YORK REGION

Municipal Sewage Collection System

Wastewater Annual Performance Report

for the 2023 Calendar Year

Prepared pursuant to reporting requirements under
Environmental Compliance Approval #013-W601

Accessible formats or communication supports are available upon request. Please contact AccessYork@york.ca or call 1-877-464-9675.

Photo: Second Concession Sewage Pumping Station
Credit: Jonathan Magill.

2023 ANNUAL PERFORMANCE REPORT | KESWICK GEORGINA NO.4 SPS

FACILITY INFORMATION

Municipality Serviced: Town of Georgina

Facility Classification: Wastewater Collection III

System Classification: Separate Sewer System

Receiving Water Bodies: Lake Simcoe via Cook's Bay

FACILITY DESCRIPTION

The Keswick Georgina No.4 Sewage Pumping Station (SPS) is part of the Keswick Collection Sewage Sub-System. It receives flow from the local collection system. The SPS is connected to two forcemains. Flows eventually reach the Keswick Water Resource Recovery Facility (WRRF).

PROCESS OVERVIEW

The Keswick Georgina No.4 SPS is equipped with a two-celled wet well, a dry well and three pumps. The inlet is equipped with a screen to remove large solids before flowing into the wet wells. The SPS discharges to twinned forcemains, eventually converging to a gravity sewer which delivers wastewater to the Keswick WRRF where it is treated.

EMERGENCY POWER

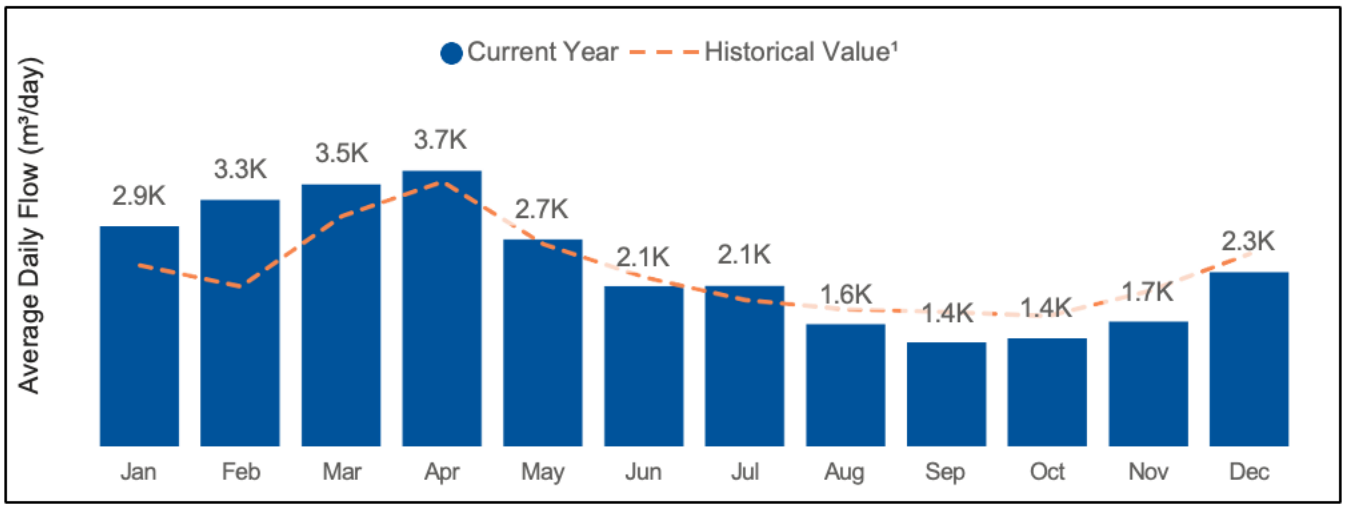
One standby diesel generator, two fuel storage tanks.

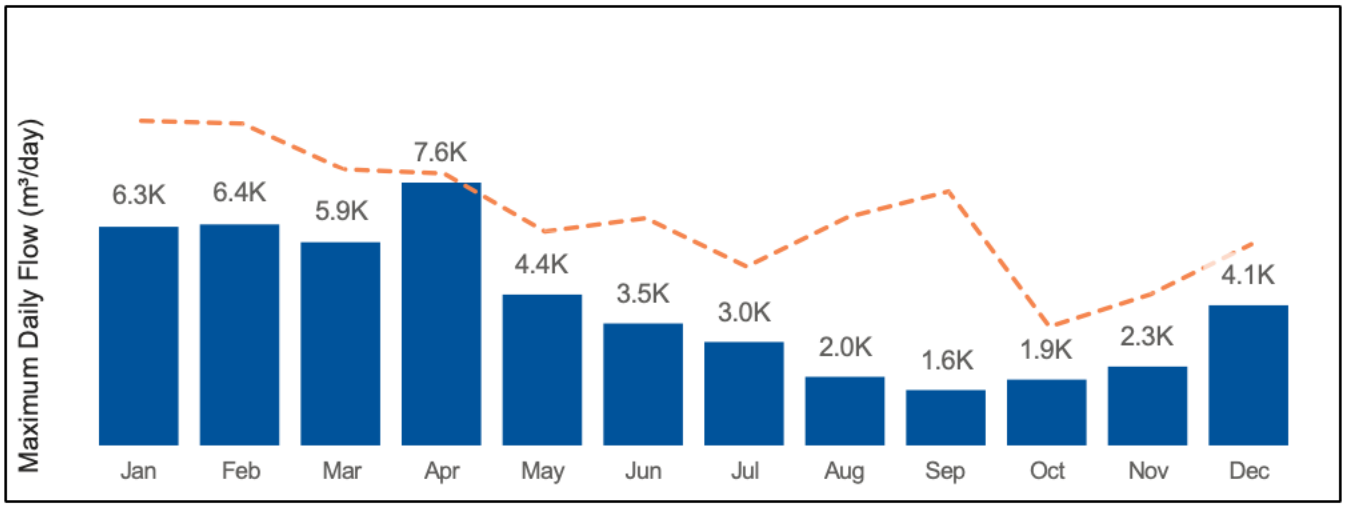
AIR MANAGEMENT

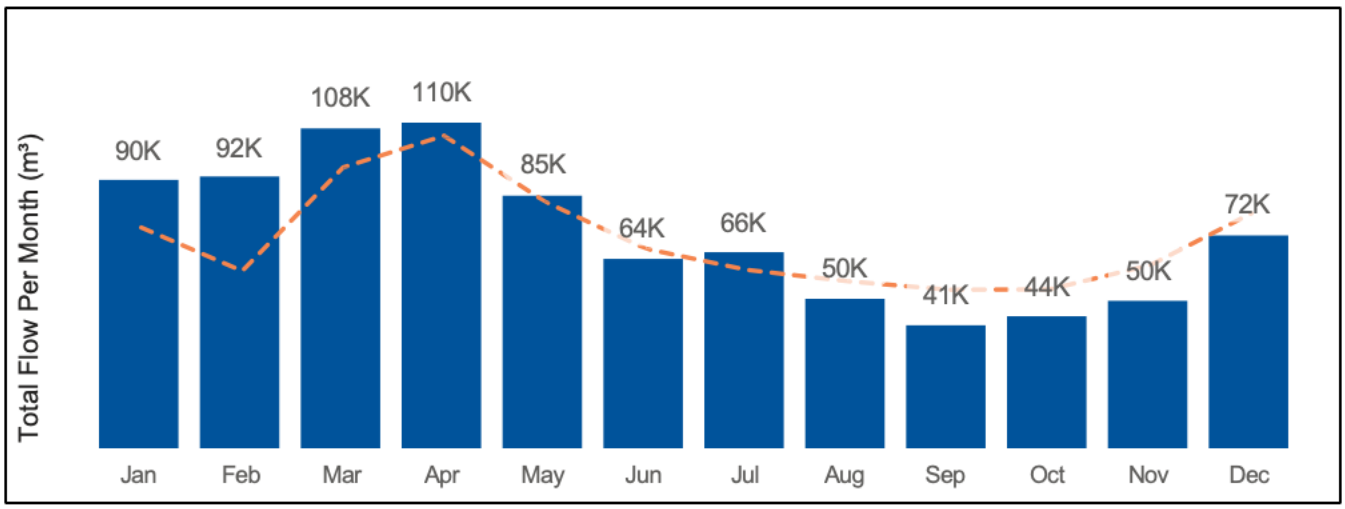
One on-site activated carbon adsorption unit.

2023 ANNUAL PERFORMANCE REPORT
KESWICK GEORGINA NO.4 SPS

PUMPING STATION FLOW







¹Historical value (orange dashed line) based on previous 5 years of data, where available.

2023 ANNUAL PERFORMANCE REPORT | KESWICK SPS

FACILITY INFORMATION

Municipality Serviced: Town of Georgina

Facility Classification: Wastewater Collection III

System Classification: Separate Sewer System

Receiving Water Bodies: Lake Simcoe via Cook's Bay

FACILITY DESCRIPTION

The Keswick SPS is part of the Keswick Sewage Collection Sub-System. It receives flow from the local collection system. Keswick SPS currently discharges through one forcemain to the Keswick Water Resource Facility (WRRF).

PROCESS OVERVIEW

The Keswick SPS is equipped with a two-celled wet well, a dry well, and four pumps. Each wet well is equipped with a chopper pump to reduce solids to smaller sizes so they can pass through the system more effectively. An upgrade project to install a second forcemain to the WRRF, replace the choppers with a grinder and upgrade the pumps is anticipated to be completed in 2024. The forcemain delivers wastewater to the Keswick WRRF where it is treated.

EMERGENCY POWER

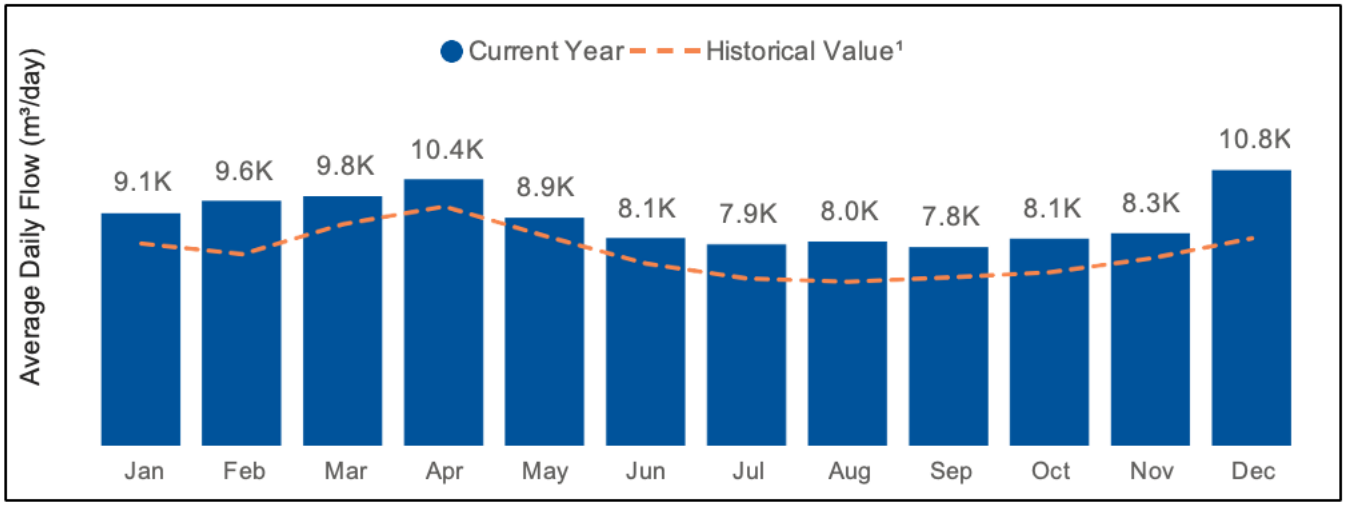
One standby diesel generator, two fuel storage tanks.

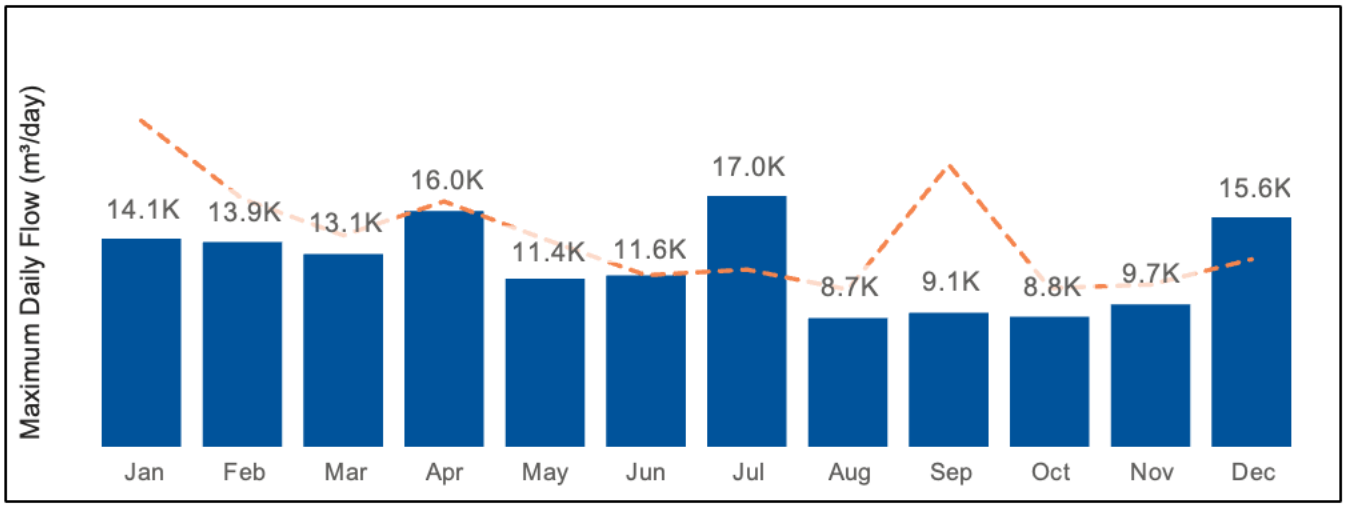
AIR MANAGEMENT

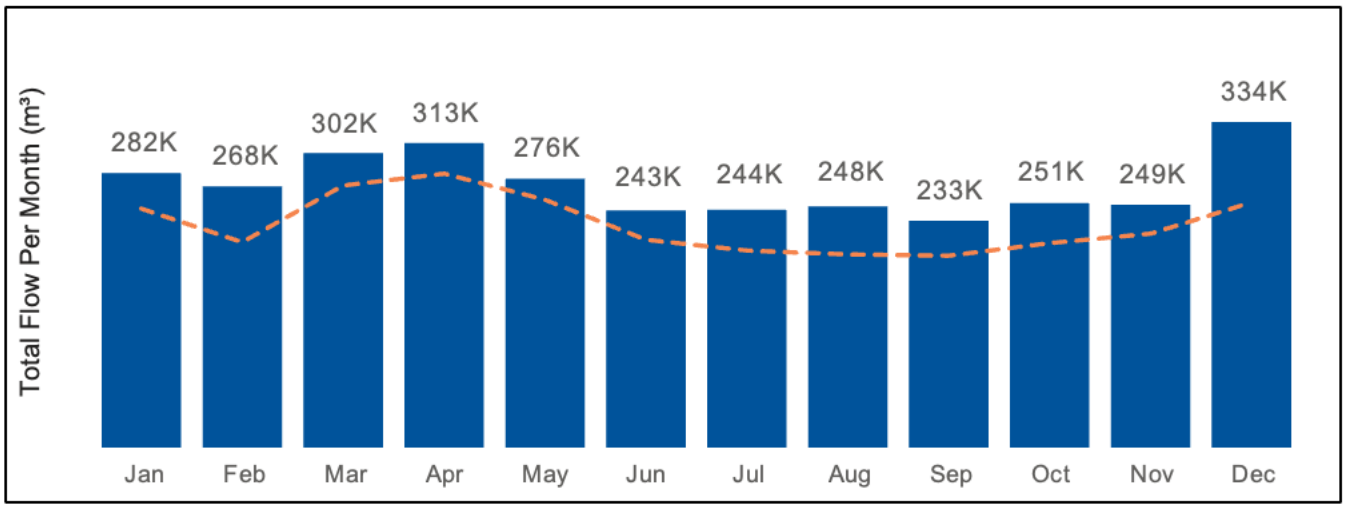
One on-site activated carbon adsorption unit.

2023 ANNUAL PERFORMANCE REPORT
KESWICK SPS

PUMPING STATION FLOW







¹Historical value (orange dashed line) based on previous 5 years of data, where available.

2023 ANNUAL PERFORMANCE REPORT | KESWICK JOE DALES SPS

FACILITY INFORMATION

Municipality Serviced: Town of Georgina

Facility Classification: Wastewater Collection III

System Classification: Separate Sewer System

Receiving Water Bodies: Lake Simcoe via Cook's Bay

FACILITY DESCRIPTION

The Keswick Joe Dales Sewage Pumping Station (SPS) is part of the Keswick Sewage Collection Sub-System. It receives flow from the local collection system. Keswick Joe Dales SPS is connected to three forcemains to direct flows towards the Keswick Water Resource Recovery Facility (WRRF).

PROCESS OVERVIEW

The Keswick Joe Dales SPS is equipped with a two-celled wet well, a dry well and three pumps. One inlet directs flows to the wet well, equipped with a grinder to reduce solids to smaller sizes so they can pass through the system more effectively. An "inlet bypass" structure flows around the grinder and is equipped with a screen to remove solids before reaching the wet well. The forcemain on Joe Dales Drive connects to a local forcemain ultimately reaching the Keswick WRRF through the local collection system. The other two forcemains are twinned. The sewer from the local collection system and forcemains from the SPS deliver wastewater to the Keswick WRRF where it is treated.

EMERGENCY POWER

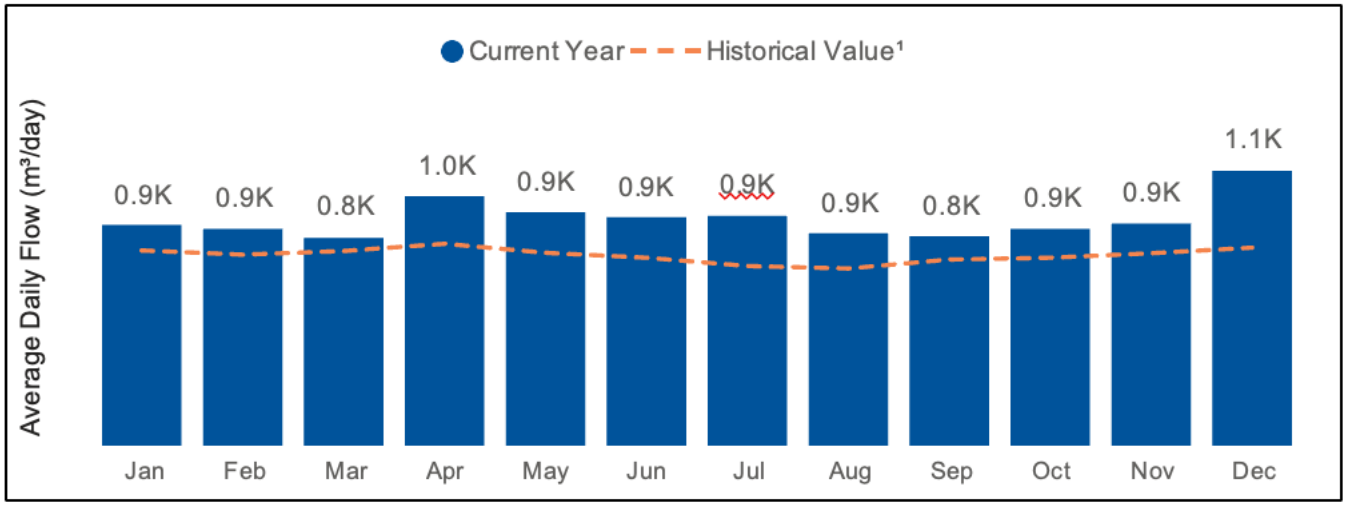
One standby diesel generator, two fuel storage tanks.

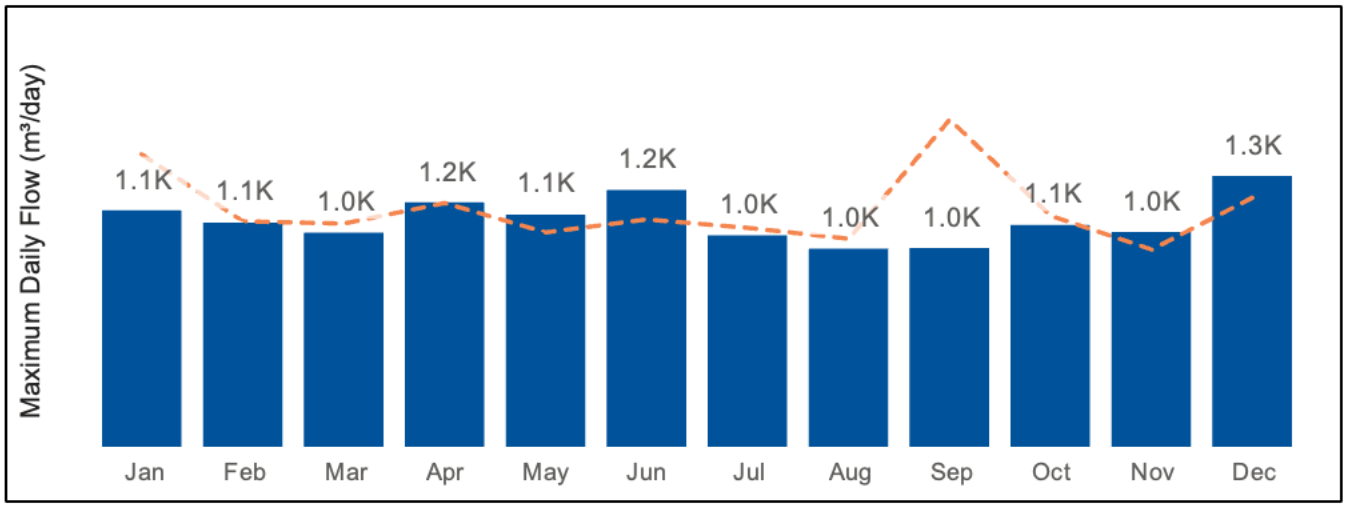
AIR MANAGEMENT

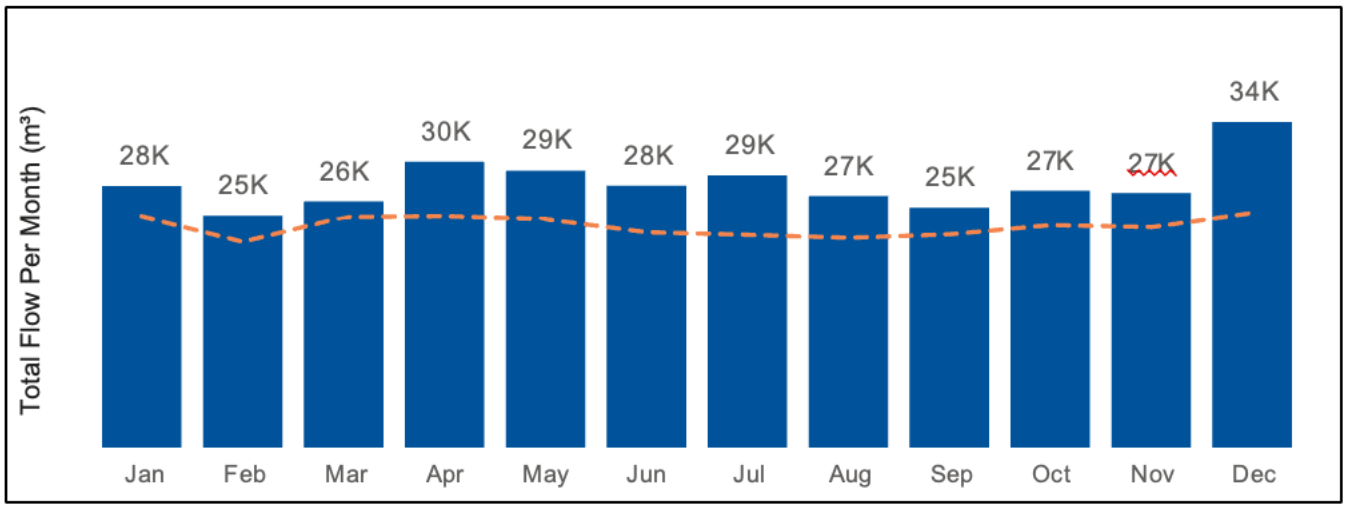
One on-site activated carbon adsorption unit.

2023 ANNUAL PERFORMANCE REPORT
KESWICK JOE DALES SPS

PUMPING STATION FLOW







¹Historical value (orange dashed line) based on previous 5 years of data, where available.

2023 ANNUAL PERFORMANCE REPORT | MOUNT ALBERT SPS

FACILITY INFORMATION

Municipality Serviced: Town of East Gwillimbury

Facility Classification: Wastewater Collection II

System Classification: Separate Sewer System

Receiving Water Bodies: Lake Simcoe via Mount Albert Creek and Vivian Creek

FACILITY DESCRIPTION

The Mount Albert Sewage Pumping Station (SPS) is part of the Mount Albert Collection Sewage Sub-System. The Station receives flow through local sewers and directs it through one forcemain to Mount Albert Water Resource Recovery Facility (WRRF). A drain line on the station discharge forcemain can return flows to the wet well.

PROCESS OVERVIEW

The Mount Albert SPS is equipped with a wet well, a dry well and two pumps. The station discharges to one forcemain which delivers wastewater to the Mount Albert WRRF where it is treated.

EMERGENCY POWER

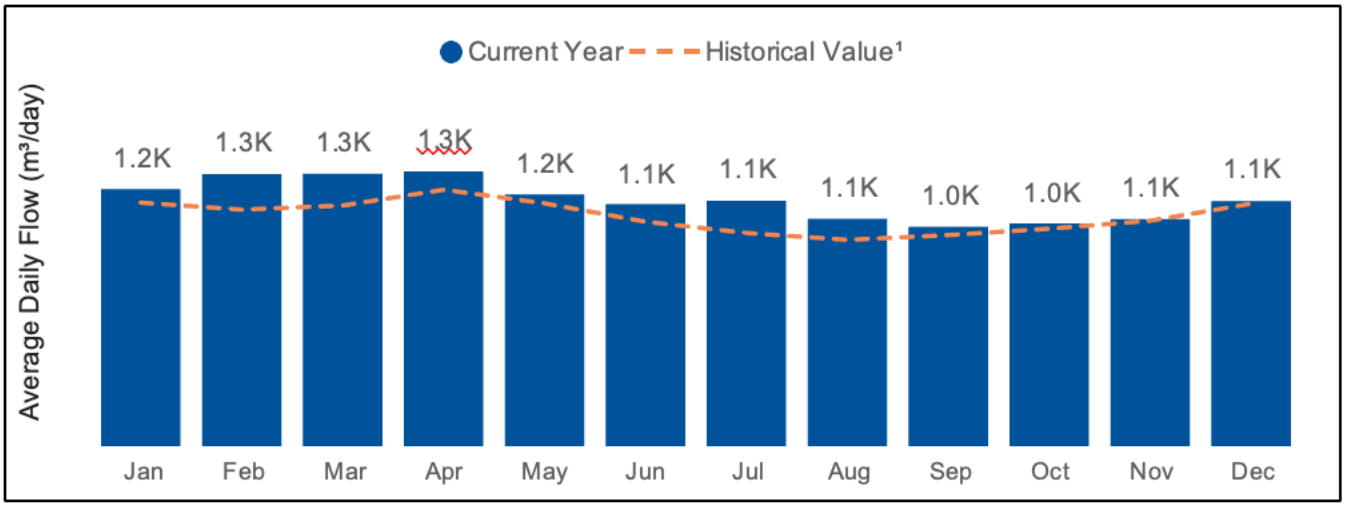
One standby diesel generator, one fuel storage tank.

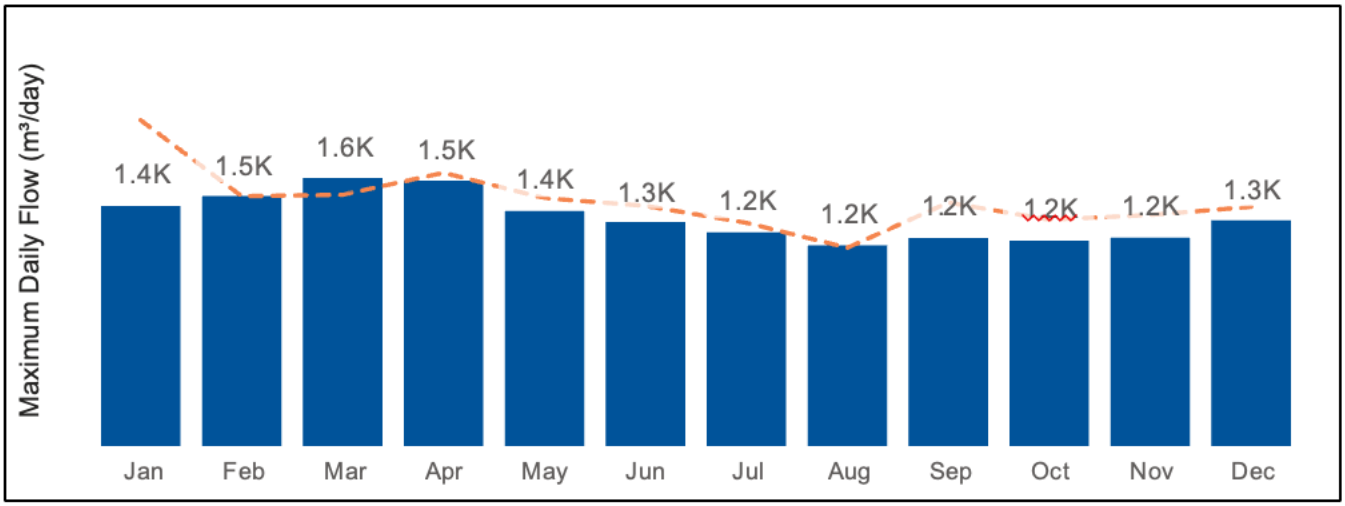
AIR MANAGEMENT

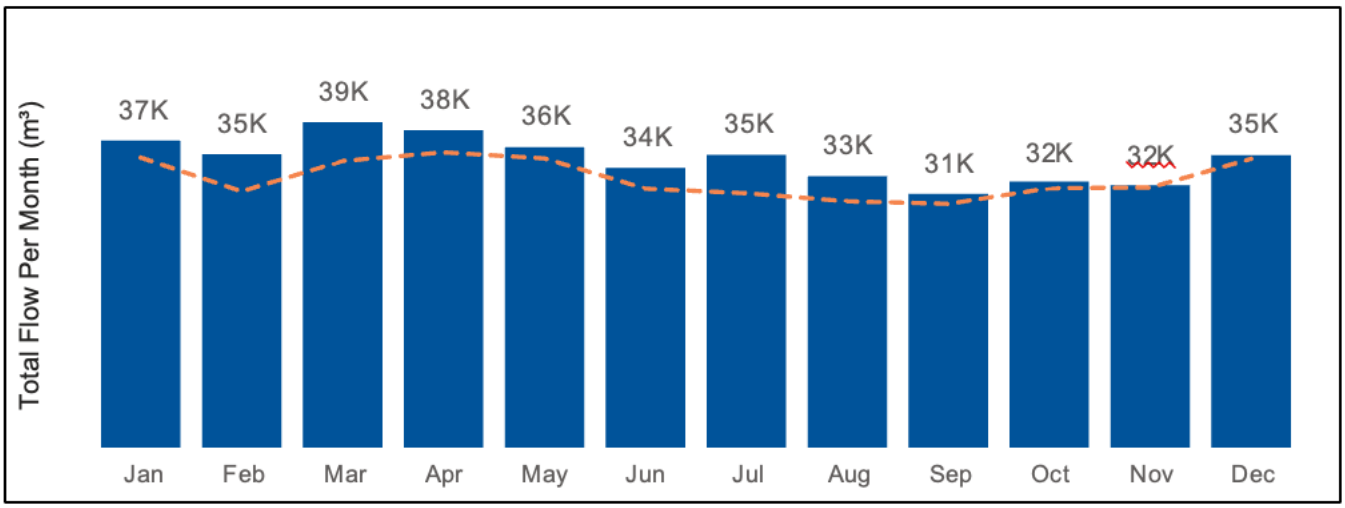
Not applicable at Mount Albert SPS

2023 ANNUAL PERFORMANCE REPORT
MT. ALBERT SPS

PUMPING STATION FLOW







¹Historical value (orange dashed line) based on previous 5 years of data, where available.

2023 ANNUAL PERFORMANCE REPORT | NOBLETON SPS

FACILITY INFORMATION

Municipality Serviced:	Township of King
Facility Classification:	Wastewater Collection II
System Classification:	Separate Sewer System III
Receiving Water Bodies:	Lake Ontario via the Humber River

FACILITY DESCRIPTION

The Nobleton Janet Avenue Sewage Pumping Station (SPS) is part of the Nobleton Sewage Collection Sub-System. It receives flows from the local collection system. Flows are discharged through one forcemain to the Nobleton Water Resource Recovery Facility (WRRF).

PROCESS OVERVIEW

The Nobleton Janet Avenue Sewage Pumping Station (SPS) is equipped with a three-chambered wet well, a dry well and three pumps. It discharges through one forcemain which delivers wastewater to the Nobleton WRRF where it is treated.

EMERGENCY POWER

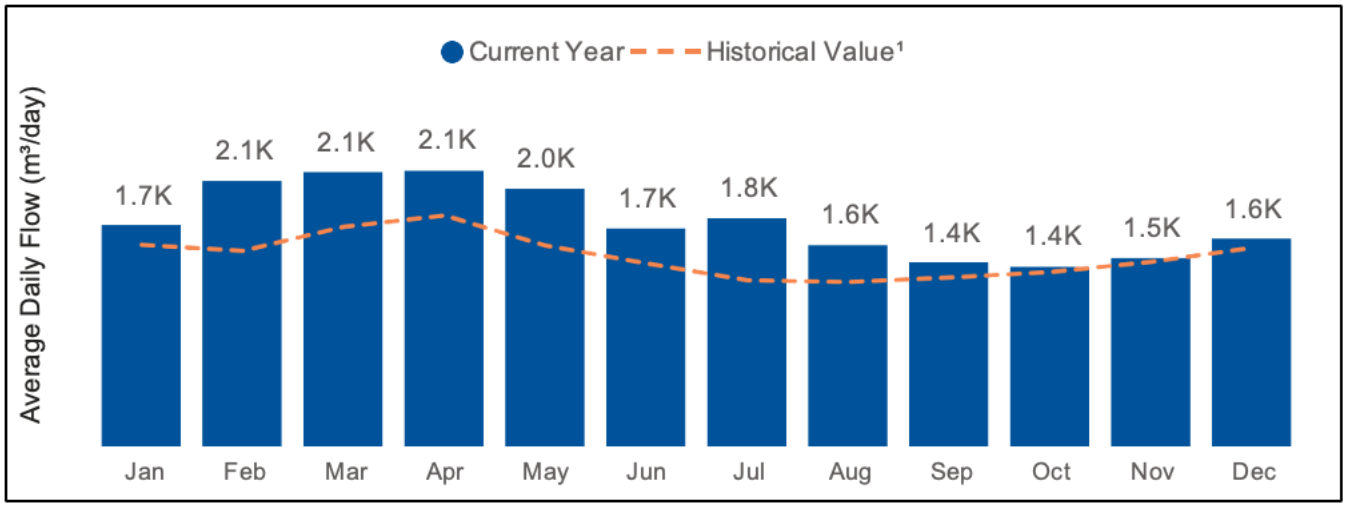
One standby diesel generator, one fuel storage tank.

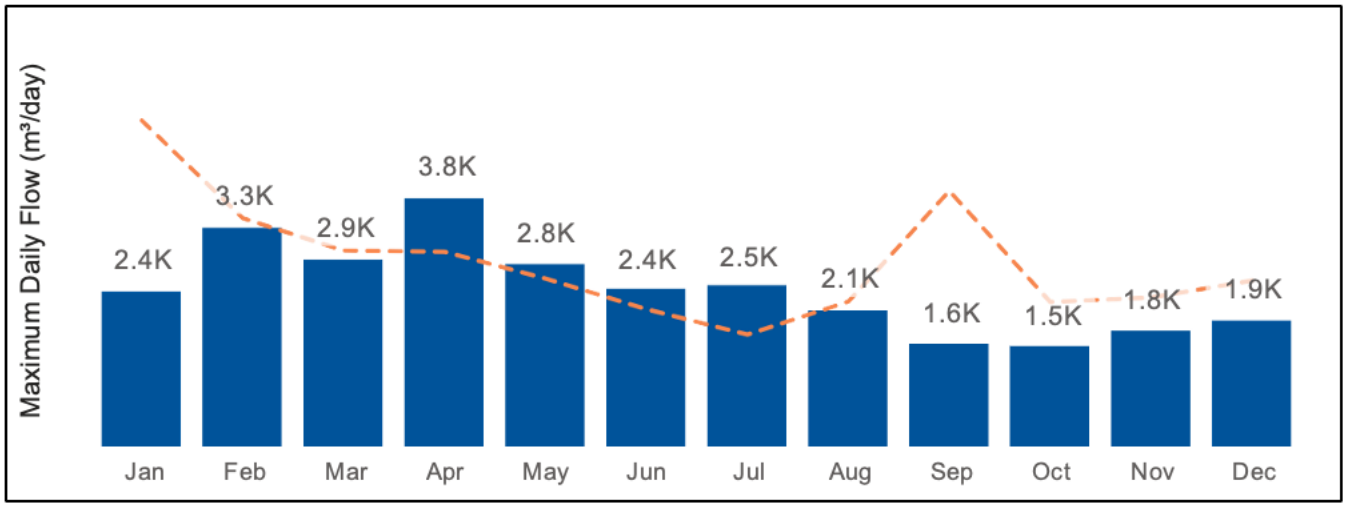
AIR MANAGEMENT

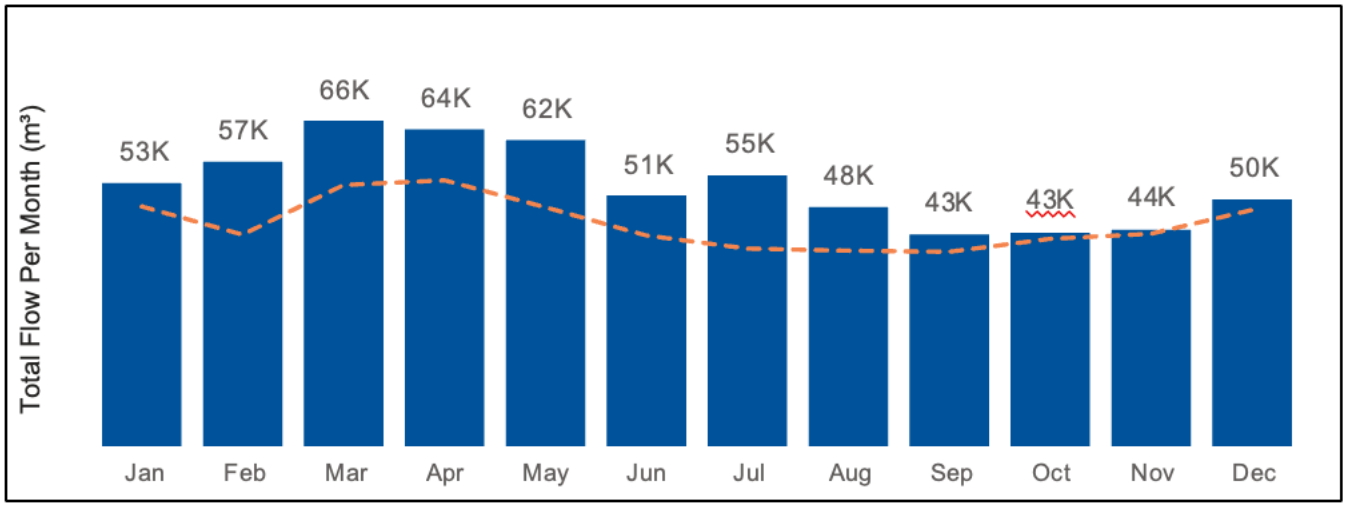
Not applicable at Nobleton SPS.

2023 ANNUAL PERFORMANCE REPORT
NOBLETON SPS

PUMPING STATION FLOW







¹Historical value (orange dashed line) based on previous 5 years of data, where available.

2023 ANNUAL PERFORMANCE REPORT | SCHOMBERG DR. KAY SPS

FACILITY INFORMATION

Municipality Serviced: Township of King

Facility Classification: Wastewater Collection II

System Classification: Separate Sewer System

Receiving Water Bodies: Lake Simcoe via the Schomberg River

FACILITY DESCRIPTION

The Schomberg Dr. Kay Sewage Pumping Station (SPS) is part of the Schomberg Sewage Collection Sub-System. It receives flow from the local collection system. Flows are discharged through a forcemain to the Schomberg Water Resource Recovery Facility (WRRF).

PROCESS OVERVIEW

The Schomberg Dr. Kay SPS is equipped with a circular wet well, two pumps, and a valve chamber to attach a portable pump during emergency situations. It discharges through one forcemain which delivers wastewater to the Schomberg WRRF where it is treated.

EMERGENCY POWER

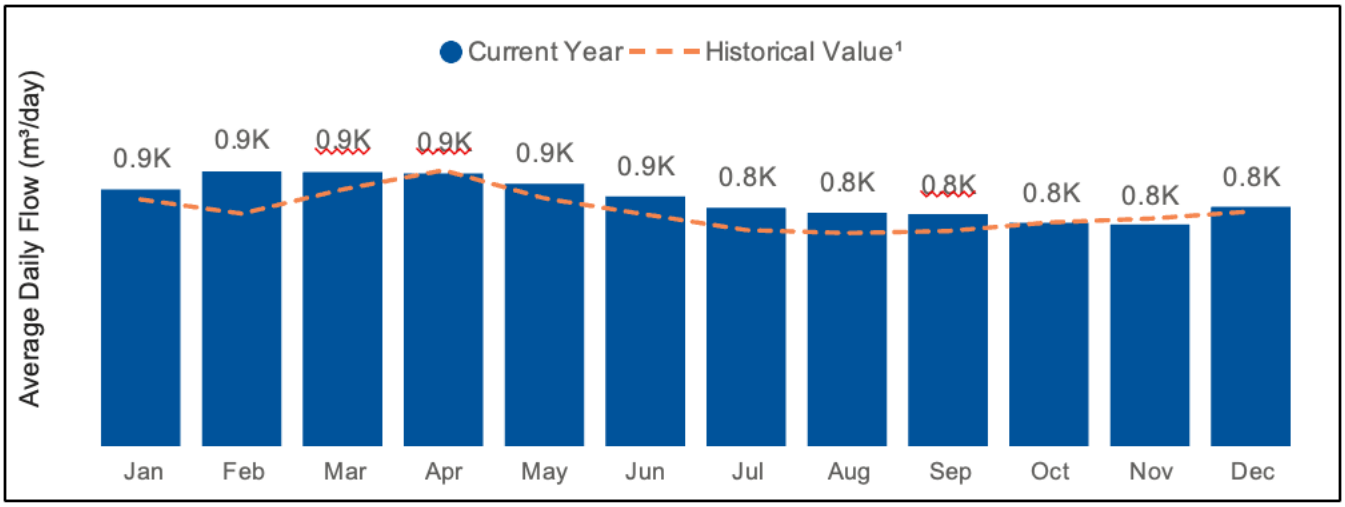
One standby diesel generator, one fuel storage tank.

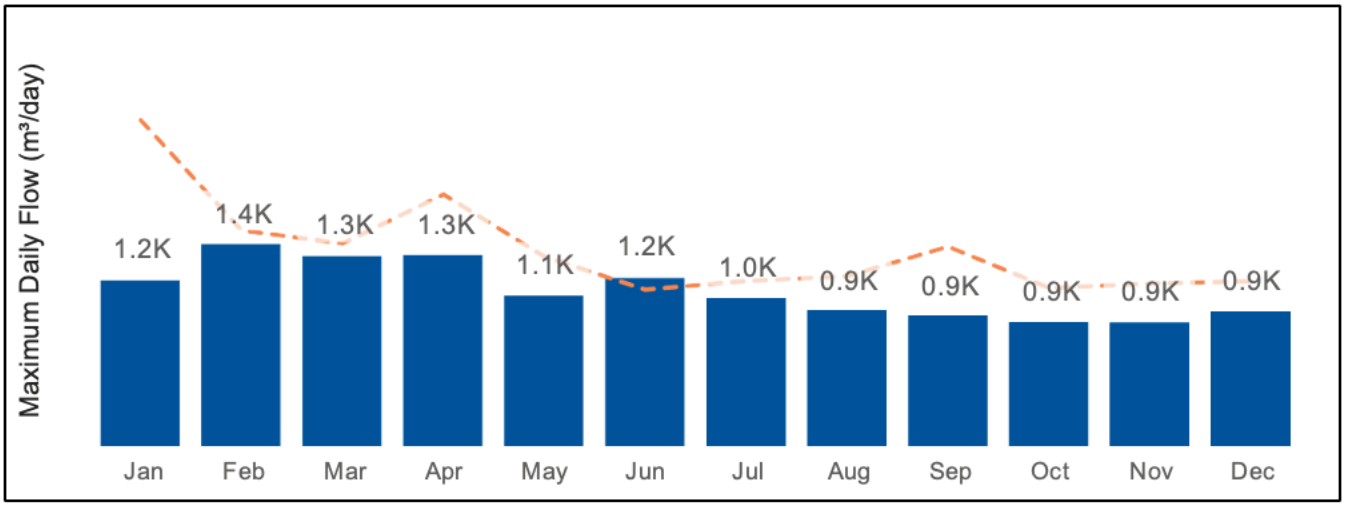
AIR MANAGEMENT

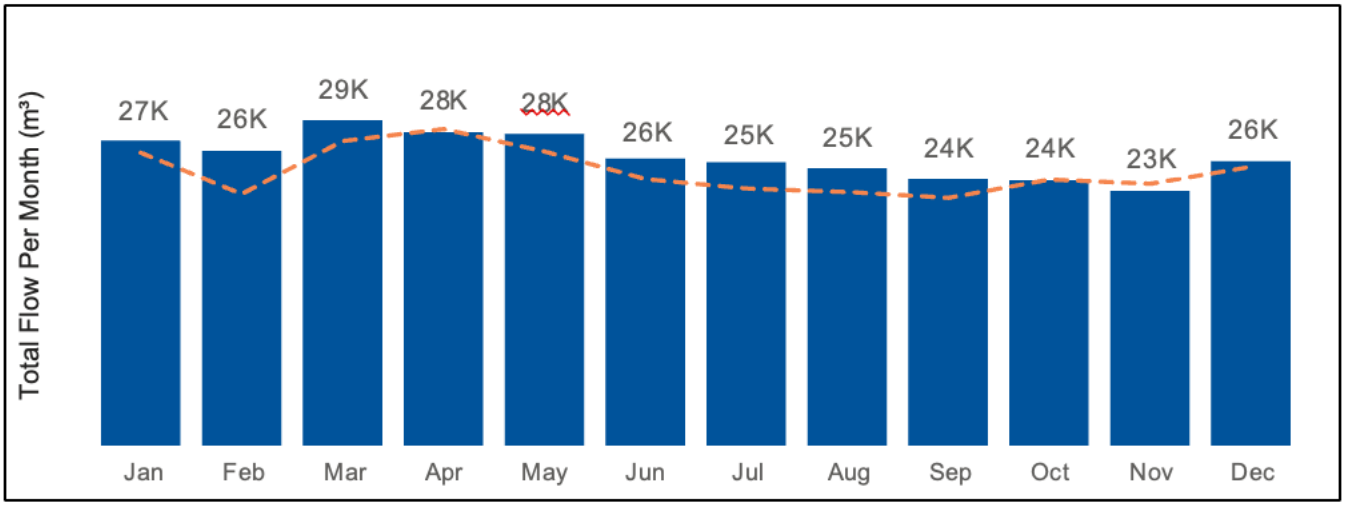
Not applicable at Dr. Kay SPS.

2023 ANNUAL PERFORMANCE REPORT
SCHOMBERG DR. KAY SPS

PUMPING STATION FLOW







¹Historical value (orange dashed line) based on previous 5 years of data, where available.

2023 ANNUAL PERFORMANCE REPORT | SUTTON HIGH STREET SPS

FACILITY INFORMATION

Municipality Serviced: Town of Georgina

Facility Classification: Wastewater Collection II

System Classification: Separate Sewer System

Receiving Water Bodies: Lake Simcoe via the Black River

FACILITY DESCRIPTION

The Sutton High Street Sewage Pumping Station (SPS) is part of the Sutton Sewage Collection Sub-System. It receives flow from the local collection system. Flows are sent through one forcemain to the Sutton Water Resource Recovery Facility (WRRF).

PROCESS OVERVIEW

The Sutton High Street SPS is equipped with a wet well and two submersible pumps. It discharges through one forcemain which delivers wastewater to the Sutton WRRF where it is treated.

EMERGENCY POWER

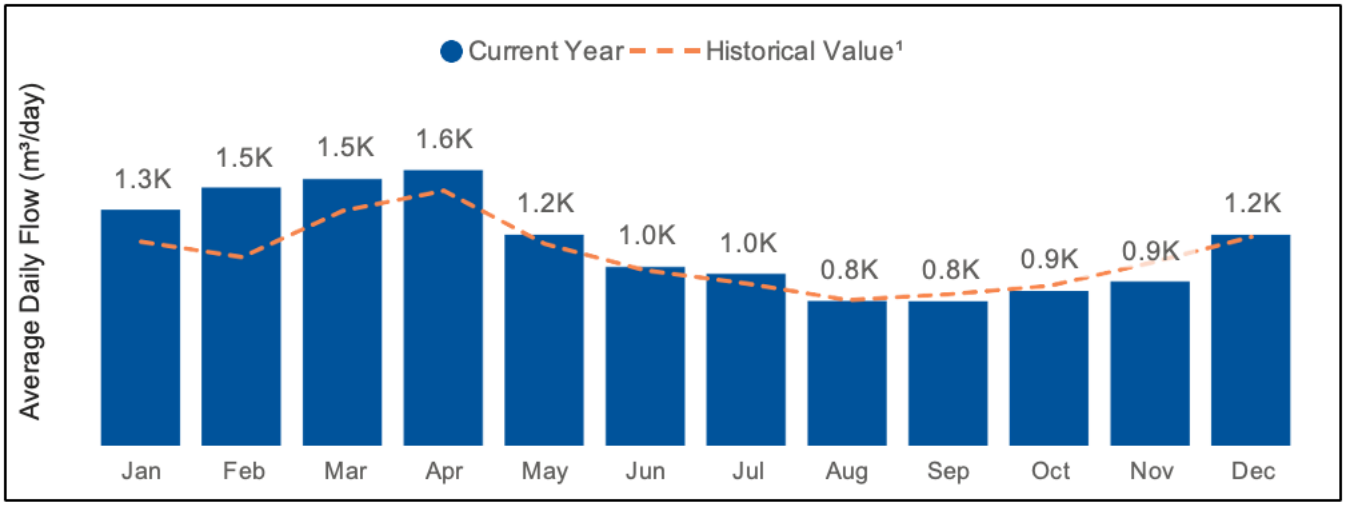
One standby diesel generator, one fuel storage tank.

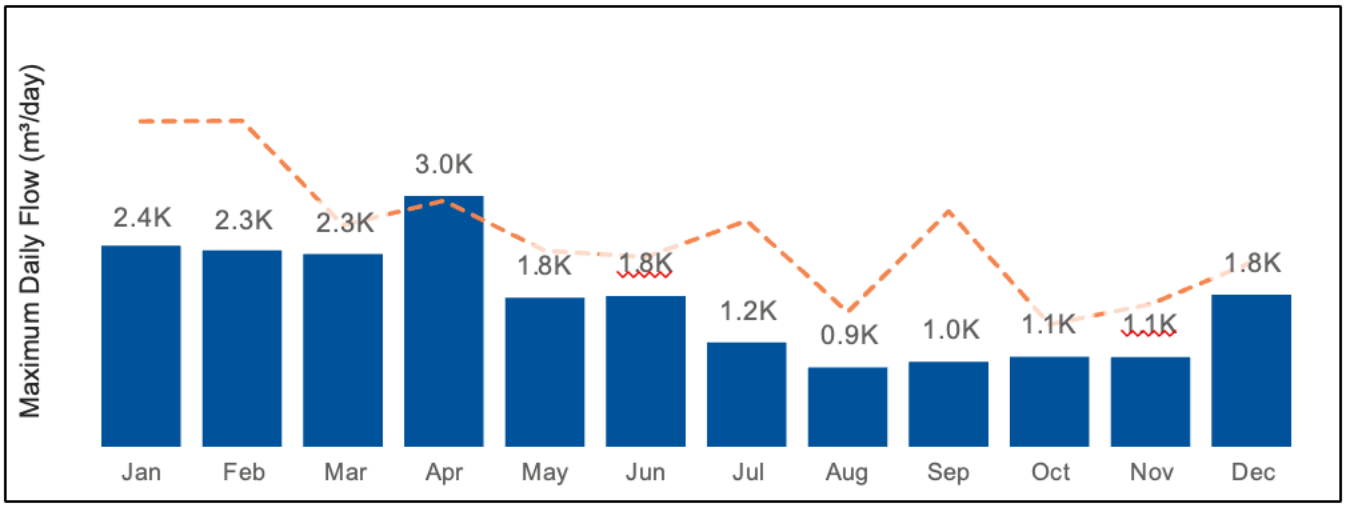
AIR MANAGEMENT

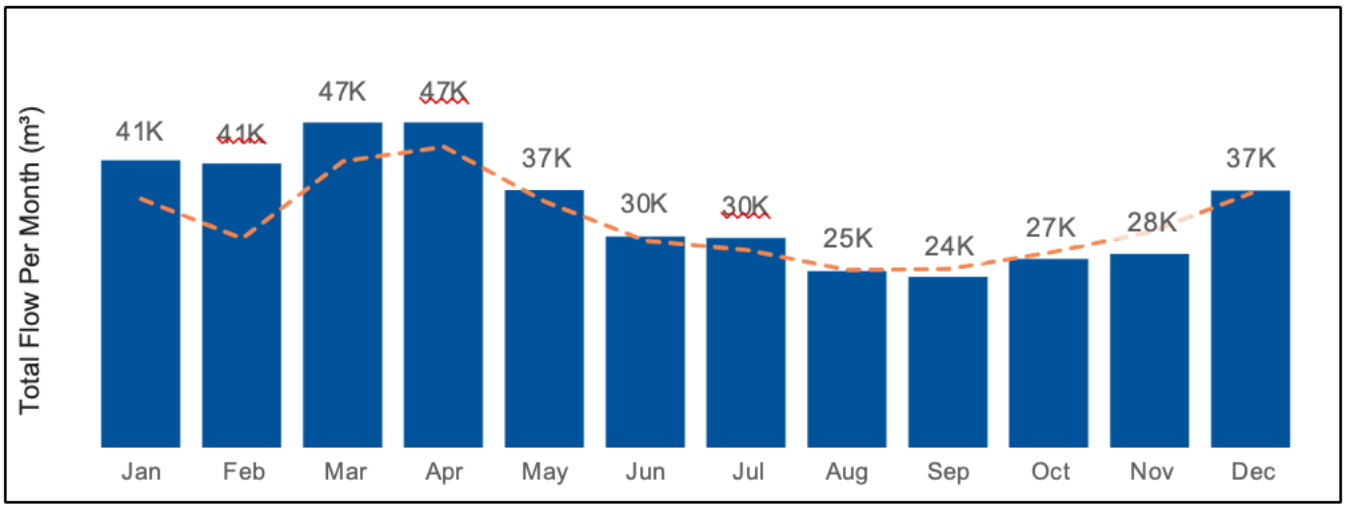
One on-site passive drum scrubber system.

2023 ANNUAL PERFORMANCE REPORT
SUTTON HIGH STREET SPS

PUMPING STATION FLOW







¹Historical value (orange dashed line) based on previous 5 years of data, where available.

2023 ANNUAL PERFORMANCE REPORT | SUTTON SOUTH RIVER SPS

FACILITY INFORMATION

Municipality Serviced: Town of Georgina

Facility Classification: Wastewater Collection II

System Classification: Separate Sewer System

Receiving Water Bodies: Lake Simcoe via the Black River

FACILITY DESCRIPTION

The Sutton South River Sewage Pumping Station (SPS) is part of the Sutton Sewage Collection Sub-System. This small station has a chamber at ground level with an adjacent electrical panel to control the equipment. It receives flow from the local collection system and directs it through one forcemain to Sutton Woodriver Bend SPS. Flows eventually reach the Sutton Water Resource Recovery Facility (WRRF).

PROCESS OVERVIEW

The Sutton South River SPS is equipped with a circular wet well and two submersible pumps. It discharges through one forcemain which delivers wastewater to the Sutton Woodriver Bend SPS, which is then delivered to the Sutton WRRF for treatment.

EMERGENCY POWER

An uninterruptible power supply temporarily powers the equipment. The facility can also be connected to a portable generator.

AIR MANAGEMENT

Not applicable at South River SPS

2023 ANNUAL PERFORMANCE REPORT | SUTTON WOODRIVER BEND SPS

FACILITY INFORMATION

Municipality Serviced: Town of Georgina (Sutton)

Facility Classification: Wastewater Collection II

System Classification: Separate Sewer System

Receiving Water Bodies: Lake Simcoe via the Black River.

FACILITY DESCRIPTION

The Sutton Woodriver Bend Sewage Pumping Station (SPS) is part of the Sutton Sewage Collection Sub-System. It receives flow from the local collection system and the upstream South River SPS. Flows are sent through one forcemain to the Sutton Water Resource Recovery Facility (WRRF).

PROCESS OVERVIEW

The Sutton Woodriver Bend SPS is equipped with a wet well and two submersible pumps. The station discharges wastewater through one forcemain which delivers wastewater to the Sutton WRRF where it is treated.

EMERGENCY POWER

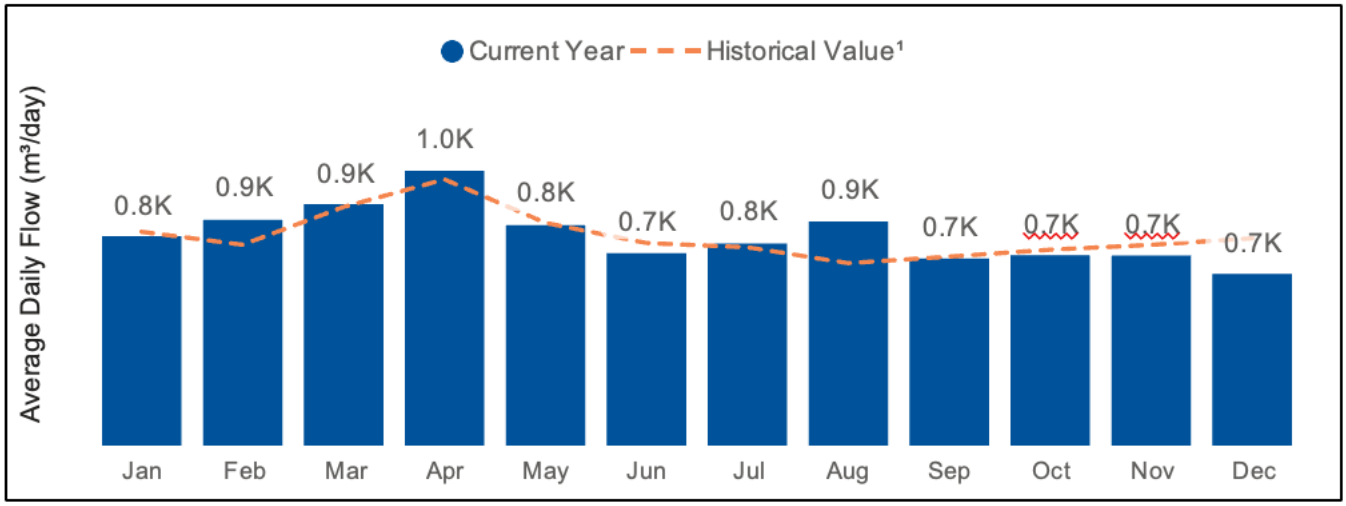
One standby natural gas generator.

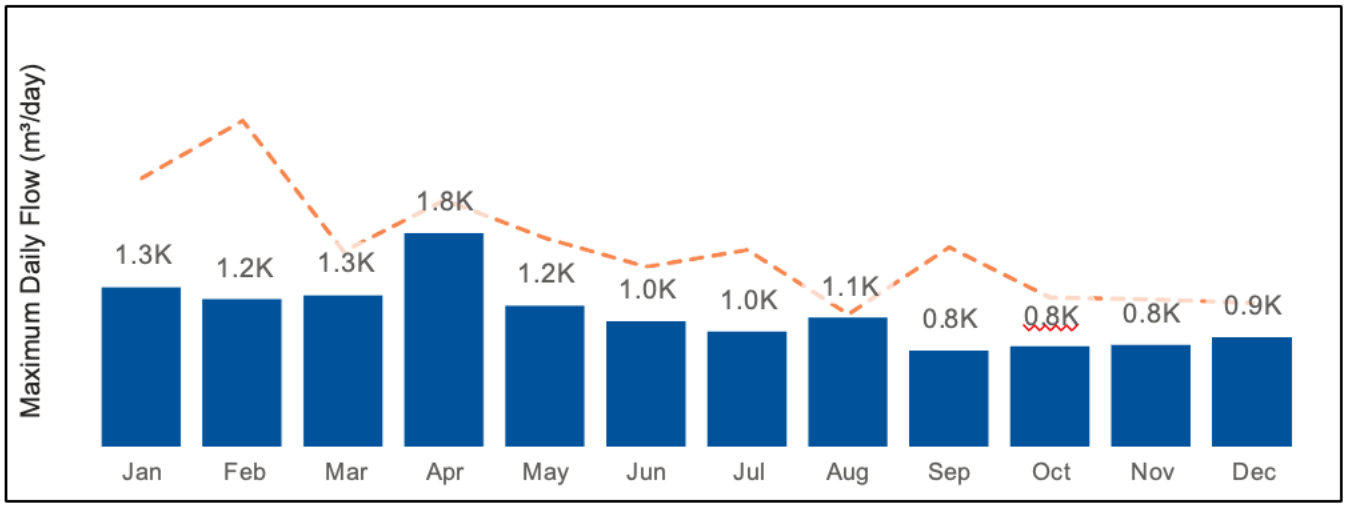
AIR MANAGEMENT

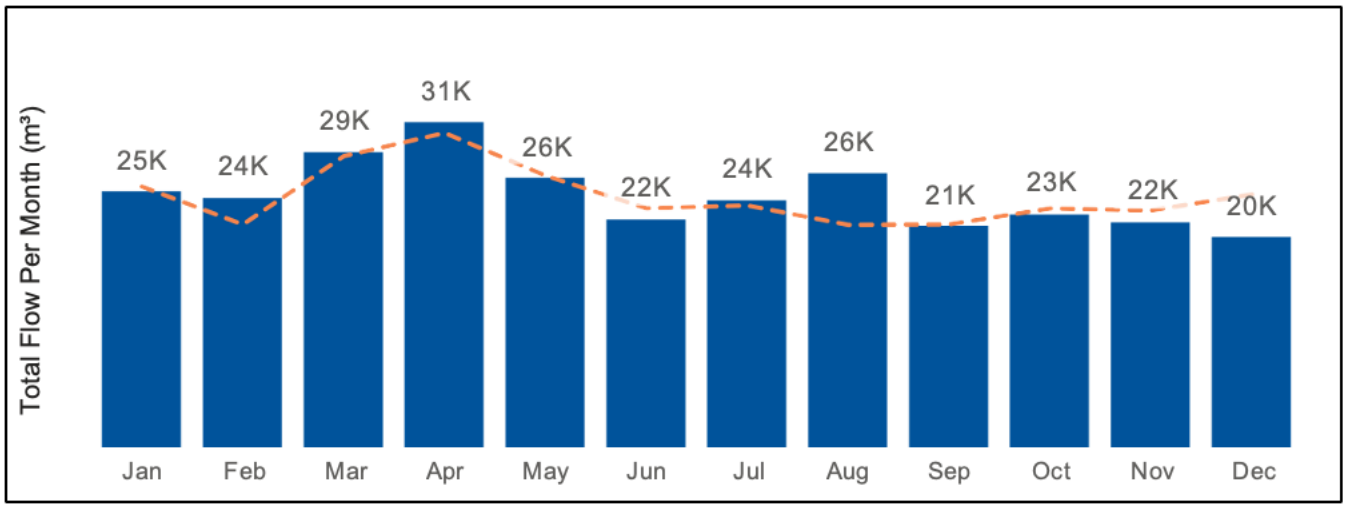
One on-site activated carbon adsorption unit.

2023 ANNUAL PERFORMANCE REPORT
SUTTON WOODRIVER BEND SPS

PUMPING STATION FLOW







¹Historical value (orange dashed line) based on previous 5 years of data, where available.

2023 ANNUAL PERFORMANCE REPORT | YDSS 2ND CONCESSION SPS

FACILITY INFORMATION

Municipality Serviced: Town of East Gwillimbury

Facility Classification: Wastewater Collection III

System Classification: Separate Sewer System

Receiving Water Bodies: Lake Ontario via Duffin Creek Water Pollution Control Plant (WPCP), Durham Region

FACILITY DESCRIPTION

The 2nd Concession Sewage Pumping Station (SPS) is part of the York Durham Sewage System (YDSS). Two sewer mains enter the facility. Three forcemains exit the facility to push the wastewater from the station. Normal operation directs flows south through one forcemain to the YDSS, eventually reaching the Duffin Creek WPCP. Two additional forcemains are not currently in use.

PROCESS OVERVIEW

The 2nd Concession SPS is equipped with a two-celled wet well and two pumps (with two spaces for future pumps). A grinder reduces the solids to smaller sizes so they can pass through the system more effectively. Two inlet/grinder bypass channels are each equipped with screens to remove large solids prior to reaching the wet wells. The forcemain directs wastewater to the YDSS, which delivers wastewater to the Duffin Creek WPCP for treatment.

EMERGENCY POWER

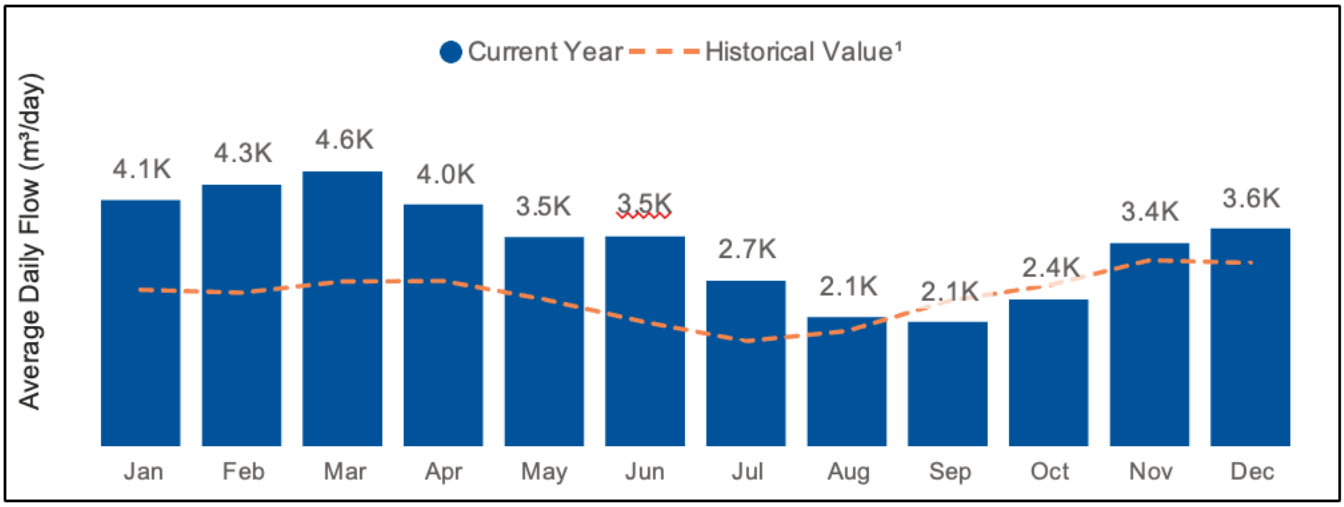
One standby diesel generator, two outdoor fuel storage tanks and one indoor fuel day tank.

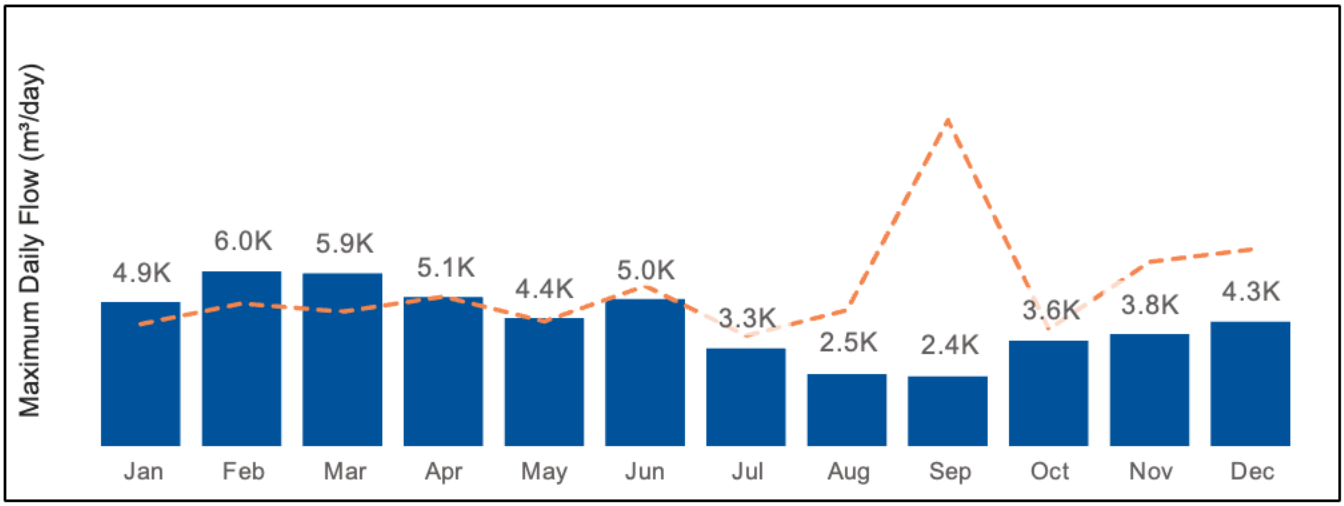
AIR MANAGEMENT

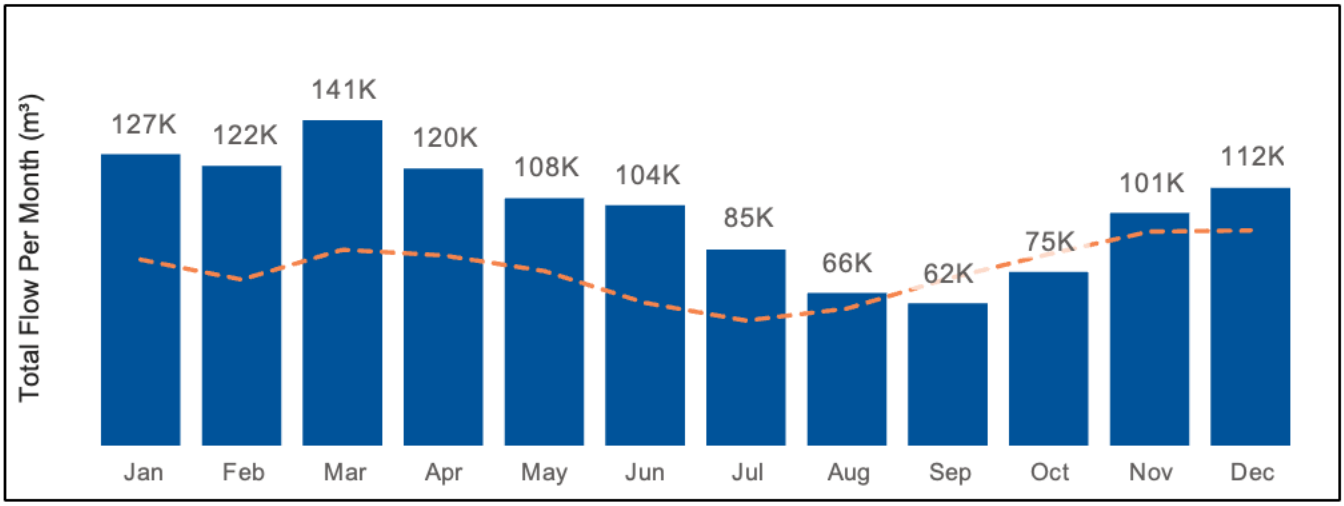
One on-site activated carbon adsorption unit.

2023 ANNUAL PERFORMANCE REPORT
2ND CONCESSION SPS

PUMPING STATION FLOW







¹Historical value (orange dashed line) based on previous 5 years of data, where available.

2023 ANNUAL PERFORMANCE REPORT | YDSS AURORA SPS

FACILITY INFORMATION

Municipality Serviced: Town of Aurora

Facility Classification: Wastewater Collection III

System Classification: Separate Sewer System

Receiving Water Bodies: Lake Ontario via Duffin Creek Water Pollution Control Plant (WPCP), Durham Region

FACILITY DESCRIPTION

The Aurora Sewage Pumping Station (SPS) is part of the York Durham Sewage System (YDSS). Two sewers enter the facility, one from the north, and one from the west. A hauled waste receiving facility allows for monitored delivery of imported wastewater from registered haulers. Two forcemains convey wastewater from the station along the YDSS, eventually reaching the Duffin Creek WPCP.

PROCESS OVERVIEW

The Aurora SPS is equipped with a wet well and six pumps. Two channels are each equipped with screens to remove large solids. An underground equalization tank provides buffering capacity for high flows. The equalization tank comprises two cells with six pumps, and it can operate as its own sewage pumping station to further mitigate high flows. This operating mode is known as the Aurora Interim Sewage Servicing Solution. Two forcemains direct wastewater to the YDSS, which delivers wastewater to the Duffin Creek WPCP for treatment.

The hauled waste receiving facility is designed to remove large solids from the received waste and pass the liquid fraction to the sewage stream. Sludge from York Region's Water Resource Recovery Facilities (WRRF) is hauled to the Aurora SPS. This action is authorized in the operating approvals for the Region's facilities. Sludge quality and quantity is monitored to ensure there are no impacts to the system due to the sludge. The ultimate sludge destination point remains the Duffin Creek WPCP, where it undergoes further processing.

EMERGENCY POWER

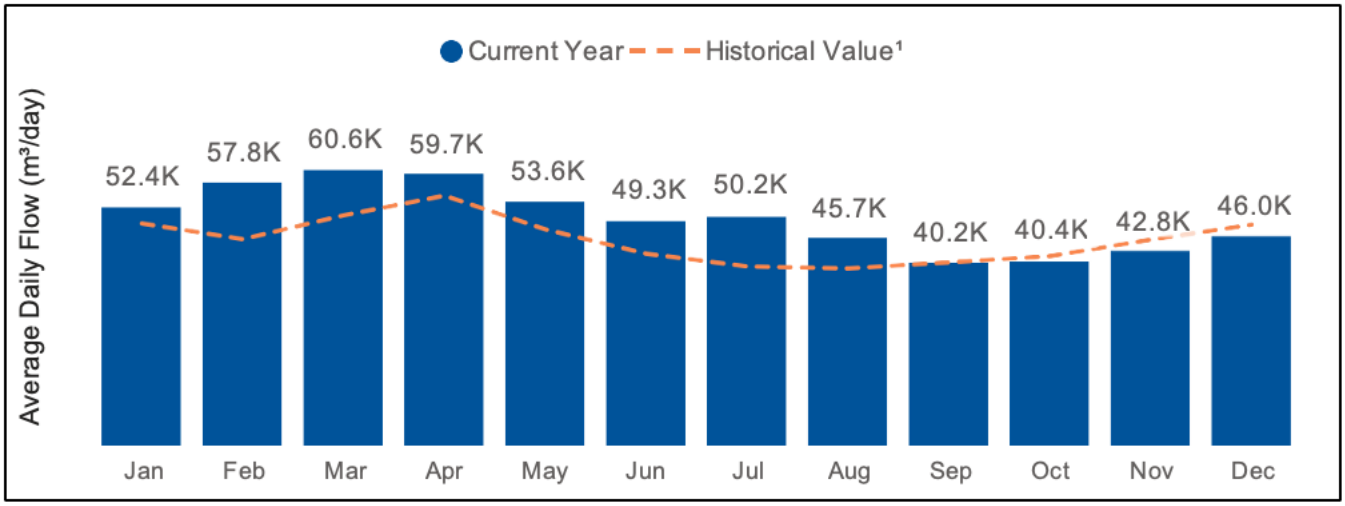
Three standby diesel generators and two outdoor fuel storage tanks.

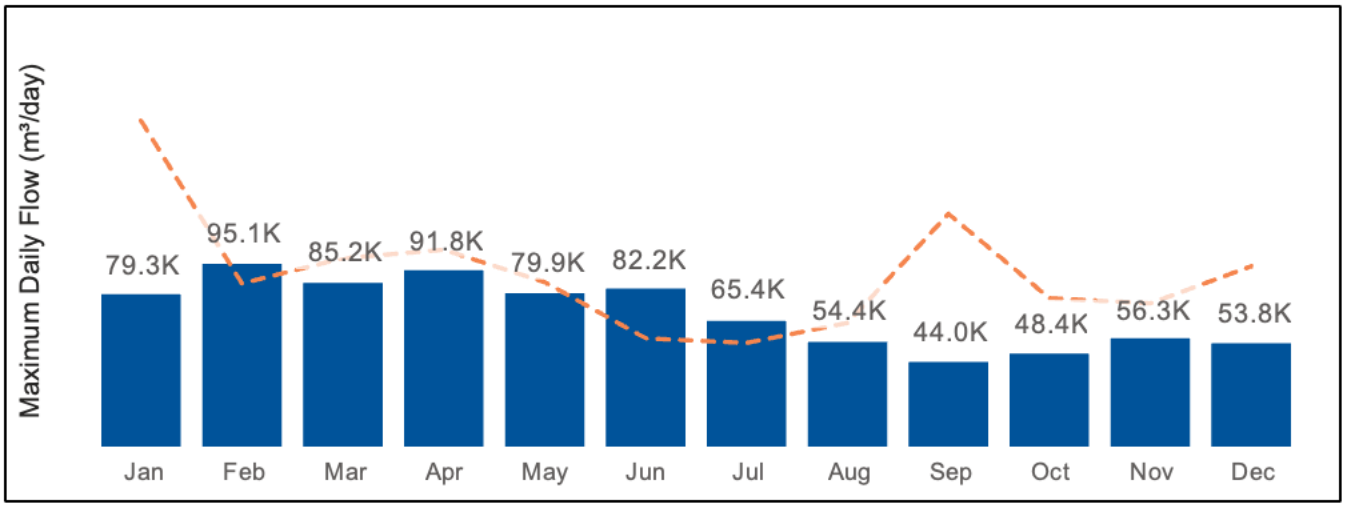
AIR MANAGEMENT AND CONDITIONING CHEMICALS

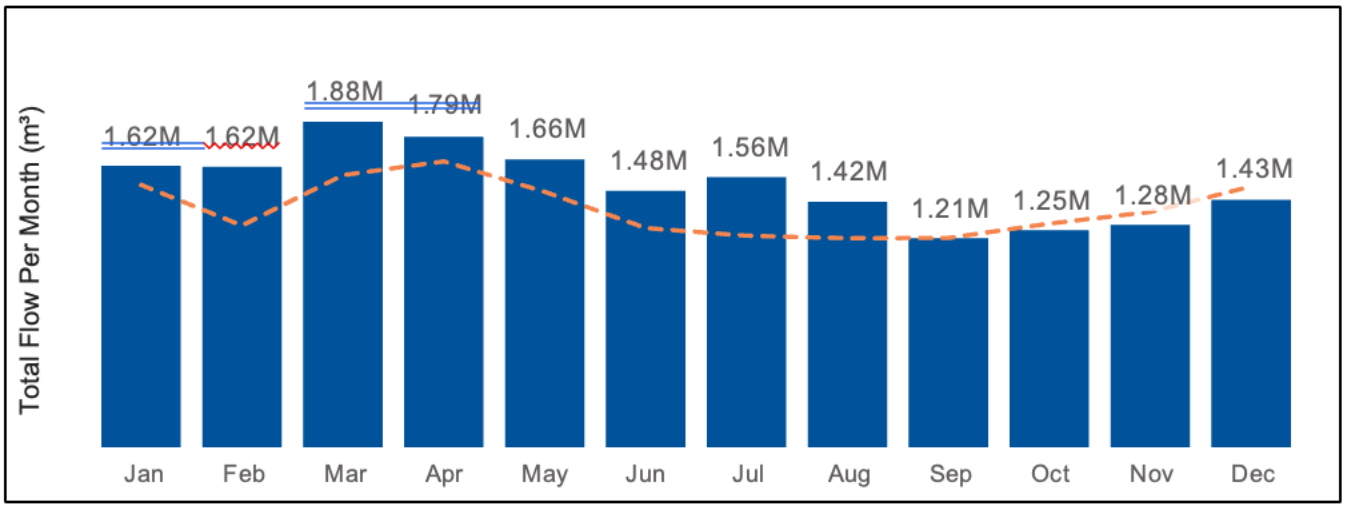
Two on-site activated carbon adsorption units control odours from the wet well and the equalization tank. Hydrogen peroxide is added to the wet well to reduce hydrogen sulfide and odours, in conjunction with the iron salts added at the upstream Newmarket SPS.

2023 ANNUAL PERFORMANCE REPORT
AURORA SPS

PUMPING STATION FLOW







¹Historical value (orange dashed line) based on previous 5 years of data, where available.

2023 ANNUAL PERFORMANCE REPORT | YDSS AURORA HENDERSON SPS

FACILITY INFORMATION

Municipality Serviced:	Town of Aurora
Facility Classification:	Wastewater Collection II
System Classification:	Separate Sewer System III
Receiving Water Bodies:	Lake Ontario via Duffin Creek Water Pollution Control Plant (WPCP), Durham Region

FACILITY DESCRIPTION

The Aurora Henderson Sewage Pumping Station (SPS) is part of the York Durham Sewage System (YDSS). It was commissioned in 2023. The station receives flow from the local collection system and discharges through twinned forcemains. Flows eventually reach the Duffin Creek WPCP.

PROCESS OVERVIEW

The Aurora Henderson Sewage Pumping Station is equipped with a two-celled wet well and four submersible pumps. The inlet flows into the wet well. An “inlet bypass” structure is equipped with a screen to remove solids before reaching the wet well. Flows are discharged through twinned forcemains. The forcemains direct wastewater to the YDSS, which delivers wastewater to the Duffin Creek WPCP for treatment.

EMERGENCY POWER

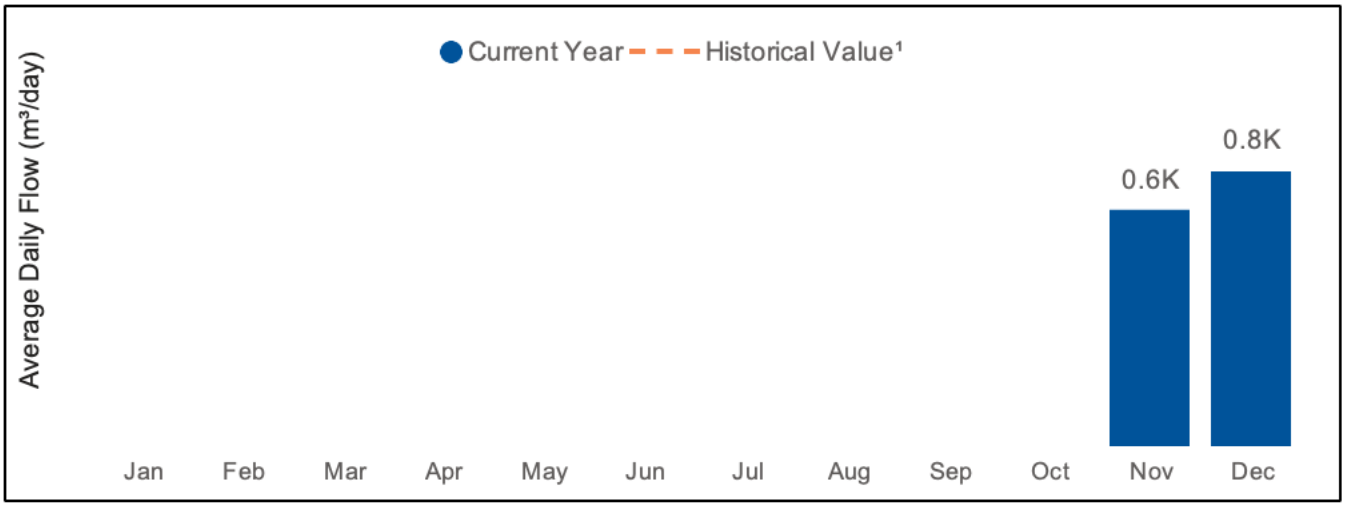
One standby natural gas generator.

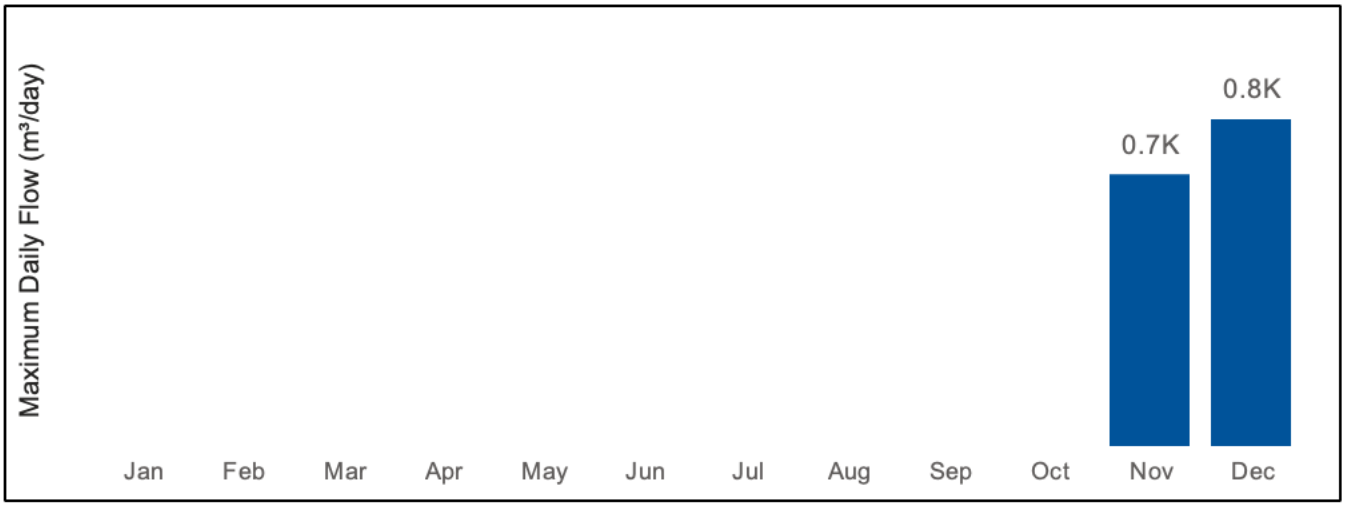
AIR MANAGEMENT

One on-site activated carbon adsorption unit.

2023 ANNUAL PERFORMANCE REPORT
AURORA HENDERSON SPS

PUMPING STATION FLOW





¹Historical value (orange dashed line) based on previous 5 years of data, where available.

2023 ANNUAL PERFORMANCE REPORT | YDSS HOLLAND LANDING SPS

FACILITY INFORMATION

Municipality Serviced:	Town of East Gwillimbury
Facility Classification:	Wastewater Collection II
System Classification:	Separate Sewer System
Receiving Water Bodies:	Lake Ontario via Duffin Creek Water Pollution Control Plant (WCPC), Durham Region (continuous) and Lake Simcoe via Holland Landing Lagoons (intermittent)

FACILITY DESCRIPTION

The Holland Landing Sewage Pumping Station (SPS) is part of the York Durham Sewage System (YDSS). One sewer enters the facility. Two forcemains exit the facility, “North” and “South”. Normal operation uses the South forcemain to direct flows to the YDSS and the North forcemain to direct flows to the Holland Landing Lagoons in accordance with the operating strategy. Wastewater directed to the YDSS eventually reaches the Duffin Creek WPCP.

PROCESS OVERVIEW

The Holland Landing SPS is equipped with a two-celled wet well and three pumps (with one space for a future pump). A grinder reduces the solids to smaller sizes so they can pass through the system more effectively. Two inlet/grinder bypass channels are each equipped with screens to remove large solids prior to reaching the wet wells. The South forcemain directs wastewater to the YDSS, which delivers wastewater to the Duffin Creek WPCP for treatment. When applicable, wastewater is also treated at the Holland Landing Lagoons.

EMERGENCY POWER

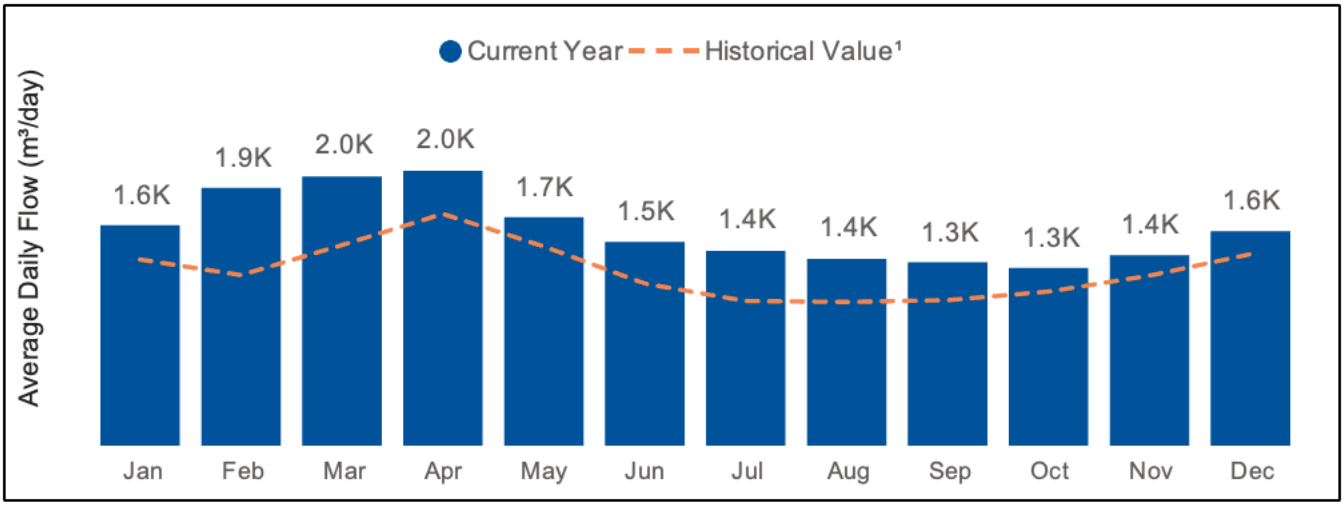
One standby diesel generator, two outdoor fuel storage tanks and one indoor fuel day tank.

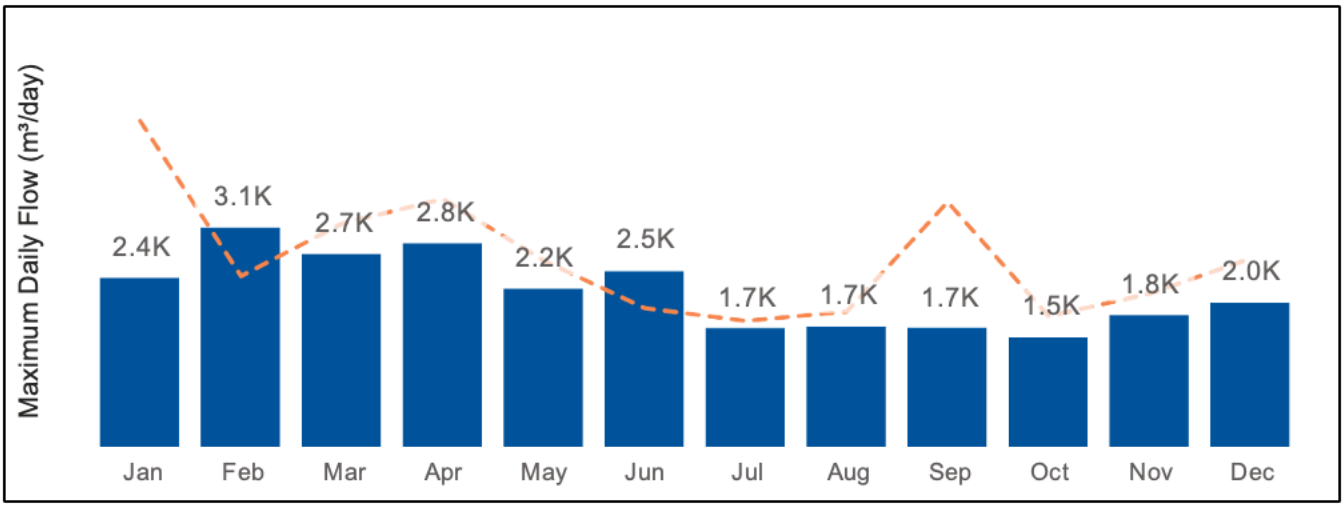
AIR MANAGEMENT

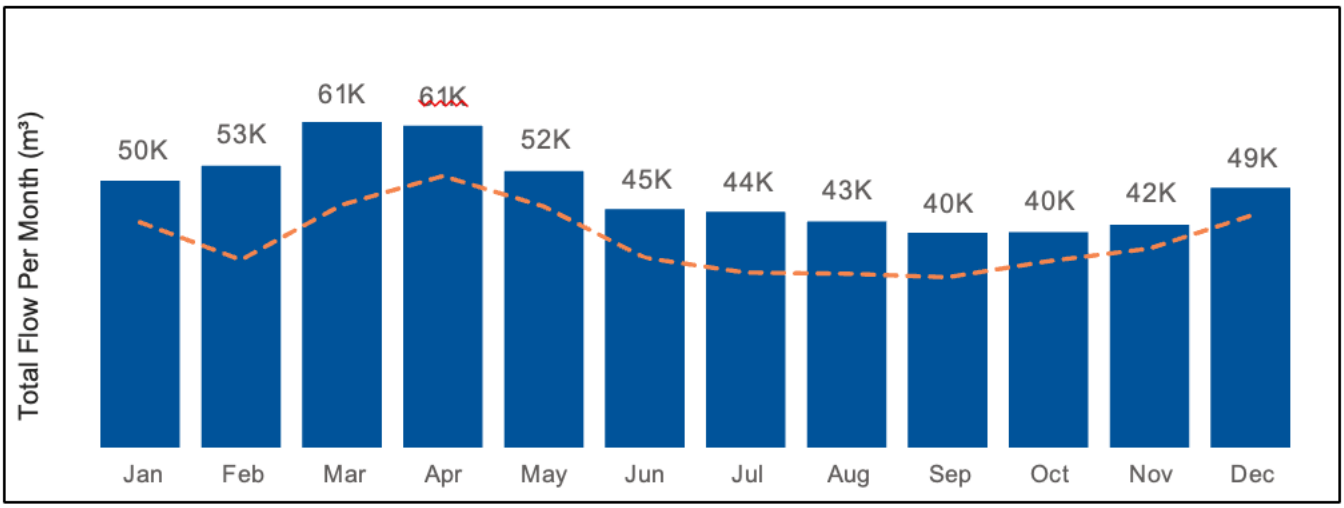
One on-site activated carbon adsorption unit.

2023 ANNUAL PERFORMANCE REPORT
HOLLAND LANDING SPS

PUMPING STATION FLOW







¹Historical value (orange dashed line) based on previous 5 years of data, where available.

2023 ANNUAL PERFORMANCE REPORT | YDSS KING CITY SPS

FACILITY INFORMATION

Municipality Serviced: Township of King

Facility Classification: Wastewater Collection II

System Classification: Separate Sewer System

Receiving Water Bodies: Lake Ontario via Duffin Creek Water Pollution Control Plant (WPCP), Durham Region

FACILITY DESCRIPTION

The King City Sewage Pumping Station (SPS) is part of the York Durham Sewage System (YDSS). It receives flows from the local collection system. Flows are discharged through one forcemain to the YDSS, eventually reaching the Duffin Creek WPCP.

PROCESS OVERVIEW

The King City SPS is equipped with a two-celled wet well, a dry well and three pumps. It discharges through one forcemain to the YDSS, which delivers wastewater to the Duffin Creek WPCP for treatment.

EMERGENCY POWER

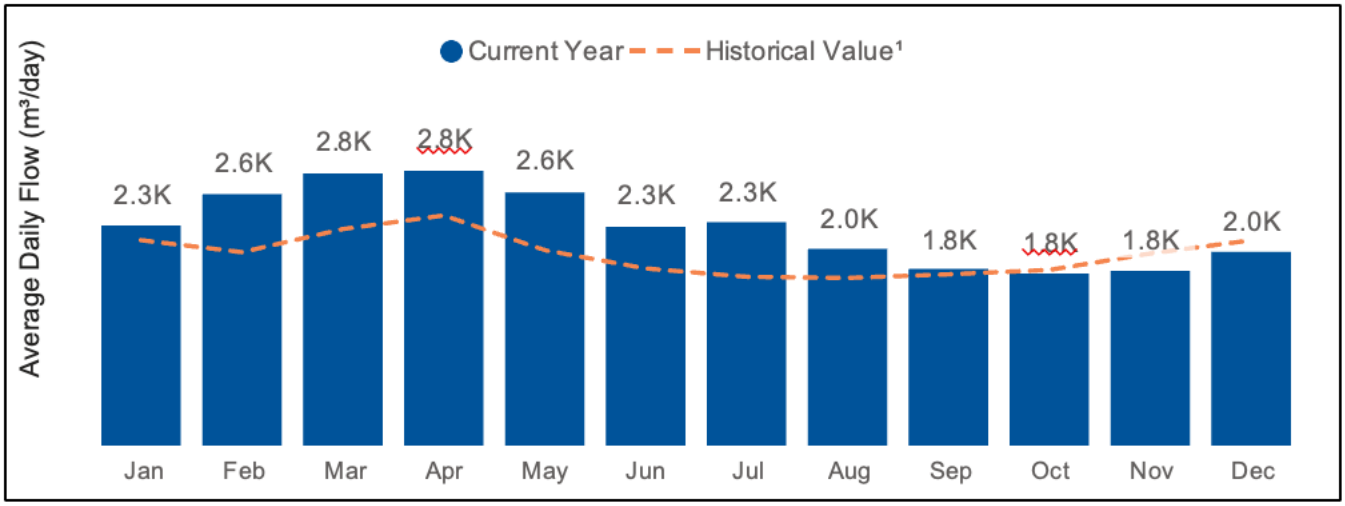
One standby diesel generator, one fuel storage tank.

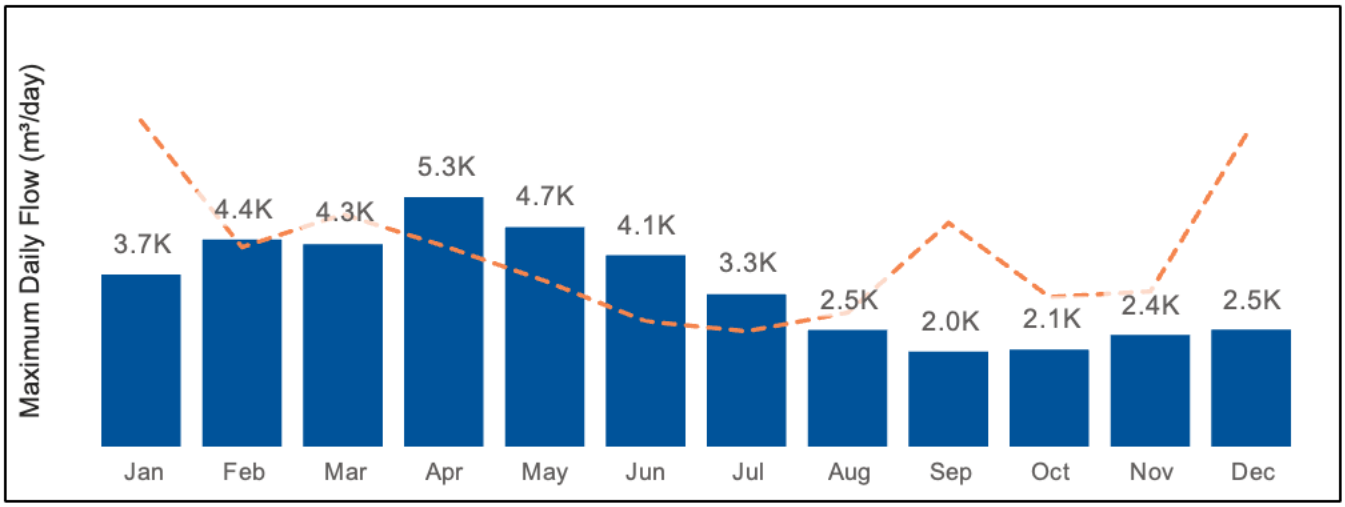
AIR MANAGEMENT

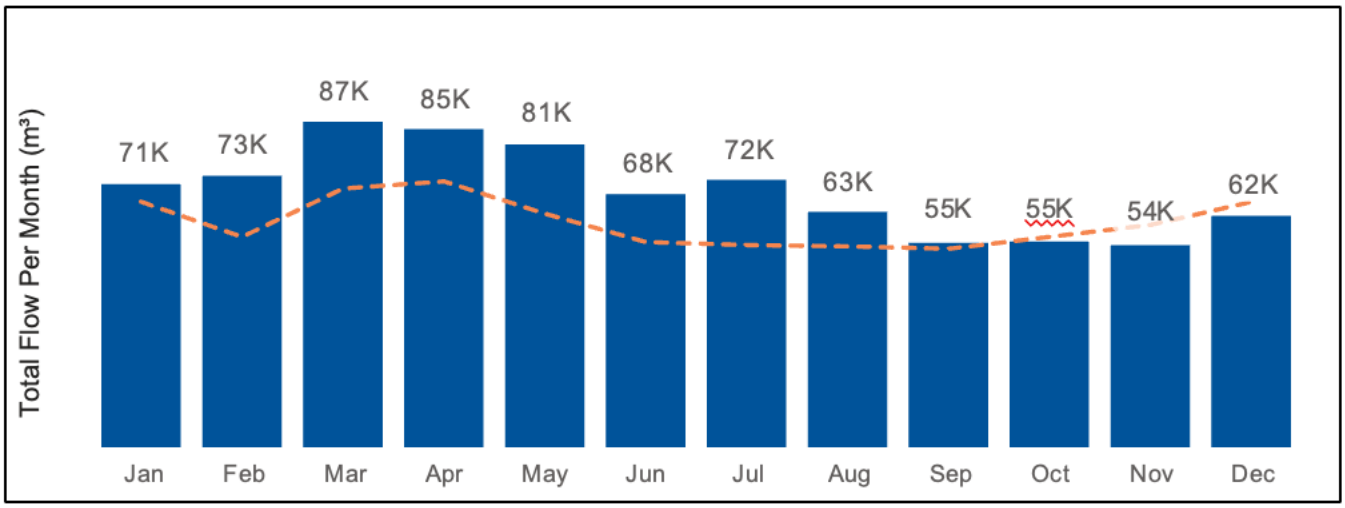
Not applicable at King City SPS.

2023 ANNUAL PERFORMANCE REPORT
KING CITY SPS

PUMPING STATION FLOW







¹Historical value (orange dashed line) based on previous 5 years of data, where available.

2023 ANNUAL PERFORMANCE REPORT | YDSS MARKHAM LESLIE SPS

FACILITY INFORMATION

Municipality Serviced:	City of Markham
Facility Classification:	Wastewater Collection III
System Classification:	Separate Sewer System
Receiving Water Bodies:	Lake Ontario via Duffin Creek Water Pollution Control Plant (WPCP), Durham Region

FACILITY DESCRIPTION

The Markham Leslie Sewage Pumping Station (SPS) is part of the York Durham Sewage System (YDSS). Two forcemains convey wastewater from the station along the Southeast Collector portion of the YDSS, eventually reaching the Duffin Creek WPCP. There is a small wastewater unloading facility at this station, however it is not currently in use.

PROCESS OVERVIEW

The Markham Leslie SPS is equipped with a two-celled wet well and six pumps. Two inlet channels, each equipped with a screen, remove large solids. Surge arrestor tanks and valves on the station discharge headers protect the system from flow surges affecting the facility. Twinned forcemains discharge to the YDSS, which delivers wastewater to the Duffin Creek WPCP for treatment.

EMERGENCY POWER

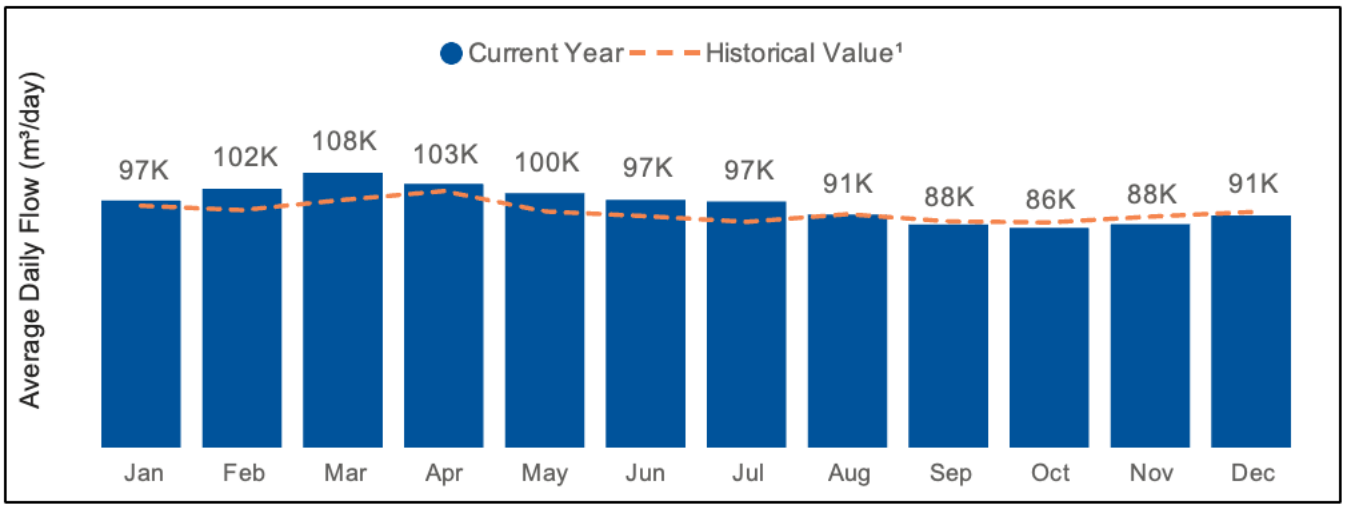
Three standby diesel generators and one outdoor fuel storage tank. An additional underground diesel storage tank is not currently in use because it is not required.

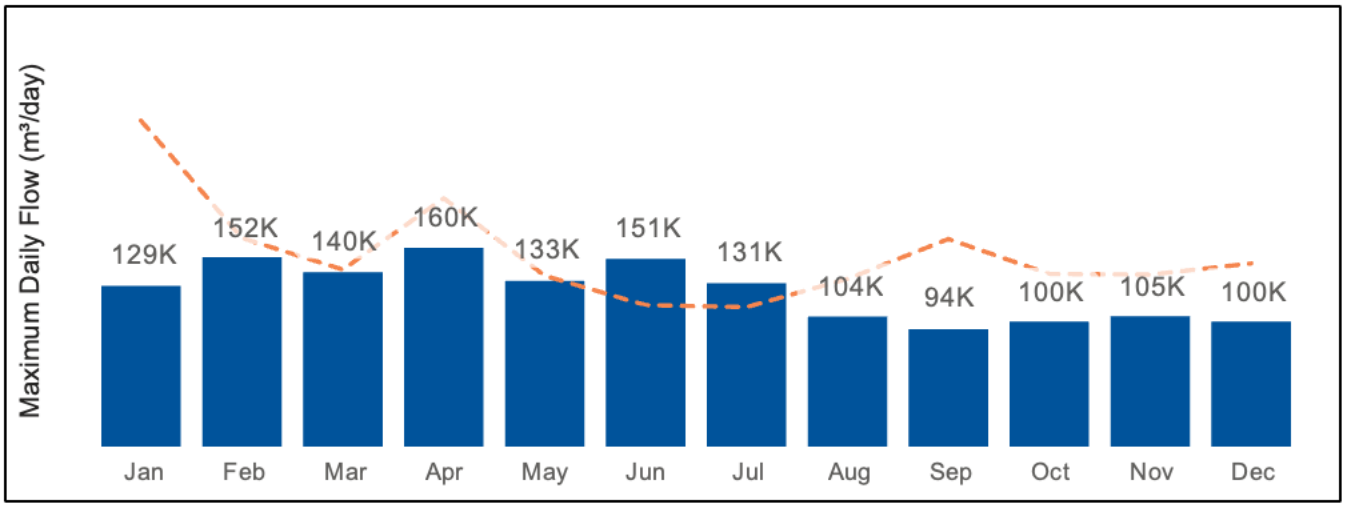
AIR MANAGEMENT

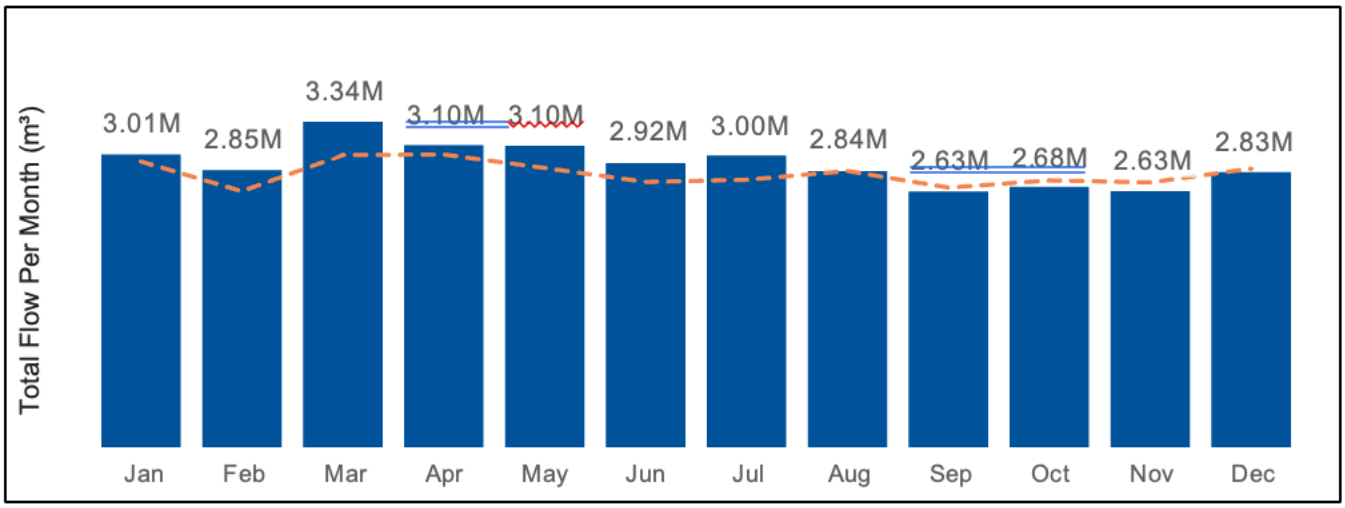
One on-site activated carbon adsorption unit.

2023 ANNUAL PERFORMANCE REPORT
MARKHAM LESLIE SPS

PUMPING STATION FLOW







¹Historical value (orange dashed line) based on previous 5 years of data, where available.

2023 ANNUAL PERFORMANCE REPORT | YDSS NEWMARKET AND GREEN LANE SPS

FACILITY INFORMATION

Municipality Serviced: Town of Newmarket

Facility Classification: Wastewater Collection III

System Classification: Separate Sewer System

Receiving Water Bodies: Lake Ontario via Duffin Creek Water Pollution Control Plant (WPCP)

FACILITY DESCRIPTION

The Newmarket and Green Lane Sewage Pumping Stations (SPS) are part of the York Durham Sewage System (YDSS). The Green Lane SPS is managed operationally as a sub-station of the Newmarket SPS. The Green Lane SPS discharges to the adjacent Newmarket SPS through one forcemain. The Newmarket SPS receives and transfers wastewater from the Town of East Gwillimbury and the Town of Newmarket. An underground equalization tank at the Newmarket SPS helps to control flows. Flows eventually reach the Duffin Creek WPCP.

PROCESS OVERVIEW

The Green Lane SPS comprises one wet well and two pumps. It flows directly to Newmarket SPS.

The Newmarket SPS is equipped with a two-celled wet well, four pumps, and a two-celled equalization tank. Two screened inlet channels remove large solids and then flow to the wet wells. The wet wells can discharge via two paths: to the equalization tank or back into the system towards the downstream Aurora SPS. The equalization tank returns flows to the inlet of the SPS in a controlled manner. In normal operation, the Newmarket SPS discharges from the wet wells through one of the two forcemains towards the Aurora SPS. Only one forcemain is used at a time. The forcemain directs wastewater to the YDSS, which delivers wastewater to the Duffin Creek WPCP for treatment.

EMERGENCY POWER

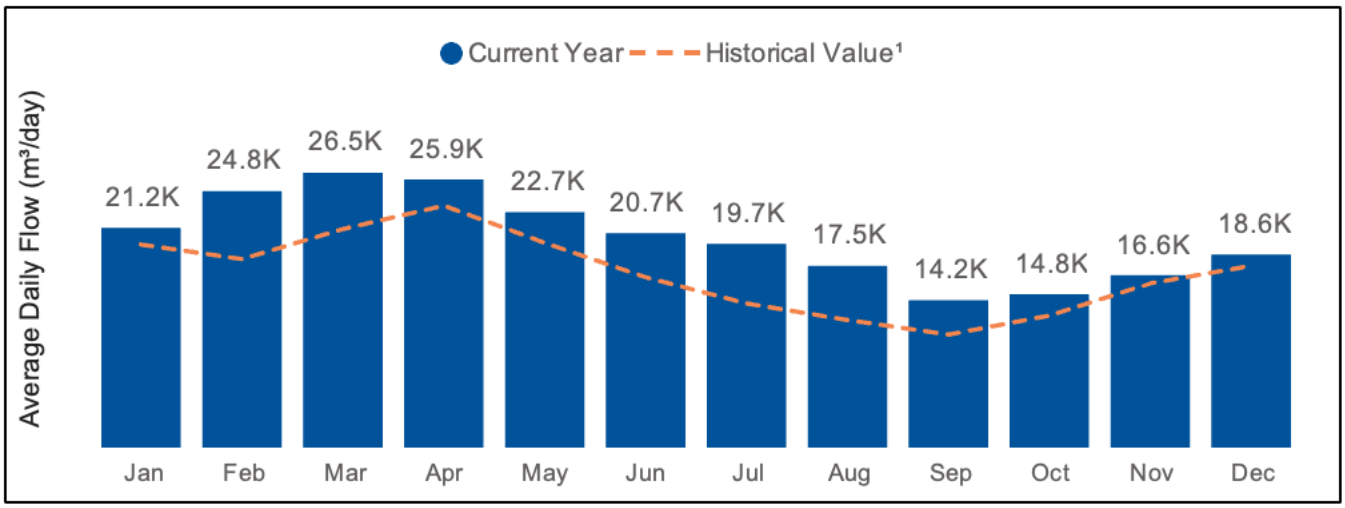
Green Lane SPS: An uninterruptible power supply provides some backup power for essential equipment and the facility will also flow by gravity to the Newmarket SPS without power.
Newmarket SPS: One standby diesel generator and one outdoor fuel storage tank.

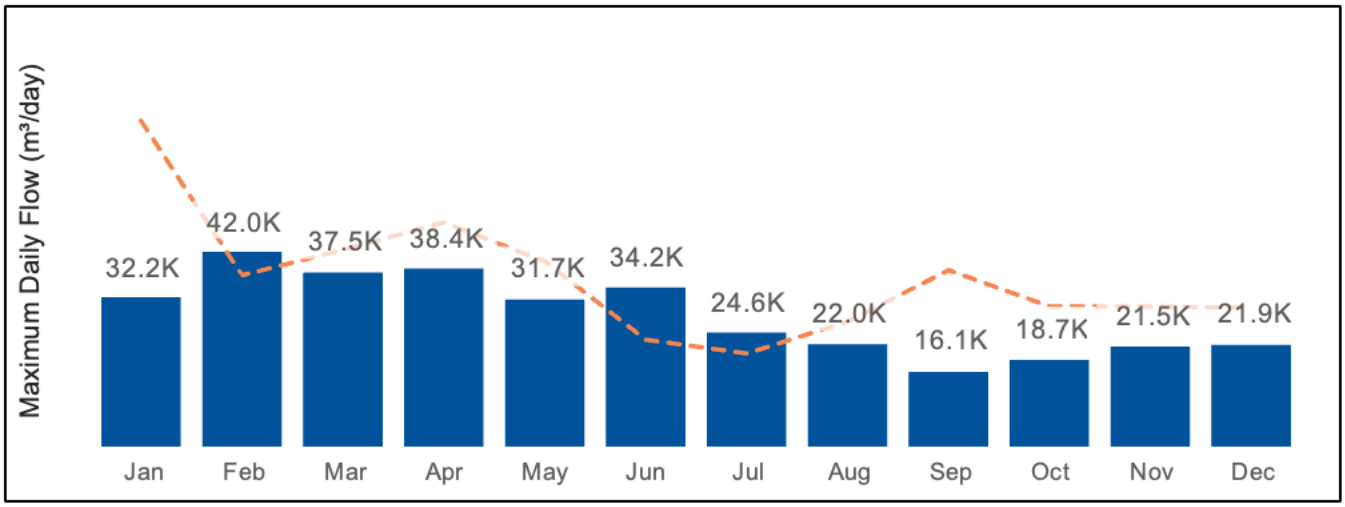
AIR MANAGEMENT AND CONDITIONING CHEMICALS

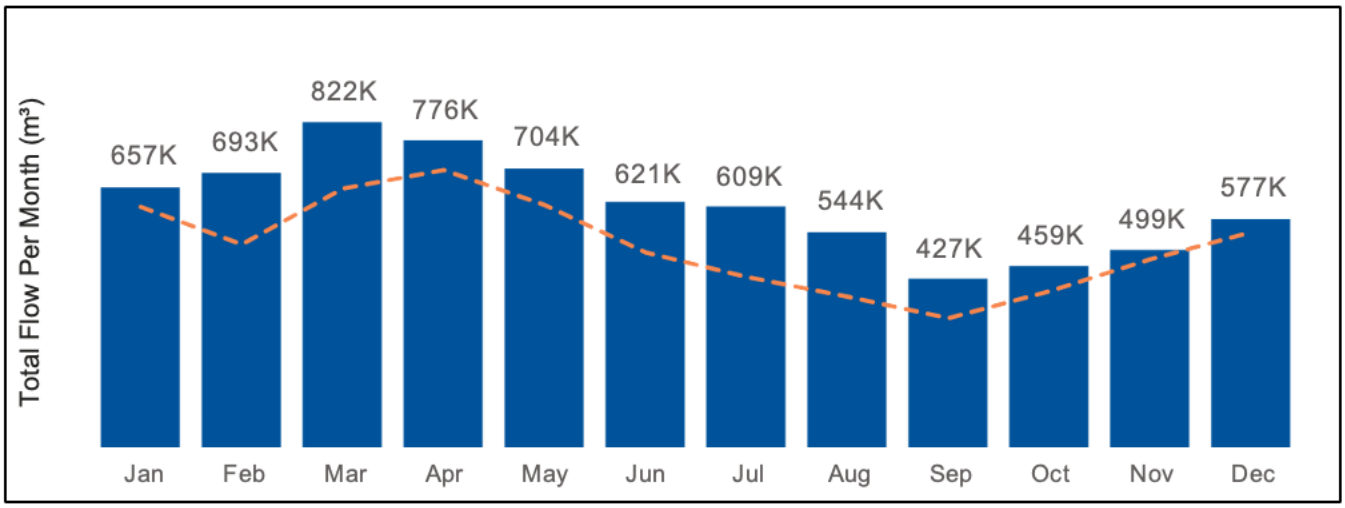
At Green Lane SPS: not applicable. At Newmarket SPS: one on-site activated carbon adsorption unit controls emissions from the equalization tank. Also at Newmarket SPS, iron salts (ferrous chloride) minimize hydrogen sulfide in the downstream sewer to mitigate odour and corrosion. This conditioning is paired with secondary conditioning at the downstream Aurora SPS to continue controlling corrosion and odour.

2023 ANNUAL PERFORMANCE REPORT
NEWMARKET SPS

PUMPING STATION FLOW



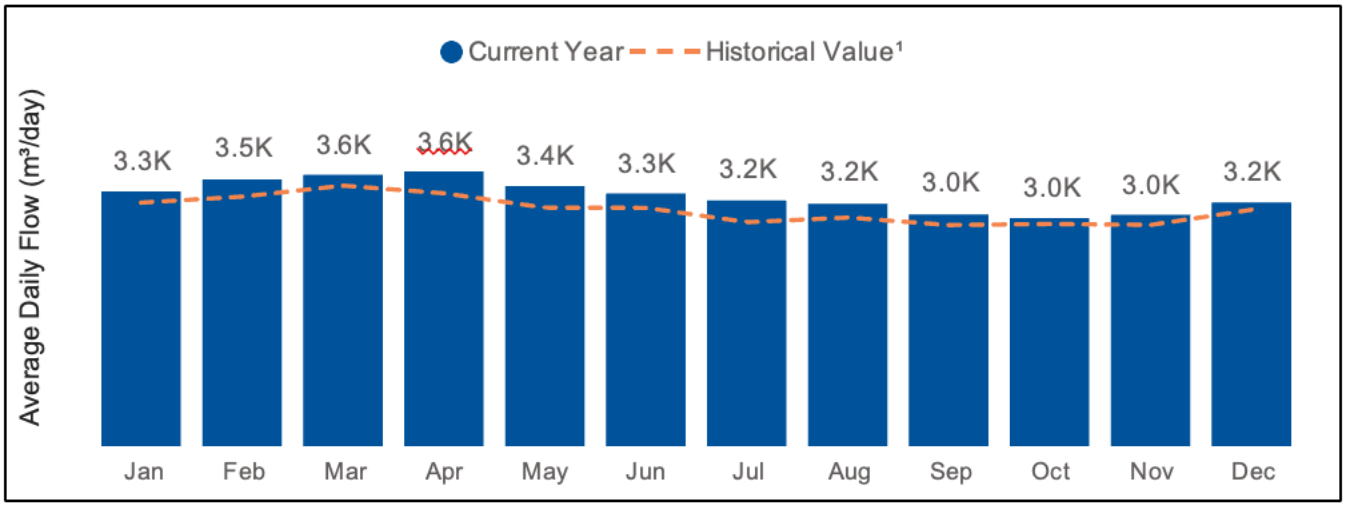


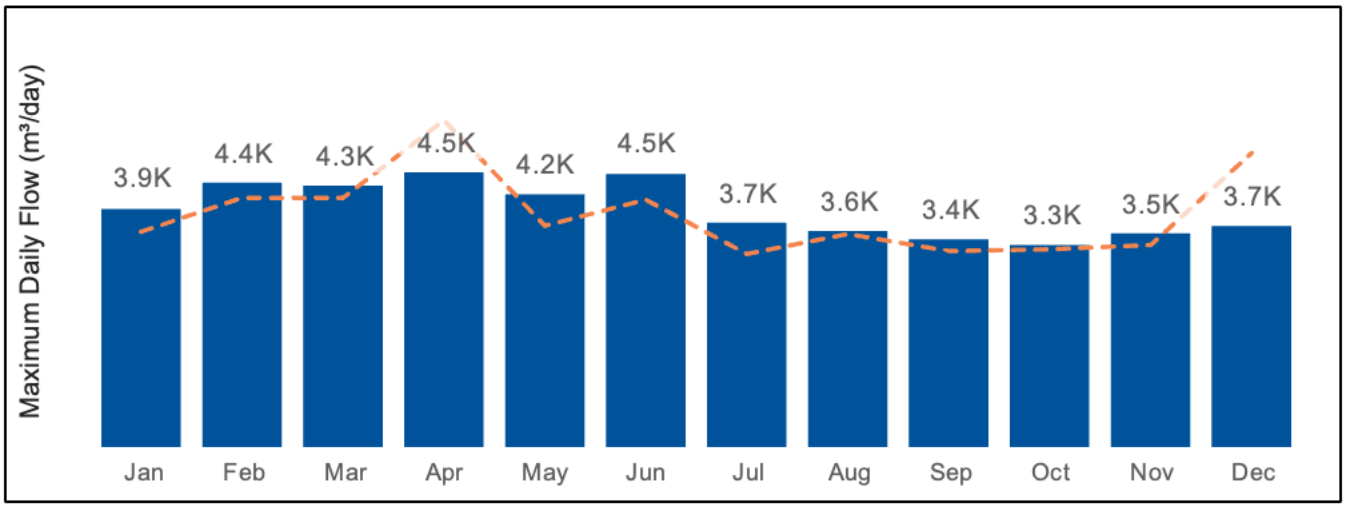


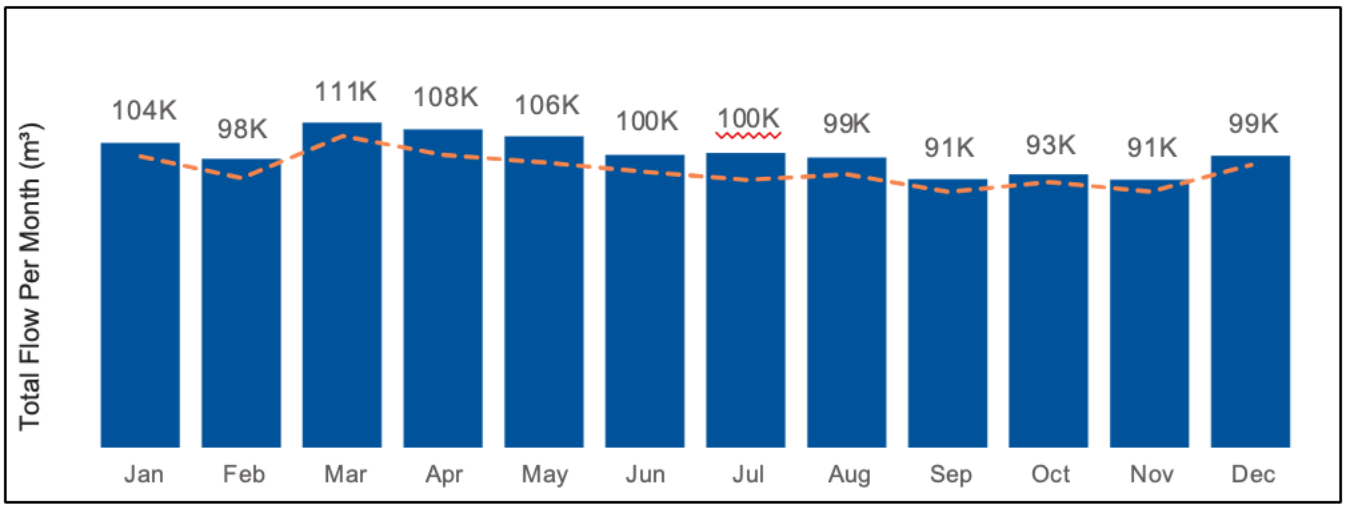
¹Historical value (orange dashed line) based on previous 5 years of data, where available.

2023 ANNUAL PERFORMANCE REPORT
GREEN LANE SPS

PUMPING STATION FLOW







¹Historical value (orange dashed line) based on previous 5 years of data, where available.

2023 ANNUAL PERFORMANCE REPORT | YDSS NEWMARKET BOGART CREEK SPS

FACILITY INFORMATION

Municipality Serviced: Town of Newmarket

Facility Classification: Wastewater Collection III

System Classification: Separate Sewer System

Receiving Water Bodies: Lake Ontario via Duffin Creek Water Pollution Control Plant (WPCP), Durham Region

FACILITY DESCRIPTION

The Bogart Creek Sewage Pumping Station (SPS) receives wastewater from the Town of Newmarket via influent sewers. It discharges through one forcemain to the York Durham Sewage System (YDSS), eventually reaching the Duffin Creek WPCP.

PROCESS OVERVIEW

The Bogart Creek SPS is equipped with a two-celled wet well and four pumps. One inlet splits into two channels and directs flows to the wet well. One channel is equipped with a grinder to reduce solids to smaller sizes so they can pass through the system more effectively and the other is equipped with a screen to remove solids. Flows are conveyed south through twinned forcemains to the Aurora SPS. Twinned forcemains provide redundancy in sewage systems, which improves the reliability of the sewage system and allows for maintenance and repairs on one forcemain while the other operates. Only one forcemain is used at a time. The forcemain directs wastewater to the YDSS, which delivers wastewater to the Duffin Creek WPCP for treatment.

EMERGENCY POWER

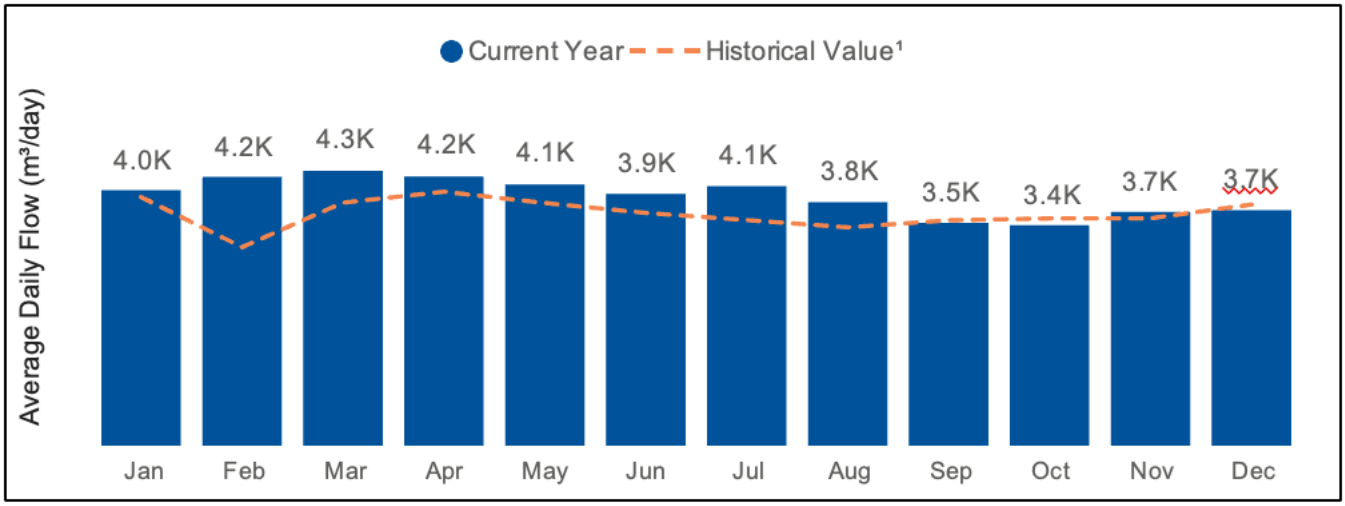
One standby diesel generator and one fuel tank.

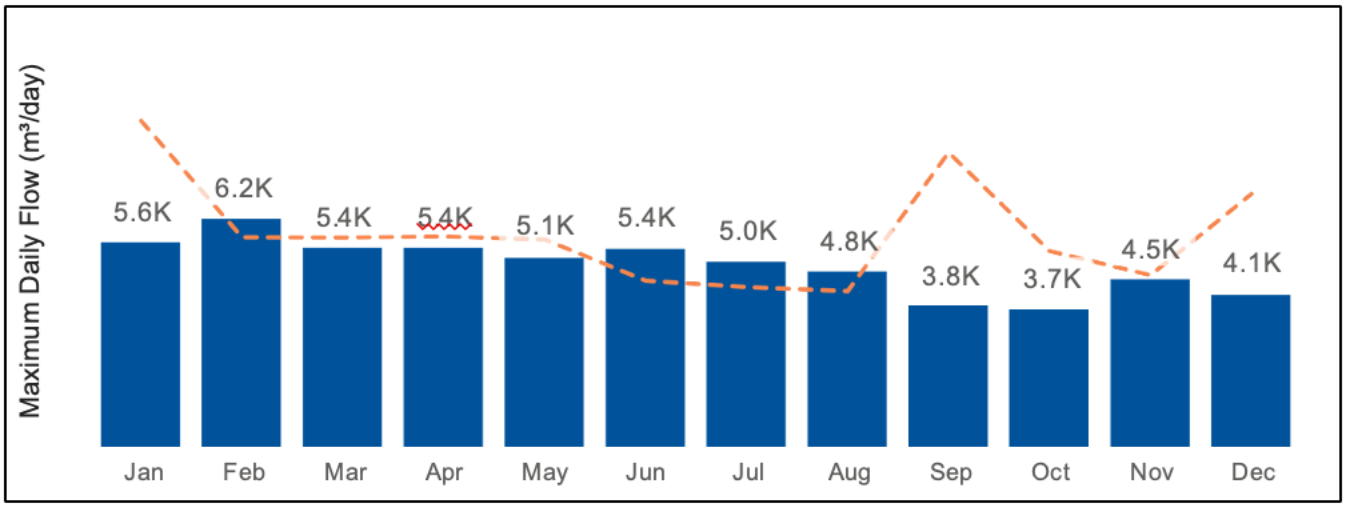
AIR MANAGEMENT

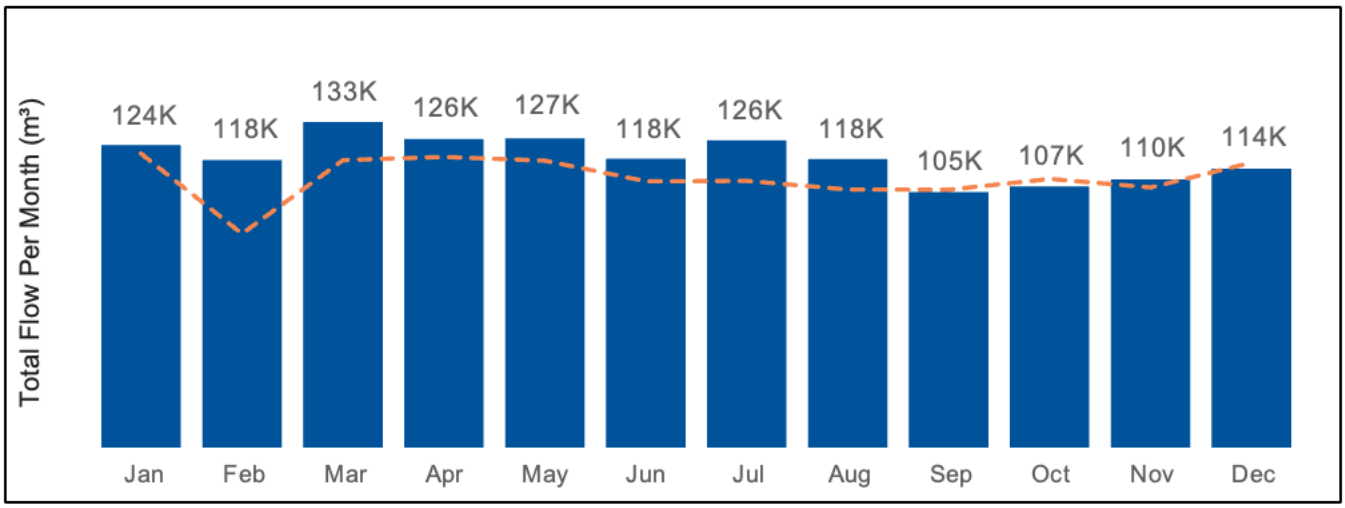
One on-site activated carbon adsorption unit.

2023 ANNUAL PERFORMANCE REPORT
NEWMARKET BOGART CREEK SPS

PUMPING STATION FLOW







¹Historical value (orange dashed line) based on previous 5 years of data, where available.

2023 ANNUAL PERFORMANCE REPORT | YDSS QUEENSVILLE WEST SPS

FACILITY INFORMATION

Municipality Serviced:	Town of East Gwillimbury
Facility Classification:	Wastewater Collection III
System Classification:	Separate Sewer System
Receiving Water Bodies:	Lake Ontario via Duffin Creek Water Pollution Control Plant (WPCP), Durham Region

FACILITY DESCRIPTION

The Queensville West Sewage Pumping Station (SPS) is part of the York Durham Sewage System (YDSS). One sewer enters the facility. Two forcemains exit the facility. In normal operation, one of the forcemains pushes the wastewater south from the station to the YDSS, eventually reaching the Duffin Creek WPCP. The second forcemain is not currently in use.

PROCESS OVERVIEW

The Queensville West SPS is equipped with a two-celled wet well and two pumps (with two spaces for future pumps). A grinder reduces the solids to smaller sizes so they can pass through the system more effectively. Two inlet/grinder bypass channels are each equipped with screens to remove large solids prior to reaching the wet wells. The forcemain directs wastewater to the YDSS, which delivers wastewater to the Duffin Creek WPCP for treatment.

EMERGENCY POWER

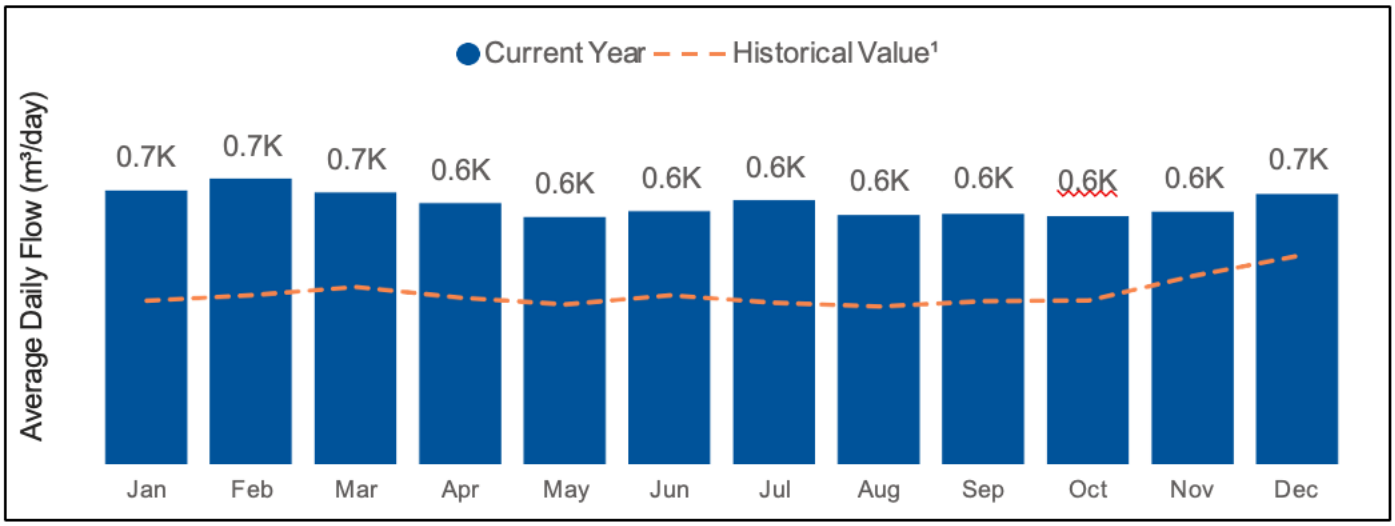
One standby diesel generator, two outdoor fuel storage tanks and one indoor fuel day tank.

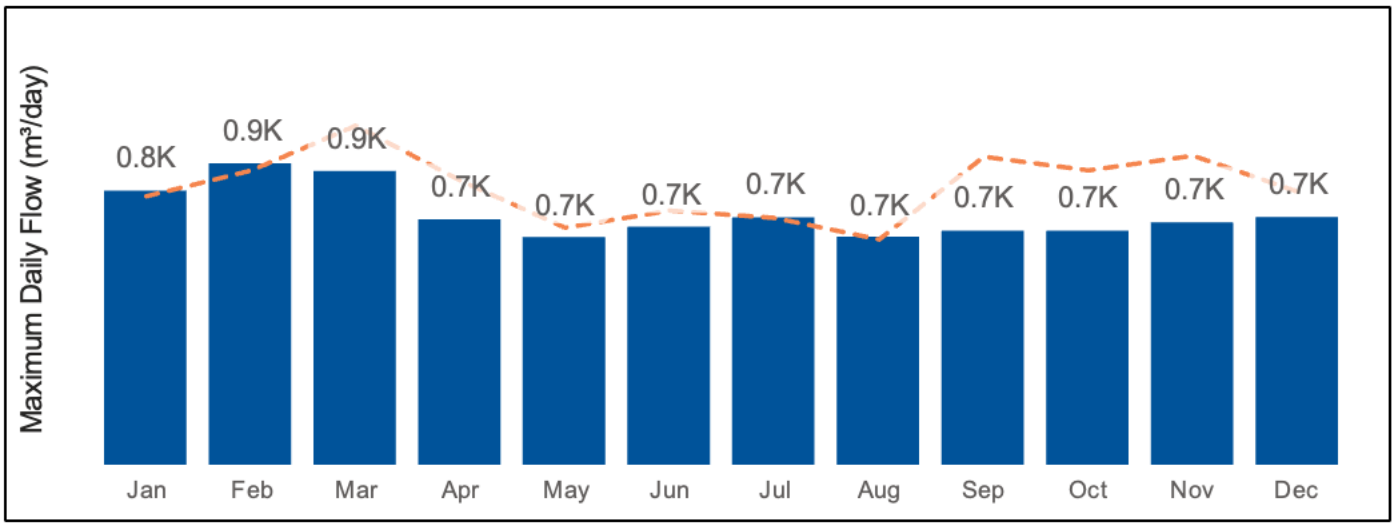
AIR MANAGEMENT

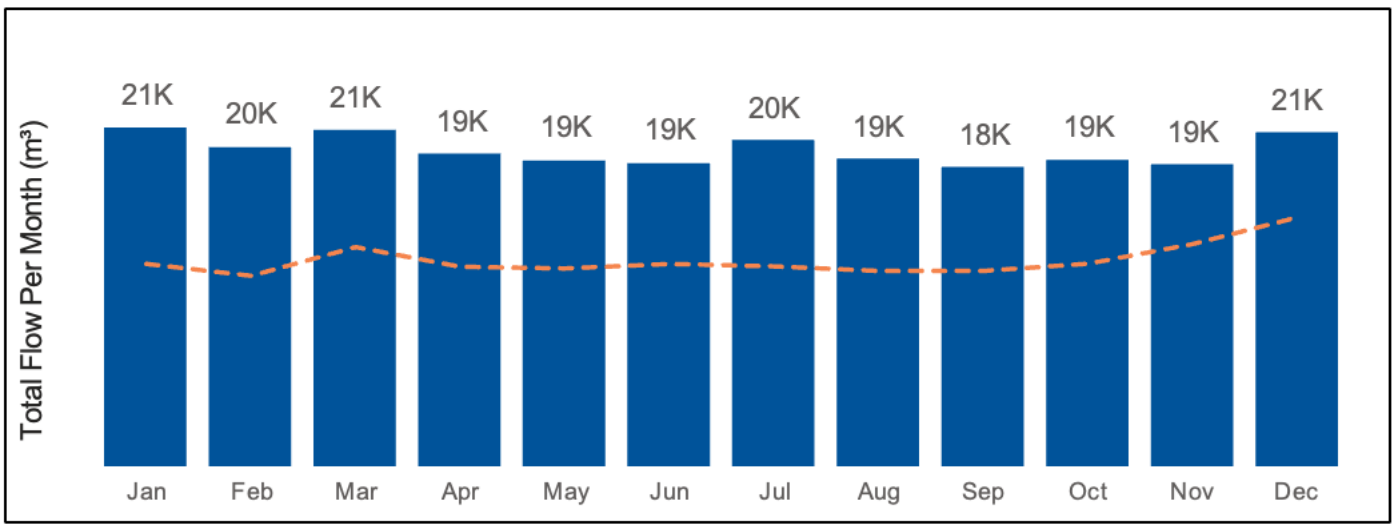
One on-site activated carbon adsorption unit.

2023 ANNUAL PERFORMANCE REPORT
QUEENSVILLE WEST SPS

PUMPING STATION FLOW







¹Historical value (orange dashed line) based on previous 5 years of data, where available.

2023 ANNUAL PERFORMANCE REPORT | YDSS VAUGHAN BLACK CREEK SPS

FACILITY INFORMATION

Municipality Serviced:	Vaughan
Facility Classification:	Wastewater Collection III
System Classification:	Separate Sewer System III
Receiving Water Bodies:	Lake Ontario via Duffin Creek Water Pollution Control Plant (WPCP), Durham Region

FACILITY DESCRIPTION

The Vaughan Black Creek Sewage Pumping Station (SPS) is part of the York Durham Sewage System (YDSS). It receives flows from the local collection system and the Humber SPS. Flows are discharged through one forcemain, eventually reaching the Duffin Creek WPCP.

PROCESS OVERVIEW

The Vaughan Black Creek SPS is equipped with a two-celled wet well, a dry well, and five pumps. Screens on the inlet and the “inlet bypass” channels remove solids before flows reach the wet well. The SPS discharges to one forcemain to the YDSS, which delivers wastewater to the Duffin Creek WPCP for treatment.

EMERGENCY POWER

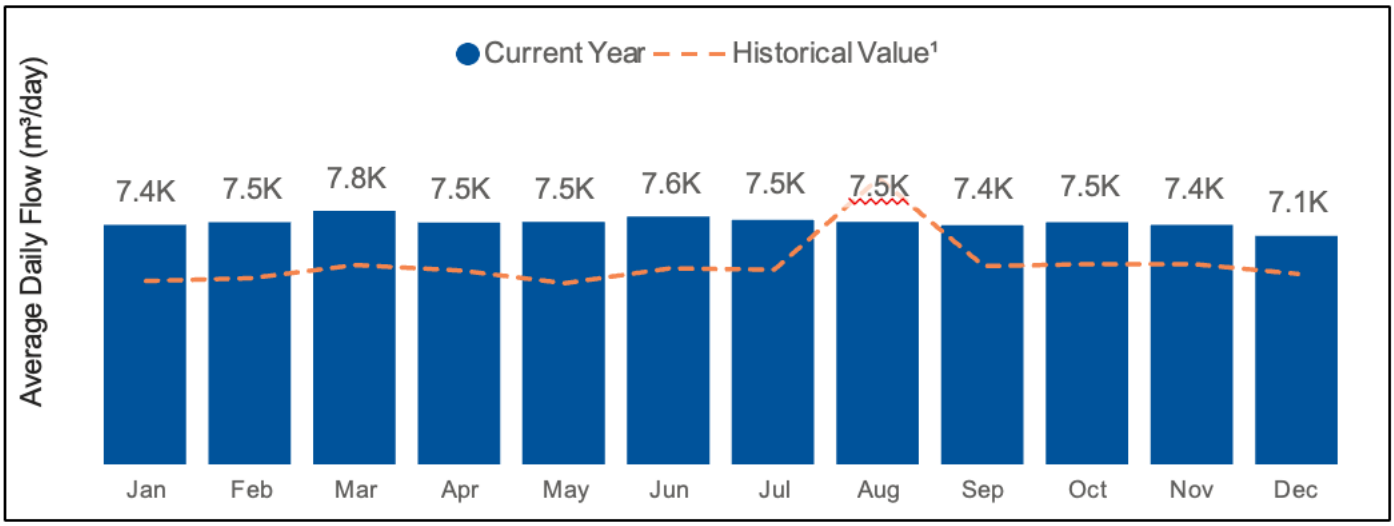
One standby diesel generator, one outdoor fuel storage tank.

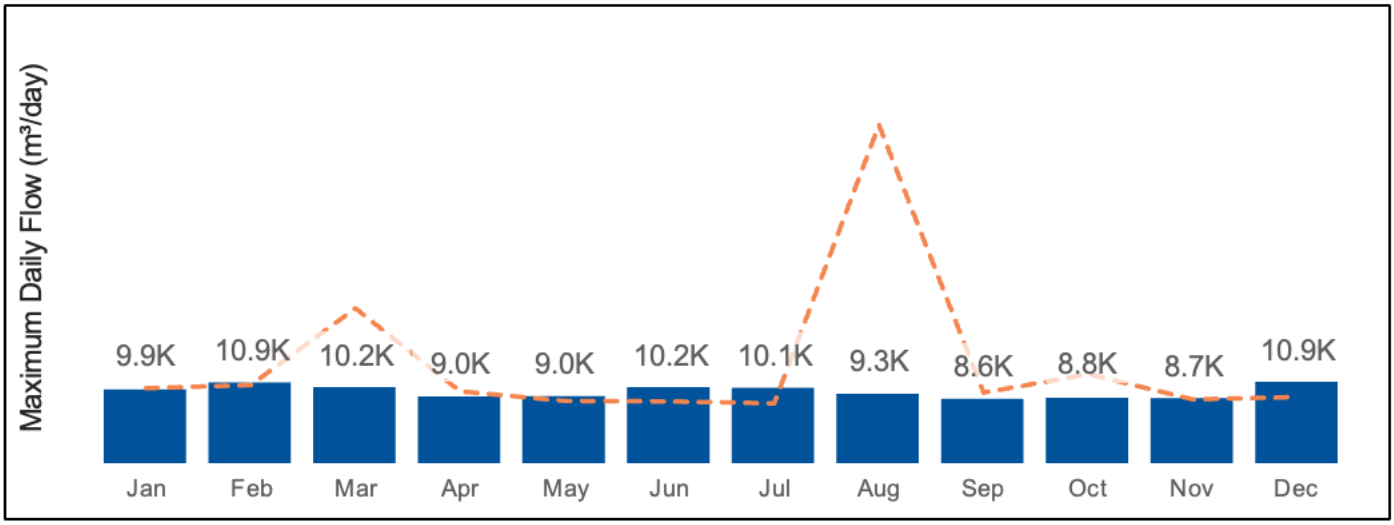
AIR MANAGEMENT

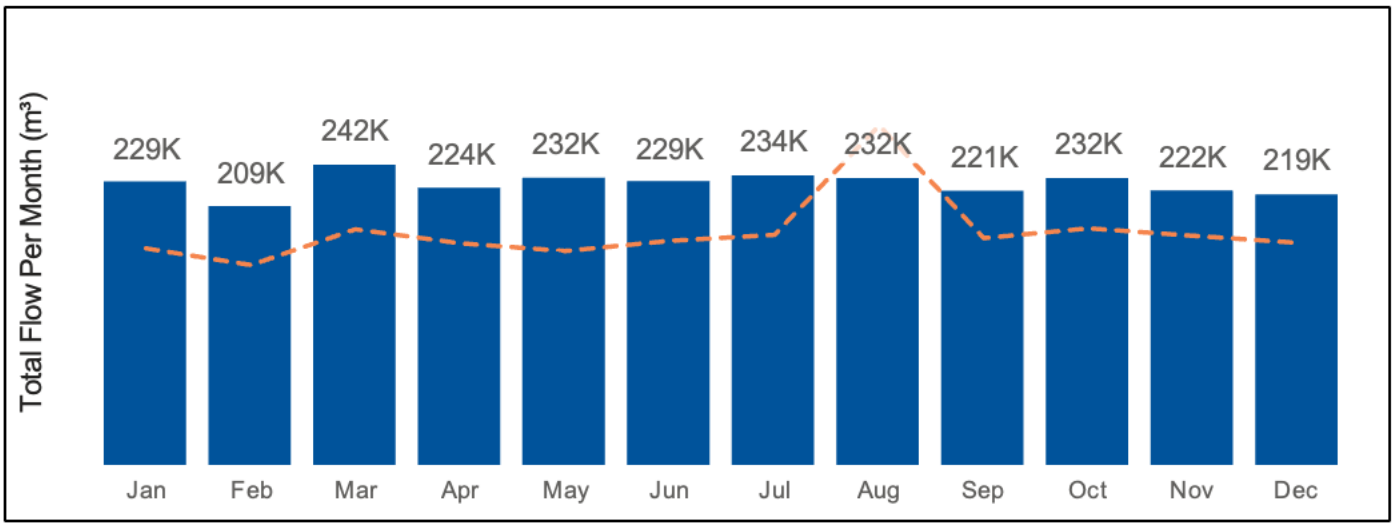
One on-site activated carbon adsorption unit.

2023 ANNUAL PERFORMANCE REPORT
VAUGHAN BLACK CREEK SPS

PUMPING STATION FLOW







¹Historical value (orange dashed line) based on previous 5 years of data, where available.

2023 ANNUAL PERFORMANCE REPORT | YDSS VAUGHAN HUMBER SPS

FACILITY INFORMATION

Municipality Serviced:	City of Vaughan
Facility Classification:	Wastewater Collection III
System Classification:	Separate Sewer System
Receiving Water Bodies:	Lake Ontario via Duffin Creek Water Pollution Control Plant (WPCP), Durham Region and G.E. Booth Wastewater Treatment Facility, Peel Region

FACILITY DESCRIPTION

The Humber Sewage Pumping Station (SPS) is part of the York-Durham Sewage System (YDSS) and has four discharge forcemains. It receives flows from the local collection system and Pine Valley SPS. Flows can be directed to either the G.E. Booth Wastewater Treatment Facility or through the Black Creek SPS to Duffin Creek WPCP for treatment. The proportion of flow directed to either treatment facility is determined based on operational needs in the system.

PROCESS OVERVIEW

The Vaughan Humber SPS is equipped with a two-celled wet well, a dry well, and five pumps. Screens on the influent channel remove large solids. Four surge relief valves protect the system from flow surges. Four forcemains discharge from the facility to the YDSS. This portion of the YDSS delivers wastewater to the Duffin Creek WPCP or G.E. Booth Wastewater Treatment Facility for treatment. Two forcemains convey wastewater westward from the station towards Peel Region, to be received for treatment at the G.E. Booth Wastewater Treatment Facility. Two forcemains convey wastewater northward from the station towards the YDSS, ultimately received for treatment at the Duffin Creek WPCP.

EMERGENCY POWER

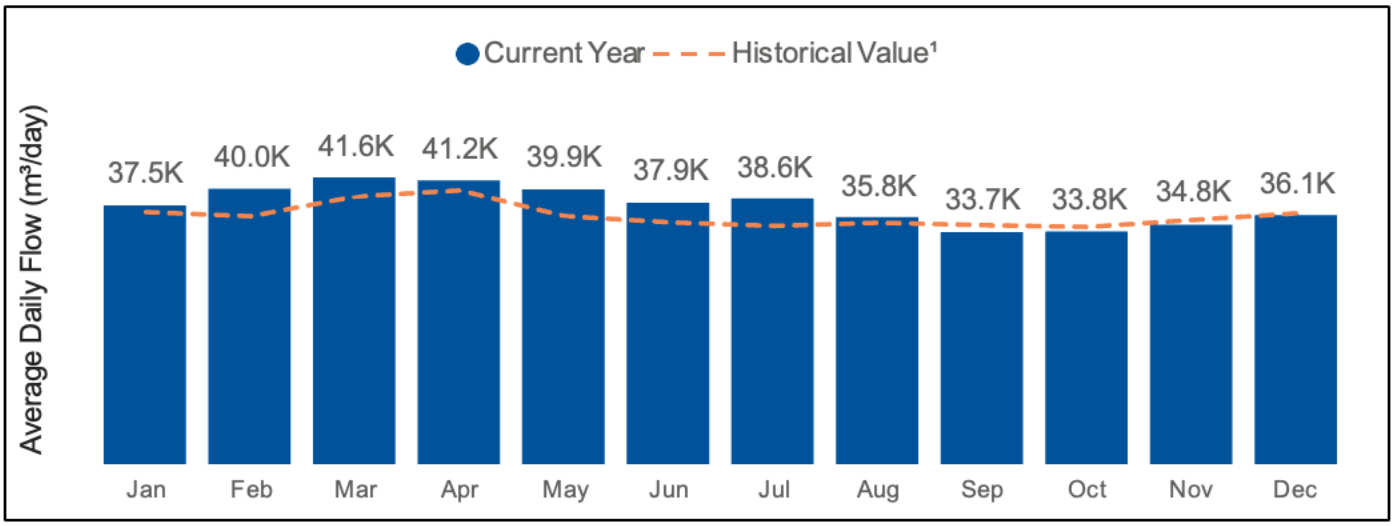
One standby diesel generator, one outdoor fuel storage tank.

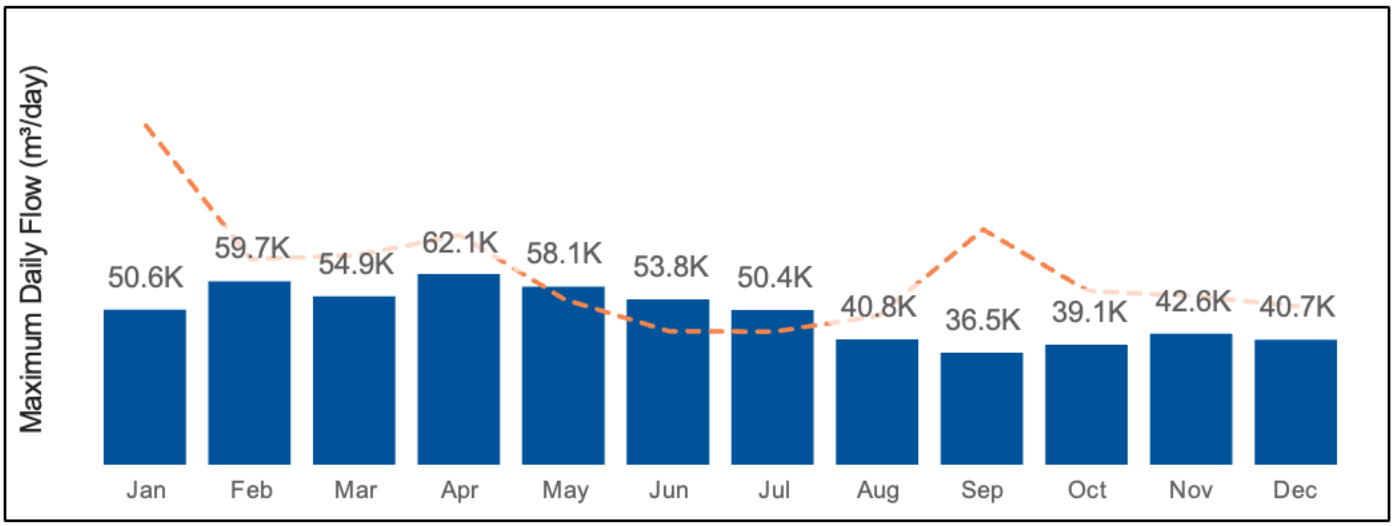
AIR MANAGEMENT

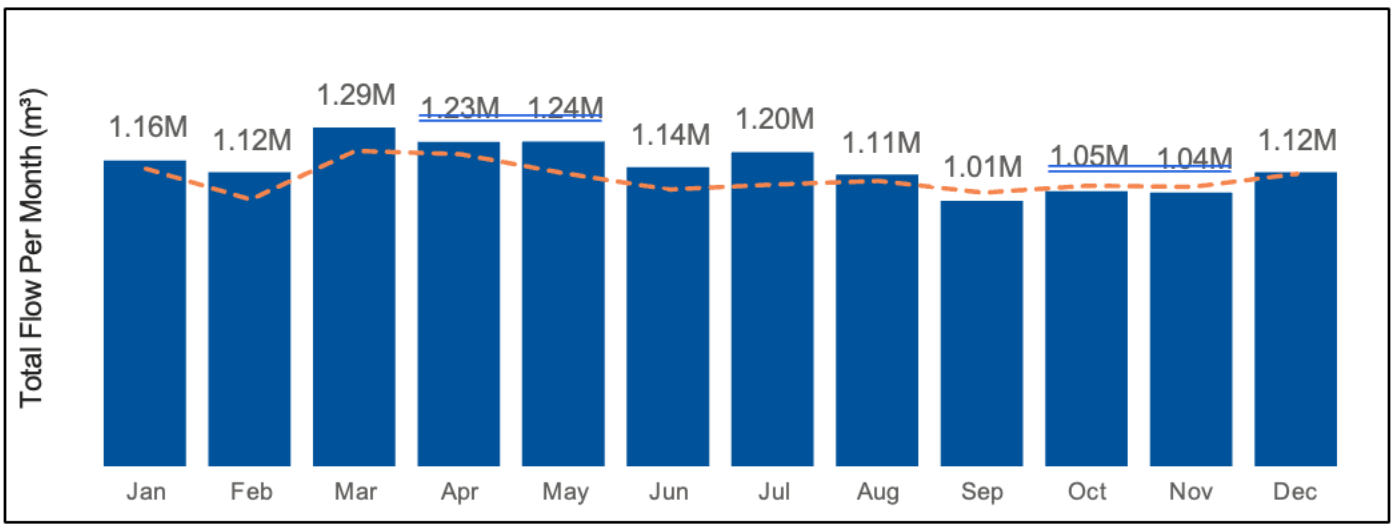
Two packed bed system odour control units.

2023 ANNUAL PERFORMANCE REPORT
VAUGHAN HUMBER SPS

PUMPING STATION FLOW







¹Historical value (orange dashed line) based on previous 5 years of data, where available.

2023 ANNUAL PERFORMANCE REPORT | YDSS VAUGHAN PINE VALLEY SPS

FACILITY INFORMATION

Municipality Serviced:	Vaughan
Facility Classification:	Wastewater Collection II
System Classification:	Separate Sewer System
Receiving Water Bodies:	Lake Ontario via Duffin Creek Water Pollution Control Plant (WPCP), Durham Region and G.E. Booth Wastewater Treatment Facility, Peel Region

FACILITY DESCRIPTION

The Vaughan Pine Valley Sewage Pumping Station (SPS) is part of the York Durham Sewage System (YDSS). It receives flow from the local collection system and discharges through one forcemain to Humber SPS. The ultimate destination can be either Duffin Creek WPCP or G.E. Booth Wastewater Treatment Facility.

PROCESS OVERVIEW

The Vaughan Pine Valley SPS is equipped with a two-celled wet well and three pumps. The inlet is equipped with a grinder to reduce solids to smaller sizes so they can pass through the system more effectively. An “inlet bypass” structure flows around the grinder and is equipped with a screen to remove solids before reaching the wet well. It discharges through one forcemain to the Humber SPS which delivers wastewater to the YDSS. This portion of the YDSS delivers wastewater to the Duffin Creek WPCP or G.E. Booth Wastewater Treatment Facility for treatment.

EMERGENCY POWER

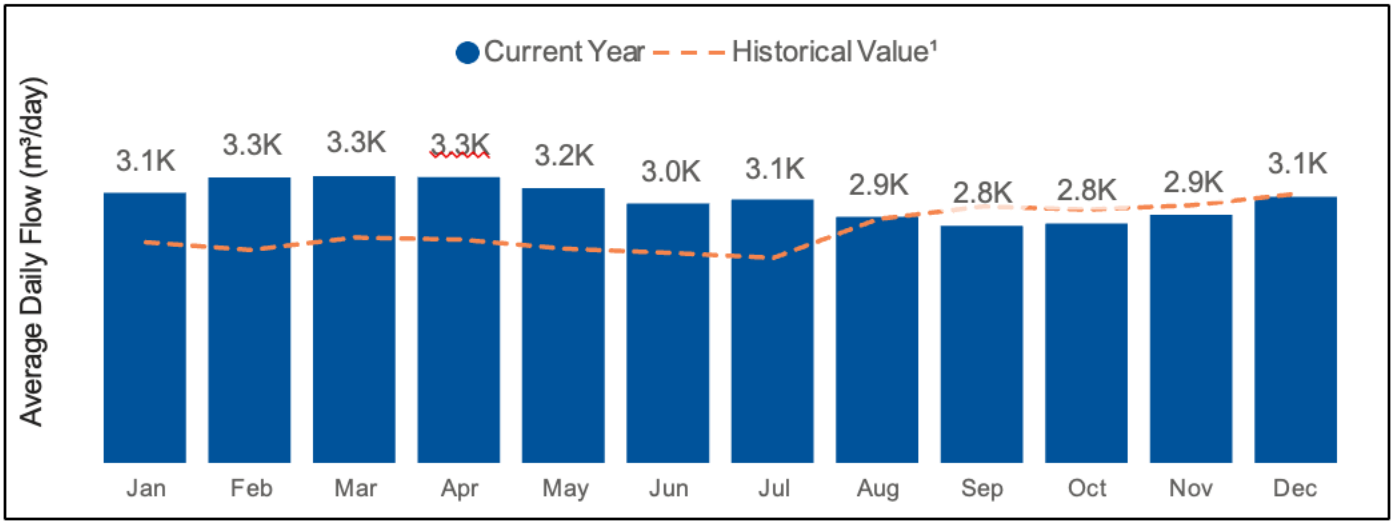
One standby diesel generator, two fuel storage tanks.

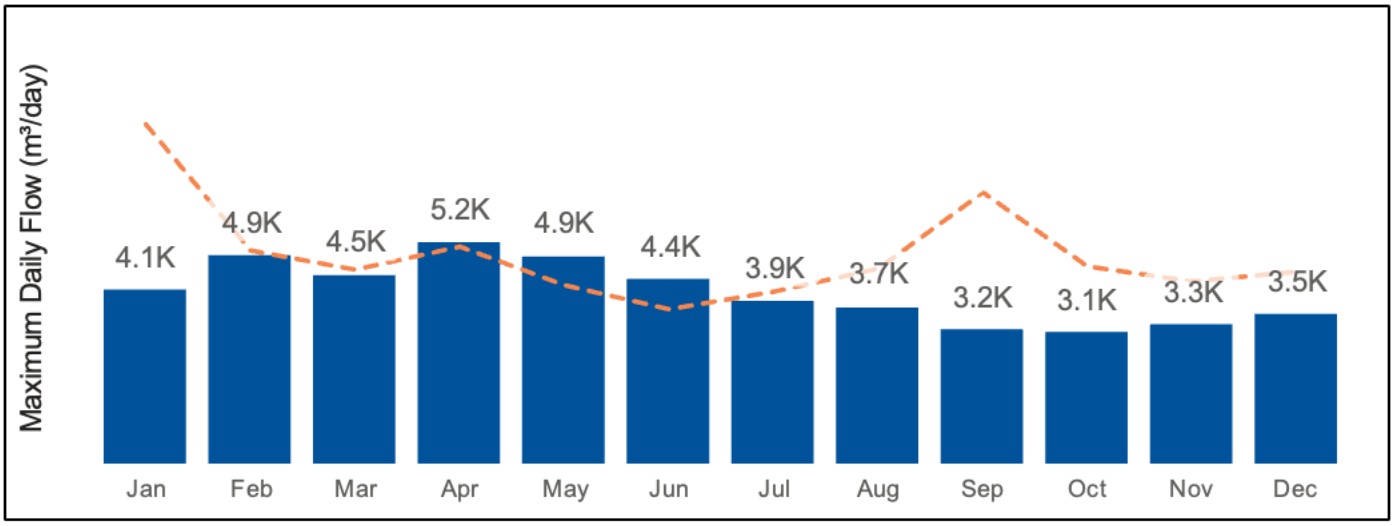
AIR MANAGEMENT

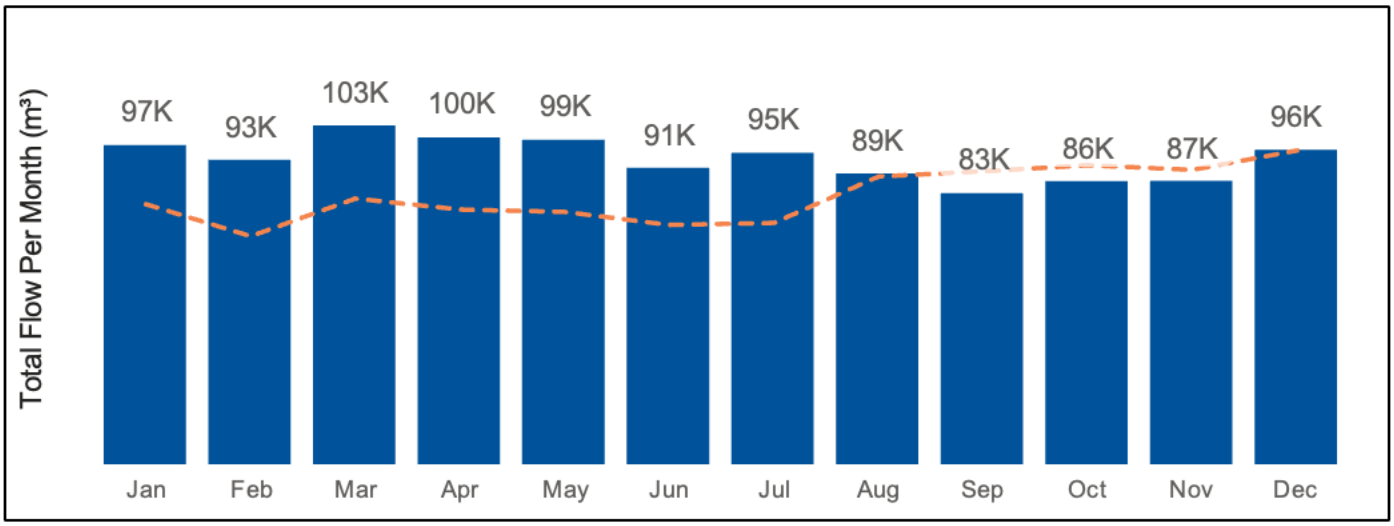
One on-site activated carbon absorption unit.

2023 ANNUAL PERFORMANCE REPORT
VAUGHAN PINE VALLEY SPS

PUMPING STATION FLOW







¹Historical value (orange dashed line) based on previous 5 years of data, where available.

BACKGROUND

Wastewater systems can be considered in two parts: collection and treatment. Treatment facilities range in complexity and remove or recover nutrients and other compounds from the wastewater before returning clean water to the environment. Collection systems, sometimes called “linear systems”, convey wastewater from homes and other buildings to a treatment facility.
Collection systems include:

- **Pipes:** gravity sewers and forcemains. Wastewater flows by gravity in sewers and flows under pressure in forcemains. Some municipalities have “combined” or “partially separated” gravity sewers which combine flows from both stormwater and wastewater. York Region only has “separated” sewers. The Region’s sewers are less influenced by wet weather events because they are not designed to convey wastewater and stormwater in the same pipe. Some water can still enter the sewers from maintenance hole covers and leaking infrastructure – this is referred to as Inflow and Infiltration (I&I). More information about how the Region manages I&I is described in condition 4.6.9 of this report.
- **Sewage Pumping Stations (SPS):** most SPS remove some solids from wastewater to prevent blocked or damaged pumps and sewers and to minimize the potential for corrosion and odour. Removing solids also reduces the amount of treatment needed at the treatment facilities. SPS send flows back to the system under pressure through forcemains. Some SPS condition the wastewater to improve downstream performance, such as adding iron salts to prevent corrosion and reduce odour. SPS also have emergency backup power (or a connection for a portable generator) so that the wastewater continues to flow during power outages.
- **Air Management Facilities (AMF):** AMF range in complexity, from passive air vents on a sewer with carbon media, to equipment located at SPS, to dedicated standalone facilities with fans that pull air out of the sewers for treatment. AMF help to reduce odours and infrastructure corrosion caused by gases that can be generated in wastewater.

On January 2, 2023, the Ontario Ministry of the Environment, Conservation and Parks (MECP) issued York Region a new Consolidated Linear Infrastructure Environmental Compliance Approval (ECA) to govern all the Region’s wastewater collection system works. Before this, these works were approved through individual ECAs with different definitions and requirements and many without permission to alter the system unless MECP reviewed the proposal. This new ECA assigns one set of definitions and rules for all collection system works and expands the scope of low-risk upgrades that municipalities can authorize internally without Ministry review, as long as specific rules are met. Two major benefits of the new ECA are improved efficiency and compliance through consistent expectations, and reduced timelines for implementing some projects which helps to expedite the expansion and repair of the wastewater collection infrastructure. The ECA also requires the annual performance report to be published on the Region’s website. The reporting conditions in this report meet or exceed any reporting conditions found in some of the original ECAs, ensuring all reporting obligations are met.

The Region's collection system comprises multiple standalone sub-systems, some of which are completely isolated from the others and serviced by a Regional Water Resource Recovery Facility (WRRF). The Region's sub-systems are as follows:

- Keswick sub-system (isolated)
- Mount Albert sub-system (isolated)
- Nobleton sub-system (isolated)
- Schomberg sub-system (isolated)
- Sutton sub-system (isolated)
- York Durham Sewage System (YDSS) sub-system (includes the Southeast Collector, connected to Peel Region and Durham Region)

The YDSS services much of the Region's population and discharges to either the Holland Landing Lagoons (located in East Gwillimbury and operated by York Region), the G.E. Booth Wastewater Treatment Facility (located in and operated by Peel Region) or the Duffin Creek Water Pollution Control Plant (located in and operated by Durham Region). York Region does not have any collection system infrastructure connected to the Kleinburg WRRF (located in Vaughan and operated by York Region), so Kleinburg wastewater is out of scope for this report.

Accessible formats or communication supports are available upon request. Please contact AccessYork@york.ca or call 1-877-464-9675.

Report condition 4.6.3 If applicable, includes a summary of all required monitoring data along with an interpretation of the data and any conclusion drawn from the data evaluation about the need for future modifications to the system or system operations

York Region is not required to conduct routine collection system monitoring. Sampling wastewater Spills and Overflows is required “where practicable” (if possible). When applicable, results of samples collected for wastewater Spills and Overflows are described in Condition 4.6.8 of this report.
Wastewater flow monitoring in the collection system is not required, however the Region does monitor collection system flow. Basic data about each SPS’ flow is provided in the graph pages next to each SPS description. Flow monitoring helps staff to:

- Target I&I reduction efforts
- Provide information when evaluating energy efficiency
- Plan maintenance on equipment after operating for a set period of time

Report condition 4.6.4 Summary of any operating problems encountered and corrective actions taken

Operating issues encountered in the York Region Collection System mostly consisted of general mechanical equipment disruptions which were repaired and did not interfere with the facility processes or compromise any downstream processes. Examples of common operating issues for sewage pumping stations include faulting or malfunctioning of pumps and variable frequency drives, standby power generators, or the screening/grit removal systems. As needed, staff repair atmospheric monitoring and ventilation systems. Operating issues are usually corrected by replacing broken or expendable components of assets, recalibrating monitoring equipment and other similar minor repairs.
Notable operating issues and corrective actions in 2023 include:

- **Sutton High Street SPS:** On July 13, 2023, the emergency power generator failed after running for approximately 2.5 hours during a severe storm event, which ultimately led to a sewage Spill. Staff worked extensively with the manufacturer to investigate and troubleshoot potential causes of the failure. A mobile generator remained onsite until the permanent generator was repaired, and staff worked with the manufacturer to restore the generator. Repairs were finalized and the generator was placed back into service in December 2023.
    - More information on the related sewage Spill resulting from the Sutton High Street SPS generator failure is detailed below in Report Condition 4.6.8.
- **Aurora SPS:** During monthly testing of the standby generators on October 10, two standby power units experienced faults, believed to be software related. The generators ran as intended when activated manually. A temporary procedure was implemented in case generators were required before all issues were resolved. Regional electricians, Operators, process control staff and the manufacturer investigated the faults and resolved the issues, restoring normal operation on October 20, 2023. During monthly

testing on December 8, 2023, the third standby power generator experienced an electrical fault. The generators still activated automatically, and no temporary procedure was required. Electricians worked with Operators to restore normal operation on December 22, 2023. Staff continue to test and monitor the generators on a routine basis.

- **Markham Leslie SPS**: The facility is currently serviced by temporary standby power generators. The engines on the original/permanent generators experienced catastrophic failures in 2020 and were repaired. Staff anticipate returning the permanent generators to service in 2024.
- **System-wide:** Significant storm events in 2023 resulted in high flows in some areas of the systems.

Based on weather and precipitation data from Environment Canada, 2023 was warmer and wetter than usual. Average temperatures later in the year were commonly above zero, so precipitation often fell as rain instead of snow. Careful control of flows, quick response by Operators, a rigorous preventative and corrective maintenance program and I&I reduction efforts mitigated potential challenges resulting from high flows and storm events.

Report condition 4.6.5 Summary of all calibration, maintenance, and repairs carried out on any major structure, Equipment, apparatus, mechanism, or thing forming part of the Municipal Sewage Collection System.

Routine preventive maintenance was scheduled and completed as required, including inspecting, cleaning, and maintaining the wet wells, pumps, and screens, exercising valves, testing alarms, ensuring proper operation of the electrical and HVAC equipment, as well as keeping the odour management systems and standby power generators in good working order. Where equalization tanks are installed, they also received preventive maintenance, such as cleaning.
There were also unplanned maintenance work orders issued in 2023 for the collection system, which included responding to, troubleshooting, and resolving alarms or issues related to remote monitoring and control systems, ventilation systems, screens and grinders, pumps, variable frequency drives, and/or responding to occasional power outages. Significant unplanned maintenance details are noted below:

- Standby generators at Sutton High Street SPS and Aurora SPS experienced faults or failures, as detailed above in Report Condition 4.6.4.

Operations and maintenance staff worked together to successfully resolve these issues without reducing facility performance.
Continuous monitoring equipment is calibrated and maintained by Regional instrumentation technicians and by contracted authorized equipment technicians. Calibrations ensure equipment is accurate within the required tolerance range and allows for visual confirmation of satisfactory equipment condition. A summary of 2023 scheduled calibrations of major facility monitoring equipment is shown in Appendix 1.

Report condition 4.6.6 Summary of any complaints related to the Sewage Works received during the reporting period and any steps taken to address the complaints

York Region has a proactive maintenance program to inspect Air Management Facilities and devices regularly and replaces carbon media in applicable locations before it is fully exhausted. A Region-wide study was recently conducted to evaluate the effectiveness of Regional equipment and processes to counter hydrogen sulfide (H2S) generated from wastewater infrastructure. The study concluded that the Region is using suitable equipment to combat H2S across the Region. York Region is leveraging the Integrated Management System to refine its Air Management Framework. This framework aims to systematically address odour complaints, enhance data collection for informed and proactive decision-making, and ensure effective communication. Complaints are recorded and tracked through the Integrated Management System. Complaints from 2023 for infrastructure in this report are summarized below:

- **Keswick Morton AMF:** three odour complaints received:
    - **January 3, 2023:** due to an administrative error, staff did not receive the complaint until May 9. Staff responded to the resident. Staff have communicated the need for call centre staff to relay complaints to the Operations team immediately.
    - **January 17, 2023:** staff responded to site on January 17 and found and corrected a small air leak in a process pipe. Since there was a small air leak found, staff reported the occurrence to MECP's Spills Action Centre (SAC). Staff followed up with the resident.
    - **February 9, 2023:** staff responded to site on February 9, did not observe any odours and found all equipment operating normally. Staff followed up with the resident.
- **Keswick SPS:** one noise complaint received:
    - **September 13, 2023:** staff working on the ongoing construction project received the noise complaint on September 14. The site has two generators to support the project: primary and backup. While the primary generator was being replaced, a temporary standby power generator was in operation for one day to support the backup generator. The temporary generator did not have the same noise shielding as the other two generators. Additional sound control material was added around the temporary generator to reduce noise. The primary generator has been replaced and its location at the site limits noise when in operation. Staff followed up with the resident .
- **YDSS 16th Avenue Sewer:** three noise complaints received relating to the ongoing sewer rehabilitation project:
    - **April 20 and 27, 2023:** two complaints received about overnight noise. The project team assessed the equipment including the noise shielding. Some gaps in the shielding were identified and closed to mitigate the potential for sound to escape.
    - **June 29, 2023:** a complaint was received about noise. The contractor consulted their noise specialist, who confirmed noise levels were within the contract requirements, but the specific

frequency of noise from the pumps could have made it more noticeable. Additional sound shielding material was installed to mitigate the potential for noise.

  - Completion of the capital project, anticipated in late 2024, will resolve concerns related to construction activities.

- **YDSS Bayview Steeles AMF:** two odour complaints received:
  - **July 15, 2023:** staff responded on July 15 and deemed the source of the smell was a nearby river. All equipment at the AMF was operating normally. Staff followed up with the resident.
  - **August 12, 2023:** staff responded on August 12, did not observe any odours at the time of response and found all equipment operating normally. Staff followed up with the resident.
- **YDSS Aurora Henderson SPS:** one inquiry about odour received, asking whether an odour could be related to operation of the sewage facility.
  - **April 4, 2023:** a municipal Councillor asked the project team whether an odour in the area could have been from the facility. The project team advised the Councillor the facility was not yet operational, so should not be able to generate sewage odours but they had recently spread organic topsoil as part of the property restoration which may have created a temporary odour source.
- **YDSS Markham Leslie SPS:** six odour complaints and one noise complaint received:
  - **July 26, 2023:** staff responded to site on July 27 to investigate a noise and odour complaint, did not observe any odours or noises and found all equipment operating normally. Operating records were reviewed and staff deemed the noise was likely related to annual “high voltage” testing of the transformer which required use of standby power generators. They concluded the odour may have been due to garbage collection. Staff followed up with the resident.
  - **September 22 and 25, 2023:** four separate complaints were received about odour lasting for two 2 days. One resident followed up with another complaint after their call on September 22. Staff responded to site, did not observe odours of noise from the facility and found all equipment operating normally. Staff observed an odour outside the station that appeared to originate from a nearby pond. Staff responded to the residents and requested they follow up if it happened again and to provide more specific information to assist in future investigations. Staff reviewed the programming on the exhaust and air management equipment for optimal operation and continue to monitor the readings from the onsite gas detectors. These readings have remained compliant.
- **YDSS Newmarket SPS:** one noise complaint received:
  - **March 14, 2023:** the resident contacted their local Councillor who forwarded the concern to the Region. The resident also emailed the Region directly with two videos: one of the generator undergoing testing and one from their neighbourhood. Staff responded the following day. The videos were reviewed and staff confirmed that the Region’s diesel generator was undergoing an annual test to confirm its ability to run at full capacity, and that the other source of noise was

likely not from the SPS but from vacuum trucks working nearby to install fibre optic cable. Staff responded to the resident and Councillor.

- **YDSS Southeast Collector Corrosion Control Facility (Boxgrove):** one odour complaint received:
    - **November 15, 2023:** staff received and responded to the complaint on November 16, confirmed the equipment was operating normally within the lowered flow rate required for the ongoing capital project and did not observe any odours outside the facility. Staff anticipate the capital project will be completed in 2025 and will eliminate potential future odours. Staff followed up with the resident.
- **YDSS Tuclor Lane AMF:** two odour complaints received:
    - **September 19, 2023:** a resident emailed about odour from the week before in the area near the AMF. Staff responded to site on September 19, did not detect an odour and found the equipment operating normally. The carbon media was changed proactively as due diligence. Staff investigated the nearby area, found no odours or signs of a spill in the nearby watercourse, but did find odours deemed related to natural causes.
    - **September 28, 2023:** a local Councillor forwarded an odour complaint from a resident. Staff responded to site, found the equipment operating normally and intermittently observed a barely noticeable odour while onsite. Staff followed up with the Councillor.
    - Inspections and cleaning of nearby sewers to prepare for an upcoming rehabilitation project may have contributed to the potential for odour. In October, in response to the odour complaints, staff replaced the maintenance hole cover to a solid cover without holes to minimize odour potential.

No vibration or other environmental complaints were received for York Region collection system facilities in 2023. Some revoked ECAs included a requirement to notify the MECP District Manager about applicable environmental complaints – there were no complaints received in 2023 when those ECAs were still active.

Report condition 4.6.7 Summary of all Alterations to the Authorized System within the reporting period that are authorized by this Approval including a list of Alterations that pose a Significant Drinking Water Threat

In 2023, there were no Alterations sought or completed through an amendment to the ECA and there were no Alterations approved through revoked ECAs which were completed. In 2023, three Alterations to the system were authorized through the “Form SS2” process through the permissions in Schedule D of the ECA:

- **Aurora SPS:** A Form SS2 was issued for modification of pump discharge piping to reduce vibration. Work is anticipated to be completed in 2024.
- **Keswick Joe Dales SPS and Mount Albert SPS:** A Form SS2 was issued for installing new level sensors in the wet wells. The level sensor at Keswick Joe Dales was installed in May 2023. The level sensor at Mount Albert SPS is anticipated to be completed in 2024.
- **Vaughan Pine Valley SPS:** A Form SS2 was issued to replace the two diesel fuel storage tanks with one new one. The replacement fuel tank is anticipated to be in service in 2024. A contaminant management plan reduces the potential risk to the aquifer.

The upgrades at Keswick SPS authorized under the revoked ECA are in the final stages and scheduled for commissioning in 2024.
None of the Alterations to the system were identified as a Significant Drinking Water Threat.

Report condition 4.6.8 Summary of all Collection System Overflow(s) and Spill(s) of Sewage, including: dates, volumes and durations. If applicable, also including loading for total suspended solids, Five-Day Biochemical Oxygen Demand (BOD), total phosphorus, and total Kjeldahl nitrogen, and sampling results for E. coli, disinfection, any adverse impact(s) and corrective actions, if applicable

Environmental Incidents are recorded and tracked through the Integrated Management System. Since York Region operates a Separate Sewer system, unplanned discharges through engineered overflow points are defined as Spills. The Region has never planned a discharge of sewage to the environment – if a possible Overflow situation was forecasted, the Region would hire vacuum trucks, install temporary piping or take other measures to prevent possible Overflows. In 2023, there were no Collection System Overflows and two sewage Spills:

- **YDSS:** On August 28, 2023, a minor sewage Spill of 0.06 m³ occurred due to an air valve leak from a chamber on Yonge Street north of Beckett Avenue. Operations staff redirected flow to a downstream location to prevent further discharge. The material was removed by vacuum truck and materials were deposited at the Holland Landing Lagoons. The faulty air valve was identified and isolated until the valve was replaced. The spill was not believed to have entered the environment; however, the incident was reported to the SAC, York Region Public Health, the Town of East Gwillimbury and the Lake Simcoe and Region Conservation Authority. Sampling was not practicable as there was insufficient flow from the chamber and the roadway did not have areas of pooling for sample collection. There were no observed adverse effects to the environment or impacts to the community resulting from this incident.
- **Sutton High Street SPS:** On July 13, 2023, an estimated 48 m³ Spilled between 6:20 a.m. and 8:01 a.m. at the Sutton High Street SPS due to a loss of power during a severe weather event. The emergency generator failed after running for approximately 2.5 hours. Data from the station showed the wet well was below the point of overflow before backup power was lost. The responding operator arrived onsite and was unable to restore facility power before the wet well reached overflow levels. Electrical and mechanical staff were called out to troubleshoot the generator and deliver a mobile generator to site. A vacuum truck was dispatched to vacuum out the wet well. Power was restored at 7:58 a.m. and the Spill stopped at 8:01 a.m. The mobile generator remained onsite until the permanent generator was repaired, and staff worked with the manufacturer to restore the generator. The Spill was reported to SAC, York Region Public Health, the Town of Georgina and the Lake Simcoe and Region Conservation Authority.

The material was discharged through the engineered overflow point into the Black River, a high flowing watercourse, and could not be recovered. The discharged material was not disinfected and samples were collected and sent to the York-Durham Regional Environmental Laboratory for analysis. A Regional Environment Specialist inspected the overflow area following the Spill and no adverse impacts were observed. Corrective Actions included a temporary procedure to inspect the generator frequently to confirm the repairs were successful and for an Operator to be onsite when the generator was operating. Sample results are listed below:

Parameter	Concentration	Loading (if applicable)
BOD5 (Five-Day Biochemical Oxygen Demand)	Less than 2 mg/L	Less than 0.096 kg
E. coli	17,000 CFU/100 mL	N/A
Total Kjeldahl Nitrogen	1.11 mg/L	0.05328 kg
Total Phosphorus	0.062 mg/L	0.002976 kg
Total Suspended Solids	7.8 mg/L	0.3744 kg

Report condition 4.6.9 Summary of efforts made to reduce Collection System Overflows, Spills, treatment facility Overflows, and/or treatment facility Bypasses and the effectiveness of these efforts, including: projects and proposed projects to reduce or eliminate overflows (including expenditures and estimated budget forecast for the following year), a summary of conformance to Procedure F-5-1, and the public reporting approach including proactive efforts

Procedure F-5-1 speaks to proper design of sewage works and details examples of actions that can reduce the frequency and severity of bypass and overflow events through provision of adequate sewer and pumping station capacity, stand-by equipment, stand-by power, reserve storage capacity in sewers and/or at treatment facilities and adequate capacity in sewage treatment works. The Region's proactive efforts include capital upgrades, timely repair and maintenance, data analytics and commitment to continual improvement through certification with ISO 9001 and 14001 to demonstrate successful conformance to procedure F-5-1. Dedicated remote operators monitor the system 24 hours a day, seven days a week and can operate equipment remotely and/or dispatch field operators to respond to site to minimize the potential risk of Overflows, Spills and treatment facility Bypasses.

Emergency response procedures developed with York Region Public Health and the Region's emergency preparedness staff include protocols for notifying municipal council and the public about incidents that impact service delivery or pose a risk to public health.

York Region and its local cities and towns also collaborate on inflow and infiltration (I&I) reduction programs. Finding and reducing I&I is a top priority, as it helps maintain the integrity of the collection system, reduces costs associated with pumping and treating stormwater, and mitigates the potential risk of sewer backups and Overflows. Through monitoring rainfall and sanitary sewer flow, the Region identifies areas with a high response to rain events. York Region and its local cities and towns then conduct further investigations and implement programs in priority areas to pinpoint and remediate I&I sources. By reducing the volume of extraneous flows in

the sanitary sewer system, York Region maximizes the existing capacity of sanitary infrastructure. York Region also applies I&I reduction considerations into the design and construction of new developments to proactively reduce the potential of I&I, extending the lifespan of new sanitary systems. To learn more about how I&I is cooperatively managed in York Region, visit the inflow and infiltration web page.

In 2023, the Region invested approximately $116.8 million capital projects, including I&I reduction programming and linear rehabilitation projects, excluding work at the Duffin Creek WPCP. For 2024, approximately $148.5 million is budgeted as part of the 10-year Capital Plan for all wastewater portfolio programs, excluding work at the Duffin Creek WPCP.

Approximately $3.5 million was spent in 2023 on repair and maintenance of the Region's wastewater works, and an estimated $2.4 million is planned in the Region's 2024 annual budget. These expenditures support conformance with Procedure F-5-1.

In 2023, key projects included the following (all figures are approximate):

- $45 million for design and construction of rehabilitation of gravity sewers and forcemains to extend the life of the infrastructure
- $27.8 million for Vaughan Humber SPS for construction of the replacement facility
- $9.3 million for Oak Ridges Air Management Facility construction in the Oak Ridges area of the YDSS
- $8.4 million for Aurora Henderson SPS to construct and commission the new facility
- $3.5 million for wastewater servicing design for Aurora, East Gwillimbury and Newmarket
- $2.6 million for Markham Leslie SPS to upgrade the electrical system, design for rehabilitation of the downstream gravity sewer and replace the standby power generators
- $2.3 million for Aurora SPS to design and construct upgrades to the facility and reduce pump vibration
- $2.2 million for Keswick SPS to upgrade mechanical, electrical, piping and ventilation systems
- $1.3 million for design of wastewater servicing in Northeast Vaughan

For 2024, projects are planned, including the following (all figures are approximate):

- $46.2 million for construction of a gravity sewer from Rutherford Road to Vaughan Humber SPS
- $32 million for design and construction of rehabilitation of gravity sewers and forcemains to extend the life of the infrastructure
- $16.5 million for design and construction of wastewater servicing in northeast Vaughan
- $6.6 million for inspection and condition assessments for, and design and construction of, fuel oil appliance upgrades at various water and wastewater facilities
- $5.9 million for Oak Ridges Air Management Facility construction in the Oak Ridges area of the YDSS
- $5.8 million for Markham Leslie SPS to design upgrades to the electrical system
- $1.2 million for Aurora Henderson SPS to complete commissioning

APPENDIX 1: 2023 SCHEDULED CALIBRATIONS OF THE MAJOR FACILITY MONITORING EQUIPMENT

Note: Sutton High Street SPS, Sutton Wood River Bend SPS and Schomberg Dr Kay SPS do not have onsite flow monitoring. Their flows are monitored as Influent at the downstream treatment facilities. Sutton South River SPS does not have flow monitoring and is commingled with the Sutton Wood River Bend SPS flows.

2023 Calibration Date	Equipment Description
10-Oct-2023	Keswick Georgina No. 4 SPS
13-Jun-2023	Keswick SPS Station Flowmeter
5-Sep-2023	Keswick Joe Dales SPS Station Flowmeter
8-Jun-2023	Mount Albert SPS Station Flowmeter
30-Nov-2023	Nobleton/Janet Ave SPS Station Discharge Flowmeter
2-Jun-2023	Sutton High Street SPS Flowmeter (located at Sutton WRRF)
2-Jun-2023	Sutton Wood River Bend SPS Flowmeter (located at Sutton WRRF)
7-Feb-2023	YDSS Aurora SPS EQ Tank Effluent Flowmeter
19-Sep-2023	YDSS Aurora SPS Pump 1 Flowmeter
19-Sep-2023	YDSS Aurora SPS Pump 2 Flowmeter
19-Sep-2023	YDSS Aurora SPS Pump 3 Flowmeter
19-Sep-2023	YDSS Aurora SPS Pump 4 Flowmeter
19-Sep-2023	YDSS Aurora SPS Pump 5 Flowmeter
19-Sep-2023	YDSS Aurora SPS Pump 6 Flowmeter
7-Feb-2023	YDSS Aurora SPS EQ Tank Effluent Flowmeter
7-Feb-2023	YDSS Aurora SPS EQ Tank Effluent Flowmeter
19-Sep-2023	YDSS Aurora SPS Hauled Waste Receiving Facility Flowmeter 1
19-Sep-2023	YDSS Aurora SPS Hauled Waste Receiving Facility Flowmeter 2
19-Sep-2023	YDSS Aurora SPS Hauled Waste Receiving Facility Flowmeter 3
11-Oct-2023	YDSS Aurora Henderson SPS Pump 1 Flowmeter
11-Oct-2023	YDSS Aurora Henderson SPS Pump 2 Flowmeter
11-Oct-2023	YDSS Aurora Henderson SPS Pump 3 Flowmeter
11-Oct-2023	YDSS Aurora Henderson SPS Pump 4 Flowmeter
13-Oct-2023	YDSS East Gwillimbury 2nd Concession SPS Forcemain 3 Flowmeter
12-Oct-2022	YDSS East Gwillimbury 2nd Concession SPS Wet Well Flowmeter
13-Oct-2023	YDSS Holland Landing SPS Forcemain 1 Flowmeter
13-Oct-2023	YDSS Holland Landing SPS Forcemain 2 Flowmeter
18-Oct-2023	YDSS Holland Landing SPS Wet Well Flowmeter
20-Apr-2023	YDSS King City SPS Flow Meter

2023 Calibration Date	Equipment Description
8-Sep-2023	YDSS Markham Leslie SPS Discharge Header Flowmeter – North
8-Sep-2023	YDSS Markham Leslie SPS Discharge Header Flowmeter – South
15-Nov-2023	YDSS Newmarket Bogart Creek SPS Discharge Flowmeter to Forcemain 1
15-Nov-2023	YDSS Newmarket Bogart Creek SPS Discharge Flowmeter to Forcemain 2
24-Jan-2023	YDSS Newmarket Greenlane Interim SPS Flowmeter
27-Jan-2023	YDSS Newmarket SPS Station Flowmeter
10-Nov-2023	YDSS Newmarket SPS EQ Tank Effluent Flowmeter Pump 1
10-Nov-2023	YDSS Newmarket SPS EQ Tank Effluent Flowmeter Pump 2
21-Feb-2023	YDSS Queensville West SPS Forcemain 1 Flowmeter 1
21-Feb-2023	YDSS Queensville West SPS Forcemain 2 Flowmeter 1
21-Feb-2023	YDSS Queensville West SPS Wet Well Flowmeter 1
9-May-2023	YDSS Vaughan Black Creek SPS Forcemain Flowmeter 1
9-May-2023	YDSS Vaughan Black Creek SPS Forcemain Flowmeter 2
5-Dec-2023	YDSS Vaughan Humber SPS Station Flowmeter Forcemain 1
5-Dec-2023	YDSS Vaughan Humber SPS Station Flowmeter Forcemain 2
14-Jul-2023	YDSS Vaughan Pine Valley SPS Flowmeter

Air Management Facility (AMF) – A facility or structure which help reduce odours and infrastructure corrosion caused by gases that can be generated in wastewater.

Alteration – Extend, replace, upgrade, modify, add to, enlarge, or retire part of, the wastewater system. Some Alterations do not require approval, some are preauthorized, and some require MECP review and approval.

BOD_5 – Five-Day Biochemical Oxygen Demand: a test that measures how much oxygen is used by biological organisms that consume matter in wastewater.

Bypass – A diversion of sewage around one or more unit processes at a treatment facility and discharging to the environment through the outfall.

CFU - Colony Forming Units, a method of counting or estimating the concentration of bacteria in a sample.

E. coli – A type of bacteria found in fecal matter. With certain exceptions, most species of E. coli do not cause disease. Coliform testing provides an indicator of the effectiveness of wastewater treatment.

Environmental Compliance Approval (ECA) – An approval to operate wastewater facilities issued by the Ministry of Environment, Conservation and Parks.

Form SS2 – Official Ministry Form for documenting preauthorized alterations in the Consolidated Linear Infrastructure ECA.

Geometric Mean Density (GMD) – A method of evaluating E. coli concentrations.

Hydrogen Sulfide (H2S) – A gas that can be released from wastewater, which can cause corrosion and odours.

Inflow and Infiltration (I&I) – Water that enters the sanitary sewage system through leaking infrastructure or overland flow into maintenance holes. The Region has a collaborative approach to managing I&I with local cities and towns and the development community.

Integrated Management Systems (IMS) – Combined quality, environmental and safety management systems used to ensure optimal service is being delivered.

Milligram per Litre (mg/L) – Measure of the mass concentration of a parameter, sometimes referred to as parts per million (ppm).

Ministry of the Environment, Conservation, and Parks (MECP) – Provincial ministry responsible for overseeing the water and wastewater industries in Ontario.

MECP Spills Action Centre (SAC) – Manages reports of spills, adverse drinking water results and environmental concerns. SAC operates 24 hours per day, 7 days per week.

Overflow – A planned or authorized discharge to the environment from an engineered failure point for the purpose of minimizing potential risks to the environment, and to minimize the risk of basement flooding or uncontrolled spills from elsewhere in the system. Overflows are a type of Spill.

pH – Index of hydrogen ion activity as an indicator of corrosiveness. A solution of pH from 0-7 is acidic, 7 is neutral, and 7-14 is alkaline or basic.

Spill – As defined in the *Ontario Environmental Protection Act, R.S.O. 1990, c. E.19*, a Spill is a direct or indirect release of a pollutant into the natural environment from infrastructure or assets, when the release is out of the course of normal events.

Sewage Pumping Station (SPS) – A facility that helps to move sewage through the system by pressurizing it and sometimes removing solids from the flows.

Total Ammonia Nitrogen (TAN) – A measurement of the total amount of ionized and unionized ammonia in a sample.

Total Kjeldahl Nitrogen (TKN) – A measurement of the total amount of organic nitrogen and ammonia nitrogen in a sample.

Total Phosphorus (TP) – A measurement of the total amount of dissolved and particulate phosphorus in a sample.

Total Suspended Solids (TSS) – A measurement of the total amount of suspended particles in water.

Water Resource Recovery Facility (WRRF) – Also known as a sewage treatment plant or a wastewater treatment facility. It is where the sewage is treated before returning it to the environment.

York Durham Sewage System (YDSS) – The collection system infrastructure that services much of York Region and conveys wastewater to Peel Region and Durham Region for treatment.