

March 22, 2019

Ms. Kimberley Kitteringham  
City Clerk  
City of Markham  
101 Town Centre Boulevard  
Markham, ON L3R 9W3

Dear Ms. Kitteringham:

**Re: 2018 Drinking Water Systems Report**

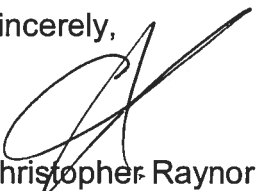
Regional Council, at its meeting held on March 21, 2019 adopted the following recommendations of Committee of the Whole regarding "2018 Drinking Water Systems Report":

1. The Regional Clerk circulate this report to the Clerks of the local municipalities, City of Toronto, Regional Municipality of Peel, and the Ontario Chief Drinking Water Inspector (Ministry of the Environment, Conservation, and Parks).

The original staff report is enclosed for your information.

Please contact David Szeptycki, Director of Strategy and Innovation at 1-877-464-9675 ext. 75723 or Roy Huetl, Director of Operations, Maintenance and Monitoring at ext. 75323 if you have any questions with respect to this matter.

Sincerely,



Christopher Raynor  
Regional Clerk

Attachments

# **The Regional Municipality of York**

Committee of the Whole

Environmental Services

March 7, 2019

Report of the Commissioner of Environmental Services

## **2018 Drinking Water Systems Report**

### **1. Recommendation**

1. The Regional Clerk circulate this report to the Clerks of the local municipalities, City of Toronto, Regional Municipality of Peel, and the Ontario Chief Drinking Water Inspector (Ministry of the Environment, Conservation, and Parks).

### **2. Summary**

This report and attachments satisfy reporting requirements in Ontario Regulation 170/03 – Drinking Water Systems, and supports Council in meeting statutory standard of care requirements under the *Safe Drinking Water Act, 2002*.

Key Points:

- In 2018, 99.99 per cent of 16,923 laboratory analyzed samples and 37.6 million continuous monitoring analyzer readings were within regulated standards and confirm York Region's high quality drinking water. All adverse results were addressed and reported.
- In 2018, 12 of 16 inspections scored 100 per cent. The remaining four inspections scored between 86 and 96 per cent. Additional information on all 2018 calendar year inspections is found in Attachment 2.
- York Region is the top scoring GTA municipality in the Chief Drinking Water Inspector's Annual Report Card with an overall inspection and sample score for the Ministry of Environment, Conservation and Parks' 2017-2018 fiscal year of 99.17 per cent.
- With one exception, drinking water systems operated within volume and capacity limits. On June 17, 2018 the Nobleton system exceeded permitted production limits by seven cubic meters. Additional information is found in the Water Volume and Capacity section of this report.
- Advanced systems monitoring, controls, and a multi-barrier approach protect drinking water and public health.

### 3. Background

#### **Drinking water system owners report annually to comply with the *Safe Drinking Water Act, 2002***

The Ministry of the Environment, Conservation, and Parks (MECP) regulates municipal drinking water systems in Ontario. The *Safe Drinking Water Act, 2002*, (the Act) requires municipal drinking water system owners to report annually on the quality and quantity of drinking water produced and distributed to the public. This regulatory requirement is satisfied through:

- This report, presentation and attachments to Council
- Water quality reports available at [york.ca/drinkingwater](http://york.ca/drinkingwater)

Within York Region, water is delivered through a two-tiered water system. The Region operates and maintains 15 drinking water supply systems, which provide water to the nine local municipalities. Our local municipal partners collectively maintain 15 drinking water distribution systems to distribute high quality water to residents and businesses.

#### **Annual Reporting helps Council exercise due diligence and meet standard of care under the *Safe Drinking Water Act***

In 2000, seven people died and thousands became ill from municipal drinking water severely contaminated with E. coli bacteria in Walkerton, Ontario. A range of contributing factors was identified. As a result of this tragedy, the Province developed the Act to address some of these factors and reduce the risk of drinking water related illness.

The Act imposes a standard of care upon individuals with decision-making authority over municipal drinking water systems, which in York Region's case is Regional Council. Council has a responsibility to protect the people in their communities by demonstrating diligence over the sourcing, delivery, and services of safe, high quality drinking water.

Council members fulfil this duty through their decisions and commitments made at Regional Council. Council direction ensures financial sustainability, asset management, and continual improvement of the Region's water systems to proactively manage risks and increase efficiency. This report summarizes 2018 calendar year information that supports Council in their standard of care including:

- Process improvements to enhance operational diligence and continually improve drinking water operations
- Water quality and water quantity performance
- Reported adverse water quality events and corrective actions (Attachment 1)

- Summary of 2018 MECP inspection findings and corrective actions (Attachment 2)
- Summary of 2018 performance data for each drinking water system (Attachment 3)
- Summary of 2018 system monetary expenses (Attachment 4)

## **York Region's Medical Officer of Health is a key partner in mitigating and monitoring potential public health risks related to drinking water**

The Region's Medical Officer of Health plays a key role in protecting public health through safe drinking water by assessing any potential health impact from an adverse water quality test result. The Medical Officer of Health may direct the owner of a drinking water system to take corrective actions beyond what is prescribed by regulations. There were no additional corrective actions required in 2018, and no water use restrictions due to water quality concerns have been ordered by the MECP or by the Medical Officer of Health in over a decade for any reported event.

Environmental Services and Public Health maintain a 24/7 response system to address potential water quality issues. In the event of a water emergency or adverse water quality incident, procedures are in place to ensure close cooperation between the Medical Officer of Health, the Region, the local municipalities, and the MECP, to ensure effective communication and protect public health.

## **Multi-barrier approach to risk management protects drinking water systems and public health**

A key recommendation resulting from the Walkerton tragedy is a multi-barrier approach to drinking water quality and safety. Elements of this approach include source water protection, training of operators, a Drinking Water Quality Management Standard, and a strict Provincial inspection and enforcement program. The multi-barrier approach ensures both preventive and corrective actions are taken to protect drinking water quality.

## **Source Water Protection prevents contamination of Ontario's drinking water**

Staff continue to identify and mitigate current and future threats to drinking water sources as required by the *Clean Water Act, 2006*. York Region's Source Water Protection program identifies and manages potential threats to drinking water. Some focus areas include:

- Requiring that proposed developments in vulnerable areas plan carefully to ensure the safety of our immediate and long term drinking water supply
- The Source Water Protection Incentive Program encourages and supports businesses to make changes to protect drinking water sources

- Collaborating with the Province, local and neighbouring municipalities, and Conservation Authorities, to align our programs and plans to ensure consistent, effective, and successful protection of all sources of drinking water

In 2019, York Region's Source Water Protection Program will continue to review development proposals in vulnerable areas, establish new risk management plans, complete inspections, and provide education to owners of sites within vulnerable areas. Implementation efforts are documented and reported to the Province as required by the *Clean Water Act, 2006*.

### **Provincially mandated training provides staff with required knowledge to sustain high performing water and wastewater systems**

York Region continues to develop and participate in top quality Operator training. The training program is tailored to ensure Operators receive required provincially standardized education, and on-the-job training that translates regulatory requirements to operational needs. The program mandate ensures staff are equipped to competently and efficiently manage drinking water systems in compliance with applicable rules and best practices.

### **Drinking Water Quality Management Standard is a tool for driving continual improvement**

The Region implements a statutory management standard that protects public health through consistent practices for managing and operating water systems, and by identifying and mitigating risks. It is also a tool for identifying and resolving inefficiencies through process and procedure updates that help to address potential compliance risks. The 2018 Integrated Management System Update Report, also on today's agenda, provides more information on the Region's continual improvement efforts to proactively manage risks to drinking water systems and ensures the Region maintains compliance.

### **Provincial inspections and enforcement assess compliance**

York Region facilities are regularly inspected by the MECP, and staff maintain a positive working relationship with regulators to identify and mitigate risks identified in our watersheds. Results of all 2018 MECP inspections and corrective actions are detailed in Attachment 2.

## **York Region's drinking water sampling program and automated monitoring tools protect public health and safety**

York Region uses a variety of monitoring methods to address the unique needs of each water system. Online analyzers and a comprehensive sampling program allow staff to understand the performance of Regional facilities. These tools provide valuable information that supports our industry-leading drinking water operations. Some examples include:

- Online analyzers continuously monitor many water quality parameters, and automatically stop the flow of drinking water when these parameters approach regulatory or operational limits
- A comprehensive sampling program includes both regulatory and research samples, and is frequently updated in response to operational needs and regulatory changes
- Analyzers and dosing equipment are calibrated on a regular schedule by trained operators and technologists to ensure accurate readings
- Using data and technology to analyze the information helps staff to better understand system performance and quality issues

## **Environmental Services is focused on improving reporting transparency and efficiency**

To simplify reporting of York Region's drinking water quality in 2018, staff implemented interactive Water Quality Report Highlights on York Region's Drinking Water Quality webpage. These reports show key details from the Region's Open Data portal in a user-friendly, self-serve interface. The software used to create these highlights was also used to generate Attachments 1, 3, and 4 of this year's report. These reporting efficiencies have saved staff time and effort on managing documents and allow staff to spend more time on operating and performing deeper analysis to optimize delivery of our services. This initiative also supports the Region's commitment to accessibility, customer service, and being a leader in public services. Access the interactive Water Quality Reports highlights at [york.ca/drinkingwater](http://york.ca/drinkingwater)

## **4. Analysis**

### **WATER QUALITY**

#### **99.99 per cent of laboratory samples were within Regulatory limits in 2018 and results confirm York Region's high quality drinking water continues to be safe**

In 2018, the York-Durham Environmental Laboratory performed 16,923 water quality tests for York Region's drinking water systems, resulting in only two reported adverse test results.

This means 99.99 per cent of all samples collected and analyzed by the laboratory in 2018 were within regulated standards. The laboratory initiates a notification process when analysis indicates a parameter is outside regulatory limits. Staff responded to each adverse test result and performed corrective actions accordingly.

Table 1 summarizes the laboratory analyzed water quality test results reported as adverse water quality events in 2018. Laboratory analyzed sample results are factored into the Chief Drinking Water Inspector's annual report.

**Table 1**  
**Adverse Water Quality Events Reported from**  
**Laboratory Analyzed Test Results in 2018**

Parameter and Number of Occurrences	Summary of Reported Results
Sodium (2 occurrences)	<ul style="list-style-type: none"> <li>Two storage facilities in Newmarket, the Southeast Elevated Tank and the West Reservoir, reported adverse sodium levels between 29.7 mg/L and 33.4 mg/L</li> <li>Although the reporting standard is 20 mg/L, Health Canada's aesthetic taste objective maximum for sodium in drinking water is 200 mg/L</li> </ul>

### **Continuous analyzers safeguard drinking water delivered to residents**

In addition to sampling conducted by operators, 358 online analyzers continuously monitor system performance, creating approximately 37.6 million records in 2018. Analyzers monitor several system performance parameters, including chlorine residual, which is also known as the "disinfection level". Analyzers record point-in-time measurements, and the online equipment is highly sensitive to flow changes. Occasional high or low readings on an analyzer are not representative of overall disinfection level in the distribution system, even when reported as adverse at a facility.

When analyzers detect an issue, a facility alarm is triggered and flow shuts down to prevent potential adverse water from entering the distribution system. Control panel operators monitor the system and dispatch operators to respond to alarms or unusual trends. Facilities can only return to operation after an operator attends the site to inspect the equipment, manually test the water, and complete any other required corrective actions to confirm water quality.



Staff reported 52 adverse water quality events observed through continuous monitoring analyzer readings in 2018. In every occurrence, the flow of water was stopped by the system's automatic safeguards.

- The majority of these events occurred at storage and re-treatment facilities. Several facilities have been recently upgraded, and/or are adjusting to the change in demand in growing areas, therefore ongoing process optimization is anticipated for fine tuning performance
- More than half of the events self-corrected or required minor equipment adjustment, and required no operator intervention aside from confirming compliant readings and restarting the facility operation
- Sixteen events were reported as due diligence. Most of these are considered due diligence reports because there was no water flow leaving the facility at the time of the adverse reading

Table 2 summarizes the continuously monitored analyzer readings reported as adverse water quality events in 2018. Continuous monitoring analyzer results are not factored into the Chief Drinking Water Inspector's annual report.

**Table 2**  
**Adverse Water Quality Events Reported from**  
**Continuous Monitoring Analyzer Readings in 2018**

Parameter and Number of Occurrences	Summary of Reported Results
High Disinfection Level (combined chlorine) (26 occurrences)	<ul style="list-style-type: none"> <li>• Many high residual events occurred at facilities operating near the upper regulatory limit. This practice helps to optimize water quality in areas of the distribution system that are furthest from the treatment source. The local Medical Officer of Health, the MECP, and local municipalities were consulted when planning to operate near the upper disinfection dosing limit.</li> </ul>



**Table 2 (continued)**

Parameter and Number of Occurrences	Summary of Reported Results
Low Disinfection Level (combined/ free chlorine, contact time) (21 occurrences)	<ul style="list-style-type: none"><li>• Most low disinfection events are caused by equipment error or maintenance at the time of the alarm.</li><li>• Corrective actions for low disinfection level include collecting grab samples and recalibrating analyzers. When analyzers are found to be reading a low disinfection level correctly, staff perform system flushing in cooperation with local municipalities and monitor chlorine residuals until it reaches optimal levels.</li></ul>
High Fluoride Level (4 occurrences)	<ul style="list-style-type: none"><li>• Fluoride is continuously monitored at the Georgina and Keswick Water Treatment Plants, where it is applied within the optimal range recommended by the MECP and the Medical Officer of Health.</li><li>• If a fluoride analyzer exceeds operational limits, the facility immediately stops directing water to the distribution system. If there is no flow at the time of the alarm, staff recalibrate equipment to ensure accurate readings.</li><li>• If required, an operator may backflush the system to prevent water from leaving the facility and restore correct fluoride dose.</li></ul>
Low System Pressure (1 occurrence)	<ul style="list-style-type: none"><li>• During routine infrastructure maintenance, a flooded chamber required isolation and pump out. Precautionary disinfection of all exposed infrastructure and testing of water upstream, downstream and at the location was undertaken in coordination with Public Health and the Town of Aurora.</li><li>• All sample results demonstrated disinfection residuals remained constant and protective.</li></ul>

Attachment 1 summarizes all reported adverse events detected through continuous monitoring and laboratory results, as well as the actions taken to correct them.

## MINISTRY INSPECTIONS

### In 2018, 12 of 16 inspections scored 100 per cent

In 2018, 12 of 16 inspections scored 100 per cent. In this timeframe, the Georgina Drinking Water System was inspected twice. Four inspections scored between 86 and 96 per cent and resulted in 10 non-compliances, which are summarized in Table 3.

**Table 3**  
**Summary of 2018 Ministry Inspection Findings**

Location	Summary of Non-Compliant Findings and Corrective Actions
Mount Albert, Ballantrae-Musselman's Lake and Stouffville Drinking Water Systems (6 non-compliances)	<ul style="list-style-type: none"><li>• Samples were taken but not delivered to the laboratory within the required timeframe. Operational procedures were updated and training was provided to staff.</li></ul>
Keswick Drinking Water System (3 non-compliances)	<ul style="list-style-type: none"><li>• Coagulant feed was interrupted and not immediately reported. Monitoring equipment was installed to prevent reoccurrence and additional training was provided to staff.</li><li>• Temporary inadequate turbidity monitoring. Operational procedures were updated and monitoring equipment was upgraded.</li></ul>
King City Drinking Water System (1 non-compliance)	<ul style="list-style-type: none"><li>• Inadequate documentation of site work. Operational procedures were reviewed and additional training was provided to staff.</li></ul>

## CHIEF DRINKING WATER INSPECTOR 2017-2018 RATINGS

### York Region receives top scores in the Greater Toronto Area for the Ontario Chief Water Inspector's 2017-2018 Annual Report

Ontario's Chief Drinking Water Inspector releases an annual report rating for drinking water systems. Reporting timelines are based on the MECP's previous fiscal year from April 1, 2017 to March 31, 2018. York Region achieved top compliance scores for MECP inspections and for samples meeting provincial water quality standards. York Region's combined average score for inspections and samples meeting provincial water quality standards was

99.17 for all 15 drinking water systems combined in the 2017-2018 Chief Drinking Water Inspector's Report. The City of Toronto and Peel Region, who supply the majority of York Region's drinking water, also received high scores. Table 4 outlines the scores for GTA municipalities.

**Table 4**  
**Ministry of the Environment, Conservation and Parks**  
**2016-2018 Chief Drinking Water Inspector's Annual Report Scores**

Municipality	Inspection Rating (%)		Water Quality Tests Meeting Standards (%)		Overall Score	
	2016-2017	2017-2018	2016-2017	2017-2018	2016-2017	2017-2018
York Region*	99.60	98.45	99.93	99.89	99.77	99.17
Durham Region*	99.36	98.14	99.95	99.81	99.65	98.98
Peel Region*	97.76	98.08	99.92	99.93	98.84	99.00
City of Toronto*	95.57	95.00	99.72	99.55	97.65	97.27
Provincial Average	98.47	98.64	99.89	99.78	99.18	99.21

\*Average of scores for all drinking water systems within municipality

York Region achieved an overall inspection rating of 98.45 per cent in the Chief Drinking Water Inspector's Report. This is based on 15 inspections conducted from April 1, 2017 to March 31, 2018. 12 of 15 inspections in the Chief Drinking Water Inspector's Report scored 100 per cent. Non-compliances found in three inspections were promptly identified and addressed. Details on all 2017 inspections are found in [last year's report to Council](#). Details of 2018 non-compliance findings are summarized in Table 3 and all 2018 inspection results are listed in Attachment 2.

York Region achieved an overall sample compliance rating of 99.89 per cent in the Chief Drinking Water Inspector's Report for laboratory analyzed samples meeting the requirements of the *O.Reg.169/03: Ontario Drinking Water Quality Standards*. This is based on laboratory sampling conducted from April 1, 2017 to March 31, 2018. 12 of 15 drinking water systems scored 100 per cent for samples meeting provincial water quality standards. All incidents occurred in 2017, were promptly reported and corrective actions completed. Details on all 2017 adverse water quality incidents are found in [last year's report to Council](#).

Inspectors evaluate facilities against regulations, licenses, permits and MECP procedures. There were no risks to public health relating to the inspection findings identified by the

MECP. As demonstrated in Table 4, York Region continues to receive top marks on MECP inspections and sampling results, consistently leading the Province along with our Greater Toronto Area municipal partners and neighbours.

## **WATER VOLUME AND CAPACITY**

### **All drinking water systems operated within permitted water volume and capacity limits except for one system on one day**

In 2018, York Region's drinking water systems operated within the monthly average flow, maximum daily withdrawal and allowable daily withdrawal limits, with a single exception. On June 17, 2018, the combined total flow from the three wells in Nobleton exceeded the permitted limit of 4,460 cubic metres per day by seven cubic metres. Automatic shutdowns were programmed on each well, but there was no alarm for the combined total volume of all three wells running at allowable flowrates. 48 hours after the exceedance, technicians updated the system programming to shut down the wells if the combined daily total flow reaches the permit limit to ensure flow stays within permitted limits. Based on this experience, programming for all systems with combined flow limits was reviewed and updated as necessary.

York Region continues to maintain compliance with:

- The *Safe Drinking Water Act, 2002* and its regulations
- Terms and conditions of the Region's Permits to Take Water and supply agreements with the City of Toronto and Peel Region
- The permitted Intra-Basin Transfer volumes for water taken from (and returned to Lake Ontario) for communities in the Lake Huron watershed

York Region continues to ensure sufficient drinking water capacity for the Region's growing population. Included in Attachment 3 are the number of days where water supply facilities operated at 80 per cent or higher of the permitted daily withdrawal, and the bar graph at the bottom shows the single highest daily volume taken in the entire year. This data informs decision making regarding long term water sourcing, and helps ensure there is adequate water available for fire protection. Maximum permitted volumes support forecasted population growth to 2031. Long term water demands will be refined in the Water and Wastewater Master Plan Update, currently planned for completion in 2021.

## **5. Financial**

### **Effective and comprehensive asset management is critical to delivering reliable and sustainable water services**

York Region delivers high quality drinking water in a safe and cost effective manner. The estimated replacement cost for York Region's water facilities and underground infrastructure is approximately \$2.1 billion, accounting for approximately 16 per cent of all the Region's assets. These assets are wholly owned by the Region and do not include shared assets with the City of Toronto and with Peel Region. For more information about Peel and Toronto cost-shared projects, refer to the [Water and Wastewater Capital Infrastructure Status Update](#) presented to Committee of the Whole on January 10, 2019. These investments support long-term drinking water safety and supply reliability. Effective asset and infrastructure management is critical to the Region's ability to deliver services that are safe, reliable and efficient while sustaining our growing communities. Operational excellence is supported by collaboratively planned and prioritized upgrades, repairs and expansions.

In [October 2015](#), Council approved 2016 – 2021 water and wastewater rates supported by a detailed analysis described in the Financial Sustainability Plan. The plan was implemented commencing in April 2016, and focuses on achieving full cost recovery pricing in 2021 and eliminating shortfalls in asset management funding.

### **York Region spent approximately \$26.7 million in 2018 to maintain and improve drinking water systems**

Section 11 of the Drinking Water Systems regulation requires water utility owners to "describe any major expenses incurred during the period covered by the report to install, repair or replace required equipment."

In 2018, York Region spent approximately \$26.7 million installing, repairing or replacing equipment used to treat, store and deliver safe drinking water. Costs are funded through the rate-supported Environmental Services water budget, as approved annually by Council. These expenses do not include operational costs or salaries, and are summarized in Attachment 4.

## **6. Local Impact**

### **York Region and its nine local municipalities work together to distribute high quality drinking water**

Water quality standards are maintained through collaboration between York Region and the nine local municipalities. Although ownership and operation of the water systems is two-tiered, the Region and the local municipalities coordinate operation of highly efficient systems to provide safe and uninterrupted water supply to our collective customers.

## 7. Conclusion

This report and all attachments, along with drinking water data posted on [york.ca/opedata](http://york.ca/opedata) and summaries posted on [york.ca/drinkingwater](http://york.ca/drinkingwater), satisfies reporting requirements under the Act. It demonstrates the Region's commitment to operational excellence through continual improvement, while also fulfilling our obligation to communicate performance to Council, stakeholders and the public. Council is able to demonstrate due diligence required for decision making under their statutory standard of care by reviewing and considering the information contained in this report when exercising decision making authority.

York Region's drinking water systems are subject to strict regulations implemented by the Province to keep public drinking water safe. Results from the 2018 reporting year continue to demonstrate the excellent performance of York Region's drinking water systems.

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For more information on this report, please contact David Szeptycki, Director of Strategy and Innovation, at 1-877-464-9675 ext. 75723, or Roy Huetl, Director of Operations, Maintenance and Monitoring, at 1-877-464-9675 ext. 75323. Accessible formats or communication supports are available upon request.

Recommended by:

**Erin Mahoney, M. Eng.**  
Commissioner of Environmental Services

Approved for Submission:

**Bruce Macgregor**  
Chief Administrative Officer

February 26, 2019  
Attachments (4)  
8967704

## 2018 SUMMARY OF REPORTED ADVERSE WATER QUALITY INCIDENTS AND CORRECTIVE ACTIONS

The Ministry of Environment, Conservation and Parks (MECP) and the Medical Officer of Health were satisfied with the corrective actions taken for all reported events in the summary below and had no further direction. For all remotely monitored system performance incidents, facility flow is paused until operator restores normal operation.

### Ballantrae-Musselman's Lake Drinking Water System

Incident Description	Incident Date	Adverse Test	
		Result	Corrective Action
Free Chlorine Residual < 0.05 mg/L	Jan 12	0.00 mg/L	Reported as due diligence. Operator attended site. Facility returned to normal operation. Compliant grab sample taken.
	May 04	0.00 mg/L	Operator attended site, restored facility to normal operation. Compliant grab sample taken.
	Nov 18	0.00 mg/L	Operator attended site, restored facility to normal operation. Compliant grab sample taken.

### Georgina Drinking Water System

Incident Description	Incident Date	Adverse Test	
		Result	Corrective Action
Fluoride > 1.5 mg/L	Feb 17	1.69 mg/L	Operator attended site, restored facility to normal operation. Compliant grab sample taken.
	Jul 26	1.69 mg/L	Operator attended site, restored facility to normal operation. Compliant grab sample taken.
Free Chlorine Residual < 0.05 mg/L	Jun 23	0.01 mg/L	Reported as due diligence. Operator attended site. Facility returned to normal operation. Compliant grab sample taken.
	Oct 24	0.00 mg/L	Operator attended site, restored facility to normal operation. Compliant grab sample taken.



### Georgina Drinking Water System, Keswick Sub-System

Incident Description	Incident Date	Adverse Test Result	Corrective Action
Fluoride > 1.5 mg/L	Mar 06	1.65 mg/L	Operator attended site, restored facility to normal operation. Compliant grab sample taken.
	Aug 04	1.51 mg/L	Operator attended site, restored facility to normal operation. Compliant grab sample taken.
Free Chlorine Residual < 0.05 mg/L	May 04	0.00 mg/L	Operator attended site, restored facility to normal operation. Compliant grab sample taken.

### Mt Albert Drinking Water System

Incident Description	Incident Date	Adverse Test Result	Corrective Action
Free Chlorine Residual < 0.05 mg/L	Dec 04	0.00 mg/L	Operator attended site, restored facility to normal operation. Compliant grab sample taken.

### Sharon/Queensville Drinking Water System

Incident Description	Incident Date	Adverse Test Result	Corrective Action
Contact Time (CT) Not Met	Jul 03	< 0.18 mg/L	Operator attended site, restored facility to normal operation. Compliant grab sample taken.

## York Drinking Water System, Aurora Sub-System Continued

Incident Description	Incident Date	Adverse Test Result	Corrective Action
Combined Chlorine Residual <0.25 mg/L	May 04	0.00 mg/L	Operator attended site, restored facility to normal operation. Compliant grab sample taken.
	Jun 09	0.00 mg/L	Reported as due diligence. Operator attended site. Facility returned to normal operation. Compliant grab sample taken.
	Nov 25	0.00 mg/L	Reported as due diligence. Operator attended site. Facility returned to normal operation. Compliant grab sample taken.
Combined Chlorine Residual > 4.0 mg/L (Regulatory Relief Sites)	Jan 03	4.11 mg/L	Operator attended site, restored facility to normal operation. Compliant grab sample taken.
	Mar 10	4.55 mg/L	Operator attended site, restored facility to normal operation. Compliant grab sample taken.
	May 01	4.86 mg/L	Operator attended site, restored facility to normal operation. Compliant grab sample taken.
	May 04	4.89 mg/L	Operator attended site, restored facility to normal operation. Compliant grab sample taken.
	May 04	5.00 mg/L	Operator attended site, restored facility to normal operation. Compliant grab sample taken.
	May 04	4.26 mg/L	Reported as due diligence. Operator attended site. Facility returned to normal operation. Compliant grab sample taken.
	May 22	4.01 mg/L	Operator attended site, restored facility to normal operation. Compliant grab sample taken.
	Dec 23	4.10 mg/L	Operator attended site, restored facility to normal operation. Compliant grab sample taken.
System Pressure < 20 psi	Nov 23	Possible Contamination Unitless	Reported as due diligence. Operator attended site. Facility returned to normal operation. Compliant grab sample taken.

## York Drinking Water System, Kleinburg Sub-System

Incident Description	Incident Date	Adverse Test Result	Corrective Action
Combined Chlorine Residual > 3.0 mg/L	Aug 11	5.48 mg/L	Reported as due diligence. Operator attended site. Facility returned to normal operation. Compliant grab sample taken.

## York Drinking Water System, Newmarket Sub-System

Incident Description	Incident Date	Adverse Test Result	Corrective Action
Combined Chlorine Residual <0.25 mg/L	Apr 15	0.22 mg/L	Reported as due diligence. Operator attended site. Facility returned to normal operation. Compliant grab sample taken.
	Aug 12	0.00 mg/L	Reported as due diligence. Operator attended site. Facility returned to normal operation. Compliant grab sample taken.
Combined Chlorine Residual > 4.0 mg/L (Regulatory Relief Sites)	Jul 17	4.04 mg/L	Operator attended site, restored facility to normal operation. Compliant grab sample taken.
	Aug 19	4.00 mg/L	Operator attended site, restored facility to normal operation. Compliant grab sample taken.
	Aug 20	4.10 mg/L	Operator attended site, restored facility to normal operation. Compliant grab sample taken.
	Nov 17	4.00 mg/L	Reported as due diligence. Operator attended site. Facility returned to normal operation. Compliant grab sample taken.
	Dec 11	4.15 mg/L	Operator attended site, restored facility to normal operation. Compliant grab sample taken.
	Dec 21	4.25 mg/L	Operator attended site, restored facility to normal operation. Compliant grab sample taken.
	Dec 22	4.30 mg/L	Reported as due diligence. Operator attended site. Facility returned to normal operation. Compliant grab sample taken.
	Dec 29	4.12 mg/L	Operator attended site, restored facility to normal operation. Compliant grab sample taken.
Contact Time (CT) Not Met	Jan 30	0.04 mg/L	Reported as due diligence. Operator attended site. Facility returned to normal operation. Compliant grab sample taken.
	Apr 17	0.03 mg/L	Operator attended site, restored facility to normal operation. Compliant grab sample taken.
Sodium > 20.0 mg/L	Apr 26	29.7 mg/L	Operator attended site. Resample taken.
		33.4 mg/L	Operator attended site. Resample taken.

## York Drinking Water System, Stouffville Sub-System

Incident Description	Incident Date	Adverse Test Result	Corrective Action
Contact Time (CT) Not Met	Aug 12	0.00 mg/L	Operator attended site, restored facility to normal operation
Free Chlorine Residual < 0.05 mg/L	May 12	0.00 mg/L	Reported as due diligence. Operator attended site. Facility returned to normal operation. Compliant grab sample taken.
	Jun 22	0.00 mg/L	Operator attended site, restored facility to normal operation. Compliant grab sample taken.
	Aug 12	0.00 mg/L	Operator attended site, restored facility to normal operation. Compliant grab sample taken.
	Sep 14	0.00 mg/L	Reported as due diligence. Operator attended site. Facility returned to normal operation. Compliant grab sample taken.

## York Drinking Water System: Markham, Richmond Hill

Incident Description	Incident Date	Adverse Test Result	Corrective Action
Combined Chlorine Residual < 0.25 mg/L	Jul 29	0.00 mg/L	Operator attended site, restored facility to normal operation. Compliant grab sample taken.
Combined Chlorine Residual > 3.0 mg/L	Oct 26	3.40 mg/L	Operator attended site, restored facility to normal operation. Compliant grab sample taken.

## York Drinking Water System: Vaughan

Incident Description	Incident Date	Adverse Test Result	Corrective Action
Combined Chlorine Residual > 3.0 mg/L	Jan 01	9.94 mg/L	Operator attended site, restored facility to normal operation. Compliant grab sample taken.
	Jan 14	3.07 mg/L	Operator attended site, restored facility to normal operation. Compliant grab sample taken.
	Jan 18	5.82 mg/L	Reported as due diligence. Operator attended site. Facility returned to normal operation. Compliant grab sample taken.
	Jan 29	5.44 mg/L	Operator attended site, restored facility to normal operation. Compliant grab sample taken.
	May 05	3.43 mg/L	Operator attended site, restored facility to normal operation. Compliant grab sample taken.
	Jun 23	4.92 mg/L	Operator attended site, restored facility to normal operation. Compliant grab sample taken.
	Dec 11	3.03 mg/L	Reported as due diligence. Operator attended site. Facility returned to normal operation. Compliant grab sample taken.
	Dec 21	3.06 mg/L	Operator attended site, restored facility to normal operation. Compliant grab sample taken.

# SUMMARY OF 2018 INSPECTION FINDINGS AND CORRECTIVE ACTIONS

ATTACHMENT 2

System Name and Inspection Date	Inspection Score (%)	Summary of Findings and Corrective Actions
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## Municipality: Aurora

<b>Aurora DWS</b> (York DWS sub-system) August 23, 2018	100	There were no non-compliance findings or best management practice recommendations from this inspection.
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## Municipality: East Gwillimbury

<b>Holland Landing DWS</b> (York DWS sub-system) August 29, 2018	100	There were no non-compliance findings or best management practice recommendations from this inspection.
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<b>Mount Albert DWS</b> May 17, 2018	94.60	Two non-compliances were identified relating to a single incident where a set of raw water and treated water samples were taken, but not delivered to the laboratory for analysis. This single delivery error is reflected in two other 2018 Inspections. Operational procedures have been reviewed and revised to prevent re-occurrence and training was provided to staff. Subsequent weekly samples were analyzed with no water quality issues identified.
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There was one best management practice recommendation to update the work management system to correctly reflect the frequency of asset inspections. Staff updated the work order frequency for the relevant asset inspections.

<b>Sharon/Queensville DWS</b> (York DWS sub-system) February 13, 2018	100	There were no non-compliance findings from this inspection.  There was one best management practice recommendation to investigate how to cross reference maintenance activities during the data review process to ensure data points that do not belong in the annual report are not included. A data point was included in annual reporting that was considered erroneous because it was collected during maintenance, however it appeared to exceed the compliance limit for treated water turbidity and caused confusion. Staff continue to enhance the automated data validation process and investigate tools for streamlining review by staff.
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## Municipality: King

<b>Ansnoerveldt DWS</b> July 11, 2018	100	There were no non-compliance findings or best management practice recommendations from this inspection.
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<b>King City DWS</b> (York DWS sub-system) May 25, 2018	100	One non-compliance identified relating to an incident where staff responded appropriately to a process issue but failed to adequately document the work completed as required by regulation. Operational procedures were reviewed by Region staff and found to be satisfactory. Additional training on operational procedures related to documentation practices was provided to staff. This non-compliance did not impact the Inspection Score.
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There were no best management practice recommendations from this Inspection.

<b>Nobleton DWS</b> April 11, 2018	100	There were no non-compliance findings or best management practice recommendations from this inspection.
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<b>Schomberg DWS</b> June 15, 2018	100	There were no non-compliance findings or best management practice recommendations from this inspection.
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## Municipality: Newmarket

<b>Newmarket DWS</b> (York DWS sub-system) October 5, 2018	100	There were no non-compliance findings or best management practice recommendations from this inspection.
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System Name and Inspection Date	Inspection Score (%)	Summary of Findings and Corrective Actions
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**Municipality: Georgina**

<b>Keswick DWS</b> (Georgina DWS sub-system) January 9, 2018	86.03	Three non-compliances and no best management practice recommendations were identified. Two related to a single incident where the treatment chemical necessary for removing particles from the water was not applied for less than one day, and was not immediately reported to the Ministry. This incident was self-identified by Region staff, corrected and reported to the Ministry. Laboratory results from samples taken during this period of time did not indicate any water quality issues. Upgraded monitoring equipment was installed to prevent reoccurrence.
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A third non-compliance related to an incident where required turbidity monitoring was not performed due to an error in restoring monitoring equipment after completing routine maintenance. Other monitoring equipment and laboratory sample results during this period of time indicated no water quality issues. Operational procedures were reviewed and revised, and monitoring systems were upgraded to prevent reoccurrence.

<b>Georgina DWS and Georgina Water Treatment Plant</b> January 9, 2018	100	There were no non-compliance findings from this inspection.  There was one best management practice recommendation to investigate how to cross reference maintenance activities during the data review process to ensure data points that do not belong in the annual report are not included. A data point was included in annual reporting that was considered erroneous because it was collected during maintenance, however it appeared to exceed the discharge limit for water returned to the lake and caused confusion. Staff continue to enhance the automated data validation process and investigate tools for streamlining review by staff.
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<b>Georgina DWS and Georgina Water Treatment Plant</b> October 18, 2018	100	There were no non-compliance findings or best management practice recommendations from this inspection.
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**Municipality: Vaughan**

<b>Kleinburg DWS</b> (York DWS sub-system) April 11, 2018	100	There were no non-compliance findings or best management practice recommendations from this inspection.
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**Municipality: Vaughan, Richmond Hill, Markham**

<b>York Distribution System</b> (part of the York DWS) February 5, 2018	100	There were no non-compliance findings or best management practice recommendations from this inspection.
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System Name and Inspection Date	Inspection Score (%)	Summary of Findings and Corrective Actions
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**Municipality: Whitchurch-Stouffville**

<b>Ballantrae-Musselman's Lake DWS</b> April 24, 2018	96.02	<p>Two non-compliances were identified relating to a single incident where a set of raw water and treated water samples were taken, but not delivered to the laboratory for analysis. This single delivery error is reflected in two other 2018 Inspections. Operational procedures have been reviewed and revised to prevent re-occurrence and training was provided to staff. Subsequent weekly samples were analyzed with no water quality issues identified.</p> <p>There was one best management practice recommendation to update the work management system to correctly reflect the frequency of asset inspections. Staff updated the work order frequency for the relevant asset inspections.</p>
<b>Stouffville DWS</b> (York DWS sub-system) November 27, 2018	95.77	<p>Two non-compliances were identified relating to a single incident where a set of raw water and treated water samples were taken, but not delivered to the laboratory for analysis. This single delivery error is reflected in two other 2018 Inspections. Operational procedures have been reviewed and revised to prevent re-occurrence and training was provided to staff. Subsequent weekly samples were analyzed with no water quality issues identified.</p> <p>There was one best management practice recommendation to install protective signs for a monitoring well adjacent to the driveway to prevent accidental impact. Staff installed protective signs as recommended.</p>

**2018 PERFORMANCE DATA SUMMARIES FOR YORK REGION'S  
DRINKING WATER SYSTEMS (DWS)**

## 2018 Water Quality & Capacity Summary | Ansnorveldt DWS

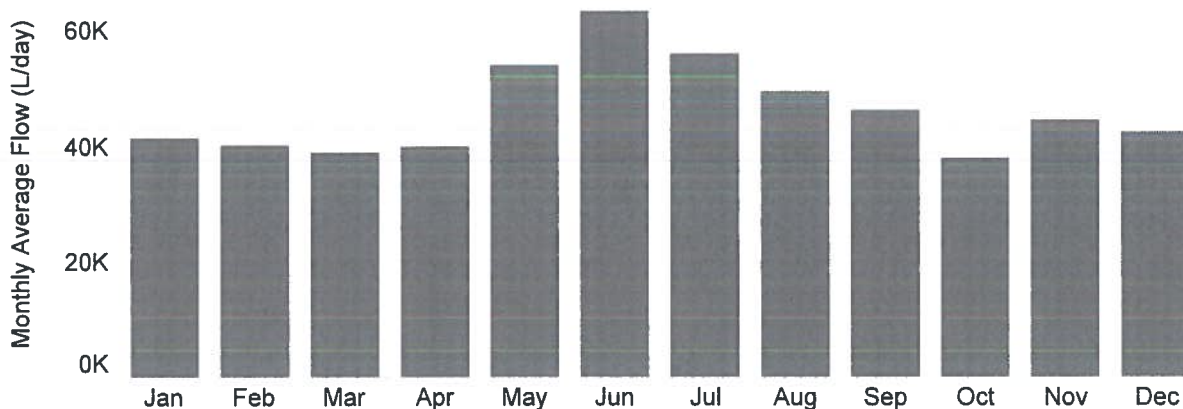
### Top Requested Water Quality Parameters

Drinking water is monitored for a wide range of chemical parameters through a combination of continuous monitoring by online analyzers and routine grab samples by operators. The following annual average concentrations in milligrams per litre (mg/L) were reported from treatment and distribution facilities in the Ansnorveldt DWS.

Chlorine	Fluoride	Sodium	Lead
1.62 mg/L	0.25 mg/L	43 mg/L	Not Detected (<0.0005 mg/L)

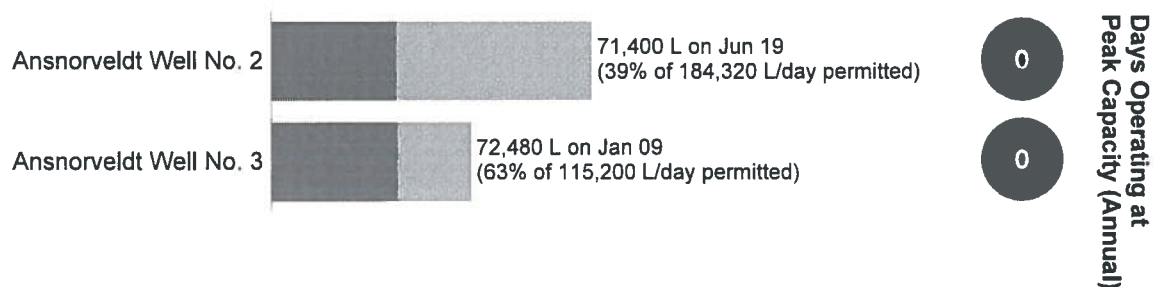
### System Monthly Average Flow

The following chart shows the average flow of water produced (treated) in litres per day (L/day) each month in the Ansnorveldt DWS.



### Permitted and Actual Maximum Daily Withdrawal

The following chart shows the maximum volume of water produced in a single day from each water supply facility (blue bar) compared to the maximum withdrawal permitted by the Ministry of the Environment, Conservation and Parks (grey bar). Also shown to the right is the number of days where the water supply facilities were operating at peak capacity (80% or more of the permitted withdrawal).



## 2018 Water Quality & Capacity Summary | Aurora DWS

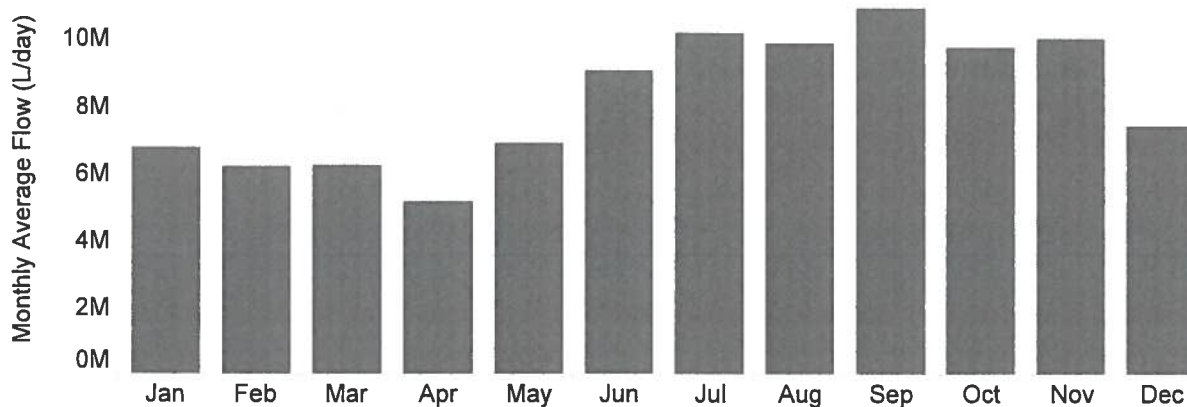
### Top Requested Water Quality Parameters

Drinking water is monitored for a wide range of chemical parameters through a combination of continuous monitoring by online analyzers and routine grab samples by operators. The following annual average concentrations in milligrams per litre (mg/L) were reported from treatment and distribution facilities in the Aurora DWS.

Chlorine	Fluoride	Sodium	Lead
2.62 mg/L	0.36 mg/L	17 mg/L	Not Detected (<0.001 mg/L)

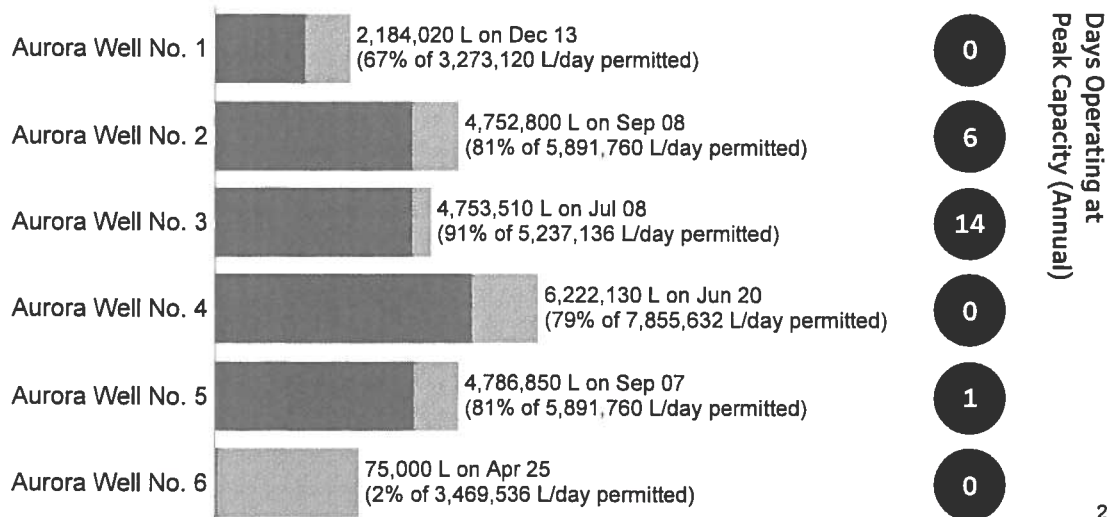
### System Monthly Average Flow

The following chart shows the average flow of water produced (treated) in litres per day (L/day) each month in the Aurora DWS.



### Permitted and Actual Maximum Daily Withdrawal

The following chart shows the maximum volume of water produced in a single day from each water supply facility (blue bar) compared to the maximum withdrawal permitted by the Ministry of the Environment, Conservation and Parks (grey bar). Also shown to the right is the number of days where the water supply facilities were operating at peak capacity (80% or more of the permitted withdrawal).



# 2018 Water Quality & Capacity Summary | Ballantrae/Musselman's Lake DWS

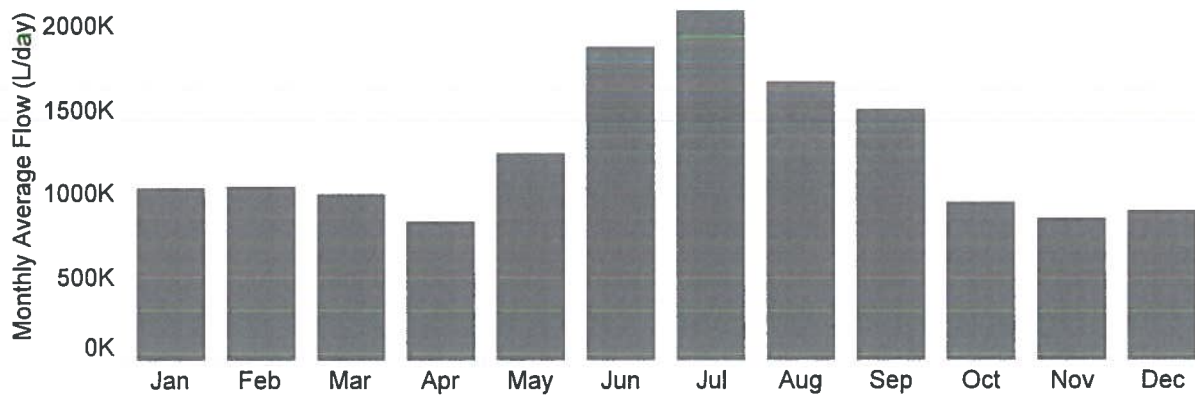
## Top Requested Water Quality Parameters

Drinking water is monitored for a wide range of chemical parameters through a combination of continuous monitoring by online analyzers and routine grab samples by operators. The following annual average concentrations in milligrams per litre (mg/L) were reported from treatment and distribution facilities in the Ballantrae/Musselman's Lake DWS.

Chlorine	Fluoride	Sodium	Lead
1.32 mg/L	0.08 mg/L	11 mg/L	Not Detected (<0.0005 mg/L)

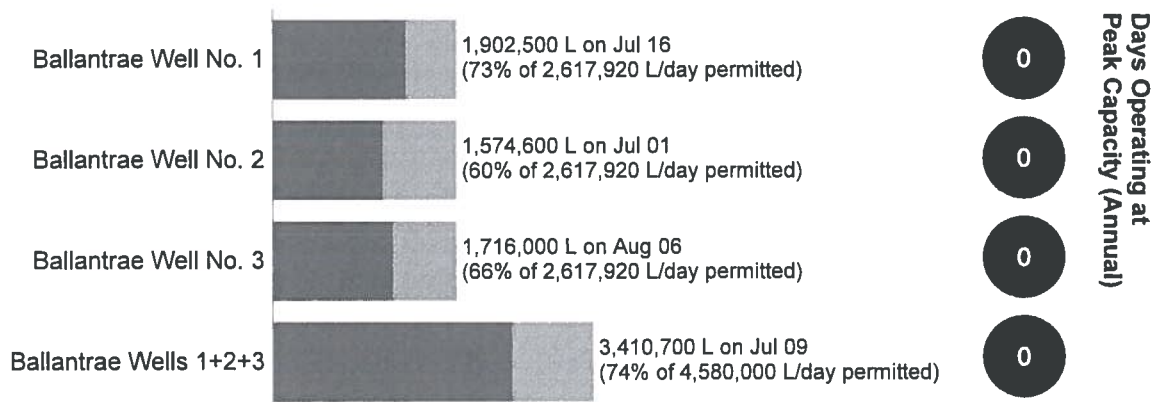
## System Monthly Average Flow

The following chart shows the average flow of water produced (treated) in litres per day (L/day) each month in the Ballantrae/Musselman's Lake DWS.



## Permitted and Actual Maximum Daily Withdrawal

The following chart shows the maximum volume of water produced in a single day from each water supply facility (blue bar) compared to the maximum withdrawal permitted by the Ministry of the Environment, Conservation and Parks (grey bar). Also shown to the right is the number of days where the water supply facilities were operating at peak capacity (80% or more of the permitted withdrawal).



## 2018 Water Quality & Capacity Summary | Georgina DWS

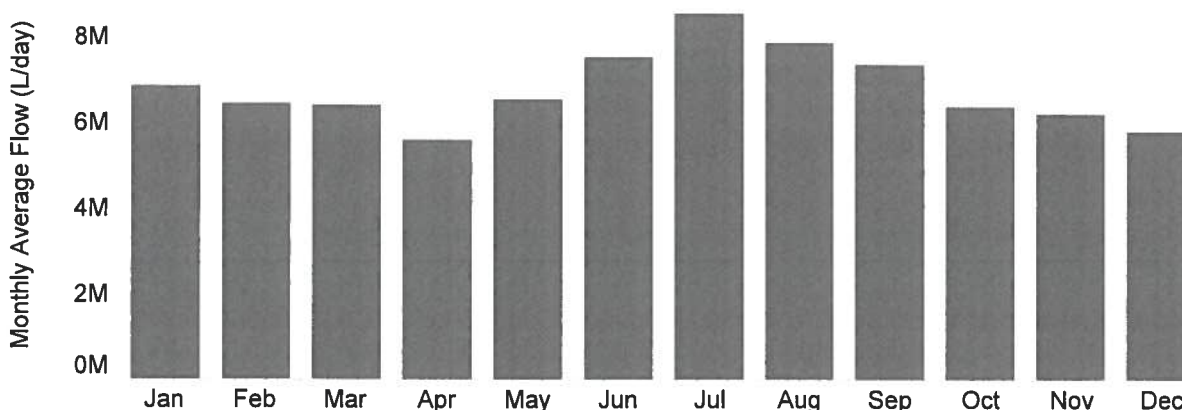
### Top Requested Water Quality Parameters

Drinking water is monitored for a wide range of chemical parameters through a combination of continuous monitoring by online analyzers and routine grab samples by operators. The following annual average concentrations in milligrams per litre (mg/L) were reported from treatment and distribution facilities in the Georgina DWS.

Chlorine	Fluoride	Sodium	Lead
1.62 mg/L	0.63 mg/L	32 mg/L	Not Detected ( $<0.0005$ mg/L)

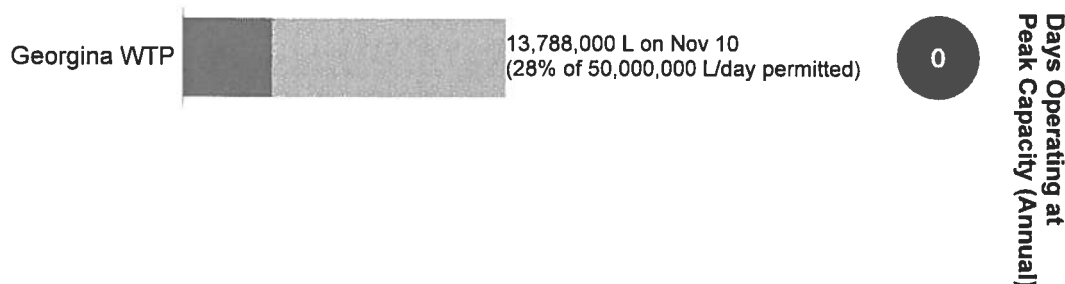
### System Monthly Average Flow

The following chart shows the average flow of water produced (treated) in litres per day (L/day) each month in the Georgina DWS.



### Permitted and Actual Maximum Daily Withdrawal

The following chart shows the maximum volume of water produced in a single day from each water supply facility (blue bar) compared to the maximum withdrawal permitted by the Ministry of the Environment, Conservation and Parks (grey bar). Also shown to the right is the number of days where the water supply facilities were operating at peak capacity (80% or more of the permitted withdrawal).



## 2018 Water Quality & Capacity Summary | Holland Landing DWS

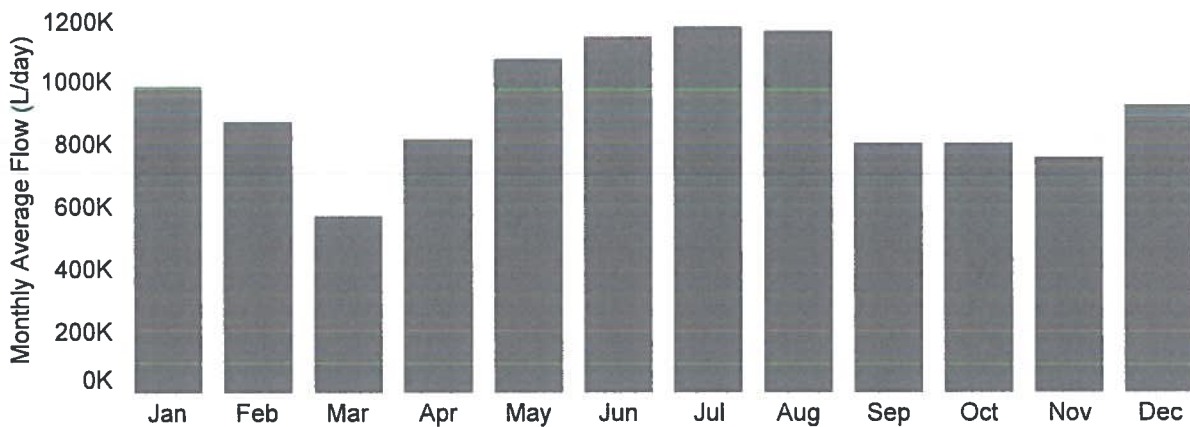
### Top Requested Water Quality Parameters

Drinking water is monitored for a wide range of chemical parameters through a combination of continuous monitoring by online analyzers and routine grab samples by operators. The following annual average concentrations in milligrams per litre (mg/L) were reported from treatment and distribution facilities in the Holland Landing DWS.

Chlorine	Fluoride	Sodium	Lead
2.25 mg/L	0.21 mg/L	19 mg/L	Not Detected (<0.0005 mg/L)

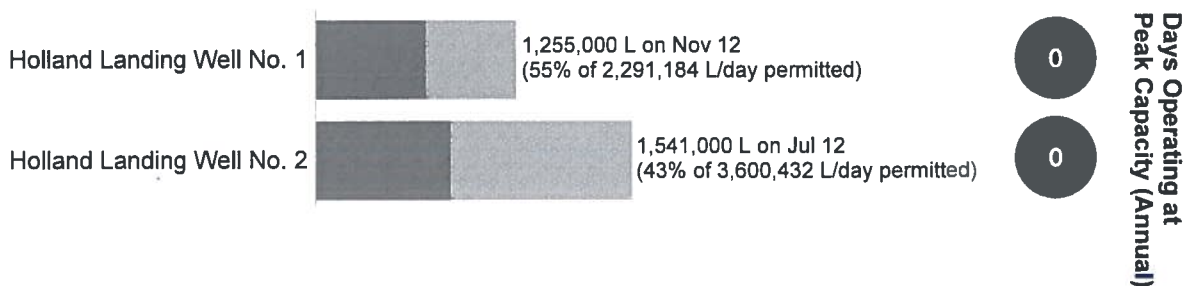
### System Monthly Average Flow

The following chart shows the average flow of water produced (treated) in litres per day (L/day) each month in the Holland Landing DWS.



### Permitted and Actual Maximum Daily Withdrawal

The following chart shows the maximum volume of water produced in a single day from each water supply facility (blue bar) compared to the maximum withdrawal permitted by the Ministry of the Environment, Conservation and Parks (grey bar). Also shown to the right is the number of days where the water supply facilities were operating at peak capacity (80% or more of the permitted withdrawal).





## 2018 Water Quality & Capacity Summary | Keswick DWS

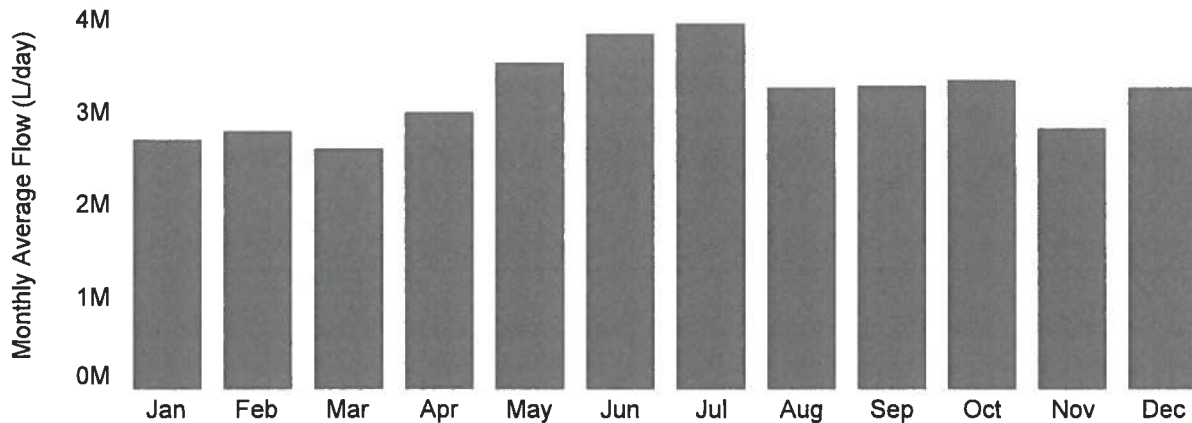
### Top Requested Water Quality Parameters

Drinking water is monitored for a wide range of chemical parameters through a combination of continuous monitoring by online analyzers and routine grab samples by operators. The following annual average concentrations in milligrams per litre (mg/L) were reported from treatment and distribution facilities in the Keswick DWS.

Chlorine	Fluoride	Sodium	Lead
1.24 mg/L	0.64 mg/L	32 mg/L	Not Detected ( $<0.0005$ mg/L)

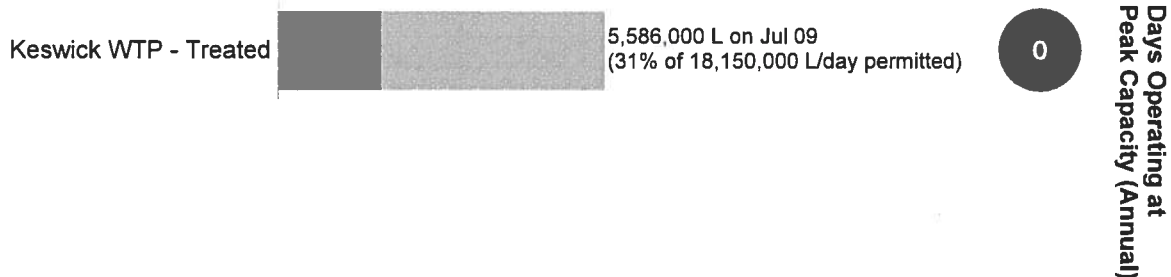
### System Monthly Average Flow

The following chart shows the average flow of water produced (treated) in litres per day (L/day) each month in the Keswick DWS.



### Permitted and Actual Maximum Daily Withdrawal

The following chart shows the maximum volume of water produced in a single day from each water supply facility (blue bar) compared to the maximum withdrawal permitted by the Ministry of the Environment, Conservation and Parks (grey bar). Also shown to the right is the number of days where the water supply facilities were operating at peak capacity (80% or more of the permitted withdrawal).



## 2018 Water Quality & Capacity Summary | King City DWS

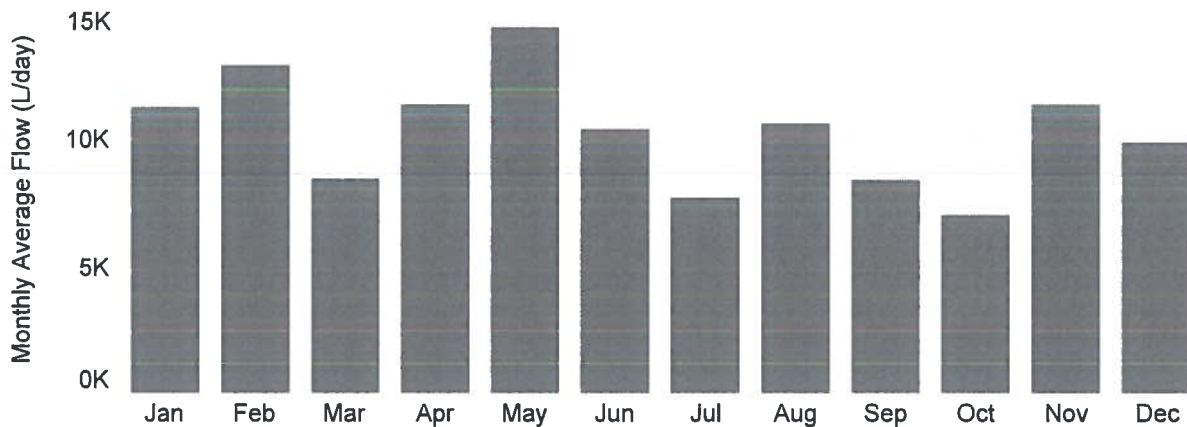
### Top Requested Water Quality Parameters

Drinking water is monitored for a wide range of chemical parameters through a combination of continuous monitoring by online analyzers and routine grab samples by operators. The following annual average concentrations in milligrams per litre (mg/L) were reported from treatment and distribution facilities in the King City DWS.

Chlorine	Fluoride	Sodium	Lead
1.71 mg/L	0.56 mg/L	20 mg/L	Not Detected (<0.0005 mg/L)

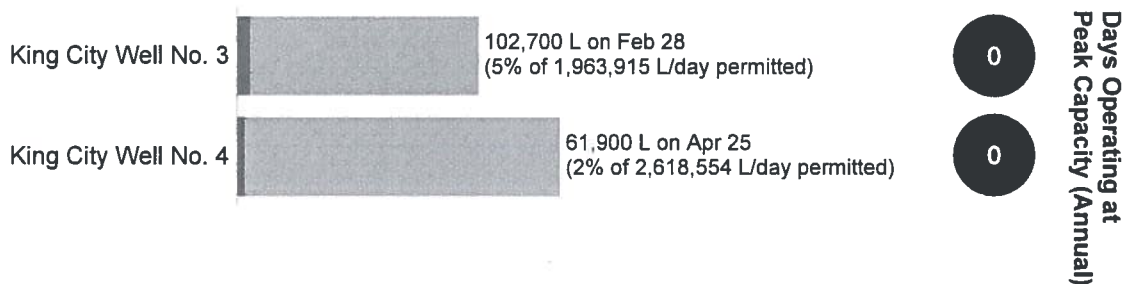
### System Monthly Average Flow

The following chart shows the average flow of water produced (treated) in litres per day (L/day) each month in the King City DWS.



### Permitted and Actual Maximum Daily Withdrawal

The following chart shows the maximum volume of water produced in a single day from each water supply facility (blue bar) compared to the maximum withdrawal permitted by the Ministry of the Environment, Conservation and Parks (grey bar). Also shown to the right is the number of days where the water supply facilities were operating at peak capacity (80% or more of the permitted withdrawal).



## 2018 Water Quality & Capacity Summary | Kleinburg DWS

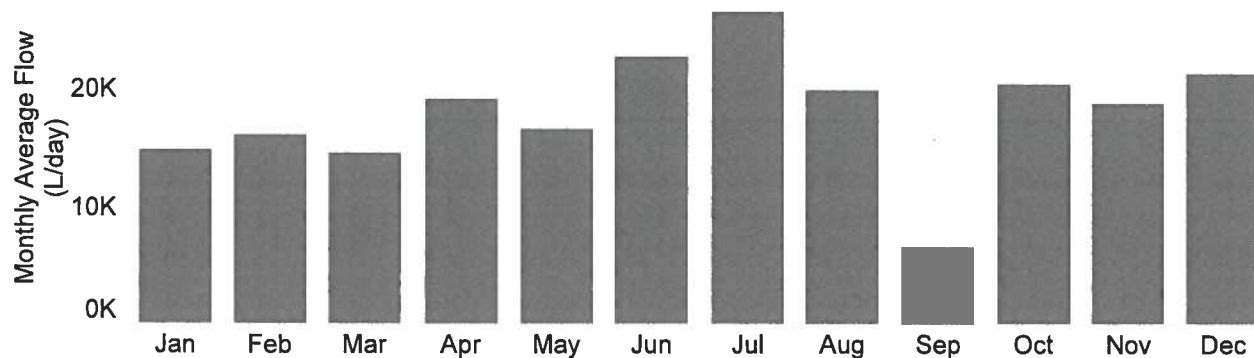
### Top Requested Water Quality Parameters

Drinking water is monitored for a wide range of chemical parameters through a combination of continuous monitoring by online analyzers and routine grab samples by operators. The following annual average concentrations in milligrams per litre (mg/L) were reported from treatment and distribution facilities in the Kleinburg DWS..

Chlorine	Fluoride	Sodium	Lead
1.70 mg/L	0.37 mg/L	N/A	
*See York DWS for approximate results			

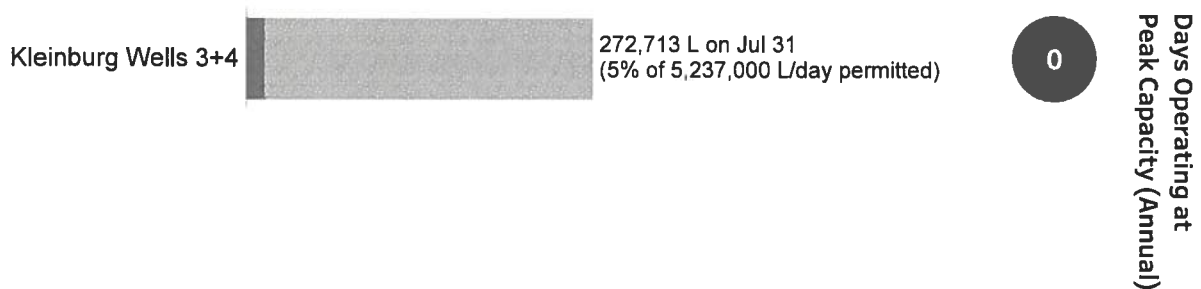
### System Monthly Average Flow

The following chart shows the average flow of water produced (treated) in litres per day (L/day) each month in the Kleinburg DWS.



### Permitted and Actual Maximum Daily Withdrawal

The following chart shows the maximum volume of water produced in a single day from each water supply facility (blue bar) compared to the maximum withdrawal permitted by the Ministry of the Environment, Conservation and Parks (grey bar). Also shown to the right is the number of days where the water supply facilities were operating at peak capacity (80% or more of the permitted withdrawal).



## 2018 Water Quality & Capacity Summary | Mount Albert DWS

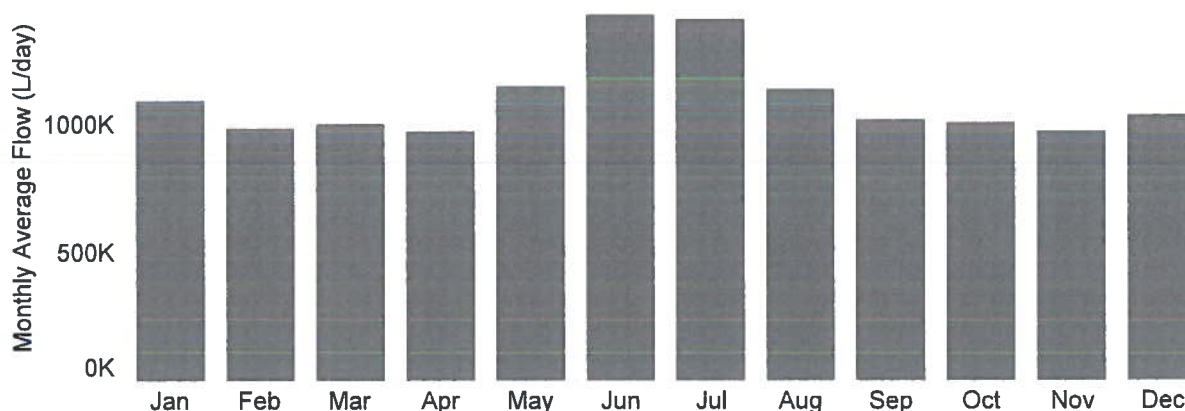
### Top Requested Water Quality Parameters

Drinking water is monitored for a wide range of chemical parameters through a combination of continuous monitoring by online analyzers and routine grab samples by operators. The following annual average concentrations in milligrams per litre (mg/L) were reported from treatment and distribution facilities in the Mount Albert DWS.

Chlorine	Fluoride	Sodium	Lead
1.41 mg/L	0.06 mg/L	10 mg/L	Not Detected (<0.0005 mg/L)

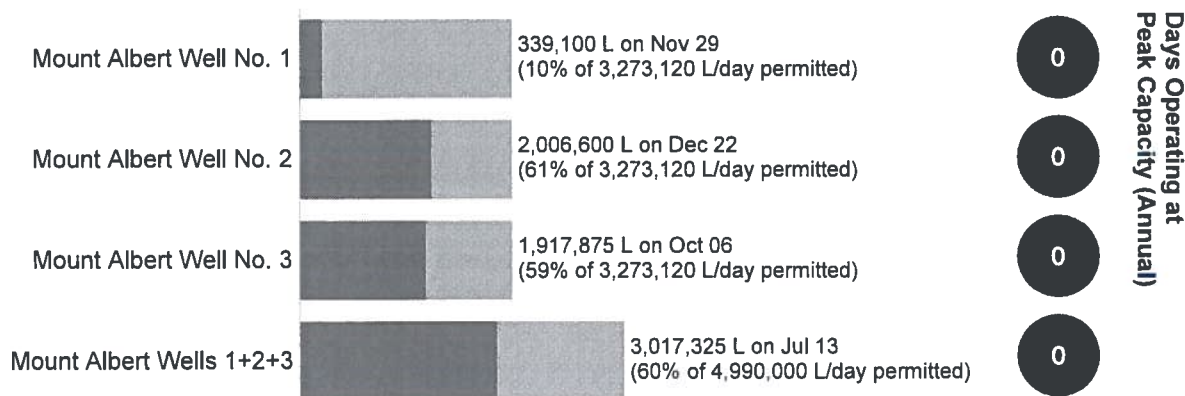
### System Monthly Average Flow

The following chart shows the average flow of water produced (treated) in litres per day (L/day) each month in the Mount Albert DWS.



### Permitted and Actual Maximum Daily Withdrawal

The following chart shows the maximum volume of water produced in a single day from each water supply facility (blue bar) compared to the maximum withdrawal permitted by the Ministry of the Environment, Conservation and Parks (grey bar). Also shown to the right is the number of days where the water supply facilities were operating at peak capacity (80% or more of the permitted withdrawal).



## 2018 Water Quality & Capacity Summary | Newmarket DWS

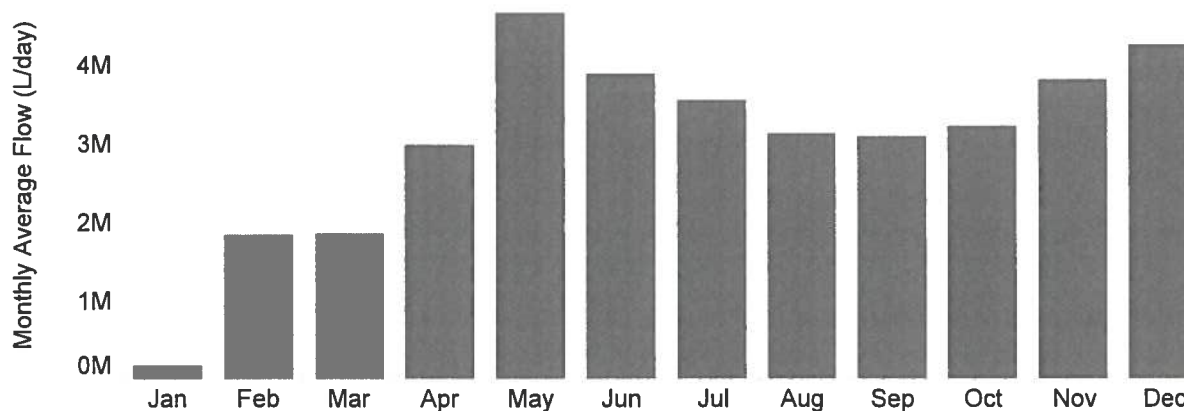
### Top Requested Water Quality Parameters

Drinking water is monitored for a wide range of chemical parameters through a combination of continuous monitoring by online analyzers and routine grab samples by operators. The following annual average concentrations in milligrams per litre (mg/L) were reported from treatment and distribution facilities in the Newmarket DWS.

Chlorine	Fluoride	Sodium	Lead
2.23 mg/L	0.27 mg/L	21 mg/L	Not Detected ( $<0.0005$ mg/L)

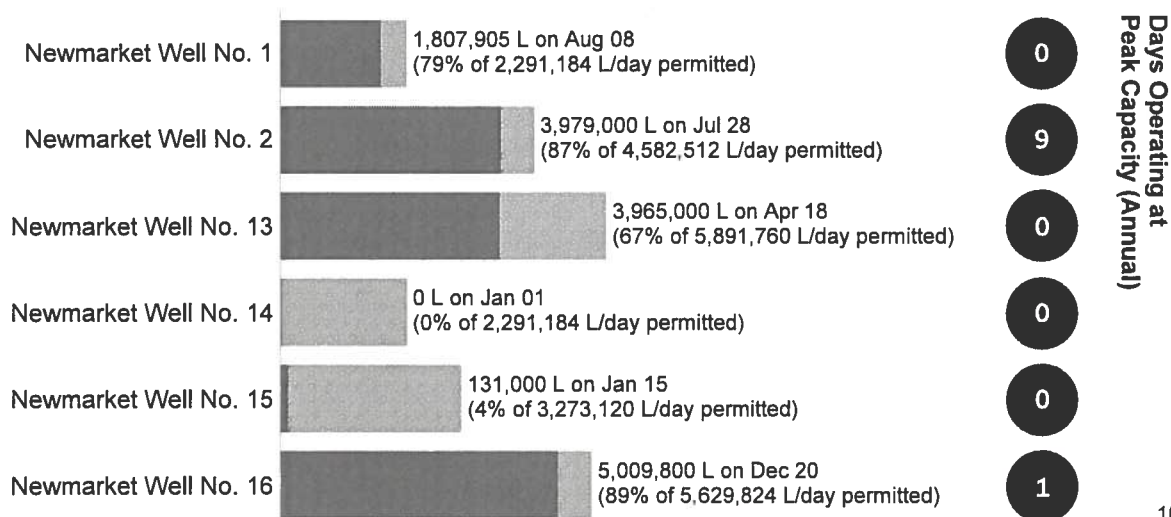
### System Monthly Average Flow

The following chart shows the average flow of water produced (treated) in litres per day (L/day) each month in the Newmarket DWS.



### Permitted and Actual Maximum Daily Withdrawal

The following chart shows the maximum volume of water produced in a single day from each water supply facility (blue bar) compared to the maximum withdrawal permitted by the Ministry of the Environment, Conservation and Parks (grey bar). Also shown to the right is the number of days where the water supply facilities were operating at peak capacity (80% or more of the permitted withdrawal).



## 2018 Water Quality & Capacity Summary | Nobleton DWS

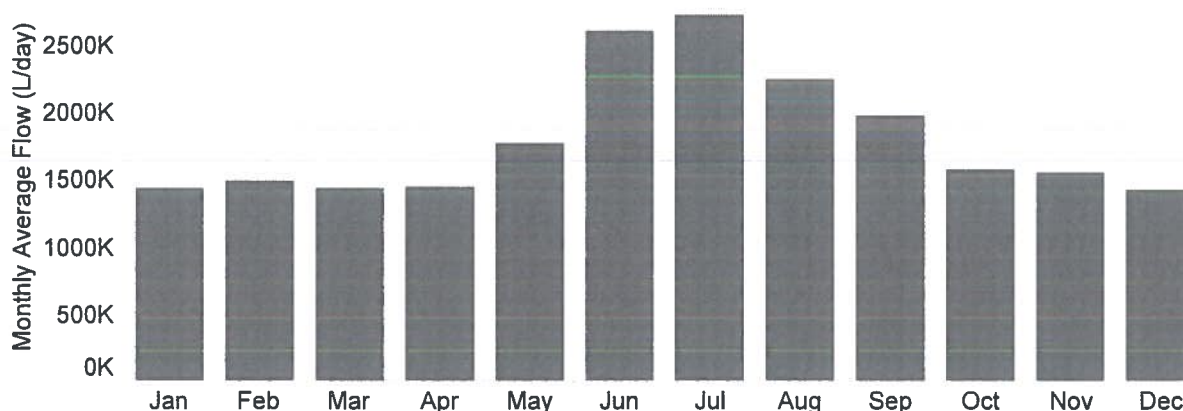
### Top Requested Water Quality Parameters

Drinking water is monitored for a wide range of chemical parameters through a combination of continuous monitoring by online analyzers and routine grab samples by operators. The following annual average concentrations in milligrams per litre (mg/L) were reported from treatment and distribution facilities in the Nobleton DWS.

Chlorine	Fluoride	Sodium	Lead
1.54 mg/L	0.12 mg/L	17 mg/L	Not Detected (<0.0005 mg/L)

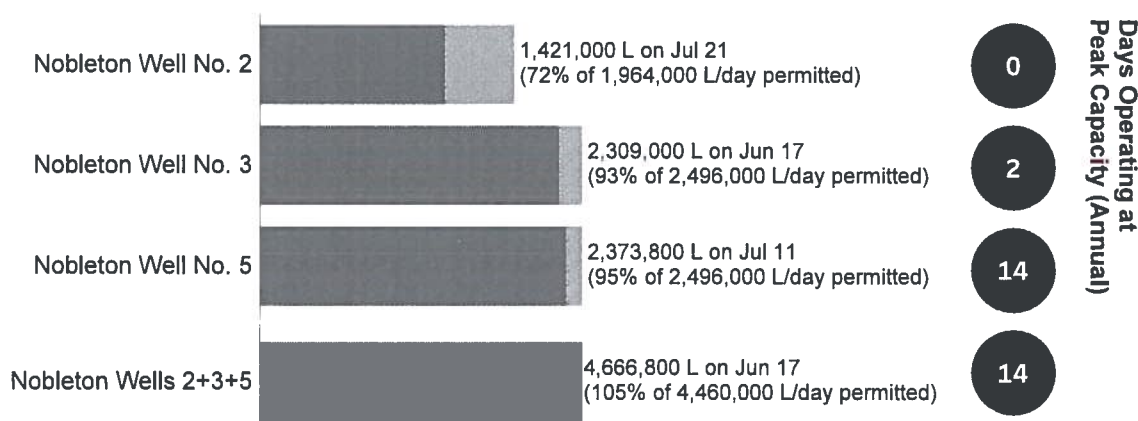
### System Monthly Average Flow

The following chart shows the average flow of water produced (treated) in litres per day (L/day) each month in the Nobleton DWS.



### Permitted and Actual Maximum Daily Withdrawal

The following chart shows the maximum volume of water produced in a single day from each water supply facility (blue bar) compared to the maximum withdrawal permitted by the Ministry of the Environment, Conservation and Parks (grey bar). Also shown to the right is the number of days where the water supply facilities were operating at peak capacity (80% or more of the permitted withdrawal).





## 2018 Water Quality & Capacity Summary | Schomberg DWS

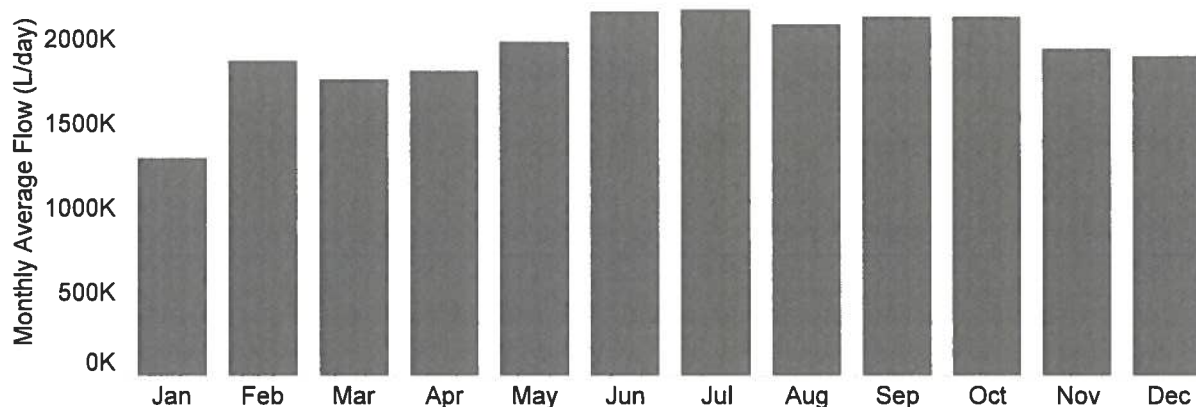
### Top Requested Water Quality Parameters

Drinking water is monitored for a wide range of chemical parameters through a combination of continuous monitoring by online analyzers and routine grab samples by operators. The following annual average concentrations in milligrams per litre (mg/L) were reported from treatment and distribution facilities in the Schomberg DWS.

Chlorine	Fluoride	Sodium	Lead
2.59 mg/L	0.15 mg/L	20 mg/L	Not Detected ( $<0.0005$ mg/L)

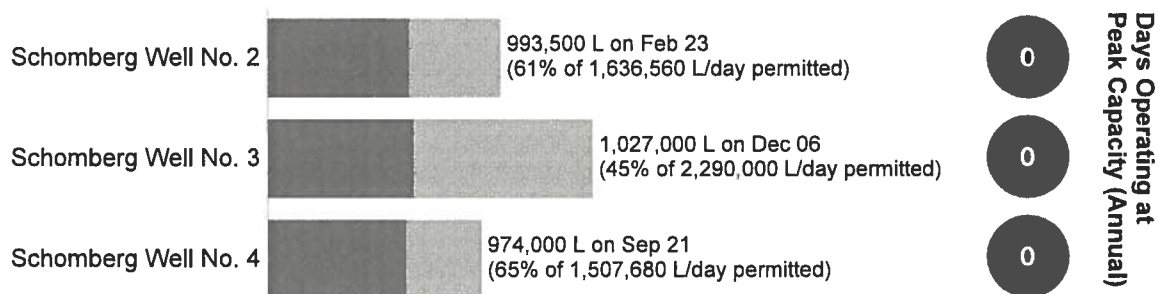
### System Monthly Average Flow

The following chart shows the average flow of water produced (treated) in litres per day (L/day) each month in the Schomberg DWS.



### Permitted and Actual Maximum Daily Withdrawal

The following chart shows the maximum volume of water produced in a single day from each water supply facility (blue bar) compared to the maximum withdrawal permitted by the Ministry of the Environment, Conservation and Parks (grey bar). Also shown to the right is the number of days where the water supply facilities were operating at peak capacity (80% or more of the permitted withdrawal).





## 2018 Water Quality & Capacity Summary | Sharon/Queensville DWS

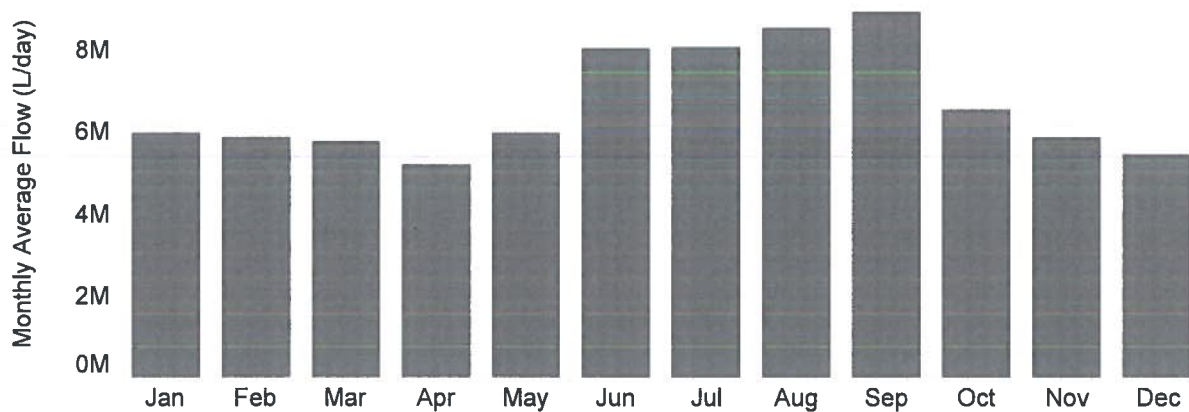
### Top Requested Water Quality Parameters

Drinking water is monitored for a wide range of chemical parameters through a combination of continuous monitoring by online analyzers and routine grab samples by operators. The following annual average concentrations in milligrams per litre (mg/L) were reported from treatment and distribution facilities in the Sharon/Queensville DWS.

Chlorine	Fluoride	Sodium	Lead
2.41 mg/L	0.20 mg/L	20 mg/L	Not Detected ( $<0.0005$ mg/L)

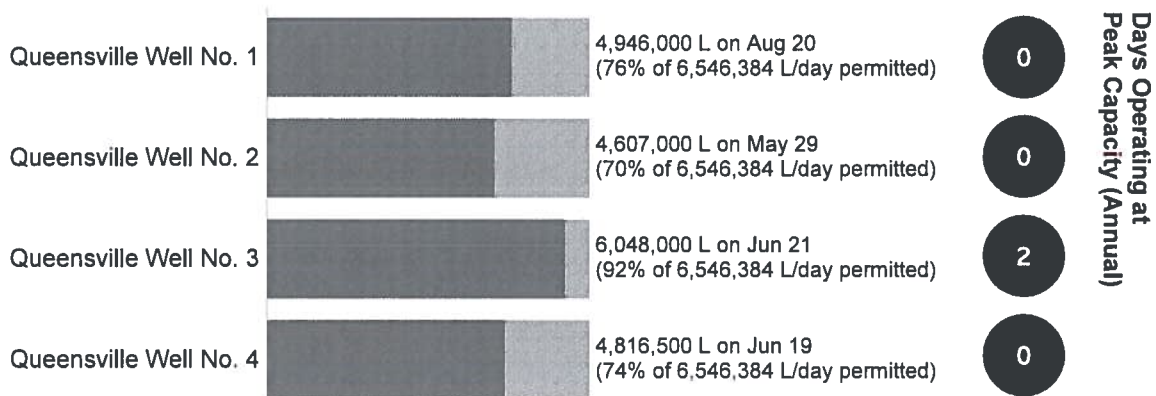
### System Monthly Average Flow

The following chart shows the average flow of water produced (treated) in litres per day (L/day) each month in the Sharon/Queensville DWS.



### Permitted and Actual Maximum Daily Withdrawal

The following chart shows the maximum volume of water produced in a single day from each water supply facility (blue bar) compared to the maximum withdrawal permitted by the Ministry of the Environment, Conservation and Parks (grey bar). Also shown to the right is the number of days where the water supply facilities were operating at peak capacity (80% or more of the permitted withdrawal).



## 2018 Water Quality & Capacity Summary | Stouffville DWS

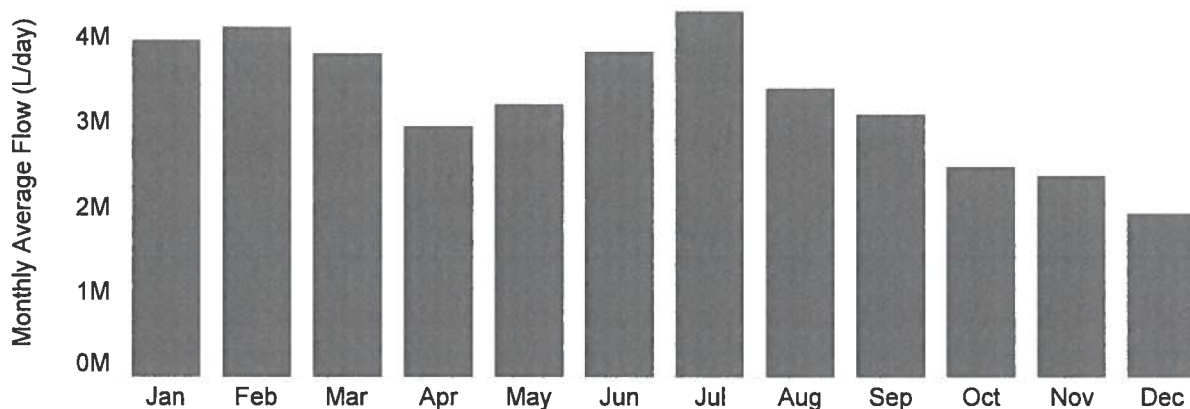
### Top Requested Water Quality Parameters

Drinking water is monitored for a wide range of chemical parameters through a combination of continuous monitoring by online analyzers and routine grab samples by operators. The following annual average concentrations in milligrams per litre (mg/L) were reported from treatment and distribution facilities in the Stouffville DWS.

Chlorine	Fluoride	Sodium	Lead
1.43 mg/L	0.10 mg/L	41 mg/L	Not Detected (<0.001 mg/L)

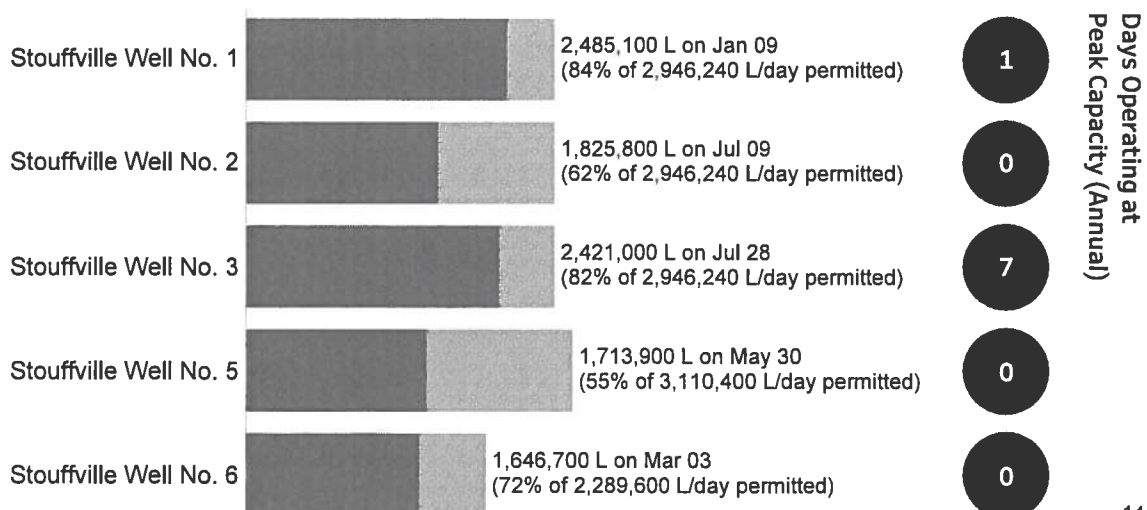
### System Monthly Average Flow

The following chart shows the average flow of water produced (treated) in litres per day (L/day) each month in the Stouffville DWS.



### Permitted and Actual Maximum Daily Withdrawal

The following chart shows the maximum volume of water produced in a single day from each water supply facility (blue bar) compared to the maximum withdrawal permitted by the Ministry of the Environment, Conservation and Parks (grey bar). Also shown to the right is the number of days where the water supply facilities were operating at peak capacity (80% or more of the permitted withdrawal).



## 2018 Water Quality & Capacity Summary | York DWS

Vaughan | Richmond Hill | Markham

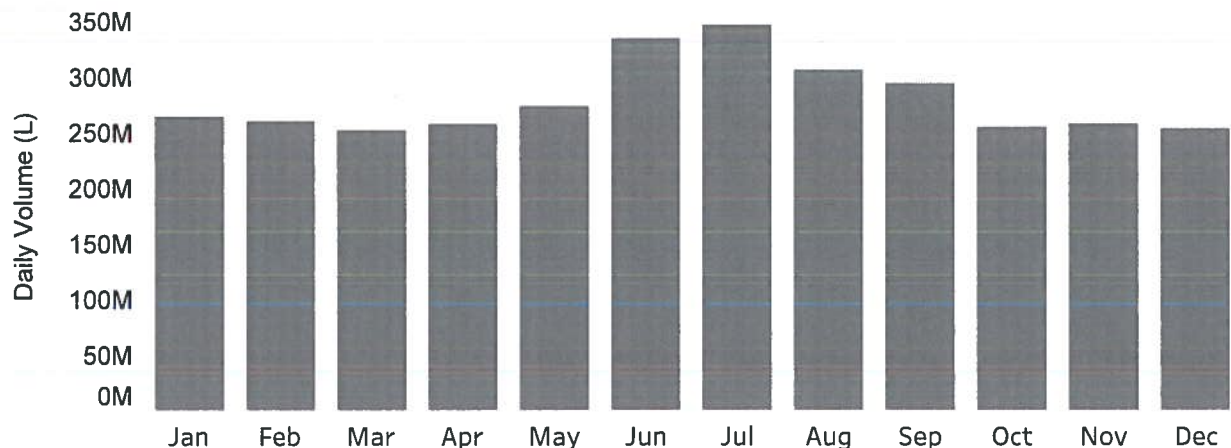
### Top Requested Water Quality Parameters

Drinking water is monitored for a wide range of chemical parameters through a combination of continuous monitoring by online analyzers and routine grab samples by operators. The following annual average concentrations in milligrams per litre (mg/L) were reported from distribution facilities in the York DWS.

Chlorine	Fluoride	Sodium	Lead
1.69 mg/L	0.61 mg/L	18 mg/L	Not Detected ( $<0.0005$ mg/L)

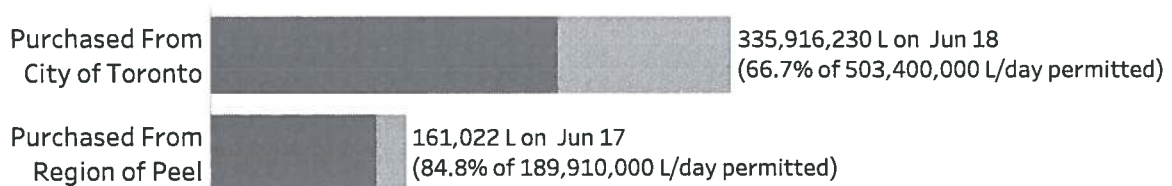
### System Monthly Average Flow

The following chart shows the monthly average consumption in million litres per day of purchased Lake Ontario water.



### Permitted and Actual Maximum Daily Flow

The City of Toronto and Peel Region supply water to York Region under water supply agreements. The following chart shows the maximum volume of water purchased from each municipality in a single day (blue bar) compared to the maximum flow permitted under the applicable water supply agreement (grey bar).



## SUMMARY OF 2018 EXPENSES TO INSTALL, REPAIR OR REPLACE REQUIRED EQUIPMENT

System Name	System Monetary Expenses Description	Expenses (\$)
Ansnoerveldt DWS	General maintenance and repair. Operational costs are not reflected in this total.	\$12,404
Aurora DWS	General maintenance and repair, groundwater treatment, pumping station and reservoir upgrade and distribution system maintenance. Operational costs are not reflected in this total.	\$2,187,288
Ballantrae/Musselman's Lake DWS	General maintenance and repair. Operational costs are not reflected in this total.	\$47,341
Georgina DWS	General maintenance and repair and watermain replacement. Operational costs are not reflected in this total.	\$153,506
Georgina DWS (Keswick DW Sub-System)	General maintenance and repair and treatment plant upgrades. Operational costs are not reflected in this total.	\$147,339
Holland Landing DWS	General maintenance and repair and pumping station upgrades. Operational costs are not reflected in this total.	\$72,461
King City DWS	General maintenance and repair, new booster pumping station and elevated tank maintenance. Operational costs are not reflected in this total.	\$268,339
Kleinburg DWS	General maintenance and repair, one elevated tank re-coating and well upgrades. Operational costs are not reflected in this total.	\$35,133
Mount Albert DWS	General maintenance and repair and new standby power generator. Operational costs are not reflected in this total.	\$147,358
Newmarket DWS	General maintenance and repair, elevated tank re-coating and distribution system maintenance. Operational costs are not reflected in this total.	\$2,690,460
Nobleton DWS	General maintenance and repair. Operational costs are not reflected in this total.	\$373,942
Schomberg DWS	General maintenance and repair and treatment plant upgrades. Operational costs are not reflected in this total.	\$231,281
Sharon/Queensville DWS	General maintenance and repair. Operational costs are not reflected in this total.	\$276,471
Stouffville DWS	General maintenance and repair, distribution system maintenance and elevated tank re-coating. Operational costs are not reflected in this total.	\$2,432,369
York DWS	General maintenance and repair, watermain replacement, pumping station upgrades, distribution system maintenance and emergency maintenance. Operational costs are not reflected in this total.	\$17,645,771
<b>Total</b>		<b>\$26,721,463</b>