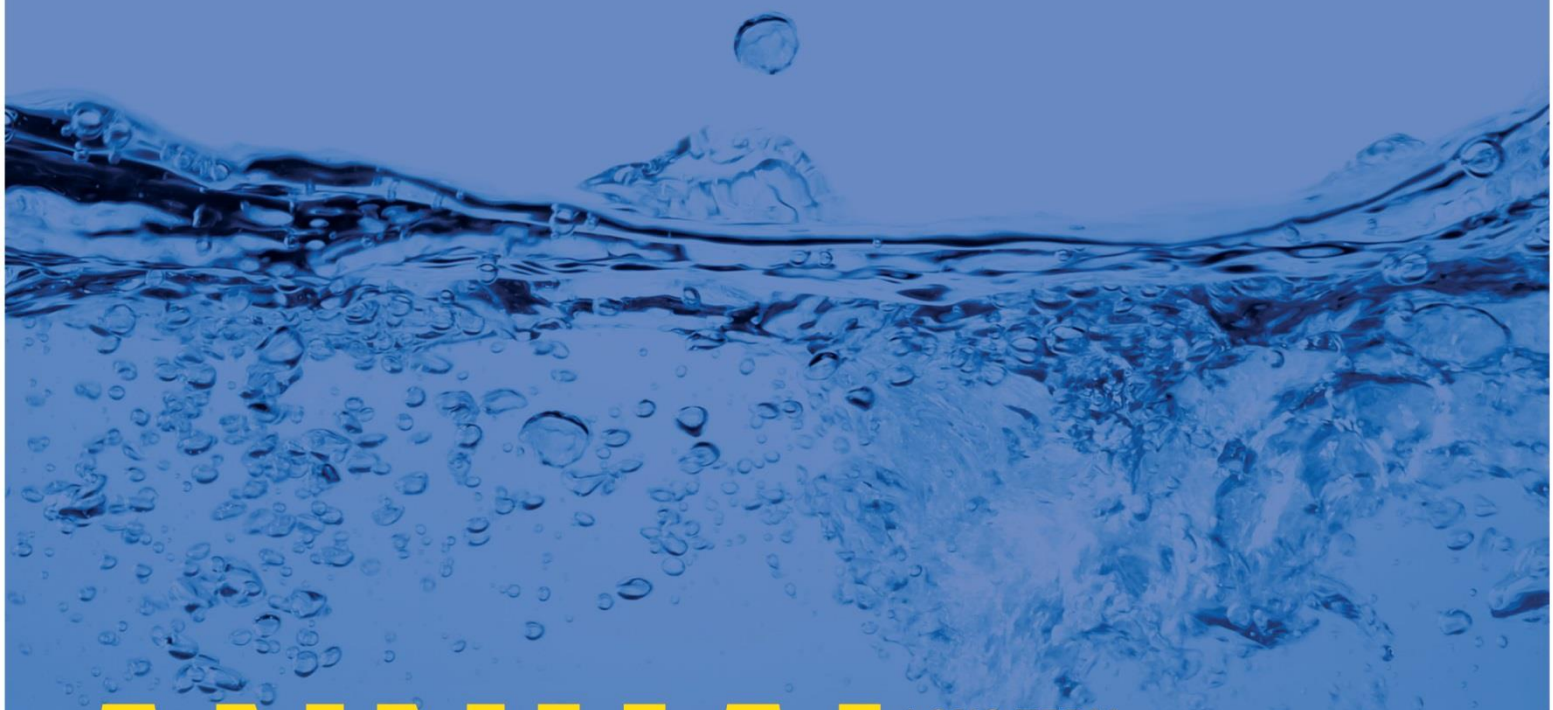
THE REGIONAL MUNICIPALITY OF YORK



ANNUAL REPORT

LONG TERM WATER CONSERVATION STRATEGY

MARCH 31, 2019

York Region

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EXECUTIVE SUMMARY

This report is York Region's eighth annual report to the Ministry of the Environment, Conservation and Parks (MECP) addressing Conditions 8.8 and 8.9 of the Minister's Conditions of Approval for the Southeast Collector Trunk Sewer Individual Environmental Assessment (SEC IEA), and Schedule B of the Permits to Take Water (PTTWs) regulating the Region's intra-basin transfer. This annual report details the 2018 progress on implementation of York Region's 2016 Updated Long Term Water Conservation Strategy (the "Strategy"), submitted to the former Ministry of the Environment and Climate Change on March 31, 2016.

On June 12, 2018, the Central Region Director provided comments on and indicated satisfaction with the LTWCS Annual Report dated March 31, 2018. These comments acknowledged York Region's progress on implementation of the LTWCS, commended York Region on its two industry awards for the "Water Is" campaign and noted that the report does an excellent job describing the factors affecting water demand and discussing the benefits of reducing water demand. An additional table was requested for the subsequent annual report to show population and water demand over a minimum five year period; this will be included in the annual progress report due to the MECP by March 31, 2019.

York Region has a rapidly expanding population, with growth projected to 2031 and into the future. Increasing growth puts pressure on the water supply system. Recognizing the need for smart water management, York Region has integrated water conservation into its sustainable growth plans and policies. Since

implementing its Long Term Water Supply Master Plan in 1998, York Region has achieved an overall savings of over 26 million liters per day (MLD).

York Region's current Strategy envisions a residential consumption rate of 150 litres per capita per day (LCD) by the year 2051. With a 2018 residential consumption rate of 194 LCD, York Region is on track to meet its interim target of 190 LCD by 2021 (**Figure ES.1**). To achieve its 2018 successes, the Region continued to focus on nine program areas as outlined in the Strategy. An overview of the Region's 2018 program activities and achievements is provided in **Table ES.1**.

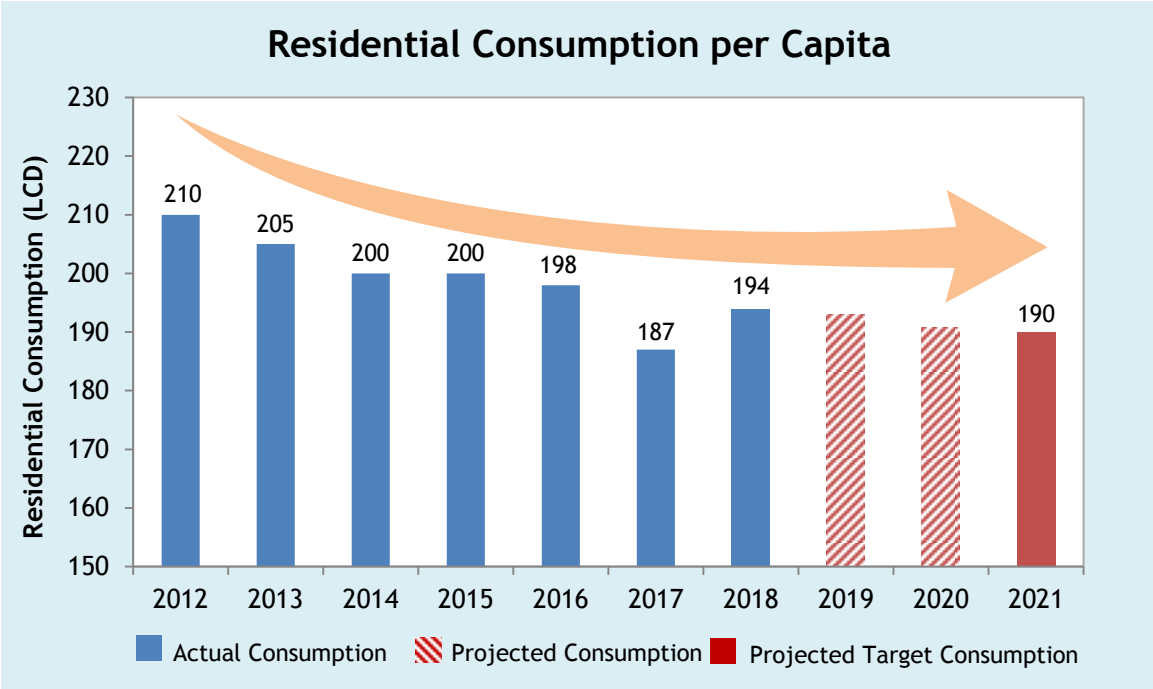


Figure ES.1 Residential Consumption per Capita

Moving forward, York Region will continue to offer its water conservation initiatives, optimize the current program offerings, and look for new opportunities to integrate into the program. The Region will be advancing its next update to the Strategy, with a March 31, 2020 submission to the MECP. As part of the new Strategy update, York Region will focus on enhanced metrics to evaluate future performance of the water conservation program in relation to the goals set out in the Strategy. The Region will also develop a holistic framework for the new Strategy that considers the cost-benefit of programming and long-term sustainability of the Region's water supply through the lens of One Water.

Table ES.1 2018 Long Term Water Conservation Strategy Achievements

Program Components	Tactics	Sector	Goals from the Strategy	2018 Progress Update
1. Programs for ICI High Water Users				
ICI Capacity Buyback Incentive Program	Conduct facility consultations	ICI	Continue to offer program to ICI sector	Conducted 22 ICI audits in 2018; 66 cumulative audits to date.
	Complete post-audit and provide incentive	ICI	Continue to offer program to ICI sector	Completed a post-audit in 3 facilities; 10 cumulative audits to date.
2. Programs for Small Businesses				
Water Efficiency Equipment Replacement Incentives	Provide incentives for equipment replacement	Small and Medium-sized Enterprises	Promote and offer incentives	Staff attended 2 outreach events to help promote the program. York Region also updated its marketing strategy for 2019 to include attending relevant trade shows for promotion, working with equipment manufacturers, collaborating with other York Region branches involved in small business outreach and increasing social media posts.
3. Outdoor Peak Demand Reduction				
Water Smart Irrigation Professionals (WSIP)	Provide training and certification to contractors	Contractor	Continue to offer program	Completed 2018 training with 19 attendees. There are now 44 WSIP companies and 72

Program Components	Tactics	Sector	Goals from the Strategy	2018 Progress Update
	Provide incentives for assessments completed by certified contractors	Contractor		individuals certified to date. Incentives for assessments and irrigation controllers were issued for 42 properties in 2018.
Fusion Landscape Professionals (FLP)	Provide training and certification to landscape professionals	Landscape Professionals	Continue to offer program	Completed 2018 training with 15 attendees. There are now 26 FLP companies and 34 individuals certified to date in York and Peel Regions.
Fusion Gardening® Pilot	Monitor and track residential landscape change	Residential	Conduct annual evaluation of pilot	Worked in partnership with the Toronto and Region Conservation Authority (TRCA) to develop a quantitative tool that will help monitor and track benefits that result from installing Fusion elements.
	Evaluate water savings	All		

Program Components	Tactics	Sector	Goals from the Strategy	2018 Progress Update
	Demonstra-tion gardens	Residential and ICI	Install 2 to 3 demonstration gardens per year	York Region worked with Peel Region and Landscape Ontario on a feature garden at Canada Blooms to show various low impact development features and their positive aesthetics. To further showcase the visual appeal of water efficient gardens, York Region published an article, “Beauty Meets Function”, in the Spring 2018 edition of Simcoe Living. Circulation for the magazine is 75,000.
	Public outreach	All		A total of 13 “Fusion Gardening” related social media posts reached more than 22,400 residents.
	Retail partnerships	Residential	Evaluate role of retail partners and explore new opportunities	After a program review it was decided to discontinue single store retail partnerships due to the nature of the sector (i.e. high retail staff turnover). York Region in collaboration with Peel Region and Landscape Ontario will continue to look for other partnership opportunities.

Program Components	Tactics	Sector	Goals from the Strategy	2018 Progress Update
4. Education and Outreach				
"Water Is" Campaign	Education outreach	All	Continue education initiative	Over 213,211 people reached with water messaging on social media (Facebook, Twitter, and YouTube). 37 "Water Is" related social media posts reached more than 36,800 residents. More than 2,000 total page views on York.ca/wateris. More than 2,300 "Water Heroes" and "What you Pay For" video views on YouTube. 421 "Good Question: Why are my water rates going up" video views on YouTube. 3 articles published (in *The Journal AWWA*, *Water Canada Magazine*, and York Region's *Healthy Measures* newsletter) that support York Region's water messaging. These publications reached 125,155 people.

Program Components	Tactics	Sector	Goals from the Strategy	2018 Progress Update
Children's Water Festival	Student participation rate	Schools	Continue participation	3938 students and 618 teacher/supervisors attended.
	Education outreach	All	Continue education initiative	An article on "Water Conservation" through youth education was featured in *Municipal World Magazine* in April 2018.
Student Education Initiatives	Education content	Schools	Continue education initiative	10 school presentations, 264 students/teachers engaged.
Water Efficiency Outreach to New Canadians	New Canadian participation rate	New Canadian	Continue initiative	Completed 2 Welcome Centre presentations.
5. Non-Revenue Water				
IWA Water Audit/Balance	Identify leakage in system	Local Municipalities	Coordinate audits with local municipalities	Received all 9 municipal IWA audits for 2017.

Program Components	Tactics	Sector	Goals from the Strategy	2018 Progress Update
Leak Detection Program	Minimize water leakage in system	Local Municipalities	Based on audit	Continued management of water loss tracking tool for local municipalities and issued regular water loss report to municipalities with water efficiency recommendations. Partnered with consulting firm for Independent Electricity System Operator (IESO) funding application to pilot a mobile flow metering and pressure regulating testing unit to measure night flows in watermains for identification of leakage and to evaluate benefits of pressure reduction.

Program Components	Tactics	Sector	Goals from the Strategy	2018 Progress Update
6. Residential New Development				
Sustainable Development through LEED® **(high-rise development)**	Estimated number of units constructed to standard	Multi-Family Residential	Continue to offer program	To date 11 projects with approximately 2,961 Apartment Units, have been registered through the LEED program, although there were no new enrollments in 2018. A review of the LEED program is currently underway as a continuous improvement initiative based on stakeholder feedback, changes in policies, integration with other initiatives and availability of monitoring data.

Program Components	Tactics	Sector	Goals from the Strategy	2018 Progress Update
Servicing Incentive Program (SIP) (low-rise development) and Servicing Development Incentive Program (SDIP) (low-rise development)	Estimated number of units constructed to standard	Residential	Continue to offer program	To date 6,328 Single Detached Equivalent (SDE) units have either been Registered or Draft Approved through the Servicing Development Incentive Program, and 2,690 SDE units through the Servicing Incentive Program. A review of the SIP program is currently underway as a continuous improvement initiative based on stakeholder feedback, changes in policies, integration with other initiatives and availability of monitoring data.

Program Components	Tactics	Sector	Goals from the Strategy	2018 Progress Update
7. Water Reuse Strategy				
Water Reuse	Development and research into water reuse applications	All	Initiate pilot	In 2018 York Region was successful in attaining $73,000 in cost share funding assistance from the Canadian Agricultural Partnership for its Water Reuse Demonstration Project. The additional funds enabled an expanded scope to include alternative crops (fall chrysanthemums) and grass seed germination trials. The first growing season concluded in October 2018. A second growing season will be completed in 2019. The first growing season was successful and a workshop will be held with stakeholders including MECP staff in May 2019 to review preliminary findings.

Program Components	Tactics	Sector	Goals from the Strategy	2018 Progress Update
	Water Reuse for the ICI Sector	ICI	Continue to offer program to ICI sector	Continued offering higher incentive rates for ICI implementation of water reuse opportunities. 5 reuse opportunities have been implemented at ICI facilities to date.
8. Collaboration and Advocacy				
Advocacy	Coordinate the Water Conservation Advisory Committee	All	Coordinate committee meetings	Conducted 3 Water Conservation Advisory Committee meetings. Hosted presentations from Ryerson Urban Water, Aslan Technologies and Greyter Water Systems Inc.
	Coordinate the Water and Wastewater Liaison Committee meeting	Local Municipalities	Coordinate committee meetings	Conducted 2 Water and Wastewater Liaison Committee meetings. Hosted presentations from Pure Technologies and MECP.

Program Components	Tactics	Sector	Goals from the Strategy	2018 Progress Update
Stakeholder Collaboration	Collaboration with Other Regions	Ontario Regions	Increase Collaboration and Delivery of Water Conservation Initiatives	Collaborated with Peel Region for water conservation workshop, WSIP and FLP training with Landscape Ontario.
	Collaboration with Conservation Authorities	Toronto and Region Conservation Authority (TRCA), Lake Simcoe Region Conservation Authority (LSRCA)	Increase Collaboration and Delivery of Water Conservation Initiatives	Collaborated with TRCA in a water consultation program and on stormwater monitoring for Fusion Gardening Pilot. Collaborated with TRCA and LSRCA on water conservation messaging and education through involvement with the Water Conservation Advisory Committee.
9. Big Data Analytics				
Water Consumption Database **(WCD)**	Collection of water billing data	Local Municipalities	Collection of 2018 water billing data for the 9 local municipalities	Collected all municipal billing data, which was uploaded into the Region's Water Consumption Database and used for water consumption per capita per day analysis.

Program Components	Tactics	Sector	Goals from the Strategy	2018 Progress Update
	Determine consumption by sector	All	Generate water consumption reports for ICI and residential sectors	Calculated water demand by sector in 2018 to track program success and target future programming.
Tracking summer and winter water demand per capita	Comparing summer versus winter water demand	Residential	Analyze data	Analyzed 2018 water billing data and compared summer and winter consumption to track program success and target future programming.
Identify high water users	Mapping high water users	All	Generate GIS heat maps for high water users	Completed detailed analysis and generated heat maps to track program success and target future programming.
Energy-Water Nexus	Document and evaluate water/energy savings outcomes for specific programs and pilots	All	Document and evaluate 2018 water/energy savings achieved	Continued to track water and energy savings under corporate Energy Conservation and Demand Management Plan (ECDMP). Approximately 91,164 ekWh/year have been saved in 2018 from water conservation programs.

Program Components	Tactics	Sector	Goals from the Strategy	2018 Progress Update
Greenhouse Gas Reduction	Track greenhouse gas emissions savings outcomes from water and energy use reduction	All	Analyze data	Continued to track equivalent greenhouse gas emissions reduction from water saved from water conservation programs, under corporate ECDMP. Approximately 3.28 tons CO_2e savings in 2018.

1.0 PURPOSE AND NEED FOR THE ANNUAL REPORT

On March 31, 2010, the then Minister of the Environment approved the Southeast Collector Trunk Sewer Individual Environmental Assessment (SEC IEA) subject to thirteen conditions (with seventy-four sub-conditions), including Condition 8 which refers to the Long Term Water Conservation Strategy and Inflow and Infiltration Reduction Monitoring Strategy.

This report is the eighth annual report prepared to address Conditions 8.8 and 8.9 of the SEC IEA Minister's Conditions of Approval (see **Appendix A: IEA Notice of Approval and Conditions)**, and Schedule B of the Permits to Take Water (PTTWs) regulating the Region's intra-basin transfer. It details the 2018 progress on implementation of the 2016 Updated Long Term Water Conservation Strategy (the "Strategy") submitted to the former Ministry of the Environment and Climate Change on March 31, 2016 in accordance with Condition 8.

Requirements under Conditions 8.8 and 8.9 are as follows:

- York Region to submit to the Regional Director an annual report detailing its progress on implementing the Strategy including inflow and infiltration reduction.
- Each annual report prepared shall include at a minimum:
  a) Results of water conservation and efficiency measures;

b) Results of flow monitoring and visual inspections to determine the sources and amount of inflow and infiltration into the Southeast Collector Trunk Sewer within the Regional Municipality of York;
c) Progress in the reduction of inflow and infiltration into the Southeast Collector Trunk Sewer;
d) Details of any remedial work to the sewage system undertaken and the results of the remediation; and
e) Results achieved within the Regional Municipality of York with respect to inflow and infiltration reduction measures.

Results from the implementation of the inflow and infiltration reduction initiatives are compiled in the Inflow and Infiltration Reduction Strategy Annual Report dated March 31, 2019. Progress made towards the implementation of water conservation initiatives are highlighted throughout this report. The annual intra-basin transfer volumes are presented in **Appendix B: Intra-Basin Transfer Summary 2018,** for the PTTWs provided in **Appendix C: Permits to Take Water (PTTWs)**.

York Region will continue the preparation and submission of the annual reports to the Ministry of Environment, Conservation and Parks (MECP) until such date as the Regional Director indicates that updates are no longer required.

1.1 Comments and Feedback Received

On June 12, 2018, the Central Region Director of the MECP provided comments on and indicated satisfaction with the Long Term Water Conservation Strategy Annual Report dated March 31, 2018. These comments stated that York Region continues to make progress in implementing its Long Term Water Conservation Strategy and achieving its water conservation targets through its programs and initiatives.

The Director also commended York Region for receiving the International Association of Business Communicators Award of Merit and the American Water Works Association (AWWA) Public Communications Achievement Award for its “Water Is” communications campaign.

The letter noted that the report does an excellent job describing the factors affecting water demand and provides an excellent discussion of the benefits of reducing water demand. The MECP also noted they would like the Region to

include a table identifying population and water demand over a minimum five year period. This table is included in **Section 3.2.2** of this report.

2.0 BACKGROUND

Centrally located in the Greater Toronto Area (GTA), York Region (the Region) is one of the fastest growing regions in Canada. The Region is the only municipality in the GTA without direct access to Lake Ontario for its drinking water supply and, therefore, secures its water from water supply agreements with the City of Toronto and the Region of Peel (88 per cent), as well as from Lake Simcoe and groundwater sources (12 per cent). The population of the Region is currently 1.2 million and is projected to increase to about 1.8 million by 2041. Without conservation, demand for drinking water and wastewater treatment will increase significantly as the population grows. In recent years, the Region has shifted focus from individual water usage to developing marketplace-based programs that specifically target high water users. A market-based approach utilizes the marketplace as delivery agents for water conservation with the ultimate goal of generating transformative, sustained change.

2.1 Water Conservation and Sustainable Growth

As per Provincial direction through Places to Grow legislation, York Region's current Official Plan directs growth until 2031. The focus of the Region's Official Plan (YROP–2010) is to foster sustainable growth and create healthy, livable communities, and a resilient natural environment.

Water supply and wastewater collection are significant Regional growth considerations. Integrating water infrastructure planning with water conservation programming is critical to meeting increases in water demands.

The increasing water demands over time due to significant growth puts more pressure on the Region to deliver its water conservation programming. Reducing the amount of water loss and water wasted for non-potable uses, and adopting water reuse strategies should enable the Region to meet growth-related increases in water demand with minimal increases in water supply. This helps to ensure the sustainability of the Region's water supply system and long-term water savings across all sectors.

2.2 One Water Action Plan

In 2017, York Region released its first One Water Action Plan. One Water promotes approaching water management in an integrated manner by recognizing the interconnectedness of traditionally separated water systems. One Water is an emerging concept that reduces the burden on water sources and infrastructure, and supports York Region in meeting the water demands of growth while achieving both financial and environmental sustainability.

There are three high-level goals within the One Water Action Plan falling under the broad headings of Integrate, Innovate and Infra-stretch[1] as illustrated in **Figure 1**.

The action plan sets out strategies to achieve each goal, and under each strategy the specific actions intended to advance it. The plan foresees inflow and infiltration reduction, water conservation and water reuse, as fundamental elements of the Region's water system and encourages greater conservation and the use of natural processes to manage water. It also finds valuable new sources of water in rainfall, snow melt and the safe reuse of treated wastewater.

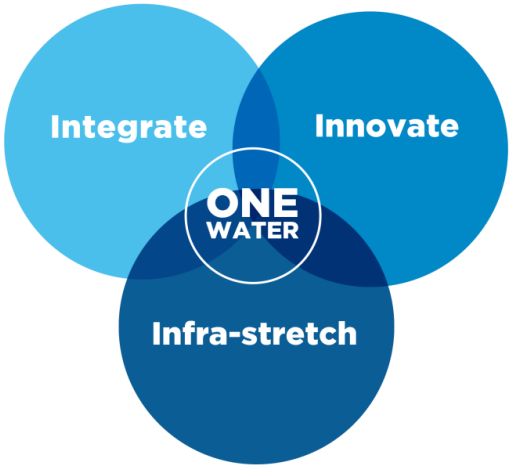


Figure 1: One Water Action Plan

[1] "Infra-stretch" is a term used by York Region to describe the concept of maximizing the useful capacity and useful life of built infrastructure to minimize and/or defer capital investment.

Implementation started in 2018 with focus on the Integration goal. Internal staff were engaged to identify linkages between programs, projects and initiatives. Further collaboration is now underway across the inflow and infiltration reduction, water conservation and water and wastewater facility energy management programs. Partnerships within York Region and with local municipalities and conservation authorities are being further strengthened.

Water conservation and inflow and infiltration reduction efforts help sustain existing sewer infrastructure by reducing wastewater flows, thereby "infra-stretching" or maximizing the existing capacity of the infrastructure. The reclaimed servicing capacity can then be used to support planned growth. Energy savings associated with reduced water consumption and wastewater flows also helps York Region fulfill its commitment to reducing greenhouse gas emissions.

Successful continued implementation of the plan will require ongoing support and expertise within York Region and from external partners. An important aspect of the One Water Action Plan is continuing to build collaborative partnerships in order to manage challenges and explore new opportunities to optimize and improve the resiliency of our critical infrastructure systems. Together, the Long Term Water Conservation Strategy and inflow and infiltration reduction efforts help sustain existing sewer infrastructure, while supporting economic growth and environmental sustainability.

2.3 Water Saving Targets and Timelines

York Region is on track to achieve its aspirational target of 150 LCD by 2051. Per capita residential water demands have declined over the last decade due to the impact of Regional programs, an improvement in the efficiency of key water-using fixtures and appliances (e.g. toilets, clothes washers, and showerheads), advancements in the Ontario Building Code, and a growing awareness of the importance of using our natural resources wisely.

Table 1 summarizes target residential consumption rates that can be achieved over time if three water saving scenarios are implemented. For Scenario 1, the targeted consumption rate assumes reduced water use from Region's water conservation programs only. For Scenario 2, the targeted consumption rate assumes reduced water use from the Region's water conservation programs plus additional water savings from Provincial legislation such as mandating water efficient fixtures in new homes through the new Plumbing Code (effective

January 2014). For Scenario 3, the targeted consumption rate requires implementation of water reuse and Provincial guidance on water reuse applications. For example, adoption of grey water reuse systems in the residential sector would be a good opportunity to reduce water demand and reach York Region's goal of 150 LCD.

In 2015, York Region embarked on a big data initiative as improvements were made to the methodology for calculating LCD in the Water Consumption Database (WCD). These improvements ensured accuracy and consistency in the analysis of water billing data going forward. As such, the baseline year used for the water saving scenarios was updated from 2014 to 2015 to reflect the best available information.

Table 1: Residential Water Saving Targets and Timelines

Water Saving Scenarios	2015	2021	2031	2041	2051
	Residential Consumption Rate (LCD)				
Scenario 1 Regional Incentive Programs	200	192	185	179	173
Scenario 2 Regional Incentive Programs + Existing Provincial Programs and Legislation		190	183	176	170
Scenario 3 Regional Incentive Programs + Existing Provincial Programs and Legislation + Water Reuse and Provincial Guidance and Legislative Changes			180	165	150

3.0 WATER DEMAND ANALYSIS

In 2018, York Region water demand was estimated to be 194 litres per capita per day (LCD), based on single-family residential households only. York Region is on track to achieve its interim target of 190 LCD in 2021. While the water demand in 2018 was higher than the 187 LCD observed in 2017, consumption has generally been on a downward trend as shown in **Figure 2**. The rise in LCD over the course of 2018 is interpreted to be related to the hotter and drier summer experienced in York Region compared to 2017. Since the residential LCD is sensitive to climate effects, particularly in the summer months with outdoor water use, annual variability is to be expected. Further discussion related to the 2018 seasonal influences on water use is provided in **Section 3.2**.

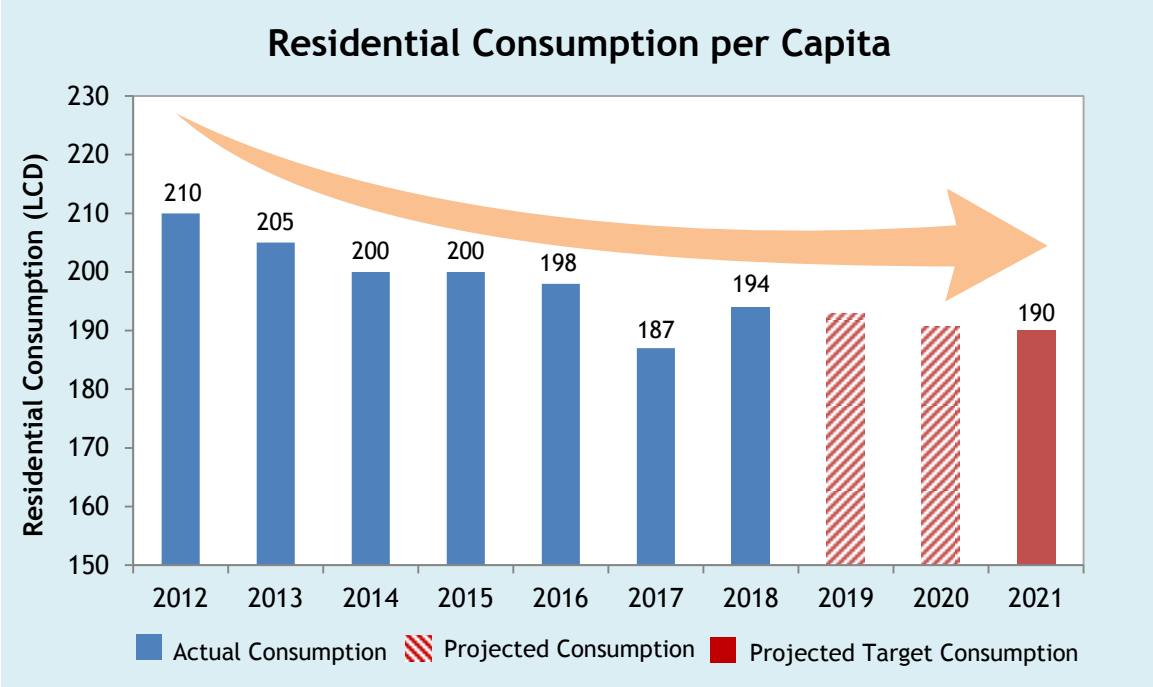


Figure 2: Residential Consumption per Capita

Since the initiation of water conservation programs (1998), it is estimated that these programs have resulted in a savings of over 26 million litres per day; this equates to water consumed daily by more than 137,000 people based on a LCD of 194. Although the LCD did increase from 2017 to 2018, primarily caused by the hotter, dryer spring and summer weather, the Region remains on track to achieve the aspirational 2051 target consumption rate of 150 LCD (via scenario 3 in **Table 1**). Further discussion of the 2018 water consumption is provided in the subsections below.

3.1 Water Demand by Sector

Through enhanced development of the Water Consumption Database, the Region has developed better analytics to estimate the water demand by sector, including residential, industrial, commercial and institutional (ICI), and non-revenue water. Tracking water demand by sector provides a greater insight into how water demand is distributed among homes, businesses, and non-revenue uses—thus enabling the Region to better target its conservation programming.

The breakdown of 2018 Regional water demand was determined based on the following: (i) Analysis of local municipal customer water consumption data; (ii) International Water Association (IWA) audits; (iii) A water loss tracking tool

developed by the Region in collaboration with the local municipalities; and (iv) York Region water supply data. The results are shown in **Table 2**. The total water demand is approximately 317.1 Megalitres per Day (MLD), or 317.1 million litres per day. A percentage break down by sector can be found in **Figure 3.** (The type of residence is defined by Municipal Property Assessment Corporation (MPAC) codes as per **Appendix D: MPAC Property Codes Description**).

Table 2: 2018 Water Demand by Sector (MLD)

Sector	2018 Average Daily Demand (MLD)
Residential	209.6
- Single-Family Residential	155.9
- Multi-Residential	40.4
- Other Residential	13.3
Industrial, Commercial and Institutional	74.1
Other	0.8
Non-Revenue Water	32.7
Total Demand	**317.2**

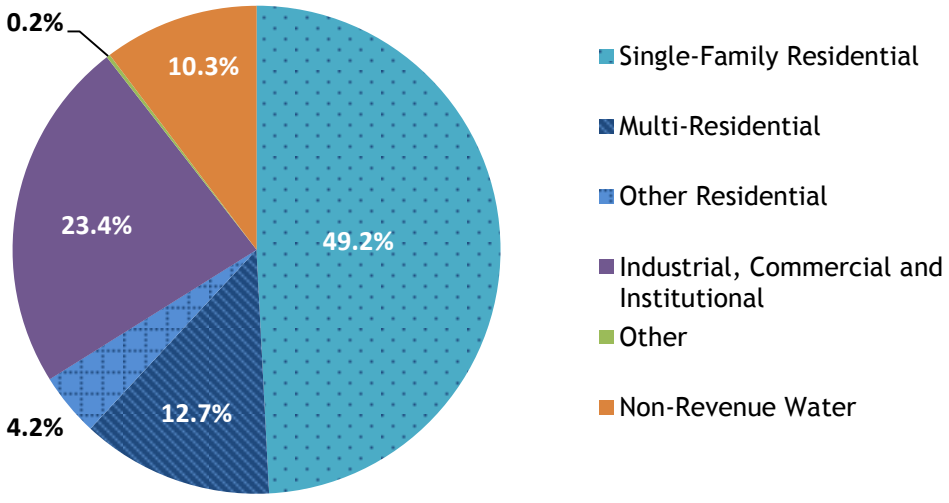


Figure 3: 2018 Water Demand by Sector (%)

3.2 Factors Affecting Water Demand

In addition to the Region's water conservation programs and initiatives (which are detailed in **Section 4.0**), numerous factors such as weather, population growth, water rates and changes to the Building Code have an influence on water demands each year.

3.2.1 Weather Conditions

Weather plays a significant factor in overall water demands from year to year. As a rule of thumb for outdoor water consumption, the hotter and drier the weather, the greater amount of water is consumed (such as for filling pools, watering lawns with sprinklers, etc.).

Over the winter and fall seasons, outdoor water consumption is typically at a minimum. A review of residential water demand over the first and fourth quarters of 2018 shows relatively stable rates compared with 2017.

Detailed spring and summer weather statistics from 2014 through 2018 are provided in Table 3. The spring and summer period (April to September) in 2018 was notably hotter than in 2017. Cooling degree days (CDD) represents the degrees above 18^{o}C, using the daily temperature average. The spring and summer cooling degree days increased from 283.5 to 422.4, an almost 50% increase, indicating more extreme heat (in terms of higher temperatures and/or a larger number of hotter days) in 2018. As well, the number of days above 30^{o}C increased from 9 to 23. Finally, 2018 was drier than 2017, with a decrease in total rainfall from 631 mm in 2017 to 503 mm in 2018.

The above comparison of climate markers in 2018 to those in 2017 explains the increase in annual demand from 187 LCD to 194 LCD. With this comparison in mind, the 2018 demand of 194 LCD is in line with what we might expect.

Another comparison can be drawn between the weather data of spring and summer 2015 and 2018. Both years have similar average temperatures and rainfall, with 2018 having a higher CDD indicating warmer weather. Despite these similarities, residential water demand decreased from 200 to 194 LCD; this decline has likely been influenced by the Region's water conservation programs as well as changes in behaviour.

Table 3: York Region Weather Statistics for 2014–2018, Spring and Summer[1,2]

Year	Annual Residential Consumption per Capita (LCD)	Average Temperature (°C)	Total Rain-fall (mm)	Days above 30 °C	Days with Rain-fall	Summer Cooling Degree Days
2014	200	15.7	633	2	80	203.2
2015	200	17.0	464	17	60	314.5
2016	199	17.1	283	31	47	459.9
2017	187	16.3	631	9	71	283.5
2018	194	16.9	503	23	65	422.4

3.2.2 Population Growth

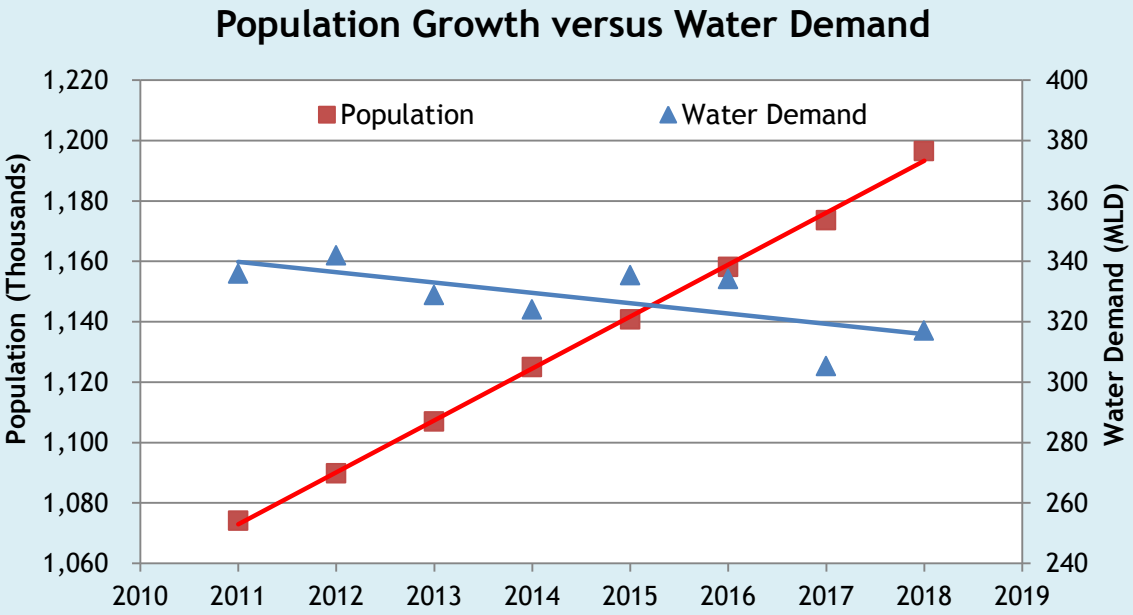
York Region is one of the fastest growing and innovative regions in North America. The Region's commitment to innovation and being a leader through water conservation strategies has resulted in a general downward trend of water demand since 2011 despite increases in population (as shown in

Table 4 and **Figure 4**). This trend is expected to continue into the future as the Region continues to deliver its Long Term Water Conservation Strategy.

[1] Data was obtained from Government of Canada Historical Weather Data (Toronto Buttonville weather station).
[2] Table includes the months of April to September.

Table 4: Population Versus Water Demand, 2011-2018

Year	Population	Water Demand (MLD)
2011	1,074,142	336
2012	1,089,853	342
2013	1,106,947	329
2014	1,125,016	324
2015	1,140,784	335
2016	1,158,156	334
2017	1,173,691	305
2018	1,196,559	317



Ref: "Total Estimated Population of York Region" provided by York Region's Long Range Planning group

Figure 4: Population Growth and Average Daily Water Demand, 2011-2018

3.2.3 Water Rates

The Region charges each local municipality a uniform cost per cubic meter regardless of the volume of water purchased or season of use. With this rate structure, the revenue generated by water sales varies from year to year based on local weather conditions (i.e., higher water sales during years with hot dry summers, and lower water sales during years with cool wet summers). Each local municipality, in turn, is responsible for developing their own rate structure to bill their own customers. Some municipalities are starting to implement stormwater rates to recover the operational and capital cost of stormwater infrastructure.

Table 5 summarizes the Region's historical water rates since 2011 and future blended rates through to 2021, as endorsed by Regional Council in October 2015. Annual water rate increases are determined based on full cost recovery analysis: water demands analysis, population growth, maintaining existing assets, day-to-day operations, and building reserves for future asset rehabilitation and replacement.

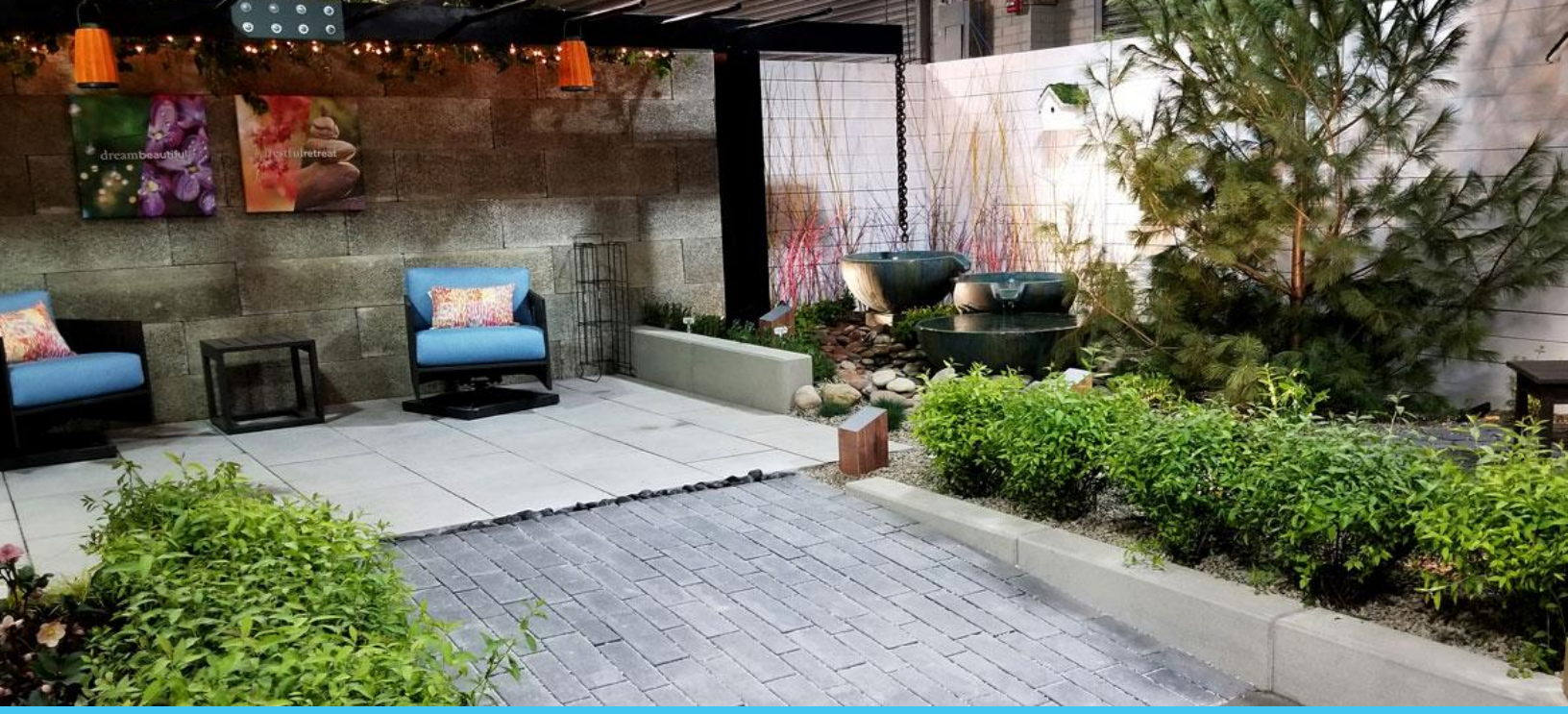
Table 5: York Region Water Rates, 2011–2021[3]

Year	Water Rate ($/M^3)	Wastewater Rate ($/M^3)	Blended Rate ($/M^3)	Increase (%)
2011	0.6973	0.7900	1.49	-
2012	0.7512	0.8848	1.64	10
2013	0.8087	0.9910	1.80	10
2014	0.8697	1.1099	1.98	10
2015	0.9345	1.2431	2.18	10
2016	0.9582	1.4158	2.37	9
2017	1.0021	1.5855	2.59	9
2018	1.1051	1.7154	2.82	9
2019	-	-	3.07	9
2020	-	-	3.35	9
2021	-	-	3.45	2.9

[3] Rates from 2011 to 2018 were obtained from The Regional Municipality of York Bylaw 2011-2018. Rates for 2019 through to 2021 were approved by the Council of The Regional Municipality of York on October 8, 2015. Annual rates are effective April of each year.

As water rates in York Region increase, some residents may consider adopting additional water conservation practices. While the overall price for water is still low compared to other utilities, water rates have been increasing at a higher rate over the years than other utilities. Numerous studies have shown price to be an important driver of demand for water in some service areas, with outdoor use generally more responsive than indoor use. Responsiveness varies widely with location, however, because of the impact of such factors as local climate, attitudes, incomes and the relative price of water.

Since some of the costs associated with providing water services vary with each additional cubic meter of demand (i.e. the energy required to pump and distribute water), reducing water demands will reduce operational costs and therefore, reduce the revenue needs of the Region. As such, reducing peak demands generally helps keep water rate increases to a minimum and ensures that water remains affordable to all customers. Reducing water demands on a per capita basis will also enable a greater number of customers to be serviced with the same volume of water. This ultimately leads to deferred spending on new water supply infrastructure, and can minimize future water rate increases. In other words, saving water frees up existing supply to support growth and minimizes the need for infrastructure expansion.



4.0 WATER CONSERVATION INITIATIVES & ACHIEVEMENTS

As part of the One Water Action Plan, York Region is using a market-based approach to deliver cost-effective and adaptive system-wide water conservation programming that generates long-term, sustained water savings. An overview of York Region's 2018 program activities and achievements is provided in **Table 6**; key programs and initiatives are elaborated on in subsequent sections.

The measures and programs identified herein include both existing and new initiatives as shown in **Figure 5.** For ease of reference the measures and programs have been categorized as follows:

- Programs for ICI High Water Users
- Programs for Small Businesses
- Outdoor Peak Demand Reduction
- Education and Outreach
- Non-Revenue Water
- Residential New Development
- Water Reuse
- Collaboration and Advocacy
- Big Data Analytics

Figure 5: Water Conservation Initiatives

Table 6: 2018 Long Term Water Conservation Strategy Achievements

Program Components	Tactics	Sector	Goals from the Strategy	2018 Progress Update
1. Programs for ICI High Water Users				
ICI Capacity Buyback Incentive Program	Conduct facility consultations	ICI	Continue to offer program to ICI sector	Conducted 22 ICI audits in 2018; 66 cumulative audits to date.
	Complete post-audit and provide incentive	ICI	Continue to offer program to ICI sector	Completed a post-audit in 3 facilities; 10 cumulative audits to date.
2. Programs for Small Businesses				
Water Efficiency Equipment Replacement Incentives	Provide incentives for equipment replacement	Small and Medium-sized Enterprises	Promote and offer incentives	Staff attended 2 outreach events to help promote the program. York Region also updated its marketing strategy for 2019 to include attending relevant trade shows for promotion, working with equipment manufacturers, collaborating with other York Region branches involved in small business outreach and increasing social media posts.
3. Outdoor Peak Demand Reduction				
Water Smart Irrigation Professionals (WSIP)	Provide training and certification to contractors	Contractor	Continue to offer program	Completed 2018 training with 19 attendees. There are now 44 WSIP companies and 72 individuals certified to date.

Program Components	Tactics	Sector	Goals from the Strategy	2018 Progress Update
	Provide incentives for assessments completed by certified contractors	Contractor		Incentives for assessments and irrigation controllers were issued for 42 properties in 2018.
Fusion Landscape Professionals (FLP)	Provide training and certification to landscape professionals	Landscape Profession-als	Continue to offer program	Completed 2018 training with 15 attendees. There are now 26 FLP companies and 34 individuals certified to date in York and Peel Regions.
Fusion Gardening® Pilot	Monitor and track residential landscape change	Residential	Conduct annual evaluation of pilot	Worked in partnership with the Toronto and Region Conservation Authority (TRCA) to develop a quantitative tool that will help monitor and track benefits that result from installing Fusion elements.
	Evaluate water savings	All		

Program Components	Tactics	Sector	Goals from the Strategy	2018 Progress Update
	Demonstration gardens	Residential and ICI	Install 2 to 3 demonstra-tion gardens per year	York Region worked with Peel Region and Landscape Ontario on a feature garden at Canada Blooms to show various low impact development features and their positive aesthetics. To further showcase the visual appeal of water efficient gardens, York Region published an article, “Beauty Meets Function”, in the Spring 2018 edition of Simcoe Living. Circulation for the magazine is 75,000.
	Public outreach	All		A total of 13 “Fusion Gardening” related social media posts reached more than 22,400 residents.
	Retail partnerships	Residential	Evaluate role of retail partners and explore new opportunities	After a program review it was decided to discontinue single store retail partnerships due to the nature of the sector (i.e. high retail staff turnover). York Region in collaboration with Peel Region and Landscape Ontario will continue to look for other partnership opportunities.

Program Components	Tactics	Sector	Goals from the Strategy	2018 Progress Update
4. Education and Outreach				
"Water Is" Campaign	Education outreach	All	Continue education initiative	Over 213,211 people reached with water messaging on social media (Facebook, Twitter, and YouTube). 37 "Water Is" related social media posts reached more than 36,800 residents. More than 2,000 total page views on York.ca/wateris. More than 2,300 "Water Heroes" and "What you Pay For" video views on YouTube. 421 "Good Question: Why are my water rates going up" video views on YouTube. 3 articles published (in *The Journal AWWA*, *Water Canada Magazine*, and York Region's *Healthy Measures* newsletter) that support York Region's water messaging. These publications reached 125,155 people.
Children's Water Festival	Student participation rate	Schools	Continue participation	3938 students and 618 teacher/supervisors attended.

Program Components	Tactics	Sector	Goals from the Strategy	2018 Progress Update
	Education outreach	All	Continue education initiative	An article on “Water Conservation” through youth education was featured in *Municipal World Magazine* in April 2018.
Student Education Initiatives	Education content	Schools	Continue education initiative	10 school presentations, 264 students/teachers engaged.
Water Efficiency Outreach to New Canadians	New Canadian participation rate	New Canadian	Continue initiative	Completed 2 Welcome Centre presentations.
5. Non-Revenue Water				
IWA Water Audit/Balance	Identify leakage in system	Local Municipalities	Coordinate audits with local municipalities	Received all 9 municipal IWA audits for 2017.

Program Components	Tactics	Sector	Goals from the Strategy	2018 Progress Update
Leak Detection Program	Minimize water leakage in system	Local Municipali-ties	Based on audit	Continued management of water loss tracking tool for local municipalities and issued regular water loss report to municipalities with water efficiency recommendations. Partnered with consulting firm for Independent Electricity System Operator (IESO) funding application to pilot a mobile flow metering and pressure regulating testing unit to measure night flows in watermains for identification of leakage and to evaluate benefits of pressure reduction.

Program Components	Tactics	Sector	Goals from the Strategy	2018 Progress Update
6. Residential New Development				
Sustainable Development through LEED® **(high-rise development)**	Estimated number of units constructed to standard	Multi-Family Residential	Continue to offer program	To date 11 projects with approximately 2,961 Apartment Units, have been registered through the LEED program, although there were no new enrollments in 2018. A review of the LEED program is currently underway as a continuous improvement initiative based on stakeholder feedback, changes in policies, integration with other initiatives and availability of monitoring data.

Program Components	Tactics	Sector	Goals from the Strategy	2018 Progress Update
Servicing Incentive Program (SIP) (low-rise development) and Servicing Development Incentive Program (SDIP) (low-rise development)	Estimated number of units constructed to standard	Residential	Continue to offer program	To date 6,328 Single Detached Equivalent (SDE) units have either been Registered or Draft Approved through the Servicing Development Incentive Program, and 2,690 SDE units through the Servicing Incentive Program. A review of the SIP program is currently underway as a continuous improvement initiative based on stakeholder feedback, changes in policies, integration with other initiatives and availability of monitoring data.

Program Components	Tactics	Sector	Goals from the Strategy	2018 Progress Update
7. Water Reuse Strategy				
Water Reuse	Development and research into water reuse applications	All	Initiate pilot	In 2018 York Region was successful in attaining $73,000 in cost share funding assistance from the Canadian Agricultural Partnership for its Water Reuse Demonstration Project. The additional funds enabled an expanded scope to include alternative crops (fall chrysanthemums) and grass seed germination trials. The first growing season concluded in October 2018. A second growing season will be completed in 2019. The first growing season was successful and a workshop will be held with stakeholders including MECP staff in May 2019 to review preliminary findings.

Program Components	Tactics	Sector	Goals from the Strategy	2018 Progress Update
	Water Reuse for the ICI Sector	ICI	Continue to offer program to ICI sector	Continued offering higher incentive rates for ICI implementation of water reuse opportunities. 5 reuse opportunities have been implemented at ICI facilities to date.
8. Collaboration and Advocacy				
Advocacy	Coordinate the Water Conservation Advisory Committee	All	Coordinate committee meetings	Conducted 3 Water Conservation Advisory Committee meetings. Hosted presentations from Ryerson Urban Water, Aslan Technologies and Greyter Water Systems Inc.
	Coordinate the Water and Wastewater Liaison Committee meeting	Local Municipali-ties	Coordinate committee meetings	Conducted 2 Water and Wastewater Liaison Committee meetings. Hosted presentations from Pure Technologies and MECP.

Program Components	Tactics	Sector	Goals from the Strategy	2018 Progress Update
Stakeholder Collaboration	Collaboration with Other Regions	Ontario Regions	Increase Collaboration and Delivery of Water Conservation Initiatives	Collaborated with Peel Region for water conservation workshop, WSIP and FLP training with Landscape Ontario.
	Collaboration with Conservation Authorities	Toronto and Region Conserva-tion Authority (TRCA), Lake Simcoe Region Conserva-tion Authority (LSRCA)	Increase Collaboration and Delivery of Water Conservation Initiatives	Collaborated with TRCA in a water consultation program and on stormwater monitoring for Fusion Gardening Pilot. Collaborated with TRCA and LSRCA on water conservation messaging and education through involvement with the Water Conservation Advisory Committee.
9. Big Data Analytics				
Water Consumption Database **(WCD)**	Collection of water billing data	Local Municipali-ties	Collection of 2018 water billing data for the 9 local municipali-ties	Collected all municipal billing data, which was uploaded into the Region's Water Consumption Database and used for water consumption per capita per day analysis.

Program Components	Tactics	Sector	Goals from the Strategy	2018 Progress Update
	Determine consumption by sector	All	Generate water consumption reports for ICI and residential sectors	Calculated water demand by sector in 2018 to track program success and target future programming.
Tracking summer and winter water demand per capita	Comparing summer versus winter water demand	Residential	Analyze data	Analyzed 2018 water billing data and compared summer and winter consumption to track program success and target future programming.
Identify high water users	Mapping high water users	All	Generate GIS heat maps for high water users	Completed detailed analysis and generated heat maps to track program success and target future programming.
Energy-Water Nexus	Document and evaluate water/energy savings outcomes for specific programs and pilots	All	Document and evaluate 2018 water/energy savings achieved	Continued to track water and energy savings under corporate Energy Conservation and Demand Management Plan (ECDMP). Approximately 91,164 ekWh/year have been saved in 2018 from water conservation programs.

Program Components	Tactics	Sector	Goals from the Strategy	2018 Progress Update
Greenhouse Gas Reduction	Track greenhouse gas emissions savings outcomes from water and energy use reduction	All	Analyze data	Continued to track equivalent greenhouse gas emissions reduction from water saved from water conservation programs, under corporate ECDMP. Approximately 3.28 tons CO_2e savings in 2018.

4.1 Programs for ICI High Water Users

ICI facilities are typically the largest individual consumers of water in York Region. As such, it is crucial for the Region to continue to provide water conservation programs and incentives targeted specifically at this sector.

York Region's 2018 outreach strategy for this sector included collaborative marketing with neighbouring Regional municipalities and with other York Region business outreach programs. For example, in April 2018, the Region attended and presented at the Region of Peel's Water Conservation Workshop. In September 2018, staff in the water conservation group presented its incentive programs at the York Region Business Waste Reduction Forum. York Region also collaborated with its Waste Reduction group to deliver several water and food waste audit services simultaneously to businesses. This approach was aimed at a more holistic delivery of sustainability messaging to businesses, to increase uptake on its incentive programs and help build a culture of sustainability in the industry. More information on programs and incentives for businesses can be found at york.ca/waterincentives.

Prior to 2018, two programs were offered for ICI high water users: (1) ICI Water Use and Wastewater Quality Consultation Program and (2) ICI Capacity Buyback Incentive Program. Two separate applications were required, one for each program. In 2018, the programs were combined under the ICI Capacity Buyback Incentive Program, reducing the number of applications required to one.

4.1.1 Water Audit

Through its ICI Capacity Buyback Incentive Program, York Region offers water audits at no cost to ICI facilities and incentives if permanent water-saving retrofits or upgrades are implemented.

The ICI Capacity Buyback Incentive program is significantly more flexible than typical prescriptive incentive programs because payments are based on water savings per installed retrofit. As such, ICI customers are free to implement all or some of potential water conservation opportunities, including changes to equipment and processes, water reuse activities, indoor and outdoor water uses, etc., to achieve water savings.

The Strategy emphasized water reuse as a critical component in achieving the aspirational target of 150 LCD by 2051. As such, York Region has increased its incentive for water reuse retrofits under the ICI Capacity Buyback Incentive program (as detailed in **Section 4.7.2**).

The ICI Capacity Buyback Incentive program has been targeting 10 audits per year for large manufacturers. In 2018, York Region conducted 22 water audits which included both large and medium sized businesses. **Table 7** shows the breakdown of audits completed per municipality since 2011 and their associated identified water savings.

Table 7: ICI Water Audits

Municipality	Number of Water Audits (2011–2018)	Identified Water Savings (m^3/year)
Aurora	4	23,975
East Gwillimbury	2	3,285
Georgina	-	-
King	2	14,996
Markham	13	146,243
Newmarket	5	49,600
Richmond Hill	7	257,367
Vaughan	32	389,587
Whitchurch–Stouffville	1	4,662
Total	**66**	**889,715**

These water audits are aimed at helping ICI facilities within York Region reduce their water consumption which in many cases can be high. Offering an incentive program and including water audit services can assist businesses with the cost of implementing identified water savings opportunities. Details of York Region's ICI Capacity Buyback Incentive program are provided in the following section. Together the two initiatives can help keep water demand steady over time even as the population increases.

4.1.2 ICI Capacity Buyback Incentive

Previously, York Region had offered the capacity buyback incentive rate as $0.30 per litre of water saved on a single average day for ICI high water users who implement one or more of the recommended permanent water-saving retrofits. In 2017, the ICI Capacity Buyback Incentive programs were evaluated and incentives were improved to represent best-in-class models within Ontario and throughout North America. The improvements were aimed at promoting water reuse in particular. The 2018 incentive structure is shown in **Table 8.**

Table 8: List of Incentives under York Region's ICI Capacity Buyback Incentive Program

	2018 Incentive Rates
1	Water saving retrofits incentive amount: $0.75 per litre of water saved daily*
2	Water reuse incentive amount: $2 per litre of water saved daily *
3	Rebate of $200 per meter (up to a maximum of $1,000) to have sub-meters installed permanently at facilities
The incentive limit is up to 50 per cent of the capital cost of each opportunity with a total of up to a maximum of $50,000 per facility.	

Every year York Region expects at least one facility to implement recommended water saving opportunities and apply for an incentive under the program. In 2018, three ICI facilities took advantage of York Region incentives by implementing identified retrofits, including two water reuse improvements. Total annual water savings from these retrofits is approximately 22,000 cubic metres.

The most successful set of retrofits was completed by Wholesome Harvest Baking Inc. The facility implemented York Region's water audit recommendations and achieved a 28 per cent reduction in total facility water consumption. By changing the ingredient cooler compressor from water cooled to air cooled and recirculating the bagel boiler overflow water, Wholesome Harvest Baking Inc. has been able to reduce its annual water consumption by 18,000 cubic metres, which equates to an annual water and wastewater bill savings of approximately $75,000. Wholesome Harvest Baking Inc. received a water savings incentive of $38,902 from York Region for the retrofits.

York Region continues with its efforts to audit the top 100 water consumers, striving to increase participation rates in 2019 and beyond.

4.2 Programs for Small Businesses

To focus on the small business sector an incentive program was created and named the *Water Efficiency Equipment Replacement Incentives Program* to cover more water-efficient equipment and make it simpler for small businesses to participate.

The new prescriptive incentives structure, as shown in **Table 9** offers a rebate per unit replaced. A rebate can be given to the applicant upon receipt of a valid proof of purchase and photos of the newly installed equipment without requiring an audit. Structuring the incentives this way makes participation in the program more straightforward and easier for small businesses who may have limited resources and time.

Furthermore, Peel Region currently offers a very similar rebate structure under their Water Efficiency Program. By offering a similar rebate structure, collaboration is strengthened between York and Peel Regions which helps to provide a more cohesive conservation message.

Table 9: Prescriptive Incentives

Measure	Condition	Rebates ($ per unit replaced)	Potential water saved per unit (m^3/year)
Packaged Condensing Unit	Replacement of a water-cooled condenser with an air-cooled unit at the same facility	$1,000	900
Ice Machine	Replacement of a water-cooled Ice machine with an air-cooled unit	$1,000	292
Dipper Well	Replacement of a dipper well faucet with one which is rated for a flow of 0.5 gpm or less	$60	746
Pre-Rinse Spray valve	Replacement of a pre-rinse spray valve with a WaterSense® certified pre-rinse spray valve	$25	27
Toilet Unit	Replacement of a toilet unit with a WaterSense® certified toilet	$100	900
Dental Vacuum Pump	Replacement of a liquid ring dental vacuum pump with one that does not use water to create suction	$1,000	625
Note: Each rebate is up to 50% of the cost to undertake the process change to a maximum one-time payout as stated in the rebates on each measure.			

Despite improved rebates, York Region saw limited uptake in 2018 from small businesses. To help increase awareness and uptake of the program in 2019, York Region has updated its marketing strategy to include attending relevant trade shows for promotion, working with equipment manufacturers, collaborating with other York Region branches involved in small business outreach and increasing social media posts.

4.3 Outdoor Peak Demand Reduction

In 2018 York Region continued to implement outdoor peak demand reduction strategies. Peak demands occur in the summer when it is hot and dry. During these peak periods, water treatment facility energy and pumping demands for production and distribution are at their highest and water infrastructure becomes more at risk of approaching its rated capacity.

A significant contributor to high-peak water demands is landscape irrigation. Recognizing the importance of the environmental, and health and wellness benefits that green infrastructure brings to each community, York Region collaborates with Peel Region and Landscape Ontario to promote and proactively encourage the design, installation and maintenance of efficient landscape and irrigation practices that can lower summer-time high-peak water use.

4.3.1 Water Smart Irrigation Professionals (WSIP)

In April 2018, Landscape Ontario hosted its annual 2-day training course in partnership with York Region and Peel Region; it was attended by 19 contractors. Training focused on water conservation principles, water-efficient technology, soil-plant relationships and building sales skills to meaningfully promote water conserving assessments to clients. Participating contractors were also trained on using an auditing application, which facilitated calculating the clients return on investment. The feedback received in 2018 by participants was once again very positive, with many contractors beginning to realize new business opportunities. Participant feedback will continue to be incorporated into the redesign and delivery of WSIP for its sixth year in 2019.

Table 10 summarizes the WSIP assessments completed from 2015 to 2018 and their associated potential water savings. The average water savings per facility varied depending on the irrigation area. Since 2015, the average annual water savings per square meter of irrigation area assessed is about 268 litres.

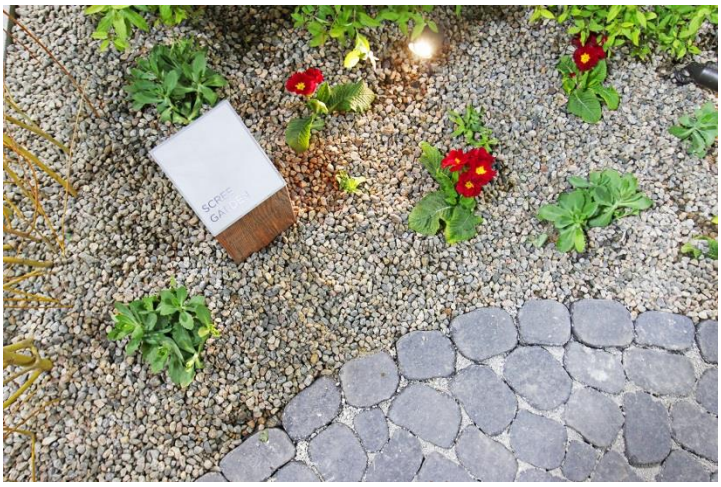
Table 10: WSIP Assessments

Audit Year	Number of Assessments	Potential Water Savings Identified (m^3)	Potential Average Water Savings per Facility (m^3/year)	Potential Average Annual Water Savings per Square Meter of Irrigation Area (L/m^2)
2015	7	5,503	786	246
2016	21	22,280	1,060	305
2017	61	43,300	710	247
2018	42	7,664	182	332
Total	**131**	**78,746**	**685**	**268**

4.3.2 Fusion Gardening®

The Fusion Garden pilot program began in the fall of 2015 in Kleinburg. Kleinburg was chosen as the pilot area because it was among the highest water users and it was representative of the other target areas. To help meet the needs and wants of our target group, York Region developed five components under Fusion: Irrigation (Water Smart Irrigation Professionals), Landscapes (Fusion Landscape Professionals), Retail Partnerships, Demonstration Gardens and Education and Outreach.

Upon completion of the pilot, a review was completed in 2018. Some components, such as retail partnerships and demonstration gardens, were determined to be unsuccessful due to retail staff turnover rates and were removed from the program. The overall concepts of Fusion Gardening still have potential for success and rollout through other Regional initiatives will be explored in the 2019 update to the Strategy.



In 2018, Region staff participated in a community event and maintained a presence in Kleinburg. Educational materials to support the Fusion Gardening® program were updated, as needed, and were available to residents at community events. The program also won the Economic Developers Association of Canada (EDAC) Marketing Canada Award for the Best Advertising Campaign.

The Fusion Landscape Professional (FLP) Program aims to achieve market transformation by making Fusion landscapes an industry standard. This training and certification program was developed in partnership with Landscape Ontario and Peel Region. It aims to facilitate communication and collaboration between professionals involved in the design, installation, maintenance and irrigation of Fusion landscapes. Communication and cross-collaboration between these sectors is vital to the long-term success and function of Fusion landscapes. The first training session took place in November 2017. The second training session took place in November 2018 and was attended by 15 landscape professionals.

York Region's collaboration with TRCA on this project continued into 2018, with an expanded goal of monitoring the stormwater, water savings, greenhouse gas emission reduction and other environmental benefits incurred when implementing Fusion Gardening. Specifically, York Region is providing funding to TRCA for the development of a quantitative tool to enumerate the many environmental benefits associated with implementation of Fusion Gardening® elements. Several meetings were held with Peel Region and TRCA to discuss and track progress on development of the tool. This work is nearing completion and a "beta" version of the tool is expected to be available in the first quarter of 2019.

4.3.3 Water-Efficient Demonstration Gardens

There are three Fusion demonstration gardens near the pilot area. Each garden showcases a different aspect of Fusion Gardening®, such as incorporating low impact design features, functional art or water-efficient plants.

After evaluating the success of these demonstration gardens there proved to be challenges associated with maintenance, location selection, and gauging their effectiveness. After thorough review York Region decided these gardens may not be the most effective way to showcase Fusion and that they should be discontinued.

York Region partnered with Peel Region and Landscape Ontario on a feature garden at Canada Blooms. The garden featured a number of water efficient and low impact development features which were displayed in an artistic and creative way throughout the garden.

4.4 Education and Outreach

York Region continued with its successful education and outreach programs in 2018, including water-efficient landscaping workshops and the York Children's Water Festival. Staff also continued to deliver in-class school presentations, which were developed and launched in schools in 2014. In 2018, 6 Water for Tomorrow York Water System

NUMBER OF TOUCHPOINTS

	2014	2015	2016	2017	2018
Event Outreach	9,150	6,824	7,252	7,891	5,662
Social Media	211,381	809,268	271,945	642,884	213,211
Newspaper Circulation	352,254	918,094	442,447	n/a	158,400
Magazine Circulation	n/a	n/a	19,900	8,100	562,826*

TOTAL ESTIMATED TOUCH POINTS: **4,647,489**

Figure 6: Water Outreach Summary, 2014 - 2018

presentations were given at 5 schools across York Region to approximately 230 grade 5 students.

Through interactive class presentations, York Region staff demonstrated where water comes from, the system that moves it and the safety and reliability of York Region's water supply. The Region also continued to conduct general water outreach, making over 781,699 touch points with the public through events and social media platforms (**Figure 6**).

In 2018, the "Water Is" public campaign continued, highlighting the good work York Region is doing to keep the water system one of the best in its class. With the continued goal to raise public awareness about why water rates are increasing, this multi-year campaign continued showcasing the value of water while highlighting the processes, people and infrastructure behind the scenes of our clean, safe, reliable, and affordable drinking water. The campaign successes for 2018 included a number of articles published that support York Region's water messaging:

- The "Water Is" campaign was featured in AWWA's publication, *The Journal AWWA*. The AWWA has more than 50,000 members and a monthly reach of 106,562 people.
- An article called, "York Region Outperforms Fellow GTA Jurisdictions in Water Quality" was written and published by Water Canada in April 2018. Water Canada Magazine has a readership of 18,000 (with pass-along).
- In collaboration with York Region Public Health, a "Sustainable Hydration" article was written for a Regional online newsletter called Healthy Measures, June 2018 edition. The article focused on how much water an adult needs per day and how to help conserve water at home, work and play. The e-newsletter has 593 subscribers.

In 2018, 1,672 new Canadians took part in 65 half-day environmental education programs at English as a Second Language (ESL) centres and Language Instruction for Newcomers to Canada (LINC) centres in Southern York Region. These partnerships were delivered through the TRCA Multicultural Connections program in partnership with York Region. In addition, the Region worked with TRCA to build capacity to deliver similar programs in northern York Region. The Region is also working with LSRCA to add York Region information to their educational presentations and material.

In 2018, York Region staff attended 49 public outreach events and provided approximately 7,497 residents with a water conservation message. These events took place throughout the various communities around York Region, allowing for interaction and engagement with diverse audiences. Through dialogue and discussion residents were able to provide their input and ideas on water conservation, as well as numerous other water-related subjects. The insights gained from these public engagements will be used to better target our future campaigns towards reinforcing messages of positive behaviour change and new initiatives, rather than promoting practices already demonstrated by residents. Further opportunities to engage a multi-cultural audience are continually being explored.

4.5 Non-Revenue Water

Non-revenue water is defined as water that is not billable to the end user, and is comprised of losses (such as customer metering inaccuracies, unauthorized consumption/water theft, data handling errors, and true water system leakage) and unbilled authorized consumption (such as usage of water for infrastructure operation and maintenance and for emergency services, such as fire flow).

The first step in understanding non-revenue water is an analysis of the water balance. In 2016, York Region led a peer review initiative with a third party consultant to help its local municipalities understand their water losses after its point of supply from the Region. The peer review involved an evaluation of each municipality's water balance completed using the AWWA/IWA's free Water Audit Software tool and a summary of recommendations to help address non-revenue water. Recommendations included the annual completion of water balances with the AWWA/IWA software as well as water loss tracking of Regional and local municipal monthly water loss volumes related to operation and maintenance, watermain or other water infrastructure failures, and capital projects. Both of these recommendations continue to be implemented on an annual basis.

4.5.1 Water Balance Review

Annually, each local municipality completes a water balance review using the IWA/AWWA Water Audit software tool and submits it to the Region. The reported levels of non-revenue water are logged by the Region and a trend analysis is completed to see how the values compare across municipalities and over time.

The 2017 non-revenue water per cent by volume of water supplied to each municipality (as reported in the water audit tool) is shown in Table 11.

Table 11: 2017 Non-Revenue Water Percentage by Volume of Water Supplied

Municipality	2017 Non-Revenue Water (%)*
Aurora	9.0
East Gwillimbury	27.3
Georgina	21.9
King	29.9
Markham	10.5
Newmarket	17.5
Richmond Hill	14.8
Vaughan	4.5**
Whitchurch-Stouffville	8.8
Weighted Average	**10.7%**

*Non-revenue water percentages are as reported by each municipality in the 2017 annual IWA/AWWA water audit summary provided to the Region.
** Significant meter inaccuracies (i.e. under registrations) were discovered in 2018 in the City of Vaughan and have likely led to lower non-revenue water percentage estimates. Meter replacement may result in higher water loss volume calculations in 2019.

The average non-revenue water for York Region as a whole is 10.7 per cent. This is significantly lower than the estimated average non-revenue water for North America, which ranges from 20 to 25 per cent.[4] In 2016, the average non-revenue water was 11.3 per cent and in 2015 15 per cent; this shows an overall decrease over the past few years. While there has been a noteworthy decrease since 2015 it is expected that with aging infrastructure more efforts will be required to maintain or improve this non-revenue water percent. Fiscal constraints will also have a significant impact and innovative solutions to address non-revenue water will be required.

Infrastructure Leakage Index (ILI) is a performance indicator quantifying how well a distribution system is managed for the control of real losses (leakage) at the

[4] Ress, Erin and Roberson, J. Alan. "The Financial and Policy Implications of Water Loss," *American Water Works Association* 108, no. 2 (2016): E77-E86.

current operating pressure. Annual ILI values are tracked and a trend analysis is completed for each municipality. An ILI value of 1.0 is considered a “best managed” system. **Table 12** shows the 2017 infrastructure leakage index estimated by each municipality using the water audit tool.

Table 12: 2017 Infrastructure Leakage Index by Municipality

Municipality	2017 Infrastructure Leakage Index*
Aurora	0.84
East Gwillimbury	1.71
Georgina	1.97
King	2.83
Markham	1.36
Newmarket	2.05
Richmond Hill	1.98
Vaughan	0.67
Whitchurch-Stouffville	0.73

*Infrastructure Leakage Index numbers are as reported by each municipality in the 2017 annual IWA/AWWA water audit summary provided to the Region.

4.5.2 Water Loss Tracking Tool

In response to the non-revenue water peer review recommendations, York Region has been managing a water loss tracking tool since 2017. All Regional and local municipal monthly water loss records related to water and wastewater system operation and maintenance, capital projects and water infrastructure failures are collected and entered into a database. Throughout the year, York Region creates water loss reports from the database records and shares them with the local municipalities. The reports were improved in 2018 to provide more in depth data analysis (i.e. the addition of comparisons from 2017 to 2018 and inclusion of new KPIs, such as water loss volumes per km of watermain). The reports also include new sections with recommendations for the local municipalities and the Region to help better monitor, track and reduce water loss.

4.5.3 Water Loss Pilot Study

In 2018, HydraTek & Associates (HydraTek) approached the Region to partner in and support an IESO Conservation Fund Project: *Reducing Municipal Water Loss and Energy Consumption through Pressure Management*. One component

of non-revenue water is system leakage. If system leakage is known it can help municipalities evaluate the merits of infrastructure rehabilitation and pressure-management strategies. Through leak mitigation and reduction via pressure management the benefits are not only water and cost savings, but also energy efficiency.

The scope of this pilot project is to provide municipalities with a cost-efficient method to measure minimum night flows, an indicator of leakage. This involves the development and application of a mobile (vehicle-based) testing unit that can be driven to locations of interest where District Metering Area (DMA) flow measurements can be taken. A summary report will be produced at the end of this pilot project which will detail the theoretical and practical linkages between pressure management, water loss and energy reduction found during the study.

The pilot project also includes partnerships with the University of Toronto, Durham Region, City of Ottawa, National Research Council Canada - Industrial Research Assistance Program, and Ontario Water Works Association (OWWA). Working with these different stakeholders will bring further awareness to the importance of water loss reduction and energy efficiency, and help to develop innovative approaches for addressing these matters. HydraTek also recently partnered with the City of Vaughan on their own pilot DMA project; together they presented their approach and findings at the National Water and Wastewater Conference in November 2018.

4.6 Residential New Development

The Region continues to promote its sustainable development programs for new residential development through the Servicing Incentive Program (SIP), Sustainable Development Through LEED®, and its sister program, the Sustainable Development Incentive Program (SDIP), which is specific to East Gwillimbury alone. **Table 13** summarizes the servicing capacity earned through these three programs since their inception.

The programs are currently undergoing a review, as part of which jurisdictional scans were untaken in 2018. The review was initiated in response to feedback from stakeholders, policy changes, York Region's commitment to reduce greenhouse gas emissions, and to take advantage of opportunities to integrate the programs with other Regional and local municipal initiatives. In 2019, staff will consult with stakeholders and propose program improvements based on findings to senior management to recommend to Regional Council.

Table 13: SIP, SDIP, and LEED Achievements to Date

Program*	Start Date	Credit Servicing Capacity Earned to Date	Credit Servicing Capacity Population to Date (Persons)	Total Units Draft Approved[5]	Total Units Registered[5]
SIP	2014	396 SDE Units	1310	421	2269
SDIP	2014	741 SDE Units	2230	1769	4559
LEED	2009	1089 Apartment Units	2,690	-	2,961

*- For SIP and SDIP; Population (in persons) = Single Detached Equivalent (SDE) Units x Persons Per Unit (PPU) Values for Single detached homes (based on 2011 Census data)
- For LEED; Population (in persons) = Apartment Units x Person Per Unit (PPU) Values for Apartments (based on 2011 Census)

4.6.1 Sustainable Development Through LEED®

One of the main objectives of this program is to reduce the potable water demand within high density residential buildings. The LEED® Canada program has mandatory requirements, and the Region has specific criteria that must be met in addition to the mandatory requirements. Criteria include no potable water used for irrigation, an overall 40% reduction in water consumption, and WaterSense® plumbing fixtures. To date, 2,961 units have been registered which has saved an estimated 149,784 m^3/year, although there were no new units enrolled in 2018.

4.6.2 Servicing Incentive Program (SIP)

SIP aims to reduce water demands in new low-rise (up to three storeys) construction. This is achieved through the use of high-efficient plumbing fixtures and hot water delivery systems which are either “roughed-in” (installation of all the necessary wiring and piping for future connection) or fully connected. To

[5] Draft approval amounts to a commitment to go ahead with the subdivision, if all the conditions of draft approval have been met prior to the lapsing date. Lots may be offered for sale after draft approval, but cannot be sold until registration. When all conditions of the draft approval have been met, final approval is given and the plan of subdivision may be registered.

date, 2,690 SDE units have either been registered or draft approved and in 2018 credit servicing capacity for an additional 42 SDE units was earned.

4.6.3 Sustainable Development Incentive Program (SDIP)

In partnership with East Gwillimbury, SDIP is another program that embraces the Region's goal to promote sustainability in low-rise development. The program allows developers to obtain additional servicing capacity through proposed implementation of new water efficiency and inflow and infiltration control measures in new home construction that reduce per capita water consumption and sewage flow rate. The Program follows the SDIP Implementation Guidelines to allow developers that meet specific requirements to obtain additional servicing capacity. These specific requirements include:

1. Improved water efficiency;
2. Improved energy efficiency;
3. Improved indoor air quality;
4. Enhanced monitoring programs;
5. Improved resource management; and
6. Enhanced home owner education.

With respect to the specific water conservation measures, SDIP includes mandatory specifications, including water efficient plumbing fixtures that exceed the *Ontario Building Code*, an on-demand hot water delivery system, and landscaping/outdoor measures. To date, 6,328 units have either been registered or draft approved. In 2018 1,229 units registered and credit servicing capacity for an additional 213 SDE units was earned.

4.7 Water Reuse

While water reclamation and reuse is practiced on a limited scale in Canada, York Region is leading several water reuse initiatives and conducting water reclamation research to advocate for its expanding application in the future. Through York Region's 2016 Water and Wastewater Master Plan and the Long Term Water Conservation Strategy Update, water reuse has been identified as an essential component in meeting the Region's ambitious 2051 target of reducing per capita water consumption to 150 litres per capita per day. Furthermore, it is a critical measure in safeguarding valuable water supplies in the Lake Simcoe watershed.

Looking first at water reclamation and reuse, it is defined as the treatment of wastewater to make it acceptable for reuse for beneficial purposes (e.g.

agricultural irrigation, landscape irrigation, and industrial uses). To accommodate planned growth in East Gwillimbury, Newmarket and Aurora, York Region has proposed the Upper York Water Reclamation Centre—a state-of-the-art wastewater treatment and water recovery facility in East Gwillimbury. While still in its approval stages, it is envisioned to be a centre of excellence for sustainable and innovative wastewater treatment and reclaimed water use, based on proven advanced treatment technologies.

Water reuse is also defined as the recycling of water in the industrial, commercial and institutional (ICI) setting and the use of "greywater" from sources such as rainfall or shower water for non-potable uses including irrigation and toilet flushing. The Region's ICI Capacity Buyback Incentive program offers free water efficiency audits and offers water reuse incentives for process-water recycling applications.

4.7.1 Water Reuse Research Demonstration Project

To start laying the groundwork for future water reuse opportunities, York Region retained Black & Veatch Canada along with a research team lead by the Soil Resources Group with collaboration from University of Waterloo and Agriculture & Agri-Food Canada to conduct a Water Reuse Research Demonstration Project. The Region is also consulting with other interested stakeholders, including the MECP, Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA), and LSRCA. Research from this project will help the Region better understand the technical, environmental, economic and societal aspects of water reuse that will be used to inform the future development of a broader water reuse program for York Region.

The project focuses on the use of reclaimed water for irrigation of a test plot of sod at an operating sod farm and evaluates the effects of reclaimed water on plant health (e.g. salinity and nitrogen), soil properties, and water quality. Phase 1 or the development phase of the project wrapped up in late 2017. Phase 2 or the demonstration execution phase began in the final quarter of 2017 and will continue through two growing seasons. The first growing season wrapped up in October 2018. Irrigation with reclaimed water is scheduled to start again in spring 2019 for the second growing season, from approximately May–October. Phase 3 will include final findings, analysis and recommendations and will be completed in the first quarter of 2020.

In 2018 York Region was successful in attaining $73,000 in cost share funding assistance from the Canadian Agricultural Partnership, a joint funding initiative from Provincial and Federal governments. The additional funds allowed the scope of the project to expand to include alternative crops (fall chrysanthemums) and grass seed germination trials. In addition, the MECP, provided approximately $50,000 of in-kind lab analysis of contaminants of emerging concern. Results from the first growing season will be presented to stakeholders in 2019.

4.7.2 Water Reuse in the ICI Sector

As part of the ICI Capacity Buyback Incentive program offered by York Region, water reuse opportunities are also identified. Water reuse opportunities in the ICI sector are typically more challenging to implement, require more investigative studies, and generally have higher investment costs and risks (e.g. potential fouling of a system where water is being reused, more stringent customer and/or regulatory requirements for reuse, as well as the novelty of these opportunities). Once a facility's water consumption has been reduced as much as possible, the only way to extract more efficiency is to reuse the water to offset the consumption of fresh water. Typical examples of water reuse in ICI facilities include:

- Water reuse in the cleaning process
  - Reuse final rinse water as the first rinse in a subsequent clean-in-place (CIP) cycle
  - Reuse final rinse water as the first rinse in a conveyor/belt cleaning (**Figure 7**)
  - Use counter-current rinse tanks in metal-finishing manufacturing

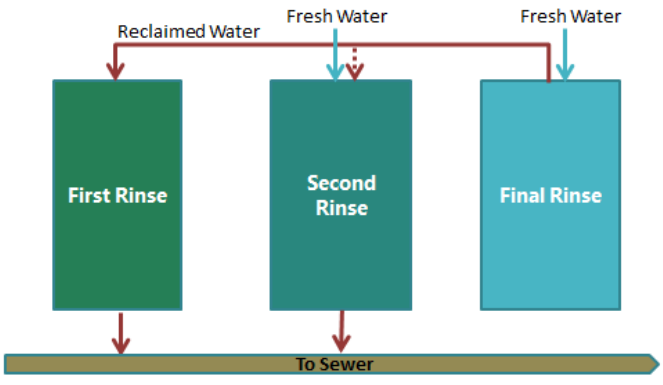


Figure 7: Water reuse of final rinse for cleaning as a first rinse

- Water reuse in cooling towers (**Figure 8**)
  - Use non-contact cooling water as cooling tower make up
  - Use Reverse Osmosis (RO) reject as cooling tower make up or cooling water for equipment
  - Reuse spent non-contact cooling water for cleaning
  - Reuse cooling water through a cooling tower and/or chiller

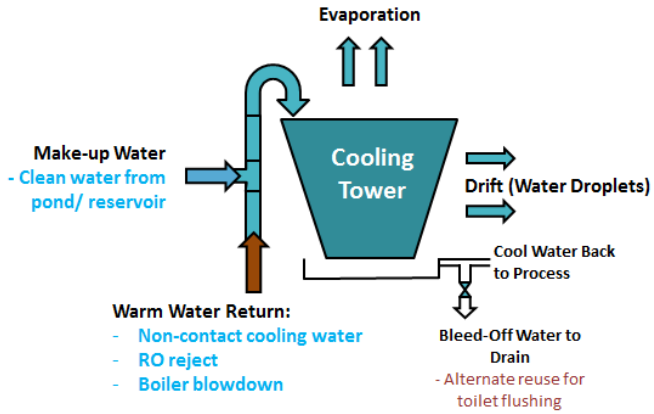


Figure 8: Water Reuse in Cooling Tower

- Water reuse in processes and equipment
  - Reuse pump seal water through several pump systems (“daisy chain” seal water)
  - Recirculate vacuum pump seal water

- Water reuse in RO/de-ionization systems
  - Capture regeneration water in de-ionization systems and reuse in subsequent regeneration cycle
  - Capture and reuse filter backwash water

- Water reuse from rain water harvesting
  - Capture and reuse rainwater for non-process fixtures, cooling tower make up, non-contact cooling, irrigation, etc.

Since many of the above water reuse opportunities require process modification and/or the installation of additional equipment, they typically have higher capital costs and longer paybacks. For example, the payback for rainwater harvesting (RWH) is typically over 10 years (usually closer to 30 or 50 years) due to the high capital costs of installing an RWH system (storage tanks, pumps, pipes, controls, valves, filters, etc.).Therefore, to encourage implementation of water reuse

opportunities, York Region completed a best-in-class review in 2017 of ICI Capacity Buyback Incentive programs. As a result of this review, York Region updated its water reuse incentive structure from $0.30 to $2.00/L/day, leading to improved program uptake in 2018 (**Section 4.1.2** and **Table 8** for details).

Table 14 below summarizes the ICI water reuse retrofits that have been implemented in York Region to date through the water audit program.

Table 14: Implemented ICI Water Reuse Retrofits and Associated Water Savings

Year Implemented	Type of ICI Water Reuse Retrofit	Water Savings (m^3/year)
2018	Filtering recirculation of water for bagel boiler system	5,597
2018	Connect once through cooling compressors to existing chilling loop	2,110
2017	Capture the de-moulder water for reuse in the bocco tunnel	3,579
2012	Install R.O. water reuse at stage 3 for plastic washer system	1,080
2012	Collect, treat onsite, and reuse spent water for CNC machines	15,383

4.8 Collaboration and Advocacy

York Region continues to work collaboratively with other stakeholders in multiple programs to take action, provide input and share comments in order to improve water conservation programs and initiatives throughout the province.

4.8.1 Collaboration with Other Regions

York and Peel Regions continue to work collaboratively on multiple water conservation programs, including the Water Efficiency Equipment Replacement Incentives for small businesses, the Fusion Landscaping Professionals program, and WSIP for residential and businesses. The Regions establish similar water conservation initiatives and cross-promote the programs through marketing via Regional websites and in-person events. This collaboration sends a strong message to other Regions and encourages them to adopt the same conservation

programs and make it provincial wide. York Region continues to explore collaboration opportunities with other regions, such as City of Toronto, Peel Region, City of Guelph, and Region of Waterloo.

4.8.2 Collaboration with Conservation Authorities

York Region has partnered with TRCA on environmental programs for decades, covering multiple sectors and subjects. The Stormwater team from TRCA is developing a modelling tool to assess benefits of installing fusion elements (e.g. stormwater and water conservation benefits).

Another collaborative project is currently underway with Partners in Project Green (PPG) of the TRCA. PPG bring in their networks and resources to help implement recommended opportunities at ICI facilities who participated in York Region's ICI Capacity Buyback Incentive program.

4.8.3 Collaboration with Local Municipalities

To increase collaboration between the Region and the local municipalities, the Region continued to host the Water and Wastewater Liaison Committee. The committee was created to foster a One Water approach, help coordinate water and wastewater business, improve communications between Regional and local municipal water and wastewater staff, increase infrastructure efficiencies, and foster the continuous improvement of processes across the local municipalities and York Region. It provides an opportunity for York Region and municipal staff to discuss capital projects, operation projects/programs, water resources, compliance, regulations and policy, stormwater management, collaboration opportunities, and lessons learned. Collaboration with the Local Municipalities is also critical to understand water consumption in the Region and to help minimize water loss and non-revenue water in the system.

In addition, York Region is one of the Municipal EcoCluster Water Efficiency members. PPG from TRCA hosts the EcoCluster monthly meeting to discuss water conservation program progress and activities within a group of Regional and local stakeholders.

4.8.4 Internal Collaboration

York Region often seeks internal collaboration opportunities. In September 2018, staff in the water conservation group presented its incentive programs at the York Region Business Waste Reduction Forum. York Region also collaborated with

the Sustainable Waste Management team on water and food waste audits. The goal of these audits is to identify water conservation and food waste reduction in food service facilities. These collaborations help cross-promote the Region's sustainability programs, strengthen sustainability messaging, and help foster a culture of conservation.

4.8.5 Advocacy

York Region continuously advocates public policy to successfully provide water, wastewater, forestry and waste management services to York Region's growing population in a sustainable manner.

The Region hosts the Water Conservation Advisory Committee, an advisory body that consists of a variety of stakeholders including York Region residents, the MECP, local municipalities, Ryerson University professors, ICI businesses, school boards, TRCA, and LSRCA. The committee is used as a forum to discuss, provide support, share knowledge, and receive feedback on water conservation programs and initiatives. In 2018 the committee met 3 times to provide feedback and guidance on program direction and implementation.

York Region also advocates through other external committees including OWWA's Water Efficiency Committee and the Canadian Water and Wastewater Association's National Water Efficiency Committee. Both of the committees' objectives are to promote programs, policies, and legislation to ensure sustainable use of water resources, foster innovation, and encourage the use of water-efficient technologies and practices.

4.9 Big Data Analytics

As the Region's capacity to collect and analyze data expands, so does its ability to examine the water system, manage assets, meet changing demands, plan for growth and optimize water management across the Region and local municipalities. As part of the Region's commitment to continuous improvement, greater integration of data capture and analytics across platforms has been a focus in 2018.

York Region developed the Water Consumption Database (WCD) application which collects and analyzes all local municipal water billing consumption. As part of this initiative, a web mapping application (Geocortex) was developed to present water consumption visually and spatially. In 2018, improvements were made to the Geocortex user interface and report templates. A new report was

developed which aggregates the data of a user-selected zone and calculates the associated overall consumption, in addition to the existing report which provides water consumption per address. These reports allow the user to generate custom reports which can be used for water conservation programming and for other purposes such as water infrastructure capacity planning.

The Region also created heat maps using Geographic Information Systems (GIS) and data from the WCD. The methodology for creating the heat maps shown in **Figure 9** through **Figure 11** involved dividing the Region into 500 m^2 blocks. All addresses were joined to the nearest corresponding block. Consumption was then aggregated for all address points within the block and then divided by the total number of address points. The data was then displayed on the map using graduated colors and the Natural Breaks (Jenks) classification method, which creates classes based on natural groupings inherent in the data.

Water consumption mapping for 2018 is provided below, and includes the following:

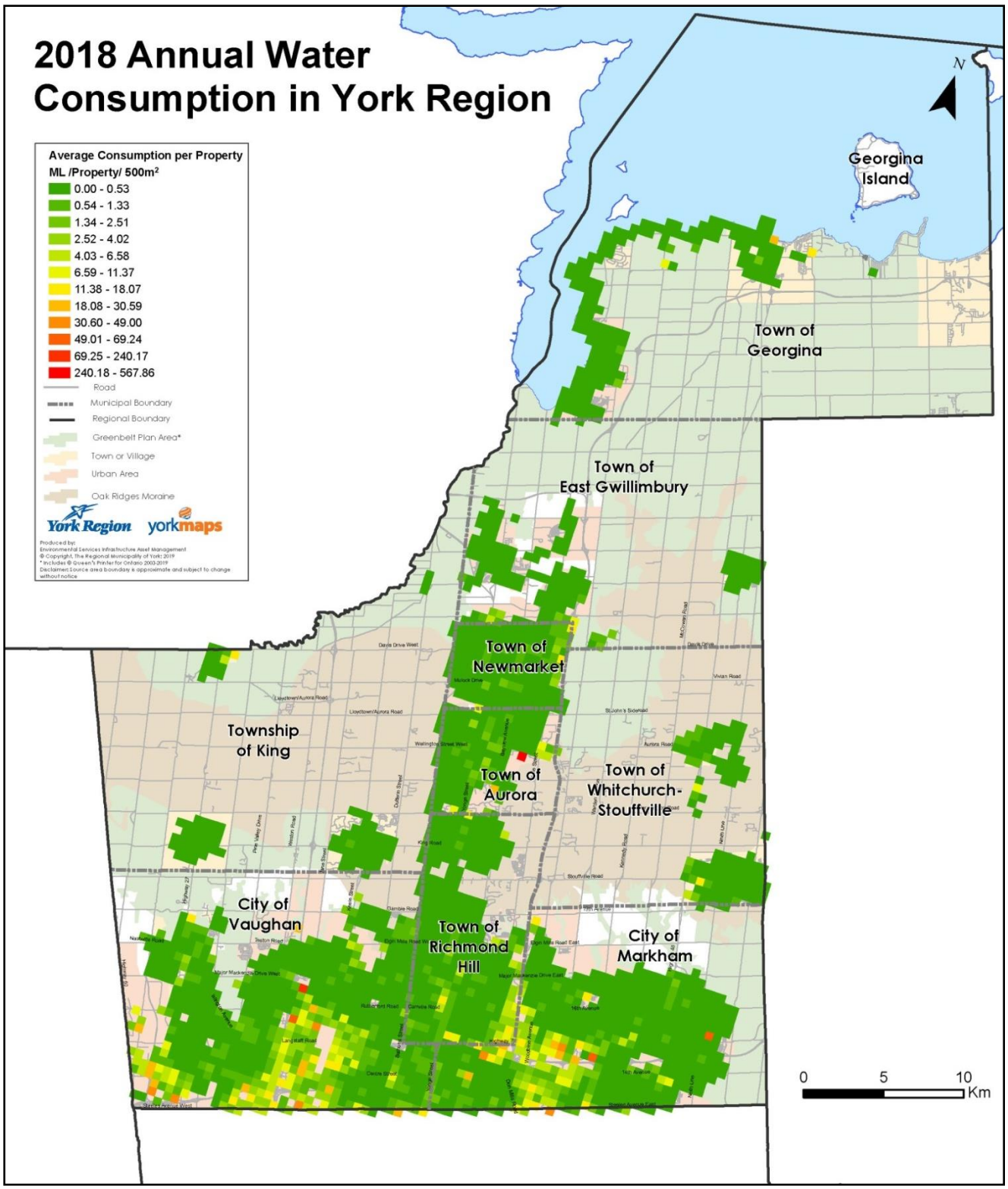
- **Figure 9**: 2018 Annual Water Consumption
- **Figure 10**: 2018 Single-Family Residential Water Consumption
- **Figure 11:** 2018 Summer Outdoor Single-Family Residential Water Consumption
- **Figure 12**: 2018 ICI Water Consumption
- **Figure 13**: 2018 Water Audited ICI Facilities

The WCD data and GIS heat maps were used together to identify areas of high water consumption. This identification helped the Region strategize the water conservation programs. As an example, each year, high water using ICI facilities suitable for water audits were identified with this method. Targeted marketing of the ICI incentive programs was then implemented to promote uptake and to achieve the highest possible water savings. Residential consumption was also mapped, showing both overall consumption and summertime outdoor use.

The heat maps are also helpful in determining the level of granularity needed for meaningful analysis of consumption data for future programming. In **Figure 9,** the overall annual water consumption heat map showed very little variance across all of York Region (except for some hotspots in Vaughan and Markham). However, when single-family residences and ICI properties are separated (**Figure 10** through **Figure 13**), hotspots appeared on the maps, highlighting the areas for targeted programming.

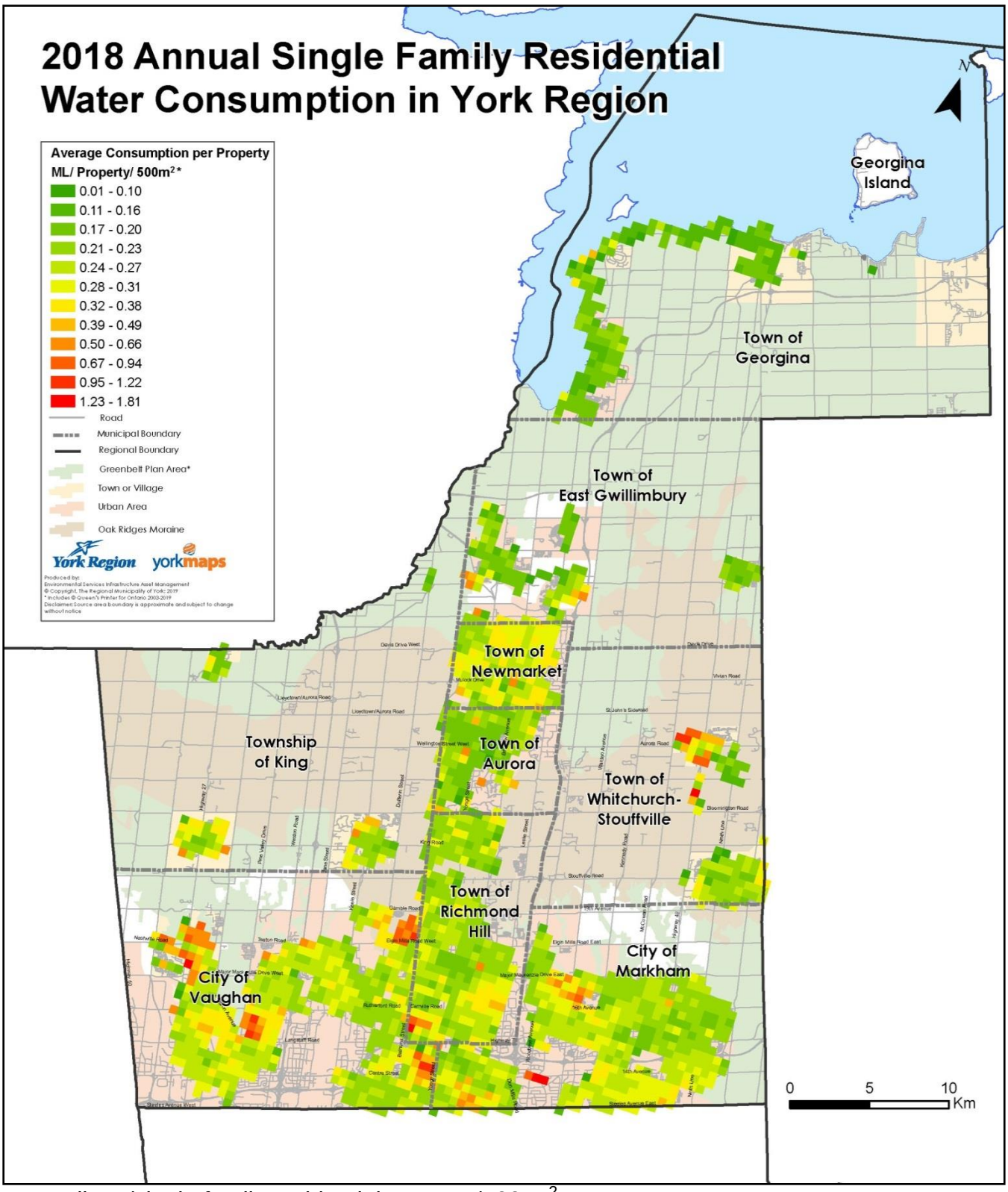
Figure 10 shows how single-family residences have clusters of high water users. This makes targeted programming for single-family residences easier, as areas of focus become more apparent. As well, comparing **Figure 10** and **Figure 11**, the clusters of high usage in the summer months are strongly correlated with the clusters of overall annual high water usage. Targeting high outdoor water users with programs such as the Fusion Program can therefore help reduce both the summer and annual usage.

ICI properties with high water usage are distributed throughout York Region with higher concentrations observed in the municipalities of Markham, Vaughan, Richmond Hill, Aurora and Newmarket (see **Figure 12)**. Together, these municipalities are home to the majority of York Region's total population. Instead of focusing on clusters of high water use, York Region can assess individual ICI properties and their usages. This allows for specific targeting of ICI facilities for the Water Audit Programs, as described above. **Figure 13** visualizes and tracks the water audits performed to date.



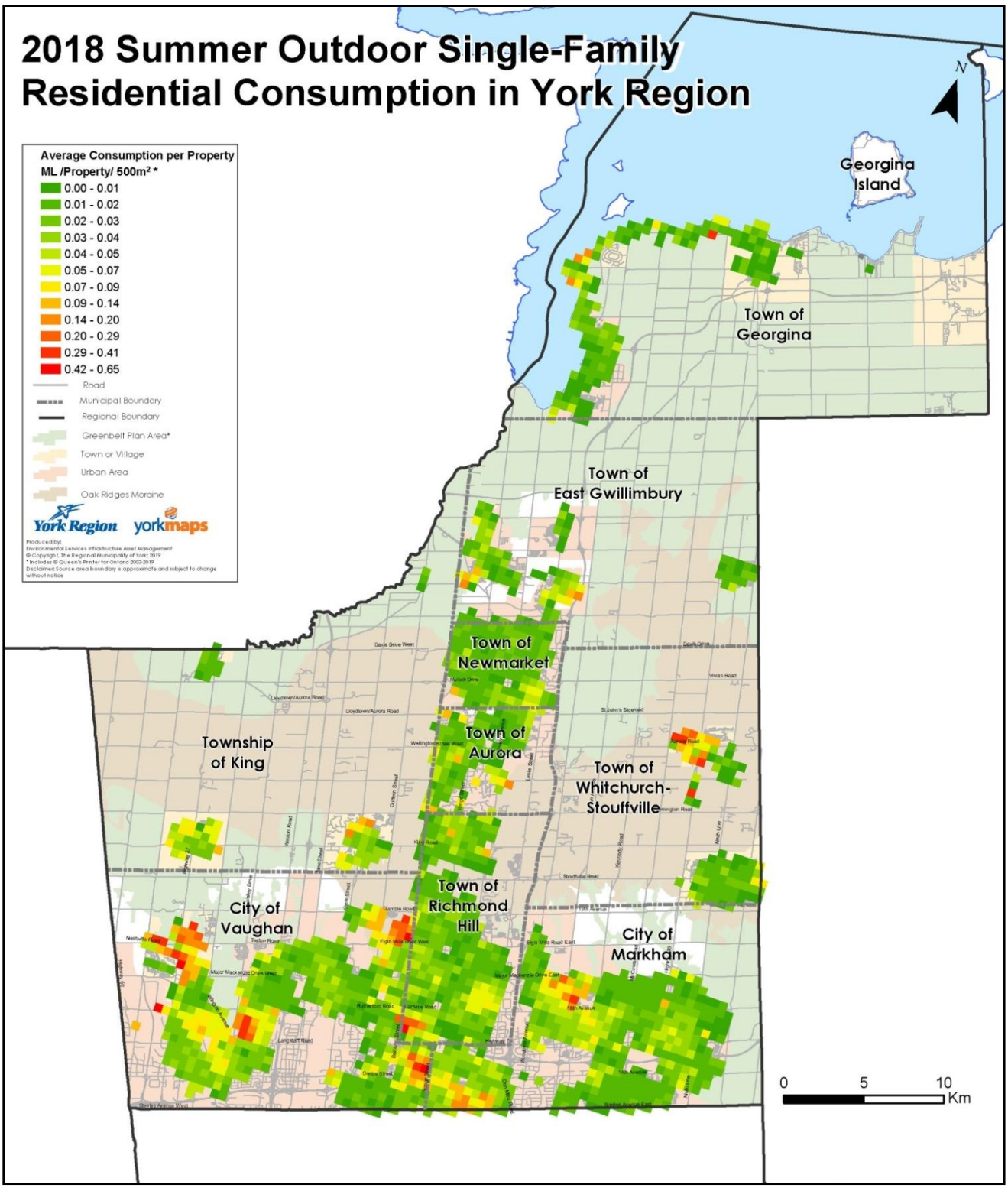
Note: Hot spot areas on the map represent high water users or high density areas e.g. multi-residential properties

Figure 9: 2018 Annual Water Consumption



* Megalitres/single family residential property/500 m^2 area

Figure 10: 2018 Single-Family Residential Water Consumption



∗ *Megalitres/single family residential property/500 m^2 area*

Figure 11: 2018 Summer Outdoor Single-Family Residential Water Consumption

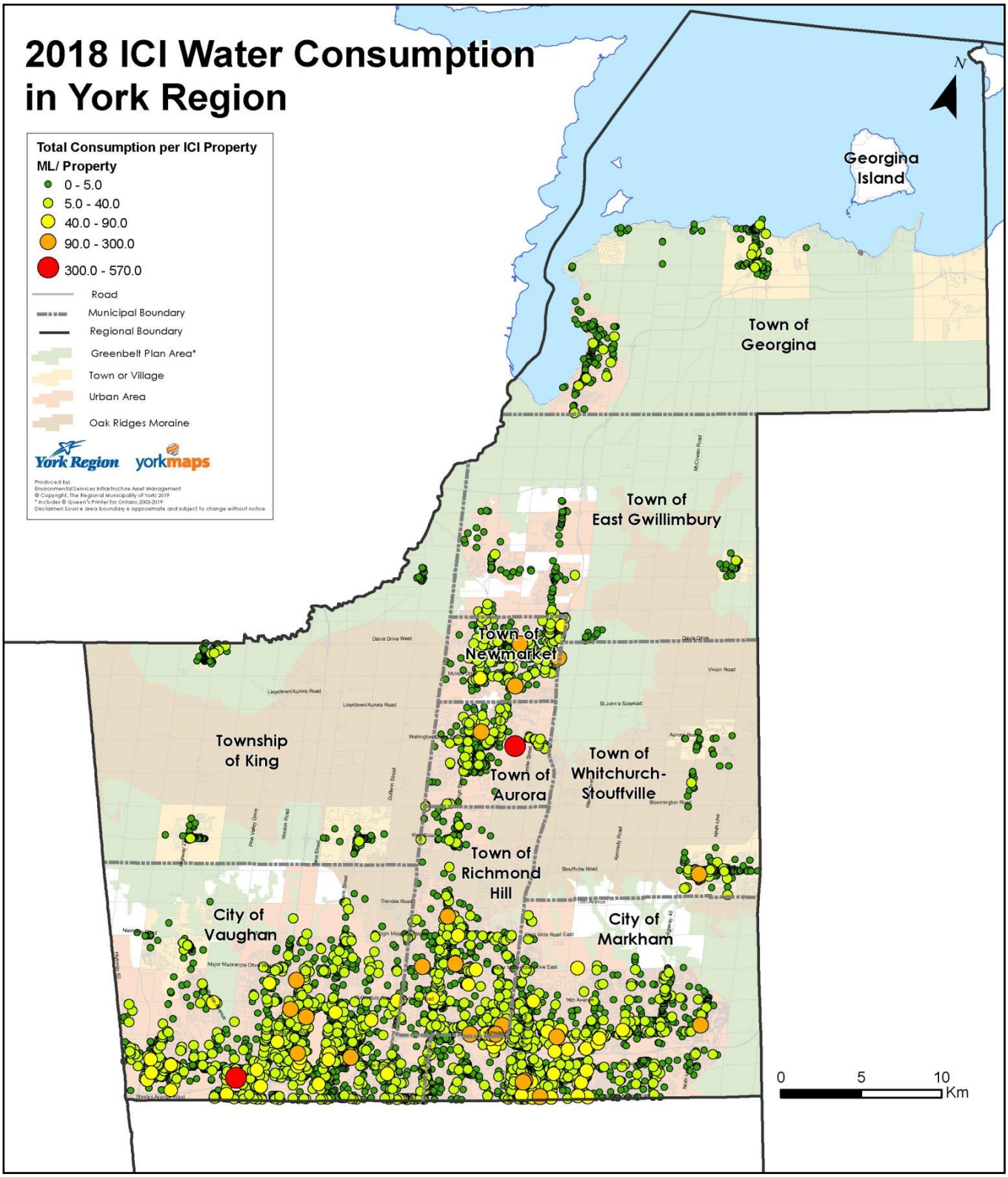


Figure 12: 2018 ICI Water Consumption

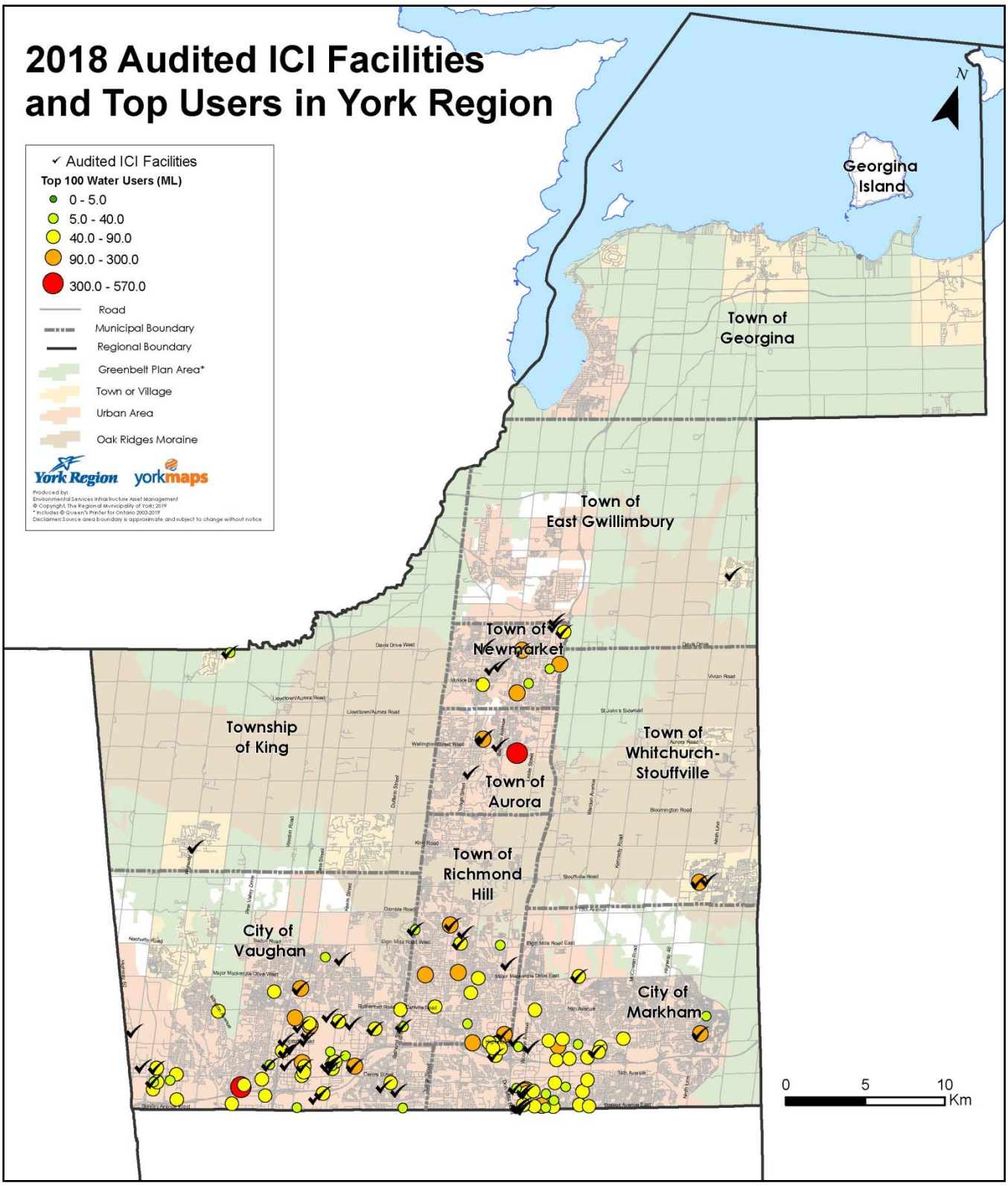


Figure 13: 2018 Water Audited ICI Facilities Since 2011

5.0 CONCLUSION

York Region continues to demonstrate strong leadership in promoting water conservation. Since 1998 the Region has achieved overall savings over 26 million litres per day; this is enough water for more than 137,000 people. Despite increases in the Region's population, water demand has been on a general downward trend since 2011, demonstrating the Region's commitment to water conservation.

In 2018, the Region continued to provide water audits and incentives for businesses that carried out water-saving retrofits and upgrades. As part of the outdoor peak demand reduction strategy, the Region educated irrigation and landscape contractors on water efficient practices and technology.

With regards to outreach, the Region continued with its water conservation campaigns and educational programs to increase public awareness about the importance of reducing water consumption and reusing water. Furthermore, the Region collaborated with local municipalities to identify and minimize leakage in the system. For sustainable residential building developments, the Region offered servicing allocation assignment credits.

Focusing efforts on water reuse, the Region continued working with its consultant Black & Veatch Canada and research team lead by the Soil Resources Group with collaboration from University of Waterloo and Agriculture & Agri-Food Canada on the Water Reuse Research Demonstration Project. The Region also saw successes with its increased water reuse incentive rate under the ICI

Capacity Buyback program; two water reuse retrofits were completed in 2018 at businesses. Currently, Ontario does not have a regulatory framework that supports robust water reuse applications in Ontario.

Looking forward to 2019, the Region will focus on the following key initiatives:

- Water reuse at ICI facilities - Water reuse has been identified as a critical element of York Region's strategy to achieve its long term water consumption targets. A significant opportunity exists for ICI businesses with processes that can accommodate non-potable water uses to implement water reuse technologies.
- Water audits at York Region facilities – Several opportunities have been identified for York Region to audit its own facilities and implement water efficiency measures. This will support water demand reduction, but more importantly serve to promote a culture of conservation by showcasing York Region as a model for other ICI businesses and as a community leader in sustainability.
- Outdoor peak demand reduction programs - Outdoor peak demand is the most significant factor for system capacity design; programs aimed at Infra-stretching can delay capacity increases.
- Big data analytics – York Region will continue to use water consumption data and heat maps to identify high water users for targeted programming such as WSIP, Fusion, and water audits.

York Region is planning to advance its next Long Term Water Conservation Strategy, leading to a March 31, 2020 submission date to the MECP. The update was discussed with MECP staff on February 27, 2019 and will: consider the cost-benefit of water conservation programming to date and refine initiatives, as needed; review additional performance metrics to capture complexity of water use and to promote targeted water conservation efforts; develop a trackable plan with quantitative objectives to help evaluate and improve on annual successes; and enhance linkages between water conservation, energy efficiency and climate change under the lens of One Water.

Glossary of Acronyms

AWWA	American Water Works Association
CWWA	Canadian Water Works Association
DMA	District Metering Area
GIS	Geographic Information System
GTA	Greater Toronto Area
ICI	Industrial, Commercial or Institutional
IEA	Individual Environmental Assessment
ILI	Infrastructure Leakage Index
IWA	International Water Association
LCD	Litres per Capita per Day
LEED	Leadership in Energy and Environmental Design
LID	Low Impact Development
LSRCA	Lake Simcoe Region Conservation Authority
LTWCS	Long Term Water Conservation Strategy
MLD	MegaLitres per Day
MECP	Ministry of the Environment, Conservation and Parks
MPAC	Municipal Property Assessment Corporation
NRW	Non-Revenue Water
OMAFRA	Ontario Ministry of Agriculture, Food and Rural Affairs

OTC	Once Through Cooling
OWWA	Ontario Water Works Association
PPG	Partners in Project Green
PTTW	Permit to Take Water
RWH	Rainwater Harvesting
SEC	South East Collector
SIP	Servicing Incentive Program
SNAP	Sustainable Neighbourhood Retrofit Action Plan
STEP	Sustainable Technologies Evaluation Program
TRCA	Toronto and Region Conservation Authority
WCD	Water Consumption Database
WFT	Water For Tomorrow
WSIP	Water Smart Irrigation Professionals
YR	York Region

Appendix A: IEA Notice of Approval and Conditions

IEA Notice of Approval and Conditions, page 1 of 12

ENVIRONMENTAL ASSESSMENT ACT

SECTION 9

NOTICE OF APPROVAL TO PROCEED WITH THE UNDERTAKING

RE: Southeast Collector Trunk Sewer Environmental Assessment
(as amended August 2009)

Proponent: Regional Municipalities of York and Durham

EA File No.: 02-04-03

TAKE NOTICE that the period for requesting a hearing, provided for in the Notice of Completion of the Review for the above-noted undertaking, expired on November 20, 2009.

I received over 250 submissions before the expiration date. The majority of these submissions requested a hearing by the Environmental Review Tribunal.

I consider a hearing to be unnecessary in this case. Having considered the purpose of the *Environmental Assessment Act*, the approved terms of reference, the environmental assessment, the ministry Review of the environmental assessment and submissions received, I hereby give approval to proceed with the undertaking, subject to conditions set out below.

Page 1 of 12

REASONS

My reasons for giving approval are:

(1) The proponent has complied with the requirements of the *Environmental Assessment Act*.

(2) The Environmental Assessment has been prepared in accordance with the approved Terms of Reference.

(3) On the basis of the proponent's environmental assessment and the ministry Review, the proponent's conclusion that, on balance, the advantages of this undertaking outweigh its disadvantages appears to be valid.

(4) No other beneficial alternative method of implementing the undertaking was identified.

(5) The proponent has demonstrated that the environmental effects of the undertaking can be appropriately prevented, changed, mitigated or remedied.

(6) On the basis of the proponent's Environmental Assessment, the ministry Review and the conditions of approval, the construction, operation and maintenance of the undertaking will be consistent with the purpose of the *Environmental Assessment Act* (section 2).

(7) The government, public and Aboriginal community review of the Environmental Assessment has indicated no outstanding concerns that have not been addressed or that cannot be addressed through commitments made during the Environmental Assessment process, through the conditions set out below or through future approvals that will be required.

(8) The submissions received after the Notice of Completion of ministry Review was published are being addressed through commitments made during the Environmental Assessment process, through the conditions set out below or through future approvals that will be required, where appropriate. I am not aware of any outstanding issues with respect to this undertaking which suggest that a hearing should be required.

CONDITIONS

The approval is subject to the following conditions:

1. Definitions

For the purposes of these conditions:

"Director" means the Director of the Environmental Assessment and Approvals Branch.

"EAAB" means the Environmental Assessment and Approvals Branch of the Ministry of the Environment.

"environmental assessment" means the document titled Southeast Collector Environmental Assessment Final (Amended) August 2009.

"ministry" means the Ministry of the Environment.

"program" means compliance monitoring program.

"proponent" means the Regional Municipality of York and the Regional Municipality of Durham.

"Regional Director" means the Director of the ministry's Central Regional Office.

2. General Requirements

2.1 The proponent shall comply with the provisions in the environmental assessment which are hereby incorporated in this approval by reference except as provided in these conditions and as provided in any other approval or permit that may be issued for the undertaking.

2.2 These conditions do not prevent more restrictive conditions being imposed under other statutes.

3. Public Record

3.1 Where a document is required for the public record, the proponent shall provide two copies of the document to the Director: a copy for filing within the specific public record file maintained for the undertaking and a copy for staff use.

3.2 Additional copies of such documents will be provided by the proponent for public access to the:

a) Regional Director (as required);

b) Clerk of the Regional Municipality of York and the Regional Municipality of Durham(as required); and,

c) Southeast Collector Advisory Committee, if applicable.

3.3 The EAAB file number 02-04-03 shall be quoted on the document.

3.4 These documents may also be provided through other means as considered appropriate by the proponent.

4. Compliance Monitoring Program

4.1 The proponent shall prepare and submit to the Director for the public record, an environmental assessment compliance monitoring program.

4.2 The program shall be submitted one year from the date of approval of the undertaking, or 60 days before the commencement of construction, whichever is earlier.

4.3 The program shall be prepared for the monitoring of the proponent's fulfilment of the provisions of the environmental assessment for mitigation measures, public consultation, and additional studies and work to be carried out, and for all other commitments made during the preparation of the environmental assessment and the subsequent review of the environmental assessment for mitigation measures, public consultation, and additional studies and work to be carried out.

4.4 The program must contain an implementation schedule.

4.5 A statement must accompany the program when submitted to the Director indicating that the program is intended to fulfil this condition.

4.6 The program, as it may be amended by the Director, must be carried out by the proponent.

4.7 The proponent shall make the documentation available to the ministry or its designate upon request in a timely manner when so requested by the ministry during an on-site inspection, audit, or response to a pollution incident report or when information concerning compliance is requested by the ministry.

5. Compliance Reporting

5.1 The proponent shall prepare an annual compliance report which describes compliance with the conditions of approval set out in this notice and which describes the results of the proponent's environmental assessment compliance monitoring program.

5.2 The annual compliance report shall be submitted to the Director on or before March 31 of each year, with the first report being due in 2011, and shall cover all activities of the previous calendar year.

5.3 Subsequent compliance reports shall be issued and submitted to the Director for the public record on or before March 31 each year thereafter and shall cover the previous calendar year.

5.4 The proponent shall submit annual compliance reports until all conditions are satisfied.

5.5 When all conditions have been satisfied, the proponent shall indicate in the annual compliance report that this is its final submission.

5.6 The proponent shall retain either on site or in another location approved by the Director, copies of the annual compliance reports for each reporting year and any associated documentation of compliance monitoring activities.

5.7 The proponent shall make the documentation available to the ministry or its designate upon request in a timely manner when so requested by the ministry during an on-site inspection, audit, or in response to a pollution incident report or when information concerning compliance is requested by the ministry.

6. Southeast Collector Advisory Committee (SeCAC)

6.1 The proponent shall establish a new SeCAC to ensure that concerns about the implementation of the undertaking are addressed and mitigation measures are undertaken where appropriate.

6.2 The proponent shall provide administrative support for the SeCAC including, at minimum:

a) Providing SeCAC meeting space;
b) Recording minutes of each meeting;
c) Preparing and publishing meeting notices; and,
d) Preparing an annual report to be submitted as part of Compliance Reporting as required by Condition 5.

6.3 For the purposes of the SeCAC, the proponent shall invite the following to participate on the SeCAC:

a) One representative from the Regional Municipality of York;
b) One representative from the Regional Municipality of Durham;
c) One representative from the Rouge Park Alliance;
d) One representative from the City of Pickering;
e) One representative from the Town of Markham;
f) One representative from the Durham Environmental Advisory Committee;
g) One representative from Stop the Stink;
h) One representative from the Rouge-Duffins Greenspace Coalition;
i) Up to two individuals who live in the Regional Municipality of Durham; and,
j) Up to two individuals who live in the Regional Municipality of York.

A representative from the Ministry of the Environment shall be invited to attend meetings as an observer.

6.4 The SeCAC may review and provide advice to the proponent relevant to the undertaking including:

a) Compliance Reporting as required by Condition 5;
b) Complaint Protocol as required by Condition 7;
c) Water Efficiency and Inflow and Infiltration Reduction Monitoring as required by Condition 8;
d) Odour Management and Mitigation as required by Condition 9;
e) Performance Management Plan as required by Condition 10; and,
f) Ambient Air Monitoring and Reporting as required by Condition 11.

6.5 The proponent shall hold the first SeCAC meeting within three months of approval of the undertaking. At the first meeting, the SeCAC shall develop its Terms of Reference outlining the governance and function of the SeCAC. The Terms of Reference shall be developed in accordance with this Condition and shall be provided to the Director and Regional Director. The Terms of Reference shall, at minimum include:

a) Roles and responsibilities of SeCAC members;
b) Frequency of meetings;
c) Member code of conduct;
d) Protocol for dissemination and review of information including timing; and,
e) Protocol for dissolution of the SeCAC.

7. Complaint Protocol

7.1 The proponent shall prepare and implement a protocol on how it will deal with and respond to inquiries and complaints received during the construction and operation of the undertaking, including the construction and operation of the Odour Control Facility.

7.2 The Complaint Protocol shall be provided to the SeCAC for review prior to submission to the Director.

7.3 The proponent shall submit the Complaint Protocol to the Director for placement in the public record six months prior to commencement of construction of the undertaking.

7.4 A statement must accompany the protocol when submitted to the Director indicating that the protocol is intended to fulfil this condition.

8. Water Efficiency and Inflow and Infiltration Reduction Monitoring

8.1 The Regional Municipality of York shall prepare, to the satisfaction of the Regional Director, a Water Conservation and Efficiency Strategy (Strategy) for the water and waste water flows to the Southeast Collector Trunk Sewer. The Strategy shall include targets for conservation, efficiency, inflow and infiltration reduction to the Southeast Collector Trunk Sewer, and timelines for achieving the targets, as well as the strategies, tactics, programs and initiatives to be used, including the cost to implement these.

8.2 The Strategy shall include a program for the reduction of inflow and infiltration by the Regional Municipality of York to the Southeast Collector Trunk Sewer from its and its lower tier municipalities' sewage systems. This program shall include reduction priorities, targets, timelines, tactics and initiatives, and the associated costs to implement these.

8.3 The Regional Municipality of York shall consult with its lower tier municipalities, the SeCAC, the public, relevant government agencies and the ministry's Central Regional Office on its proposed Strategy prior to submitting the Strategy to the Regional Director.

8.4 The Regional Municipality of York shall prepare a review of best in class water conservation and efficiency programs, initiatives, strategies and tactics adopted by other jurisdictions. The review shall include an analysis of best in class tactics/strategies used by jurisdictions throughout the world. This review shall be made public and shall form part of the consultation process for the Strategy, as required by Condition 8.3 above. This review shall be posted on the proponent's web site for the undertaking.

8.5 The Regional Municipality of York shall have a peer review of the Strategy completed. The peer review shall include a comparative analysis of the Regional Municipality of York's proposed Strategy relative to best in class tactics/strategies used by jurisdictions throughout the world.

8.6 Following completion of the consultation required by Condition 8.3 and the peer review process required by Condition 8.5 above, the Regional Municipality of York shall submit the Strategy to the Regional Director within twelve months of the approval of the undertaking.

8.7 The Regional Municipality of York shall carry out the Water Conservation and Efficiency Strategy.

8.8 The Regional Municipality of York shall submit to the Regional Director and the SeCAC an annual report detailing its progress on implementing the Strategy including inflow and infiltration reduction. The first report is required to be provided one year following finalization of the Strategy and every twelve months thereafter until such date as the Regional Director determines the reports are no longer required.

8.9 Each of the annual reports prepared in accordance with Condition 8.8 above shall at minimum include:

a) Results of water conservation and efficiency measures;

b) Results of flow monitoring and visual inspections to determine the sources and amount of inflow and infiltration into the Southeast Collector Trunk Sewer within the Regional Municipality of York;

c) Progress in the reduction of inflow and infiltration into the Southeast Collector Trunk Sewer;

d) Details of any remedial work to the sewage system undertaken and the results of the remediation; and,

e) Results achieved within the Regional Municipality of York with respect to inflow and infiltration reduction measures.

8.10 The proponent shall update the Strategy, to the satisfaction of the Regional Director, at a minimum once every 5 years from the date the Strategy is finalized until such date as the Regional Director indicates that the updates are no longer required.

8.11 The proponent shall post the Strategy prepared in accordance with Condition 8.1 and the annual report submitted in accordance with Condition 8.8 on the proponent's web site for the undertaking.

9. Odour Management and Mitigation

9.1 The proponent shall prepare, to the satisfaction of the Regional Director, an Odour Management and Mitigation Plan for the Southeast Collector Trunk Sewer in consultation with the ministry's Central Regional Office.

9.2 The proponent shall submit the Odour Management and Mitigation Plan to the Regional Director within six months of the approval of the undertaking.

9.3 The proponent shall include in the Odour Management and Mitigation Plan a specific section that addresses the Odour Control Facility component of the undertaking and shall include at minimum:

a) Standard operating procedures;

b) Maintenance schedules;

c) Corrective action measures and other best management practices for ongoing odour control and for potential operational malfunctions;

d) A schedule for odour testing at the Odour Control Facility and at sensitive receptors; and,

e) At least one meeting on an annual basis between the proponent and the Regional Director to discuss the plan, its results and any changes that are required to be made to the plan by the Regional Director.

9.4 The proponent shall carry out the Odour Management and Mitigation Plan.

9.5 The proponent shall prepare and submit twice annually to the Director, Regional Director and SeCAC (if applicable), Odour Management and Mitigation

Monitoring Reports beginning six months following the commencement of operation of the undertaking.

9.6 The proponent shall include in each of the Odour Management and Mitigation Monitoring Reports submitted in accordance with Condition 9.5, a report on the performance of the technology used for odour control at the Odour Control Facility.

9.7 The proponent shall post the Odour Management and Mitigation Monitoring Reports submitted in accordance with Condition 9.5 on the proponent's web site for the undertaking.

10. Performance Management Plan

10.1 The Regional Municipality of York shall prepare, to the satisfaction of the Regional Director, a Performance Management Plan related to increased water conservation, efficiency, and inflow/infiltration reduction associated with its Water Conservation and Efficiency Strategy, and odour management aspects of the undertaking in consultation with the ministry's Central Regional Office.

10.2 The Performance Management Plan shall be provided to the SeCAC for review prior to submission of the Performance Management Plan to the Regional Director.

10.3 The Regional Municipality of York shall submit to the Regional Director the Performance Management Plan within one year of approval of the undertaking.

10.4 The Performance Management Plan shall at minimum include:

a) Annual and five year performance targets for improvements to water conservation, efficiency, reductions in inflow/infiltration, and performance targets for odour management measures particularly at the odour control facility and the air handling facilities;

b) Dates by when performance targets will be reached; and,

c) Demonstration that resources are available to achieve the performance targets within the projected timelines.

10.5 The proponent shall post the Performance Management Plan submitted in accordance with Condition 10.1 on the proponent's web site for the undertaking.

10.6 The Regional Municipality of York shall carry out the Performance Management Plan.

10.7 The Regional Municipality of York shall notify the Regional Director within a reasonable time if it becomes aware that it has or will not meet a performance target identified in the Performance Management Plan.

10.8 Within three months of notifying the Regional Director that a performance target for water conservation, efficiency or inflow/infiltration reduction has not or will not be met, the Regional Municipality of York shall submit to the satisfaction of the

Regional Director a plan that outlines enhanced initiatives that will be implemented to meet the targets, and the resources available.

10.9 Within three months of notifying the Regional Director that a performance target for odour measures has not been met, or within such other time as required by the Regional Director, the Regional Municipality of York shall submit to the satisfaction of the Regional Director a plan to enhance or remediate its odour control measures, and the resources available.

10.10 The proponent shall prepare and submit annually to the Director, the Regional Director and SeCAC (if applicable), a Performance Management Monitoring Report beginning one year of the Performance Management Plan being finalized.

10.11 The proponent shall post the Performance Management Monitoring Report submitted in accordance with Condition 10.10 on the proponent's web site for the undertaking.

11. Ambient Air Monitoring and Reporting

11.1 The proponent shall prepare, to the satisfaction of the Regional Director, an Ambient Air Monitoring and Reporting Plan for the undertaking in consultation with the ministry's Central Regional Office.

11.2 The proponent shall submit the Ambient Air Monitoring and Reporting Plan to the Regional Director within six months of approval of the undertaking.

11.3 The Ambient Air Monitoring and Reporting Plan shall include at minimum:

a) An ambient air monitoring program with a minimum of five sampling locations including at the Odour Control Facility and at the air handling facilities;

b) The sampling locations described in Condition 11.3 a) which shall be located within the boundaries of the Southeast Collector Trunk Sewer right of way and/or at sensitive receptors in the communities adjacent to the boundaries of the Southeast Collector Trunk Sewer right of way. Siting of the locations shall be done in accordance with the ministry's Operations Manual for Air Quality Monitoring in Ontario, March 2008;

c) The proposed start date and frequency of the ambient air monitoring and reporting to be carried out;

d) The contaminants that shall be monitored as part of the Ambient Air Monitoring and Reporting Plan; and,

e) At least one meeting on an annual basis between the proponent and the Regional Director to discuss the plan, its results and any changes that are required to be made to the plan by the Regional Director.

11.4 The ambient air monitoring program set out in the Ambient Air Monitoring and Reporting Plan shall commence upon a date determined by the Regional Director and shall continue until such date as the Regional Director determines and notifies the proponent in writing that the Ambient Air Monitoring Program is no longer required.

11.5 The proponent shall report the results of the ambient air monitoring program to the Regional Director and SeCAC (if applicable) in accordance with the Ambient Air Monitoring and Reporting Plan.

11.6 Audits will be conducted by the ministry, as outlined in the ministry's Audit Manual for Air Quality Monitoring in Ontario, March 2008 to confirm that siting and performance criteria are met. The proponent shall implement any recommendations on siting and performance criteria set out in the audit report(s). Such recommendations are to be implemented within three months of each audit report being provided to the proponent by the ministry.

11.7 The proponent shall post the Ambient Air Monitoring and Reporting Plan and the results of the ambient air monitoring program submitted in accordance with condition 11.1 and 11.5 on the proponent's web site for the undertaking.

12. Groundwater and Surface Water Monitoring

12.1 The proponent shall prepare and submit a Monitoring and Mitigation Plan as part of its application for any Permit to Take Water that is required for dewatering purposes.

12.2 Prior to the submission of any Permit to Take Water application that is required for dewatering purposes, the proponent shall post the Monitoring and Mitigation Plan on the proponent's web site for the undertaking for a period of thirty days for review and public comment. The proponent shall take any submissions received into consideration.

12.3 Any monitoring reports prepared by the proponent that may be required in any Permit to Take Water shall be made publicly available on the proponent's web site for the undertaking.

13. Bob Hunter Memorial Park

13.1 The proponent shall use tunnel boring machine equipment in earth pressure balance mode to construct the Southeast Collector Trunk Sewer between Shaft 11 and Shaft 12 as illustrated in Appendix A of this Notice of Approval.

13.2 The proponent shall construct the Southeast Collector Trunk Sewer between Shaft 11 and Shaft 12 as illustrated in Appendix A of this Notice of Approval wholly within the 14th Avenue existing roadway owned by the Regional Municipality of York.

13.3 The proponent shall continue to work with interested stakeholders including the Toronto and Region Conservation Authority, the Rouge Park Alliance, the Town of Markham, and the family of Bob Hunter on any refinements to the proposed enhancements described in the environmental assessment.

13.4 The proponent shall prepare to the Regional Director's satisfaction a Bob Hunter Memorial Park Enhancement Plan. The plan shall include, at a minimum:

a) Details of the enhancements proposed for Bob Hunter Memorial Park including any proposed trail systems; and,

b) Timelines outlining when the proposed enhancements will be implemented.

The Bob Hunter Memorial Park Enhancement Plan shall be submitted to the Regional Director within six months of approval of the undertaking,

13.5 The proponent shall prepare and submit annually to the Director, Regional Director, and SeCAC (if applicable), Bob Hunter Memorial Park Enhancement Plan compliance reports as required by Condition 5.1.

13.6 The proponent shall post the Bob Hunter Memorial Park Enhancement Plan on the proponent's web site for the undertaking.

Dated the 11th day of March 2010 at TORONTO.

Original signed by Minister John Gerretsen

Minister of the Environment
Ferguson Block
77 Wellesley Street West, 11th Floor
Toronto ON M7A 2T5

Approved by O.C. No. 440/2010

Date O.C. Approved March 31, 2010

Appendix B: Intra-Basin Transfer Summary 2018

The Regional Municipality of York is submitting the information below in accordance with Schedule B to the following Permits to Take Water that relate to York Region's intra-basin transfer agreement between the Permit Holders and York Region, the Related Transferor, and that supply water to be transferred to York Region (see **Appendix C: Permits to Take Water (PTTWs)** for the full permits):

- PTTW No. 1866-A6QHRP, issued to the City of Toronto on March 23, 2016
- PTTW No. 0726-A6QJTA, issued to the City of Toronto on March 23, 2016
- PTTW No. 6604-A6QKEB, issued to the City of Toronto on March 23, 2016
- PTTW No. 0016-A6QKN2, issued to the City of Toronto on March 23, 2016
- PTTW No. 1064-A6KQKQ, issued to The Region of Peel on March 23, 2016

As stipulated in Schedule B of the aforementioned permits, Condition (e) requires York Region to report, no later than March 31st of every year, on monthly volumes and a calculated daily average amount of its intra-basin transfer in the preceding calendar year. **Table 15** lists total monthly volumes transferred from the Lake Ontario watershed into the Lake Huron watershed with return flow to Lake Ontario. In 2018, York Region's average daily intra-basin transfer amount was 26.5 ML.

Table 15: Intra-Basin Transfer Volumes

Month (2018)	Total Intra-Basin Transfer Volume (m^3)
January	910,066
February	753,602
March	817,747
April	773,611
May	805,216
June	918,589
July	992,660
August	843,078

Month (2018)	Total Intra-Basin Transfer Volume (m^3)
September	761,013
October	723,341
November	643,934
December	715,753
Total	**9,658,609**

Appendix C: Permits to Take Water (PTTWs)

PTTW No. 1866-A6QHRP, page 1 of 8

Ontario

Ministry of the Environment and Climate Change
Ministère de l'Environnement et de l'Action en matière de changement climatique

AMENDED PERMIT TO TAKE WATER
Surface Water
NUMBER 1866-A6QHRP

Pursuant to Section 34.1 of the Ontario Water Resources Act, R.S.O. 1990 this Permit To Take Water is hereby issued to:

City of Toronto
55 John Street, 18th Floor
Toronto, Ontario, M5V 3C6
Canada

For the water taking from: Lake Ontario: Toronto Island Treatment Plant

Located at: 446 Lakeshore Ave
Toronto

For the purposes of this Permit, and the terms and conditions specified below, the following definitions apply:

DEFINITIONS

(a) "Director" means any person appointed in writing as a Director pursuant to section 5 of the OWRA for the purposes of section 34.1, OWRA.

(b) "Provincial Officer" means any person designated in writing by the Minister as a Provincial Officer pursuant to section 5 of the OWRA.

(c) "Ministry" means Ontario Ministry of the Environment and Climate Change.

(d) "District Office" means the Toronto District Office.

(e) "Permit" means this Permit to Take Water No. 1866-A6QHRP including its Schedules, if any, issued in accordance with Section 34.1 of the OWRA.

(f) "Permit Holder" means City of Toronto.

(g) "OWRA " means the *Ontario Water Resources Act,* R.S.O. 1990, c. O. 40, as amended.

Page 1 - NUMBER 1866-A6QHRP

You are hereby notified that this Permit is issued subject to the terms and conditions outlined below:

TERMS AND CONDITIONS

1. Compliance with Permit

1.1 Except where modified by this Permit, the water taking shall be in accordance with the application for this Permit To Take Water, dated October 23, 1995 and signed by H.A Taniguichi, and all Schedules included in this Permit.

1.2 The Permit Holder shall ensure that any person authorized by the Permit Holder to take water under this Permit is provided with a copy of this Permit and shall take all reasonable measures to ensure that any such person complies with the conditions of this Permit.

1.3 Any person authorized by the Permit Holder to take water under this Permit shall comply with the conditions of this Permit.

1.4 This Permit is not transferable to another person.

1.5 This Permit provides the Permit Holder with permission to take water in accordance with the conditions of this Permit, up to the date of the expiry of this Permit. This Permit does not constitute a legal right, vested or otherwise, to a water allocation, and the issuance of this Permit does not guarantee that, upon its expiry, it will be renewed.

1.6 The Permit Holder shall keep this Permit available at all times at or near the site of the taking, and shall produce this Permit immediately for inspection by a Provincial Officer upon his or her request.

1.7 The Permit Holder shall report any changes of address to the Director within thirty days of any such change. The Permit Holder shall report any change of ownership of the property for which this Permit is issued within thirty days of any such change. A change in ownership in the property shall cause this Permit to be cancelled.

2. General Conditions and Interpretation

2.1 Inspections
The Permit Holder must forthwith, upon presentation of credentials, permit a Provincial Officer to carry out any and all inspections authorized by the OWRA, the *Environmental Protection Act* , R.S.O. 1990, the *Pesticides Act* , R.S.O. 1990, or the *Safe Drinking Water Act*, S. O. 2002.

2.2 Other Approvals
The issuance of, and compliance with this Permit, does not:

(a) relieve the Permit Holder or any other person from any obligation to comply with any other applicable legal requirements, including the provisions of the *Ontario Water Resources Act* , and the *Environmental Protection Act* , and any regulations made thereunder; or

(b) limit in any way any authority of the Ministry, a Director, or a Provincial Officer, including the authority to require certain steps be taken or to require the Permit Holder to furnish any further information related to this Permit.

2.3 Information

The receipt of any information by the Ministry, the failure of the Ministry to take any action or require any person to take any action in relation to the information, or the failure of a Provincial Officer to prosecute any person in relation to the information, shall not be construed as:

(a) an approval, waiver or justification by the Ministry of any act or omission of any person that contravenes this Permit or other legal requirement; or

(b) acceptance by the Ministry of the information's completeness or accuracy.

2.4 Rights of Action

The issuance of, and compliance with this Permit shall not be construed as precluding or limiting any legal claims or rights of action that any person, including the Crown in right of Ontario or any agency thereof, has or may have against the Permit Holder, its officers, employees, agents, and contractors.

2.5 Severability

The requirements of this Permit are severable. If any requirements of this Permit, or the application of any requirements of this Permit to any circumstance, is held invalid or unenforceable, the application of such requirements to other circumstances and the remainder of this Permit shall not be affected thereby.

2.6 Conflicts

Where there is a conflict between a provision of any submitted document referred to in this Permit, including its Schedules, and the conditions of this Permit, the conditions in this Permit shall take precedence.

3. Water Takings Authorized by This Permit

3.1 **Expiry**

This Permit expires on **December 31, 2025**. No water shall be taken under authority of this Permit after the expiry date.

3.2 Amounts of Taking Permitted

The Permit Holder shall only take water from the source, during the periods and at the rates and amounts of taking specified in Table A. Water takings are authorized only for the purposes specified in Table A.

Table A

	Source Name / Description:	Source: Type:	Taking Specific Purpose:	Taking Major Category:	Max. Taken per Minute (litres):	Max. Num. of Hrs Taken per Day:	Max. Taken per Day (litres):	Max. Num. of Days Taken per Year:	Zone/ Easting/ Northing:
1	Lake Ontario: Toronto Island Treatment Plant	Lake	Municipal	Water Supply	382,000	24	550,000,000	365	17 630423 4830396
						Total Taking:			

4. Monitoring

4.1 The Permit Holder shall, on each day water is taken under the authorization of this Permit, record the date, the volume of water taken on that date and the rate at which it was taken. The daily volume of water taken shall be measured by a flow meter. The Permit Holder shall keep all records required by this condition current and available at or near the site of the taking and shall produce the records immediately for inspection by a Provincial Officer upon his or her request. The Permit Holder, unless otherwise required by the Director, shall submit, on or before March 31st in every year, the daily water taking data collected and recorded for the previous year to the ministry's Water Taking Reporting System.

4.2 Any application submitted to the Ministry for renewal or amendment of this Permit shall be accompanied by all records required by the conditions of this Permit.

5. Impacts of the Water Taking

5.1 Notification

The Permit Holder shall immediately notify the local District Office of any complaint arising from the taking of water authorized under this Permit and shall report any action which has been taken or is proposed with regard to such complaint. The Permit Holder shall immediately notify the local District Office if the taking of water is observed to have any significant impact on the surrounding waters. After hours, calls shall be directed to the Ministry's Spills Action Centre at 1-800-268-6060.

5.2 For Surface-Water Takings
The taking of water (including the taking of water into storage and the subsequent or simultaneous withdrawal from storage) shall be carried out in such a manner that streamflow is not stopped and is not reduced to a rate that will cause interference with downstream uses of water or with the natural functions of the stream.

6. Director May Amend Permit
The Director may amend this Permit by letter requiring the Permit Holder to suspend or reduce the taking to an amount or threshold specified by the Director in the letter. The suspension or reduction in taking shall be effective immediately and may be revoked at any time upon notification by the Director. This condition does not affect your right to appeal the suspension or reduction in taking to the Environmental Review Tribunal under the *Ontario Water Resources Act* , Section 100 (4).

The reasons for the imposition of these terms and conditions are as follows:

1. Condition 1 is included to ensure that the conditions in this Permit are complied with and can be enforced.

2. Condition 2 is included to clarify the legal interpretation of aspects of this Permit.

3. Conditions 3 through 6 are included to protect the quality of the natural environment so as to safeguard the ecosystem and human health and foster efficient use and conservation of waters. These conditions allow for the beneficial use of waters while ensuring the fair sharing, conservation and sustainable use of the waters of Ontario. The conditions also specify the water takings that are authorized by this Permit and the scope of this Permit.

In accordance with Section 100 of the Ontario Water Resources Act, R.S.O. 1990, you may by written Notice served upon me and the Environmental Review Tribunal within 15 days after receipt of this Notice, require a hearing by the Tribunal. Section 101 of the Ontario Water Resources Act, R.S.O. 1990, as amended, provides that the Notice requiring the hearing shall state:

1. The portions of the Permit or each term or condition in the Permit in respect of which the hearing is required, and;
2. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

In addition to these legal requirements, the Notice should also include:

3. The name of the appellant;
4. The address of the appellant;
5. The Permit to Take Water number;
6. The date of the Permit to Take Water;
7. The name of the Director;
8. The municipality within which the works are located;

This notice must be served upon:

The Secretary
Environmental Review Tribunal
655 Bay Street, 15th Floor
Toronto ON
M5G 1E5
Fax: (416) 326-5370
Email: ERTTribunalsecretary@ontario.ca

AND

The Director, Section 34.1, Ministry of the Environment and Climate Change
8th Floor
5775 Yonge St
Toronto ON M2M 4J1
Fax: (416) 325-6347

Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal:

by Telephone at	by Fax at	by e-mail at
(416) 212-6349	(416) 326-5370	www.ert.gov.on.ca
Toll Free 1(866) 448-2248	Toll Free 1(844) 213-3474	

This Permit cancels and replaces Permit Number 91-P-3041, issued on 1996/02/12.

Dated at Toronto this 23 rd day of March, 2016.

Ross Lashbrook
Director, Section 34.1
Ontario Water Resources Act , R.S.O. 1990

Schedule A

This Schedule "A" forms part of Permit To Take Water 1866-A6QHRP, dated March 23, 2016.

1. Letter to Steve Klose, Director Section 34, Ministry of Environment and Energy (MOEE) from H.A. Taniguichi, Director of Water Supply, Municipality of Metropolitan Toronto, requesting an amendment to the Permit to Take Water, and dated October 23, 1995.

2. Letter to Robert Ryan, Senior Approvals Officer, MOEE from H.A Taniguichi, Director of Water Supply, Municipality of Metropolitan Toronto, enclosing additional information, and dated January 2, 1996.

Schedule B

This "Schedule B" forms part of Permit to Take Water 1866-A6QHRP issued to the City of Toronto.

a) This Schedule B recognizes The Regional Municipality of York (York Region) as a Related Transferor (as defined in the OWRA s. 34.5 (1) and O. Reg. 387/04 s. 11) for water taken under the authority of this Permit to Take Water by the Permit Holder.

b) The total amount of water currently deemed to be transferred (i.e. baseline amount) by York Region is 105 million litres per day as considered and established in Prior Notice and Consultation under the Great Lakes Charter prior to December 31, 2014.

c) Permits to Take Water that relate to this intra-basin transfer agreement between the Permit Holders and the Related Transferor and that supply water to be transferred to York Region are:

PTTW No. 1866-A6QHRP, issued to the City of Toronto on March 23, 2016
PTTW No. 0726-A6QJTA, issued to the City of Toronto on March 23, 2016
PTTW No. 6604-A6QKEB, issued to the City of Toronto on March 23, 2016
PTTW No. 0016-A6QKN2, issued to the City of Toronto on March 23, 2016
PTTW No. 1064-A6KQKQ, issued to The Regional Municipality of Peel on March 23, 2016

d) The total transferable amount of 105 million litres per day is a combined amount for all Lake Ontario sources identified under the Permits to Take Water listed in condition c).

e) York Region shall monitor and report annually to the MOECC Central Region Director and to the MNRF Natural Resources Conservation Policy Branch Director monthly volumes and a calculated daily average amount of its intra-basin transfer in the preceding calendar year. The annual report shall be submitted no later than March 31st each year.

f) York Region shall carry out the Long-Term Water Conservation Strategy dated March 31, 2011, as may be amended from time to time, as outlined in the joint MOECC and MNRF letter to The Regional Municipality of York, dated September 14, 2010.

Appendix C. PTTW No. 0726-A6QJTA, page 1 of 8

Ontario

Ministry of the Environment and Climate Change
Ministère de l'Environnement et de l'Action en matière de changement climatique

AMENDED PERMIT TO TAKE WATER
Surface Water
NUMBER 0726-A6QJTA

Pursuant to Section 34.1 of the Ontario Water Resources Act, R.S.O. 1990 this Permit To Take Water is hereby issued to:

City of Toronto
55 John Street, 18th Floor
Toronto, Ontario, M5V 3C6
Canada

For the water taking from: Lake Ontario: R.C Harris Treatment Plant

Located at: 2701 Queen St E
Toronto

For the purposes of this Permit, and the terms and conditions specified below, the following definitions apply:

DEFINITIONS

(a) "Director" means any person appointed in writing as a Director pursuant to section 5 of the OWRA for the purposes of section 34.1, OWRA.

(b) "Provincial Officer" means any person designated in writing by the Minister as a Provincial Officer pursuant to section 5 of the OWRA.

(c) "Ministry" means Ontario Ministry of the Environment and Climate Change.

(d) "District Office" means the Toronto District Office.

(e) "Permit" means this Permit to Take Water No. 0726-A6QJTA including its Schedules, if any, issued in accordance with Section 34.1 of the OWRA.

(f) "Permit Holder" means City of Toronto.

(g) "OWRA " means the *Ontario Water Resources Act,* R.S.O. 1990, c. O. 40, as amended.

You are hereby notified that this Permit is issued subject to the terms and conditions outlined below:

TERMS AND CONDITIONS

1. Compliance with Permit

1.1 Except where modified by this Permit, the water taking shall be in accordance with the application for this Permit To Take Water, dated October 23, 1995 and signed by H. A. Taniguchi, and all Schedules included in this Permit.

1.2 The Permit Holder shall ensure that any person authorized by the Permit Holder to take water under this Permit is provided with a copy of this Permit and shall take all reasonable measures to ensure that any such person complies with the conditions of this Permit.

1.3 Any person authorized by the Permit Holder to take water under this Permit shall comply with the conditions of this Permit.

1.4 This Permit is not transferable to another person.

1.5 This Permit provides the Permit Holder with permission to take water in accordance with the conditions of this Permit, up to the date of the expiry of this Permit. This Permit does not constitute a legal right, vested or otherwise, to a water allocation, and the issuance of this Permit does not guarantee that, upon its expiry, it will be renewed.

1.6 The Permit Holder shall keep this Permit available at all times at or near the site of the taking, and shall produce this Permit immediately for inspection by a Provincial Officer upon his or her request.

1.7 The Permit Holder shall report any changes of address to the Director within thirty days of any such change. The Permit Holder shall report any change of ownership of the property for which this Permit is issued within thirty days of any such change. A change in ownership in the property shall cause this Permit to be cancelled.

2. General Conditions and Interpretation

2.1 Inspections
The Permit Holder must forthwith, upon presentation of credentials, permit a Provincial Officer to carry out any and all inspections authorized by the OWRA, the *Environmental Protection Act* , R.S.O. 1990, the *Pesticides Act* , R.S.O. 1990, or the *Safe Drinking Water Act*, S. O. 2002.

2.2 Other Approvals
The issuance of, and compliance with this Permit, does not:

(a) relieve the Permit Holder or any other person from any obligation to comply with any other applicable legal requirements, including the provisions of the *Ontario Water Resources Act* , and the *Environmental Protection Act* , and any regulations made thereunder; or

(b) limit in any way any authority of the Ministry, a Director, or a Provincial Officer, including the authority to require certain steps be taken or to require the Permit Holder to furnish any further information related to this Permit.

2.3 Information
The receipt of any information by the Ministry, the failure of the Ministry to take any action or require any person to take any action in relation to the information, or the failure of a Provincial Officer to prosecute any person in relation to the information, shall not be construed as:

(a) an approval, waiver or justification by the Ministry of any act or omission of any person that contravenes this Permit or other legal requirement; or

(b) acceptance by the Ministry of the information's completeness or accuracy.

2.4 Rights of Action
The issuance of, and compliance with this Permit shall not be construed as precluding or limiting any legal claims or rights of action that any person, including the Crown in right of Ontario or any agency thereof, has or may have against the Permit Holder, its officers, employees, agents, and contractors.

2.5 Severability
The requirements of this Permit are severable. If any requirements of this Permit, or the application of any requirements of this Permit to any circumstance, is held invalid or unenforceable, the application of such requirements to other circumstances and the remainder of this Permit shall not be affected thereby.

2.6 Conflicts
Where there is a conflict between a provision of any submitted document referred to in this Permit, including its Schedules, and the conditions of this Permit, the conditions in this Permit shall take precedence.

3. Water Takings Authorized by This Permit

3.1 **Expiry**
This Permit expires on **December 31, 2025**. No water shall be taken under authority of this Permit after the expiry date.

3.2 Amounts of Taking Permitted
The Permit Holder shall only take water from the source, during the periods and at the rates and amounts of taking specified in Table A. Water takings are authorized only for the purposes specified in Table A.

Table A

	Source Name / Description:	Source: Type:	Taking Specific Purpose:	Taking Major Category:	Max. Taken per Minute (litres):	Max. Num. of Hrs Taken per Day:	Max. Taken per Day (litres):	Max. Num. of Days Taken per Year:	Zone/ Easting/ Northing:
1	Lake Ontario: R.C Harris Treatment Plant	Lake	Municipal	Water Supply	930,600	24	1,340,000,000	365	17 638847 4836905
						Total Taking:			

4. Monitoring

4.1 The Permit Holder shall, on each day water is taken under the authorization of this Permit, record the date, the volume of water taken on that date and the rate at which it was taken. The daily volume of water taken shall be measured by a flow meter. The Permit Holder shall keep all records required by this condition current and available at or near the site of the taking and shall produce the records immediately for inspection by a Provincial Officer upon his or her request. The Permit Holder, unless otherwise required by the Director, shall submit, on or before March 31st in every year, the daily water taking data collected and recorded for the previous year to the ministry's Water Taking Reporting System.

4.2 Any application submitted to the Ministry for renewal or amendment of this Permit shall be accompanied by all records required by the conditions of this Permit.

5. Impacts of the Water Taking

5.1 Notification
The Permit Holder shall immediately notify the local District Office of any complaint arising from the taking of water authorized under this Permit and shall report any action which has been taken or is proposed with regard to such complaint. The Permit Holder shall immediately notify the local District Office if the taking of water is observed to have any significant impact on the surrounding waters. After hours, calls shall be directed to the Ministry's Spills Action Centre at 1-800-268-6060.

5.2 For Surface-Water Takings
The taking of water (including the taking of water into storage and the subsequent or simultaneous withdrawal from storage) shall be carried out in such a manner that streamflow is not stopped and is not reduced to a rate that will cause interference with downstream uses of

water or with the natural functions of the stream.

6. **Director May Amend Permit**
The Director may amend this Permit by letter requiring the Permit Holder to suspend or reduce the taking to an amount or threshold specified by the Director in the letter. The suspension or reduction in taking shall be effective immediately and may be revoked at any time upon notification by the Director. This condition does not affect your right to appeal the suspension or reduction in taking to the Environmental Review Tribunal under the *Ontario Water Resources Act* , Section 100 (4).

The reasons for the imposition of these terms and conditions are as follows:

1. Condition 1 is included to ensure that the conditions in this Permit are complied with and can be enforced.

2. Condition 2 is included to clarify the legal interpretation of aspects of this Permit.

3. Conditions 3 through 6 are included to protect the quality of the natural environment so as to safeguard the ecosystem and human health and foster efficient use and conservation of waters. These conditions allow for the beneficial use of waters while ensuring the fair sharing, conservation and sustainable use of the waters of Ontario. The conditions also specify the water takings that are authorized by this Permit and the scope of this Permit.

In accordance with Section 100 of the Ontario Water Resources Act, R.S.O. 1990, you may by written Notice served upon me and the Environmental Review Tribunal within 15 days after receipt of this Notice, require a hearing by the Tribunal. Section 101 of the Ontario Water Resources Act, R.S.O. 1990, as amended, provides that the Notice requiring the hearing shall state:

1. The portions of the Permit or each term or condition in the Permit in respect of which the hearing is required, and;
2. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

In addition to these legal requirements, the Notice should also include:

3. The name of the appellant;
4. The address of the appellant;
5. The Permit to Take Water number;
6. The date of the Permit to Take Water;
7. The name of the Director;
8. The municipality within which the works are located;

This notice must be served upon:

The Secretary
Environmental Review Tribunal
655 Bay Street, 15th Floor
Toronto ON
M5G 1E5
Fax: (416) 326-5370
Email: ERTTribunalsecretary@ontario.ca

AND

The Director, Section 34.1, Ministry of the Environment and Climate Change
8th Floor
5775 Yonge St
Toronto ON M2M 4J1
Fax: (416) 325-6347

Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal:

by Telephone at	by Fax at	by e-mail at
(416) 212-6349	(416) 326-5370	www.ert.gov.on.ca
Toll Free 1(866) 448-2248	Toll Free 1(844) 213-3474	

This Permit cancels and replaces Permit Number 91-P-3040, issued on 1996/02/12.

Dated at Toronto this 23 rd day of March, 2016.

Ross Lashbrook
Director, Section 34.1
Ontario Water Resources Act , R.S.O. 1990

Schedule A

This Schedule "A" forms part of Permit To Take Water 0726-A6QJTA, dated March 23, 2016.

1. Letter to Steve Klose, Director Section 34, Ministry of Environment and Energy (MOEE) from H.A. Taniguichi, Director of Water Supply, Municipality of Metropolitan Toronto, requesting an amendment to the Permit to Take Water, and dated October 23, 1995.

2. Letter to Robert Ryan, Senior Approvals Officer, MOEE from H.A Taniguichi, Director of Water Supply, Municipality of Metropolitan Toronto, enclosing additional information, and dated January 2, 1996.

Schedule B

This "Schedule B" forms part of Permit to Take Water 0726-A6QJTA issued to the City of Toronto.

a) This Schedule B recognizes The Regional Municipality of York (York Region) as a Related Transferor (as defined in the OWRA s. 34.5 (1) and O. Reg. 387/04 s. 11) for water taken under the authority of this Permit to Take Water by the Permit Holder.

b) The total amount of water currently deemed to be transferred (i.e. baseline amount) by York Region is 105 million litres per day as considered and established in Prior Notice and Consultation under the Great Lakes Charter prior to December 31, 2014.

c) Permits to Take Water that relate to this intra-basin transfer agreement between the Permit Holders and the Related Transferor and that supply water to be transferred to York Region are:

PTTW No. 1866-A6QHRP, issued to the City of Toronto on March 23, 2016
PTTW No. 0726-A6QJTA, issued to the City of Toronto on March 23, 2016
PTTW No. 6604-A6QKEB, issued to the City of Toronto on March 23, 2016
PTTW No. 0016-A6QKN2, issued to the City of Toronto on March 23, 2016
PTTW No. 1064-A6KQKQ, issued to The Regional Municipality of Peel on March 23, 2016

d) The total transferable amount of 105 million litres per day is a combined amount for all Lake Ontario sources identified under the Permits to Take Water listed in condition c).

e) York Region shall monitor and report annually to the MOECC Central Region Director and to the MNRF Natural Resources Conservation Policy Branch Director monthly volumes and a calculated daily average amount of its intra-basin transfer in the preceding calendar year. The annual report shall be submitted no later than March 31st each year.

f) York Region shall carry out the Long-Term Water Conservation Strategy dated March 31, 2011, as may be amended from time to time, as outlined in the joint MOECC and MNRF letter to The Regional Municipality of York, dated September 14, 2010.

Appendix C. PTTW No. 6604-A6QKEB, page 1 of 8

Ontario

Ministry of the Environment and Climate Change
Ministère de l'Environnement et de l'Action en matière de changement climatique

AMENDED PERMIT TO TAKE WATER
Surface Water
NUMBER 6604-A6QKEB

Pursuant to Section 34.1 of the Ontario Water Resources Act, R.S.O. 1990 this Permit To Take Water is hereby issued to:

City of Toronto
55 John Street, 18th Floor
Toronto, Ontario, M5V 3C6
Canada

For the water taking from: Lake Ontario: F.J. Horgan Treatment Plant

Located at: 210 Copperfield Rd
Toronto

For the purposes of this Permit, and the terms and conditions specified below, the following definitions apply:

DEFINITIONS

(a) "Director" means any person appointed in writing as a Director pursuant to section 5 of the OWRA for the purposes of section 34.1, OWRA.

(b) "Provincial Officer" means any person designated in writing by the Minister as a Provincial Officer pursuant to section 5 of the OWRA.

(c) "Ministry" means Ontario Ministry of the Environment and Climate Change.

(d) "District Office" means the Toronto District Office.

(e) "Permit" means this Permit to Take Water No. 6604-A6QKEB including its Schedules, if any, issued in accordance with Section 34.1 of the OWRA.

(f) "Permit Holder" means City of Toronto.

(g) "OWRA " means the *Ontario Water Resources Act,* R.S.O. 1990, c. O. 40, as amended.

You are hereby notified that this Permit is issued subject to the terms and conditions outlined below:

TERMS AND CONDITIONS

1. Compliance with Permit

1.1 Except where modified by this Permit, the water taking shall be in accordance with the application for this Permit To Take Water, dated October 23, 1995 and signed by H.A. Taniguchi, and all Schedules included in this Permit.

1.2 The Permit Holder shall ensure that any person authorized by the Permit Holder to take water under this Permit is provided with a copy of this Permit and shall take all reasonable measures to ensure that any such person complies with the conditions of this Permit.

1.3 Any person authorized by the Permit Holder to take water under this Permit shall comply with the conditions of this Permit.

1.4 This Permit is not transferable to another person.

1.5 This Permit provides the Permit Holder with permission to take water in accordance with the conditions of this Permit, up to the date of the expiry of this Permit. This Permit does not constitute a legal right, vested or otherwise, to a water allocation, and the issuance of this Permit does not guarantee that, upon its expiry, it will be renewed.

1.6 The Permit Holder shall keep this Permit available at all times at or near the site of the taking, and shall produce this Permit immediately for inspection by a Provincial Officer upon his or her request.

1.7 The Permit Holder shall report any changes of address to the Director within thirty days of any such change. The Permit Holder shall report any change of ownership of the property for which this Permit is issued within thirty days of any such change. A change in ownership in the property shall cause this Permit to be cancelled.

2. General Conditions and Interpretation

2.1 Inspections
The Permit Holder must forthwith, upon presentation of credentials, permit a Provincial Officer to carry out any and all inspections authorized by the OWRA, the *Environmental Protection Act* , R.S.O. 1990, the *Pesticides Act* , R.S.O. 1990, or the *Safe Drinking Water Act*, S. O. 2002.

2.2 Other Approvals
The issuance of, and compliance with this Permit, does not:

(a) relieve the Permit Holder or any other person from any obligation to comply with any other applicable legal requirements, including the provisions of the *Ontario Water Resources Act* , and the *Environmental Protection Act* , and any regulations made thereunder; or

(b) limit in any way any authority of the Ministry, a Director, or a Provincial Officer, including the authority to require certain steps be taken or to require the Permit Holder to furnish any further information related to this Permit.

2.3 Information

The receipt of any information by the Ministry, the failure of the Ministry to take any action or require any person to take any action in relation to the information, or the failure of a Provincial Officer to prosecute any person in relation to the information, shall not be construed as:

(a) an approval, waiver or justification by the Ministry of any act or omission of any person that contravenes this Permit or other legal requirement; or

(b) acceptance by the Ministry of the information's completeness or accuracy.

2.4 Rights of Action

The issuance of, and compliance with this Permit shall not be construed as precluding or limiting any legal claims or rights of action that any person, including the Crown in right of Ontario or any agency thereof, has or may have against the Permit Holder, its officers, employees, agents, and contractors.

2.5 Severability

The requirements of this Permit are severable. If any requirements of this Permit, or the application of any requirements of this Permit to any circumstance, is held invalid or unenforceable, the application of such requirements to other circumstances and the remainder of this Permit shall not be affected thereby.

2.6 Conflicts

Where there is a conflict between a provision of any submitted document referred to in this Permit, including its Schedules, and the conditions of this Permit, the conditions in this Permit shall take precedence.

3. Water Takings Authorized by This Permit

3.1 **Expiry**

This Permit expires on **December 31, 2025**. No water shall be taken under authority of this Permit after the expiry date.

3.2 Amounts of Taking Permitted

The Permit Holder shall only take water from the source, during the periods and at the rates and amounts of taking specified in Table A. Water takings are authorized only for the purposes specified in Table A.

Table A

	Source Name / Description:	Source: Type:	Taking Specific Purpose:	Taking Major Category:	Max. Taken per Minute (litres):	Max. Num. of Hrs Taken per Day:	Max. Taken per Day (litres):	Max. Num. of Days Taken per Year:	Zone/ Easting/ Northing:
1	Lake Ontario: F.J. Horgan Treatment Plant	Lake	Municipal	Water Supply	666,700	24	960,000,000	365	17 605135 4837883
						Total Taking:			

4. Monitoring

4.1 The Permit Holder shall, on each day water is taken under the authorization of this Permit, record the date, the volume of water taken on that date and the rate at which it was taken. The daily volume of water taken shall be measured by a flow meter. The Permit Holder shall keep all records required by this condition current and available at or near the site of the taking and shall produce the records immediately for inspection by a Provincial Officer upon his or her request. The Permit Holder, unless otherwise required by the Director, shall submit, on or before March 31st in every year, the daily water taking data collected and recorded for the previous year to the ministry's Water Taking Reporting System.

4.2 Any application submitted to the Ministry for renewal or amendment of this Permit shall be accompanied by all records required by the conditions of this Permit.

5. Impacts of the Water Taking

5.1 Notification
The Permit Holder shall immediately notify the local District Office of any complaint arising from the taking of water authorized under this Permit and shall report any action which has been taken or is proposed with regard to such complaint. The Permit Holder shall immediately notify the local District Office if the taking of water is observed to have any significant impact on the surrounding waters. After hours, calls shall be directed to the Ministry's Spills Action Centre at 1-800-268-6060.

5.2 For Surface-Water Takings
The taking of water (including the taking of water into storage and the subsequent or simultaneous withdrawal from storage) shall be carried out in such a manner that streamflow is not stopped and is not reduced to a rate that will cause interference with downstream uses of water or with the natural functions of the stream.

6. **Director May Amend Permit**
The Director may amend this Permit by letter requiring the Permit Holder to suspend or reduce the taking to an amount or threshold specified by the Director in the letter. The suspension or reduction in taking shall be effective immediately and may be revoked at any time upon notification by the Director. This condition does not affect your right to appeal the suspension or reduction in taking to the Environmental Review Tribunal under the *Ontario Water Resources Act* , Section 100 (4).

The reasons for the imposition of these terms and conditions are as follows:

1. Condition 1 is included to ensure that the conditions in this Permit are complied with and can be enforced.

2. Condition 2 is included to clarify the legal interpretation of aspects of this Permit.

3. Conditions 3 through 6 are included to protect the quality of the natural environment so as to safeguard the ecosystem and human health and foster efficient use and conservation of waters. These conditions allow for the beneficial use of waters while ensuring the fair sharing, conservation and sustainable use of the waters of Ontario. The conditions also specify the water takings that are authorized by this Permit and the scope of this Permit.

In accordance with Section 100 of the Ontario Water Resources Act, R.S.O. 1990, you may by written Notice served upon me and the Environmental Review Tribunal within 15 days after receipt of this Notice, require a hearing by the Tribunal. Section 101 of the Ontario Water Resources Act, R.S.O. 1990, as amended, provides that the Notice requiring the hearing shall state:

1. The portions of the Permit or each term or condition in the Permit in respect of which the hearing is required, and;
2. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

In addition to these legal requirements, the Notice should also include:

3. The name of the appellant;
4. The address of the appellant;
5. The Permit to Take Water number;
6. The date of the Permit to Take Water;
7. The name of the Director;
8. The municipality within which the works are located;

This notice must be served upon:

The Secretary
Environmental Review Tribunal
655 Bay Street, 15th Floor
Toronto ON
M5G 1E5
Fax: (416) 326-5370
Email: ERTTribunalsecretary@ontario.ca

AND

The Director, Section 34.1, Ministry of the Environment and Climate Change
8th Floor
5775 Yonge St
Toronto ON M2M 4J1
Fax: (416) 325-6347

Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal:

by Telephone at	by Fax at	by e-mail at
(416) 212-6349	(416) 326-5370	www.ert.gov.on.ca
Toll Free 1(866) 448-2248	Toll Free 1(844) 213-3474	

This Permit cancels and replaces Permit Number 91-P-3039, issued on 1996/02/12.

Dated at Toronto this 23 rd day of March, 2016.

Ross Lashbrook
Director, Section 34.1
Ontario Water Resources Act , R.S.O. 1990

Schedule A

This Schedule "A" forms part of Permit To Take Water 6604-A6QKEB, dated March 23, 2016.

1. Letter to Steve Klose, Director Section 34, Ministry of Environment and Energy (MOEE) from H.A. Taniguichi, Director of Water Supply, Municipality of Metropolitan Toronto, requesting an amendment to the Permit to Take Water, and dated October 23, 1995.

2. Letter to Robert Ryan, Senior Approvals Officer, MOEE from H.A Taniguichi, Director of Water Supply, Municipality of Metropolitan Toronto, enclosing additional information, and dated January 2, 1996.

Schedule B

This "Schedule B" forms part of Permit to Take Water 6604-A6QKEB issued to the City of Toronto.

a) This Schedule B recognizes The Regional Municipality of York (York Region) as a Related Transferor (as defined in the OWRA s. 34.5 (1) and O. Reg. 387/04 s. 11) for water taken under the authority of this Permit to Take Water by the Permit Holder.

b) The total amount of water currently deemed to be transferred (i.e. baseline amount) by York Region is 105 million litres per day as considered and established in Prior Notice and Consultation under the Great Lakes Charter prior to December 31, 2014.

c) Permits to Take Water that relate to this intra-basin transfer agreement between the Permit Holders and the Related Transferor and that supply water to be transferred to York Region are:

PTTW No. 1866-A6QHRP, issued to the City of Toronto on March 23, 2016
PTTW No. 0726-A6QJTA, issued to the City of Toronto on March 23, 2016
PTTW No. 6604-A6QKEB, issued to the City of Toronto on March 23, 2016
PTTW No. 0016-A6QKN2, issued to the City of Toronto on March 23, 2016
PTTW No. 1064-A6KQKQ, issued to The Regional Municipality of Peel on March 23, 2016

d) The total transferable amount of 105 million litres per day is a combined amount for all Lake Ontario sources identified under the Permits to Take Water listed in condition c).

e) York Region shall monitor and report annually to the MOECC Central Region Director and to the MNRF Natural Resources Conservation Policy Branch Director monthly volumes and a calculated daily average amount of its intra-basin transfer in the preceding calendar year. The annual report shall be submitted no later than March 31st each year.

f) York Region shall carry out the Long-Term Water Conservation Strategy dated March 31, 2011, as may be amended from time to time, as outlined in the joint MOECC and MNRF letter to The Regional Municipality of York, dated September 14, 2010.

Appendix C. PTTW No. 0016-A6QKN2, page 1 of 8

Ontario

Ministry of the Environment and Climate Change
Ministère de l'Environnement et de l'Action en matière de changement climatique

AMENDED PERMIT TO TAKE WATER
Surface Water
NUMBER 0016-A6QKN2

Pursuant to Section 34.1 of the Ontario Water Resources Act, R.S.O. 1990 this Permit To Take Water is hereby issued to:

City of Toronto
55 John Street, 18th Floor
Toronto, Ontario, M5V 3C6
Canada

For the water taking from: Lake Ontario: R.L. Clark Treatment Plant

Located at: 45 23rd St
Toronto

For the purposes of this Permit, and the terms and conditions specified below, the following definitions apply:

DEFINITIONS

(a) "Director" means any person appointed in writing as a Director pursuant to section 5 of the OWRA for the purposes of section 34.1, OWRA.

(b) "Provincial Officer" means any person designated in writing by the Minister as a Provincial Officer pursuant to section 5 of the OWRA.

(c) "Ministry" means Ontario Ministry of the Environment and Climate Change.

(d) "District Office" means the Toronto District Office.

(e) "Permit" means this Permit to Take Water No. 0016-A6QKN2 including its Schedules, if any, issued in accordance with Section 34.1 of the OWRA.

(f) "Permit Holder" means City of Toronto.

(g) "OWRA " means the *Ontario Water Resources Act,* R.S.O. 1990, c. O. 40, as amended.

You are hereby notified that this Permit is issued subject to the terms and conditions outlined below:

TERMS AND CONDITIONS

1. Compliance with Permit

1.1 Except where modified by this Permit, the water taking shall be in accordance with the application for this Permit To Take Water, dated October 23, 1995 and signed by H.A. Taniguchi, and all Schedules included in this Permit.

1.2 The Permit Holder shall ensure that any person authorized by the Permit Holder to take water under this Permit is provided with a copy of this Permit and shall take all reasonable measures to ensure that any such person complies with the conditions of this Permit.

1.3 Any person authorized by the Permit Holder to take water under this Permit shall comply with the conditions of this Permit.

1.4 This Permit is not transferable to another person.

1.5 This Permit provides the Permit Holder with permission to take water in accordance with the conditions of this Permit, up to the date of the expiry of this Permit. This Permit does not constitute a legal right, vested or otherwise, to a water allocation, and the issuance of this Permit does not guarantee that, upon its expiry, it will be renewed.

1.6 The Permit Holder shall keep this Permit available at all times at or near the site of the taking, and shall produce this Permit immediately for inspection by a Provincial Officer upon his or her request.

1.7 The Permit Holder shall report any changes of address to the Director within thirty days of any such change. The Permit Holder shall report any change of ownership of the property for which this Permit is issued within thirty days of any such change. A change in ownership in the property shall cause this Permit to be cancelled.

2. General Conditions and Interpretation

2.1 Inspections
The Permit Holder must forthwith, upon presentation of credentials, permit a Provincial Officer to carry out any and all inspections authorized by the OWRA, the *Environmental Protection Act* , R.S.O. 1990, the *Pesticides Act* , R.S.O. 1990, or the *Safe Drinking Water Act*, S. O. 2002.

2.2 Other Approvals
The issuance of, and compliance with this Permit, does not:

(a) relieve the Permit Holder or any other person from any obligation to comply with any other applicable legal requirements, including the provisions of the *Ontario Water Resources Act* , and the *Environmental Protection Act* , and any regulations made thereunder; or

(b) limit in any way any authority of the Ministry, a Director, or a Provincial Officer, including the authority to require certain steps be taken or to require the Permit Holder to furnish any further information related to this Permit.

2.3 Information
The receipt of any information by the Ministry, the failure of the Ministry to take any action or require any person to take any action in relation to the information, or the failure of a Provincial Officer to prosecute any person in relation to the information, shall not be construed as:

(a) an approval, waiver or justification by the Ministry of any act or omission of any person that contravenes this Permit or other legal requirement; or

(b) acceptance by the Ministry of the information's completeness or accuracy.

2.4 Rights of Action
The issuance of, and compliance with this Permit shall not be construed as precluding or limiting any legal claims or rights of action that any person, including the Crown in right of Ontario or any agency thereof, has or may have against the Permit Holder, its officers, employees, agents, and contractors.

2.5 Severability
The requirements of this Permit are severable. If any requirements of this Permit, or the application of any requirements of this Permit to any circumstance, is held invalid or unenforceable, the application of such requirements to other circumstances and the remainder of this Permit shall not be affected thereby.

2.6 Conflicts
Where there is a conflict between a provision of any submitted document referred to in this Permit, including its Schedules, and the conditions of this Permit, the conditions in this Permit shall take precedence.

3. Water Takings Authorized by This Permit

3.1 **Expiry**
This Permit expires on **December 31, 2025**. No water shall be taken under authority of this Permit after the expiry date.

3.2 Amounts of Taking Permitted
The Permit Holder shall only take water from the source, during the periods and at the rates and amounts of taking specified in Table A. Water takings are authorized only for the purposes specified in Table A.

Table A

	Source Name / Description:	Source: Type:	Taking Specific Purpose:	Taking Major Category:	Max. Taken per Minute (litres):	Max. Num. of Hrs Taken per Day:	Max. Taken per Day (litres):	Max. Num. of Days Taken per Year:	Zone/ Easting/ Northing:
1	Lake Ontario: R.L. Clark Treatment Plant	Lake	Municipal	Water Supply	653,000	24	940,000,000	365	17 619741 4827726
						Total Taking:			

4. Monitoring

4.1 The Permit Holder shall, on each day water is taken under the authorization of this Permit, record the date, the volume of water taken on that date and the rate at which it was taken. The daily volume of water taken shall be measured by a flow meter. The Permit Holder shall keep all records required by this condition current and available at or near the site of the taking and shall produce the records immediately for inspection by a Provincial Officer upon his or her request. The Permit Holder, unless otherwise required by the Director, shall submit, on or before March 31st in every year, the daily water taking data collected and recorded for the previous year to the ministry's Water Taking Reporting System.

4.2 Any application submitted to the Ministry for renewal or amendment of this Permit shall be accompanied by all records required by the conditions of this Permit.

5. Impacts of the Water Taking

5.1 Notification
The Permit Holder shall immediately notify the local District Office of any complaint arising from the taking of water authorized under this Permit and shall report any action which has been taken or is proposed with regard to such complaint. The Permit Holder shall immediately notify the local District Office if the taking of water is observed to have any significant impact on the surrounding waters. After hours, calls shall be directed to the Ministry's Spills Action Centre at 1-800-268-6060.

5.2 For Surface-Water Takings
The taking of water (including the taking of water into storage and the subsequent or simultaneous withdrawal from storage) shall be carried out in such a manner that streamflow is not stopped and is not reduced to a rate that will cause interference with downstream uses of water or with the natural functions of the stream.

6. **Director May Amend Permit**
The Director may amend this Permit by letter requiring the Permit Holder to suspend or reduce the taking to an amount or threshold specified by the Director in the letter. The suspension or reduction in taking shall be effective immediately and may be revoked at any time upon notification by the Director. This condition does not affect your right to appeal the suspension or reduction in taking to the Environmental Review Tribunal under the *Ontario Water Resources Act* , Section 100 (4).

The reasons for the imposition of these terms and conditions are as follows:

1. Condition 1 is included to ensure that the conditions in this Permit are complied with and can be enforced.

2. Condition 2 is included to clarify the legal interpretation of aspects of this Permit.

3. Conditions 3 through 6 are included to protect the quality of the natural environment so as to safeguard the ecosystem and human health and foster efficient use and conservation of waters. These conditions allow for the beneficial use of waters while ensuring the fair sharing, conservation and sustainable use of the waters of Ontario. The conditions also specify the water takings that are authorized by this Permit and the scope of this Permit.

In accordance with Section 100 of the Ontario Water Resources Act, R.S.O. 1990, you may by written Notice served upon me and the Environmental Review Tribunal within 15 days after receipt of this Notice, require a hearing by the Tribunal. Section 101 of the Ontario Water Resources Act, R.S.O. 1990, as amended, provides that the Notice requiring the hearing shall state:

1. The portions of the Permit or each term or condition in the Permit in respect of which the hearing is required, and;
2. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

In addition to these legal requirements, the Notice should also include:

3. The name of the appellant;
4. The address of the appellant;
5. The Permit to Take Water number;
6. The date of the Permit to Take Water;
7. The name of the Director;
8. The municipality within which the works are located;

This notice must be served upon:

The Secretary
Environmental Review Tribunal
655 Bay Street, 15th Floor
Toronto ON
M5G 1E5
Fax: (416) 326-5370
Email: ERTTribunalsecretary@ontario.ca

AND

The Director, Section 34.1, Ministry of the Environment and Climate Change
8th Floor
5775 Yonge St
Toronto ON M2M 4J1
Fax: (416) 325-6347

Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal:

by Telephone at (416) 212-6349 Toll Free 1(866) 448-2248	by Fax at (416) 326-5370 Toll Free 1(844) 213-3474	by e-mail at www.ert.gov.on.ca

This Permit cancels and replaces Permit Number 91-P-3042, issued on 1996/02/12.

Dated at Toronto this 23 rd day of March, 2016.

Ross Lashbrook
Director, Section 34.1
Ontario Water Resources Act , R.S.O. 1990

Schedule A

This Schedule "A" forms part of Permit To Take Water 0016-A6QKN2, dated March 23, 2016.

1. Letter to Steve Klose, Director Section 34, Ministry of Environment and Energy (MOEE) from H.A. Taniguichi, Director of Water Supply, Municipality of Metropolitan Toronto, requesting an amendment to the Permit to Take Water, and dated October 23, 1995.

2. Letter to Robert Ryan, Senior Approvals Officer, MOEE from H.A Taniguichi, Director of Water Supply, Municipality of Metropolitan Toronto, enclosing additional information, and dated January 2, 1996.

Schedule B

This "Schedule B" forms part of Permit to Take Water 0016-A6QKN2 issued to the City of Toronto.

a) This Schedule B recognizes The Regional Municipality of York (York Region) as a Related Transferor (as defined in the OWRA s. 34.5 (1) and O. Reg. 387/04 s. 11) for water taken under the authority of this Permit to Take Water by the Permit Holder.

b) The total amount of water currently deemed to be transferred (i.e. baseline amount) by York Region is 105 million litres per day as considered and established in Prior Notice and Consultation under the Great Lakes Charter prior to December 31, 2014.

c) Permits to Take Water that relate to this intra-basin transfer agreement between the Permit Holders and the Related Transferor and that supply water to be transferred to York Region are:

PTTW No. 1866-A6QHRP, issued to the City of Toronto on March 23, 2016
PTTW No. 0726-A6QJTA, issued to the City of Toronto on March 23, 2016
PTTW No. 6604-A6QKEB, issued to the City of Toronto on March 23, 2016
PTTW No. 0016-A6QKN2, issued to the City of Toronto on March 23, 2016
PTTW No. 1064-A6KQKQ, issued to The Regional Municipality of Peel on March 23, 2016

d) The total transferable amount of 105 million litres per day is a combined amount for all Lake Ontario sources identified under the Permits to Take Water listed in condition c).

e) York Region shall monitor and report annually to the MOECC Central Region Director and to the MNRF Natural Resources Conservation Policy Branch Director monthly volumes and a calculated daily average amount of its intra-basin transfer in the preceding calendar year. The annual report shall be submitted no later than March 31st each year.

f) York Region shall carry out the Long-Term Water Conservation Strategy dated March 31, 2011, as may be amended from time to time, as outlined in the joint MOECC and MNRF letter to The Regional Municipality of York, dated September 14, 2010.

Appendix C. PTTW No. 1064-A6KQKQ, page 1 of 8

Ontario

Ministry of the Environment and Climate Change
Ministère de l'Environnement et de l'Action en matière de changement climatique

AMENDED PERMIT TO TAKE WATER
Surface Water
NUMBER 1064-A6KQKQ

Pursuant to Section 34.1 of the Ontario Water Resources Act, R.S.O. 1990 this Permit To Take Water is hereby issued to:

The Regional Municipality of Peel
10 Peel Centre Dr
Brampton, Ontario, L6T 4B9
Canada

For the water taking from: Lake Ontario: Lakeview Water Treatment Plant

Lake Ontario: Lorne Park Water Treatment Plant

Located at: Lakeview- 920 East Ave
Mississauga, Regional Municipality of Peel

Lorne Park- 1180 Lakeshore Rd W
Mississauga, Regional Municipality of Peel

For the purposes of this Permit, and the terms and conditions specified below, the following definitions apply:

DEFINITIONS

(a) "Director" means any person appointed in writing as a Director pursuant to section 5 of the OWRA for the purposes of section 34.1, OWRA.

(b) "Provincial Officer" means any person designated in writing by the Minister as a Provincial Officer pursuant to section 5 of the OWRA.

(c) "Ministry" means Ontario Ministry of the Environment and Climate Change.

(d) "District Office" means the Halton-Peel District Office.

(e) "Permit" means this Permit to Take Water No. 1064-A6KQKQ including its Schedules, if any, issued in accordance with Section 34.1 of the OWRA.

Page 1 - NUMBER 1064-A6KQKQ

(f) "Permit Holder" means The Regional Municipality of Peel.

(g) "OWRA " means the *Ontario Water Resources Act,* R.S.O. 1990, c. O. 40, as amended.

You are hereby notified that this Permit is issued subject to the terms and conditions outlined below:

TERMS AND CONDITIONS

1. Compliance with Permit

1.1 Except where modified by this Permit, the water taking shall be in accordance with the application for this Permit To Take Water, dated April 24, 2009 and signed by Andrew Farr for the Lakeview Water Treatment Plant and dated October 1, 2007 and signed by Andrew Farr for the Lorne Park Water Treatment Plant, and all Schedules included in this Permit.

1.2 The Permit Holder shall ensure that any person authorized by the Permit Holder to take water under this Permit is provided with a copy of this Permit and shall take all reasonable measures to ensure that any such person complies with the conditions of this Permit.

1.3 Any person authorized by the Permit Holder to take water under this Permit shall comply with the conditions of this Permit.

1.4 This Permit is not transferable to another person.

1.5 This Permit provides the Permit Holder with permission to take water in accordance with the conditions of this Permit, up to the date of the expiry of this Permit. This Permit does not constitute a legal right, vested or otherwise, to a water allocation, and the issuance of this Permit does not guarantee that, upon its expiry, it will be renewed.

1.6 The Permit Holder shall keep this Permit available at all times at or near the site of the taking, and shall produce this Permit immediately for inspection by a Provincial Officer upon his or her request.

1.7 The Permit Holder shall report any changes of address to the Director within thirty days of any such change. The Permit Holder shall report any change of ownership of the property for which this Permit is issued within thirty days of any such change. A change in ownership in the property shall cause this Permit to be cancelled.

2. General Conditions and Interpretation

2.1 Inspections
The Permit Holder must forthwith, upon presentation of credentials, permit a Provincial Officer to carry out any and all inspections authorized by the OWRA, the *Environmental Protection Act* , R.S.O. 1990, the *Pesticides Act* , R.S.O. 1990, or the *Safe Drinking Water Act*, S. O. 2002.

2.2 Other Approvals
The issuance of, and compliance with this Permit, does not:

(a) relieve the Permit Holder or any other person from any obligation to comply with any other applicable legal requirements, including the provisions of the *Ontario Water Resources Act* , and the *Environmental Protection Act* , and any regulations made thereunder; or

(b) limit in any way any authority of the Ministry, a Director, or a Provincial Officer, including the authority to require certain steps be taken or to require the Permit Holder to furnish any further information related to this Permit.

2.3 Information
The receipt of any information by the Ministry, the failure of the Ministry to take any action or require any person to take any action in relation to the information, or the failure of a Provincial Officer to prosecute any person in relation to the information, shall not be construed as:

(a) an approval, waiver or justification by the Ministry of any act or omission of any person that contravenes this Permit or other legal requirement; or

(b) acceptance by the Ministry of the information's completeness or accuracy.

2.4 Rights of Action
The issuance of, and compliance with this Permit shall not be construed as precluding or limiting any legal claims or rights of action that any person, including the Crown in right of Ontario or any agency thereof, has or may have against the Permit Holder, its officers, employees, agents, and contractors.

2.5 Severability
The requirements of this Permit are severable. If any requirements of this Permit, or the application of any requirements of this Permit to any circumstance, is held invalid or unenforceable, the application of such requirements to other circumstances and the remainder of this Permit shall not be affected thereby.

2.6 Conflicts
Where there is a conflict between a provision of any submitted document referred to in this Permit, including its Schedules, and the conditions of this Permit, the conditions in this Permit shall take precedence.

3. Water Takings Authorized by This Permit

3.1 **Expiry**
This Permit expires on **November 30, 2020**. No water shall be taken under authority of this Permit after the expiry date.

3.2 Amounts of Taking Permitted
The Permit Holder shall only take water from the source, during the periods and at the rates and amounts of taking specified in Table A. Water takings are authorized only for the purposes specified in Table A.

Table A

	Source Name / Description:	Source: Type:	Taking Specific Purpose:	Taking Major Category:	Max. Taken per Minute (litres):	Max. Num. of Hrs Taken per Day:	Max. Taken per Day (litres):	Max. Num. of Days Taken per Year:	Zone/ Easting/ Northing:
1	Lake Ontario: Lakeview Water Treatment Plant	Lake	Municipal	Water Supply	888,889	24	1,250,000,000	365	17 617200 4825400
2	Lake Ontario: Lorne Park Water Treatment Plant	Lake	Municipal	Water Supply	399,306	24	575,000,000	365	17 614193 4820155
						Total Taking:			

4. Monitoring

4.1 The Permit Holder shall, on each day water is taken under the authorization of this Permit, record the date, the volume of water taken on that date and the rate at which it was taken. The daily volume of water taken shall be measured by a flow meter. A separate record shall be maintained for each source. The Permit Holder shall keep all records required by this condition current and available at or near the site of the taking and shall produce the records immediately for inspection by a Provincial Officer upon his or her request.

4.2 The Permit Holder, unless otherwise required by the Director, shall submit, on or before March 31st of every year, the daily water taking data collected and recorded, as per Condition 4.1, for the previous year to the ministry's Water Taking Reporting System.

4.3 Any application submitted to the Ministry for renewal or amendment of this Permit shall

be accompanied by all records required by the conditions of this Permit.

5. Impacts of the Water Taking

5.1 Notification
The Permit Holder shall immediately notify the local District Office of any complaint arising from the taking of water authorized under this Permit and shall report any action which has been taken or is proposed with regard to such complaint. The Permit Holder shall immediately notify the local District Office if the taking of water is observed to have any significant impact on the surrounding waters. After hours, calls shall be directed to the Ministry's Spills Action Centre at 1-800-268-6060.

5.2 For Surface-Water Takings
The taking of water (including the taking of water into storage and the subsequent or simultaneous withdrawal from storage) shall be carried out in such a manner that streamflow is not stopped and is not reduced to a rate that will cause interference with downstream uses of water or with the natural functions of the stream.

6. Director May Amend Permit
The Director may amend this Permit by letter requiring the Permit Holder to suspend or reduce the taking to an amount or threshold specified by the Director in the letter. The suspension or reduction in taking shall be effective immediately and may be revoked at any time upon notification by the Director. This condition does not affect your right to appeal the suspension or reduction in taking to the Environmental Review Tribunal under the *Ontario Water Resources Act* , Section 100 (4).

The reasons for the imposition of these terms and conditions are as follows:

1. Condition 1 is included to ensure that the conditions in this Permit are complied with and can be enforced.

2. Condition 2 is included to clarify the legal interpretation of aspects of this Permit.

3. Conditions 3 through 6 are included to protect the quality of the natural environment so as to safeguard the ecosystem and human health and foster efficient use and conservation of waters. These conditions allow for the beneficial use of waters while ensuring the fair sharing, conservation and sustainable use of the waters of Ontario. The conditions also specify the water takings that are authorized by this Permit and the scope of this Permit.

In accordance with Section 100 of the Ontario Water Resources Act, R.S.O. 1990, you may by written Notice served upon me and the Environmental Review Tribunal within 15 days after receipt of this Notice, require a hearing by the Tribunal. Section 101 of the Ontario Water Resources Act, R.S.O. 1990, as amended, provides that the Notice requiring the hearing shall state:

1. The portions of the Permit or each term or condition in the Permit in respect of which the hearing is required, and;
2. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

In addition to these legal requirements, the Notice should also include:

3. The name of the appellant;
4. The address of the appellant;
5. The Permit to Take Water number;
6. The date of the Permit to Take Water;
7. The name of the Director;
8. The municipality within which the works are located;

This notice must be served upon:

The Secretary
Environmental Review Tribunal
655 Bay Street, 15th Floor
Toronto ON
M5G 1E5
Fax: (416) 326-5370
Email: ERTTribunalsecretary@ontario.ca

AND

The Director, Section 34.1, Ministry of the Environment and Climate Change
8th Floor
5775 Yonge St
Toronto ON M2M 4J1
Fax: (416) 325-6347

Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal:

by Telephone at	by Fax at	by e-mail at
(416) 212-6349	(416) 326-5370	www.ert.gov.on.ca
Toll Free 1(866) 448-2248	Toll Free 1(844) 213-3474	

This Permit cancels and replaces Permit Number 5021-83SL3X, issued on 2010/11/29.

Dated at Toronto this 23 rd day of March, 2016.

Ross Lashbrook
Director, Section 34.1
Ontario Water Resources Act , R.S.O. 1990

Schedule A

This Schedule "A" forms part of Permit To Take Water 1064-A6KQKQ, dated March 23, 2016.

1. Application for Permit to Take Water renewal for the Lakeview Water Treatment Plant signed by Andrew Farr and dated April 21, 2009.

2. Application for Permit to Take Water renewal for the Lorne Park Water Treatment Plant signed by Andrew Farr and dated October 1, 2007.

3. Letter titled "Regional Municipality of Peel: Increase in Existing Permit to Take Water 6715-678SQX dated December 6, 2004 Lakeview Water Treatment Plant" prepared by CH2MHILL, signed by Arun Jain, P.Eng., and dated February 18, 2010.

4. Letter Report - GENIVAR Ontario Inc. Oct. 3, 2007. Permit to Take Water Application Lorne Park Water Treatment Plant Expansion. Project # 5920 signed by Martin Gravel and Muin Husain of GENIVAR.

Schedule B

This "Schedule B" forms part of Permit to Take Water 1064-A6KQKQ issued to The Regional Municipality of Peel.

a) This Schedule B recognizes The Regional Municipality of York (York Region) as a Related Transferor (as defined in the OWRA s. 34.5 (1) and O. Reg. 387/04 s. 11) for water taken under the authority of this Permit to Take Water by the Permit Holder.

b) The total amount of water currently deemed to be transferred (i.e. baseline amount) by York Region is 105 million litres per day as considered and established in Prior Notice and Consultation under the Great Lakes Charter prior to December 31, 2014.

c) Permits to Take Water that relate to this intra-basin transfer agreement between the Permit Holders and the Related Transferor and that supply water to be transferred to York Region are:

PTTW No. 1866-A6QHRP, issued to the City of Toronto on March 23, 2016
PTTW No. 0726-A6QJTA, issued to the City of Toronto on March 23, 2016
PTTW No. 6604-A6QKEB, issued to the City of Toronto on March 23, 2016
PTTW No. 0016-A6QKN2, issued to the City of Toronto on March 23, 2016
PTTW No. 1064-A6KQKQ, issued to The Regional Municipality of Peel on March 23, 2016

d) The total transferable amount of 105 million litres per day is a combined amount for all Lake Ontario sources identified under the Permits to Take Water listed in condition c).

e) York Region shall monitor and report annually to the MOECC Central Region Director and to the MNRF Natural Resources Conservation Policy Branch Director monthly volumes and a calculated daily average amount of its intra-basin transfer in the preceding calendar year. The annual report shall be submitted no later than March 31st each year.

f) York Region shall carry out the Long-Term Water Conservation Strategy dated March 31, 2011, as may be amended from time to time, as outlined in the joint MOECC and MNRF letter to The Regional Municipality of York, dated September 14, 2010.

Appendix D: MPAC Property Codes Description

Property Code	MPAC Property Codes Description	Category	Sub Category
-1	Undefined	Other	Undefined
100	Vacant residential land not on water	Residential	Others
101	Second tier vacant lot – refers to location not being directly on the water but one row back from the water	Other	Others
102	Conservation Authority Land	Other	Others
103	Municipal park (excludes Provincial parks, Federal parks, campgrounds)	ICI	Others
105	Vacant commercial land	ICI	Others
106	Vacant industrial land	ICI	Others
107	Provincial park	Other	Others
108	Federal park	Other	Others
109	Large land holdings, greater than 1000 acres	Other	Others
110	Vacant residential/recreational land on water	Residential	Other
111	Island under single ownership	Other	Other
112	Multi-residential vacant land	Residential	Multi-Units
113	Condominium development land - residential (vacant lot)	Residential	Multi-Units
114	Condominium development land - non-residential (vacant lot)	ICI	Others

Property Code	MPAC Property Codes Description	Category	Sub Category
115	Property in process of redevelopment utilizing existing structure(s)	Other	Others
120	Water lot (entirely under water)	Other	Others
125	Residential development land	Residential	Other
127	Townhouse block - freehold units	Residential	Multi-Units
130	Non-buildable land (walkways, buffer/berm, storm water management pond, etc.)	Other	Others
134	Land designated and zoned for open space	Other	Others
140	Common land	Other	Others
150	Mining lands - patented	Other	Others
151	Mining lands - unpatented	Other	Others
155	Land associated with power dam	Other	Others
169	Vacant land condominium (residential)	Residential	Multi-Units
200	Farm property without any buildings/structures	ICI	Others
201	Farm with residence - with or without secondary structures; no farm outbuildings	ICI	Others
210	Farm without residence - with secondary structures; with farm outbuildings	ICI	Others
211	Farm with residence - with or without secondary structures; with farm outbuildings	ICI	Others

Property Code	MPAC Property Codes Description	Category	Sub Category
220	Farm without residence - with commercial/industrial operation	ICI	Others
221	Farm with residence - with commercial/industrial operation	ICI	Others
222	Farm with a winery	ICI	Others
223	Grain/seed and feed operation	ICI	Others
224	Tobacco farm	ICI	Others
225	Ginseng farm	ICI	Others
226	Exotic farms i.e. emu, ostrich, pheasant, bison, elk, deer	ICI	Others
227	Nut Orchard	ICI	Others
228	Farm with gravel pit	ICI	Others
229	Farm with campground/mobile home park	ICI	Others
230	Intensive farm operation - without residence	ICI	Others
231	Intensive farm operation - with residence	ICI	Others
232	Large scale greenhouse operation	ICI	Others
233	Large scale swine operation	ICI	Others
234	Large scale poultry operation	ICI	Others
235	Government - agriculture research facility - predominately farm property	ICI	Others
236	Farm with oil/gas well(s)	ICI	Others

Property Code	MPAC Property Codes Description	Category	Sub Category
240	Managed forest property, vacant land not on water	Other	Others
241	Managed forest property, vacant land on water	Other	Others
242	Managed forest property, seasonal residence not on water	Other	Others
243	Managed forest property, seasonal residence on water	Other	Others
244	Managed forest property, residence not on water	Other	Others
245	Managed forest property, residence on water	Other	Others
260	Vacant residential/commercial/industrial land, owned by a non-farmer with a portion being farmed	ICI	Others
261	Land owned by a non-farmer improved with a non-farm residence with a portion being farmed	ICI	Others
262	Land owned by a farmer improved with a non-farm residence with a portion being farmed	ICI	Others
301	Single-family detached (not on water)	Residential	Single-Family
302	More than one structure used for residential purposes with at least one of the structures occupied permanently	Residential	Multi-Units
303	Residence with a commercial unit	ICI	Others
304	Residence with a commercial/industrial use building	ICI	Others

Property Code	MPAC Property Codes Description	Category	Sub Category
305	Link home	Residential	Single-Family
306	Boathouse with residence above	Residential	Others
307	Community lifestyle (not a mobile home park) – Typically, a gated community. The site is typically under single ownership. Typically, people own the structure.	Residential	Multi-Units
309	Freehold Townhouse/Row house	Residential	Multi-Units
311	Semi-detached residential	Residential	Single-Family
313	Single-family detached on water	Residential	Single-Family
314	Clergy residence	Residential	Others
322	Semi-detached with both units under one ownership	Residential	Multi-Units
332	Duplex	Residential	Multi-Units
333	Residential property with three self-contained units	Residential	Multi-Units
334	Residential property with four self-contained units	Residential	Multi-Units
335	Residential property with five self-contained units	Residential	Multi-Units

Property Code	MPAC Property Codes Description	Category	Sub Category
336	Residential property with six self-contained units	Residential	Multi-Units
340	Multi-residential, with seven or more self-contained units	Residential	Multi-Units
341	Multi-residential, high-rise property with seven or more self-contained residential units with small service-oriented commercial units, designed to service the residential tenants residing in the apartment building, e.g., hair salon, dry cleaner, variety store	Residential	Multi-Units
350	Row housing, with three to six units under single ownership	Residential	Multi-Units
352	Row housing, with seven or more units under single ownership	Residential	Multi-Units
360	Rooming or boarding house	Residential	Multi-Units
361	Bachelorette, typically a converted house with 7 or more self-contained units	Residential	Multi-Units
363	Housekeeping cottages - no American plan	Residential	Others
364	House-keeping cottages - less than 50% American plan – typically a mini resort where you rent a cabin and package plans are available. Activities, meals, etc. maybe included.	Other	Others
365	Group Home as defined in the Municipal Act 2001	ICI	Others
366	Student housing (off campus) – residential property licensed for rental by students.	Residential	Multi-Units

Property Code	MPAC Property Codes Description	Category	Sub Category
368	Residential Dockominium – owners receive a deed and title to the boat slip. Ownership is in fee simple title and includes submerged land and air rights associated with the slip. Similar to condominium properties, all common elements are detailed in the declaration.	Residential	Others
369	Vacant land condominium (residential - improved)	Residential	Multi-Units
370	Residential condominium	Residential	Multi-Units
371	Life Lease - No Redemption. Property where occupants have either no or limited redemption amounts. Typically Zero Balance or Declining Balance Life Lease Types.	Residential	Others
372	Life Lease - Return on Invest (guarantee return or market value based return on investment)	Residential	Others
373	Cooperative housing – equity – Equity Co-op corporations are owned by shareholders. The owners of shares do not receive title to a unit in the building, but acquire the exclusive use of a unit and are able to participate in the building's management.	Residential	Multi-Units
374	Cooperative housing - non-equity	Residential	Multi-Units
375	Co-ownership – percentage interest/share in the co-operative housing.	Residential	Multi-Units
376	Condominium locker unit – separately deeded.	Residential	Multi-Units

Property Code	MPAC Property Codes Description	Category	Sub Category
377	Condominium parking space unit	Residential	Multi-Units
378	Residential Leasehold Condominium Corporation – single ownership of the development where the units are leased.	Residential	Multi-Units
379	Residential phased Condominium Corporation	Residential	Multi-Units
380	Residential common elements Condominium Corporation	Residential	Multi-Units
381	Mobile home – one or more mobile home on a parcel of land, which is not a mobile home park operation.	Residential	Others
382	Mobile home park	Residential	Others
383	Bed and Breakfast establishment	ICI	Others
385	Time-share, fee simple	Other	Others
386	Time share, right-to-use	Other	Others
391	Seasonal/recreational dwelling - first tier on water	Residential	Others
392	Seasonal/recreational dwelling - second tier on water	Residential	Others
395	Seasonal/recreational dwelling - not located on water	Residential	Others
400	Small office building, generally single tenant or owner-occupied under 7,500 square feet	ICI	COM

Property Code	MPAC Property Codes Description	Category	Sub Category
401	Small medical/dental building, generally single tenant or owner-occupied under 7,500 square feet	ICI	COM
402	Large office building, generally multi - tenanted, over 7,500 square feet	ICI	COM
403	Large medical/dental building, generally multi-tenanted over 7,500 square feet	ICI	COM
405	Office use converted from house	ICI	COM
406	Retail use converted from house	ICI	COM
407	Retail lumber yard	ICI	COM
408	Freestanding Beer Store or LCBO - not associated with power or shopping centre	ICI	COM
409	Retail - one storey, generally over 10,000 square feet	ICI	COM
410	Retail - one storey, generally under 10,000 square feet	ICI	COM
411	Restaurant - conventional	ICI	COM
412	Restaurant - fast food	ICI	COM
413	Restaurant - conventional, national chain	ICI	COM
414	Restaurant - fast food, national chain	ICI	COM
415	Concert hall/theatre/cinema/movie house/drive-in theatre	ICI	COM
416	Concert hall/live theatre	ICI	COM

Property Code	MPAC Property Codes Description	Category	Sub Category
417	Entertainment complex - with a large cinema as anchor tenant	ICI	COM
419	Automotive service centre, highway - 400 series highways	ICI	COM
420	Automotive fuel station with or without service facilities	ICI	COM
421	Specialty automotive shop/auto repair/collision service/car or truck wash	ICI	COM
422	Auto dealership	ICI	COM
423	Auto dealership - independent dealer or used vehicles	ICI	COM
425	Neighbourhood shopping centre with more than two stores attached and under one ownership, with anchor - generally less than 150,000 square feet	ICI	COM
426	Small box shopping centre less than 100,000 square feet. Minimum three box stores with one anchor (large grocery or discount store)	ICI	COM
427	Big box shopping/power centre, greater than 100,000 square feet with two or more main anchors, such as discount or grocery stores, with a collection of box or strip stores and in a commercial concentration concept	ICI	COM
428	Regional shopping centre	ICI	COM
429	Community shopping centre	ICI	COM

Property Code	MPAC Property Codes Description	Category	Sub Category
430	Neighbourhood shopping centre with more than two stores attached and under one ownership, without anchor - generally less than 150,000 square feet	ICI	COM
431	Department store	ICI	COM
432	Banks and similar financial institutions, including credit unions - typically single tenanted, generally less than 7,500 square feet	ICI	COM
433	Banks and similar financial institutions, including credit unions - typically single tenanted, generally greater than 7,500 square feet	ICI	COM
434	Free-standing supermarket	ICI	COM
435	Large retail building centre - generally greater than 30,000 square feet	ICI	COM
436	Free-standing large retail store, national chain - generally greater than 30,000 square feet	ICI	COM
438	Neighbourhood shopping centre with offices above	ICI	COM
441	Tavern/public house/small hotel	ICI	COM
444	Full service hotel	ICI	COM
445	Limited service hotel	ICI	COM
446	Apartment hotel	ICI	COM
447	Condominium Hotel Unit	ICI	COM

Property Code	MPAC Property Codes Description	Category	Sub Category
450	Motel	ICI	COM
451	Seasonal motel	ICI	COM
460	Resort hotel	ICI	COM
461	Resort lodge	ICI	COM
462	Country inns & small inns	ICI	COM
463	Fishing/hunting lodges/resorts	ICI	COM
465	Child and community oriented camp/resort	ICI	COM
470	Multi-type complex - defined as a large multi-use complex consisting of retail/office and other uses (multi res/condominium/hotel)	ICI	COM
471	Retail or office with residential unit(s) above or behind - less than 10,000 square feet gross building area (GBA), street or onsite parking, with six or less apartments, older downtown core	ICI	COM
472	Retail or office with residential unit(s) above or behind - greater than 10,000 sq.ft. GBA, street or onsite parking, with 7 or more apartments, older downtown core	ICI	COM
473	Retail with more than one non-retail use	ICI	COM
475	Commercial condominium	ICI	COM
476	Commercial condominium (live/work)	ICI	COM
477	Retail with office(s) - less than 10,000 square feet gross building area (GBA) with offices above	ICI	COM

Property Code	MPAC Property Codes Description	Category	Sub Category
478	Retail with office(s) - greater than 10,000 square feet gross building area (GBA) with offices above	ICI	COM
480	Surface parking lot - excludes parking facilities that are used in conjunction with another property	ICI	COM
481	Parking garage - excludes parking facilities that are used in conjunction with another property	ICI	COM
482	Surface parking lot - used in conjunction with another property	ICI	COM
483	Parking garage - used in conjunction with another property	ICI	COM
486	Campground	ICI	COM
487	Billboard	ICI	COM
489	Driving range/golf centre - stand-alone, not part of a regulation golf course	ICI	COM
490	Golf course	ICI	COM
491	Ski resort	ICI	COM
492	Marina - located on waterfront - defined as a commercial facility for the maintenance, storage, service and/or sale of watercraft	ICI	COM
493	Marina - not located on waterfront - defined as a commercial facility for the maintenance, storage, service and/or sale of watercraft	ICI	COM
495	Communication towers - with or without secondary communication structures	ICI	COM

Property Code	MPAC Property Codes Description	Category	Sub Category
496	Communication buildings	ICI	COM
500	Mines - active	ICI	IND
501	Mines - inactive, including properties where closure plans invoked	ICI	IND
502	Mine tailings site associated with an active mine	ICI	IND
503	Mine tailings site not associated with an active mine	ICI	IND
504	Oil/gas wells	ICI	IND
505	Sawmill/lumber mill	ICI	IND
506	Forest products - including value added plywood/veneer plants	ICI	IND
510	Heavy manufacturing (non-automotive)	ICI	IND
511	Pulp and paper mill	ICI	IND
512	Cement/asphalt manufacturing plant	ICI	IND
513	Steel mill	ICI	IND
514	Automotive assembly plant	ICI	IND
515	Shipyard/dry-dock	ICI	IND
516	Automotive parts production plant	ICI	IND
517	Specialty steel production (mini-mills)	ICI	IND
518	Smelter/ore processing	ICI	IND

Property Code	MPAC Property Codes Description	Category	Sub Category
519	Foundry	ICI	IND
520	Standard industrial properties not specifically identified by other Industrial Property Codes	ICI	IND
521	Distillery/brewery	ICI	IND
522	Grain elevators - Great Lakes waterway	ICI	IND
523	Grain handling - Primary elevators (including feed mills)	ICI	IND
525	Process elevators - flour mills, oilseed crushing, malt houses	ICI	IND
527	Abattoir/slaughter house/rendering plants	ICI	IND
528	Food processing plant	ICI	IND
529	Freezer plant/cold storage	ICI	IND
530	Warehousing	ICI	IND
531	Mini-warehousing	ICI	IND
532	Dry Cleaning Plant	ICI	IND
535	Research and development facilities	ICI	IND
540	Other industrial (all other types not specifically defined)	ICI	IND
541	Printing plant	ICI	IND
544	Truck terminal	ICI	IND
545	Major distribution centre	ICI	IND

Property Code	MPAC Property Codes Description	Category	Sub Category
550	Petro-chemical plant	ICI	IND
551	Oil refinery	ICI	IND
552	Tank farm	ICI	IND
553	Bulk oil/fuel distribution terminal	ICI	IND
555	O.P.G. Hydraulic Generating Station	ICI	IND
556	O.P.G. Nuclear Generating Station	ICI	IND
557	O.P.G. Fossil Generating Station	ICI	IND
558	Hydro One Transformer Station	ICI	IND
559	MEU Generating Station	ICI	IND
560	MEU Transformer Station	ICI	IND
561	Hydro One Right-of-Way	ICI	IND
562	Private Hydro Rights-of-Way	ICI	IND
563	Private Hydraulic Generating Station	ICI	IND
564	Private Nuclear Generating Station	ICI	IND
565	Private Generating Station (Fossil Fuels and Cogen)	ICI	IND
566	Private Transformer Station	ICI	IND
567	Wind Turbine	ICI	IND
575	Industrial condominium	ICI	IND

Property Code	MPAC Property Codes Description	Category	Sub Category
580	Industrial mall	ICI	IND
588	Pipelines - transmission, distribution, field & gathering and all other types including distribution connections	ICI	IND
589	Compressor station - structures and turbines used in connection with transportation and distribution of gas	ICI	IND
590	Water treatment/filtration/water towers/pumping station	ICI	IND
591	Sewage treatment/waste pumping/waste disposal	ICI	IND
592	Dump/transfer station/incineration plant/landfill	ICI	IND
593	Gravel pit, quarry, sand pit	ICI	IND
594	Peat moss operation	ICI	IND
595	Heat or steam plant	ICI	IND
596	Recycling facility	ICI	IND
597	Railway right-of-way	ICI	IND
598	Railway buildings and lands described as assessable in the Assessment Act	ICI	IND
599	GO transit station/rail yard	ICI	IND
601	Post-secondary education - university, community college, etc.	ICI	INST
602	Multiple occupancy educational institutional	ICI	INST

Property Code	MPAC Property Codes Description	Category	Sub Category
	residence located on or off campus		
605	School (elementary or secondary, including private)	ICI	INST
608	Day care	ICI	INST
610	Other educational institution (e.g. schools for the blind, deaf, special education, training)	ICI	INST
611	Other institutional residence (e.g. convents)	ICI	INST
621	Hospital, private or public	ICI	INST
623	Continuum of care seniors facility	ICI	INST
624	Retirement /nursing home (combined)	ICI	INST
625	Nursing home	ICI	INST
626	Old age/retirement home	ICI	INST
627	Other health care facility	ICI	INST
630	Federal penitentiary or correctional facility	ICI	INST
631	Provincial correctional facility	ICI	INST
632	Other correctional facility	ICI	INST
700	Place of worship - with a clergy residence	ICI	Others
701	Place of worship - without a clergy residence	ICI	Others
702	Cemetery	ICI	Others
703	Cemetery with non-internment services	ICI	Others

Property Code	MPAC Property Codes Description	Category	Sub Category
704	Crematorium	ICI	Others
705	Funeral Home	ICI	COM
710	Recreational sport club - non-commercial (excludes golf clubs and ski resorts)	ICI	Others
711	Bowling alley	ICI	COM
713	Casino	ICI	Others
715	Racetrack - auto	ICI	Others
716	Racetrack - horse, with slot facility	ICI	Others
717	Racetrack - horse, without slot facility	ICI	Others
718	Exhibition grounds/fair grounds	ICI	Others
720	Commercial sport complex	ICI	Others
721	Non-commercial sport complex	ICI	Others
722	Professional sports complex	ICI	Others
725	Amusement park	ICI	COM
726	Amusement park - large/regional	ICI	Others
730	Museum and/or art gallery	ICI	Others
731	Library and/or literary institutions	ICI	Others
733	Convention, conference, congress centre	ICI	Others
734	Banquet Hall	ICI	COM

Property Code	MPAC Property Codes Description	Category	Sub Category
735	Assembly hall, community hall	ICI	Others
736	Clubs - private, fraternal	ICI	Others
737	Federal airport	ICI	Others
738	Provincial airport	ICI	Others
739	Local government airport	ICI	Others
740	Airport leasehold	ICI	Others
741	Airport Authority	ICI	Others
742	Public transportation - easements and rights	ICI	Others
743	International bridge/tunnel	ICI	Others
744	Private airport/hangar	ICI	Others
745	Recreational airport	ICI	Others
746	Subway station	ICI	Others
748	Transit garage	ICI	Others
749	Public transportation - other	ICI	Others
750	Scientific, pharmaceutical, medical research facility (structures predominantly other than office)	ICI	Others
755	Lighthouses	ICI	Others
760	Military base or camp (CFB)	ICI	Others
761	Armoury	ICI	Others

Property Code	MPAC Property Codes Description	Category	Sub Category
762	Military education facility	ICI	Others
805	Post Office	ICI	Others
806	Postal mechanical sorting facility	ICI	Others
810	Fire Hall	ICI	Others
812	Base	ICI	Others
815	Police Station	ICI	Others
822	Government - agricultural research facility - predominantly non-farm property (office building, laboratories)	ICI	Others
824	Government - wharves and harbours	ICI	Others
826	Government - special educational facility	ICI	Others
828	Government - canals and locks	ICI	Others
830	Government - navigational facilities	ICI	Others
832	Government - historic site or monument	ICI	Others
840	Port authority - port activities	ICI	Others
842	Port authority - other activities	ICI	Others

THE REGIONAL MUNICIPALITY OF YORK

ANNUAL REPORT

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York Region