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# CITY OF VAUGHAN 2021 ANNUAL SUMMARY REPORT

March 1, 2022

A description of the City of Vaughan's Water Distribution System to fulfill the requirements under Schedule 22 of *Ontario Regulation 170/03 – Drinking Water Systems*

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# 1.0 REPORT OVERVIEW

## 1.1 BACKGROUND

The 2021 Annual Summary Report is intended to provide the Mayor and Members of Council, as Owners of the Drinking Water System, an understanding of the status of the City of Vaughan's Drinking Water System for the reporting period of January 1, 2021 to December 31, 2021.

Under the *Safe Drinking Water Act, 2002 (the Act)*, municipalities are required to:

- Recognize that the people of Ontario are entitled to expect their drinking water to be safe; and,
- Provide for the protection of human health and the prevention of drinking water health hazards through the control and regulation of Drinking Water Systems and drinking water testing.

This Report has also been prepared to satisfy the requirements of Schedule 22 of *Ontario Regulation 170/03 – Drinking Water Systems (Summary Reports for Municipalities)*.

For the 2021 reporting period, a separate Annual Report, which contains data related to annual testing and sampling parameters, was prepared to fulfill Section 11 of *Ontario Regulation 170/03 – Drinking Water Systems*. This report will be posted on the City's website by March 31, 2022.

## 1.2 QUALITY MANAGEMENT SYSTEM (QMS) POLICY

The Owners and Operators of the City's Water Distribution System are committed to:

- Providing safe and clean drinking water to citizens and businesses;
- Complying with all applicable legislation and regulations as related to the provision of safe drinking water; and
- Implementing and continually improving the effectiveness of the City's Quality Management System (QMS).

The City's QMS Policy has been developed in accordance with the objectives of the 2018-2022 Term of Council Service Excellence Strategic Plan to enhance and ensure community safety, health, and wellness and to maintain assets and infrastructure integrity.

# 2.0 DRINKING WATER SYSTEM DESCRIPTION

## 2.1 DRINKING WATER SYSTEM PROFILE

The City’s Environmental Services Department is responsible for the distribution of safe drinking water throughout the City. In 2021, 43,285,428 m<sup>3</sup> of water was supplied to residential, industrial, commercial and institutional locations throughout the City.

The City purchases its drinking water from York Region prior to distribution. York Region obtains this water from the City of Toronto and the Region of Peel. The water originates from Lake Ontario and is treated using a process called chloramination, a disinfection method which uses chlorine combined with ammonia to ensure the water remains safe to drink from the time of treatment until it reaches the consumer.

The City’s Water Distribution System includes 1,148 kilometres of active water mains, 1 booster station and 1 pressure elevating station. Table 1 below displays the City’s Water Distribution System profile information, including the system number, class of subsystem, Municipal Drinking Water Licence (MDWL) number, Drinking Water Works Permit (DWWP) number, and the system classification.

**Table 1** City of Vaughan Distribution System Profile Information.

<b>System Number: 260003097</b>	<b>Class 2 Water Distribution Subsystem</b>
<b>Municipal Drinking Water Licence: 011-101</b>	<b>Drinking Water Works Permit: 011-201</b>
<b>Classification: Large Municipal Residential System</b>	

# 3.0 LEGISLATIVE REQUIREMENTS

## 3.1 SUMMARY OF LEGISLATIVE REQUIREMENTS

The Act and associated Regulations under which the City operates the water distribution system are:

- (a) **Ontario Regulation 170/03 of the Act**
  - Overall legislative framework to operate a Drinking Water System
- (b) **Ontario Regulation 128/04 of the Act**
  - Certification of the Drinking Water System Operators
- (c) **Ontario Regulation 169/03 of the Act**
  - Water sampling parameters according to the Ontario Drinking Water Quality Standards
- (d) **Ontario Regulation 188/07 of the Act**
  - Licensing requirements for Drinking Water Systems

### 3.1.1 ONTARIO REGULATION 170/03 – DRINKING WATER SYSTEMS

Ontario Regulation 170/03 – Drinking Water Systems establishes eight categories of Drinking Water Systems, four of which are municipal, and the other four are non-municipal. The City’s Drinking Water System is a **Large Municipal Residential System** because it matches the legislative definition of a “municipal drinking water system that serves a major residential development and serves more than 100 private residences”.

Ontario Regulation 170/03 – Drinking Water Systems contains Schedules that address several requirements for a Drinking Water System. The following Schedules are applicable to the City’s Water Distribution System:

- Schedule 6           Operational Checks, Sampling and Testing – General
- Schedule 7           Operational Checks
- Schedule 10         Microbiological Sampling and Testing
- Schedule 13         Chemical Sampling and Testing
- Schedule 15.1       Lead
- Schedule 16         Reporting Adverse Test Results and Other Problems
- Schedule 17         Corrective Action
- Schedule 22         Summary Reports for Municipalities

## 3.0 LEGISLATIVE REQUIREMENTS

### SCHEDULE 6 – OPERATIONAL CHECKS, SAMPLING AND TESTING – GENERAL

This Schedule of the Regulation provides direction on sample frequency, form, handling, monitoring equipment, and record keeping and provides the framework for performing drinking water samples as detailed in Schedule 7.

### SCHEDULE 7 – OPERATIONAL CHECKS

This Schedule identifies the responsibility for chlorine, turbidity, and fluoride testing and defines tests that can be performed by a Certified Water Operator.

As required under this Schedule, the City ensures that drinking water samples from the City's Water Distribution System are taken and tested for a combined chlorine residual. In 2021, 2,163 samples were taken to measure chlorine residuals.

The City's Water Distribution System is a stand-alone system which means that the received water stays within the City borders. Primary disinfection, testing for turbidity, and fluoride addition is undertaken at wastewater treatment plants that are owned and operated by the City of Toronto and the Region of Peel.

### SCHEDULE 10 – MICROBIOLOGICAL SAMPLING AND TESTING

This Schedule identifies the frequency of microbiological sampling for the presence of bacteria and associated testing. The number of required samples is based upon population size. The City was mandated to take a minimum of 134 microbiological samples per month in 2021 from January to October and 135 microbiological samples per month in November 2021 and December 2021 for an annual total of 1,610 samples.

The City collected a total of 1,750 microbiological samples for testing in 2021. Over than 25% of the 1,750 microbiological samples were also sampled for Heterotrophic Plate Count (HPC) to satisfy regulatory requirements. HPC measures the overall bacteriological quality of drinking water.

### SCHEDULE 13 – CHEMICAL SAMPLING AND TESTING

This Schedule outlines the requirements for sampling of inorganics, organics, trihalomethanes (THMs), haloacetic acids (HAAs), nitrate and nitrite, sodium, and fluoride.

Though the City is not required to test for inorganics/organics, the City tested for inorganics in 2021 to maintain diligence.

The City also tested for THMs and HAAs (chlorine disinfection byproducts) on a quarterly basis as required under Schedule 13 of *Ontario Regulation 170/03 – Drinking Water Systems*. All test results were within legislative limits.

## 3.0 LEGISLATIVE REQUIREMENTS

### SCHEDULE 15.1 – LEAD SAMPLING

This Schedule applies to sampling for lead and stipulates that there are two annual sampling periods to consider – one between December 15 and April 15 and the other between June 15 and October 15. Prior to 2011, the City was mandated to collect 100 samples from points in plumbing that serve private residences, 10 samples from points in plumbing that do not serve private residences, and 20 samples from sampling points in the Water Distribution System. The City has since received approval from the MECP for relief from the regulatory requirements for standard lead sampling. In exchange for the relief granted, the City is required to comply with Schedule 15.1-5 (9) of *Ontario Regulation 170/03 – Drinking Water Systems* which allowed the City exemption from plumbing sampling. Relief was granted because the City demonstrated that not more than 10 per cent of all the samples from plumbing that were tested for lead in two consecutive sampling periods exceeded the standard prescribed for lead.

The City’s current lead sampling plan includes 10 distribution samples taken between December 15 and April 15 and 10 distribution samples taken between June 15 and October 15 annually which are measured for pH, alkalinity and lead. There were no sample exceedances for lead in 2021.

### SCHEDULE 16 – REPORTING ADVERSE TEST RESULTS AND OTHER PROBLEMS

This Schedule defines the City’s responsibility to report any drinking water test result which exceeds any of the standards outlined in the *Ontario Regulation 169/03 – Ontario Drinking Water Quality Standards*.

The reporting requirement involves immediate oral and written notification to the Ministry of the Environment, Conservation, and Parks (MECP) Spills Action Centre (SAC), and the Medical Officer of Health at the York Region Public Health Unit.

Table 2 below provides a summary of all adverse water quality incidents that occurred in 2021. The corrective action for each incident is also included in the Table. There were 60 adverse water quality incidents, none of which resulted in a risk to public health.

**Table 2** 2021 Adverse Water Quality Incidents and Corrective Actions.

Incident Description	Incident Date	Adverse Test Result	Regulatory Limits	Corrective Action
Combined Chlorine Residual	01/12/21	0.04mg/L	0.25 mg/L (Minimum) 3.0 mg/L (Maximum)	Water Operations flushed water main at site and retested.
	04/16/21	3.45mg/L	0.25 mg/L (Minimum) 3.0 mg/L (Maximum)	Water Operations flushed water main at site and retested.
	05/18/21	3.41mg/L	0.25 mg/L (Minimum) 3.0 mg/L (Maximum)	Water Operations flushed water main at site and retested.

## 3.0 LEGISLATIVE REQUIREMENTS

Incident Description	Incident Date	Adverse Test Result	Regulatory Limits	Corrective Action
Combined Chlorine Residual	05/19/21	4.94mg/L	0.25 mg/L (Minimum) 3.0 mg/L (Maximum)	Water Operations flushed water main at site and retested.
	06/21/21	4.19mg/L	0.25 mg/L (Minimum) 3.0 mg/L (Maximum)	Water Operations flushed water main at site and retested.
	07/12/21	0.02mg/L	0.25 mg/L (Minimum) 3.0 mg/L (Maximum)	Water Operations flushed water main at site and retested.
	09/10/21	3.02mg/L	0.25 mg/L (Minimum) 3.0 mg/L (Maximum)	Water Operations flushed water main at site and retested.
Total Coliform (TC) Present	02/18/21	TC - Present	0	Water Operations flushed water main at site and resampled.
	06/18/21	TC - Present	0	Water Operations flushed water main at site and resampled.
	06/24/21	TC - Present	0	Water Operations flushed water main at site and resampled.
	07/07/21	TC - Present	0	Water Operations flushed water main at site and resampled.
	07/07/21	TC - Present	0	Water Operations flushed water main at site and resampled.
	07/09/21	TC -Present	0	Water Operations flushed water main at site and resampled.
	07/12/21	TC- Present	0	Water Operations flushed water main at site and resampled.
	07/14/21	TC- Present	0	Water Operations flushed water main at site and resampled.
	07/14/21	TC- Present	0	Water Operations flushed water main at site and resampled.
	07/14/21	TC- Present	0	Water Operations flushed water main at site and resampled.
	07/14/21	TC- Present	0	Water Operations flushed water main at site and resampled.
	07/15/21	TC- Present	0	Water Operations flushed water main at site and resampled.
	07/16/21	TC- Present	0	Water Operations flushed water main at site and resampled.
07/16/21	TC- Present	0	Water Operations flushed water main at site and resampled.	



## 3.0 LEGISLATIVE REQUIREMENTS

Incident Description	Incident Date	Adverse Test Result	Regulatory Limits	Corrective Action
Total Coliform (TC) Present	07/16/21	TC- Present	0	Water Operations flushed water main at site and resampled.
	07/16/21	TC -Present	0	Water Operations flushed water main at site and resampled.
	07/16/21	TC- Present	0	Water Operations flushed water main at site and resampled.
	07/16/21	TC- Present	0	Water Operations flushed water main at site and resampled.
	07/16/21	TC- Present	0	Water Operations flushed water main at site and resampled.
	07/16/21	TC- Present	0	Water Operations flushed water main at site and resampled.
	07/17/21	TC- Present	0	Water Operations flushed water main at site and resampled.
	07/18/21	TC- Present	0	Water Operations flushed water main at site and resampled.
	07/18/21	TC- Present	0	Water Operations flushed water main at site and resampled.
	07/18/21	TC- Present	0	Water Operations flushed water main at site and resampled.
	07/18/21	TC- Present	0	Water Operations flushed water main at site and resampled.
	07/20/21	TC- Present	0	Water Operations flushed water main at site and resampled.
	07/30/21	TC- Present	0	Water Operations flushed water main at site and resampled.
	07/30/21	TC- Present	0	Water Operations flushed water main at site and resampled.
	08/05/21	TC- Present	0	Water Operations flushed water main at site and resampled.
	08/05/21	TC- Present	0	Water Operations flushed water main at site and resampled.
	08/05/21	TC- Present	0	Water Operations flushed water main at site and resampled.
08/07/21	TC- Present	0	Water Operations flushed water main at site and resampled.	

## 3.0 LEGISLATIVE REQUIREMENTS

Incident Description	Incident Date	Adverse Test Result	Regulatory Limits	Corrective Action
Total Coliform (TC) Present	08/07/21	TC- 1	0	Water Operations flushed water main at site and resampled.
	08/09/21	TC -1	0	Water Operations flushed water main at site and resampled.
	08/13/21	TC- Present	0	Water Operations flushed water main at site and resampled.
	08/18/21	TC- Present	0	Water Operations flushed water main at site and resampled.
	08/20/21	TC- Present	0	Water Operations flushed water main at site and resampled.
	08/25/21	TC- Present	0	Water Operations flushed water main at site and resampled.
	08/25/21	TC- Present	0	Water Operations flushed water main at site and resampled.
	08/25/21	TC- Present	0	Water Operations flushed water main at site and resampled.
	08/25/21	TC- Present	0	Water Operations flushed water main at site and resampled.
	08/27/21	TC- Present	0	Water Operations flushed water main at site and resampled.
	08/27/21	TC- 5	0	Water Operations flushed water main at site and resampled.
	08/27/21	TC- 2	0	Water Operations flushed water main at site and resampled.
	08/30/21	TC- 1	0	Water Operations flushed water main at site and resampled.
	09/01/21	TC- 1	0	Water Operations flushed water main at site and resampled.
	09/03/21	TC- 1	0	Water Operations flushed water main at site and resampled.
	09/23/21	TC- Present	0	Water Operations flushed water main at site and resampled.
	09/23/21	TC- Present	0	Water Operations flushed water main at site and resampled.
09/24/21	TC- Present	0	Water Operations flushed water main at site and resampled.	

## 3.0 LEGISLATIVE REQUIREMENTS

Incident Description	Incident Date	Adverse Test Result	Regulatory Limits	Corrective Action
Total Coliform (TC) Present	12/12/21	TC- Present	0	Water Operations flushed water main at site and resampled.
	12/15/21	TC -Present	0	Water Operations flushed water main at site and resampled.
	12/22/21	TC- Present	0	Water Operations flushed water main at site and resampled.

### SCHEDULE 17 – CORRECTIVE ACTION

In conjunction with the requirements of Schedule 16, corrective actions are immediately undertaken to address adverse water quality incidents. Responses include water main flushing and resampling of the identified area as well as any additional direction provided by the Medical Officer of Health at the York Region Public Health Unit and MECP Spills Action Centre. The samples are tested for chlorine residuals onsite and sent to the laboratory for further tests that may include microbiological and/or chemical tests. Once complete results have been received from the laboratory, and are within the set regulatory limits, a notice of issue resolution is reported back to both the MECP Spills Action Centre and the Medical Officer of Health at the York Region Public Health Unit.

### SCHEDULE 22 - SUMMARY REPORTS FOR MUNICIPALITIES, AND SECTION 11 OF ONTARIO REGULATION 170/03 – DRINKING WATER SYSTEMS

Summary Report requirements for Municipalities with Large Municipal Residential Systems are identified within Schedule 22. Annual Report submissions for the previous calendar year must be submitted to the City's Mayor and Members of Council, as Owners of the system, by March 31<sup>st</sup> of the following year. The City also posts the Report on the City's external website and hard copies of the Report are available free of charge to the public at the City's Joint Operations Centre located at 2800 Rutherford Road.

Similarly, Annual Reports, as defined under Section 11 of the Regulation, for the previous calendar year are prepared for submission to the City's Mayor and Members of Council, as Owners of the system, no later than February 28<sup>th</sup> of the following year. Annual Report requirements are defined in the legislation. The City ensures that effective steps are taken to advise users that copies of the Report are available, without charge, including the location where copies of the Report may be obtained. This Report is also made available on the City's external website.

## 3.0 LEGISLATIVE REQUIREMENTS

### 3.1.2 ONTARIO REGULATION 128/04 – CERTIFICATION OF DRINKING WATER SYSTEM OPERATORS AND WATER QUALITY ANALYSTS

This Regulation establishes the training and certification requirements that must be satisfied by Certified Water Operators.

The City's Water Operations staff operated the City's Water Distribution System in 2021. Every Operator is required to complete a total of 105 training hours within the three-year Operator certificate renewal period. Operator training consists of 36 hours of MECP accredited classroom training and 69 hours of on-the-job practical training.

During the reporting period of January 1, 2021 to December 31, 2021, every Drinking Water Operator at the City held a valid Operator certificate in compliance with *Ontario Regulation 128/04 – Certification of Drinking Water System Operators and Water Quality Analysts* and met provincial training requirements.

### 3.1.3 ONTARIO REGULATION 169/03 – ONTARIO DRINKING WATER QUALITY STANDARDS

*Ontario Regulation 169/03 - Ontario Drinking Water Quality Standards* identifies the minimum level of drinking water quality acceptable for human consumption.

The City's water sampling and testing program complied with the Standards under the Regulation and ensured appropriate corrective actions were taken when necessary.

As this Regulation indicates the minimum standard, exceedance of these values represent the point of which adverse reporting and corrective action is triggered.

### 3.1.4 ONTARIO REGULATION 188/07 – LICENSING OF MUNICIPAL DRINKING WATER SYSTEMS

*The Act* requires Owners and Operating Authorities of municipal residential Drinking Water Systems to have an accredited Operating Authority. In order to become accredited, an Operating Authority must establish and maintain a Quality Management System (QMS). Minimum requirements for the QMS are specified within the Drinking Water Quality Management Standard (DWQMS). *Ontario Regulation 188/07 – Licensing of Municipal Drinking Water Systems* was established to aid in the licensing of the municipal Drinking Water Systems.

## 3.0 LEGISLATIVE REQUIREMENTS

### 3.2 DRINKING WATER QUALITY MANAGEMENT STANDARD (DWQMS)

The Drinking Water Quality Management Standard has 21 elements which relate to quality management and the risk assessment and risk management of critical control points. The City's Operational Plan documents the processes and procedures that the Owner and Operating Authority have in place to meet the requirements of the DWQMS.

The original full scope DWQMS accreditation certificate was formally issued by the Canadian General Standards Board to the Corporation of the City of Vaughan on July 7, 2009. The City's Drinking Water Works Permits and Municipal Drinking Water Licenses were received on July 27, 2009 after obtaining DWQMS accreditation and submitting a Council approved Financial Plan to the Ministry of Municipal Affairs and Housing, as required under the *Sustainable Sewage and Water System Act*. The City's DWQMS was re-accredited on June 22, 2021 following a system audit completed on April 28, 2021 and a re-accreditation audit completed on June 10 and 11, 2021.

As participants of the full scope accreditation process for the DWQMS, the City is required to submit system information for an on-site verification audit to maintain accreditation status. The City's Water Distribution System remains fully accredited.

# 4.0 DRINKING WATER SYSTEM MAINTENANCE PROGRAMS

## 4.1 WATER MAIN FLUSHING PROGRAM

The main objective of the water main flushing program is to maintain chlorine residual in the water distribution system to meet regulatory requirements and ensure the chlorine residual reflects the water quality in a given area. Flushing also helps clean the water main by removing mineral deposits from the pipe walls while improving the aesthetics of the water. Flushing is performed at locations that have the potential for stagnant water, such as dead ends, areas of low water consumption (i.e. new subdivisions), and during water main repairs to remove any debris in the water main and restore chlorine residuals. Flushing is performed by the City's certified and trained Drinking Water Operators. Chlorine residuals are recorded at each location on completion of water main flushing. An additional five anti-stagnation valves (ASV) were added to the City's Drinking Water System in 2021 to automate flushing in areas more prone to water quality issues. A total of 15 ASVs are in place across the City.

## 4.2 WATER MAIN SWABBING

Water main swabbing cleans any mineral build-up from pipe walls and remove rust due to corrosion of metallic pipes. Swabbing typically utilize a polyurethane swab slightly bigger than the diameter of the water main. The swab is inserted from a hydrant and exits from another hydrant; any mineral deposits removed from the pipe walls will also exit from the hydrant. Mineral and rust build-up in pipes provides a potential safe place for harmful pathogens to hide by avoiding contact with chlorine. Swabbing assists in removing these pathogens and helps deliver safe drinking water. Flushing and swabbing improve the hydraulics in the Water Distribution System which reduces energy costs and improves water flow. The 2021 swabbing program primarily targeted PVC pipe in Block 25.

## 4.3 HYDRANT INSPECTION PROGRAM

An annual inspection of all hydrants in the City is a requirement under *Ontario regulation 213/07 – Fire Code*. The inspection determines the operational functionality of hydrants and valves to ensure smooth operation for firefighting. The hydrant inspection program is completed by external contractors. Repairs for deficiencies identified through the hydrant inspection program are completed by the City's Drinking Water Operators with the assistance of external Contractors, if required.

## 4.4 VALVE EXERCISING PROGRAM

Valves, along with hydrants, and water booster stations are key components of the City's water distribution infrastructure. Valves control and change the direction of flow of water within the Water Distribution System and are required to be operated during maintenance activities such as water main swabbing and water main flushing. During a water main break, valves isolate a section of water main for the repair which confined the water disruption to a smaller area. Valves are exercised by an external contractor as part of the City's preventative maintenance program. Valve exercising involves turning the valve on and off to prevent the valve from becoming stiff and not functioning properly. In 2021, preventative maintenance programming targeted valves in new development areas that were in long maintenance programs as well as City valves bordering Regional roads.

## 5.0 WATER QUALITY

### 5.1 WATER QUALITY INQUIRIES

Under the current issue of the City's MDWL, the City is required to address water quality inquiries related to the Drinking Water System. The nature of the inquiry and the appropriate corrective action that was taken must be documented. Table 3 below provides a summary of the water quality inquiries the City addressed in 2021. Inquiries included questions pertaining to pH, hardness, lead, alkalinity, taste, odour, and colour. The City received a total of 116 water quality inquiries in 2021, most of which were classified as water inquiries (i.e. questions pertaining taste, odour, colour, etc.). The City can address citizens' concerns and continually improve the Drinking Water System by documenting inquiries, tracking inquiries of a similar nature and location, and identifying trends.

**Table 3** 2021 Water Quality Inquiries Related to the City's Drinking Water System.

Type of Inquiry	Number of Inquiries	Action Taken
Taste and Odour	29	<ul style="list-style-type: none"> <li>Information provided by phone or email to identify the source of the smell (plumbing vs. drinking water) and to flush taps.</li> <li>Forwarded to Water Operations group for site investigation which may include testing for chlorine residuals and sampling for microbiological lab test.</li> </ul>
Discoloured Water	7	<ul style="list-style-type: none"> <li>Information provided by phone or email to flush taps.</li> <li>Forwarded to Water Operations group for site investigation which may include testing for chlorine residuals and sampling for microbiological lab test.</li> </ul>
General Inquiries	80	<ul style="list-style-type: none"> <li>Information provided by phone conversation and/or email correspondence.</li> <li>Provide most recent sample results upon request.</li> <li>Forwarded to Water Operations group for site investigation which may include testing for chlorine residuals and sampling for microbiological lab test.</li> </ul>
<b>TOTAL</b>	<b>116</b>	

## 6.0 WATER USAGE

### 6.1 ANNUAL WATER TAKING FROM YORK REGION

York Region receives treated water from the City of Toronto and the Region of Peel and supplies it to the City for distribution. The total volume of water supplied from York Region to the City's Water Distribution System during the reporting period of January 1, 2021 to December 31, 2021 was 43,285,428 m<sup>3</sup>.

A comparison of 2019, 2020 and 2021 monthly flows for the City's Water Distribution System and the monthly average flow are included in Table 4 below. Figure 1 below shows a graphical representation of the data from Table 4. In 2021, August had the greatest flow and February had the lowest flow.

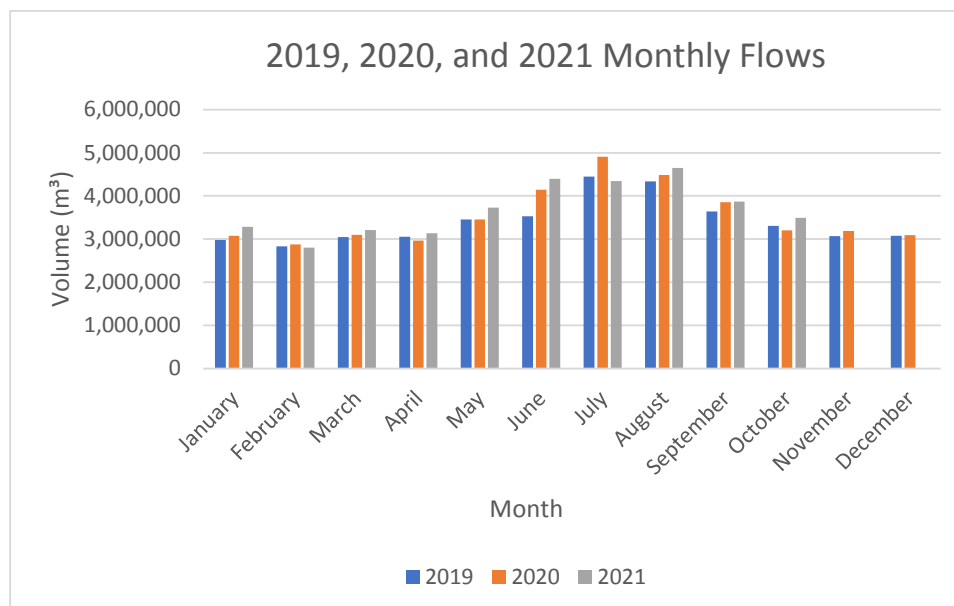
Table 5 shows the City's Water Distribution System's maximum, minimum, and average daily flows during each month of 2021. The highest daily flow (8,743m<sup>3</sup>) was recorded on June 6, 2021 and the lowest daily flow (2,665m<sup>3</sup>) was recorded on November 15, 2021.

**Table 4** The City's Water Distribution System's Monthly Flows during 2019, 2020, and 2021.

Month	2019 Volume (m3)	2020 Volume (m <sup>3</sup> )	2021 Volume (m <sup>3</sup> )
January	2,980,004	3,077,774	3,286,583
February	2,829,251	2,878,450	2,799,114
March	3,047,182	3,095,795	3,207,629
April	3,054,086	2,962,290	3,132,150
May	3,452,107	3,457,889	3,729,063
June	3,525,204	4,142,098	4,393,697
July	4,451,385	4,908,594	4,346,091
August	4,335,309	4,482,517	4,645,725
September	3,640,636	3,852,898	3,868,170
October	3,309,436	3,199,023	3,488,178
November	3,065,445	3,186,863	3,132,888
December	3,075,547	3,087,530	3,256,141
<b>TOTAL</b>	<b>40,765,591</b>	<b>42,331,721</b>	<b>43,285,428</b>
<b>MONTHLY AVERAGE FLOW</b>	<b>3,397,133</b>	<b>3,527,643</b>	<b>3,607,119</b>



## 6.0 WATER USAGE



**Figure 1** The City’s Water Distribution System’s Monthly Flows during 2019, 2020, and 2021.

**Table 5** 2021 Maximum, minimum, and average daily flows.

Month	Maximum Daily Flow (m³)	Date of Maximum Flow	Minimum Daily Flow (m³)	Date of Minimum Flow	Average Daily Flow (m³)
January	5,132	06-Jan-21	3,758	15-Jan-21	4,405
February	5,646	11-Feb-21	4,139	5-Feb-21	4,664
March	5,799	30-Mar-21	4,181	11-Mar-21	4,607
April	7,227	15-Apr-21	3,946	12-Apr-21	4,592
May	7,764	24-May-21	3,973	5-May-21	5,792
June	8,743	6-Jun-21	5,595	8-Jun-21	7,210
July	7,975	6-Jul-21	4,902	9-Jul-21	6,447
August	8,740	24-Aug-21	5,111	30-Aug-21	6,970
September	6,573	2-Sep-21	3,846	27-Sep-21	5,265
October	5,222	1-Oct-21	4,451	21-Oct-21	3,142
November	4,853	26-Nov-21	2,665	15-Nov-21	3,785
December	4,465	9-Dec-21	3,088	16-Dec-21	3,981

If a system is receiving all of its water from another system under an Agreement, a comparison of actual flow rates to the flow rates specified in the written Agreement must be provided in accordance with Schedule 22. The City does not currently have a written Agreement under subsection 5 (4) with the Regional Municipality of York. The City, along with the other area municipalities, rely on Sections 11 and 89 (b), of the *Municipal Act, 2001* with respect to the supply of water.

# 7.0 ASSOCIATED WATER SUMMARY REPORTS

## 7.1 LINKS TO ASSOCIATED WATER SUMMARY REPORTS

City of Toronto, [Annual Report and Annual Summary Report](#)

Region of Peel, [Annual Report and Annual Summary Report](#)

York Region, [Annual Report and Annual Summary Report](#)

## 8.0 CONTACT INFORMATION

### 8.1 REPORT CONTACT INFORMATION

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