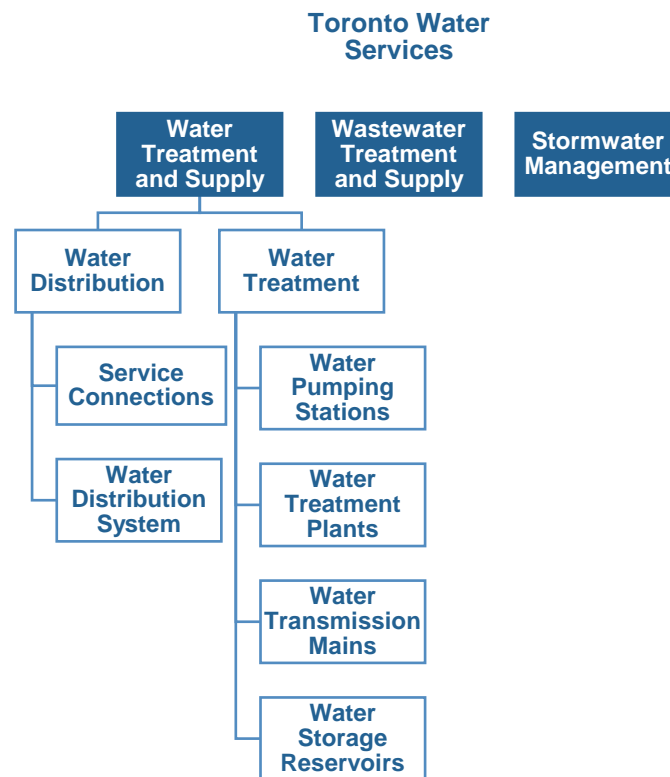




WATER SERVICES

PROGRAM MAP



Toronto Water manages Toronto's water treatment and supply; from the point source water is pumped from Lake Ontario, to the point that drinking water is delivered to residential, and ICI (industrial, commercial, and institutional) customers. It also includes the provision of water through fire hydrants for fire protection. The two main activities are:

- Treatment of almost 1.2 billion litres of source water from Lake Ontario each day at four water treatment plants to ensure the quality of drinking water meets or exceeds regulatory requirements, 83% for Toronto and 17% for York Region
- Distribution of drinking water via over 520,000 connections to industrial, commercial, institutional and household water users/ customers. In Toronto this is accomplished with 18 water pumping stations, 550 kilometres of trunk watermains, 11 major underground storage reservoirs, four elevated storage tanks, 64,900 valves, and 5,554 kilometres of distribution watermains. If these watermains were laid end-to-end, they would exceed the entire distance from Newfoundland to British Columbia.

Funding for these activities is provided through municipal water rates.

SUMMARY OF PERFORMANCE MEASUREMENT RESULTS

Question	Indicator/Measure	Internal Comparison of Toronto's 2017 vs. 2016 Results	External Comparison to Other Municipalities (MBNC) By Quartile for 2017	Chart & Page Ref.
How much drinking water is treated each year?	Megalitres of Water Treated per 100,000 Population – (activity Level)	Decrease Volume of water treated decreased (activity level indicator)	3 Rate/volume of water treated was slightly lower compared to others (activity level indicator)	36.1 36.2 pg. 5
How old are the water distribution pipes?	Average Age of Water Pipe - (Service Level)	Stable Average age of water pipe was relatively stable (no graph) (Service Level)	4 Older average age of pipes compared to others (Service level indicator)	36.8 pg. 10
How much drinking water does the average household use?	Residential Water Use (Megalitres) per Household – (Community Impact)	Decrease Amount of water used per household decreased (Community Impact)	2 Rate of water usage per household was at median compared to others (Community Impact)	36.3 36.4 pg. 7
Is the quality of drinking water in compliance with provincial standards?	% of Water Quality Tests in Compliance with Provincial Drinking Water Standards - (Customer Service/Quality)	Slight Increase Percentage of tests in compliance has slightly increased (Customer Service/Quality)	4 Lower rate than other municipalities but still very high at 99.46% (Customer Service/Quality)	36.5 36.6 pg. 8/9
Were there any boil water advisories?	Number of Household Days with Boil Water Advisories – (Customer Service/Quality)	Favourable Zero boil water advisories (no graph) (Customer Service/Quality)	1 Toronto had no boil water advisories (no graph) (Customer Service/Quality)	pg. 9
How many watermain breaks are there?	Number of Water Main Breaks per 100 KM of Water Distribution Pipe – (Customer Service)	Decrease Number of water main breaks decreased (Customer Service)	4 Higher rate of water main breaks compared to others (Customer Service)	36.7 36.8 pg. 9/10
What does it cost in to distribute drinking water?	Operating Cost for the Distribution of Drinking Water per km of Water Distribution Pipe – (Efficiency)	Decrease Operating cost of water distribution decreased (Efficiency)	4 Higher operating cost of water distribution compared to others (Efficiency)	36.9 36.10 pg. 11/12

Question	Indicator/Measure	Internal Comparison of Toronto's 2017 vs. 2016 Results	External Comparison to Other Municipalities (MBNC) By Quartile for 2017	Chart & Page Ref.
What does it cost in to distribute drinking water?	Total Cost for the Distribution of Drinking Water per km of Water Distribution Pipe – (Efficiency)	Decrease Total cost of water distribution decreased (Efficiency)	3 Higher total cost of water distribution compared to others (Efficiency)	36.9 36.10 pg. 11/12
What does it cost to treat drinking water?	Operating Cost for the Treatment of Drinking Water per Megalitre of Drinking Water Treated – (Efficiency)	Increase Operating cost of water treatment increased (Efficiency)	1 Lower operating cost of water treatment compared to others (Efficiency)	36.11 36.12 pg. 13
What does it cost to treat drinking water?	Total Cost for the Treatment of Drinking Water per Megalitre of Drinking Water Treated – (Efficiency)	Increase Total cost of water treatment increased (Efficiency)	1 Lower total cost of water treatment compared to others (Efficiency)	36.11 36.12 pg. 13
What is Toronto's Service Quality Rating for Drinking Water Provided at Your Residence?	Citizens First Survey Service Quality Score for Drinking Water Provided at Your Residence - (Customer Service)	Increase The CF8 (2018) Service Quality Score increased compared to CF7 (2014) (Customer Service)	N/A	36.13 pg. 14

SUMMARY OF OVERALL RESULTS

Internal Comparison of Toronto's 2017 vs. 2016 Results	Internal Comparison of Toronto's 2017 vs. 2016 Results	External Comparison to Other Municipalities (MBNC) By Quartile for 2017	External Comparison to Other Municipalities (MBNC) By Quartile for 2017
Service/ Activity Level Indicators (Resources) <div style="display: flex; justify-content: space-between;"> <div style="width: 30%; background-color: green; color: white; padding: 2px;">0 - Increased</div> <div style="width: 30%; background-color: yellow; color: black; padding: 2px;">1 - Stable</div> <div style="width: 30%; background-color: red; color: white; padding: 2px;">0 - decreased</div> </div> 100% stable or increased	Performance Measures (Results) <div style="display: flex; justify-content: space-between;"> <div style="width: 30%; background-color: green; color: white; padding: 2px;">7 - Favorable</div> <div style="width: 30%; background-color: yellow; color: black; padding: 2px;">0 - Stable</div> <div style="width: 30%; background-color: red; color: white; padding: 2px;">2 - Unfavorable</div> </div> 78% favorable or stable	Service Level Indicators (Resources) <div style="display: flex; justify-content: space-between;"> <div style="width: 30%; background-color: green; color: white; padding: 2px;">0 - 1st quartile</div> <div style="width: 30%; background-color: yellow; color: black; padding: 2px;">0 - 2nd quartile</div> <div style="width: 30%; background-color: red; color: white; padding: 2px;">1 - 3rd quartile</div> </div> <div style="display: flex; justify-content: space-between;"> <div style="width: 30%; background-color: green; color: white; padding: 2px;">1 - 3rd quartile</div> <div style="width: 30%; background-color: yellow; color: black; padding: 2px;">1 - 4th quartile</div> <div style="width: 30%; background-color: red; color: white; padding: 2px;">1 - 4th quartile</div> </div> 0% in 1st and 2nd quartiles	Performance Measures (Results) <div style="display: flex; justify-content: space-between;"> <div style="width: 30%; background-color: green; color: white; padding: 2px;">3 - 1st quartile</div> <div style="width: 30%; background-color: yellow; color: black; padding: 2px;">1 - 2nd quartile</div> <div style="width: 30%; background-color: red; color: white; padding: 2px;">1 - 3rd quartile</div> </div> <div style="display: flex; justify-content: space-between;"> <div style="width: 30%; background-color: green; color: white; padding: 2px;">1 - 3rd quartile</div> <div style="width: 30%; background-color: yellow; color: black; padding: 2px;">3 - 4th quartile</div> <div style="width: 30%; background-color: red; color: white; padding: 2px;">3 - 4th quartile</div> </div> 50% in 1st and 2nd quartiles

For an explanation of how to interpret this summary and the supporting charts, please see the Guide to Toronto's Performance Results. These quartile results are based on a maximum sample size of 15 municipalities.

SERVICE/ACTIVITY LEVELS

36.1 - HOW MUCH DRINKING WATER IS TREATED EACH YEAR IN TORONTO?

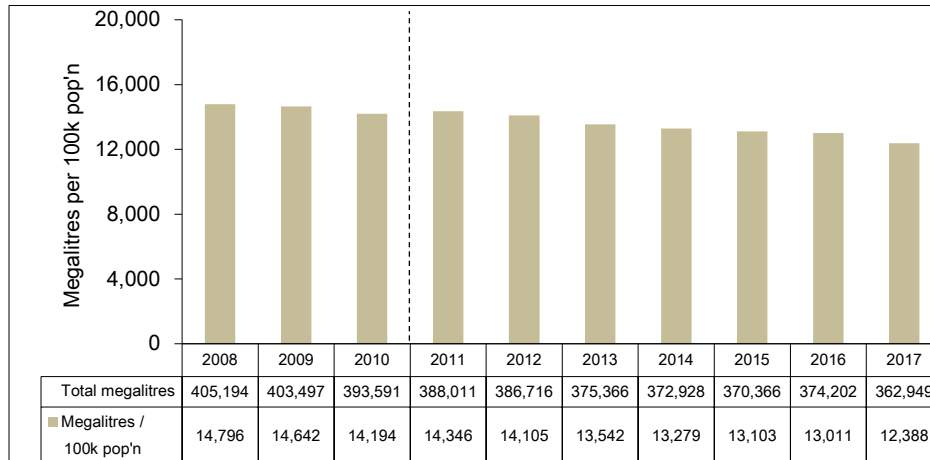


Chart 36.1 summarizes Toronto's total volume (megalitres) and rate of drinking water treated per 100,000 population. One megalitre is equivalent to one million litres. The results for 2010 and prior years are not based on the revised population estimates.

Chart 36.1 (City of Toronto) Megalitres of Drinking Water Treated per 100,000 Population

In 2017, there was a 4.8 percent decline in the annual megalitre of volume of drinking water treated per 100,000 population, consistent with the longer-term trend of consumers using less water.

36.2 - HOW DOES THE AMOUNT OF WATER TREATED IN TORONTO COMPARE TO OTHER MUNICIPALITIES?

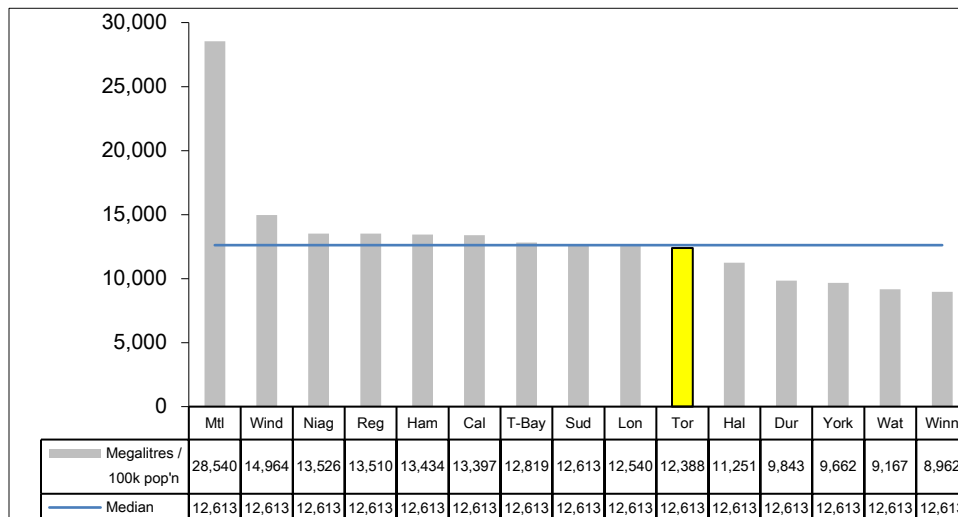


Chart 36.2 compares Toronto's 2017 result to the volume of water treated per 100,000 population to other municipalities.

Chart 36.2 (MBNC 2017) Megalitres of Drinking Water Treated per 100,000 Population

These are total volumes that include amounts used by both the residential and ICI (industrial, commercial and institutional) sectors. Toronto ranks tenth of fifteen (third quartile) in terms of having the highest volumes of water treated, 1.8% lower than the median of benchmarked cities and regions. In many municipalities, the ICI sectors can use significant volumes of water in their

operations. In Toronto in the ICI sector accounted for 37 percent of the total volumes of drinking water treated in 2017.

Contributors to gradually annually reducing water consumption include:

- Annually growing number of high density condominiums in which water use is lower than in homes;
- Improved water conservation resulting from City initiatives;
- More efficient water consumption products;
- Impact of higher water rates,
- Some wetter summers, resulting in less outdoor water use for irrigation;
- A high level of public education and environmental awareness; and
- A reduction in some large industrial water users.
- Marginal (3.5%) decrease in occupancy ratio of households from 2007 to 2017

COMMUNITY IMPACT

Toronto has an approved water efficiency plan designed to protect the environment and accommodate future population growth within the planned capacity of water treatment plants.

36.3 – HOW MUCH DRINKING WATER DOES THE AVERAGE TORONTO HOUSEHOLD USE?

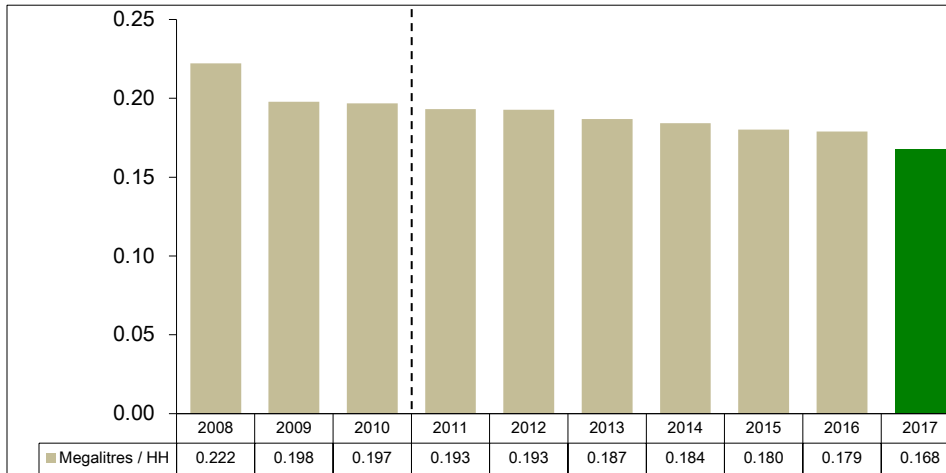


Chart 36.3 shows the annual volume of water (in megalitres) used in an average Toronto household.

Chart 36.3 (City of Toronto) Megalitres of Drinking Water Used per Household

In 2017, the rate of mega liters per household decreased. The results for 2010 and prior years are not based on the revised population estimates.

36.4 – HOW DOES TORONTO'S DRINKING WATER USE PER HOUSEHOLD COMPARE TO OTHER MUNICIPALITIES?

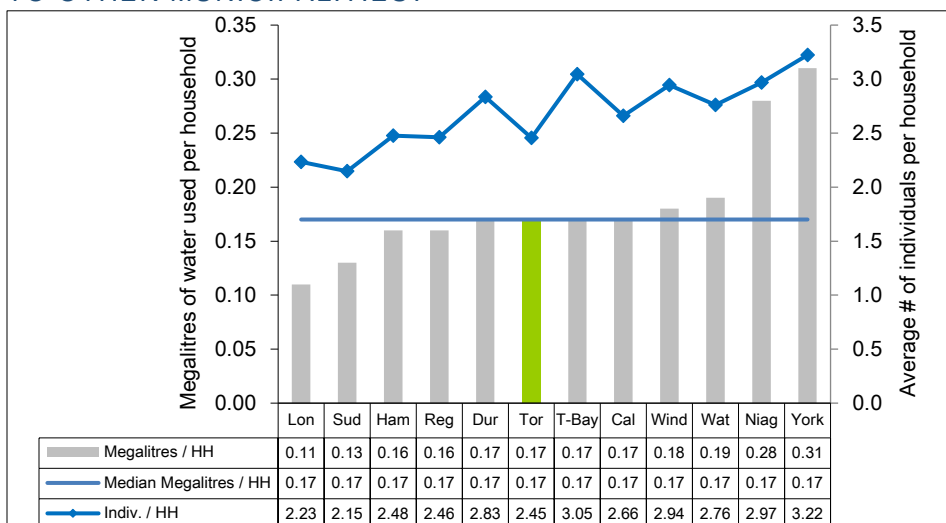


Chart 36.4 compares Toronto's 2017 water use per household to other municipalities, plotted as bars relative to the left axis.

Chart 36.4 (MBNC 2017) Annual Residential Water Use (Megalitres) per Household (Community Impact) & Average Number of Individuals per Household

Toronto ranks fifth of twelve (tied with Durham) (second quartile) in terms of having the lowest water use per household. The average number of individuals per household is also plotted as a line graph relative to the right axis, since family size can impact household water consumption. Natural change out of inefficient toilets and washing machines with more water efficient models contribute to declining residential water consumption. Rebates and lower water rates are also used as incentives to lower water consumption among industrial, commercial and institutional customers. Comparatively some lower water usage cities have some population with wells.

Annual household water usage is related to weather conditions. For example, less rain could result in more outdoor water use for activities such as the watering of lawns and gardens.

Examining total daily water use during the winter months (when outdoor water use is minimal) is one way of examining longer term trends.

CUSTOMER SERVICE

The quality of drinking water provided in Toronto is of paramount importance. Toronto’s drinking water monitoring program extends in intensity and scope well beyond provincial regulatory requirements. Toronto regularly tests for many more parameters than required by the province.

36.5–HOW DOES TORONTO’S WATER QUALITY MEET OR EXCEED PROVINCIAL STANDARDS?

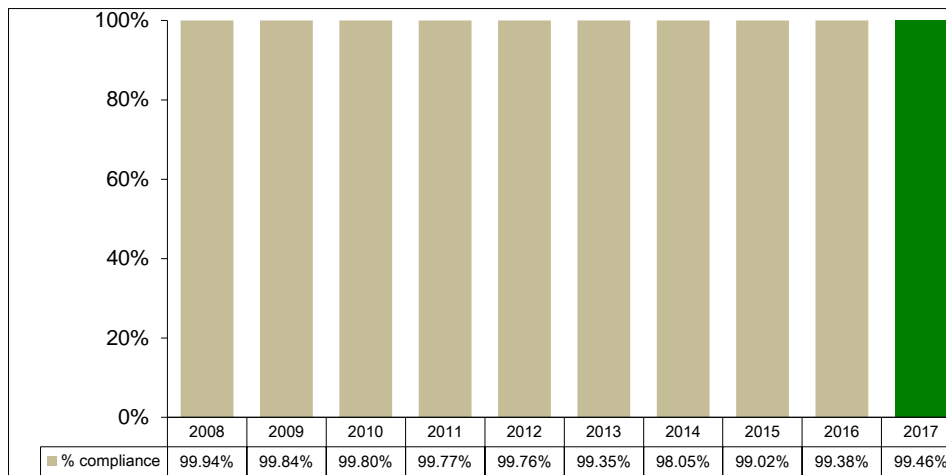


Chart 36.5 reflects Toronto's results for the number of drinking water microbiological test results that met or exceeded the standards as set out in Ontario Regulation 169/03 of the Ontario Drinking Water Act. Results continued to be very strong in 2017 at 99.46%.

Chart 36.5 (City of Toronto) % of Water Quality Tests in Compliance with Drinking Water Standards

During 2017, 24,607 analyses were performed on treated water, as well as at various stages of treatment. Additional tests are conducted through comprehensive distribution monitoring. There was a 17.8% increase in number of tests conducted from 2008 to 2017.

36.6 – HOW DOES TORONTO'S COMPLIANCE WITH PROVINCIAL WATER QUALITY STANDARDS COMPARE TO OTHER MUNICIPALITIES?

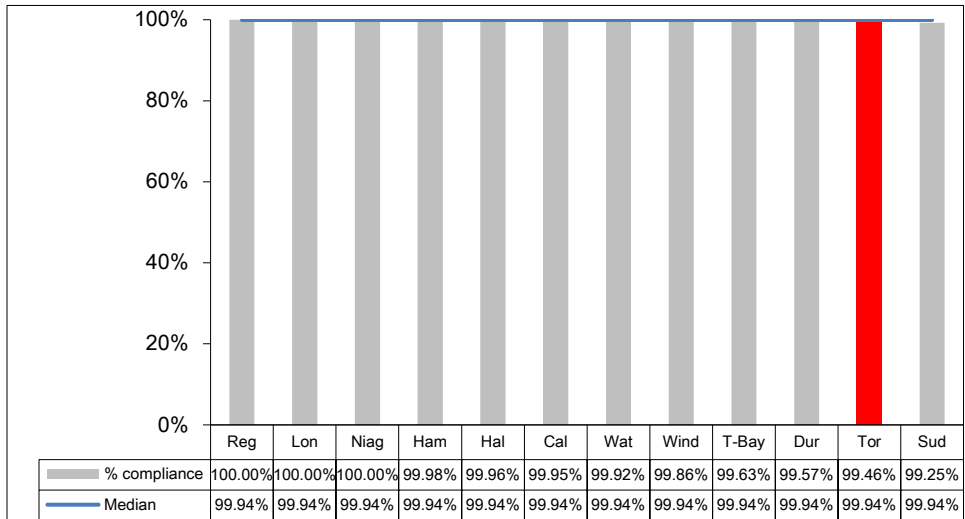


Chart 36.6 compares Toronto's 2017 result to other municipalities for the percentage of tests in compliance with provincial standards.

Chart 36.6 (MBNC 2017) % of Water Quality Tests in Compliance with Drinking Water Standards

In terms of having the highest compliance rate, Toronto's result ranks eleventh of twelve municipalities (fourth quartile); however, Toronto continues to have very high rates of compliance at 99.46 percent.

Another measure of water quality is the weighted number of days when a boil water advisory relating to a municipal water supply is issued by the Medical Officer of Health. In Toronto, there were no boil water advisories issued in 2017 or prior years. Two of the other reporting MBNC municipalities (Durham and Thunder Bay) had boil water advisories for portions of their municipalities in 2017.

36.7 –HOW MANY WATERMAIN BREAKS OCCUR IN TORONTO?

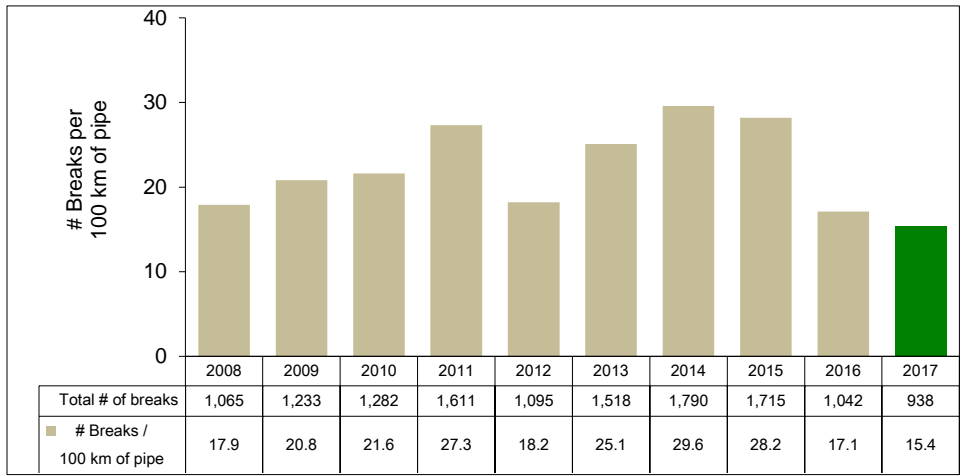


Chart 36.7 summarizes Toronto's total number and rate of watermain breaks per 100 km of pipe, and shows a decrease in 2017. The rate of breaks varies from year to year.

Chart 36.7 (City of Toronto) Annual Number of Watermain Breaks per 100 km of Distribution Pipe

Temperature fluctuations in winter can have a significant effect on the rate of breaks, especially considering the age of Toronto's infrastructure. Other contributing factors that can lead to variations in watermain break rates are nearby construction projects and changes in water pressure due to other project work. In 2015, there were severe temperature fluctuations in the winter of 2015, which resulted in more water main breaks in an aging distribution pipe system. In 2017, temperature changes were more moderate and had less impact to watermain breaks. Over the long term, capital spending on infrastructure renewal projects (i.e. water main replacement, cathodic protection, structural lining) is helping reduce the number of breaks.

36.8 HOW DOES TORONTO'S RATE OF WATERMAIN BREAKS COMPARE TO OTHER MUNICIPALITIES?

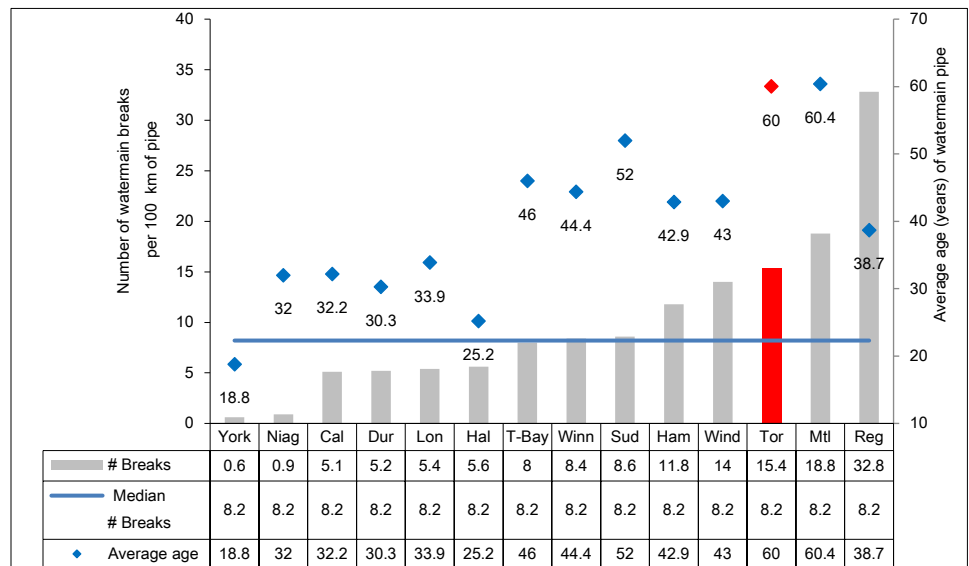


Chart 36.8 shows Toronto's 2017 ratio of watermain breaks compared to other municipalities, plotted as bars relative to the left axis.

Chart 36.8 (MBNC 2017) Annual Number of Watermain Breaks per 100 km of Distribution Pipe and Average Age of Watermains

Toronto ranks twelfth of fourteen (fourth quartile), with the highest rate of watermain breaks. The condition and age of a municipality's water distribution system can be significant factors in the number of watermain breaks.

The average age of the water distribution pipe is plotted on Chart 36.8 relative to the right axis. Toronto's watermain system is the second oldest of the MBNC municipalities, at an average of 60 years, with 23.6 percent of the watermains over 80 years old.

The condition of the watermain system can be affected by the amount of co-located utilities and subway and streetcar tracks, which can accelerate pipe corrosion (through electrolysis) and is another factor contributing to Toronto's higher rate of breaks.

EFFICIENCY

Water distribution refers to the process of distributing drinking water from the water treatment plant through the system of watermains to the customer.

Water treatment costs include the operation and maintenance of treatment plants as well as quality assurance and laboratory testing to ensure compliance with regulations.

36.9 – WHAT DOES IT COST IN TORONTO TO DISTRIBUTE DRINKING WATER?

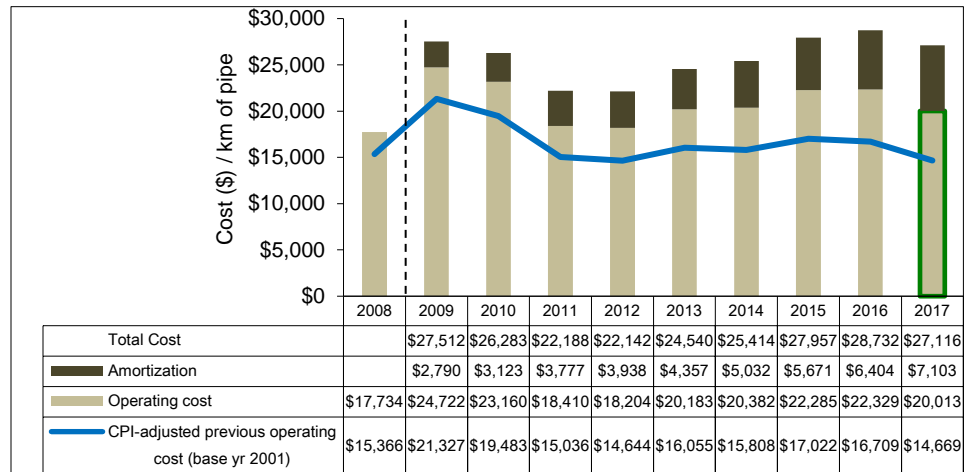


Chart 36.9 provides Toronto's operating cost and total cost (operating plus amortization) of water distribution, per kilometre of distribution pipe.

Chart 36.9 (City of Toronto) Operating and Total Cost for Drinking Water Distribution per Km of Pipe

It also provides Consumer Price Index (CPI) adjusted operating results. This adjusts the actual result for each year by the change in Toronto's CPI since the base year of 2001. Operating cost trends correlate closely with the CPI.

Starting in 2009, changes in accounting policies were instituted; therefore, results of 2009 and subsequent years are not as comparable to 2008 and prior years. In 2017, there was a decrease in total costs per km of pipe by 5.6% and the operating costs per km of pipe decreased by 10.4%. There has been a longer term trend of increasing capital costs in response to aging infrastructure.

36.10 – HOW DOES THE COST OF DISTRIBUTING DRINKING WATER IN TORONTO COMPARE TO OTHER MUNICIPALITIES?

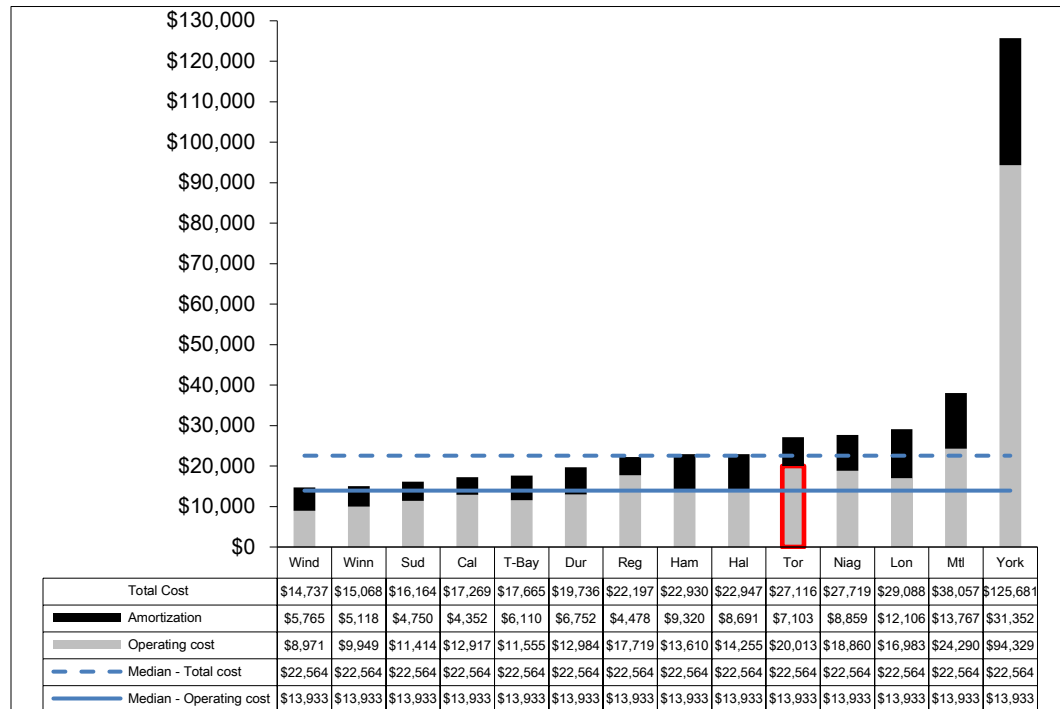


Chart 36.10 (MBNC 2017) Operating and Total Cost for Drinking Water Distribution per Km of Pipe

Chart 36.10 compares Toronto's 2017 cost of water distribution per km of pipe to other municipalities.

Toronto ranks twelfth of fourteen (fourth quartile) for operating costs and ranks tenth of fourteen (third quartile) for total costs in terms of having the lowest cost. The topography of the City of Toronto is a factor in our high costs. Because the city slopes upward from from Lake Ontario, it is necessary to have 12 separate pressure districts at six different levels to provide adequate pressure to all consumers. In some cases, water must be pumped three or four times before it reaches the consumer, requiring additional energy and money. In 2017 339 kWhr/ML were consumed by the water treatment facilities, slightly higher than the electrical energy amount of 335 kWhr/ML consumed in 2016. Toronto's high operating costs are also related to the comparatively high rate of watermain breaks and the age of its infrastructure.

Toronto Water operates as an Integrated Systems, meaning it has full responsibility for all water activities including treatment, transmission, storage and local distribution. Other Municipalities, such as the Regions of York, Niagara and Waterloo, operate as Two-Tier Systems, meaning they have responsibility for components of water activities such as water treatment, water transmission and major water storage facilities. The local municipalities within the Regions are responsible for local water distribution systems and storage facilities.

36.11 – WHAT DOES IT COST TO TREAT DRINKING WATER IN TORONTO?

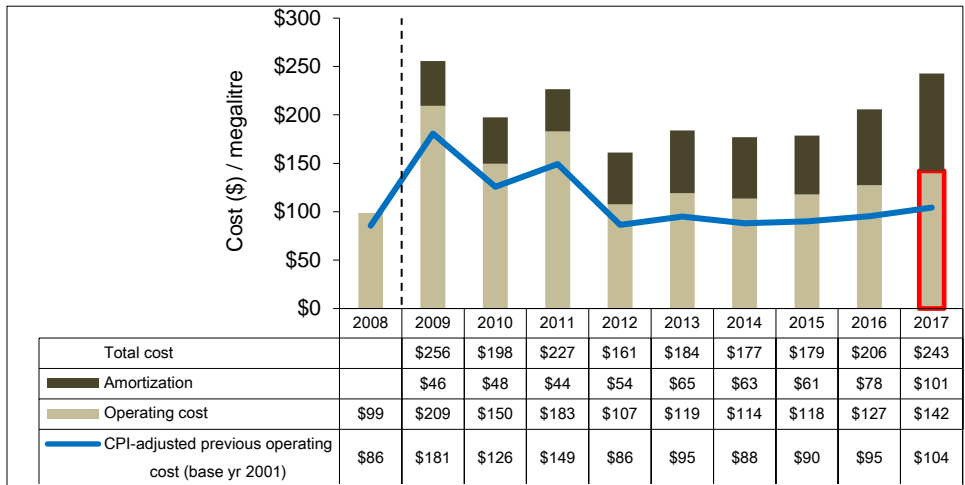


Chart 36.11 summarizes Toronto's operating cost and total cost (operating plus amortization) of water treatment per megalitre (one million litres) of drinking water.

Chart 36.11 (City of Toronto) Operating and Total Cost for Drinking Water Treatment per Megalitre

Starting in 2009, changes in accounting policies were instituted; therefore, results of 2009 and subsequent years are not as comparable to 2008 and prior years. Toronto's 2017 operating costs and total costs both increased. Total cost increased by 18% and operating cost increased by 11.5%. Actual operating costs had an 8.2% increase while the volume of water treated decreased 3.0%.

36.12 – HOW DOES TORONTO'S COST TO TREAT DRINKING WATER COMPARE TO OTHER MUNICIPALITIES?

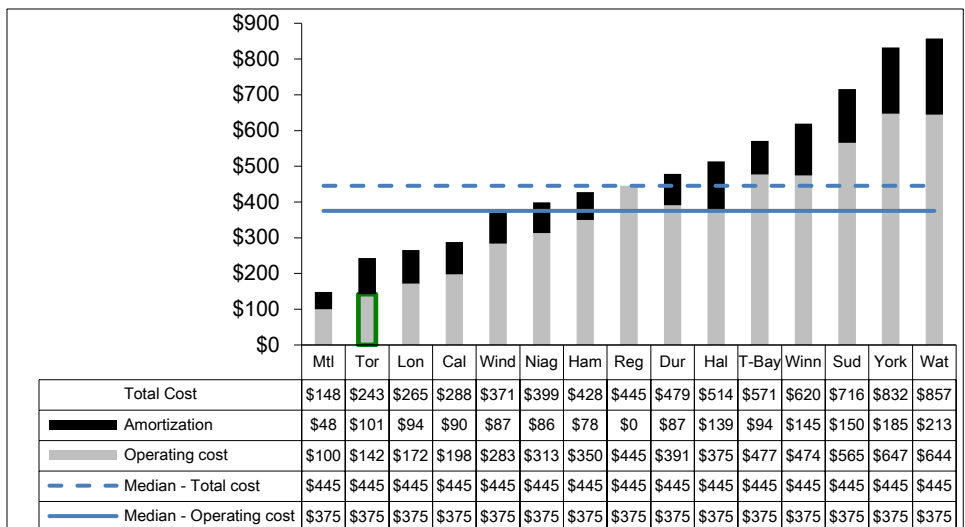


Chart 36.12 compares Toronto's 2017 cost of water treatment per megalitre to other municipalities.

Toronto ranks second of fifteen municipalities (first quartile) for both operating costs and total costs in terms of the lowest cost.

Chart 36.12 (MBNC 2017) Operating and Total Cost for Drinking Water Treatment per Megalitre

The primary factors behind Toronto's lower costs are efficiencies and economies of scale realized from the operation and modernization of four large water treatment plants, and an accessible source water lake rather than ground water sources.

CUSTOMER SATISFACTION: CITIZENS FIRST (CF) SERVICE QUALITY SURVEY RESULTS

One way to measure satisfaction of a public service is to through the use of surveys. The Citizens First surveys, conducted every 2 to 3 years by the [Institute for Citizen-Centred Services](#), provides a comprehensive overview at how citizens view their government services.

Citizens First 8 (CF8) is the most recent survey and was conducted between December 2017 – February 2018. A total of 401 Toronto residents were surveyed in CF8. The final data are weighted for Toronto by age and gender. Based on this sample size, Toronto's results have a margin of error of $\pm 4.9\%$ for a result of 50% at the 95% confidence interval. However, data based on sub-groups is subject to a greater margin of error.

The Service Quality Score (SQR) relates to how Toronto residents rate their municipal services. Respondents were requested to provide a score on a 5-point scale where 1 means 'very poor' and 5 means 'very good'. In order to remain consistent with results from previous years, all the results are scaled from 0 to 100.

Rating	Very Poor 1	2	3	4	Very Good 5
Score	0	25	50	75	100

The survey respondents were asked the following question: Please rate the quality of [*Drinking Water Provided to You at Your Residence*]. If you did not use this service in the past 12 months, select 'Does Not Apply'.

36.13– WHAT IS TORONTO'S SERVICE QUALITY RATING FOR DRINKING WATER PROVIDED AT YOUR RESIDENCE?

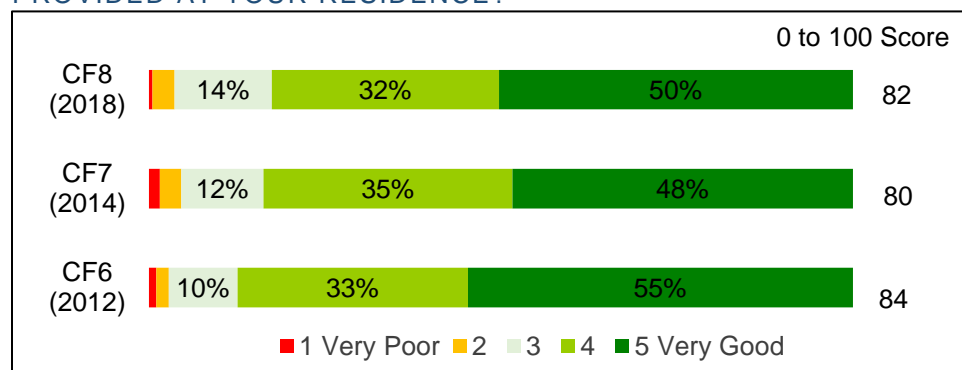


Chart 36.13 displays the Service Quality Score for Toronto's drinking water provided to its residence. In CF8 (2018), Toronto's drinking water provided to its residence scored 82 out of 100, an improvement from

Chart 36.13 (Citizen's First 7 and 8) Service Quality Score for drinking water provided to its residence

80 in 2014 results. The vast majority (82%) of all CF8 survey respondents who have used drinking water provided to their residence in Toronto in the past 12 months rated at a "4" or "5" on the 5-point scale.

2017 ACHIEVEMENTS AND 2018 PLANNED INITIATIVES

The following initiatives have improved or are expected to further improve the efficiency and effectiveness of Toronto Water Services:

2017 Accomplishments & Achievements

- The Ministry of Environment and Climate Change (MOECC) has completed annual inspections at the City's water treatment facilities and there have been no major non-conformance issues identified.
- 2017 Ontario Water Works Association Best Tasting Water Award.
- The management structure of the Toronto Water Customer Care Centre, the first step of a transformational initiative that sets the stage for further improvements planned to increase customer satisfaction, was implemented in Q2 2017 and resulted in \$0.747 million in savings due the reduction of 8 positions.
- Optimizing GIS technology to enhance operational efficiency and improve customer service.
- Piloting smart grid technologies to help with in the field data collection and connectivity.
- Ongoing education and outreach program attending 267 outreach events with an estimated attendance of 3.9 million people as reported by event organizers.
- Water conservation projects related to the Industrial Water Rate Program resulted in estimated water savings of 3.75 million m³ per year.

2018 Planned Initiatives

- Ensure delivery of water and wastewater services for 3.6 million residents and business in Toronto.
- Provide treatment and supply of 435 billion litres of water (including York Region).
- Continue maintenance and repair of 6,100 km of watermains, 4,100 km of sanitary sewers, 5,000 km of storm sewers, and over 1,400 km of combined sewers.
- Replace 5,000 sub-standard water services.
- Repair 1,600 broken watermains.
- Provide Environmental Monitoring and Protection including on-going public consultations and awareness programs.

Factors Influencing Results of Municipalities

The results of each municipality included in this report can be influenced to varying degrees by factors such as:

- Age of Infrastructure: The age and condition of water distribution system, the type of water distribution pipe material and the frequency of maintenance activities.
- Conservation Programs: The extent of municipal water conservation programs can impact water consumption.
- Provincial Standards: Specific municipal water quality requirements may exceed provincial regulations.

- **Supply and Demand:** Cost is impacted by the water source (ground water or surface water), the resulting treatment costs and the number of independent water supply/distribution systems operated, and size of the geographic area serviced. Variation in supply to the ICI and residential sectors, relative to total system demand.
- **Treatment Plants:** The number, size and complexity of a municipality's water treatment plants.
- **Urban Density:** The proximity of pipes to other utilities increases the cost for infrastructure repair and replacement.
- **Weather Conditions:** Negative impacts associated with more severe and frequent extreme weather events.

Additional Information

- **Integrated Systems:** The term applies to those Municipalities that have full responsibility for all water activities including treatment, transmission, storage and local distribution.
- **Two-Tier Systems:** The term applies to those Municipalities that have responsibility for components of water activities such as water treatment, water transmission and major water storage facilities; and whereas local municipalities are responsible for local water distribution systems and storage facilities.