

WASTEWATER

VALUE STATEMENT

I expect my wastewater to be collected, treated and disposed of in an affordable and effective manner while being environmentally friendly.

Wastewater

What is this Service?

The goal of Wastewater Services is the safe and effective collection, treatment and disposal of wastewater. Treatment standards established by provincial and federal agencies ensure that the impact of wastewater treatment on the natural environment is minimized.

Objectives May Include:

- Efficient and effective collection of wastewater from customers via the municipal sewage systems, operation of wastewater treatment facilities and disposal of wastewater in accordance with federal and provincial regulation
- Maintaining adequate capacity for existing communities and future developments

Wastewater services are provided to residential and Industrial, Commercial and Institutional (ICI) sector customers. The quality of wastewater discharged into the municipal sewage system is controlled through municipal sewer-use by-laws. Funding for wastewater services is generally through municipal water rates, which usually include a sewer surcharge based on water usage to recover the costs of wastewater collection and treatment.

Influencing Factors:

1. **Age of Infrastructure:** Age and condition of wastewater collection system and frequency of maintenance costs.
2. **Amortization Costs:** Amortization costs vary depending on the age of the infrastructure and the scope of capital programs and asset capitalization patterns.
3. **Conservation Programs:** Extent of municipal water conservation programs can impact water consumption and wastewater treated.
4. **Government Structure:** Single-tier service providers with jurisdiction over the wastewater system vs. two-tier system where the responsibility for wastewater service is divided between the local municipalities and the Regional municipality.
5. **Policy and Practices:** Frequency of wastewater collection system maintenance activities, collection system age, condition and the type of pipe material.
6. **Supply and Demand:** Respective volume of wastewater generated relative to the total system demand. The quantity of wastewater flows from ICI sectors relative to residential demand.
7. **Treatment Plants:** Number, size and complexity of the wastewater collection systems and treatment plants operated.
8. **Urban Density:** Proximity of pipes to other utilities increases the cost for infrastructure repair and replacement.
9. **Weather Conditions:** Negative impacts are associated with more severe and frequent extreme weather events.

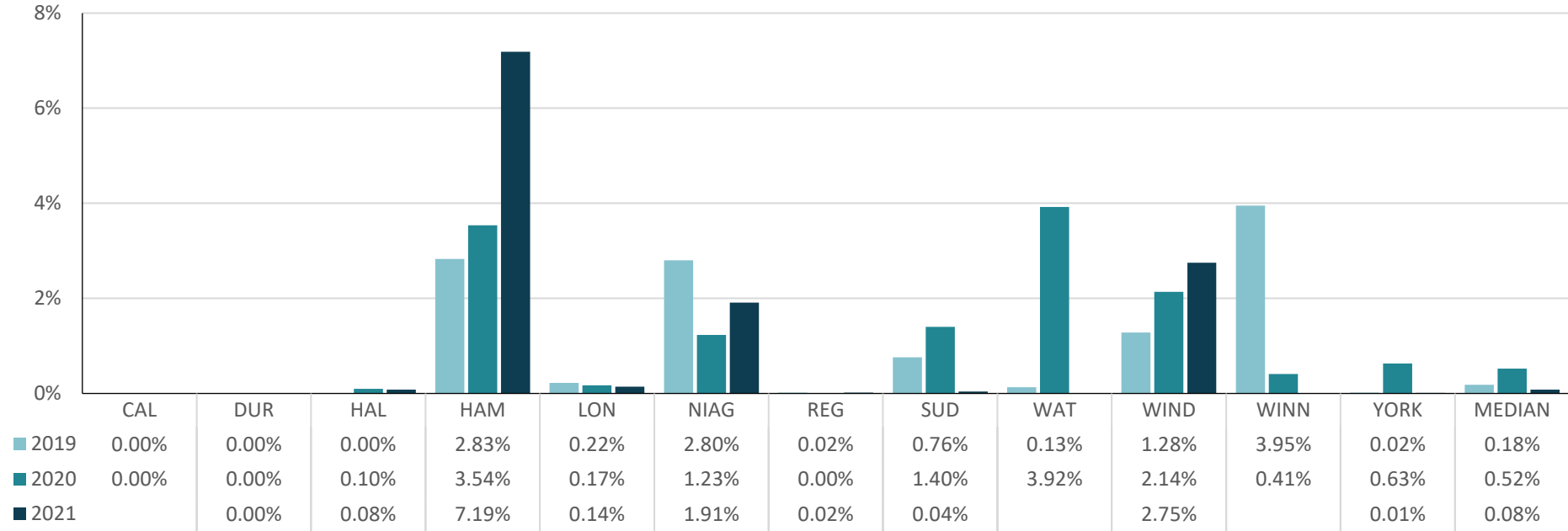
Extenuating Circumstances:

- **COVID-19 Pandemic:** Wastewater is an essential municipal service. There was reduced treatment in the industrial, commercial and institutional sector and an increase in operating costs due to the cost of personal protective equipment to protect the health and safety of staff and reduce the risk of virus transmission. The cost of materials was increased, capital and maintenance projects were extended, delayed or deferred and material and parts deliveries were delayed.

Wastewater

WWTR110 - Percent of Wastewater Estimated to have Bypassed Treatment

The frequency and severity of weather events can have a significant negative impact on results.



Waterloo: Increased volume in 2020 due to GALT WWTP Tertiary Filter replacement capital project. Planned continuous tertiary bypass throughout the duration of the project.

Windsor: The increase of volume bypassed was a result of heavier than normal storm events that delivered large volumes of wastewater through our combined sewer system to the plants in a short period of time.

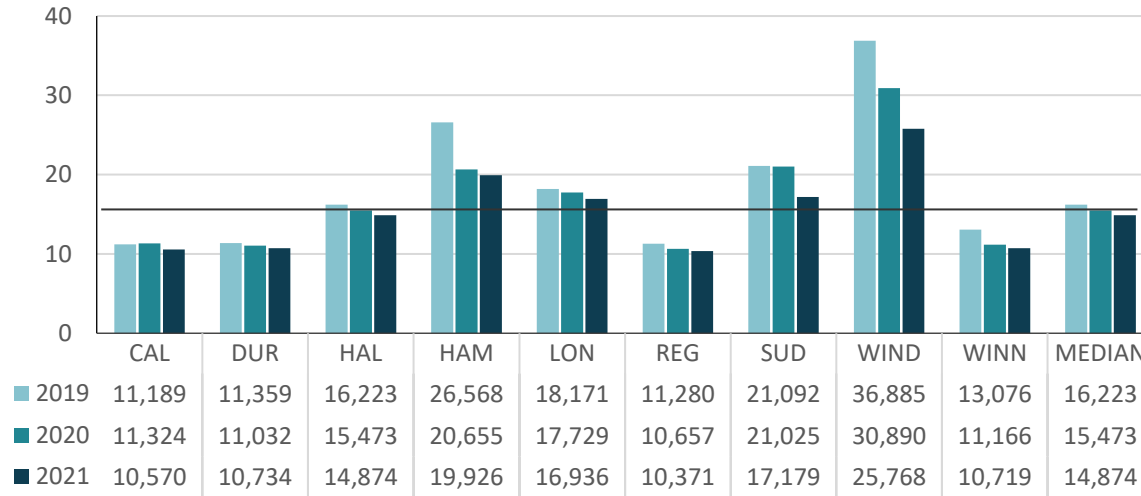
Winnipeg: Older portions of the system are a combined sewer system resulting in variability in flow rates dependent on weather. 2020 had unusually low flow rates.

Wastewater

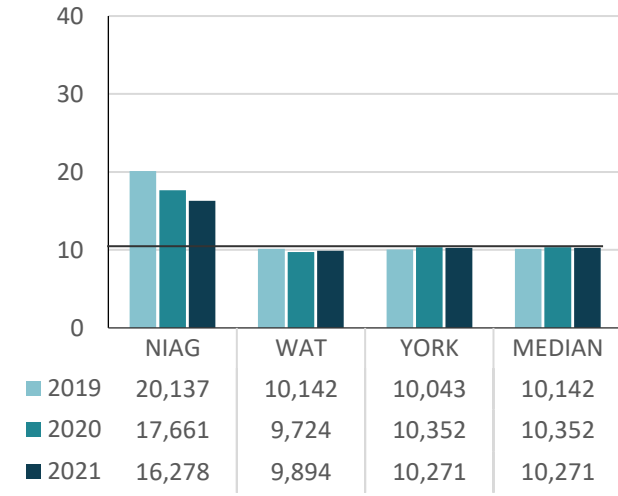
WWTR210 - Megalitres of Treated Wastewater per 100,000 Population

Integrated Systems: The term applies to municipalities that have full responsibility for all wastewater activities including collection, conveyance, treatment and disposal. **Two-Tier System:** The term applies to municipalities that have responsibility for components of wastewater activities.

Integrated (In Thousands)



Two Tier (In Thousands)



Hamilton: The 2019 wastewater flows were much greater primarily due to high surface water levels in Lake Ontario which surcharged into the combined sewer collection system in the spring and summer. In addition, total precipitation levels were greater in 2019 (1087 mm in 2019 vs. 797.1 mm in 2020).

Niagara, Waterloo and York: Responsible for all components with the exception of collection which is the responsibility of local municipalities within their boundaries.

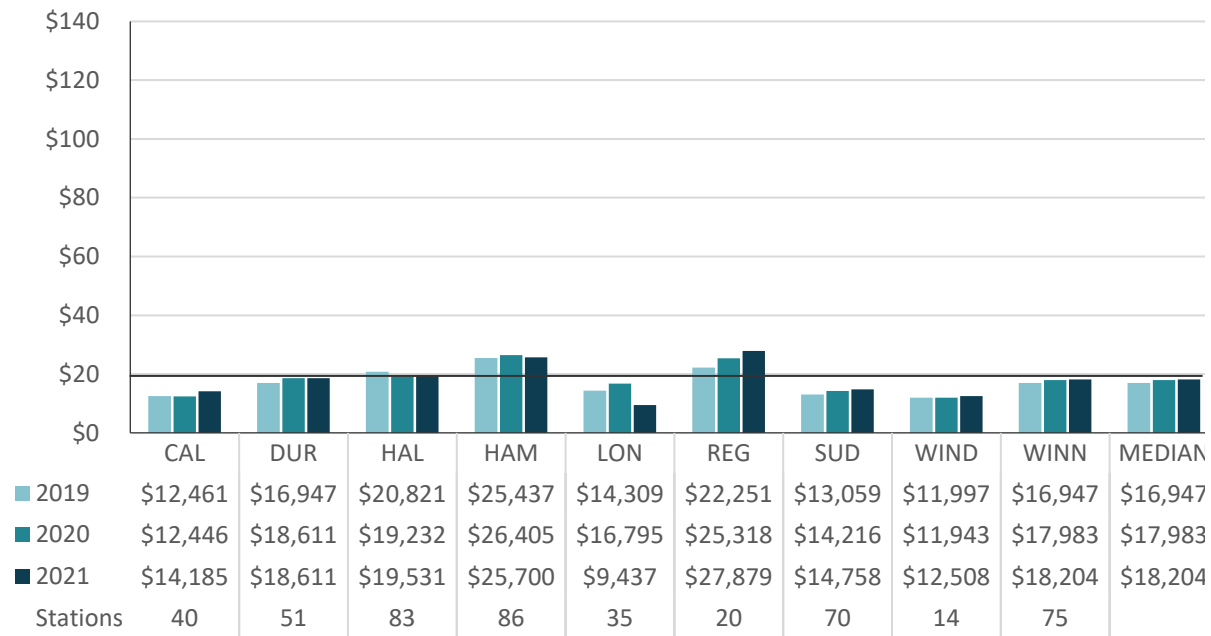
Sudbury: March and April 2020 had much higher wastewater flows due to the amount of precipitation.

Wastewater

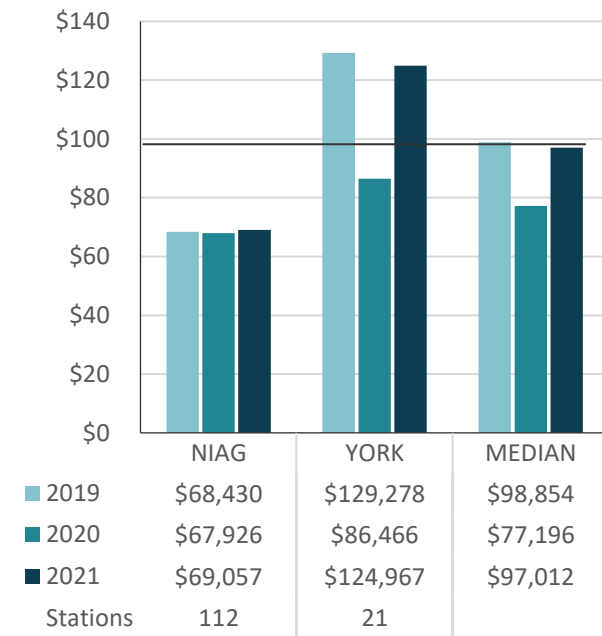
WWTR305T - Total Cost of Wastewater Collection/Conveyance per Km of Pipe Relative to the Number of Wastewater Pumping Stations (WWTR804) Operated

This measure reflects the total cost for the collection and conveyance of wastewater and includes amortization which can vary significantly from year to year depending on the type of infrastructure, capital fund expenditures, etc. Municipalities providing services over a broad geographic area generally have higher operating costs due to the number and type of wastewater facilities and pumping stations operated. The distance between the individual systems has an impact on the daily operating costs for both the collection and conveyance of wastewater. Refer WWTR210 for description of Integrated and Two-Tier Systems.

Integrated (In Thousands)



Two Tier (In Thousands)



Waterloo: Does not report – only partial jurisdiction over wastewater collection.

Wastewater

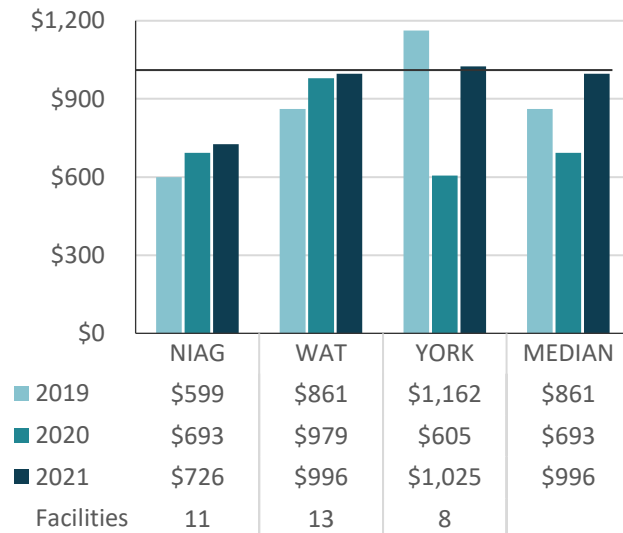
WWTR310T - Total Cost of Wastewater Treatment/Disposal per Megalitre Treated Relative to the Number of Wastewater Treatment Facilities (WWTR801, WWTR802, WWTR803) Operated

This measure reflects the total cost for the treatment and disposal of wastewater. It also includes amortization which can vary significantly from year to year depending on the type of infrastructure, capital fund expenditures, etc. Municipalities providing services over a broad geographic area generally have higher operating costs due to the number and type of wastewater plants operated. The distance between the individual systems has an impact on the daily operating costs for both the treatment and disposal of wastewater.

Integrated



Two Tier



Regina: Operating expense for WWTP includes scheduled capital upgrades for certain years throughout the contract and will fluctuate.

Sudbury: Treatment costs remained relatively even to 2020, but the amount of water treated was down 18% resulting in higher costs.

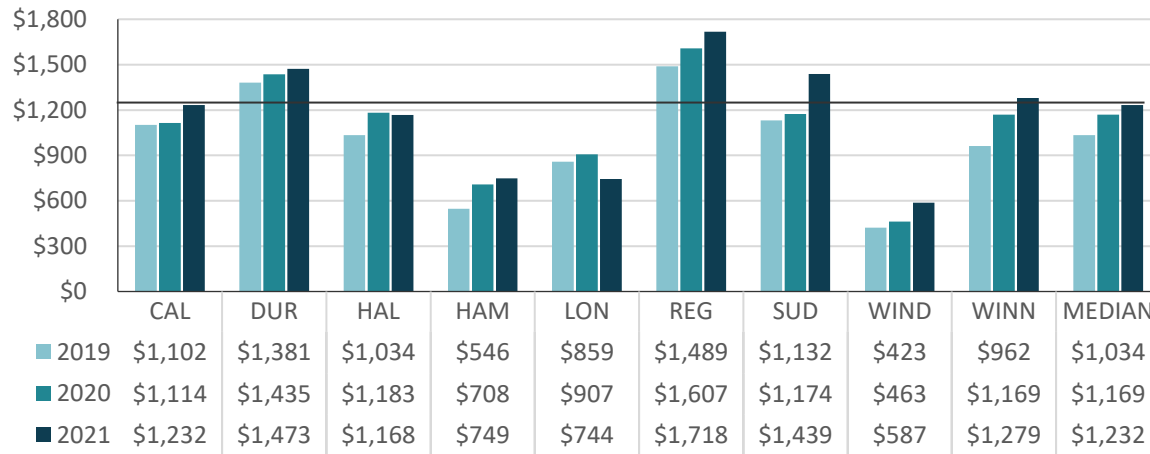
York: The Region is responsible for treatment costs on behalf of 9 local municipalities. The decrease in total cost of wastewater treatment/disposal per ML Treated from 2019 to 2020 was attributed to the reclassification of some prior year capital expenditures.

Wastewater

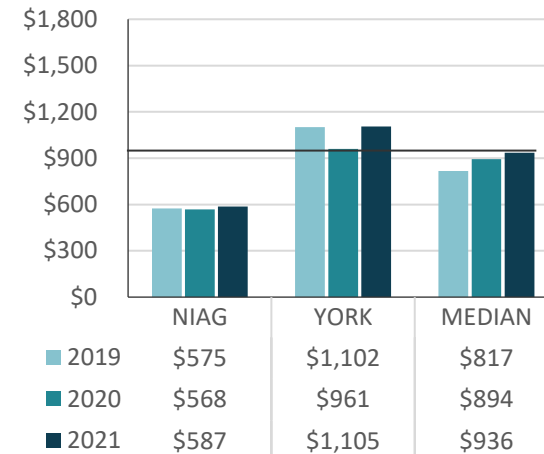
WWTR315T - Total Cost of Wastewater Collection/Conveyance and Treatment/Disposal per Megalitre Treated

This measure reflects the combined total cost for the collection, conveyance, treatment and disposal of wastewater. Municipalities providing service over a broad geographic area generally have higher operating costs due to the number and type of wastewater pumping stations and treatment plants operated. The distance between the individual system has an impact on the daily operating costs for wastewater treatment/disposal and collection/conveyance. Amortization can vary significantly from year to year depending on the type of infrastructure, capital fund expenditures, etc. Refer to WWTR210 for description of Integrate and Two-Tier Systems.

Integrated



Two Tier



Regina: Operating expense for WWTP includes scheduled capital upgrades for certain years throughout the contract and will fluctuate.

Sudbury: Treatment costs remained relatively even to 2020, but the amount of water treated was down 18% resulting in higher costs.

Waterloo: Does not report - responsible for treatment and disposal only. See WWTR310T.

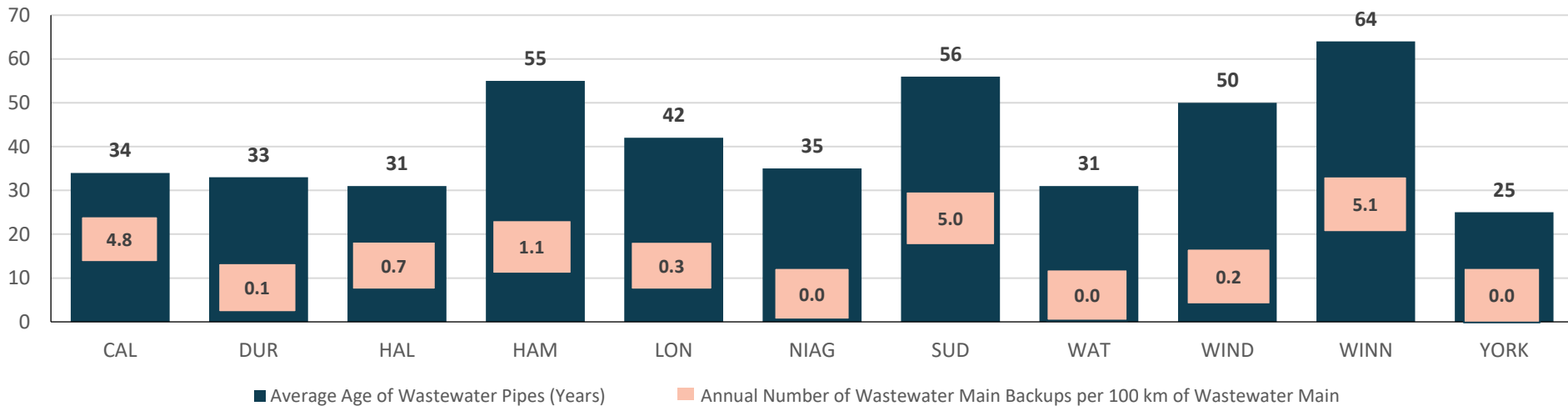
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Wastewater

Average Age of Wastewater Pipe(WWTR816) /Annual Number of Wastewater Main Back-Ups per 100 Km of Wastewater Main (WWTR410)

Age of Wastewater Pipes: Older wastewater pipes are often in poor condition and contain cracks, leaking joints and broken sections, contributing to increased pipe blockages and/or an inflow of groundwater into the system causing increased flow. These factors result in an increased frequency of wastewater main back-ups relative to newer systems that do not have such deficiencies and result in higher maintenance costs for older systems.

Wastewater Main Back-ups: The annual number of wastewater backups is directly related to the design of the wastewater pipe and the design of the wastewater collection system, i.e. the extent to which storm sewers are connected to or combined with sanitary sewers resulting in increased flow. Design criteria, age and condition of the wastewater collection infrastructure combined with localized major precipitation events can result in flows that exceed system capacity and result in wastewater backups.



Hamilton: Education programs and proactive flushing programs have resulted in a decrease in backups.

Niagara and Waterloo: Backups are recorded within municipal boundaries only.

Regina: The City of Regina reported this metric in 2020, but the methodology is currently under review.

York: Reports average age of wastewater pipe only.