WASTEWATER SNAPSHOT MEDIANS FOR 2017

AMOUNT OF WASTEWATER TREATED (PER 100,000 PERSONS)

17,462 MEGALITRES
INTEGRATED SYSTEMS

11,430 MEGALITRES
TWO-TIER SYSTEMS

WWTR210 (SERVICE LEVEL)

COST TO COLLECT & TRANSFER

$16,419/per km pipe
INTEGRATED SYSTEMS

$86,344/per km pipe
TWO-TIER SYSTEMS

WWTR305T (EFFICIENCY)

COST TO TREAT & DISPOSE

$550/megalitre
INTEGRATED SYSTEMS

$694/megalitre
TWO-TIER SYSTEMS

WWTR310T (EFFICIENCY)

1 MEGALITRE = 1,000,000 LITRES

KEEP IN MIND: Influencing Factors

Influencing factors can create variances in comparison data from year-to-year and from municipality-to-municipality.

Age of Infrastructure
Age, condition and maintenance of wastewater collection system

Government Structure
Integrated systems vs. two-tier systems

Policy & Practices
Age, condition, pipe material and frequency of maintenance activities

Supply & Demand
Volume generated vs. system demand

Treatment Plants
Number, size and complexity of wastewater collection systems and treatment plants operated

Type of Wastewater Collection System
Design of the wastewater collection system & connection of storm sewers to sanitary sewers

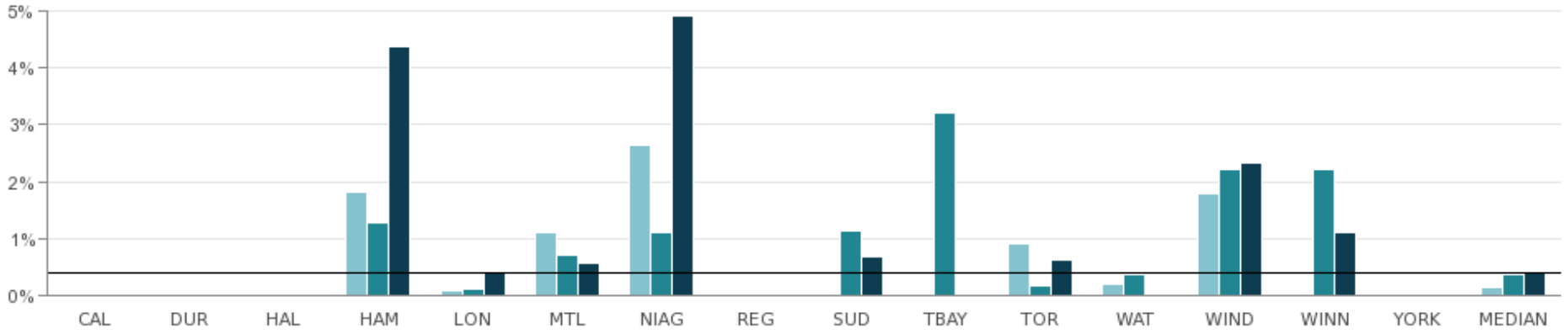
Urban Density
Proximity of pipes to other utilities increases the cost for repair and replacement

Weather Conditions
Negative impacts associated with more severe and frequent extreme weather events

For a full description of influencing factors, please go to: www.mbncanada.ca

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.



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%
2017	0.00%	0.00%	0.01%	4.37%	0.40%	0.55%	4.93%	0.00%	0.67%	0.00%	0.61%	0.00%	2.34%	1.09%	0.03%	0.40%

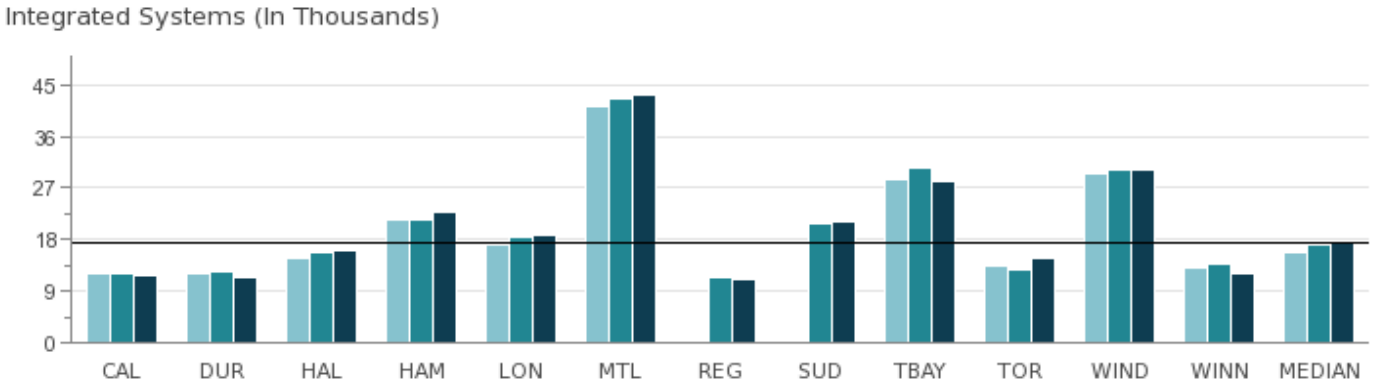
Source: WWTR110M (Community Impact)

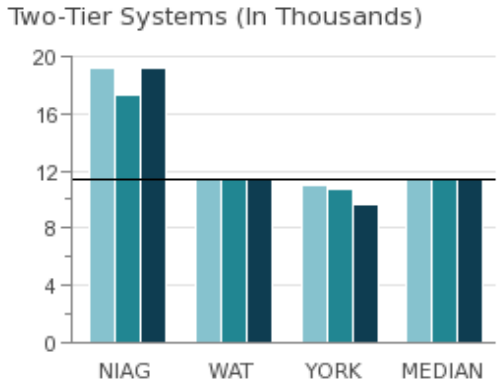
Hamilton, London, Niagara, and Toronto: High lake levels and increased precipitation impacted 2017 results.

Fig. 35.2 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 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.



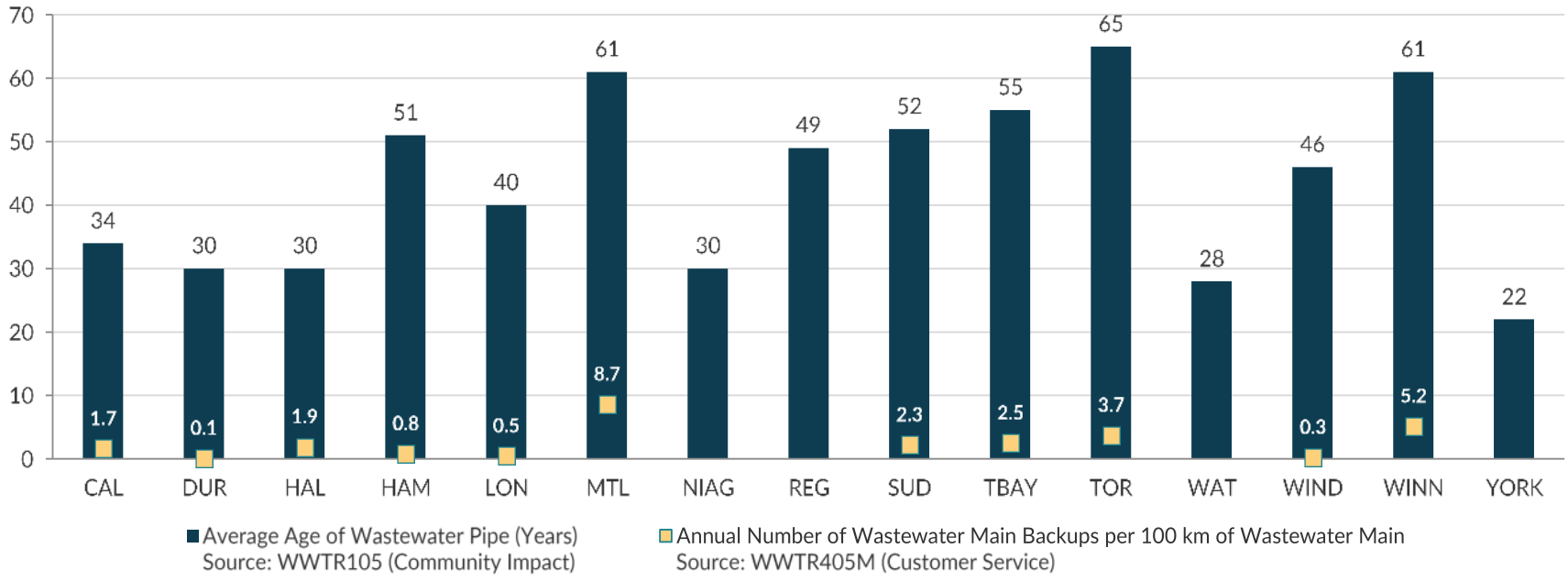


2015	12,151	12,170	14,611	21,464	17,233	41,261	N/A	N/A	28,401	13,463	29,587	12,997	15,922	19,151	11,534	11,032	11,534
2016	12,022	12,320	15,810	21,525	18,444	42,575	11,276	20,886	30,384	12,645	30,011	13,751	17,127	17,362	11,431	10,701	11,431
2017	11,885	11,540	16,237	22,784	18,687	43,134	10,908	21,159	28,237	14,769	30,326	12,006	17,462	19,207	11,430	9,696	11,430

Source: WWTR210 (Service Level)

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

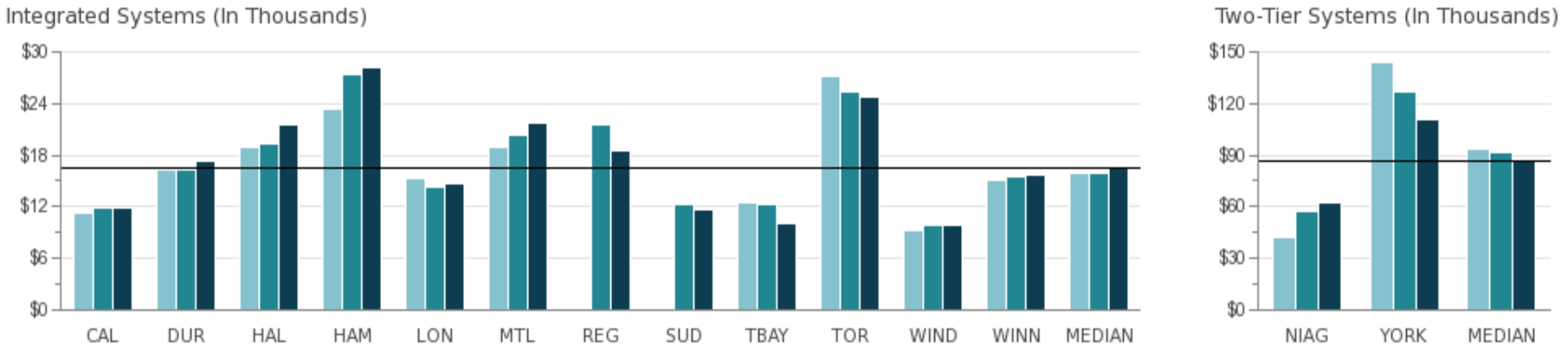
Older wastewater pipes are often in poor condition and contain cracks, leaking joints and broken sections, contributing to increased pipe blockages and/or an inflow of groundwater into the system causing increased flow. These factors result in an increased frequency of wastewater main back-ups relative 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.



Niagara, Regina, Waterloo and York: Reports average age of wastewater pipe only.

Fig. 35.4 Total Cost of Wastewater Collection/Conveyance per km of Pipe Relative to the Number of Wastewater Pumping Stations 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 to Fig. 35.2 for description of Integrated and Two-Tier Systems.



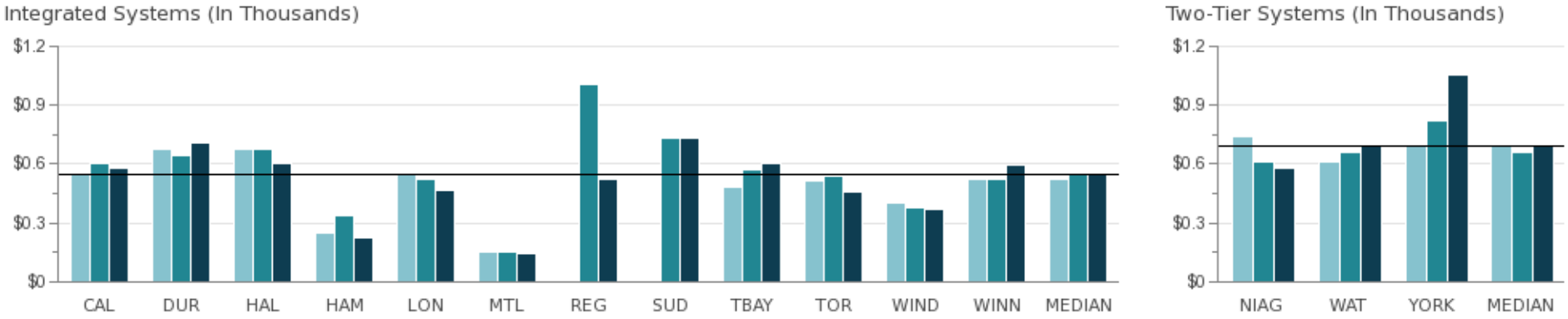
2015	$11,266	$16,379	$18,892	$23,242	$15,294	$18,890	N/A	N/A	$12,394	$27,057	$9,349	$15,079	$15,837		$42,719	$144,049	$93,384
2016	$11,966	$16,289	$19,304	$27,392	$14,203	$20,239	$21,424	$12,187	$12,191	$25,252	$9,807	$15,505	$15,897		$57,345	$126,320	$91,833
2017	$11,894	$17,222	$21,609	$28,230	$14,765	$21,742	$18,414	$11,709	$10,006	$24,753	$9,821	$15,616	$16,419		$62,429	$110,259	$86,344
Wastewater Pumping Stations	40	52	79	79	36	139	20	70	4	74	10	75			112	21	

SourceWWTR305T (Efficiency); WWTR804 (Statistic)

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

Fig. 35.5 Total Cost for Treatment / Disposal per Megalitre Treated Relative to the Number of Wastewater Treatment Plants 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. Refer to Fig. 35.2 for description of Integrated and Two-Tier Systems.



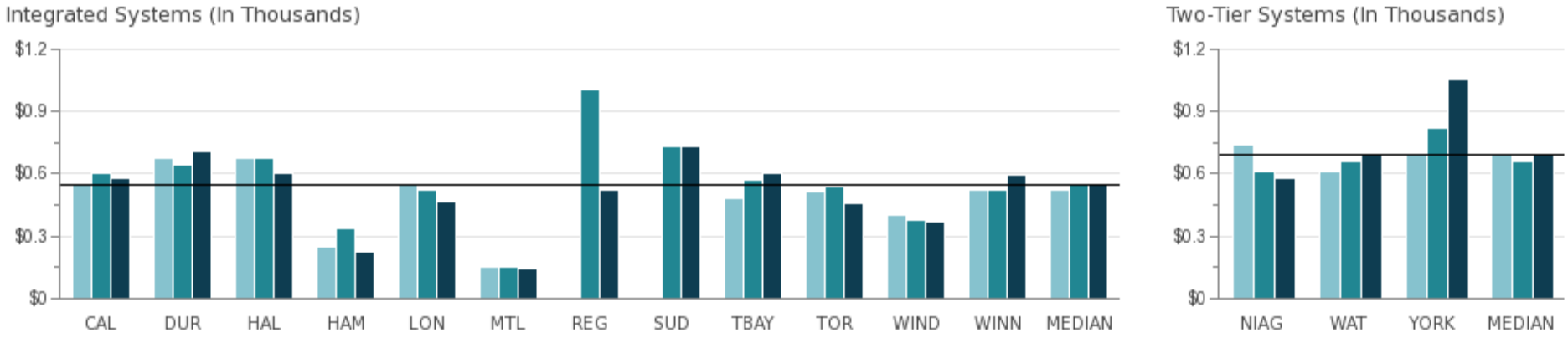
2015	$551	$679	$678	$248	$557	$156	N/A	N/A	$482	$514	$400	$527	$521	$739	$614	$694	$694
2016	$603	$644	$673	$341	$521	$153	$1,006	$735	$574	$543	$379	$520	$559	$610	$660	$824	$660
2017	$580	$706	$603	$225	$469	$148	$520	$730	$604	$460	$369	$593	$550	$582	$694	$1,054	$694
Wastewater Treatment Facilities	3	11	7	2	6	2	3	10	1	4	2	3		11	13	8	

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

York: The Region is responsible for treatment costs on behalf of 9 local municipalities.

Fig. 35.5 Total Cost for Treatment/Disposal per Megalitre Treated Relative to the Number of Wastewater Treatment Plants 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. Refer to Fig. 35.2 for description of Integrated and Two-Tier Systems.



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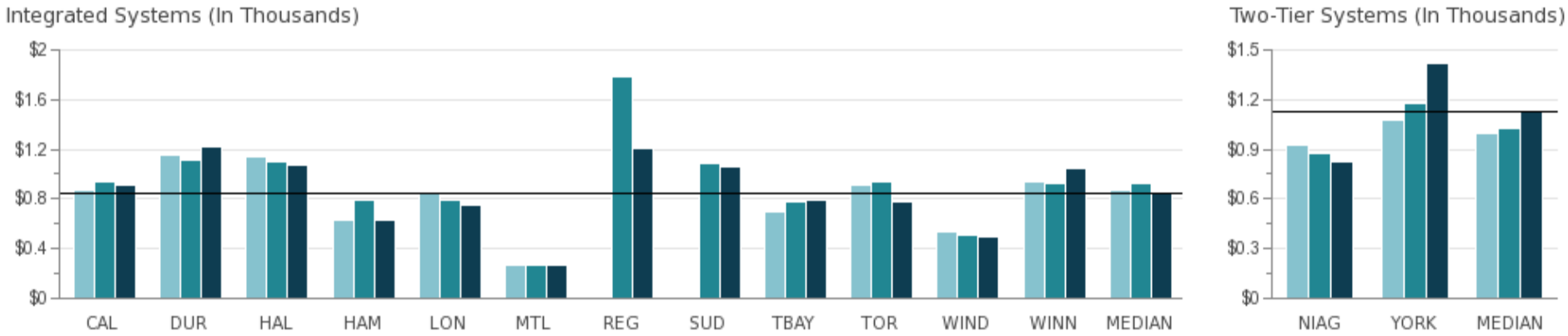
Wastewater Treatment Facilities	3	11	7	2	6	2	3	10	1	4	2	3			11	13	8	

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

York: The Region is responsible for treatment costs on behalf of 9 local municipalities.

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

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 Fig. 35.2 for description of Integrated and Two-Tier Systems.



2015	$868	$1,154	$1,141	$633	$864	$264	N/A	N/A	$701	$912	$534	$945	$866		$924	$1,076	$1,000
2016	$941	$1,110	$1,103	$791	$789	$264	$1,778	$1,084	$779	$933	$514	$920	$927		$877	$1,174	$1,026
2017	$916	$1,226	$1,068	$625	$751	$265	$1,204	$1,062	$785	$781	$501	$1,048	$851		$829	$1,415	$1,122

Source: WWTR315T (Efficiency)

Waterloo: Does not report – only responsible for treatment and disposal. See Fig. 35.5.