

WASTEWATER



VALUE PROPOSITION

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

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

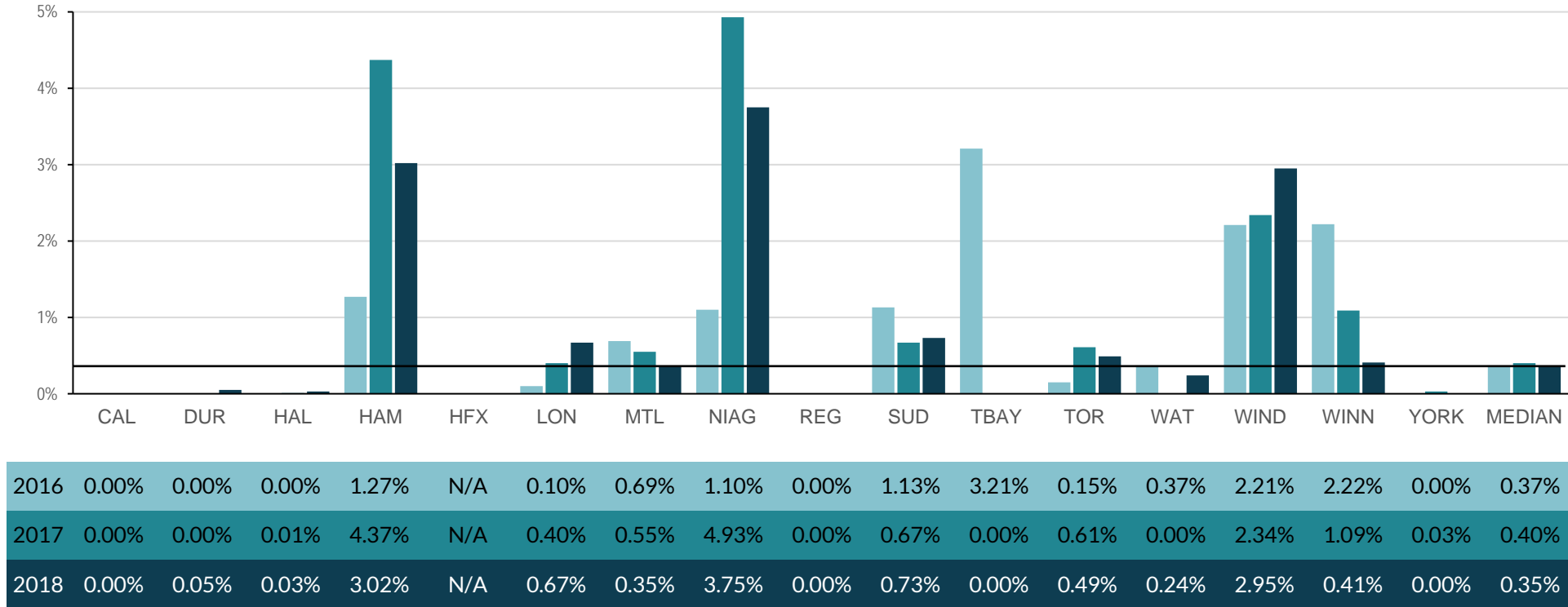
Negative impacts associated with more severe and frequent extreme weather events

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

Wastewater

Figure 35.1 Percent of Wastewater Estimated to Have Bypassed Treatment

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



Source: WWTR110 (Community Impact) Formerly WWTR110

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

London: The largest section of the largest plant was under construction for most of 2018 which led to reduced wet weather capacity and more bypassed flow.

Windsor: Increase due to heavier than normal storm events in 2018. Some of these storms delivered large volumes to the plants in a short period of time resulting in the increase of volume bypassed.

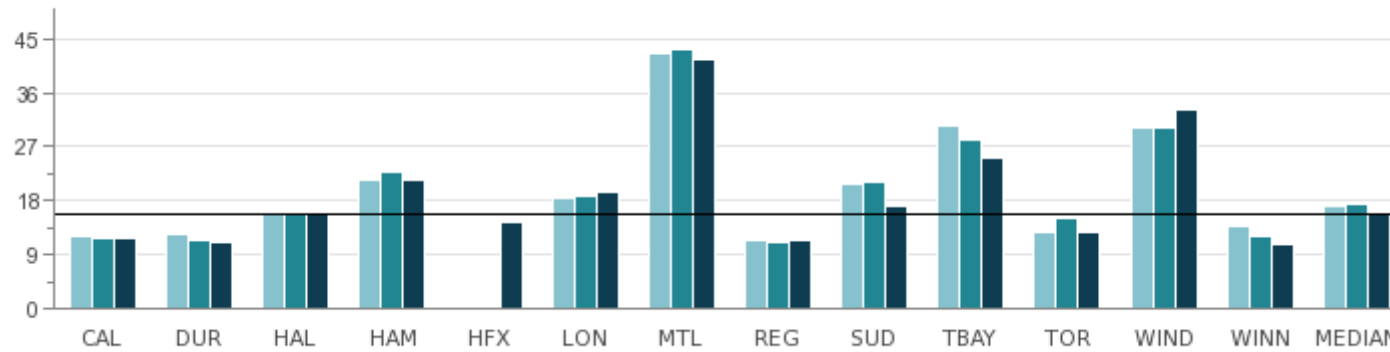
Wastewater

Figure 35.2 Megalitres of Treated Wastewater per 100,000 Population

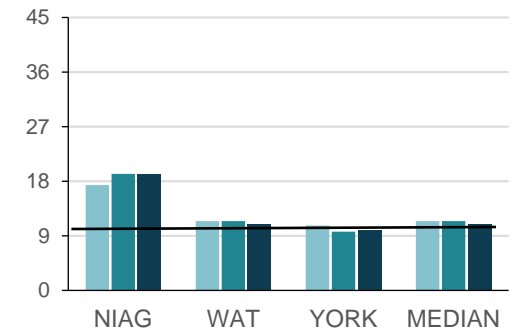
Integrated Systems: The term applies to municipalities that have full responsibility for all wastewater activities including collection, conveyance, treatment and disposal.

Two-Tier System: The term applies to municipalities that have responsibility for components of wastewater activities.

Integrated Systems (In Thousands)



Two-Tier Systems (In Thousands)



2016	12,022	12,320	15,810	21,525	N/A	18,444	42,575	11,276	20,886	30,384	12,883	30,011	13,751	17,127	17,362	11,431	10,701	11,431
2017	11,885	11,540	16,237	22,784	N/A	18,687	43,134	10,908	21,159	28,237	15,033	30,326	12,006	17,462	19,207	11,430	9,696	11,430
2018	11,638	11,219	15,756	21,302	14,520	19,387	41,516	11,522	17,059	25,006	12,855	33,114	10,621	15,756	19,243	10,939	9,964	10,939

Source: WWTR210 (Service Level)

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

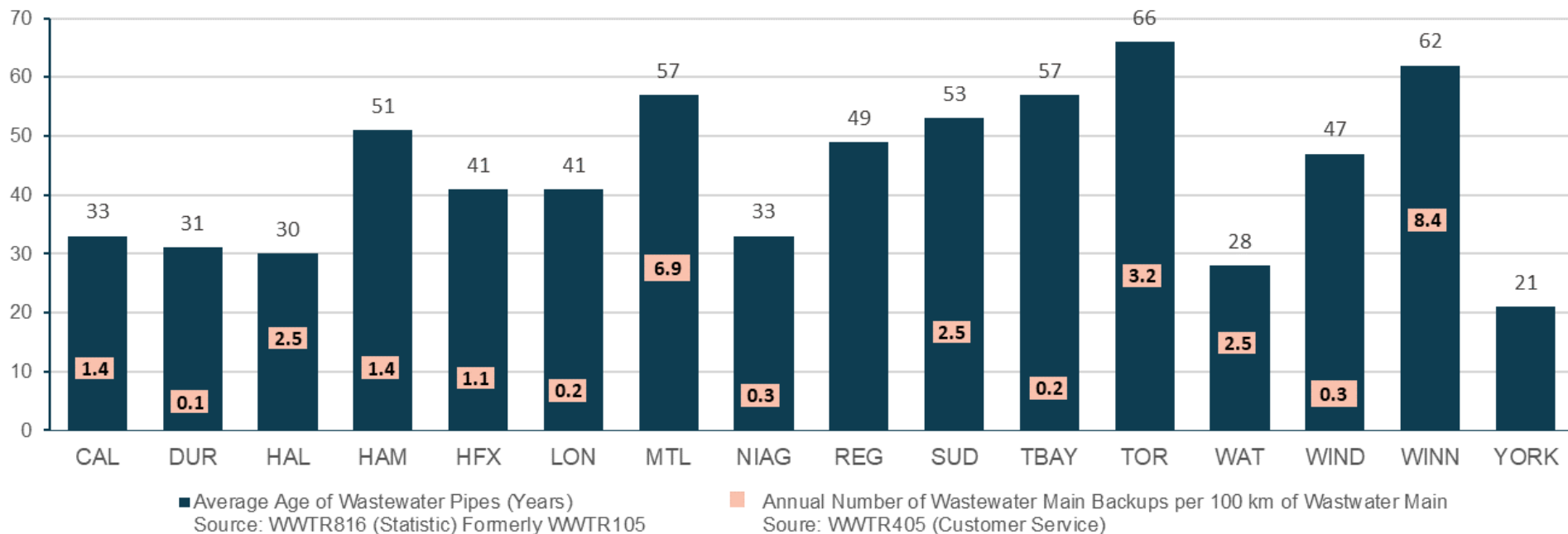
Windsor: Increase due to heavier than normal storm events in 2018. Some of these storms delivered large volumes to the plants in a short period of time resulting in the increase of volume bypassed.

Wastewater

Figure 35.3 Average Age of Wastewater Pipe and Annual Number of Wastewater Main Back-ups per 100 Km of Wastewater Main

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.



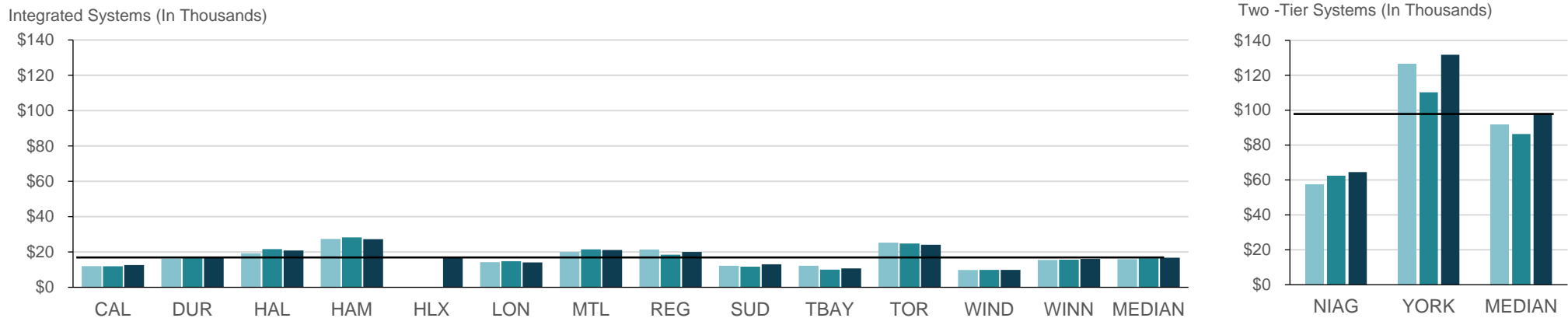
Regina and York: Reports average age of wastewater pipe only.

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

Wastewater

Figure 35.4 Total Cost of Wastewater Collection and 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 Figure 35.2 for description of Integrate and Two-Tier Systems.



2016	\$11,966	\$16,289	\$19,304	\$27,392	N/A	\$14,203	\$20,017	\$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	N/A	\$14,765	\$21,488	\$18,414	\$11,709	\$10,006	\$24,753	\$9,821	\$15,616	\$16,419	\$62,429	\$110,259	\$86,344
2018	\$12,615	\$16,768	\$20,841	\$27,221	\$16,806	\$14,047	\$21,115	\$20,009	\$13,019	\$10,693	\$24,079	\$9,838	\$16,049	\$16,768	\$64,551	\$131,801	\$98,176
Pumping Stations 2018	40	51	79	79	166	36	135	19	70	4	74	10	75		112	21	

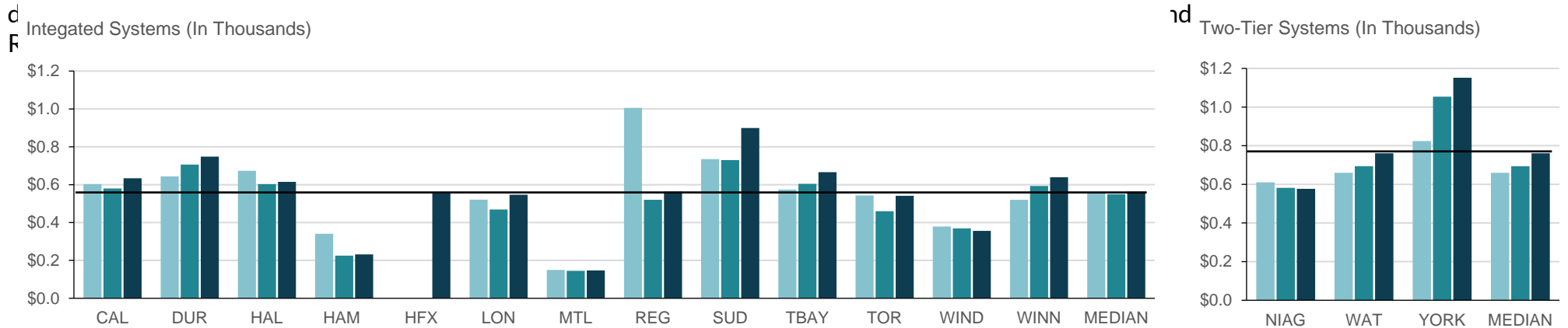
Source: WWTR305T (Efficiency), WWTR804 (Statistic)

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

Wastewater

Figure 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



2016	\$603	\$644	\$673	\$341	N/A	\$521	\$150	\$1,006	\$735	\$574	\$543	\$379	\$520	\$559	\$610	\$660	\$824	\$660
2017	\$580	\$706	\$603	\$225	N/A	\$469	\$145	\$520	\$730	\$604	\$460	\$369	\$593	\$550	\$582	\$694	\$1,054	\$694
2018	\$634	\$748	\$615	\$232	\$556	\$509	\$147	\$563	\$899	\$666	\$541	\$356	\$639	\$563	\$577	\$761	\$1,152	\$761
Treatment Facilities 2018	3	11	7	2	14	5	2	3	10	1	4	2	3		11	13	8	

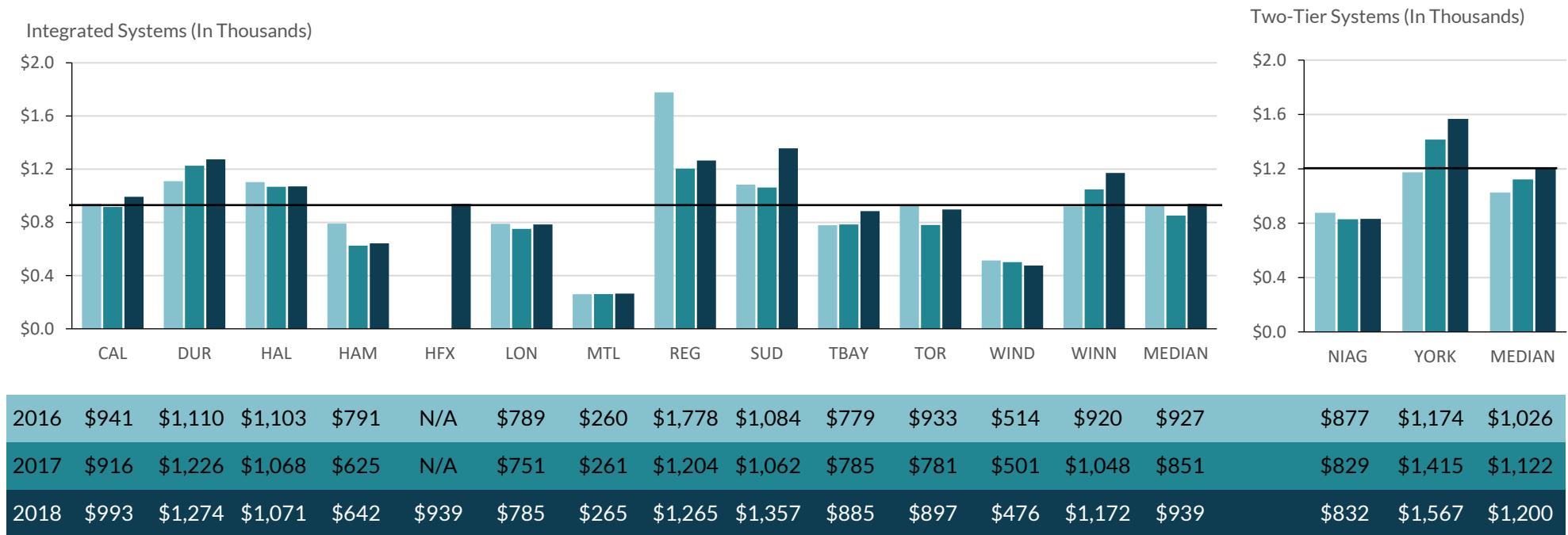
Source: WWTR310T (Efficiency), WWTR801 + WWTR802 + WWTR803 (Statistic)

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

Wastewater

Figure 35.6 Total Cost of Wastewater of 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 Figure 35.2 for description of Integrate and Two-Tier Systems.



Source: WWTR315T (Efficiency)

Waterloo: Does not report - responsible for treatment and disposal only. See Figure 35.5.