



The Regional Municipality of Durham Report

To: Finance and Administration Committee
From: Commissioner of Finance
Report: #2023-F-37
Date: December 12, 2023

Subject:

Recommended 2024 Water and Sanitary Sewer User Rates

Recommendations:

That the Finance and Administration Committee recommends to Regional Council:

- A) That the 2024 Regional Water Rates increase by 7.3 per cent (including 2.5 per cent for Bill 23 and Bill 134 impacts) and the Sanitary Sewer User Rates increase by 7.4 per cent (including 2.5 per cent for Bill 23 and Bill 134 impacts) from the 2023 approved user rate levels, effective January 1, 2024 (a combined increase of 7.4 per cent, including 2.5 per cent for Bill 23 and Bill 134 impacts, for an average residential customer), as set out in Attachment #1 and Attachment #2 of this report respectively;
- B) That the 2024 Raw Water rates for the Whitby raw water customer be increased by 7.3 per cent as set out in Attachment #1 of this report, effective January 1, 2024;
- C) That the 2024 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, 2024;
- D) That the 2024 Regional Water and Sanitary Sewer Systems Miscellaneous Fees and Charges be as set out in Attachment #4 of this report, effective January 1, 2024;
- E) That the 2024 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, 2024; 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, 2024, including background on the parameters used in determining the recommended rates. This report is presented concurrently with the 2024 Business Plans and Budget and Nine-Year Capital Forecast for the Consolidated Water Supply and Sanitary Sewerage Systems report (Report #2023-F-36) which describes the proposed 2024 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 2023 so that they can be implemented with the first customer billings commencing early January 2024.
- 1.3 The water and sanitary sewage systems are "User Pay" - property taxes are not used to fund water and sanitary sewage systems costs.
- 1.4 Public notification that the proposed 2024 water and sanitary sewer user fees and related charges will be considered by the Finance and Administration Committee on December 12, 2023 and by Regional Council on December 20, 2023, was posted on the Region's website on November 20 and was placed on Metroland's website on November 23, 2023 (local print newspapers are no longer available).

2. 2024 Recommended Water and Sanitary Sewer User Rate Increases

- 2.1 The recommended 7.3 per cent water user rate increase and the 7.4 per cent sanitary sewer user rate increase (7.4 per cent combined for an average residential customer) supports an increase in net user rate supported expenditures of 10.1 per cent for water and 9.8 per cent for sanitary sewage. This includes 2.5 per cent each for both water and sanitary sewage for the impacts of Bill 23, *More Homes, Built Faster Act, 2022* and related legislation.
- 2.2 The current 2023 and recommended 2024 Water and Sanitary Sewer User Rates are provided in Attachment #1 and Attachment #2 of this report, respectively. The recommended 2024 Regional Water and Sanitary Sewer Rates represent a combined increase of approximately 7.4 per cent or \$79.68 annually for an average residential customer.
- 2.3 The recommended user rates are based on the proposed 2024 operating and capital costs and associated financing which are outlined in detail in the 2024 Business Plans and Budget and Nine-Year Capital Forecast for the Consolidated Water Supply and Sanitary Sewerage Systems report (Report #2023-F-36), as well as customer and consumption projections described below.

- 2.4 For water, the recommended user rate increase of 7.3 per cent is required to finance a proposed 2024 net user rate supported budgeted net expenditure increase of \$12.4 million or 10.1 per cent over 2023, which will allow for:
- A net operating cost increase of \$5.2 million mainly for:
 - significant inflationary increases including contractual increases and chemicals;
 - annualization of 4.806 full-time equivalent positions (FTEs) approved in 2023;
 - a provision for new staff positions in the Works Department to be informed by a third-party consultant's review to ensure the department is appropriately resourced to plan, design and construct the water and sanitary sewerage infrastructure required to achieve the provincial housing targets and local municipal housing pledges;
 - realignment of internal fleet rates to ensure full cost recovery and accurate activity costing;
 - A \$3.3 million increase in the user rate capital program contribution;
 - A \$3.1 million provision for the financial impacts of Bill 23, *More Homes Built Faster Act, 2022*; and
 - An increase of \$0.8 million in debt servicing costs funded from water user rates.
- 2.5 For sanitary sewer, the user rate increase of 7.4 per cent is required to finance a proposed 2024 user rate supported budgeted net expenditure increase of \$12.1 million or 9.8 per cent over 2023, which will allow for:
- A net operating cost increase of \$5.1 million mainly for:
 - significant inflationary increases including contractual increases and chemicals;
 - annualization of 8.019 FTEs approved in 2023;
 - a provision for new staff positions in the Works Department to be informed by a third-party consultant's review to ensure the department is appropriately resourced to plan, design and construct the water and sanitary sewerage infrastructure required to achieve the provincial housing targets and local municipal housing pledges;
 - realignment of internal fleet rates to ensure full cost recovery and accurate activity costing;
 - a net increase in minor assets and equipment and repairs and maintenance;
 - A \$3.5 million increase in the user rate capital program contribution;
 - A \$3.2 million provision for the financial impacts of Bill 23, *More Homes Built Faster Act, 2022*; and

- An increase of \$0.3 million in debt servicing costs funded from sewer user rates.

3. Basis for the Proposed 2024 User Rates

3.1 Figure 1 summarizes the projected data used to develop the 2024 user rates.

Figure 1
Projected Data Used to Develop 2024 Water & Sanitary Sewerage User Rates

Parameter	Water	Sanitary Sewerage
Customers		
• Number	187,204	182,520
• Growth from 2023 Actual	1.05%	1.10%
Consumption / Flow		
• Cubic Metres (millions)	58.04	56.08
• Change from 2023 Budget	3.1%	3.5%
User Rate Revenue Requirements		
• Total Expenditures	\$135,228,071	\$135,517,737
• Increase from 2023 Budget	10.1%	9.8%
User Rate Change Requirement		
• Percent	7.3%	7.4%
• Impact on Revenue of a 1% Rate Change	\$1,258,000	\$1,262,000

3.2 Impact of a 1 per cent Rate Change – any change in either expenditures or other revenues by \$1,258,000 for water or by \$1,262,000 for sanitary sewer is equivalent to a 1 per cent change in the respective user rate.

3.3 The 2024 growth in the number of customers is projected at 1.05 per cent for water and 1.10 per cent for sanitary sewer. This is consistent with the projected growth in the number of customers in 2023.

3.4 Billed water consumption for 2024 is projected as follows:

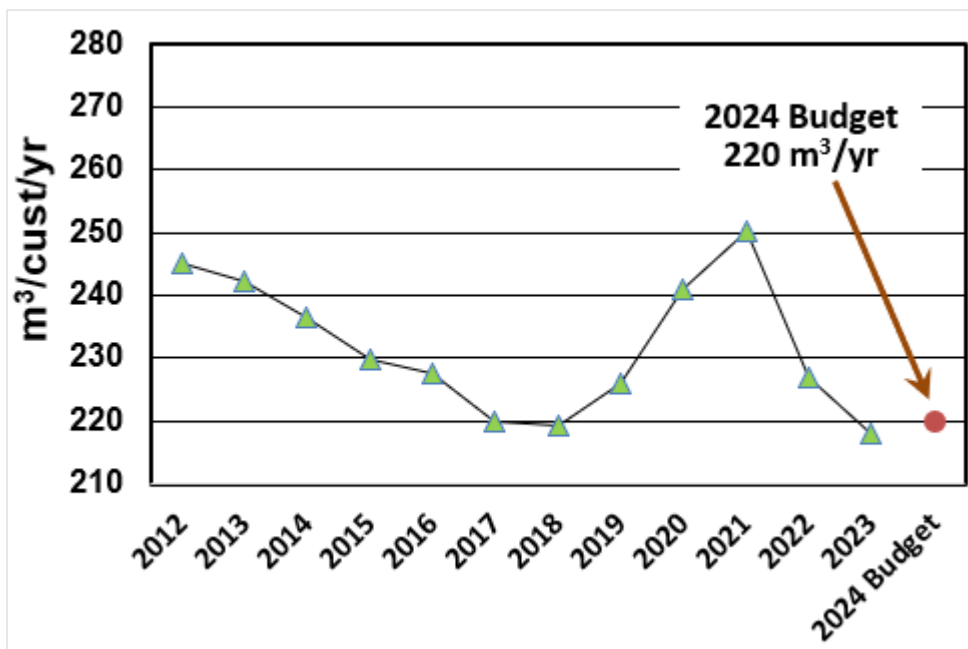
- **Overall** – The 2024 billed consumption for water is projected to increase by 3.1 per cent over the 2023 budgeted consumption and sanitary sewer is projected to increase by 3.5 per cent. This is the result of projected increases in the industrial, commercial, institutional (ICI) sector – primarily in the third block. The estimated ICI increase is projected to more than offset the decrease in residential consumption.

- Residential** - Residential consumption represents almost 80 per cent of total 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. Consumption in the summer exceeding Base Consumption levels is categorized as seasonal usage and is part of the annual residential usage.

Figure 2 illustrates the Residential Base Consumption trend for the last 12 years. A decrease in Residential Base Consumption per customer started in 2000 and steadily decreased at a rate of about 2.4 per cent per year up to 2017. 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.

Figure 2
2022 – 2023 Actual and 2024 Proposed Budget
Residential Base Consumption



In 2017 and 2018 data suggested a levelling off of Residential Base Consumption at around 220 m³/customer/year. With COVID resulting in an increase in people working from home and students studying remotely, Residential Base Consumption dramatically increased in 2020 reaching a peak of 250 m³/customer/year in 2021. Residential Base Consumption dropped back to 218 m³/customer this year (2023) which is aligned with pre-COVID-19 consumption levels.

Actual Residential Base Consumption	
Year	m³/cust/yr
2017	220
2018	219
2019	226
2020	241
2021	250
2022	227
2023	218

For 2024 budgeting purposes it is assumed that Residential Base Consumption will be 220 m³/customer/year, aligned with current consumption levels (a decrease from the 227 m³/customer/year budgeted for 2023).

Should actual Residential Base Consumption be lower than projected in 2024, and as a result user rate revenues fall short of budget, funding from the Water Rate Stabilization Reserve Fund and the Sewer Rate Stabilization Reserve Fund may be required to finance any resulting deficits.

Total residential consumption also includes a seasonal component (not included in Figure 2). The projected seasonal usage for 2024 is 13 m³/customer/year, the same as budgeted for 2023. This is consistent with average historical levels.

Thus, total residential budgeted consumption is 233 m³/customer/year (Base at 220 m³/customer/year + Seasonal at 13 m³/customer/year). Based on this and water customer growth of 1.05 per cent (sewer 1.10 per cent), total residential water consumption is budgeted to decrease by 1.7 per cent from 2023 budget levels (sewer to decrease by 1.5 per cent).

- **Non-Residential (ICI) Consumption Share** – ICI (industrial, commercial & institutional) billed consumption trends in 2023 indicate year-end consumption higher than budgeted, primarily due to significant increases in 3rd rate block consumption resulting from the installation of additional production capacity by the Region's largest water customer as well as slight increases in consumption by smaller users. Overall ICI water consumption is budgeted to increase by 18.8 per cent from 2023 budget levels (sewer to increase by 21.2 per cent).

4. Customer Impacts

- 4.1 **Average Residential Customer Impact** – The impact of the proposed 2024 water rate increase of 7.3 per cent and sewer user rate increase of 7.4 per cent over the approved 2023 user rate levels on a customer using an average of 233 m³/customer/year in both 2023 and 2024 is set out in Figure 3, below. Customers who are reducing their usage can help offset some of the impact of increased rates.

Figure 3
2024 Proposed Regional User Rate Charges
Typical Impact for a Residential Customer

Billings (\$/quarter)			
	2023 Actual	2024 Proposed	Increase
Water	\$129.21	\$138.65	\$9.44 7.3%
Sewer	\$141.53	\$152.01	\$10.48 7.4%
Total (\$/quarter)	\$270.74	\$290.66	\$19.92 7.4%
Annual Billing (\$/year)	\$1,082.96	\$1,162.64	\$79.68 7.4%
Notes:			
Average Water Consumption:		51,260 gallons/year 233.0 m ³ /year	

4.2 **Large Industrial Customer Impact** - The proposed 2024 water and sanitary sewer user rates result in a bi-monthly increase of \$7,102 or 7.4 per cent for a large industrial customer (a customer in the top 25 users) using 227,272 m³ annually (50 million gallons) as outlined in Figure 4.

Figure 4
2024 Proposed Regional User Rate Charges
Large Industrial Customer Impact

Billings (\$/bimonthly)			
	2023 Actual	2024 Proposed	Increase
Water	\$37,242	\$39,960	\$2,718 7.3%
Sewer	\$59,250	\$63,634	\$4,384 7.4%
Total (\$/bimonthly)	\$96,492	\$103,594	\$7,102 7.4%
Annual Billing (\$/year)	\$578,952	\$621,564	\$42,612 7.4%
Notes:			
Average Water Consumption:		50,000,000 gallons/year 277,272 m ³ /year	

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

- 5.1 Durham's 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 2023 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 2023 water and sanitary sewer rates were the 2nd lowest for a large user. The Region's declining block rates reflect the Region's passing on the lower unit cost of servicing large customers (the lowest was the City of London which also has declining block rates for large customers).
- 5.4 **Affordability** - 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 2024 raw water rate is proposed to increase by 7.3 per cent, aligned with the increase in the potable water rate and is included in Attachment #1. The proposed 2024 raw water rate is approximately 38 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 based on actual Regional costs for operating this local system and are separate from the Regional water and sewage rates. Based on an analysis of costs related to this local system, it is recommended that their quarterly bill be increased to \$519.00 (an increase of \$72.00 or 16.1 per cent from 2023 charges) due to increased labour costs to maintain and test the system.

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. As a result of the current review, it is recommended that most of the fees and charges be increased. The percent increase varies depending on the results of the review and overall averages about 4.7% over existing 2023 rates. The rates with recommended increases are bolded in Attachment #4. Also of note is the removal of the reduced fee for unloading septage at the Region’s Water Pollution Control Plants from January 1st each year until the end of the half-load season. This special fee provision approved by Council in February 2018 is no longer required due to metering enhancements at Duffin Creek Water Pollution Control Plant and the standard fee for unloading septage will be in place for the full year.

6.4 **Attachment #5 – Recommended Laboratory Fees** – The recommended 2024 Fee Schedule for Laboratory Services at the Regional Environmental Laboratory, located at the Duffin Creek Water Pollution Control Plant, is provided in Attachment #5. One additional test fee for Total Phosphorous is recommended (Item 83 in Attachment #5). No changes are recommended to the other existing 2023 fees for 2024. The Lab Fees are currently undergoing a review which will help inform potential fee changes for 2025.

7. **Projected User Rate Considerations Over the Forecast Period (2024 – 2033)**

7.1 Based upon projections to 2033, it is estimated that 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 to support ongoing operating costs and the 10-year capital plan. This increase does not include the estimated impacts of Bill 23, *More Homes Built Faster Act, 2022*, which, without any provincial funding, are currently estimated at an incremental increase of 7.0 per cent for water and 6.5 per cent for sanitary sewer annually up to 2028 based on current preliminary modelling and a growth forecast aligned with the provincial housing targets. The Region, along with municipal partners and associations, continues to advocate for provincial funding to mitigate these significant financial impacts. Additional details on the impacts of Bill 23 and related legislation can be found in the 2024 Business Plans and Budget and Nine-Year Capital Forecast for the Consolidated Water Supply and Sanitary Sewerage Systems (Report 2023-F-36).

7.2 These projections will be impacted by various factors including:

- Customer growth;
- Potential for reductions in residential base water consumption and thus related revenues without a resulting offsetting reduction in costs. The 2024 proposed user rates assume a decrease in residential base consumption to 220 m³/customer/per year from 227 m³/customer/year. It is expected that this will level off in the future, although it is analyzed annually and future projections will be updated based on actual trends. 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;
- Regulatory changes which could impact the operation of the Region's water and sanitary sewerage systems; and
- Significant investments are required in water supply and sanitary sewerage infrastructure to meet the provincial housing targets and local municipal housing pledges, asset management, climate change adaptation/mitigation and regulatory requirements. The 2024 to 2033 Capital Forecast is discussed in the 2024 Business Plans and Budget and Nine-Year Capital Forecast for the Water Supply and Sanitary Sewerage Systems report (Report #2023-F-36).

8. Schedules of Rates and Fees

8.1 The following recommended Durham Region 2024 water and sanitary sewer user rates, fees and charges are set out in Attachment #1 through Attachment #5 of this report:

- The recommended 2024 Water User Rates are 7.3 per cent higher than the 2023 rates and are set out in Attachment #1.
- The recommended 2024 Raw Water Rate for the Whitby raw water customer is 7.3 per cent higher than the 2023 rate and is set out in Attachment #1.
- The recommended 2024 Sanitary Sewage User Rates are 7.4 per cent higher than the 2023 rates and are set out in Attachment #2.
- The recommended 2024 Water Rate for the Sun Valley Heights Homeowners Co-operative Water System is set out in Attachment #3.
- The recommended 2024 Water & Sanitary Sewer Systems Miscellaneous Fees & Charges are set out in Attachment #4.
- The recommended 2024 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:

- 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 2024 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 2024 Regional Water and Sanitary Sewer User Rates reflect a combined increase of 7.4 per cent for an average residential customer effective January 1, 2024, with the Regional water rates increasing by 7.3 per cent and the Regional sanitary sewer rates increasing by 7.4 per cent.
- 10.2 The proposed combined water and sanitary sewer user rate increase results in an increase of \$19.92 on a quarterly bill (\$79.68 per annum) for an average residential customer.
- 10.3 The proposed rate increases are based on projected customer growth of 1.05 per cent in water customers and 1.10 per cent in sewer customers with residential base consumption decreasing to 220 m³/customer/year and seasonal usage remaining constant at 13 m³/customer/year (total 233 m³/customer/year).
- 10.4 The 2024 Proposed Business Plans and Budget for Consolidated Water Supply and Sanitary Sewerage Systems can be accommodated within the 2024 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 2024 Water User Rates
- Attachment #2: Recommended 2024 Sanitary Sewer User Rates
- Attachment #3: Recommended 2024 Water Charges for the Sun Valley Heights Homeowners Co-operative Water System
- Attachment #4: Recommended 2024 Water & Sanitary Sewer Systems Miscellaneous Fees & Charges
- Attachment #5: Recommended 2024 Fee Schedule for Laboratory Services at the Regional Environmental Laboratory Located at the Duffin Creek Water Pollution Control Plant
- Attachment #6: 2024 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 2024 Water User Rates

REGIONAL MUNICIPALITY OF DURHAM							
Water User Rate Schedule				2024 Rate Increase = 7.3%			
Monthly							
Effective January 1, 2024							
Volumetric Charges							
Block	Consumption Range			Current		Proposed	
	From	To	Units	2023		2024	
First Block	0	to 45	cubic metres/month	\$1.189	/cubic metre	\$1.276	/cubic metre
	0	to 10,000	gallons/month	\$5.405	/1,000 gallons	\$5.800	/1,000 gallons
	0	to 1,600	cubic feet/month	\$3.367	/100 cubic feet	\$3.613	/100 cubic feet
Second Block	46	to 4,500	cubic metres/month	\$1.011	/cubic metre	\$1.085	/cubic metre
	10,001	to 1,000,000	gallons/month	\$4.597	/1,000 gallons	\$4.933	/1,000 gallons
	1,601	to 160,000	cubic feet/month	\$2.864	/100 cubic feet	\$3.073	/100 cubic feet
Third Block		Over 4,500	cubic metres/month	\$0.928	/cubic metre	\$0.996	/cubic metre
		Over 1,000,000	gallons/month	\$4.220	/1,000 gallons	\$4.528	/1,000 gallons
		Over 160,000	cubic feet/month	\$2.629	/100 cubic feet	\$2.821	/100 cubic feet
Basic Charges (\$/month)							
Meter/Fire Line Size		Service Charge		Minimum Charge		Unmetered Fire Line Charge	
		Current 2023	Proposed 2024	Current 2023	Proposed 2024	Current 2023	Proposed 2024
Inches	mm						
Standard	Standard	\$19.98	\$21.44	n/a	n/a	n/a	n/a
1-inch	25-mm	\$40.61	\$43.57	\$68.00	\$73.00	\$15.43	\$16.56
1 ½-inch	38-mm	\$86.43	\$92.74	\$130.00	\$139.00	\$20.74	\$22.25
2-inch	51-mm	\$186.66	\$200.29	\$250.00	\$268.00	\$40.13	\$43.06
2 ½-inch	64-mm	n/a	n/a	n/a	n/a	\$53.19	\$57.07
3-inch	76-mm	\$328.13	\$352.08	\$428.00	\$459.00	\$70.52	\$75.67
4-inch	102-mm	\$652.45	\$700.08	\$844.00	\$906.00	\$141.05	\$151.35
5-inch	127-mm	n/a	n/a	n/a	n/a	\$189.38	\$203.20
6-inch	152-mm	\$1,212.61	\$1,301.13	\$1,542.00	\$1,655.00	\$260.45	\$279.46
8-inch	203-mm	\$2,067.23	\$2,218.14	\$2,535.00	\$2,720.00	\$433.97	\$465.65
10-inch	254-mm	\$3,363.97	\$3,609.54	\$4,016.00	\$4,309.00	\$692.50	\$743.05
12-inch	305-mm	n/a	n/a	n/a	n/a	\$976.39	\$1,047.67
Flat Rate (includes consumption)							
		Current 2023	Proposed 2024				
Monthly/unit		\$47.01	\$50.44				
Quarterly/unit		\$141.03	\$151.32				
Annually/unit		\$564.12	\$605.28				
Other - Raw Water Rate				Recommended Raw Water Rate Increase: 7.3%			
				Current 2023		Proposed 2024	
All volumes		cubic metres		\$0.355	/cubic metre	\$0.381	/cubic metre
		gallons		\$1.612	/1,000 gallons	\$1.730	/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 2024 Sanitary Sewer User Rates

REGIONAL MUNICIPALITY OF DURHAM									
Sewage User Rate Schedule				2024 Rate Increase = 7.4%					
Monthly									
Effective January 1, 2024									
Volumetric Charges									
Block	Consumption Range				Current 2023		Proposed 2024		
	From	To	Units						
First Block	0	to 45	cubic metres/month	\$2.021	/cubic metre	\$2.171	/cubic metre		
	0	to 10,000	gallons/month	\$9.188	/1,000 gallons	\$9.868	/1,000 gallons		
	0	to 1,600	cubic feet/month	\$5.724	/100 cubic feet	\$6.148	/100 cubic feet		
<i>Sewer rate expressed as a % of water rate</i>				170.0%		170.1%			
Second Block	46	to 4,500	cubic metres/month	\$1.779	/cubic metre	\$1.910	/cubic metre		
	10,001	to 1,000,000	gallons/month	\$8.085	/1,000 gallons	\$8.683	/1,000 gallons		
	1,601	to 160,000	cubic feet/month	\$5.037	/100 cubic feet	\$5.410	/100 cubic feet		
<i>Sewer rate expressed as a % of water rate</i>				175.9%		176.0%			
Third Block		Over 4,500	cubic metres/month	\$1.495	/cubic metre	\$1.606	/cubic metre		
		Over 1,000,000	gallons/month	\$6.796	/1,000 gallons	\$7.299	/1,000 gallons		
		Over 160,000	cubic feet/month	\$4.234	/100 cubic feet	\$4.547	/100 cubic feet		
<i>Sewer rate expressed as a % of water rate</i>				161.0%		161.2%			
Basic Charges (\$/month)									
Meter	Service Charge		Minimum Charge		Flat Rate/unit				
	Current 2023	Proposed 2024	Current 2023	Proposed 2024	Current 2023	Proposed 2024			
Standard	\$7.93	\$8.52	No minimum charge		\$53.87	\$57.86			
All other sizes									
Monthly	\$7.93	\$8.52	\$54.00	\$58.00	\$53.87	\$57.86			
Quarterly	\$23.79	\$25.56			\$161.61	\$173.58			
Annually	\$95.16	\$102.24			\$646.44	\$694.32			
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 2024 Water Charges for the Sun Valley Heights Homeowners Co-operative Water System

Sun Valley Home Owners Co-operative 2024 Projected Costs

Cost Item	Budget 2023 \$	Projected Cost 2024 \$
Hydro Electricity	2,000	2,000
Property Taxes	600	600
Laboratory Costs	2,255	2,255
Operator & Reports	17,900	25,847
Vehicle	2,870	1,800
Operation Materials	2,600	1,000
Machinery and Equipment	1,600	1,600
Maintenance Materials & Other	600	200
TOTAL	30,425	35,302
Property Owners	17	17

Charges per Property Owner (billings are sent quarterly)

Monthly charges per property owner	\$149	\$173
Quarterly charges per property owner	\$447	\$519
Annual cost per property owner	\$1,788	\$2,076

Attachment #4 - Recommended 2024 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 2023 Charges		Recommended 2024 Charges
	Water By-law #89-2003	Sewer By-law #90-2003	Water \$	Sewer \$	Note: Changes are in Bold \$
SERVICE CONNECTION RELATED CHARGES					
1) Water Service Connection Charges, for single family and semi-detached residential lots including those for pre-installed stubs: a) 19mm (3/4") diameter - Base Rate – Apr 1 – Nov 30 - Winter Rate – Dec 1 – Mar 31 b) 25mm (1") diameter - Base Rate – Apr 1 – Nov 30 - Winter Rate – Dec 1 – Mar 31	D1		3,700.00 4,810.00 4,600.00 5,980.00		3,885.00 5,051.00 4,830.00 6,279.00
2) Water Service Connections, not covered above, including apartment buildings (from duplexes to multi floor buildings), townhouses and condominiums on blocks of land or recreational, institutional, commercial and industrial buildings: a) 19-mm (3/4") diameter minimum charge b) 25-mm (1") diameter minimum charge	D2		Actual Cost 3,700.00 4,600.00		Actual Cost 3,885.00 4,830.00
3) Inspection of an installation of a separate fire line on private property	D3		125.00		131.00
4) Sanitary Sewer Service Connection Charges for single family and semi-detached residential lots for pre-installed stubs 100 or 125mm (4" or 5") diameter: - Base Rate (Apr 1 – Nov 30) - Winter Rate (Dec 1 – Mar 31)		C1		3,843.00 5,005.00	4,035.00 5,255.00
5) Sanitary Sewer Service Connections, not covered above, including apartment buildings (from duplexes to multi-floor buildings), townhouses and condominiums on blocks of land or recreational, institutional, commercial and industrial buildings: - Minimum Charge		C2		Actual Cost 3,843.00	Actual Cost 4,035.00
6) Storm Sewer Service Connections: - Minimum Charge		C3		Actual Cost 3,843.00	Actual Cost 4,035.00

Item Number & Description	By-Law Schedule Reference		Existing 2023 Charges		Recommended 2024 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	131.00 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		483.00 147.21
11) Standard 200-mm (8-inch) diameter Watermain - /metre - /foot	E1 & E2		528.00 160.93		554.00 168.85
12) Standard 300-mm (12-inch) diameter Watermain - /metre - /foot	E1 & E2		570.00 173.74		599.00 182.57
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	532.00 162.15
15) Standard 250-mm (10-inch) diameter Sanitary Sewer - /metre - /foot		D1 & D2		575.00 175.26	604.00 184.09
16) Standard 300-mm (12-inch) diameter Sanitary Sewer - /metre - /foot		D1 & D2		637.00 194.16	669.00 203.90
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.					

Item Number & Description	By-Law Schedule Reference		Existing 2023 Charges		Recommended 2024 Charges
	Water By-law #89-2003	Sewer By-law #90-2003	Water \$	Sewer \$	Note: Changes are in Bold \$
Note (5) – Rate may vary if estimated construction costs vary significantly from the rates noted above.					
Note (6) – Frontage charges for petition projects shall be based on actual costs.					
MISCELLANEOUS CHARGES					
17) <u>Water Shut Off/Turn On</u> Initiated by Customer: During normal Regional working hours: - Shut Water Off - Turn Water On - Shut Off & Turn On During Same Call After normal Regional working hours: - Shut Water Off - Turn Water On - Shut Off & Turn On During Same Call Initiated by Region: For failure by the Customer to arrange with the Region for meter installation, replacement, repair or inspection or meter reading (off or on, each) For Water Shut Off Notification prior to shut off action being taken 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) Turn Water On	F1	E1	80.00 80.00 80.00 120.00 120.00 120.00 80.00 25.00 for both 94.00 for both 80.00		84.00 84.00 84.00 126.00 126.00 126.00 84.00 25.00 for both 94.00 for both 80.00
18) Standby charge while water service is shut off but not disconnected or water service is available for fire protection purposes but not connected	F2		Standard Service Charge		Standard Service Charge
19) <u>Testing of Water Meter</u> Initiated by Customer: - Deposit Fee where the meter is found to measure the flow of water within or below AWWA Specifications - Up to a maximum size of 25mm - Over 25mm Fee if meter is found to measure the flow of water above AWWA specifications	F3		210.00 210.00 Actual Cost No Charge		221.00 221.00 Actual Cost No Charge
20) Unmetered water used for construction (building purposes) per service	F4		231.00		243.00

Item Number & Description	By-Law Schedule Reference		Existing 2023 Charges		Recommended 2024 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) - /cubic metre - /1,000 gallons - Deposit - Administrative Charge - Minimum Charge per Month - Valve installation/removal	F5		3.88 17.64 1,800.00 134.77 1,800.00 109.25		4.00 19.00 1,890.00 142.00 1,890.00 115.00
22) Repair or replacement of frozen, damaged or missing water meter - Up to a maximum size of 19mm (3/4") - Over 19mm (3/4")	F6		210.00 Actual Cost		221.00 Actual Cost
23) Thawing of service pipes	F7		No Charge		No Charge
24) Thawing of private hydrants or unmetered Fire Lines	F8		Actual Cost		Actual Cost
25) Cleaning sanitary sewer services		E3		No Charge	No Charge
26) Repair to or renewal of sanitary building sewers		E4		No Charge	No Charge
27) Supplying Statement of Account	F9	E5	35.00 for both		35.00 for both
28) Charge for Regional Solicitor providing information	F10	E6	94.00 for both		100.00 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		145.00
36) Cross Connection Control Program Test Report	New		25.00		26.00
37) Water from Water Supply Plants, Water Pollution Control Plants, Works Depots & Bulk Filling Stations - /cubic metre - /1,000 gallons - Service Charge \$/month - New Account Fee* - Key Deposit - Refundable on return of key (based on fee in year Key Deposit made) - Access card	F17		3.23 14.69 21.00 42.00 218.80 181.64 36.45		3.50 15.90 22.00 44.00 230.00 191.00 38.00

* 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 2023 Charges		Recommended 2024 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		491.00
			320.30		336.00
39) Sewage Surcharge and Compliance Agreements		E12		1,885.00	1,979.00
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	21.00
- /1,000 gallons				88.93	93.45
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	17.00
- /1,000 gallons				73.59	77.00
c) Annual charge for registration of Haulers (up to 10 vehicles)				175.00	184.00
- Additional stickers if more than 10 vehicles, or replacement stickers – per sticker				10.20	11.00
d) ICI Sector areas (discharges up to 50,000 gallons)				522.75	549.00
e) ICI Sector areas (discharges of 50,001 to 100,000 gallons)				1,024.59	1,076.00
41) Copies of By-laws Water System, Sewer System and Sewer Use (+ Applicable taxes)	F19	E13	20.50/copy		25.00/copy
42) Sewer TV Inspection Reports and Videos per report or video (+ Applicable taxes)		E14		21.51	23.00
43) Sewer Use By-law Agreement extra strength waste (\$/kg.)		n/a		0.53	0.55
44) Sewer Appeal Application per request		E15		1,200.00	1,260.00

Attachment #5 - Recommended 2024 Fee Schedule for Laboratory Services at the Regional Environmental Laboratory Located at the Duffin Creek Water Pollution Control Plant

THE REGIONAL MUNICIPALITY OF DURHAM			
2024 FEES AND CHARGES			
WORKS DEPARTMENT - ENVIRONMENTAL LABORATORY			
		2024 Changed Bold	
Item	Description / Test For	2023 Rate (before appl. Taxes)	2024 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 (Al, As, B, Ba, Cd, Co, Cr, Cu, Fe, Hg, Mn, Mo, Ni, Pb, Sb, Se, U, Zn)	\$83.00	\$83.00
8	Inorganic Ions required under O.Regulation 170/03 (F, NO2, NO3, Na)	\$82.00	\$82.00
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) Bromodichloromethane (bromoform), Dibromochloromethane (chloroform), THM (total)	\$105.00	\$105.00
16	All Parameters required under Schedule 24 (Includes all Parameters described under the following test CODES listed in this book - VOC, OC, TRIAZ, OP, PHENAC, CHLORPHEN, CARBUREA, GLYPH, DIPARA, PCB)	\$1,552.00	\$1,552.00
17	Combined Package York Region Drinking Water Package A (Includes DW2M (less TURB), Hg, B, Ba, U, VOC, OC, TRIAZ, OP, PHENAC, CHLORPHEN, CARBUREA, GLYPH, DIPARA, PCB)	\$1,768.00	\$1,768.00
*Calculation included (no charge).			

THE REGIONAL MUNICIPALITY OF DURHAM			
2024 FEES AND CHARGES			
WORKS DEPARTMENT - ENVIRONMENTAL LABORATORY			
		2024 Changed Bold	
Item	Description / Test For	2023 Rate (before appl. Taxes)	2024 Rate (before appl. Taxes)
Laboratory Fees Page 2 of 8			
<u>MICROBIOLOGICAL TESTS</u>			
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				
2024 FEES AND CHARGES				
WORKS DEPARTMENT - ENVIRONMENTAL LABORATORY				
				2024 Changed Bold
Item	Description / Test For	2023 Rate (before appl. Taxes)		2024 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, Volatile 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
83	Total Phosphorus (TP) New for 2024	n/a	n/a	\$39.00 \$39.00
Ion Chromatography				
84	Hardness*, Ca, Mg, Na, K, Ammonia, F, Cl, Br, NO2, NO3, PO4, SO4	\$82.00	\$99.00	\$82.00 \$99.00
85	F, Cl, Br, NO2, NO3, PO4, SO4	\$54.00	\$64.00	\$54.00 \$64.00
86	Hardness*, Ca, Mg, Na, K, Ammonia	\$54.00	\$64.00	\$54.00 \$64.00
87	Any One of the Above Single Elements by IC	\$36.00	\$42.00	\$36.00 \$42.00
Nutrients by Segmented Flow Analyzer				
88	NH3+NH4, PO4, NO2, NO2+NO3, TKN, TP	\$102.00	\$122.00	\$102.00 \$122.00
89	NH3+NH4, PO4, NO2, NO2+NO3	\$61.00	\$73.00	\$61.00 \$73.00
90	TKN, TP	\$61.00	\$73.00	\$61.00 \$73.00
91	Any One of the Above Single Nutrients by SFA	\$40.00	\$48.00	\$40.00 \$48.00
92	Ultra Low Dissolved PO4 (clean water only)	\$68.00	N/A	\$68.00 N/A
Metals				
93	Mercury (Hg) by Cold Vapour AA	\$37.00	\$44.00	\$37.00 \$44.00
94	Acid Soluble Metals by ICP (Al, Fe, Mn, Pb, Zn)	\$42.00	N/A	\$42.00 N/A
95	Cation Scan by ICP (Ca, Mg, Na, K, Hardness*)	\$54.00	N/A	\$54.00 N/A
96	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
97	Heavy Metals Scan by ICP: As, Cd, Co, Cr, Cu, Mo, Ni, Pb, Se, Zn	N/A	\$66.00	N/A \$66.00
98	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
99	Any One of the Above Single Metals by ICP-OES or ICP-MS	\$37.00	\$44.00	\$37.00 \$44.00
100	(Lead testing as required under O.Regulation 170)	\$37.00	N/A	\$37.00 N/A
101	(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			
2024 FEES AND CHARGES			
WORKS DEPARTMENT - ENVIRONMENTAL LABORATORY			
		2024 Changed Bold	
Item	Description / Test For	2023 Rate (before appl. Taxes)	2024 Rate (before appl. Taxes)
Laboratory Fees Page 4 of 8			
<u>INORGANIC MONITORING PACKAGES</u>			
<u>DRINKING WATER</u>			
102	Drinking Water Package #1 (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*)	\$100.00	\$100.00
103	Drinking Water Package #2 (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*)	\$154.00	\$154.00
104	Drinking Water Package #2 with expanded metals (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*)	\$180.00	\$180.00
105	Drinking Water Package #3 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	\$270.00	\$270.00
<u>LANDFILL MONITORING</u>			
106	Surface Water (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)	\$407.00	\$407.00
107	Filtration of Raw Landfill samples	\$37.00	\$37.00
*Calculation included (no charge).			

THE REGIONAL MUNICIPALITY OF DURHAM			
2024 FEES AND CHARGES			
WORKS DEPARTMENT - ENVIRONMENTAL LABORATORY			
			2024 Changed Bold
Item	Description / Test For	2023 Rate (before appl. Taxes)	2024 Rate (before appl. Taxes)
Laboratory Fees Page 5 of 8			
<u>INORGANIC MONITORING PACKAGES</u>			
<u>SEWAGE & INDUSTRIAL WASTE</u>			
108	Monitoring Package #1 (BOD5, suspended solids)	\$44.00	\$44.00
109	Monitoring Package #2 (BOD5, susp. solids, total kjeldahl nitrogen, total phosphorus)	\$103.00	\$103.00
110	Monitoring Package #2 plus Metals (BOD5, susp. solids, total kjeldahl nitrogen, total phosphorus Al, As, Cd, Co, Cr, Cu, Fe, Mn, Mo, Ni, Pb, Sb, Se, Zn)	\$166.00	\$166.00
111	Monitoring Package #3 (BOD5, susp. solids, total kjeldahl nitrogen, total phosphorus ammonia+ammonium, nitrite, nitrite+nitrate, diss. phosphate)	\$154.00	\$154.00
112	Monitoring Package #3 plus Metals (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)	\$217.00	\$217.00
113	Monitoring Package #4 (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)	\$204.00	\$204.00
114	Monitoring Package #4 plus Metals (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)	\$307.00	\$307.00
<u>SLUDGE</u>			
115	Sludge Monitoring Package #1 (total solids, total kjeldahl nitrogen, total phosphorus, ammonia+ammonium, nitrite, nitrite+nitrate, diss. phosphate)	\$120.00	\$120.00
116	Sludge Monitoring Package #1 plus Metals (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)	\$183.00	\$183.00
117	Sludge Monitoring Package #2 (Agrisludge) (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)	\$210.00	\$210.00
<u>SEWER USE BY-LAW</u>			
118	Complete Inorganic Package BOD, suspended solids, total kjeldahl nitrogen, total phosphorus, pH, fluoride sulphate, phenol, cyanide, Total/Mineral/Animal & Vegetable Oil & Grease Hg, Ag, Al, As, Cd, Co, Cr, Cu, Fe, Mn, Mo, Ni, Pb, Sb, Se, Sn, Ti, Zn	\$490.00	\$490.00
*Calculation included (no charge).			

THE REGIONAL MUNICIPALITY OF DURHAM			
2024 FEES AND CHARGES			
WORKS DEPARTMENT - ENVIRONMENTAL LABORATORY			
			2024 Changed Bold
Item	Description / Test For	2023 Rate (before appl. Taxes)	2024 Rate (before appl. Taxes)
Laboratory Fees Page 6 of 8			
<u>ORGANIC MONITORING PACKAGES</u>			
<u>DRINKING WATER / SURFACE WATER / GROUNDWATER & WASTEWATER</u>			
119	THMs (Trihalomethanes) Bromodichloromethane (bromoform), Dibromochloromethane (chloroform), THM (total)	\$105.00	\$105.00
120	BTEX by Purge & Trap GC/MS benzene; m, p-xylene; toluene; Ethylbenzene; O-xylene	\$83.00	\$83.00
121	Taste & Odour geosmin; 2-isobutyl-3-methoxypyrazine; 2,3,6-trichloroanisole; 2-methylisoborneol (MIB); 2-isopropyl-3-methoxypyrazine; 2,4,6-trichloroanisole	\$258.00	\$258.00
122	Haloacetic Acids (Disinfection By-Products) bromochloroacetic acid; dichloroacetic acid; monochloroacetic acid; dibromoacetic acid; monobromoacetic acid; trichloroacetic acid	\$309.00	\$309.00
123	Volatile Organic Compounds 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	\$132.00	\$132.00
124	1,4-Dioxane Purge and Trap	\$83.00	\$83.00
125	Benzo(a)pyrene (GCMS)	\$110.00	\$110.00
<u>PESTICIDE / HERBICIDE ANALYSIS</u>			
126	Organochlorine Pesticides 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	\$127.00	\$127.00
127	Triazine Herbicides desethyl simazine; metolachlor; metribuzin (Sencor); prometon; prometryn; propazine; simazine	\$110.00	\$110.00
128	Organophosphorus Pesticides 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	\$110.00	\$110.00
129	Phenoxy Acid Herbicides 2,4-dichlorophenoxyacetic acid (2,4-D); bromoxynil; dicamba; diclofop-methyl; MCPA; picloram	\$166.00	\$166.00
130	Chlorophenols 2,4-dichlorophenol; 2,4,6-trichlorophenol; 2,3,4,6-tetrachlorophenol	\$166.00	\$166.00
131	Carbamate & Phenyl Urea Pesticides/Herbicides Carbaryl; Diuron; Carbofuran; Triallate	\$247.00	\$247.00
132	Glyphosate	\$205.00	\$205.00
133	Diquat (Paraquat)	\$205.00	\$205.00

THE REGIONAL MUNICIPALITY OF DURHAM			
2024 FEES AND CHARGES			
WORKS DEPARTMENT - ENVIRONMENTAL LABORATORY			
		2024 Changed Bold	
Item	Description / Test For	2023 Rate (before appl. Taxes)	2024 Rate (before appl. Taxes)
Laboratory Fees Page 7 of 8			
<u>ORGANIC MONITORING PACKAGES</u>			
134	PCB Analysis Polychlorinated Biphenyls	\$83.00	\$83.00
135	PAHs (Polynuclear Aromatic Hydrocarbons) by GC/MSD Acenaphthene; Acenaphylene; Anthracene; Benzo(a)anthracene; Benzo(a)pyrene; Benzo(b)fluoranthene; Benzo(g, h, i)perylene; Benzo(k)fluoranthene; 1-Chloronaphthalene; Chrysene; Dibenz(a, h)anthracene; Fluoranthene; Fluorene; Indeno (1,2,3-cd)pyrene; 1- Methylnaphthalene; 2-Methylnaphthalene; Naphthalene; Phenanthrene; Pyrene	Subcontractor's Rate	Subcontractor's Rate
Open Characterization (Semi-quantitative)			
136	Volatiles (Scans for Volatile Organic Compounds)	\$258.00	\$258.00
137	Extractables (Scans for Extractable Organic Compounds)	\$309.00	\$309.00
Industrial Sewer Use By-law Acid/Base/Neutral Compounds			
138	di-n-butylphthalate; bis(2-ethylhexyl)phthalate;	\$221.00	\$221.00
139	Polychlorinated Biphenyls	\$83.00	\$83.00
<u>SEWER USE BYLAWS</u>			
140	Industrial Sewer Use By-law Volatile Organic Compounds 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)	\$139.00	\$139.00
141	Industrial Sewer Use By-law Nonylphenols & Ethoxylates (Subcontracted) Nonylphenol; nonylphenol ethoxylates	Subcontractor's Rate	Subcontractor's Rate
142	Durham/York/Peel Sewer Use By-law Organic Package* 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; methyl tetrachloroethylene; toluene; trans-1,3-dichloropropylene; trichloroethylene; xylene (Total); bis (2-ethylhexyl) phthalate * If nonyl phenol/nonyl phenol ethoxylates required, please request as add-on to package	\$436.00	\$436.00
<u>OTHER PACKAGES</u>			
143	Total Petroleum Hydrocarbons (TPH) in Water (Subcontracted) 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	Subcontractor's Rate	Subcontractor's Rate
144	PFAS/PFOS (Solid Phase Extraction Method) Perfluorodecanesulfonic acid (PFDS, Perfluorodecanesulfonate) Perfluorodecanoic acid (PFDA, Perfluorodecanoate) Perfluorododecanoic acid (PFDoA, Perfluorododecanoate) Perfluoroheptanoic acid (PFHpA, Perfluoroheptanoate) 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)	\$600.00	\$600.00

THE REGIONAL MUNICIPALITY OF DURHAM			
2024 FEES AND CHARGES			
WORKS DEPARTMENT - ENVIRONMENTAL LABORATORY			
		2024 Changed Bold	
Item	Description / Test For	2023 Rate (before appl. Taxes)	2024 Rate (before appl. Taxes)
Laboratory Fees Page 8 of 8			
145	Legal Sample Fees and Legal Storage Fees		
	Samples submitted under legal chain of custody - per sample (To maintain an unbroken chain of custody for samples that may be used for litigation)	\$281.00	\$281.00
146	Extended storage for legal samples (longer than 30 days) - per container per month (Samples will be stored free of charge for 30 days from the date of final report)	\$5.00	\$5.00
147	Court testimony by Regional Environmental Laboratory staff	To be determined case-by-case	
148	Mileage for appearance - per kilometre (actual)	\$0.58	\$0.58
Miscellaneous			
149	Sub-contractor Fee	Subcontractor's Rate	Subcontractor's Rate
	Report re-issue Fees:		
150	- Current Year	\$10.00	\$10.00
151	- Previous 2 years	\$25.00	\$25.00
152	- Prior Archives	\$100.00	\$100.00
Sample Treatment			
153	Chlorine quenching	\$26.00	\$26.00
154	Oil & Grease additional extraction	\$26.00	\$26.00
155	Shipping (Sample Containers)	Actual cost	Actual cost
156	Sample filtration if required	\$26.00	\$26.00

Regional Municipality of Durham
2024 Water and Sanitary Sewer
User Rates
Detailed Report

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1 Background

1.1 Water and Sanitary Sewer User Rates Are Reviewed Annually

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

The existing water and sanitary sewer user rates follow the same basic format as the uniform rates adopted in 1976. Since that time, user rates have been calculated 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 2024 Business Plans and Budget for the Consolidated Water Supply and Sanitary Sewerage Systems report (Report #2023-F-36). The recommended user rates are based on operating costs, capital costs and financing as outlined in Report # 2023-F-36.

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

The proposed 2024 user rates must be approved in 2023 so they can be implemented with the first customer billings commencing early January 2024. Any delay in approving and implementing the rates 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

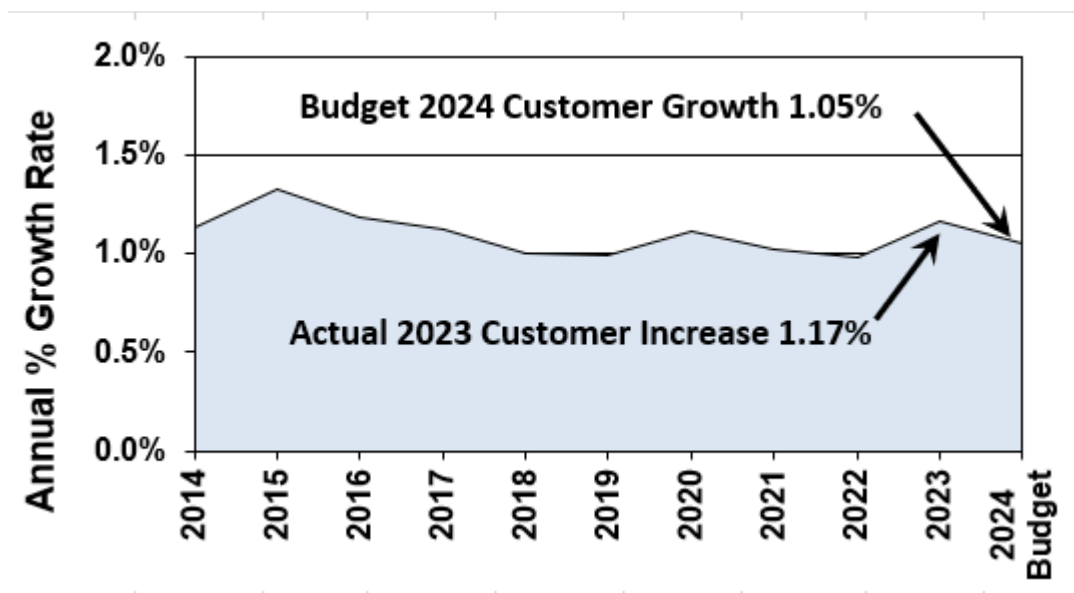
The proposed 2024 water and sanitary sewer user rates, fees and related charges will be considered by the Finance and Administration Committee on December 12, 2023 and by Regional Council on December 20, 2023. Public notification of this was posted on the Region's website on November 20, 2023 and was placed on Metroland's website on November 23 (local print newspapers are no longer published). This notice advises 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.

Copies of the user rate report are available by accessing the Region's website. Printed copies are available upon request.

2 Customer Growth - Moderate

Actual water customer growth from 2014 to 2023 and Budget 2024 (**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 (2014 to 2023 Actuals and 2024 Budget)



Annual water customer growth peaked at about 4.0 per cent in 2004. By 2018 annual growth had decreased to 1.0 per cent and remained around this level until 2022 with an uptick to 1.17 per cent this year (2023).

There were 185,259 water customers and 180,534 sanitary sewer customers in June 2023. "Customers" includes a wide range of customer classes. For example, 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.

Sanitary sewer customer growth is often 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.

Reflecting a slight increase in customer growth this year, for 2024 rate setting purposes, annual customer growth is projected at 1.05 per cent for water and 1.10 per cent for sanitary sewer (an increase from the 2023 budgeted growth rates of water 1.00 per cent and sanitary sewer 1.05 per cent).

The actual water, sanitary sewer and fire line customer data from 2014 to 2023 and the projected 2024 budget are provided in Exhibit 2.

**Exhibit 2 - Water & Sanitary Sewer Customers
(2014 to 2023 Actuals and 2024 Budget)**

Year	Water			Sewage			Fire Lines
	Total	Increase Over Previous June		Total	Increase Over Previous June		Total
		Number	Percent		Number	Percent	
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	185,259	2,140	1.17%	180,534	2,227	1.25%	2,055
2024 Budget	187,204	1,945	1.05%	182,520	1,986	1.10%	2,077

The total number of residential and ICI (industrial, commercial and institutional) water customers are projected to increase by 1,945 in 2024 (sewer customers by 1,986).

The projected customer growth for 2024 is:

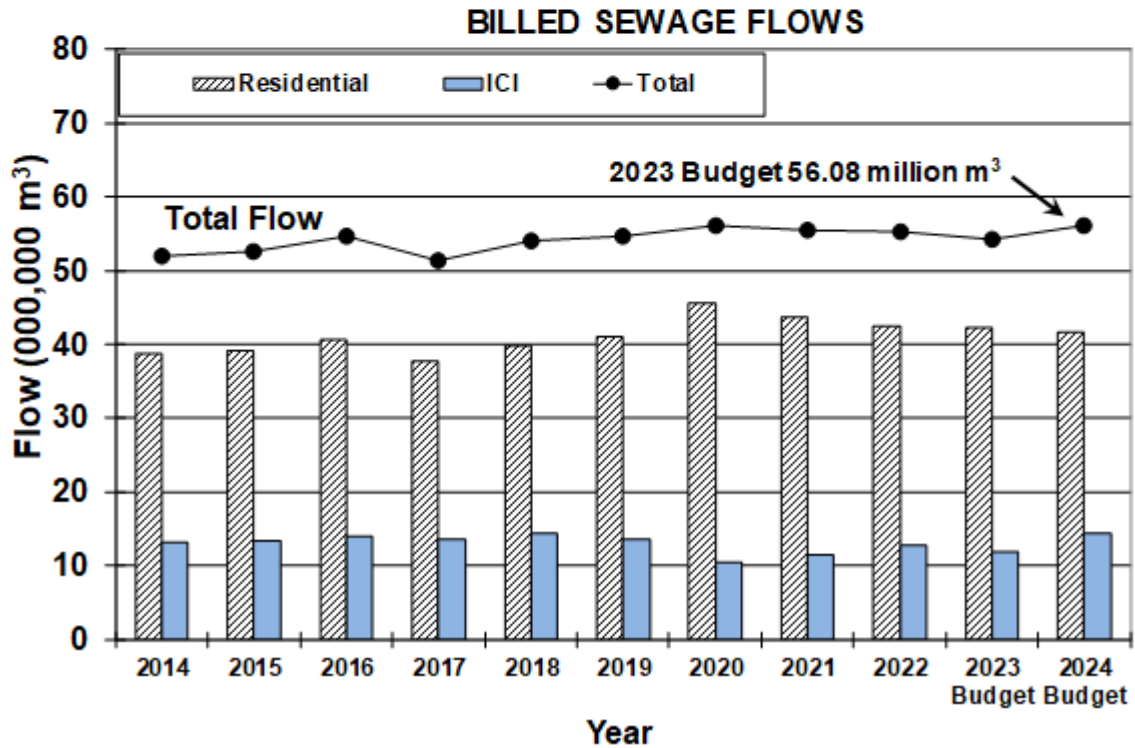
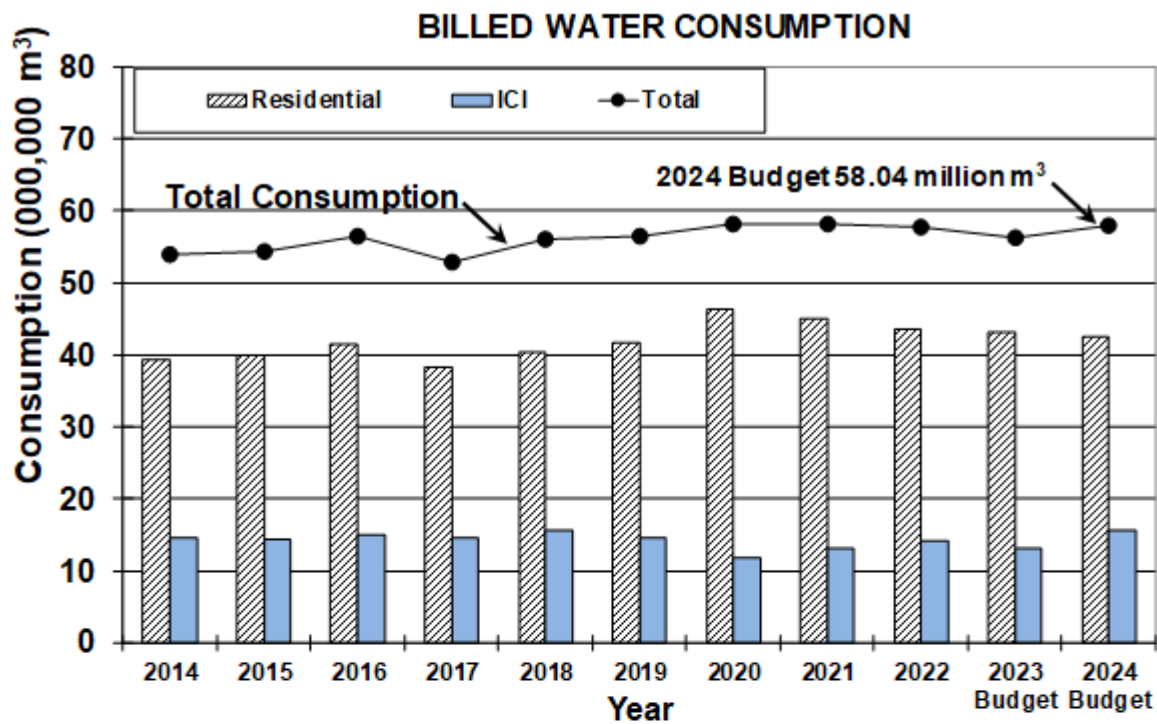
- **Water:** increase by +1,945 customers (+1.05 per cent) to a total of 187,204 customers
- **Sanitary Sewer:** increase by +1,986 customers (1.10 per cent) to a total of 182,520

3 Water Demand – Some Growth

3.1 Historical Consumption

Exhibit 3 graphs the 2014 to 2022 actual and 2023 and 2024 budgeted residential, ICI and total volumes billed to customers for water supply and sanitary sewerage. Regarding the projection of the 2024 budget consumption, details of how the volumes were developed are provided in the following sections and summarized in Exhibit 10.

**Exhibit 3 - Billed Water & Sanitary Sewer
Volumes (2014 to 2022 Actuals and 2023/2024
Budgets)**



3.2 Residential versus ICI Consumption Share

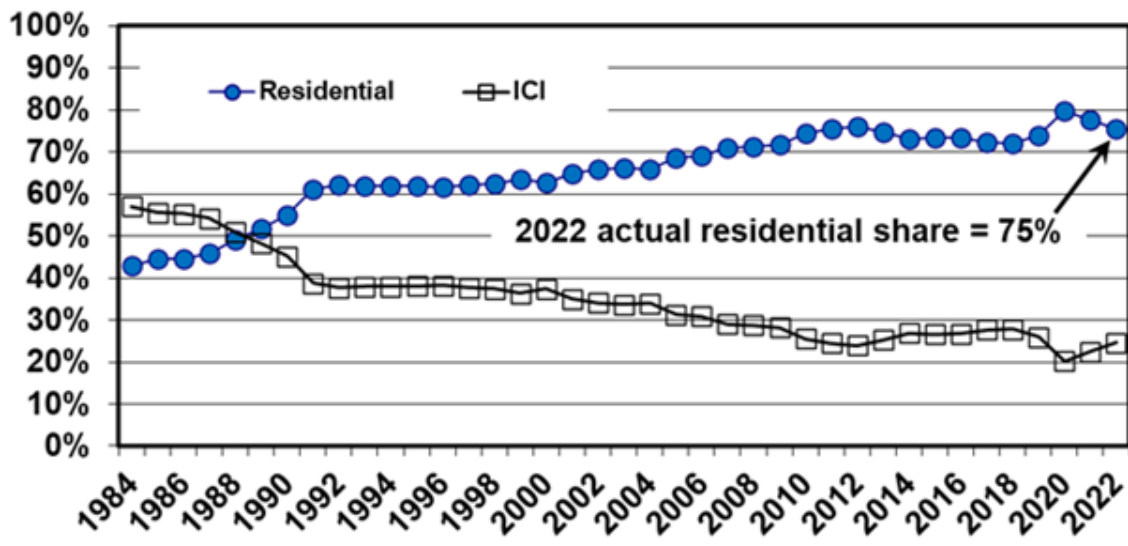
Prior to 2012 there was a steady increase in the share of consumption by residential customers and a corresponding decrease in the share of consumption by industrial/commercial/institution (ICI) customers. Residential usage grew from about a 44 per cent share in 1983 to a 76 per cent share in 2012. The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

Residential share increased somewhat to 74 per cent in 2019 with decreased ICI consumption due to reductions at General Motors and more significantly in 2020 to almost 80 per cent as a result of many employees across the Region working from home due to the COVID-19 pandemic. Over the next two years the residential percentage decreased reaching 75 per cent in 2022 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 (1984 to 2022 Actual)



Actual billed consumption in the Region’s three rate blocks (which are applied to billings based on volume used) was broken down in 2022 (and compared with 2021 actuals) as follows:

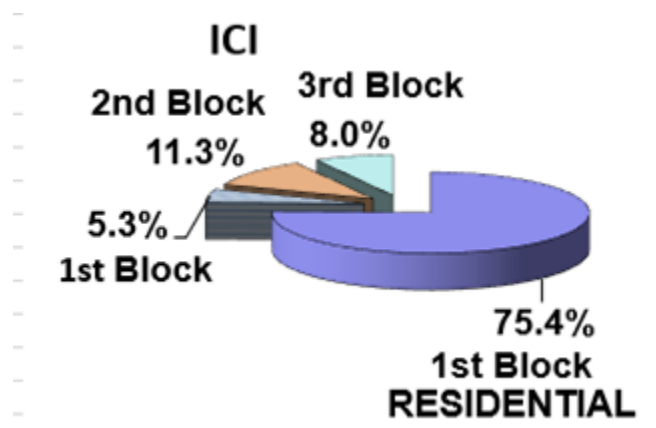
- **1st block** (includes all residential consumption and ICI consumption up to 45 m³/month or 10,000 gallons/month) – All residential usage is billed at 1st block rates and these customers represent the majority of usage. Total 1st block consumption for all customers represented 80.7 per cent of all usage in 2022 (split ICI 5.3 per cent and Residential 75.4 per cent).
- **2nd block** (ICI 46 to 4,500 m³/month or 10,001 to 1,000,000 gallons/month) – This segment’s consumption increased to about 11.3 per cent of the total consumption (versus 9.8 per cent in 2021).
- **3rd block** (ICI over 4,500 m³/month or 1,000,000 gallons/month) – Large user consumption share increased from about 7.6 per cent of total usage in 2021 to about 8.0 per cent in 2022.

Share of Billed Consumption			
By Rate Block			
	Block	2021	2022
Residential	1st	77.6%	75.4%
ICI	1st	5.0%	5.3%
ICI	2nd	9.8%	11.3%
ICI	3rd	7.6%	8.0%
Total ICI		22.4%	24.6%
Total		100.0%	100.0%
Total 1st Block		82.6%	80.7%

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 2022 consumption by block and customer class is illustrated in Exhibit 5.

Exhibit 5 - Water Consumption Share by Block (2022 Actual)



3.3 Residential Consumption – Decrease to More Historical Levels

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 usage 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 m³/customer/year in 2000 to about 220 m³/customer/year in 2017/2018. This steady drop in usage by individual residential customers tended to offset the impact of increases due to the addition of new residential customers. The steady decrease in Base usage per customer up to 2017/2018 is apparent in Exhibit 6 below.

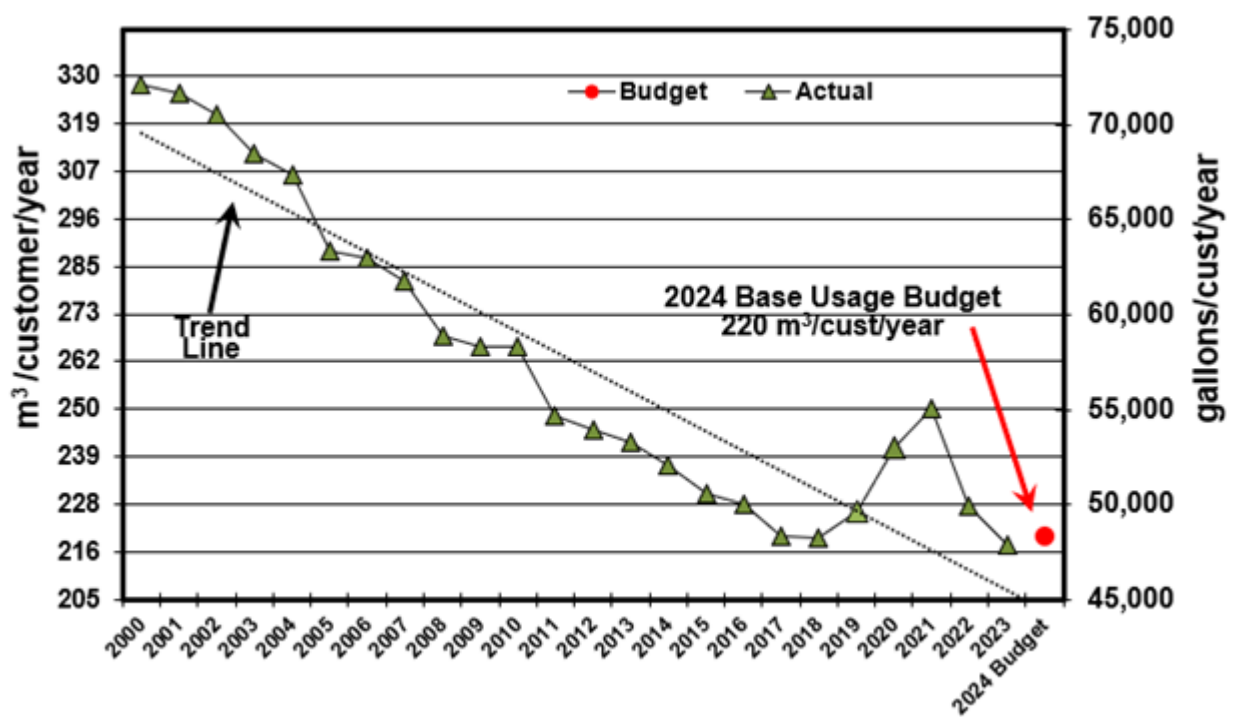
2019 to 2021 - Contrary to historical expectations and trends, Base Usage per residential customer started increasing in 2019. Then in 2020 and 2021 Base Usage increased significantly with Base Usage reaching a peak of 250 m³/customer/year in 2021. The 2020/2021 increases were driven by the shift to more individuals working and studying at home as a result of the COVID-19 pandemic restrictions.

2022 and 2023 - When budgeting for 2022 and 2023 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 m³/customer/day and for 2023 at 227 m³/customer/day reflecting an expected continued drop. Assumptions of decreases proved accurate as an analysis of actual 2023 residential consumption indicates a drop in Base Usage to 218 m³/customer/day, even lower than budgeted and close to pre-pandemic levels.

2024 Budget - It is expected that Base Usage has now returned to more normal levels as reflected in the levelling off of usage in 2017/2018, which is essentially the same as this year (2023). As a result, the 2024 Budget residential Base Usage level has been projected at 220 m³/customer/day.

Historical 2000 to 2023 Base Usage and 2024 Budget are graphed below in Exhibit 6.

Exhibit 6 - Base Annual Residential Water Usage per Customer (2000 to 2023 Actuals and 2024 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 m³/customer/year (1,000 gallons/customer/year) up to about 32 m³/customer/year (7,000 gallons/customer/year), depending on summer weather conditions. Historically, seasonal usage was budgeted at 6.5 m³/customer/year, which lies in the bottom 30 per cent of summer usage levels, similar to a wet summer. For recent budgets the seasonal allowance has been increased to reflect the 10 year historic average - 10 m³/customer/year (2021 Budget), 12 m³/customer/year (2022 Budget) and 13 m³/customer/year (2023 Budget). For the 2024 Budget projections the seasonal usage has been maintained at 13 m³/customer/year.

Total Usage – Total usage per residential customer (including base usage plus an allowance for seasonal usage) was budgeted at 240 m³ (52,800 gallons) per year for 2023. For 2024 budgeting purposes, total residential usage is budgeted at 233 m³ (51,260 gallons) per residential customer – see Exhibit 7.

Exhibit 7 - Residential Water & Sanitary Sewer Consumption Summary (2023/2024 Budgets)

Type of Usage	Per Customer		Total Annual Water		Total Annual Sewer	
	2023 Budget	2024 Budget	2023 Budget	2024 Budget	2023 Budget	2024 Budget
Cubic Metres						
Basic	227.0	220.0				
Seasonal Allowance	13.0	13.0				
Total	240.0	233.0	43,183,000	42,441,000	42,227,000	41,591,000
Gallons			(000)	(000)	(000)	(000)
Basic	49,940	48,400				
Seasonal Allowance	2,860	2,860				
Total	52,800	51,260	9,501,000	9,337,000	9,290,000	9,150,000

Based on the projected number of residential customers this is equivalent to total budgeted 2024 residential consumption of 42,441,000 m³ (9,337,000,000 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 increase in 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.

3.4 ICI Consumption – Increased Usage

ICI consumption for the 2023 Budget and proposed 2024 Budget for water and sanitary sewer by consumption block are detailed below. Increases have been budgeted for all rate blocks with bigger increases related to larger users.

1st Block ICI – All ICI customers pay for at least some of their consumption at first block rates. About 22 per cent of ICI consumption billings were at 1st block rates in 2022. It is projected that by year-end 2023 first block ICI consumption will be modestly higher than budget levels. Given the increase, the 2024 budget consumption also reflects a similar increase over 2023 budget.

2nd Block ICI – Many ICI customers use enough water so that at least some of their consumption is billed at 2nd block rates. In 2022 billings at 2nd block rates represented 44 per cent of ICI consumption billings. 2nd block consumption to date is trending higher than budget. It is projected that in 2024 2nd block consumption will be higher than 2023 budget levels.

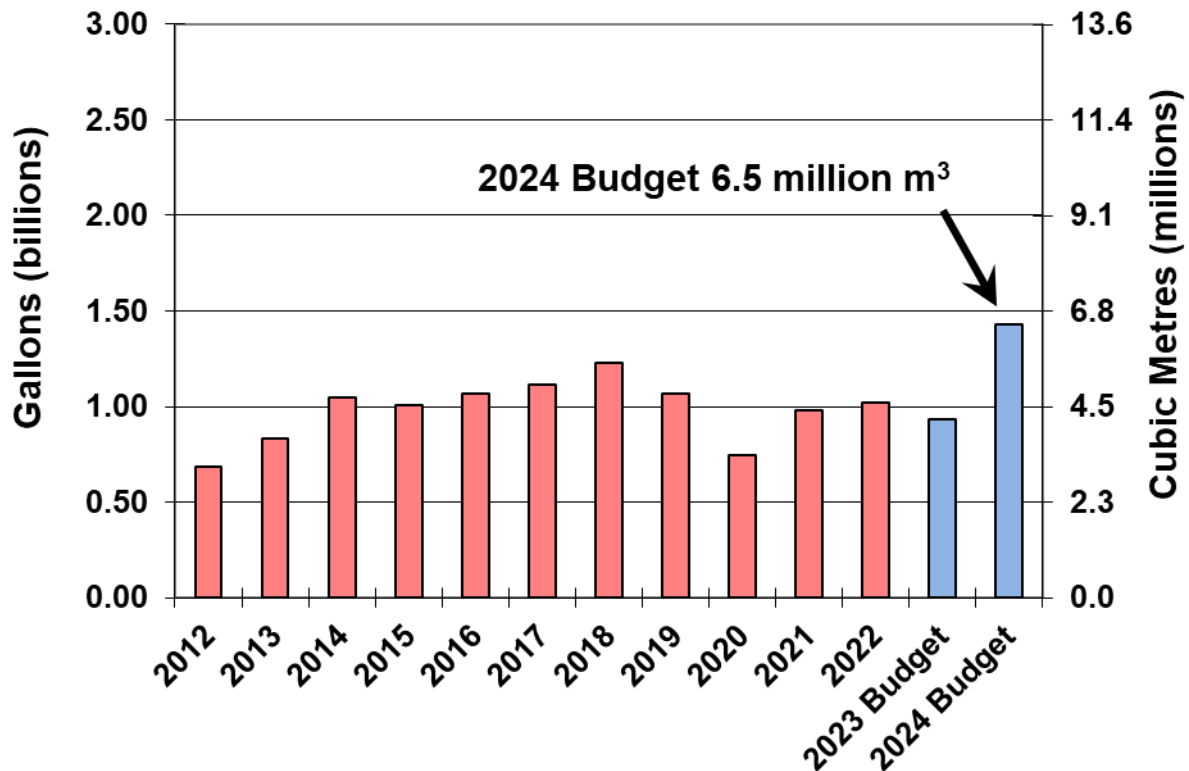
3rd Block ICI – There were 31 customer accounts which reached 3rd block rates for at least one billing in 2022 of which 15 were manufacturing, six utilities, five hospitals and six others (including arenas).

3rd block consumption is showing a robust increase in 2023 to date. A significant factor is increased consumption by General Motors and Atlantic Packaging. Atlantic Packaging expanded their production capacity mid-year resulting in significant increased water consumption. With the Atlantic upgrades in full production in late summer, some idea of future consumption levels is now

available. 2024 projections have taken into account recent water billings, although they were scaled back somewhat to allow for customer production efficiencies over time.

2012 to 2022 actuals along with 2023 and 2024 budgeted 3rd block consumption are graphed in Exhibit 8. 2024 Budget 3rd block consumption levels are projected to increase versus 2023 Budget levels (water consumption increase by 54 per cent; sanitary sewer consumption increase by 59 per cent).

Exhibit 8 - 3rd Block Water Consumption (2012 to 2022 Actuals and 2023/2024 Budgets)



Total ICI – Based on the foregoing, 2024 Budget ICI consumption is projected as follows – see Exhibit 9.

**Exhibit 9 - ICI Water & Sanitary Sewer
Consumption Summary (2023/2024 Budgets)**

Type of Usage	Water			Sewer		
	2023 Budget	2024 Budget	% Increase	2023 Budget	2024 Budget	% Increase
Cubic Metres						
1st Block	3,000,000	3,100,000	3.3%	2,909,000	3,080,000	5.9%
2nd Block	5,909,000	6,000,000	1.5%	5,179,000	5,270,000	1.8%
3rd Block	4,227,000	6,500,000	53.8%	3,867,000	6,140,000	58.8%
Total	13,136,000	15,600,000	18.8%	11,955,000	14,490,000	21.2%
Gallons (000)						
1st Block	660,000	682,000	3.3%	640,000	678,000	5.9%
2nd Block	1,300,000	1,320,000	1.5%	1,139,000	1,159,000	1.8%
3rd Block	930,000	1,430,000	53.8%	851,000	1,351,000	58.8%
Total	2,890,000	3,432,000	18.8%	2,630,000	3,188,000	21.2%

3.5 Total Consumption

Actual Consumption/Flow for 2018 to 2022 and Budget for 2023 and 2024 are shown in Exhibit 10.

**Exhibit 10 - Water & Sanitary Sewer
Consumption (2018 to 2022 Actuals and
2023/2024 Budgets)**

Year	Water			Sewage		
	Residential	ICI	Total	Residential	ICI	Total
Cubic Metres*						
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
Change	-3.4%	8.8%	-0.7%	-3.1%	10.8%	-0.2%
2022 Actual	43,596,839	14,201,762	57,798,602	42,434,100	12,855,505	55,289,604
2023 Budget	43,183,000	13,136,000	56,319,000	42,227,000	11,955,000	54,182,000
Change	-1.7%	18.8%	3.1%	-1.5%	21.2%	3.5%
2024 Budget	42,441,000	15,600,000	58,041,000	41,591,000	14,490,000	56,081,000
Gallons (000)*						
2023 Budget	9,501,000	2,890,000	12,391,000	9,290,000	2,630,000	11,920,000
Change	-1.7%	18.8%	3.1%	-1.5%	21.2%	3.5%
2024 Budget	9,337,000	3,432,000	12,769,000	9,150,000	3,187,800	12,337,800

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

As illustrated in the table, a projected decrease in residential consumption for 2024 is more than offset by projected ICI increases.

The 2024 water consumption and sanitary sewer flow projections are based on:

- Number of customers increasing (water customers increasing 1.05 per cent; sewer customers increasing 1.10 per cent);
- Total residential usage decreasing (water residential consumption decreasing 1.7 per cent; sewer residential consumption decreasing 1.5 per cent);
- Usage by ICI customers increasing in all three rate blocks, but especially 3rd block (overall water ICI consumption increasing 18.8 per cent and sewer ICI consumption increasing 21.2 per cent).

Taking the foregoing into account, 2024 volumes billed is budgeted as follows:

- Water consumption at 58,041,000 cubic metres (58,041 ML)
- Sewer flow at 56,081,000 cubic metres (56,081 ML)

4 Recommended 2024 Water and Sanitary Sewer User Rates

The recommended 7.3 per cent water user rate increase (see Attachment #1 – Recommended 2024 Water User Rates) and 7.4 per cent sanitary sewer user rate increase (see Attachment #2 – Recommended Sanitary Sewer User Rates) are needed to finance the proposed 2024 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 sewerage 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 sewerage systems are “User Pay” - property taxes are not used to fund water supply and sanitary sewerage system costs.

4.2 User Rate Revenue Requirements

The proposed preliminary 2024 water and sanitary sewerage net expenditure budgets require a water rate increase of 7.3 per cent and a sanitary sewer rate increase of 7.4 per cent (average residential customer combined increase 7.4 per cent).

A breakdown of the proposed preliminary 2024 budget expenditures and revenues, including user rate revenue requirements, is summarized in Exhibit 11 for water supply and Exhibit 12 for sanitary sewerage.

Additional information on the 2024 Business Plans and Budgets is available in Report #2023-F-36: 2024 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 2024 user rate supported water supply system revenue requirement is summarized in Exhibit 11. The proposed 2024 water system user rate revenue requirement of \$135.2 million represents an increase of \$12.4 million or 10.1 per cent over 2023 budget levels. The additional user rate revenues required are generated by a combination of:

- **User Rate Increase** - The proposed 7.3 per cent water rate increase generates \$8.97 million in additional revenues;
- **Customer Growth** - Customer growth adds \$1.80 million, offsetting a rate increase by 1.5 per cent; and
- **Consumption** – A projected decrease in residential consumption is more than offset by projected increased ICI consumption, contributing an increase in revenue of \$1.64 million which is equivalent to reducing the proposed rate increase by 1.3 per cent.

4.2.2 Sanitary Sewerage System

The proposed preliminary 2024 user rate supported sanitary sewerage system revenue required is summarized in Exhibit 12. The proposed 2024 sanitary sewerage system user rate revenue requirement of \$135.50 million represents an increase of \$12.1 million or 9.8 per cent compared to 2023 budget levels, and is generated by a combination of:

- **User Rate Increase** - The proposed 7.4 per cent sanitary sewer rate increase generates an additional \$9.13 million in revenue;
- **Customer Growth** - Customer growth adds \$0.23 million, offsetting the rate increase by 0.2 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 more than offset by the projected increase in ICI consumption and is estimated to contribute an additional \$2.7 million which is equivalent to reducing the proposed sewer rate increase by 2.1 per cent.

Exhibit 11 - Revenues Required from 2024 Water User Rates

Budget Category	2023 Approved Budget (\$)	2024 Proposed Preliminary Budget (\$)	Increase/(Decrease)	
			(\$)	(%)
A) Operations (net costs)				
Operations, Maintenance & Administration	77,149,398	85,467,534		
Less Other Revenues	(3,622,713)	(3,629,760)		
Operations from Current User Rates	73,526,685	81,837,774	8,311,090	11.3%
B) Tangible Capital Assets (gross costs)				
Construction of Municipal Services	120,878,270	134,305,017		
Operations Capital	23,319,463	8,700,872		
Total Capital Program	144,197,733	143,005,889		
Less Financing & Recoveries Applied				
• Development Charge Reserve Fund - Residential	(68,205,444)	(40,431,039)		
• Development Charge Reserve Fund - Commercial	(2,461,628)	(1,552,424)		
• Development Charge Reserve Fund - Industrial	-	(2,544,585)		
• Development Charge Reserve Fund - Seaton	-	(3,978,333)		
• Debenture Financing	(15,666,667)	-		
• Other Financing	-	(11,387,500)		
Total Non User Rate Financing	(86,333,739)	(59,893,881)		
Capital Program from User Rates Revenue Sources	57,863,994	83,112,008		
Less User Rate Financing (Debt/Reserves)				
• Asset Management Reserve Fund	(5,763,270)	(15,774,348)		
• Equipment Replacement Reserve	(40,000)	(40,000)		
• Capital Replacement Reserve - Water	-	(420,000)		
• Treatment Plant/Rate Stabilization Reserve Fund	(3,643,816)	(15,182,666)		
Total User Rate Financing	(9,447,086)	(31,417,014)		
Current User Rates Capital Program/Contributions	48,416,908	51,694,994	3,278,086	6.8%
C) Debt				
Expenditure	1,311,732	2,859,903		
Less Development Charge Reserve Funds Applied	(437,069)	(1,164,600)		
Debt from User Rates	874,663	1,695,303	820,640	93.8%
D) Current User Rate Revenue Requirements				
Total Expenditures	222,658,863	231,333,326	8,674,464	
Less Total Revenues & Recoveries	(99,840,607)	(96,105,255)	3,735,352	
Total Current User Rate Revenues Required	122,818,256	135,228,071	12,409,816	10.1%
Equivalent Water User Rate Increase		7.3%		
E) Impact of Changes in Customers & Consumption on Rate Increase				
Factors Affecting Revenues		Revenue Change (\$)	Rate Increase	
Expenditures - Increased revenue needed		12,409,816	10.1%	
Consumption - ICI increase offsets rate increase needed		(1,641,100)	-1.3%	
Customers - Growth reduces revenue needed		(1,802,900)	-1.5%	
Added Revenue From Rate Increase		8,965,816	7.3%	

Exhibit 12 - Revenues Required from 2024 Sanitary Sewer User Rates

Budget Category	2023 Approved Budget (\$)	2024 Proposed Preliminary Budget (\$)	Increase/(Decrease)	
			(\$)	(%)
A) Operations (net costs)				
Operations, Maintenance & Administration	125,879,369	137,289,230		
Less Other Revenues	(43,836,528)	(46,974,128)		
Operations from Current User Rates	82,042,841	90,315,102	8,272,262	10.1%
B) Tangible Capital Assets (gross cost)				
Construction of Municipal Services	126,309,236	204,398,747		
Operations Capital	18,483,877	7,192,511		
York Durham Capital	2,710,000	3,567,000		
Total Capital Program	147,503,113	215,158,258		
Less Financing & Recoveries Applied				
• Development Charge Reserve Fund - Residential	(36,202,813)	(38,202,991)		
• Development Charge Reserve Fund - Commercial	(2,609,080)	(4,041,196)		
• Development Charge Reserve Fund - Industrial	(1,874,400)	(1,395,537)		
• Development Charge Reserve Fund - Seaton	-	(3,978,333)		
• Debenture Financing	(15,666,668)	(45,868,298)		
• Other Financing	(40,690,977)	(59,984,974)		
Total Non User Rate Financing	(97,043,938)	(153,471,329)		
Capital Program from User Rates Revenue Sources	50,459,175	61,686,929		
Less User Rate Financing				
• User Rate Debenture	-	-		
• Asset Management Reserve Fund	(11,107,100)	(9,507,080)		
• Servicing of Employment Lands Reserve	-	(934,000)		
• REL Equipment Replacement Reserve	(475,000)	(400,000)		
• Equipment Replacement Reserve	(40,000)	(40,000)		
• Capital Replacement Reserve - Sewer	-	(465,000)		
• Treatment Plant/Rate Stabilization Reserve Fund	(442,237)	(8,438,667)		
Total User Rate Financing	(12,064,337)	(19,784,747)		
Current User Rates Capital Program/Contributions	38,394,838	41,902,182	3,507,344	9.1%
C) Debt				
Expenditures	12,093,963	12,987,565		
Less Development Charge Reserve Fund	(9,089,060)	(9,687,112)		
Net Debt from User Rates	3,004,903	3,300,453	295,550	9.8%
D) Current User Rate Revenue Requirements				
Total Expenditures	285,476,445	365,435,053	79,958,609	
Less Total Revenues & Recoveries	(162,033,863)	(229,917,316)	(67,883,453)	
Total Current User Rate Revenues Required	123,442,582	135,517,737	12,075,156	9.8%
Equivalent Sewer User Rate Increase		7.4%		
E) Impact of Changes in Customers & Consumption on Rate Increase				
Factors Affecting Revenues		Revenue Change (\$)	Rate Increase	
Expenditures - Increased revenue needed		12,075,156	9.8%	
Consumption - ICI increase offsets rate increase needed		(2,705,600)	-2.1%	
Customers - Growth reduces revenue needed		(234,800)	-0.2%	
Added Revenue From Rate Increase		9,134,756	7.4%	

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 13, it is recommended that water rates be increased by 7.3 per cent and sewer rates by 7.4 per cent.

**Exhibit 13 - Projected Data Used to Develop
2024 Water & Sanitary Sewer User Rates**

Parameter	Water	Sanitary Sewerage
Customers		
• Number	187,204	182,520
• Growth from 2023 Actual	1.05%	1.10%
Consumption / Flow		
• Cubic Metres (millions)	58.04	56.08
• Change from 2023 Budget	3.1%	3.5%
User Rate Revenue Requirements		
• Total Expenditures	\$135,228,071	\$135,517,737
• Increase from 2023 Budget	10.1%	9.8%
User Rate Change Requirement		
• Percent	7.3%	7.4%
• Impact on Revenue of a 1% Rate Change	\$1,258,000	\$1,262,000

The recommended 2024 water rates are in Attachment #1 and sewer rates are 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 in the billing period. Customers' billing periods may vary, so daily service charge rates are applied. The daily rates are equivalent to the approved

Calculation of Daily Equivalent Water Service Charge	
Monthly Water Service Charge	\$19.98 per month
Months per Year	12 months
Annual Equivalent SC	\$239.76 per year
Days per Year	365 days
Daily Equivalent Service Charge	\$0.6569 per day

monthly rates, and are calculated as shown in the adjacent table (using the 2023 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.

5 Other Fees & Charges Recommendations

5.1 Recommended 7.3 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 2020 to 2022 actuals, 2023 projected and 2024 Budget are provided in Exhibit 14:

Exhibit 14 - Raw Water Consumption (m³)

Gerdau Ameristeel				
Actual	Actual	Actual	Projected	Budget
2020	2021	2022	2023	2024
Note (1)				
738,440	619,280	673,955	550,000	560,000
Note (1) Volume higher due to timing of bills with new billing system (i.e. billed sooner after readings taken).				

Consumption by Gerdau has decreased somewhat over the years and is projected at 560,000 m³ for 2024 (versus budget 2023 at 600,000 m³).

Note that the 2020 billing of 738,440 m³ 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 one-time increase in the billings as 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 2024 raw water rate be adjusted in tandem with the potable water rate increase of 7.3 per cent. The recommended raw water rate is shown in Attachment #1 – Recommended 2024 Water User Rates.

5.2 Recommended Sun Valley Heights Homeowners Co-operative Water System Charges (Attachment #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.

The recommended charges for the Sun Valley Heights Homeowners Co-operative Water System are provided in Attachment #3 – Recommended 2024 Water Charge for the Sun Valley Heights Homeowners Co-operative Water System.

- The charge is based on actual Sun Valley Heights system costs;
- The 2024 costs are projected at \$35,302; and
- It is recommended that the 2024 rate be \$519/quarter (\$173 monthly; \$2,076 annually), an increase of \$72.00/quarter or 16.1 per cent from the 2023 rate resulting from increased labour costs to maintain and test the system.

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 sewerage systems.

Water and sewerage systems rates, fees and charges for 2023 (current) and 2024 (recommended) are set out in Attachment #4 – Recommended 2024 Water & Sanitary Sewer Systems Miscellaneous Fees & Charges of this report.

The fees and charges are based on tracking actual costs over time. As a result of the current review, it is recommended that most of the fees and charges be increased. The per cent increase varies depending on the result of the review and overall averages about 4.7 per cent over existing 2023 rates. The rates with recommended increases are bolded in Attachment #4. Also of note is the removal of the reduced fee for unloading septage at the Region's Water Pollution Control Plants from January 1st each year until the end of the half-load season. This special fee provision approved by Council in February 2018 is no longer required due to

metering enhancements at Duffin Creek Water Pollution Control Plant and the standard fee for unloading septage will be in place for the full year.

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 2023 and recommended 2024 laboratory fees/charges are set out in Attachment #5. 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. One additional test fee for Total Phosphorous is recommended (Item 83 in Attachment #5). No changes are recommended to the other existing 2023 fees for 2024. The Lab Fees are currently undergoing a review which will help inform potential fee changes for 2025.

6 Customer Impact

6.1 User Rate Impact on Customers of Various Sizes - Summary

Water and sanitary sewer charges to various sized customers are provided in Exhibit 15.

Exhibit 15 - Rates Impact on Customers of Various Sizes

											Water Rate Increase =		7.3%
											Sewer Rate Increase =		7.4%
											Average Residential Combined Increase =		7.4%
Customer Category			2023 Billing			2024 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	86.97	69.73	156.70	93.32	74.90	168.22	6.35	5.17	11.52	7.4	
51,260	233	Avg Std Meter	129.21	141.53	270.74	138.65	152.01	290.66	9.44	10.48	19.92	7.4	
60,000	273	Flat Rate	141.02	161.61	302.63	151.32	173.58	324.90	10.30	11.97	22.27	7.4	
100,000	455	Standard Meter	195.06	253.50	448.56	209.31	272.25	481.56	14.25	18.75	33.00	7.4	
Bimonthly Billings (\$ bimonthly)													
100,000	455	Standard Meter	130.04	169.00	299.04	139.54	181.50	321.04	9.50	12.50	22.00	7.4	
200,000	909	Standard Meter	439.20	711.68	1150.88	471.30	764.32	1235.62	32.10	52.64	84.74	7.4	
5 million	22,730	2" Meter	4,220	6,776	10,996	4,528	7,276	11,804	308	500	808	7.3	
50 million	227,270	4" Meter	37,242	59,250	96,492	39,960	63,634	103,594	2,718	4,384	7,102	7.4	
150 million	681,820	6" Meter	108,696	172,516	281,212	116,630	185,284	301,914	7,934	12,768	20,702	7.4	

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 2024 Rates versus 2023 Rates

The impact on a typical residential customer of the proposed 2024 water and sanitary sewer user rate charges are shown below in Exhibit 16.

Exhibit 16 - Impact of Proposed Water and Sanitary Sewer User Rate Increases on an Average Residential / Small ICI Customer

Billings (\$/quarter)			
	2023 Actual	2024 Proposed	Increase
Water	\$129.21	\$138.65	\$9.44 7.3%
Sewer	\$141.53	\$152.01	\$10.48 7.4%
Total (\$/quarter)	\$270.74	\$290.66	\$19.92 7.4%
Annual Billing (\$/year)	\$1,082.96	\$1,162.64	\$79.68 7.4%
Notes:			
Average Water Consumption:		51,260 gallons/year 233.0 m ³ /year	

A residential customer who had the same annual consumption of 233 m³ (51,260 gallons) in both 2023 and 2024 would have a bill increase of 7.4 per cent. This equates to an increase of \$19.92 quarterly (residential customers are billed quarterly) or \$79.68 annually.

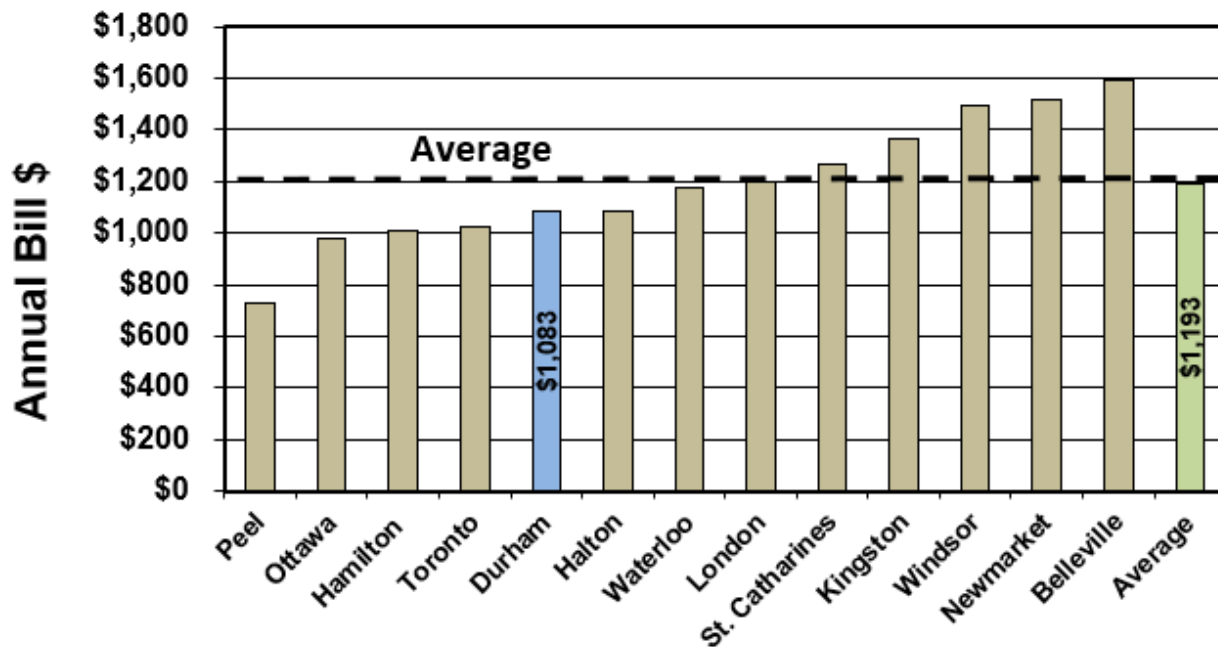
6.2.2 Charges Compared with Other Municipalities

The 2023 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 233 m³/year (51,260 gallons/year). This represents the projected usage by a typical 2024 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.

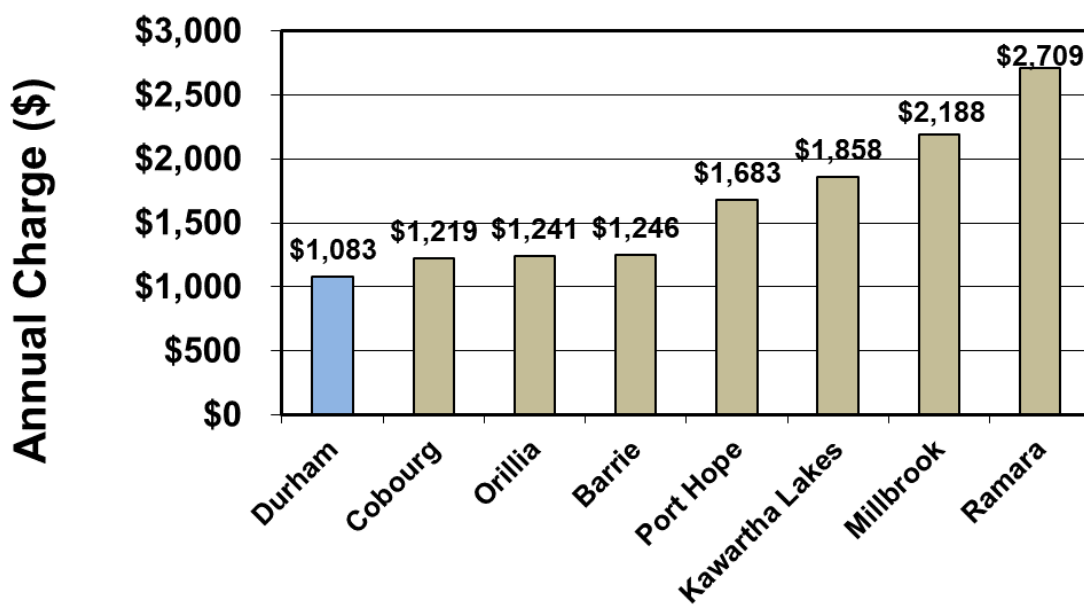
As illustrated in Exhibit 17, Durham is the fifth lowest out of the 13 in the survey. The overall average 2023 combined water and sanitary sewer bill for 233 m³ (51,260 gallons) annual consumption for the 13 surveyed municipalities is \$1,193 per year compared to \$1,083 in Durham.

Exhibit 17 - Comparative 2023 Residential Water/Sanitary Sewer Charges (233 m³/year) Large Municipalities



Neighbouring Municipalities - Typical 2023 charges to a residential customer have also been calculated for seven neighbouring communities - see Exhibit 18.

Exhibit 18 - Comparative 2023 Residential Water/Sanitary Sewer Charges (233 m³/yr) Neighbouring Municipalities

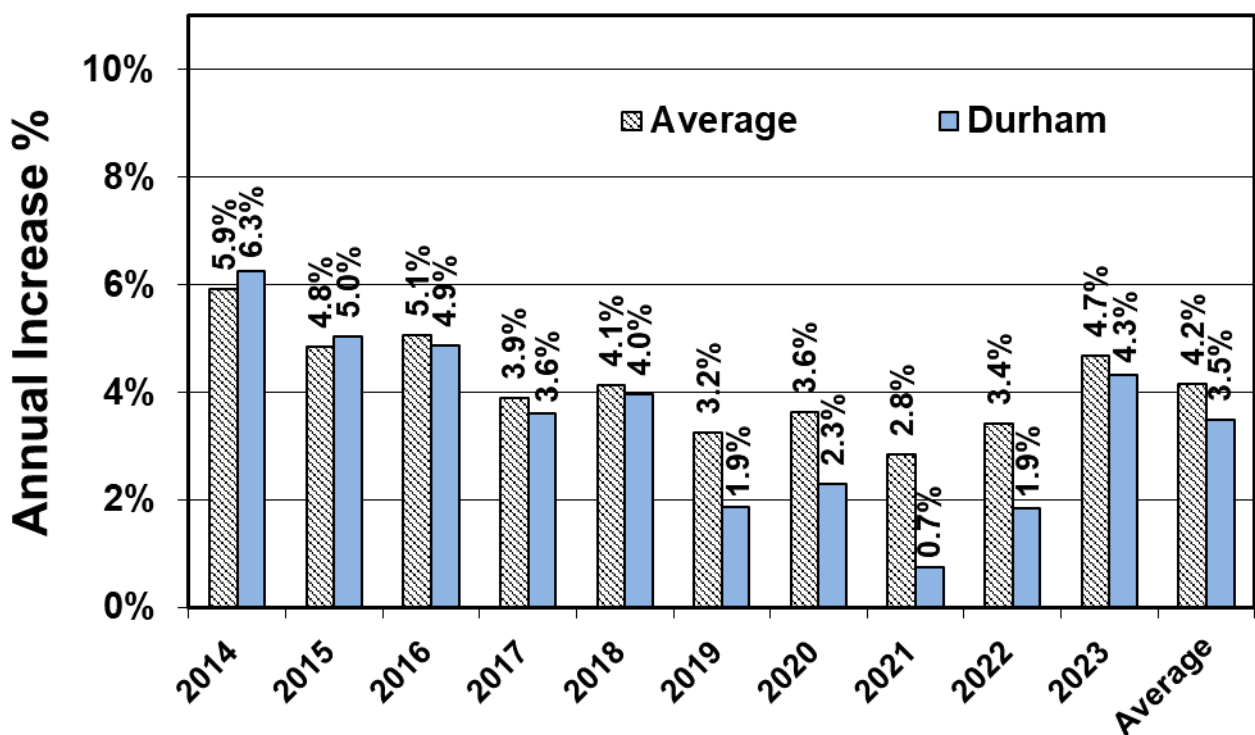


Durham is at the low end of user rate charges. Comparisons are sometimes difficult because of the use of property tax to recover some costs in other municipalities. For example, Cobourg recovers some sanitary sewer costs from property taxes.

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 233 m³/year (51,260 gallons) in the 12 other larger municipalities surveyed are graphed in Exhibit 19. Note that since average consumption per customer is generally falling over time, the actual impact on customer bills would be less than shown since decreasing usage would offset some of the increase due to higher rates.

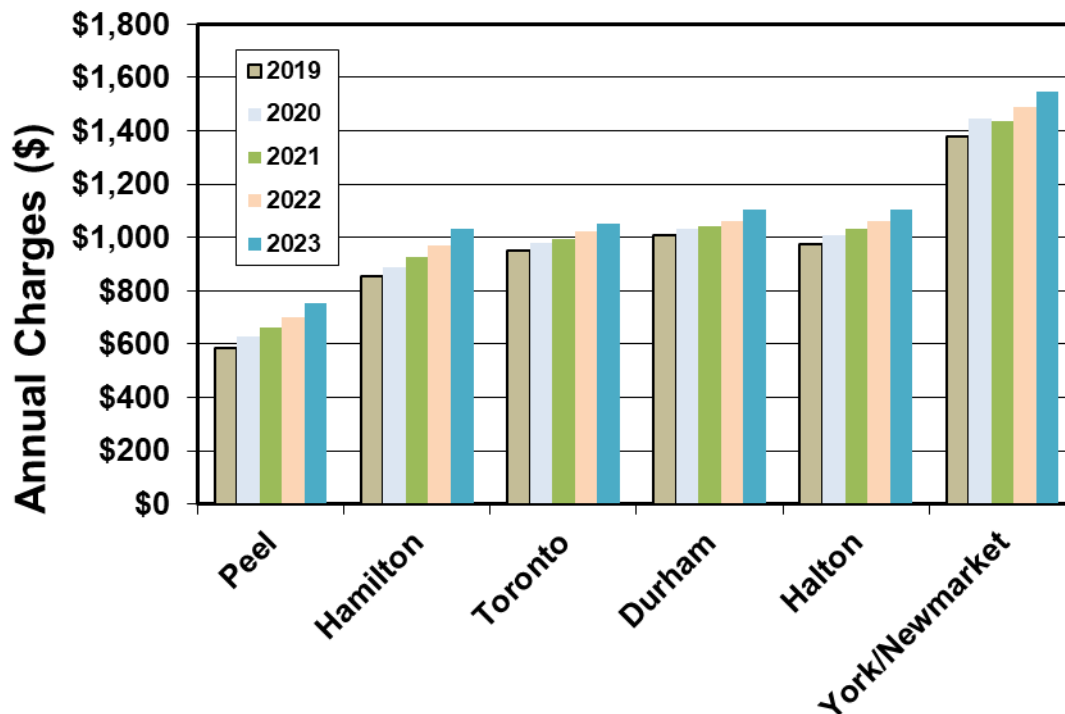
Exhibit 19 - Comparative 2014 to 2023 Residential Water/Sanitary Sewer Bill Increases Large Municipalities (233 m³/year)



The average annual combined water and sanitary sewer bill increase (233 m³/year usage) for all the municipalities was approximately 4.2 per cent for the 10-year period. Durham’s average was approximately 3.5 per cent annually.

GTA - Combined water and sanitary sewer user rate increases over the past five years in nearby Regions are graphed in Exhibit 20. The analysis is based on a customer using 233 m³/year.

**Exhibit 20 - Comparative 2018 to 2023
Residential Water/Sanitary Sewer Charges
GTA (233 m³/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 that impacts costs. 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 17 and Exhibit 24):

- Peel is dominated by a 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 sewage from its customers. Water supply and wastewater treatment are provided by York Region.

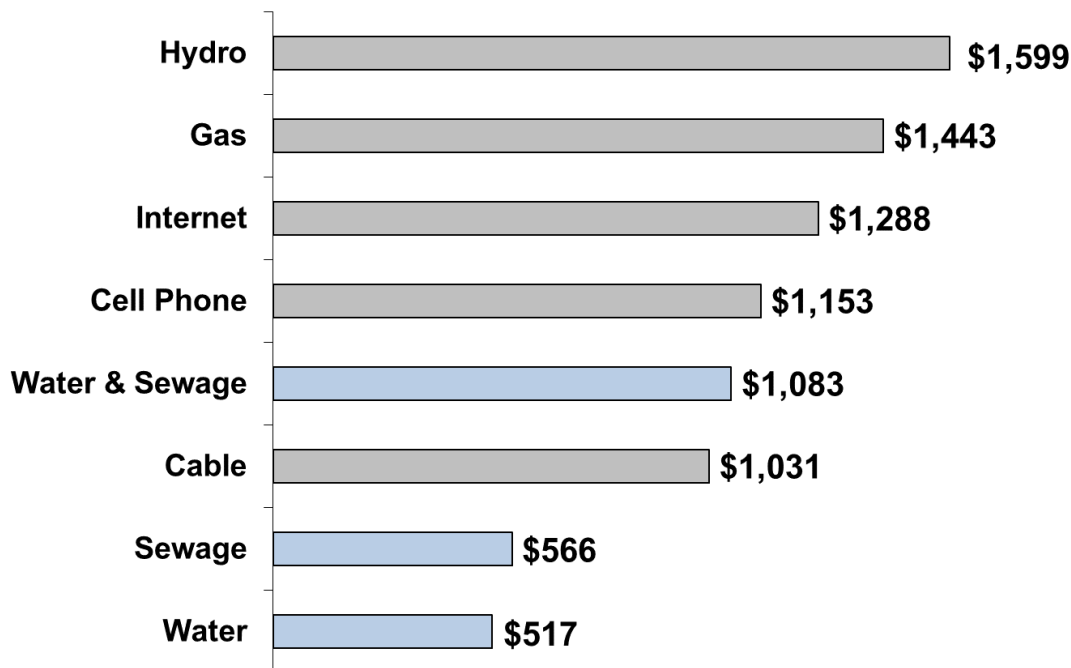
6.2.4 Durham’s Average Residential Water & Sanitary Sewer Charges are Much Less Than Typical Hydro, Gas, Telephone or Cable Television Services

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 2023 annual residential utility charges in Durham (Oshawa rates used) are graphed in Exhibit 21.

Exhibit 21 - Typical Durham Residential Utility Charges Graph 2023



The components of a total annual bill for a representative residential customer are as shown in Exhibit 22.

Exhibit 22 - Typical Durham Residential Utility Charges 2023

Utility	Basis of Comparison	Annual Bill (\$)	% of Annual Utility Bills
Hydro	Cooling, appliances, lighting, etc.	\$1,599	21.0%
Natural Gas	Home & hot water heating	\$1,443	18.9%
Internet	One level above basic - 50 Mbps download	\$1,288	17.0%
Cell Phone	Basic service with long distance package	\$1,153	15.2%
Cable	Basic package – no movies	\$1,031	13.6%
Sewage	Average residential use - 233 m3/year	\$566	7.5%
Water	Average residential use - 233 m3/year	\$517	6.8%
	Total	\$7,596	100.0%

The total combined water and sanitary sewer billing for this residential customer represents only about 14.3 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 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 Largest Customers

6.3.1 Impact of Recommended Rate Increase on 25 Largest Customers

Using actual 2021 consumption levels, the impacts on the Region's 25 largest customers of the recommended 2024 user rates, compared with existing 2023 rates, are provided in Exhibit 23.

**Exhibit 23 - Impact of Proposed 2024 Water
and Sanitary Sewer User Rate Increases on 25
Largest Accounts (Using 2022 Actual
Consumption Data - \$/year)**

Rank	2022		2023			2024			Combined Increase	
	(m ³)	(000 gal)	Water (\$)	Sewage (\$)	TOTAL (\$)	Water (\$)	Sewage (\$)	TOTAL (\$)	\$	%
1	2,417,740	531,900	2,257,070	3,630,490	5,887,560	2,421,810	3,899,190	6,321,000	433,440	7.4%
2	381,350	83,900	366,510	585,880	952,390	393,260	629,240	1,022,500	70,110	7.4%
3	342,590	75,370	330,510	527,910	858,420	354,640	566,980	921,620	63,200	7.4%
4	310,530	68,320	300,760	332,280	633,040	322,720	356,870	679,590	46,550	7.4%
5	262,520	57,750	256,160	170,090	426,250	274,860	182,670	457,530	31,280	7.3%
6	258,300	56,830	252,270	401,910	654,180	270,690	431,650	702,340	48,160	7.4%
7	204,280	44,940	202,100	321,110	523,210	216,850	344,870	561,720	38,510	7.4%
8	198,940	43,770	197,160	313,160	510,320	211,560	336,330	547,890	37,570	7.4%
9	174,600	38,410	174,540	276,730	451,270	187,290	297,210	484,500	33,230	7.4%
10	153,680	33,810	155,130	245,470	400,600	166,460	263,630	430,090	29,490	7.4%
11	144,170	31,720	146,310	231,260	377,570	156,990	248,380	405,370	27,800	7.4%
12	139,060	30,590	141,540	223,590	365,130	151,880	240,130	392,010	26,880	7.4%
13	126,410	27,810	129,810	204,690	334,500	139,290	219,840	359,130	24,630	7.4%
14	123,080	27,080	126,730	199,730	326,460	135,980	214,510	350,490	24,030	7.4%
15	109,610	24,110	114,190	179,550	293,740	122,540	192,830	315,370	21,630	7.4%
16	104,370	22,960	109,340	171,730	281,070	117,330	184,440	301,770	20,700	7.4%
17	96,180	21,160	101,750	159,500	261,250	109,180	171,300	280,480	19,230	7.4%
18	78,010	17,160	84,870	200	85,070	91,070	220	91,290	6,220	7.3%
19	68,340	15,030	75,880	117,840	193,720	81,420	126,560	207,980	14,260	7.4%
20	66,240	14,570	73,940	114,710	188,650	79,340	123,200	202,540	13,890	7.4%
21	62,490	13,750	70,480	109,140	179,620	75,630	117,210	192,840	13,220	7.4%
22	55,430	12,190	63,890	98,540	162,430	68,560	105,830	174,390	11,960	7.4%
23	54,500	11,990	63,050	97,180	160,230	67,660	104,370	172,030	11,800	7.4%
24	53,960	11,870	62,540	96,360	158,900	67,110	103,490	170,600	11,700	7.4%
25	52,940	11,650	61,610	94,870	156,480	66,120	101,890	168,010	11,530	7.4%
Total	6,039,320	1,328,640	5,918,140	8,903,920	14,822,060	6,350,240	9,562,840	15,913,080	1,091,020	7.4%

Note: Green shaded accounts have reduced sewage charges (sewer appeals).

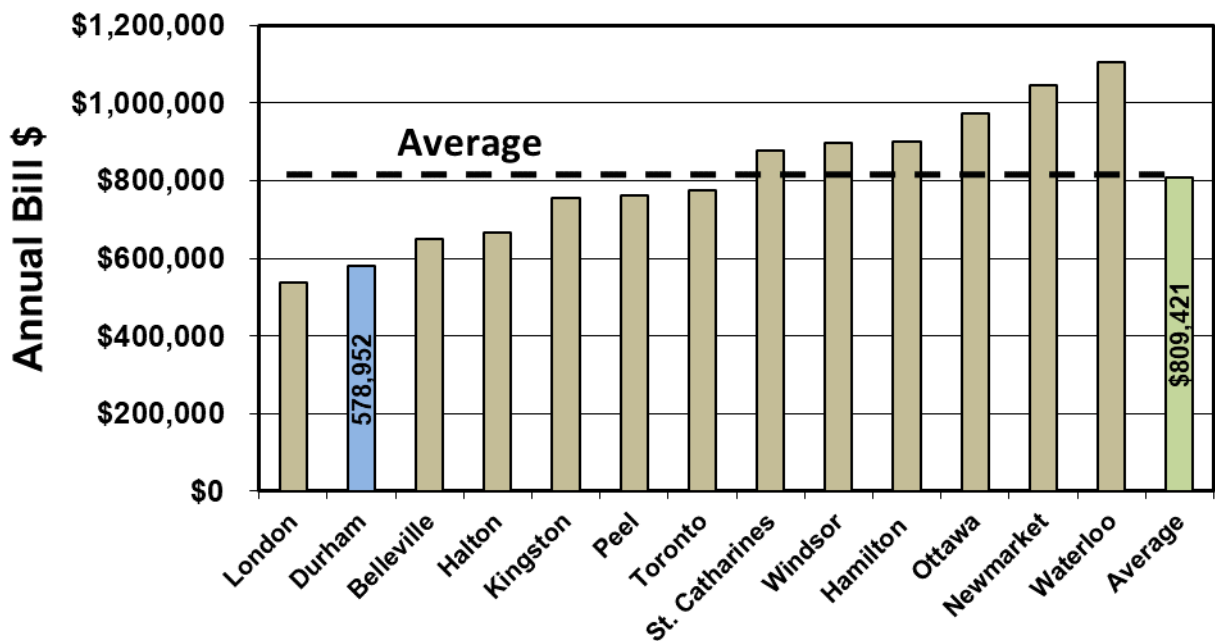
Note that most large customers will have a combined water/sanitary sewer bill increase of about 7.4 per cent.

There are three (3) customers among the top 25 users which have 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 Comparison With Other Ontario Municipalities

The following analysis is based on annual consumption of 227,272 m³ (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 24.

Exhibit 24 - Comparative 2023 Large Industry Water & Sanitary Sewer Charges Large Municipalities (227,272 m³/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 \$809,421 per year compared to \$578,952 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 25 is a summary of how often the different rate structures were encountered in the survey:

**Exhibit 25 - 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 m³/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 sewerage 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.

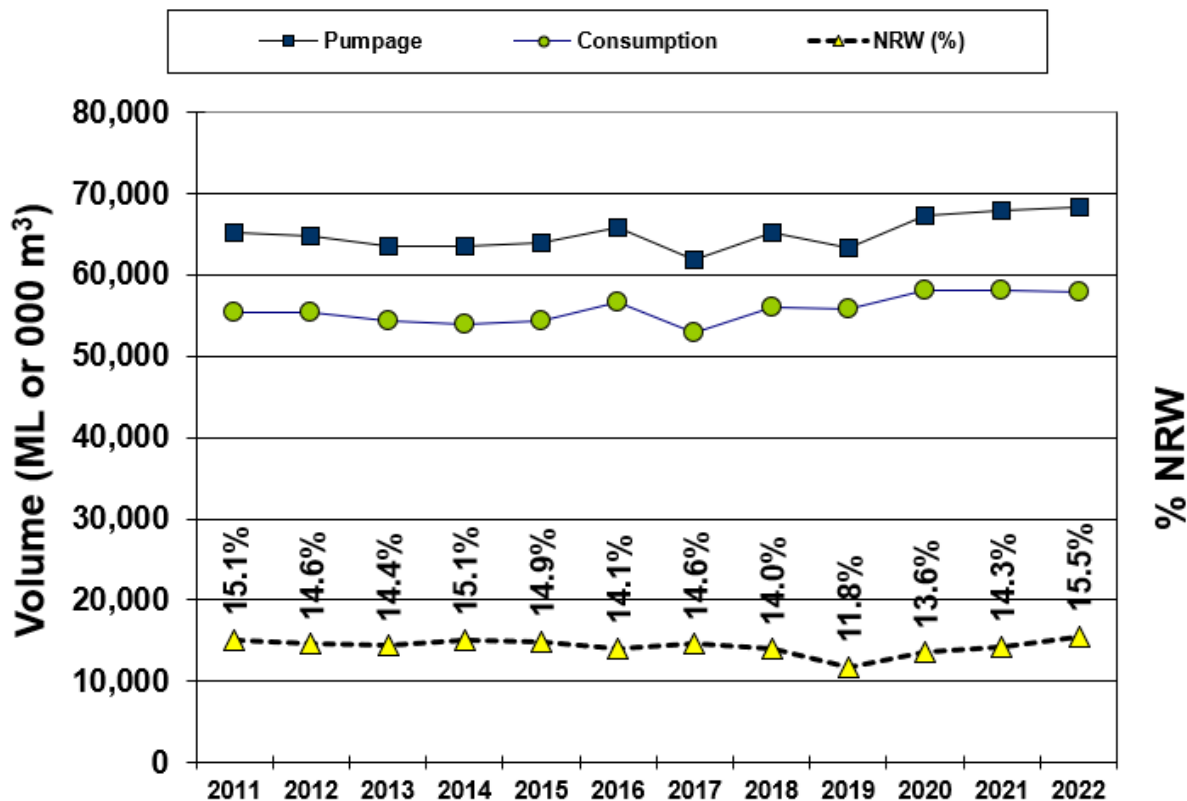
7 Water System Performance

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 2022 is graphed below in Exhibit 26.

Exhibit 26 – 2011-2022 Water Pumpage, Consumption & Non-Revenue Water (NRW)



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 27.

Exhibit 27 - IWA Standard Water Balance Terminology

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

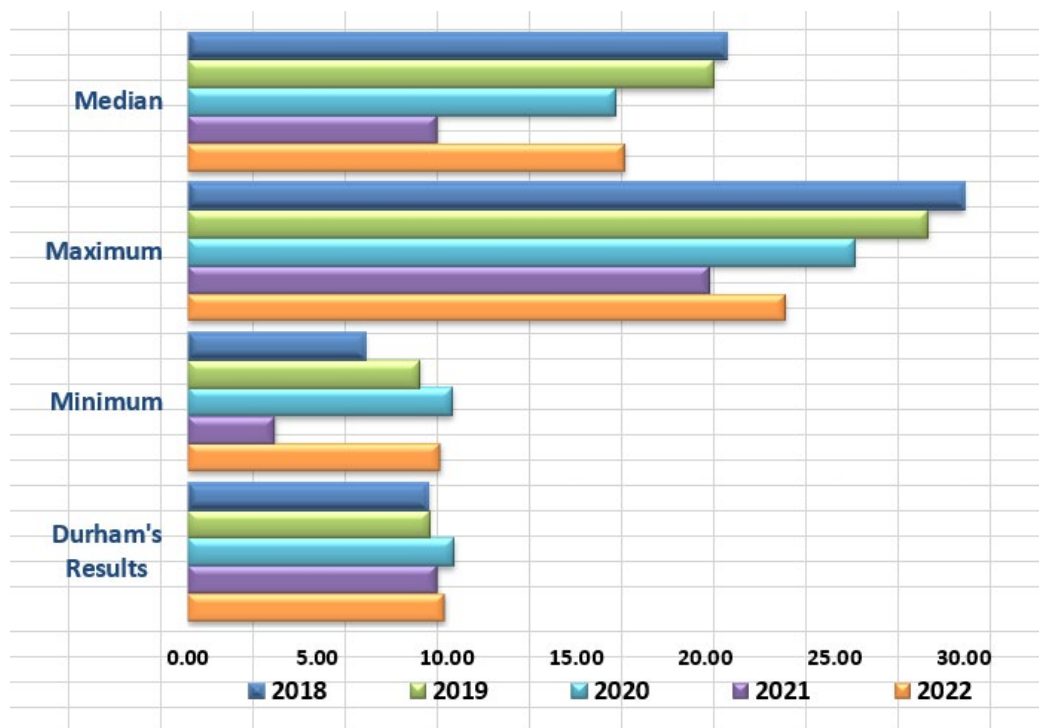
The IWA/AWWA methodology is now an industry recognized standard approach and has been utilized to assess water losses in Durham Region. Water loss performance measures such as the Infrastructure Leakage Index (ILI) and NRW per kilometre of mains were calculated first during the Water Loss Control Strategy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

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

One performance measure used by MBN is NRW per kilometre of main. This is a measure which expresses total water losses but takes into account density or spread of the water service in a municipality. For example, NRW for systems in similar condition would be higher for a spread-out municipality than for one more densely developed. Taking the length of mains into account makes the comparison more meaningful. **The lower the NRW performance measure the better.**

A graph of NRW per kilometre of main from the MBN survey for 2018 to 2022 is provided in Exhibit 28.

Exhibit 28 – 2018-2022 NRW (m³/km of Main / Day) (MBN data)

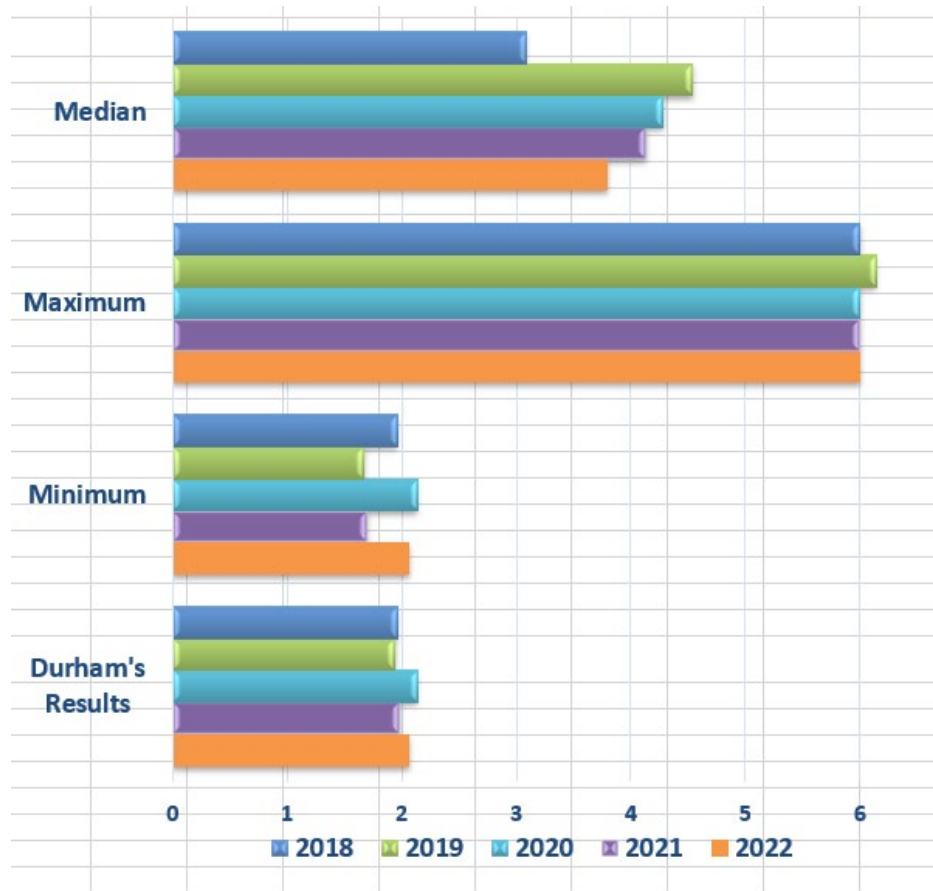


Durham's 2022 NRW versus main length of is much lower than the median level.

Another performance indicator which takes a number of factors into account is the Infrastructure Leakage Index (ILI). A lower ILI number indicates better performance.

See Exhibit 29 for the 2018 to 2022 survey results.

Exhibit 29 – 2018-2022 Infrastructure Leakage Index (MBN data)



The 2022 Infrastructure Leakage Index (ILI) for Durham was the lowest and thus the best of the 20 systems reporting (also lowest in 2018 and 2020).

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 2033)

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 were 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 abated in 2022 and again in 2023. The 2024 proposed user rates assume a decrease (compared to budget 2023) in residential base (non-seasonal) consumption to 220 m³/customer/year. Future Business Plans and Budgets and User Rates will need to be established based on updated residential base consumption.
- **Small to Medium Commercial** – This sector historically has been fairly constant, but recently has shown some increase in consumption. It is expected that consumption will stabilize in this category.
- **Large Industrial** – This sector has shown a significant increase in 2023 and the proposed 2024 rates reflect this increased consumption. It is likely that future consumption will stabilize at this level but given the increase in 2023 future changes are quite possible. Staff continue to monitor the impact of large customer consumption on future projections.
- **Total Consumption** – For planning purposes, it is projected that overall total consumption will stabilize at 2024 budget levels. Static 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 sewerage 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 sewerage 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 a critical 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 the accelerated capital plan to meet the provincial housing targets and pressures to invest in aging infrastructure 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 consequently 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. This increase does not include the estimated impacts of Bill 23, *More Homes Built Faster Act, 2022*, which, without any provincial funding, are currently estimated at an incremental increase of 7.0 per cent for water and 6.5 per cent for sanitary sewer annually through 2028 based on current modelling and a growth forecast aligned with the provincial housing targets. The Region, along with municipal partners and associations, continues to advocate for provincial funding to mitigate these significant financial impacts. Additional details on the impacts of Bill 23 can be found in the 2024 Business Plans and Budget and Nine-Year Capital Forecast for the Consolidated Water Supply and Sanitary Sewerage Systems (Report 2023-F-36).

Staff continue to review operating requirements and long-term capital forecasts and financing plans to refine these estimates. Information available through the Region's water billing system and enhancements to the capital forecast modelling under the Region's business planning and budget modernization initiative allow for better refinement of projected rate increases for future years.

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

- Customer growth that may be lower than that experienced over the last number of years;
- Potential for reductions in residential base water consumption and thus related revenues without a resulting offsetting reduction in costs. In addition, any economic decline could result in lower system utilization with consequent decreases and water and sanitary sewer user rate revenues;

- Financial impact of works needed to comply with Provincial and Federal Regulatory requirements associated with the Region's water supply and water pollution control plants (i.e., the *Clean Water Act*, the *Lake Simcoe Protection Act* and *Water Opportunities and Water Conservation Act*);
- Market price impacts or volatility for input commodities, including energy and chemicals;
- Increase in construction costs;
- Significant capital investments required to meet growth related pressures;
- Lower development than planned resulting in a 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 into 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.
- 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.

Attachment #7 – Background on Water and 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, 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. The Laboratory is jointly owned by York and Durham Regions. The laboratory conducts testing services for both Regions and several 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 developed by the AWWA. The resulting rates charged to each customer is 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 of 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 and 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 a portion of the growth related capital costs for infrastructure, such as treatment, trunk mains, storage, etc. which are built by the Region,
- Frontage and connection charges for local works constructed 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 reserves and reserve funds for future capital needs or spreading out "lumpy" capital investments using debenture financing. This is much like individuals who put money aside for 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 charged to each customer are commensurate with the cost of supplying the service. These rates 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 the 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 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	
<u>Block</u>	<u>m³ / month</u>
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 based on 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 per cent of the total consumption revenue while representing about 3 per cent 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 the 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 as it also recovers 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 allocate water system fire protection capacity costs to larger customers with 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 one per cent of customers have unmetered fire lines.
- **Minimum Bill** - Most Ontario water systems have a minimum bill feature to help offset ongoing water system costs 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** – There is a flat rate for a few customers who are not yet metered (less than 100) but are to be billed.
- **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 per cent 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 (2023 Budget)			
	Water	Sewer	Combined
Consumption Charges	53%	86%	69%
Service Charges	41%	14%	28%
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, economical 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 three 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 the promotion of the program, the customer meter reading participation rate is now only roughly 60 per cent.

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 go 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 the 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. 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 multi-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 is targeted Region-wide by the end of 2027. This will eliminate the need for residential customers to supply readings. Using Meter Readers to obtain readings will decrease estimated billings from the former 40 per cent to less than 3 per cent. The reduction in estimated billings will translate to a reduction in extended periods of undetected plumbing problems and high back-billings and an improved 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 60 m³ quarterly (240 m³ annually) based on 2023 water and sewer rates:

Average Residential Customer Water/Sewer Quarterly Bill Calculation					
Consumption	=	60.0	m ³ quarterly (240 m ³ annually)		
	=	13,200	gallons quarterly (52,800 gallons annually)		
Meter Size	=	16 or 19 mm			
	=	5/8 or 3/4 inch			
Bill Calculation (2023 Rates)					
Water			Calculation		Quarterly Billing
Volumetric Charge		60.0	X	\$1.189	\$71.34
Service Charge (90 days)		3	X	\$19.98	\$59.94
Total Water Bill					\$131.28
Sewer			Calculation		Quarterly Billing
Volumetric Charge		60.0	X	\$2.021	\$121.26
Service Charge (90 days)		3	X	\$7.93	\$23.79
Total Sewage Bill					\$145.05
Total Quarterly Water and Sewer Bill					\$276.33

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/Sewer Bimonthly Bill Calculation						
Consumption	=	113,600 m ³ bimonthly (681,600 m ³ annually)				
	=	25,000,000 gallons bimonthly (150 million gallons/year)				
Meter Size	=	152 mm				
	=	6 inch				
Bill Calculation (2023 Rates)						
Water			Calculation			Bimonthly Billing
Volumetric Charge						
1st Block	45 x 2 months = 90	90	X	\$1.189		\$107.01
2nd Block	4,455 (4,500-45) x 2 months = 8,910	8,910	X	\$1.011		\$9,008.01
3rd Block	113,600 - 90 - 8,910 = 104,600	104,600	X	\$0.928		\$97,068.80
Total	113,600					\$106,183.82
Service Charge (60 days)		2	X	\$1,212.61		\$2,425.22
Total Water Bill						\$108,609.04
Sewer			Calculation			Bimonthly Billing
Volumetric Charge						
1st Block	45 x 2 months = 90	90	X	\$2.021		\$181.89
2nd Block	4,455 (4,500 - 45) x 2 months = 8,910	8,910	X	\$1.779		\$15,850.89
3rd Block	113,600 - 90 - 8,910 = 104,600	104,600	X	\$1.495		\$156,377.00
Total	113,600					\$172,409.78
Service Charge (60 days)		2	X	\$7.93		\$15.86
Total Sewage Bill						\$172,425.64
Total Bimonthly Water and Sewer Bill						\$281,034.68

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

Utility Finance Contact Information:

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

Email **waterbilling@durham.ca**