



Town of Newmarket  
2023 Annual Wastewater Collection System  
Performance Report

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## Executive Summary

**This 2023 Annual Performance Report (the Report) provides the results of the operation and maintenance of the Newmarket Wastewater Collection System (the Collection System), Facility # 2256.**

This Report attempts to identify and create baseline information to assist the Town with ongoing monitoring, reporting and continual improvement of the system performance.

The Town's sewage is collected and conveyed primarily via gravity to the Duffin Creek Water Pollution Plant, located in the City of Pickering. The Dufferin Creek Plant is jointly owned by the Regional Municipalities of York and Durham and is operated by the Regional Municipality of York (the Region).

The Town of Newmarket Wastewater Collection system includes approximately 283.75 kilometres of sanitary sewer and six (6) Sewage Pumping Stations (SPS).

In 2023, the Town complied with all Ministry of the Environment, Conservation and Parks (MECP) regulatory requirements as per the Environmental Compliance Approvals (ECA). This primarily involves monitoring, reporting and record-keeping. In addition, performance indicators were identified, such as, sewer back-ups, spills, overflows, flow monitoring, alarm response and complaints from the public.

In 2023, the Town had one (1) reported sewage backup(s) in the collection system that resulted in either property damage or a spill into the environment. In addition, the Town responded to 46 blockages in private sewer connections (laterals); and 2 odour complaints.

## Introduction

This Report is prepared to satisfy new reporting requirements identified by the Ministry of the Environment, Conservation and Parks (MECP, or the "Ministry") as related to Sewage Collection Systems. In 2020, the Ministry informed municipalities of the new *Area-Wide Consolidated Linear Infrastructure - Environmental Compliance Approval (CLI-ECA)*, which will replace all existing ECAs with a single over-arching approval document. The new *Area-Wide CLI-ECA* requires the submission of an annual performance report and more documentation of the operation of collection systems. It also provides benefits and efficiencies to the Town such as pre-authorizations for minor modifications, expansions, and alterations to the system.

## Report Overview

The Town provides sanitary collection service to the community of Newmarket, with an approximate serviced population of 81,285. This Report is organized to address the following aspects of the Town’s Collection System:

1. An overview of the Collection System performance including compliance with ECA requirements, and identification of operational indicators.
2. A description of the maintenance activities carried out in 2023.
3. An overview of the Town and Region’s support programs for the Collection System.
4. A description of the monitoring equipment used and calibration frequencies.

## Description of the Collection System

The Collection System is owned and operated by the Town of Newmarket and is classified by the MECP as a Class II Wastewater Collection System. The Collection System serves approximately 81,285 residents. The Collection System includes:

- 281.40 km of Gravity Sewers (Table 1)
- 2.35km of Force mains
- 6 sewage pumping stations (SPS)
- 27,095 lateral connections (households, industrial, commercial, institutional)
- 4302 maintenance holes (MH)
- 2 odour/corrosion control systems

A map of the Collection System is included in Appendix A.

**Table 1. Wastewater Collection System by Length**

System Type	Pipe Diameter (mm)	Length (km)	Total Length (km)
<b>Gravity Sewers</b>	40 – 250	222.2	<b>281.40</b>
	300 – 500	47.55	
	525 – 1,050	11.6	
	≥ 1,200	0	
<b>Force mains</b>	0 – 250	0.81	<b>2.35</b>
	300 - 500	1.55	
	≥ 525	0	
<b>Total Length</b>			<b>283.75</b>

Ownership and responsibility of Water and Wastewater Infrastructure is shared between the Town of Newmarket and the York Region. In 2020, the Town-Region Water / Wastewater Asset Ownership Agreement was established. This agreement outlines and governs the jurisdiction over the Town of Newmarket and the Regional Municipality of York owned Assets. This agreement is intended to delineate the ownership boundary of Regional Infrastructure in areas of non-exclusive jurisdiction, as defined in *Section 11* of the *Municipal Act, 2001* (i.e., Town owned areas, with region owned infrastructure).

This agreement allows the Region to efficiently manage, operate, maintain, monitor, plan and construct Regional Infrastructure in areas of non-exclusive jurisdiction (i.e., Town owned sanitary collection system, or Town owned water distribution system).

## Performance Overview

The following Key Performance Indicators were selected to provide an overview of the Collection System performance:

- The Town's compliance with the ECA requirements, which includes Contingency Plans and Emergency Response to overflow, by-pass, spill, and surcharge events, and the associated monitoring and reporting.
- Alarm system analyses to monitor the operation of the sewage pumping stations (SPS)
- Regional flow monitoring comparisons to Town flow monitoring to address system upsets associated with the trunk sewers and its connection to the Town of Newmarket sewage collection system.
- Complaints received from the public.

**These indicators will be used to establish a baseline to assess the system performance in subsequent years.**

## Compliance with ECA Requirements

In 2023, the Town complied with all requirements from the existing ECAs. Relevant ECA requirements include:

- Overflow and spill event reports to the Ministry's Spills Action Centre (SAC) and the Medical Officer of Health, as required.
- SPS overflow reports including details of sampling results and corrective actions taken.
- Preparation of the Collection System Operations and Maintenance Manual
- Notification of the Collection System modifications through the provision of Limited Operational Flexibility

The Town of Newmarket received its approved Environmental Compliance Approval for Municipal Sewage Collection System on November 17<sup>th</sup> 2022.

## Overflow & Spill Monitoring & Reporting

All overflow and spill events are reported to the MECP, verbally and in writing. These reports include event details including estimates of duration and overflow volume. In 2023, there were two (2) sewage backups, (one of which also resulted in a spill, all of which were reported to the MECP, as required. A summary of these events is included in **Table 2**.

Through the towns Sewer Mainline Inspections, staff review CCTV Inspection videos and reports collected to identify critical deficiencies in the system. Acting upon those deficiencies remains a task for subsequent years.

**Table 2. Summary of Sewage Back-up & Pumping Station Overflow Events**

Date	Location	Event Details
03-29-2023	150 Pony Dr.	Sanitary lateral backup, spilled into ditch
09-19-2023	441 Sandford ave.	Mainline Backup, 1 home affected

The Sanitary lateral back up that occurred on 29 March 2023 was isolated to the single sanitary lateral servicing 150 Pony Drive (industrial building). The Spills Action Center (SAC) provided the Town with a incident reference number (1-33YBGX). The sewage was contained to the ditch using a combination of booms and hay bales and cleaned up using vacuum excavation to physically remove the material. The cause was determined to be a property line maintenance hole that had been damaged most likely from a winter maintenance vehicle during a winter driveway clearing event. A piece of concrete (from the structure) was removed from the discharge pipe in the manhole. Further inspection of the pipe showed it to be intact with no deficiencies.

The Event that occurred on 19 September 2023 was reported to the Town through the Customer Service calls center by a resident experiencing a sanitary sewage back within their basement. Upon further investigation, the location of the blockage was identified in a Maintenance Hole downstream from their service containing a drop structure. The structure had become plugged with a combination of biosolids and rags that, over time created a blockage that did not allow the flow to travel its normal travel route through the structure. Although flow continued to travel through the maintenance hole structure, the decrease in flow capacity caused sewage to back up in the main sewer line and made its way into the closest residential sewer service. Town staff were able to physically remove the blockage within the drop structure and once flow had returned to normal, Town operations staff performed routine flushing and inspection of the main sewer to ensure there was no more buildup of biosolids. This was not called into SAC as no sewage was released into the natural environment.

**Operation and Maintenance Manual**

Town staff are in the process of documenting existing programs and practices for the operation and maintenance of the Wastewater Collection System. Completion of this Operation and Maintenance Manual (OMM) remains a goal for 2024. The OMM will include a description of all operational procedures, repair and maintenance programs, equipment inspections and calibration, the Town’s emergency response procedures/practices, spill reporting and contingency plans, and the Town’s protocol for

receiving and responding to complaints from the public, and any associated standard operating procedures that are applicable.

### Operational Alarms

The Town relies on an independent alarm monitoring company to monitor various alarms at each of our Pumping Stations. In 2023, Fire Monitoring Company (FMC) was performing this task as part of a contract. FMC monitors alarms such as illegal entry to the building, pressure and/or flow sensors, backup power/generator sensors, and various wet well level sensor equipment.

### Flow Monitoring

The Town of Newmarket works with York region and relies on their flow monitoring program which is comprised of approximately 28 flow monitors strategically located throughout the Town and Region owned Collection System within the municipality boundaries. These flow monitors are meant to provide flow information for Inflow and Infiltration (I/I) analysis of the system and potential effects to the Regional Wastewater Treatment Facilities. These monitors serve as tools to calibrate the Region hydraulic model and assist in identifying I/I issues.

The Regional flow monitors trigger alarms, which the Region relays to the Town. These alarms are only informational and not for operating purposes. This information is used to assess systemic I/I issues on parts of the system and to mitigate and reduce risks of potential overflows before they occur.

### Summary of Customer Concerns / Call Tracking

Calls are received from the public and are tracked in the Town’s Customer Relation Management (CRM) system. Once a call or concern is received, a “Heat Ticket” is created and forwarded to staff to investigate and remediate the situation as best as possible. All work completed as part of this CRM system is tracked through the heat tickets and are recorded under various subtypes and/or activities for analysis and reporting.

**Table 3. Complaints Received in 2023 by Type**

Type of Complaint	Complaint Description	No. of Complaints
<b>Mainline Sewer Backup</b>	Sewer backups due to obstructions in mainline sewers	2
<b>Lateral Sewer Backup</b>	Sewer backups due to obstructions in sewer laterals (private side)	23
<b>Sanitary Odour</b>	Sanitary odours experienced indoors and outside	2
<b>Maintenance Hole Issues</b>	Maintenance hole issues such as dislodged or broken covers	12
<b>Total</b>		<b>39</b>

The most common complaints that the Town receives related to the Collection System are:

- a) mainline and lateral sewer backups; and
- b) Maintenance Hole Issues

In 2023, there were 39 public complaints associated with the Wastewater Collection System, which included: 23 blockages within private laterals; 2 sewer back-ups on public sewer mains; 12 maintenance hole issues, and 2 odour complaints (Table 3). All complaints are investigated, and persistent issues are addressed through additional investigation, flushing, repairs of infrastructure, or operational adjustments.

### **Inflow and Infiltration**

In 2012, the Region and all nine lower-tier municipalities approved and adopted the Inflow and Infiltration (I/I) Mitigation and Reduction Strategy (I/I Strategy). Through the I/I Strategy many operational and maintenance programs will be adjusted to address specific I/I areas.

The Strategy involves a holistic approach to reducing extraneous flows into the sanitary sewer system that considers improved engineering standards for construction and testing of new systems, flow monitoring, modelling micro-watershed surveys, downspout disconnection, smoke/dye testing, CCTV inspections, and collection system repairs.

## **Maintenance Programs**

### **Linear Infrastructure**

The Town has ~280.5 km of gravity sewers and ~2.3 km of force mains. Maintenance of the linear infrastructure involves performing CCTV inspections, flushing, and cleaning the sewers, and spot repairs. A summary of the maintenance activities completed are provided in Table 4 below. Each activity is detailed below.

**Table 4. Linear Maintenance Performed in 2023**

Description	Quantity
Length of Sewer Inspected Using CCTV	13.5 km
Length of Sewer Flushed (Contracted)	2.2 km
Length of Sewer Flushed (internal)	1.9km
Sanitary Laterals inspected (contracted)	87 ea.
Sanitary Laterals inspected (internal)	12 ea.
Length of Sewer Inspected Using Acoustic Monitoring (SLRat)	36km



### **Length of Sewer Inspected Using CCTV**

The Town of Newmarket inspected a total of 13.5 km's of sewer main. This work was comprised of operational and capital projects throughout the Town in 2023.

### **Length of Sewer Flushed**

The Town of Newmarket flushed a total of 4.1 km's of sewer main between internal operations and contracted services.

### **Sanitary Laterals Inspected**

The Town of Newmarket inspected a total of 99 sewer laterals in 2023. These were completed using internal staff and contracted services.

### **Length of Sewer Inspected Using Acoustic Monitoring (SL Rat)**

In 2023, a total of 36 km of sewers were analyzed using radio acoustic telemetry with the SL Rat. Additionally, Town staff inspected 515 maintenance holes in conjunction with the SL RAT program.

### **Points of Interest (POI) Inspection Program**

To mitigate issues at sewer locations that had previous issues or deficiencies, the town will, for a duration, regularly conduct a visual inspection to ensure any corrective actions that have been made remain effective. The Town has identified these locations as a "Point of Interest" inspection program. POI's are regularly inspected and periodically cleaned using high pressure flushing and eventually removed from the list. In 2023, a POI list was maintained. Any inspections and/or maintenance has been documented using a document that is updated on a regular basis.

### **Sewage Pumping Stations and Facilities**

The Collection System also includes: 6 Sewage Pumping Stations (SPS); 1 Odour control systems; (refer to Appendix B below for a list of station locations and odor control system)

The Town has the following maintenance programs:

- 1) **Preventative Maintenance** – conducted on a routine basis to maintain the equipment in good working order and lessen the likelihood of failure.
- 2) **Corrective Maintenance** – conducted to correct deficiencies discovered during routine inspections or preventative maintenance activities and return to working order state.
- 3) **Emergency Maintenance** – conducted in response to the Alarm system - high priority alarms, or through observed emergencies within the System.

The general maintenance performed at facilities includes weekly inspections, wet well cleaning, mechanical inspection, and electrical inspections. A description of inspection and preventative maintenance activities is provided in Appendix D.

### Equipment Calibration

Flow meters, level sensors and pressure sensors are used within our pumping stations to assist in monitoring various processes and functions. To ensure proper functioning of the monitoring equipment, the equipment is calibrated on a regular basis by a certified third-party contractor. The number of flow meters, level sensors and pressure sensors used in the Collection System, along with their calibration frequency, is provided in Table 5 below.

**Table 5. Equipment Calibration Frequency**

<b>Type of Equipment</b>	<b>Location</b>	<b>Count</b>	<b>Calibration Frequency</b>
Flow Meters	- Bayview P.S. (1) - Woodland Hills P.S. (1)	2	Annual
Ultrasonic Sensor	- Northwest (2) - Woodmount (1) - Bayview (1)	4	Annual
Hydrostatic Sensor	- Bayview (1) - Woodland Hills P.S. (2)	3	Annual



## **Appendix A – Newmarket Wastewater Collection System Map**

**Appendix B – List of Pumping Stations and Facilities Pumping Stations**

#	SPS Name	Location
1	Bayview pumping station	16300 Bayview Ave
2	St. Andrews pumping station	409 Sydor ct.
3	Woodmount pumping station	Fronting 249
4	Seniors center pumping	474 Davis dr.
5	Northwest pumping station	286 Woodspring ave.
6	Woodland Hills pumping	250 Frederick Curran

**Appendix C - Odour Control System Locations**

#	Odour Control System	SPS Name	Location
1	Bioteg vent pipe Biofilter	Woodland Hills (x6)	250 Frederick Curran

### Appendix D – Description of Facilities Inspections & Preventative Maintenance Activities

Activity	Description	Frequency
<b>Standby Generator Test</b>	Completed monthly and quarterly by staff and contractor to ensure generator operability in case of power failure. Deficiencies are documented on work order, station logbook and generator form for follow up.	Monthly (Town) Quarterly/Semi/annual (contractor)
<b>Standby Generator Load Test</b>	The full load test is completed annually through contracted services. The generator is tested under full load of the facility for a longer period to ensure the generator can perform properly during a loss of power event.	Annual (contractor)
<b>Wet Well Cleaning</b>	Completed in spring and fall. Wet Well is pumped down and pressure washed to remove debris, grease and build-up.	Semi-annual (contractor)
<b>Odour Control Units - Inspection</b>	Units are inspected and filters are changed as needed.	Monthly inspection/changed as required
<b>Building Maintenance and Cleaning</b>	Activity includes standard custodial maintenance, restocking of supplies and visual inspection of structure and property	Monthly
<b>SPS Inflow Screen Maintenance</b>	Check for debris and clean out as needed. Bayview pumping station screens cleaned twice a week, Northwest once a week	Weekly (Town)
<b>Facility Valve Inspection</b>	Visual inspection and exercising of the valves, recorded on a Maintenance Activity Worksheet	Monthly (Town)
<b>Facility QA/QC Inspections</b>	A walkthrough of all sewage pumping stations. Supports the daily Inspection program to ensure that the facilities are being well kept and clean. Findings are reported back in a station logbook and they are tracked and addressed.	Daily/Weekly/Monthly (Town)
<b>Facility Backflow Preventor Inspections</b>	Annual Inspection. Tested and inspected and a Maintenance Activity Worksheet is completed to record findings	Annually (Town Plumber)
<b>Overflow Inspections</b>	Overflow inspections are completed monthly at all applicable overflows associated with the sewage pumping stations. The visual inspection is completed. Any deficiencies are reported, and corrective action is taken to mitigate the overflows capabilities.	Monthly (Town)