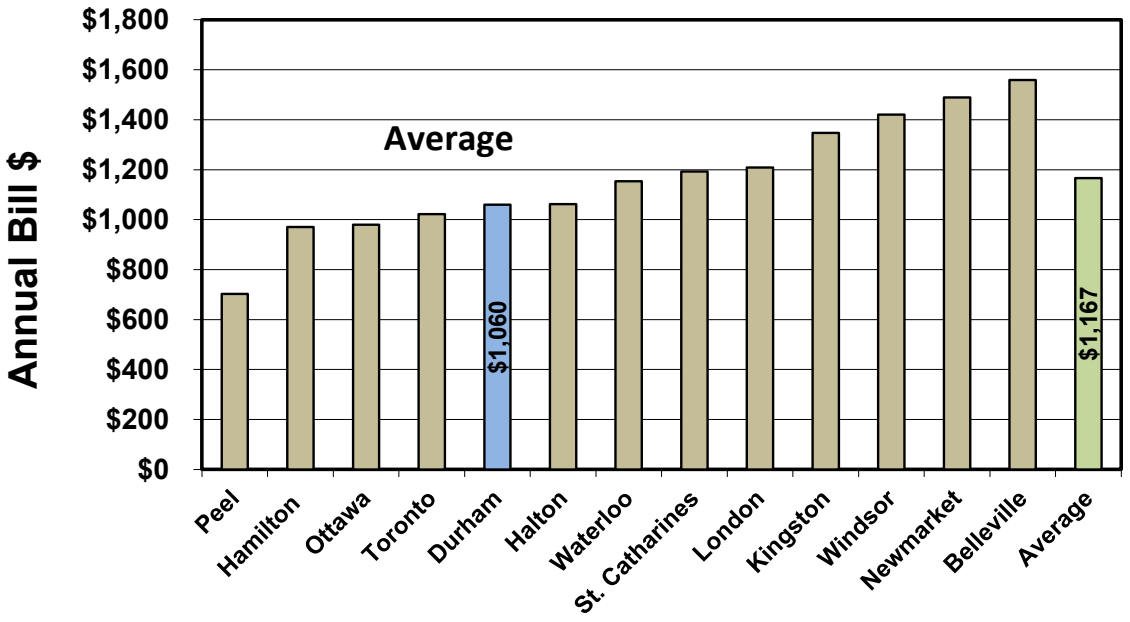
6.2.2 Charges Compared with Other Municipalities

The 2022 water and sewer rates charged in a total of 12 other large municipalities were surveyed along with 7 nearby neighbouring municipalities. Annual water/sewer bills in each municipality were calculated for a residential customer using 240 m^3/year (52,800 gallons/year). This represents the projected usage by a typical 2023 Durham residential customer.

Large Municipalities - Most of the 13 larger municipalities, like Durham, have sole responsibility for water and sanitary sewer. Three municipalities including the City of Waterloo (in Waterloo Region), the Town of Newmarket (in York Region) and the City of 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.

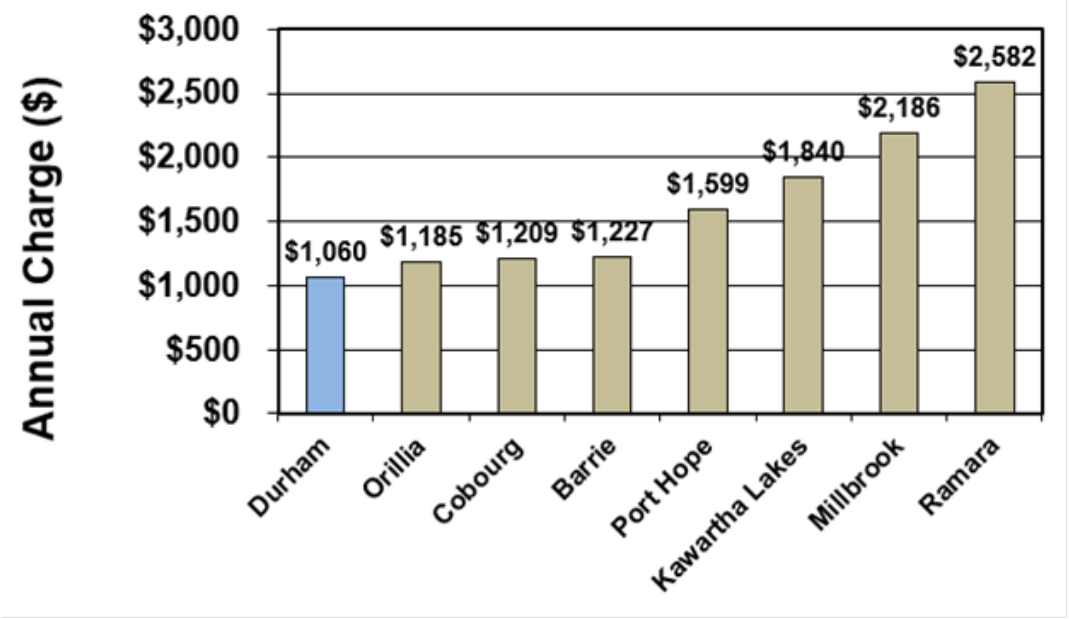
As illustrated in Exhibit 16, Durham is the fifth lowest out of the 13 in the survey. The overall average 2022 combined water and sanitary sewer bill for 240 m^3 (52,800 gallons) annual consumption for the 13 surveyed municipalities is $1,167 per year compared to $1,060 in Durham.

Exhibit 16 - Comparative 2022 Residential Water/Sanitary Sewer Charges (240 m^3/year) Large Municipalities



Neighbouring Municipalities - Typical 2022 charges to a residential customer have also been calculated for seven neighbouring communities - see Exhibit 17.

Exhibit 17 - Comparative 2022 Residential Water/Sanitary Sewer Charges (240 m^3/yr) Neighbouring Municipalities

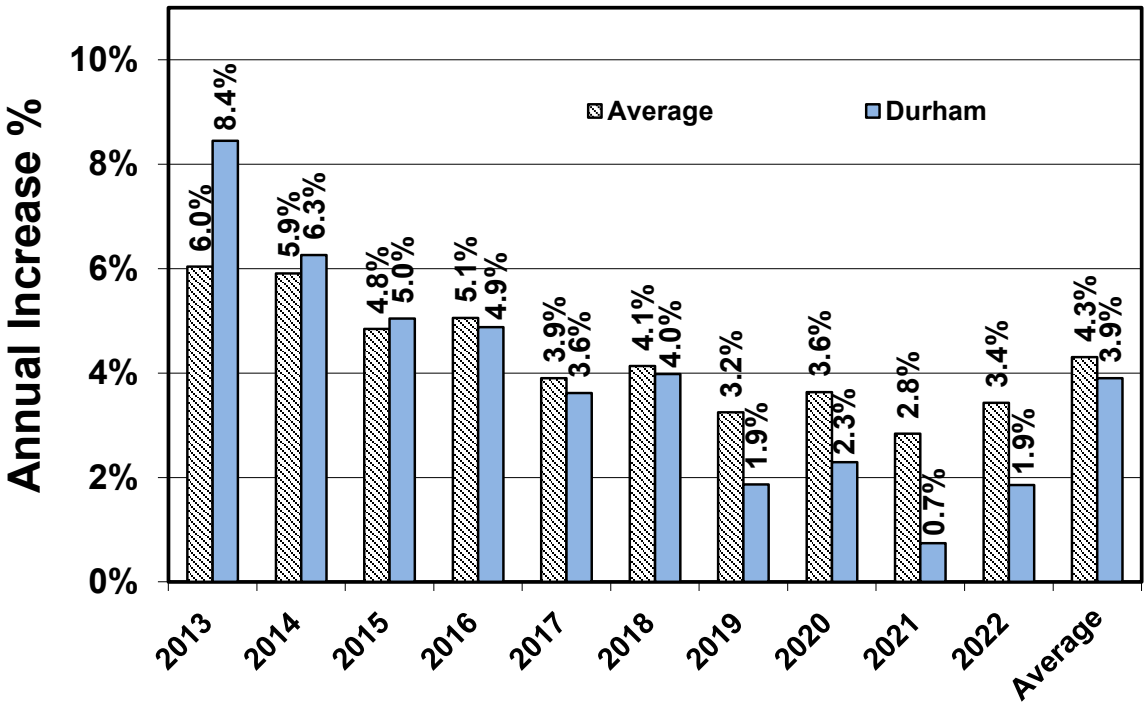


Durham is at the low end of user rate charges. Comparisons are sometimes difficult because of the use of the property tax to recover some costs in other municipalities. For example, Cobourg recovers some sanitary sewer costs from property taxes.

6.2.3 Average Annual Rate Increases Over Past 10 Years in Larger Municipalities Compared with Durham

Average water and sanitary sewer rate increases faced by customers using 240 m^3/year (52,800 gallons) in the 12 other 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.

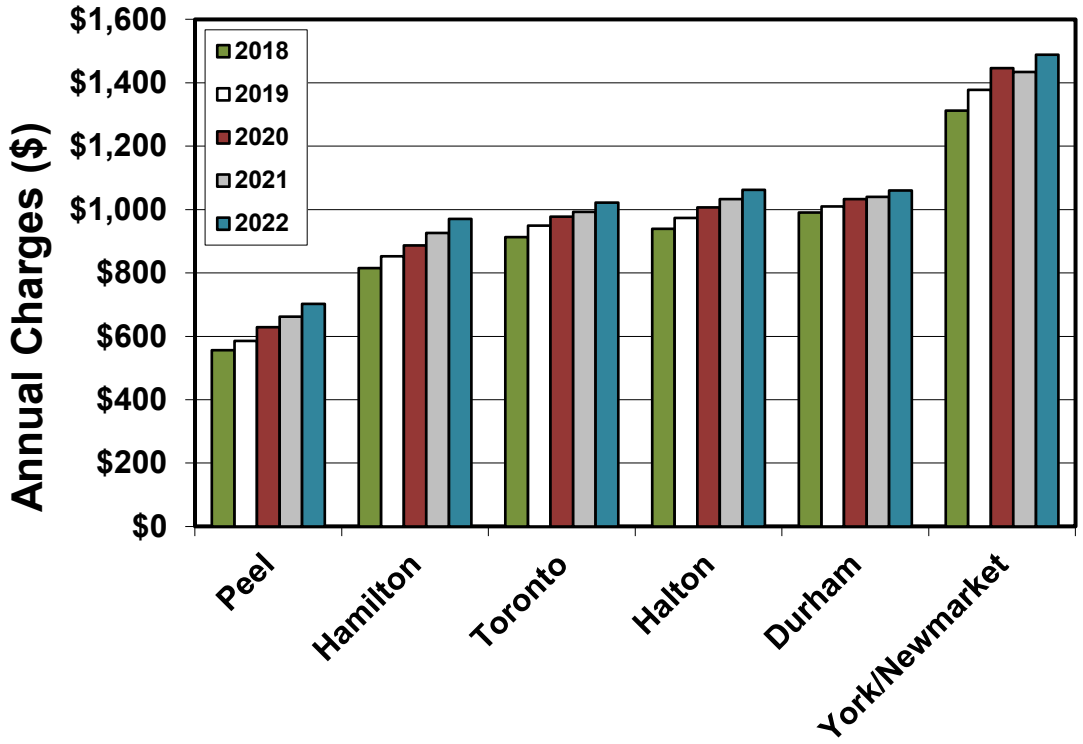
Exhibit 18 - Comparative 2013 to 2022 Residential Water/Sanitary Sewer Bill Increases Large Municipalities (240 m^3/year)



The average annual combined water and sanitary sewer bill increase (240 m^3/year usage) for all the municipalities was approximately 4.3 per cent for the 10-year period. Durham's average was approximately 3.9 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 2018 to 2022 Residential Water/Sanitary Sewer Charges GTA (240 m^3/year)



Durham is about average in terms of level of changes in this group. One feature it shares with York Region (Newmarket) is the presence of smaller local systems that are served.

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.

Population served and geographic concentration of water and sewer systems is a factor. 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 following observations are made regarding the 12 other larger Ontario municipalities surveyed (see Exhibit 16 and Exhibit 23):

- 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 the distribution of water and collection of sanitary sewer from its customers. Water supply and wastewater treatment are provided by York Region.

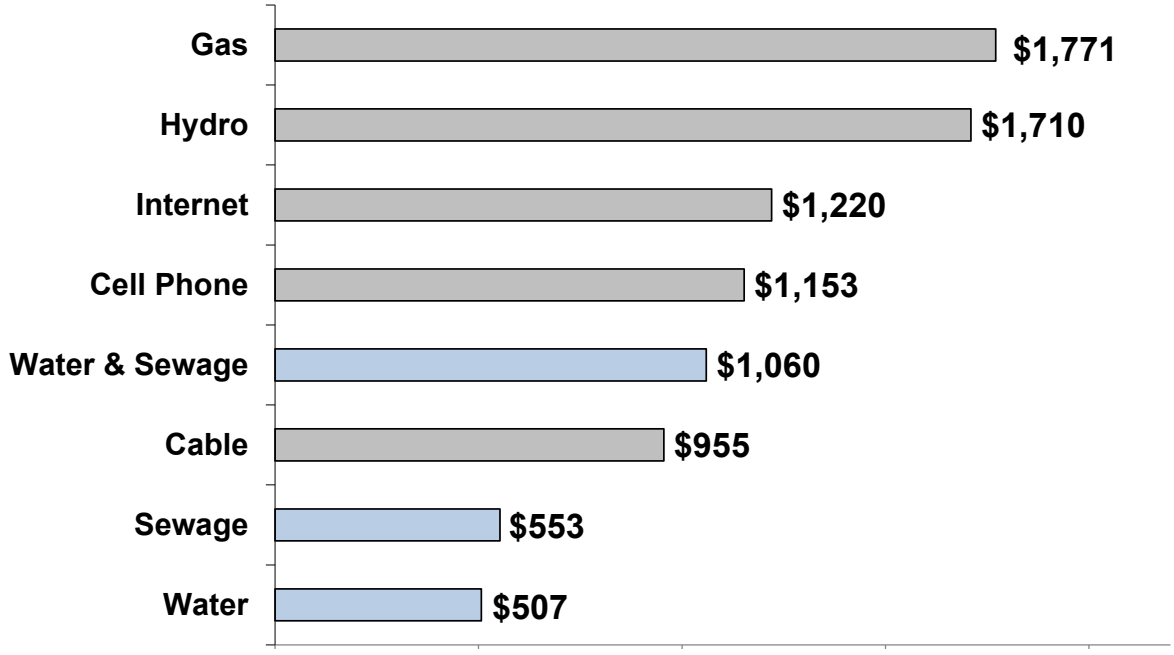
6.2.4 Durham's Average Residential Water & Sanitary Sewer Charges are Much Less Than Typical Hydro, Gas, Telephone or Cable Television Services

Information was gathered on local residential electricity, natural gas, cable television, high speed internet, and cellular phone 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 landline 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 2022 annual residential utility charges in Durham (Oshawa rates used) are graphed in Exhibit 20.

Exhibit 20 - Typical Durham Residential Utility Charges 2022



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 2022

Utility	Basis of Comparison	Annual Bill ($)	% of Annual Utility Bills
Natural Gas	Home & hot water heating	$1,771	22.5%
Hydro	Cooling, appliances, lighting, etc.	$1,710	21.7%
Internet	One level above basic - 50 Mbps	$1,220	15.5%
Cell Phone	Basic service with long distance package	$1,153	14.7%
Cable	Basic package – no movies	$955	12.1%
Sewage	Average residential use - 240 m3/year	$553	7.0%
Water	Average residential use - 240 m3/year	$507	6.5%
	Total	$7,869	100.0%

The total combined water and sanitary sewer billing for this residential customer represents only about 13.5 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.

6.2.5 Affordability

Although in comparative terms, Durham's average residential water and sanitary sewer charges compare favourably with other municipalities and utilities, they could still be challenging for some. 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.

6.3 User Rate Impact on 25 Largest Customers

6.3.1 Recommended 2023 User Rates versus 2022 Rates

Using actual 2021 consumption levels, the impacts on the Region's 25 largest customers of the recommended 2023 user rates, compared with existing 2022 rates, are provided in Exhibit 22.

Exhibit 22 - Impact of Proposed 2023 Water and Sanitary Sewer User Rate Increases on 25 Largest Accounts (Using 2021 Actual Consumption Data - $/year)

Rank	2021		2022			2023			Combined Increase	
	(m^3)	(000 gal)	Water	Sewage	TOTAL	Water	Sewage	TOTAL		
			($)	($)	($)	($)	($)	($)	$	%
1	2,482,310	546,110	2,236,320	3,549,380	5,785,700	2,317,030	3,727,060	6,044,090	258,390	4.5%
2	364,170	80,120	338,350	533,490	871,840	350,560	560,190	910,750	38,910	4.5%
3	310,830	68,380	290,530	457,510	748,040	301,010	480,410	781,420	33,380	4.5%
4	283,660	62,410	266,210	255,360	521,570	275,820	268,140	543,960	22,390	4.3%
5	278,300	61,230	261,410	411,230	672,640	270,840	431,810	702,650	30,010	4.5%
6	212,470	46,740	202,390	317,450	519,840	209,690	333,340	543,030	23,190	4.5%
7	170,920	37,600	165,160	258,300	423,460	171,120	271,230	442,350	18,890	4.5%
8	168,110	36,980	162,640	160,370	323,010	168,510	168,400	336,910	13,900	4.3%
9	156,540	34,440	152,290	237,850	390,140	157,790	249,750	407,540	17,400	4.5%
10	151,540	33,340	147,810	230,730	378,540	153,150	242,270	395,420	16,880	4.5%
11	143,010	31,460	140,160	218,560	358,720	145,210	229,500	374,710	15,990	4.5%
12	128,830	28,340	127,450	198,370	325,820	132,050	208,290	340,340	14,520	4.5%
13	120,970	26,610	120,400	187,170	307,570	124,740	196,540	321,280	13,710	4.5%
14	120,420	26,490	119,910	186,400	306,310	124,240	195,720	319,960	13,650	4.5%
15	96,180	21,160	98,200	151,900	250,100	101,750	159,500	261,250	11,150	4.5%
16	95,070	20,920	97,230	170	97,400	100,730	180	100,910	3,510	3.6%
17	78,780	17,330	82,600	127,110	209,710	85,580	133,470	219,050	9,340	4.5%
18	67,440	14,840	72,460	111,000	183,460	75,080	116,550	191,630	8,170	4.5%
19	61,780	13,590	67,370	102,910	170,280	69,800	108,050	177,850	7,570	4.4%
20	59,820	13,160	65,620	100,120	165,740	67,990	105,130	173,120	7,380	4.5%
21	57,180	12,580	63,260	96,370	159,630	65,540	101,190	166,730	7,100	4.4%
22	55,190	12,140	61,470	4,680	66,150	63,680	4,910	68,590	2,440	3.7%
23	54,410	11,970	60,770	92,420	153,190	62,960	97,040	160,000	6,810	4.4%
24	53,100	11,680	59,590	90,550	150,140	61,740	95,070	156,810	6,670	4.4%
25	52,160	11,480	58,780	89,250	148,030	60,900	93,710	154,610	6,580	4.4%
Total	5,823,190	1,281,100	5,518,380	8,168,650	13,687,030	5,717,510	8,577,450	14,294,960	607,930	4.4%
Note:	Green shaded accounts have reduced sewage charges (sewer appeals).									

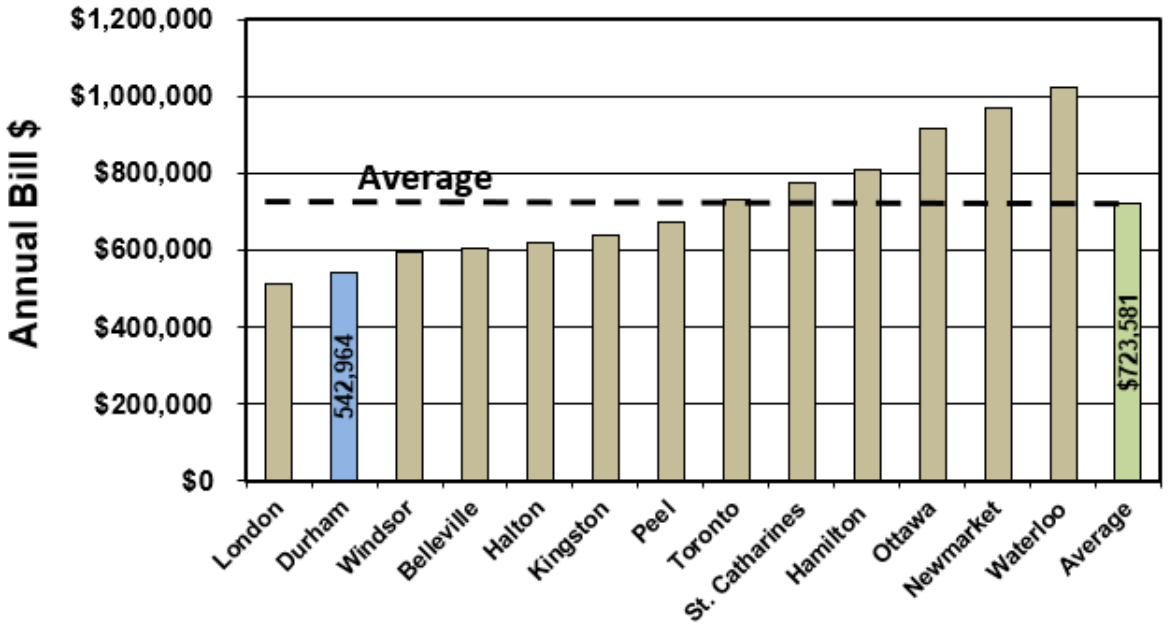
Note that most large customers will have a combined water/sanitary sewer bill increase of about 4.5 per cent. This percentage is higher than the average residential increase of 4.3 per cent because large customer bills are more influenced by the higher sanitary sewer rate increase (the volumetric rate is more dominant for sanitary sewer than for water).

There are four (4) customers among the top 25 users which have significant non-sanitary water usage and have been granted reduced sanitary sewer charges based on their relatively lower consumption. As a result, their reduced sewer charges have less impact on their total bill than the sewer charges for other large customers.

6.3.2 Charges Compared with Other Municipalities

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 6th largest customer. Comparative charges are graphed in Exhibit 23.

Exhibit 23 - Comparative 2022 Large Industry Water & Sanitary Sewer Charges Large Municipalities (227,272 m^3/year)



Durham was the second lowest out of the 13 in the survey. The overall average combined water and sanitary sewer bill for all the municipalities surveyed was $723,581 per year compared to $542,964 in Durham.

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

6.4 Durham's User Rate Formats Compared with Other Ontario Municipalities

6.4.1 Background on User Rate Formats

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.

Exhibit 24 is a summary of how often the different rate structures were encountered in the survey:

Exhibit 24 - 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	100%	20	100%
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 usage 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.

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

6.4.2 Rates Summary

The adoption of declining block rates by Durham was based on an analysis of the actual cost of supplying 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.

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.

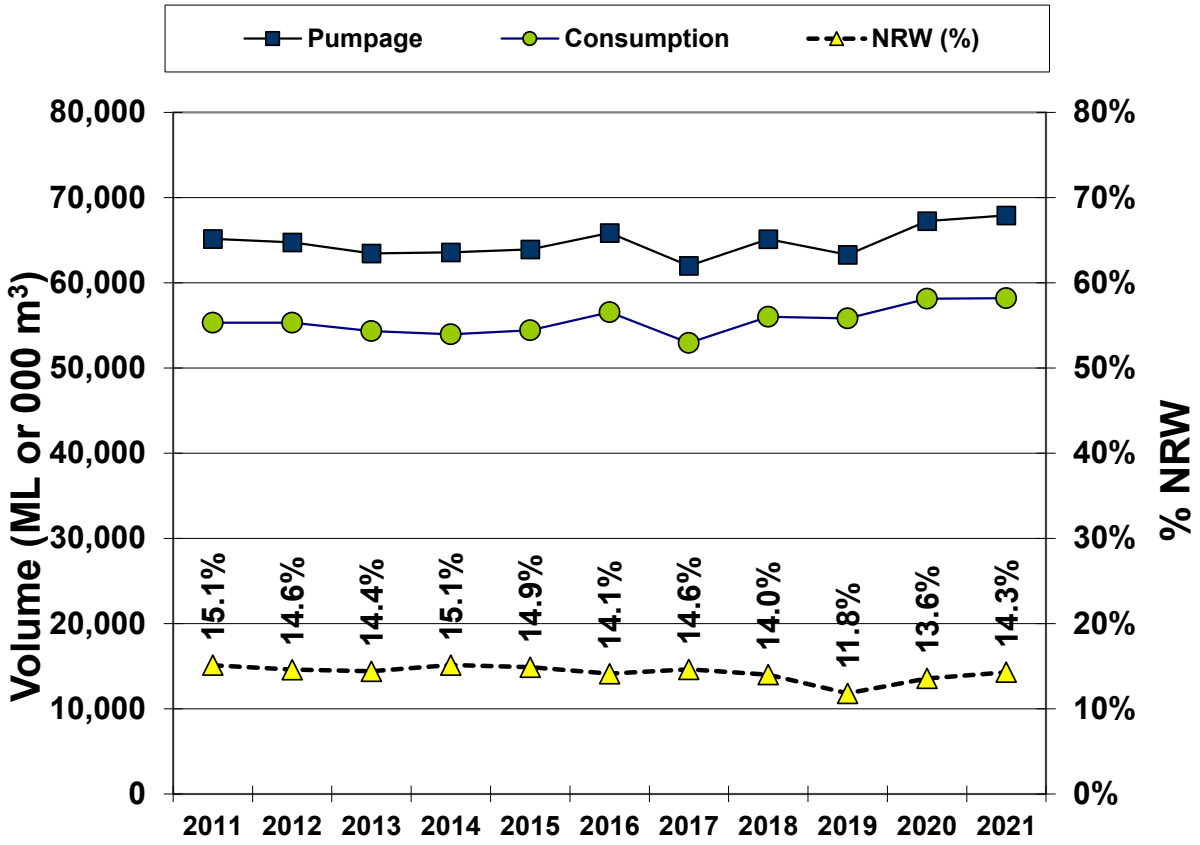
7 Water System Performance

7.1 Durham 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 most significant component is loss due to watermain leakage.

Durham's NRW from 2011 to 2021 is graphed below in Exhibit 25.

Exhibit 25 - Water Pumpage, Consumption & Non-Revenue Water 2011 to 2021 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 recorded) carries out billings closer to actual use than the older legacy system and introduced an initial transitional increase in consumption reported in 2019 following the implementation of the new system. This artificially reduced the calculated UFW for that year.

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.

7.2 Other Water System Performance Comparisons

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 – Exhibit 26.

Exhibit 26 - IWA Standard Water Balance Terminology

<table>
<tr><td rowspan="8">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="6">Non Revenue Water (NRW)</td></tr>
<tr><td>Unbilled Unmetered Consumption</td></tr>
<tr><td rowspan="4">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>

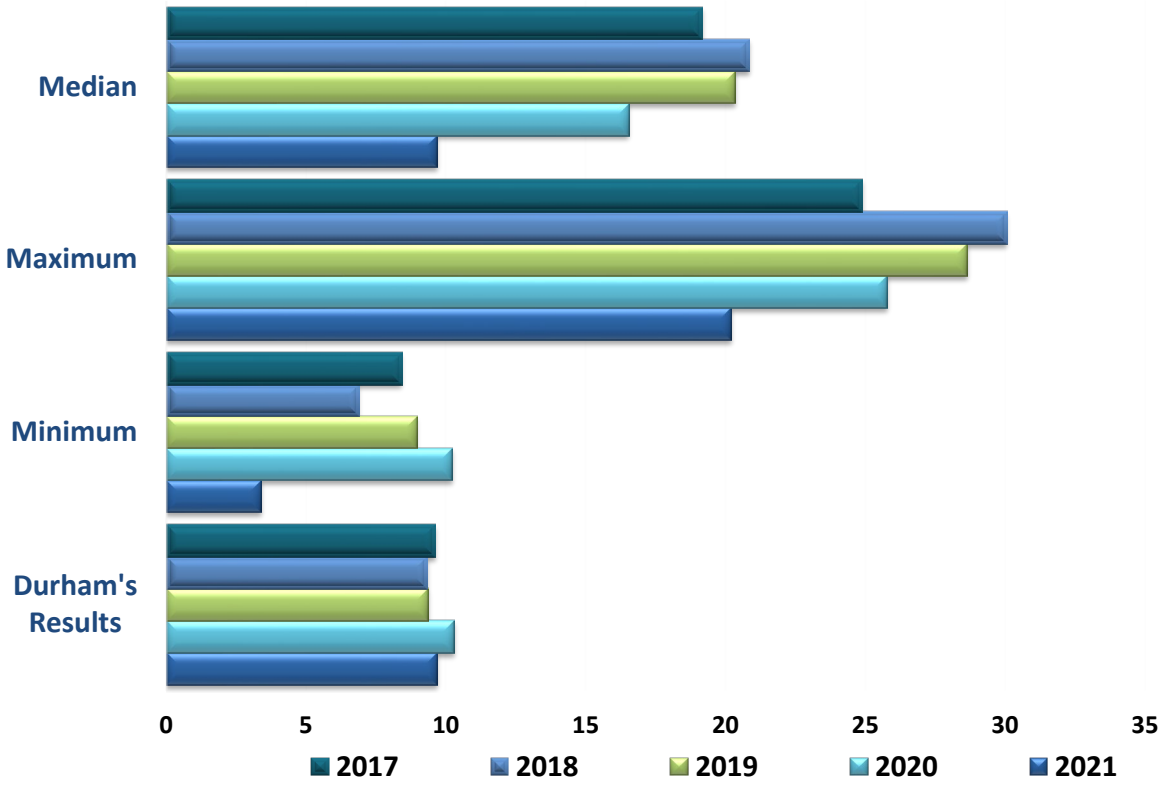
The IWA/AWWA methodology is now an industry recognized standard approach and has been utilized to assess water losses in Durham Region. Water loss performance measures such as the Infrastructure Leakage Index (ILI) and NRW per kilometre of mains were calculated first during the Water Loss Control Strategy 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 2017 to 2021 is provided in Exhibit 27.

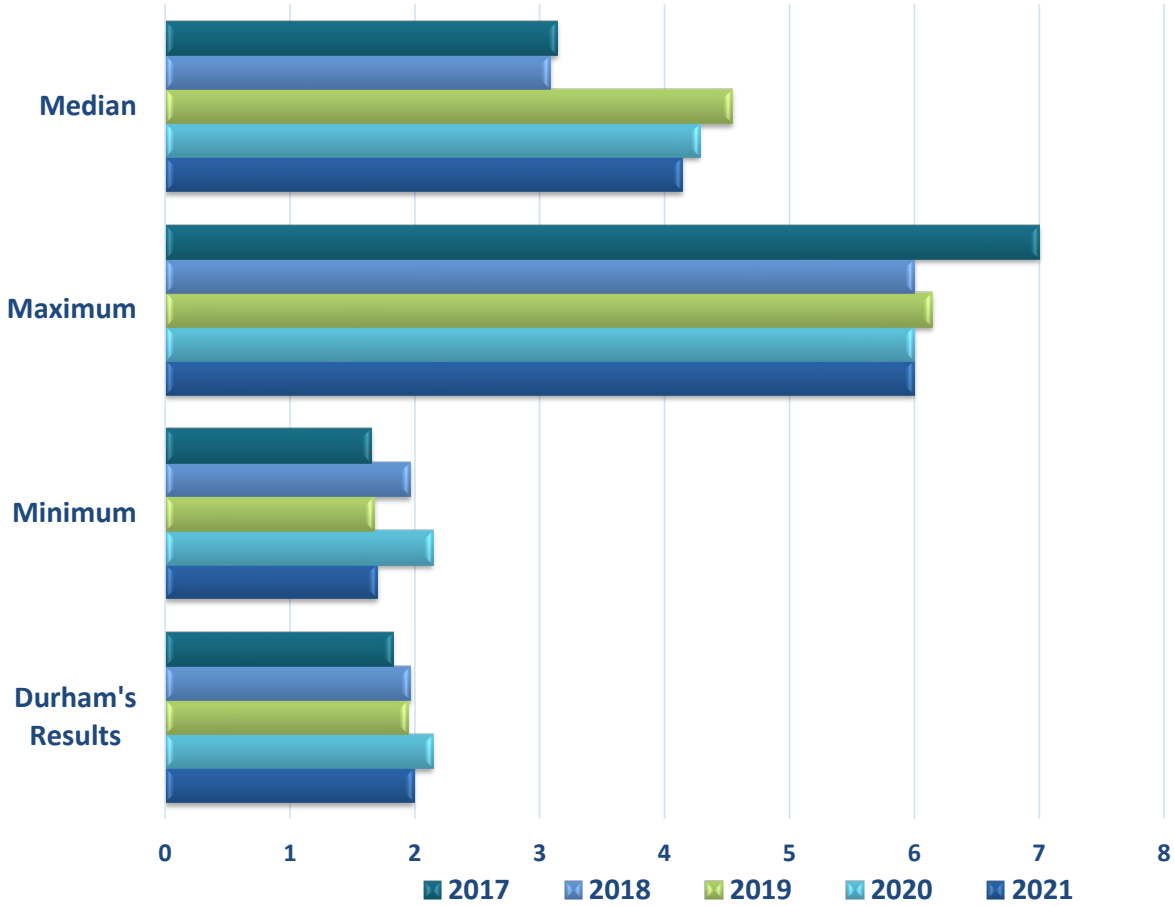
Exhibit 27 - NRW in m^3/km of Main per Day (MBN data)



Durham's 2021 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 28 for the 2017 to 2021 survey results.

Exhibit 28 - Infrastructure Leakage Index ILI (MBN data)



The 2021 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 (2024 to 2032)

8.1 Future Customer & Consumption Trends

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

Residential Consumption – After at least 20 years of decreases in residential base (non-seasonal) per customer, the trend bottomed out in 2017/2018 and has since reversed with subsequent increases in 2019, 2020, and 2021. The increases in 2020 and 2021 have been magnified by the impact of the COVID-19 pandemic due to individuals working and students attending school from home. This increase in residential base consumption has abated somewhat in 2022. Future Business Plans and Budgets and User Rates will need to be established based on updated residential base

consumption.

- The 2023 proposed user rates assume a decrease (compared to budget 2022) in residential base (non-seasonal) consumption to 227 m^3/customer/year.

- **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. One current positive factor is the recent restart of vehicle assembly at the General Motors Oshawa plant. GM has historically been one of the larger water users, although not as significant as it once was. Staff continue to monitor the GM impact 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** - Asset management forms a basis for prioritizing future water and sewage systems infrastructure rehabilitation and 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 rate 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 modelling under the Region's business planning and budget modernization initiative will allow for better refinement of projected rate increases for future years.

Staff will be working on determining the growth and financial impacts of Bill 23 which are anticipated to impact future user rates increases. Impacts will be primarily accommodated beginning in the 2024 Business Plans and Budget and will be reflected in future Business, Plans, Budgets and Nine-Year Capital Forecasts.

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 resulting 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.

- A shift from using customer readings to a more automated collection of readings. This will increase accuracy and potentially the frequency of billings. Starting in 2022, Works staff, in conjunction with Finance staff, initiated a three-year project to expand the installation of radio frequency remote reading devices (RF) with water meters to minimize manual meter readings;

- 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.

BACKGROUND ON WATER & SANITARY SEWER USER RATES

1 Water & Sanitary Sewer User Rates

The Regional water and sanitary sewer (sewage) rates, fees and charges are defined and enabled by means of two By-Laws approved by Council. These By-Laws are amended annually by Council or as required to conform to policies and rates as approved by Council.

The two By-Laws are:

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

Each December, the Finance and Administration Committee and Regional Council will receive the annual Water and Sanitary Sewer User Rates Report which includes:

- Proposed Water User Rates for the upcoming year – these are the rates charged bimonthly or quarterly to customers for their Regional water supply service.
- Proposed Sanitary Sewer User Rates for the upcoming year – these are the rates charged to customers for their Regional sanitary sewer service.
- Proposed Sun Valley Heights Homeowners Co-operative Water System rate for the upcoming year – this is a separate rate for a privately built and owned well-based system serving 17 customers which is operated by the Region pursuant to a Provincial order.
- Proposed Miscellaneous Fees & Charges – these fees cover a wide range of specific services from construction of service connections to meter testing and many others.
- Proposed Regional Laboratory Fees – these are fees for various testing procedures carried out at the Regional Environmental Laboratory located at the Duffin Creek Water Pollution Control Plant. It Laboratory is jointly owned by York and Durham Regions. The laboratory carries out testing services for both Regions as well as a number of external customers.

The water and sanitary sewer user rates are the charges that affect all water and sewer customers and are the most significant revenue source for the Region’s water and sewer systems.

The rates are formulated based on best practice recommendations by the waterworks industry including the American Waterworks Association (AWWA) Ontario Section and the Canadian Water and Wastewater Association. The rates are calculated using the "Base-Extra Capacity" (BEC) method as developed by the AWWA. The resulting rates charge each customer commensurate with the cost of supplying the water service.

2 Water and Sanitary Sewer Systems Are Based on User Pay

The revenues for the water and sanitary sewer systems are recovered based on “User Pay” primarily from the user rates but also from various methods charging new customers for growth-related capital costs to provide the water and sewer facilities needed to service them.

No revenues for the water and sanitary sewer systems are recovered from property taxes.

The water and sewer user rates approved by Regional Council each year generate the majority of the revenues needed to support the water and sanitary sewer systems, covering:

- Operating costs,
- Capital costs for repair, replacement of aging infrastructure and upgrading to meet regulatory requirements, and
- Capital costs related to growth not covered by other means (see below).

A second user pay funding source relates to the cost of building capital works to meet the system capacity needs for growth, including:

- Development charges which recover costs related to major infrastructure, such as treatment, trunk mains, storage, etc. which are built by the Region,
- Frontage and connection charges for local works built by the Region, and
- Construction of local works, such as mains, by developers and turned over to the Region.

Note that the Region also uses financing strategies to smooth out future capital expenditures including putting money aside in reserve funds for future capital needs or spreading out “lumpy” capital investments using debenture financing. This is much like individuals which put money aside for the future needs or take out a mortgage to buy a house – they are financing strategies, not a source of revenue.

3 Water and Sewer User Rates Explained

The user rates charge each customer commensurate with the cost of supplying the service. They are established in the context of other Regional revenue policies such as frontage, connection and development charges which endeavour to directly recover the capital cost of servicing new customers.

In addition to meeting day-to-day water demands, the water system also includes capacity for fire protection including supply, larger mains, system storage and hydrants. This extra capacity is provided on standby. The Region recovers annual water system costs related to fire protection from the user rates by using a combination of two fixed charges - the Water Service Charge and the Unmetered Fire Line Charge. Local fire department services are provided and funded by the Area Municipalities.

Customers' water and sewer bills have two primary components, a consumption charge and a service charge:

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

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

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

  Water and Sewer Rate Blocks

Block	m^3 / month
First	0 to 45
Second	46 to 4,500
Third	Over 4,500

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

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

- **Service Charge** - The service charge is a monthly charge based on a customer's water meter size. The service charge is considered the fairest way of charging costs that are unrelated to volume of consumption.

  The service charge covers ongoing costs such as the initial installation, ongoing maintenance and repair, and replacement of water meters at the end of their in-service life and maintaining water service pipes on public property. It also includes administrative costs such as customer service, billing and collection activities. The water service charge is higher than the sewer service charge due to it also recovering costs related to the provision of fire protection capacity in the water system (larger mains, hydrants, water storage). Water systems have extra capacity on standby for fire fighting. Water service charges are higher for larger meters primarily due to the fire protection component.

- **Unmetered Water System Fire Line Charge** - Some customers receive enhanced fire protection coverage by means of a larger (or separate) connection to the water system than is required for domestic usage alone. Unmetered fire lines are used to supply customer sprinklers, hose cabinets or private fire hydrants. No charge is levied for the volume of water used for fire protection. The unmetered fire line rate varies by fire service size. The charge helps to allocate water system fire protection capacity costs to these larger customers who have unmetered fire lines. Unmetered fire lines are sometimes required for insurance purposes and are an important insurance consideration for a company, resulting in reduced insurance premiums. A little over 1% of customers have unmetered fire lines.

- **Minimum Bill -** Most Ontario water systems have a minimum bill feature to help offset those water system costs which are ongoing, even if a customer's consumption is low. It includes the service charge plus a consumption allowance. Most residential customers are exempt from the minimum bill feature since it does not apply to standard meters.

- **Flat Rate** – For the few customers that are not yet metered (less than 100) but are to be billed there is a flat rate.

- **Raw Water** - There is one industry (originally there were four) in Whitby served by a Regional raw water system. Raw water is supplied from the Whitby WSP and is separate from the potable water system. The Region pumps untreated water from Lake Ontario through separate mains to the raw water customer.

  The system is entirely paid for by the raw water customer. There is a special raw water rate to recover 100% of the cost of operating the raw water system. The rate is calculated separately from the potable water rates and is approved annually by Regional Council.

A breakdown of revenues by rate structure component is as follows:

User Rate Revenues (2022 Budget)			
	Water	**Sewer**	**Combined**
Consumption Charges	53%	86%	70%
Service Charges	41%	14%	27%
Fire Line Charges	6%	0%	3%
Total	100%	100%	100%

3.1 Sewer Volume Charged Using Water Meter Readings

Water meter readings are used to calculate sewage volumetric charge. This method is used by the majority of Ontario municipalities as the fairest way to achieve user pay. When it comes to billing for sewage flows, the customer water meter data is used as it is the only measure available of a customer's actual utilization of the water and sewage systems. The method is a practical method to achieve user pay. There is no other feasible, economic alternative sewage meter available.

4 Meter Reading

With the adoption of a user pay approach in 1976, the Region followed up with a program of metering the many customers billed flat rate when the Region was formed. By 1980, almost all properties with water services had meters installed. Customers could then be billed based on the volume of water used as registered on each meter.

Self-Assessment Readings - Quarterly billed residential customers are sent self-assessment meter reading cards 3 times per year. Customers are asked to read the water meter and submit a reading via phone (TeleRead) or online (MyDurhamWater). Regional Meter Readers are sent out to obtain the fourth quarterly reading.

When first adopted, the Region's self-assessment meter card program had a high participation rate and low cost compared to meter readings taken by Meter Readers. It was a cost-efficient method of obtaining meter readings. Despite promotion of the program, customer meter reading participation rate is now only roughly 70%.

When a customer does not provide a meter reading, the Region bills based on an estimated usage volume. Estimated billings are problematic as they can cause plumbing problems to be undetected for long periods. This can lead to high back-billings

when an actual reading is obtained, leading to customer complaints. To address this issue, the Region has been upgrading its remote reading capabilities to allow more frequent readings by Meter Readers.

Remote Readers - Meters are installed with remote reading technology which allows a meter reader to obtain readings without entering premises. For many years that involved running wires from the display on the meter to a remote readable device on an exterior wall. A meter reader could then obtain a reading from outside a house, although there can still be access problems (snow, gates, etc.). Updated technology using Radio Frequency (RF) enabled meters allows Meter Readers to read without entering private property. This greatly streamlines the acquisition of meter readings.

The Region has been installing RF enabled meters for some years. In order to get sufficient penetration of the technology to widely implement its use, and eventually eliminate self-assessment readings, the Region, in 2022, adopted an accelerated three-year RF retrofit investment program. This has been made possible without affecting current user rates by utilizing reserve funds.

All Billings Based on Readings by Meter Readers - The transition from self-assessment to full readings by Meter Readers has already started in some billing districts and is targeted Region-wide by the end of 2023. This will eliminate the need for residential customers to supply readings. Using Meter Readers to obtain readings will decrease estimated billings from the current 30% to less than 3%. The reduction in estimated billings will translate to a reduction in extended periods of undetected plumbing problems and high back-billings and an improvement in customer service.

Bi-Monthly Billed Commercial Customers – These larger water users have historically had the water meters read by Meter Readers for each billing.

5 Examples of Water and Sanitary Sewer Bill Calculation

5.1 Typical Residential Customer

A water and sanitary sewer bill calculation is provided below for a residential customer using 61 m^3 quarterly (244 m^3 annually) based on 2022 water and sewer rates:

Average Residential Customer Water/Sewerage Bill Calculation

Consumption	= 61 m^3 quarterly (244 m^3 annually) = 13,475 gallons quarterly (53,900 gallons annually)
Meter Size (standard metric)	= 16 mm or 19 mm = $^5/_8$ inch or $^3/_4$ inch

Quarterly Bill Calculations (2022 Rates)

Water	**Calculation**			**Quarterly Billing**
Volumetric Charge	61.00	x	$1.148	$70.03
Service Charge (90 days)	3	x	$19.29	$57.87
Total Water Bill				**$127.90**

Sewage	**Calculation**			**Quarterly Billing**
Sewage Usage	61.00	x	$1.925	$117.43
Service Charge (90 days)	3	x	$7.55	$22.65
Total Sewage Bill				**$140.08**

Total Quarterly Water and Sewerage Bill	**$267.98**

5.2 Large Industrial Customer

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

Large Industrial Customer Water/Sewerage Bill Calculation

Consumption = 113,600 m^3 bimonthly (681,600 m^3 annually)
= 25,000,000 gallons bimonthly (150,000,000 gallons annually)

Meter Size (standard metric) = 152 mm
= 6 inch

Bimonthly Bill Calculations (2022 Rates)

Water	Consumption in Block (m3)	Calculation			Bimonthly Billing
Volumetric Charge					
1st Block	45 x 2 months = 90	90	x	$1.148	$103
2nd Block	4,455 (4,500-45) x 2 months = 8,910	8,910	x	$0.976	$8,696
3rd Block	113,600-90-8,910 = 104,600	104,600	x	$0.896	$93,722
Total	**113,600**				**$102,521**
Service Charge		2	x	$1,170.47	$2,341
Total Water Bill					**$104,862**

Sewerage	Consumption in Block (m3)	Calculation			Bimonthly Billing
Volumetric Charge					
1st Block	45 x 2 months = 90	90	x	$1.925	$173
2nd Block	4,455 (4,500-45) x 2 months = 8,910	8,910	x	$1.694	$15,094
3rd Block	113,600-90-8,910 = 104,600	104,600	x	$1.424	$148,950
Total	**113,600**				**$164,217**
Service Charge		2	x	$7.55	$15
Total Sewage Bill					**$164,232**

Total Water and Sewerage Bill	**$269,094**

6 Water and Sanitary Sewer Billing Brochures and other Programs

A Water and Sanitary Sewer User Rates Notice, explaining changes in rates and miscellaneous fees, is included with the first bill issued to customers each year.

Copies are available to the public on request from the Finance Department. The information is also available on-line on the Region's website.

The Utility Finance Division of the Finance Department offers other programs to assist customers in managing their bills. One such program targets the detection of leaks and the importance of reading meters. A brochure entitled Detect Leaks and Save Money is available on the Region's website.

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

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

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

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

Utility Finance Contact Information:

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