



20. WASTEWATER SERVICES

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.

Specific objectives of Wastewater Services include the efficient and effective:

- collection of wastewater from customers via the municipal sewage systems
- operation of wastewater treatment facilities
- disposal of wastewater in accordance with federal and provincial regulations
- adequate capacity is maintained for existing communities and future development

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.

What should you consider when reviewing these results?

Each municipality's results are influenced to varying degrees by a number of factors, including:

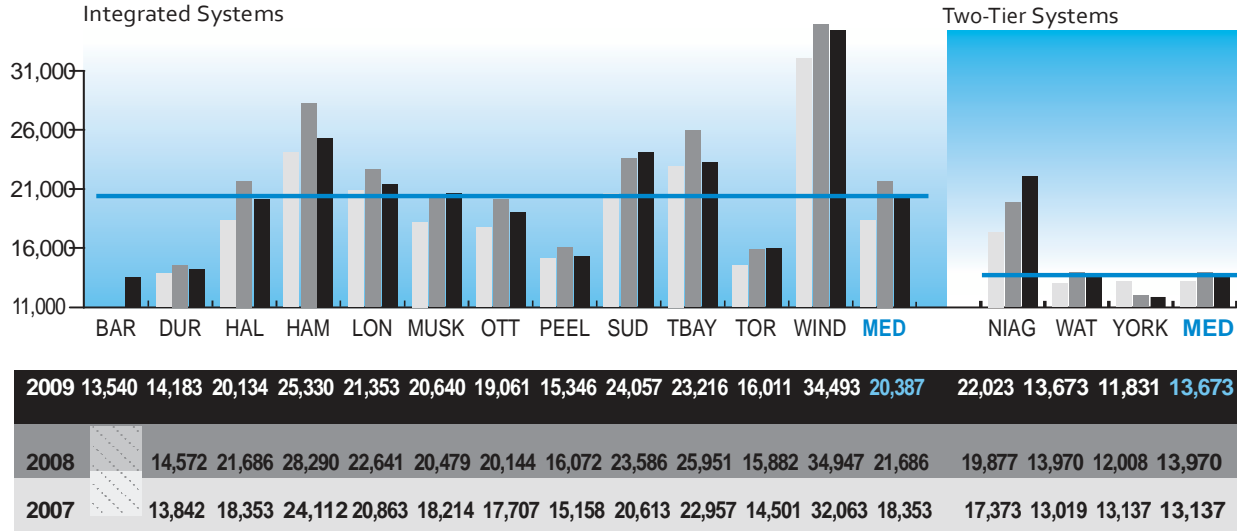
- size of the ICI sectors: the respective volume of wastewater generated relative to the total system demand
- urban density: proximity of pipes to other utilities increases the cost for infrastructure repair and replacement
- age of infrastructure: age and condition of the wastewater collection and frequency of maintenance costs
- treatment plants/processes: number, size and complexity of the wastewater collection systems and treatment plants operated
- maintenance policies: frequency of wastewater collection system maintenance activities, collection system age, condition and type of pipe material
- weather conditions: negative impacts associated with more severe and frequent extreme weather events

NOTE: Difference in accounting procedures between OMBI municipalities may not make the performance measure results for operating cost directly comparable due to 1) differences in the type of expenditures included as an operating cost, 2) differences in the 'level of materiality' or 'dollar threshold' for items included in the operating cost calculation and 3) differences in the amount of unfunded liabilities.

What are the results?

How much wastewater is treated in each municipality?

Fig. 20.1 Megalitres of Treated Wastewater per 100,000 Population



Source: WWTR210 (Service Level)

Figure 20.1 shows the volume of treated wastewater in megalitres from both residential and ICI sectors per 100,000 persons.

The term “integrated systems” is used to describe those systems of cities or regional municipalities that have full responsibility for all wastewater activities including collection, conveyance, treatment and disposal. The Regional Municipalities of Niagara, Waterloo and York do not operate integrated systems. They are responsible for all activities with the exception of collection which is the responsibility of local municipalities within their boundaries.

What is the age of the infrastructure and population density in the serviced community?

Fig. 20.2 Average Age of Wastewater Pipe/Population Density of Service Area

| Municipality | Age of Pipe | Population Density |
|--------------|-------------|--------------------|
| Barrie | 36 | 1,812.5 |
| Durham | 19 | 225.2 |
| Halton | 26 | 468.0 |
| Hamilton | 50 | 428.9 |
| London | 40 | 1,813.3 |
| Muskoka | 40 | 6.4 |
| Niagara | 30 | 191.2 |
| Ottawa | 29 | 294.5 |

| Municipality | Age of Pipe | Population Density |
|-------------------|-------------|--------------------|
| Peel | 24 | 1,008.5 |
| Sudbury (Greater) | 41 | 36.9 |
| Thunder Bay | 53 | 332.3 |
| Toronto | 59 | 4,346.3 |
| Waterloo | NA | 363.5 |
| Windsor | 45 | 1,488.1 |
| York | 19 | 619.0 |

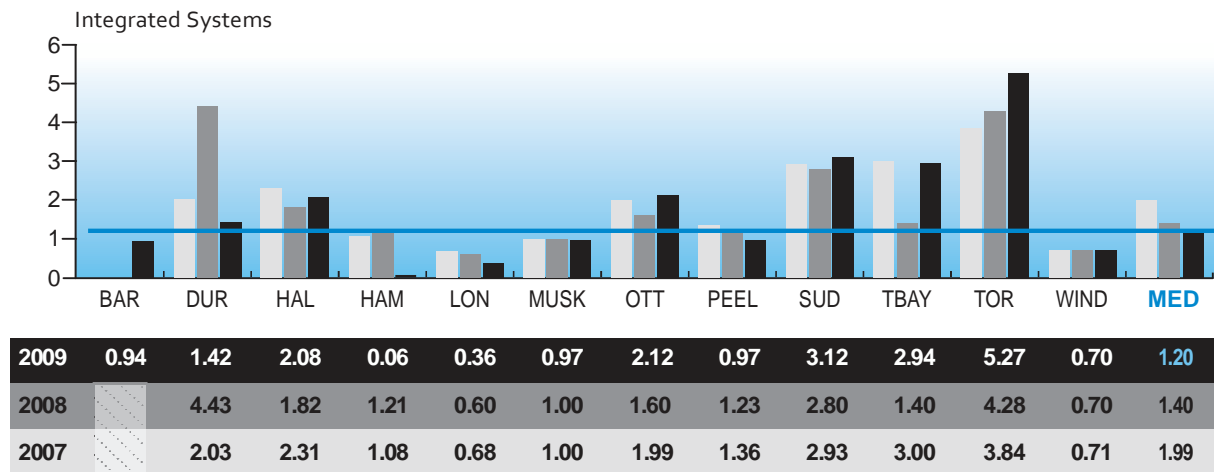
Source: WWTR105 (Community Impact); WWTR009

Figure 20.2 identifies the two primary factors to consider when reviewing the Number of Wastewater Main Backups per 100 Kilometre of Wastewater Main (Figure 20.3) and the Cost of Wastewater Collection/Conveyance per Kilometre of Pipe (Figure 20.4). The summary table is provided for cross-referencing purposes.

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How many wastewater mains back up?

Fig. 20.3 Annual Number of Wastewater Main Backups per 100 Kilometre of Wastewater Main (MPMP)



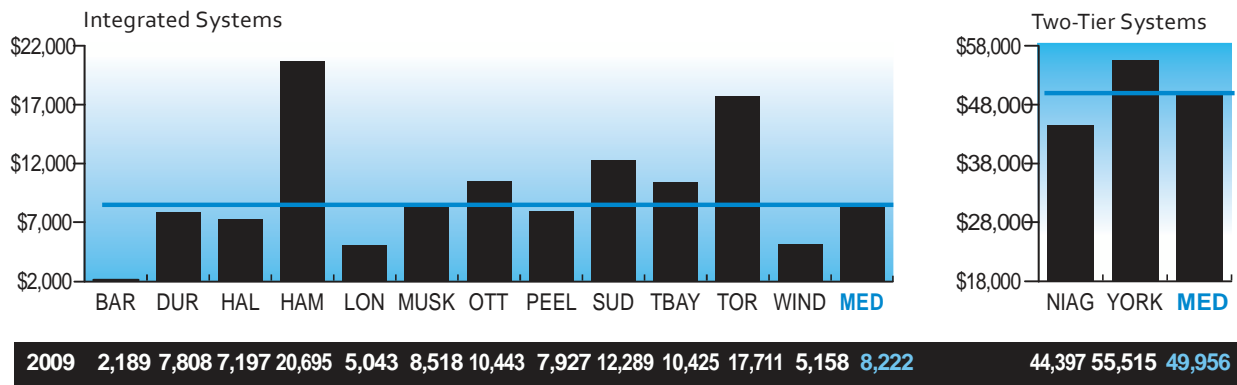
Source: WWTR405M (Customer Service)

Figure 20.3 shows the number of times a municipal wastewater main (sewer) backed up per 100 kilometers of wastewater pipe. Information is not shown for the Regional Municipalities of Niagara, Waterloo and York as these municipalities are not responsible for local wastewater collection.

The annual number of wastewater backups is directly related to 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, resulting in wastewater backups.

How much does wastewater collection and conveyance cost?

Fig. 20.4 Operating Cost of Wastewater Collection/Conveyance per Kilometre of Pipe



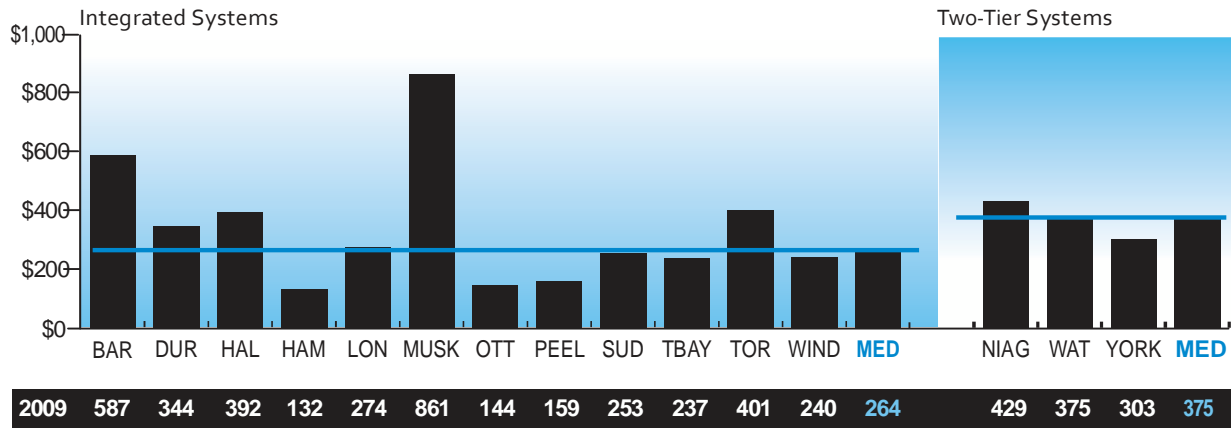
Source: WWTR305M (Efficiency)

Figure 20.4 shows the average overall cost of wastewater collection and conveyance per kilometer of pipe. Information is shown separately for Integrated Systems and for the Regions responsible for wastewater conveyance and treatment only.

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How much does wastewater treatment and disposal cost per megalitre?

Fig. 20.5 Operating Cost of Wastewater Treatment/Disposal per Megalitre Treated (MPMP)



Source: WWTR310M (Efficiency)

Figure 20.5 shows the cost of treating wastewater and disposing of bio-solids per megalitre of wastewater. Bio-solids are primarily organic accumulated solids separated from wastewater that have been stabilized by treatment. Wastewater is treated to meet or exceed the provincial Ministry of the Environment regulations and standards.

Municipalities providing service over a broad geographic area generally have higher operating costs due to the number and type of wastewater treatment facilities operated and the distance between the individual systems. This affects the daily operating costs for both the collection/conveyance and treatment of wastewater.