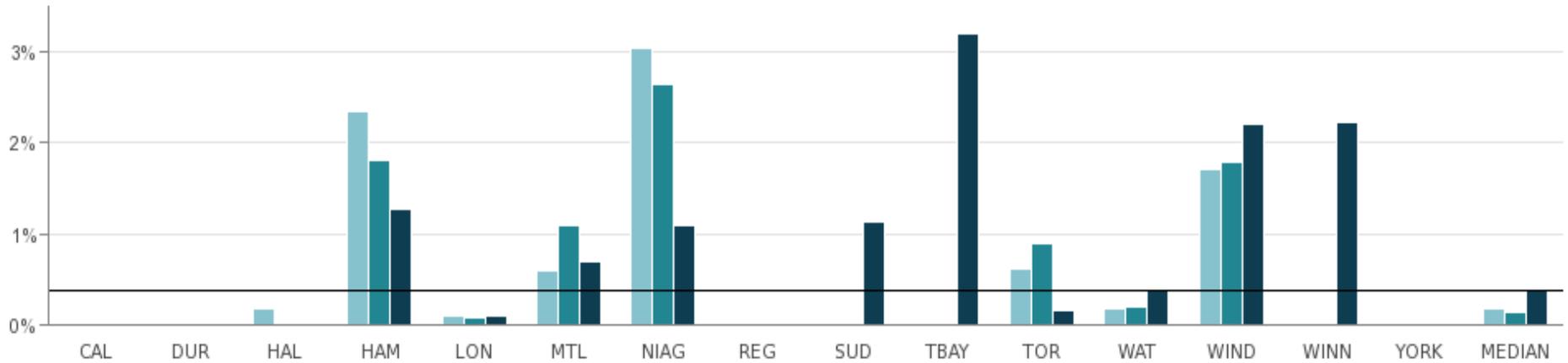


Fig. 35.1 Percent of Wastewater Estimated To Have Bypassed Treatment

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



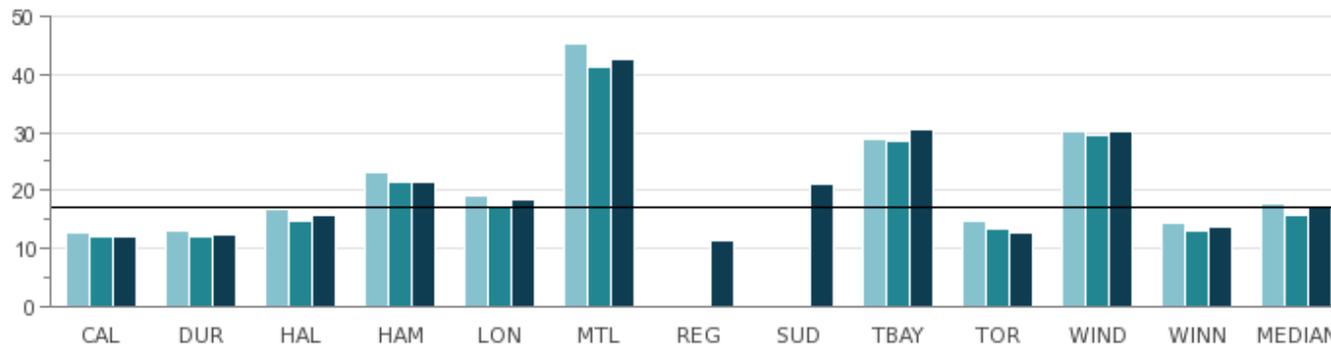
2014	N/A	0.00%	0.17%	2.34%	0.10%	0.59%	3.04%	N/A	N/A	0.00%	0.61%	0.17%	1.71%	N/A	0.00%	0.17%
2015	0.00%	0.02%	0.00%	1.81%	0.08%	1.09%	2.65%	N/A	N/A	0.00%	0.90%	0.20%	1.79%	N/A	0.00%	0.14%
2016	0.00%	0.00%	0.00%	1.27%	0.10%	0.69%	1.10%	0.00%	1.13%	3.21%	0.15%	0.37%	2.21%	2.22%	0.00%	0.37%

Source: WWTR110M (Community Impact)

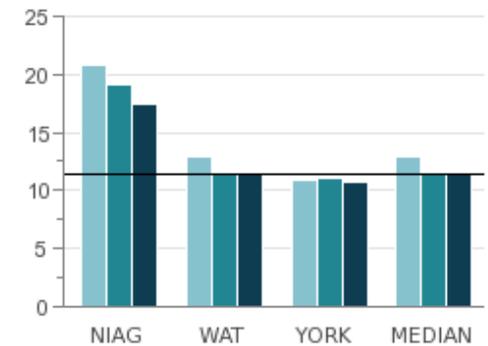
Fig. 35.2 Megalitres of Treated Wastewater per 100,000 Population

Wastewater flows are weather dependent. In 2015, there was a very dry and mild winter, and similar conditions were experienced in 2016.

Integrated Systems (In Thousands)



Two-Tier Systems (In Thousands)



2014	12,633	13,189	16,610	23,109	19,166	45,365	N/A	N/A	28,940	14,591	30,301	14,360	17,888	20,778	12,985	10,892	12,985
2015	12,151	12,170	14,611	21,464	17,233	41,261	N/A	N/A	28,401	13,463	29,587	12,997	15,922	19,151	11,534	11,032	11,534
2016	12,022	12,320	15,810	21,525	18,444	42,575	11,276	21,281	30,384	12,645	30,011	13,751	17,127	17,362	11,431	10,701	11,431

Source: WWTR210 (Service Level)

Comment:

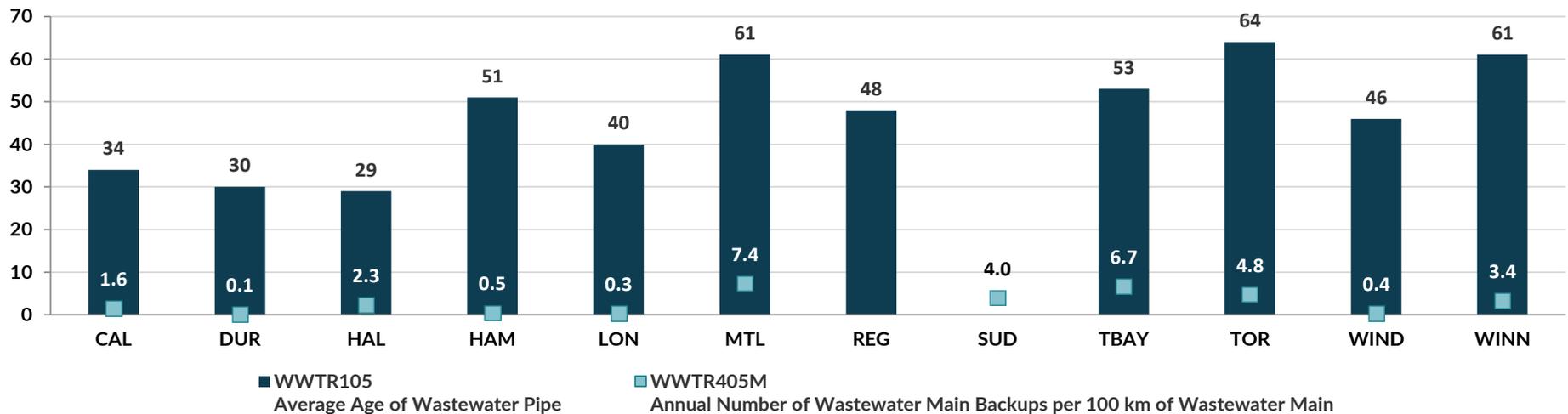
The City of Montreal produces a large volume of water which affects the volume of treated water due to aging infrastructure. Investments are being made to improve the network.

Fig. 35.3 Average Age of Wastewater Pipe / Annual Number of Wastewater Main Backups per 100 Km of Wastewater Main

Average Age of Wastewater Pipe: 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.

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.

The measure includes the municipalities with an integrated system only.



Source: WWTR105 (Community Impact); WWTR405M (Customer Service)

Comments:

The City of Regina reported the average age of wastewater pipe only; and the City of Greater Sudbury reported on the annual number of wastewater main backups, only.

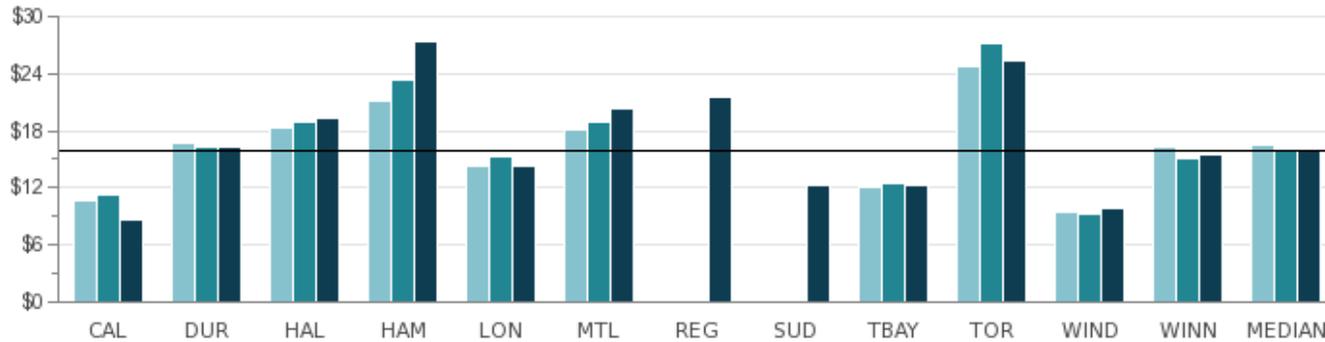
Fig. 35.4 Total Cost of Wastewater Collection/Conveyance per Km of Pipe Relative to Number of Wastewater Pumping Stations Operated

Municipalities providing services over a broad geographic area generally have higher operating costs due to the number and type of wastewater facilities operated (treatment plants and pumping station). The distance between the individual systems has an impact on the daily operating costs for both the collection and conveyance of wastewater. Amortization can vary significantly from year to year depending on the type of infrastructure, capital fund expenditures, etc.

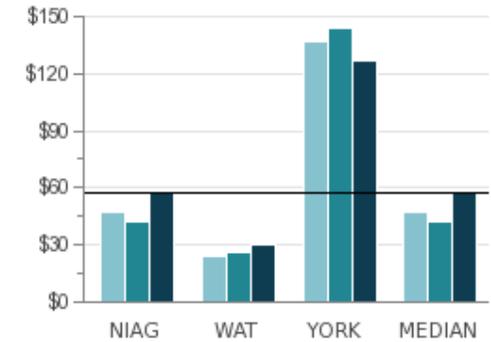
Integrated Systems: The term applies to municipalities that have full responsibility for all wastewater activities including collection, conveyance, treatment and disposal.

Two-Tier Systems: The term applies to municipalities that have responsibility for components of wastewater activities, e.g. Niagara, Waterloo and York are responsible for all components with the exception of collection which is the responsibility of local municipalities within their boundaries.

Integrated Systems (In Thousands)



Two-Tier Systems (In Thousands)



2014	\$10,751	\$16,629	\$18,330	\$21,143	\$14,366	\$18,025	N/A	N/A	\$12,129	\$24,757	\$9,454	\$16,248	\$16,439	\$47,262	\$23,691	\$136,736	\$47,262
2015	\$11,266	\$16,379	\$18,892	\$23,242	\$15,294	\$18,890	N/A	N/A	\$12,394	\$27,057	\$9,349	\$15,079	\$15,837	\$42,719	\$25,939	\$144,049	\$42,719
2016	\$8,561	\$16,289	\$19,304	\$27,392	\$14,203	\$20,239	\$21,424	\$12,187	\$12,191	\$25,252	\$9,807	\$15,505	\$15,897	\$57,345	\$30,189	\$126,320	\$57,345
Wastewater Pumping Stations	40	52	79	79	36	141	19	69	4	74	10	74		115	6	21	

Source: WWTR305T (Efficiency); WWTR804 (Statistic)

Comment:

York Region is the only Region that does not have direct access to Lake Ontario and has established long-term agreements with the Regions of Peel, Durham and the City of Toronto for various aspects of wastewater service needs.

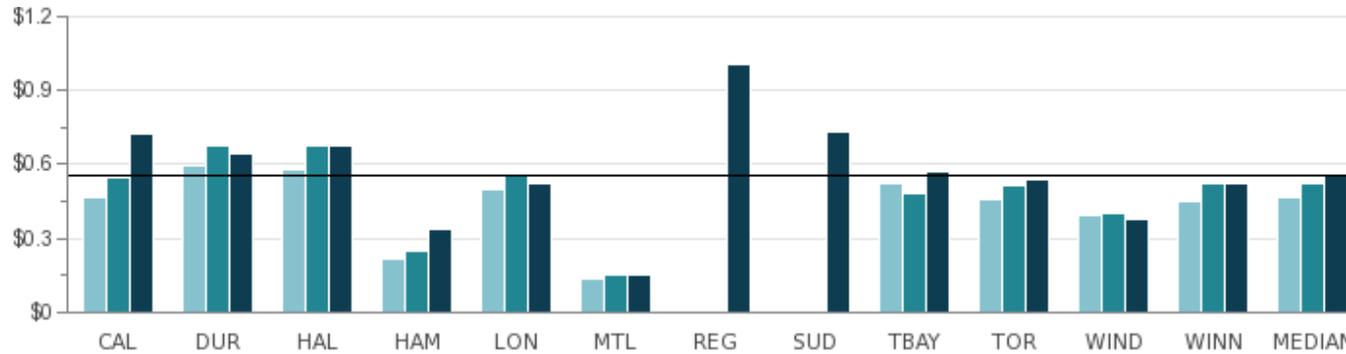
Fig. 35.5 Total Cost for Treatment/Disposal per Megalitre Treated Relative to Number of Wastewater Treatment Facilities Operated

Municipalities providing services over a broad geographic area generally have higher operating costs due to the number and type of wastewater facilities operated (treatment plants and pumping station). The distance between the individual systems has an impact on the daily operating costs for both the treatment and disposal of wastewater. Amortization can vary significantly from year to year depending on the type of infrastructure, capital fund expenditures, etc.

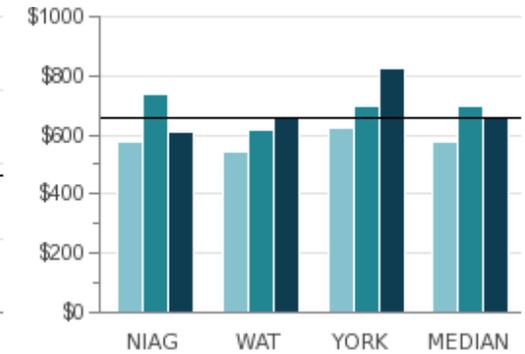
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Two-Tier Systems: The term applies to municipalities that have responsibility for components of wastewater activities, e.g. Niagara, Waterloo and York are responsible for all components with the exception of collection which is the responsibility of local municipalities within their boundaries.

Integrated Systems (In Thousands)



Two-Tier Systems (In Thousands)



2014	\$466	\$598	\$582	\$215	\$501	\$140	N/A	N/A	\$527	\$461	\$398	\$453	\$464	\$579	\$546	\$621	\$579
2015	\$551	\$679	\$678	\$248	\$557	\$156	N/A	N/A	\$482	\$514	\$400	\$527	\$521	\$739	\$614	\$694	\$694
2016	\$721	\$644	\$673	\$341	\$521	\$153	\$1,006	\$735	\$574	\$543	\$379	\$520	\$559	\$610	\$660	\$824	\$660
Treatment Facilities	3	11	7	2	6	2	3	9	1	4	2	3	-	11	13	8	-

Source: WWTR310T (Efficiency); WWTR801 + WWTR802 + WWTR803 (Statistics)

Comment:

York Region is the only Region that does not have direct access to Lake Ontario and has established long-term agreements with the Regions of Peel, Durham and the City of Toronto for various aspects of wastewater service needs. York Region is responsible for treatment costs on behalf of all 9 local municipalities.

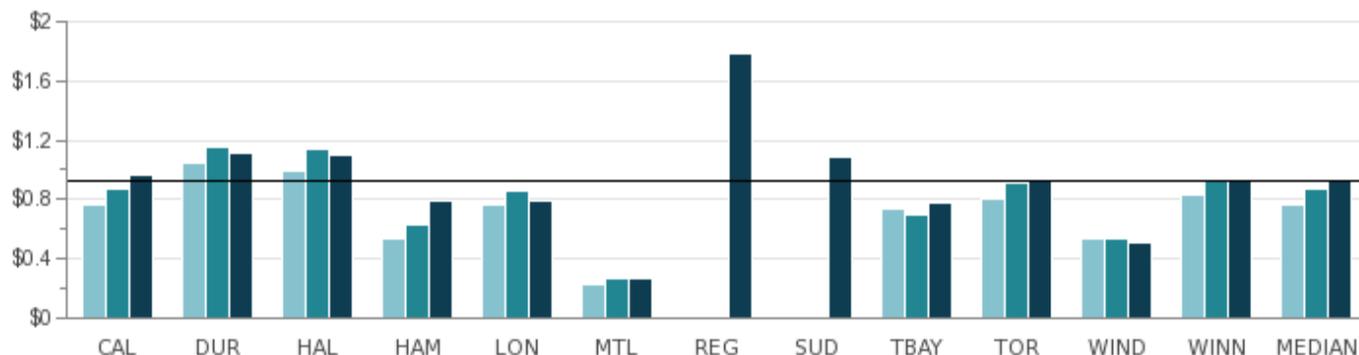
Fig. 35.6 Total Cost of Wastewater Treatment/Disposal and Collection/Conveyance per Megalitre

Municipalities providing service over a broad geographic area generally have higher operating costs due to the number and type of wastewater facilities operated (treatment plants and pumping stations). 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.

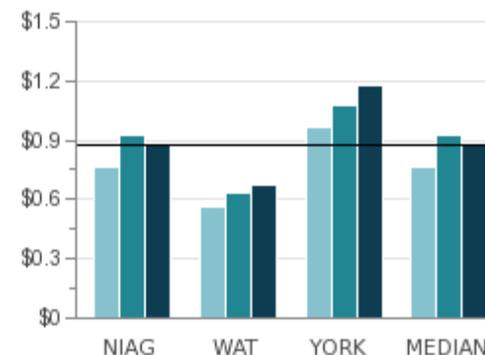
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Two-Tier Systems: The term applies to municipalities that have responsibility for components of wastewater activities, e.g. Niagara, Waterloo and York are responsible for all components with the exception of collection which is the responsibility of local municipalities within their boundaries.

Integrated Systems (In Thousands)



Two-Tier Systems (In Thousands)



2014	\$765	\$1,040	\$986	\$540	\$762	\$234	N/A	N/A	\$737	\$801	\$531	\$837	\$764	\$761	\$559	\$970	\$761
2015	\$868	\$1,154	\$1,141	\$633	\$864	\$264	N/A	N/A	\$701	\$912	\$534	\$945	\$866	\$924	\$630	\$1,076	\$924
2016	\$964	\$1,110	\$1,103	\$791	\$789	\$264	\$1,778	\$1,084	\$779	\$933	\$514	\$920	\$927	\$877	\$678	\$1,174	\$877

Source: WWTR315T (Efficiency)

Comment:

York Region is the only Region that does not have direct access to Lake Ontario and has established long-term agreements with the Regions of Peel and Durham as well as the City of Toronto for various aspects of wastewater service needs. York Region is responsible for treatment costs on behalf of all 9 local municipalities.

