



**Port Weller Wastewater Treatment Plant
Annual Performance Summary Report
Treatment and Collection
Reporting Year: 2025**

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PW-T-1 Wastewater Treatment Process Description

The Port Weller Wastewater Treatment Plant (WWTP) is located at 27 Lombardy Street in the City of St. Catharines and provides wastewater treatment to the City of St. Catharines, City of Thorold and portions of the Town of Niagara-on-the-Lake. The Port Weller WWTP is a class IV conventional activated sludge treatment facility and has been designed to treat an average daily flow (ADF) of 56,180 cubic metres per day (m³/d). This facility can fully treat all flows up to 112,360 m³/d and provides primary treatment for flows greater than 112,360 m³/d up to a maximum flow rate of 136,200 m³/d.

The Port Weller WWTP operates under the following Ministry of Environment, Conservation and Parks (MECP) approvals:

Environmental Compliance Approval (ECA) - Sewage: 6014-9QMLZL, issued December 9, 2014

Environmental Compliance Approval (ECA) - Air: 8-2081-92-998, issued February 2, 1999

The Port Weller WWTP uses the following processes to treat wastewater:

- Imported Sewage (hailed sewage) Receiving
- Screening
- Raw Influent Pumping
- Grit Removal
- Primary Treatment
- Phosphorus Removal
- Secondary Treatment (Aeration and Settling)
- Disinfection (Chlorination and Dechlorination)
- Solids Handling – Sludge Digestion and Transportation
- Storm Treatment

Imported Sewage Receiving Station: To provide service to Niagara Region residents outside the wastewater servicing area, the Port Weller WWTP accepts imported sewage, or more commonly known as hailed sewage, from commercial haulers. Receiving stations are situated to ensure all imported sewage receives full treatment.

Screening: Mechanically cleaned screens remove rags and large debris that could harm pumps and process equipment. Screenings are sent for disposal in landfill.

Raw Influent Pumping: Wastewater from the collection system enters the wastewater treatment plant into a wet well, equipped with raw sewage pumps. The wet well provides a low point for the collection system to discharge to. The raw sewage pumps then lift the wastewater from the well (low point) to the beginning of the treatment process (high point) to allow the remainder of the treatment process to occur by gravity.

Grit Removal: Vortex grit tanks equipped with mechanical mixers are used to remove grit from wastewater. Heavy suspended material such as sand and small stones (grit) is settled to the bottom of the tanks while lighter organic particles are kept in suspension and pass through the tanks for further treatment. The grit removed is dewatered for landfill disposal.

Phosphorus Removal: A coagulant, aluminum sulphate, is added to the treatment process to aid in phosphorus and suspended solids removal.

Primary Treatment: Primary clarifiers are large tanks that allow the incoming wastewater to slow down. The slower speed allows heavier solids to fall from the wastewater to the bottom of the tank. Sludge collected at the bottom of the primary clarifiers is removed and sent to the solids handling process.

For flows up to 112,360 m³/d, wastewater flows from the primary clarifiers to the secondary treatment process to receive full treatment. Under high flow or wet weather conditions, flows greater than 112,360 m³/d to a maximum flow of 136,200 m³/d are diverted (bypassed) around the secondary treatment process and go directly to disinfection.

Secondary Treatment:

Aeration Tank: Large tanks are equipped with mechanical mixers that churn the surface of the wastewater in order to mix air into the wastewater. This oxygen-enriched environment encourages microorganisms (or “bugs”) to remove dissolved and suspended organics and nutrients. Activated sludge is returned to the aeration process to ensure enough bugs are present to provide adequate wastewater treatment.

Secondary Clarifiers: Secondary clarifiers receive effluent from the aeration tanks which separates the microorganism population and remaining solids. Solids settle as activated sludge on the bottom of the clarifier while a clean effluent flows from the clarifiers to be disinfected and discharged to the environment. A portion of the activated sludge collected on the bottom of the clarifier is pumped back to the front of the aeration tanks to ensure a healthy microbial population. Excess activated sludge is ‘wasted’ or removed from the process and sent to the primary clarifiers for thickening.

Disinfection (chlorination/dechlorination):

Chlorine in the form of liquid sodium hypochlorite is added into the effluent stream for pathogen control from April 1 to October 31 each year. Adequate contact time is provided by the chlorine contact chamber. As chlorine can be toxic to aquatic species, disinfected effluent is dechlorinated with a sodium bisulphite solution before being discharged to the Welland Canal.

Solids Handling:

Anaerobic Digestion: Sludge from the primary clarifiers is pumped to one (1) primary anaerobic digesters which overflows into one (1) secondary digester for thickening. Anaerobic digestion allows a further breakdown of pollutants and pathogens in the collected sludge. The digested sludge is transported from site for further treatment such as land application or dewatering at the Garner Road Biosolids Facility.

Storm Treatment: Flows greater than the peak wet weather capacity of 136,200 m³/d are diverted from the treatment plant to protect downstream processes during times of wet weather. Storm flows are screened, chlorinated and dechlorinated (April 01 to October 31) prior to discharge to the Welland Canal.

PW-T-2 Review of Plant Flows, Influent and Imported Sewage Sampling and Monitoring

Review of 2025 Plant Flows

Table PW-T-1 below outlines the volume of sewage treated at the Port Weller WWTP during the reporting year. It also outlines how much imported sewage was received at site for treatment.

Table PW-T-1: Table of Port Weller WWTP Design Flows, 2025 Treated Flows and Reported Imported Sewage Volumes

Flow Statistic	Value
Design Average Daily Flow (ML/d)	56.180
Design Peak Dry Weather Flow Rate (ML/d)	112.360
Design Peak Wet Weather Flow Rate (ML/d)	136.200
Total Volume Processed (ML)	12,518.847
Annual Average Daily Flow (ML/d)	34.298
% Annual Average Daily Flow Utilization	61%
% Increase/Decrease over prior year	-6%
Volume Imported Sewage Received (ML)	13.344
% Increase/Decrease Imported Sewage over prior year	-24%
Imported Sewage as % of Flow	0.11%

Reviewing the treated flows in 2025, it was observed that, on average, the plant is utilizing 61% of its design Average Daily Flow capacity. This indicates that the facility has the hydraulic capacity to meet the needs of the collection system with room for additional future flows that

may be added from development. Where the utilization becomes greater than 80%, plant expansion should be considered.

Daily flows to the plant were reviewed. In 2025, there were 28 instances where the flow to the plant was greater than the design Average Daily Flow, amounting to approximately 8% of the year. These instances occurred during times of wet weather or heavy snow melt. The Port Weller WWTP collection system receives flow from a portion of combined sewers and is impacted by wet weather.

A review of the monthly average daily flow rate for the prior 10-year period was also completed. This can be observed below in Figure PW-T-1 below. A slight increase in the trending has been noted and will continue to be monitored. Spikes during typical wet weather seasons further support increased flows are occurring due to remaining combined sewers and Inflow and Infiltration present in the collection system.

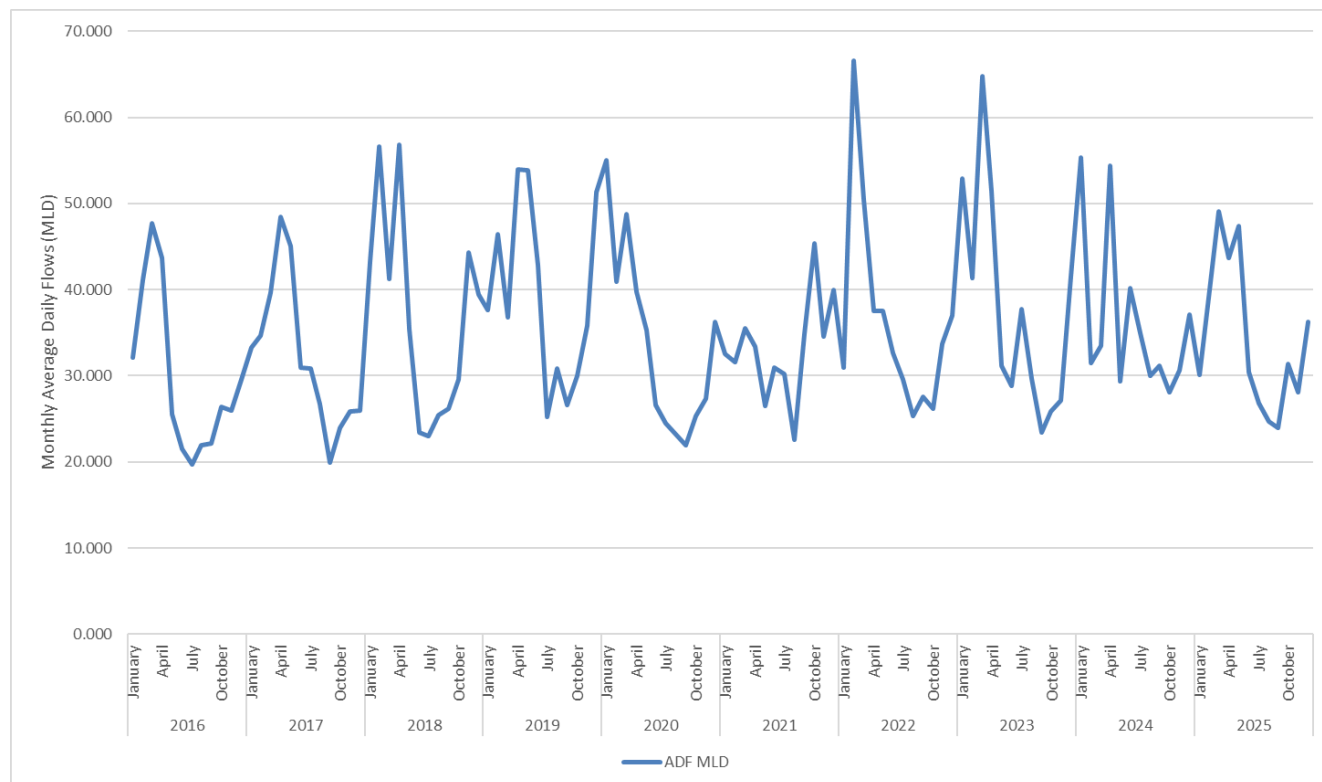


Figure PW-T-1: Graph displaying the Monthly Average Daily Flow Rate in Megalitres per Day (MLD)

The volume of imported sewage received at this facility decreased by 24% compared to the previous reporting period. There was no process issues encountered related to the receiving of imported sewage in 2025.

Review of Influent Sampling and Monitoring Activities

In 2025, 106 samples of influent were collected and tested. An annual summary of influent sampling can be observed in Table PW-T-4 below.

Although the volume of sewage is an important consideration for the effective operation of a wastewater treatment plant, another important factor to monitor is plant loading. Plant loading displays if the strength of the sewage received at the plant is getting stronger or weaker. Stronger sewage may impact the amount of sewage the plant can treat effectively.

Plant loading is calculated by measuring the average strength of a pollutant per liter of influent sewage and multiplying it by the average volume of sewage received. This is displayed as kilograms of pollutant per day or kg/d. Below in Figure PW-T-2, is a graph depicting four commonly monitored pollutant loadings to the plant for the period of 2023-2025.

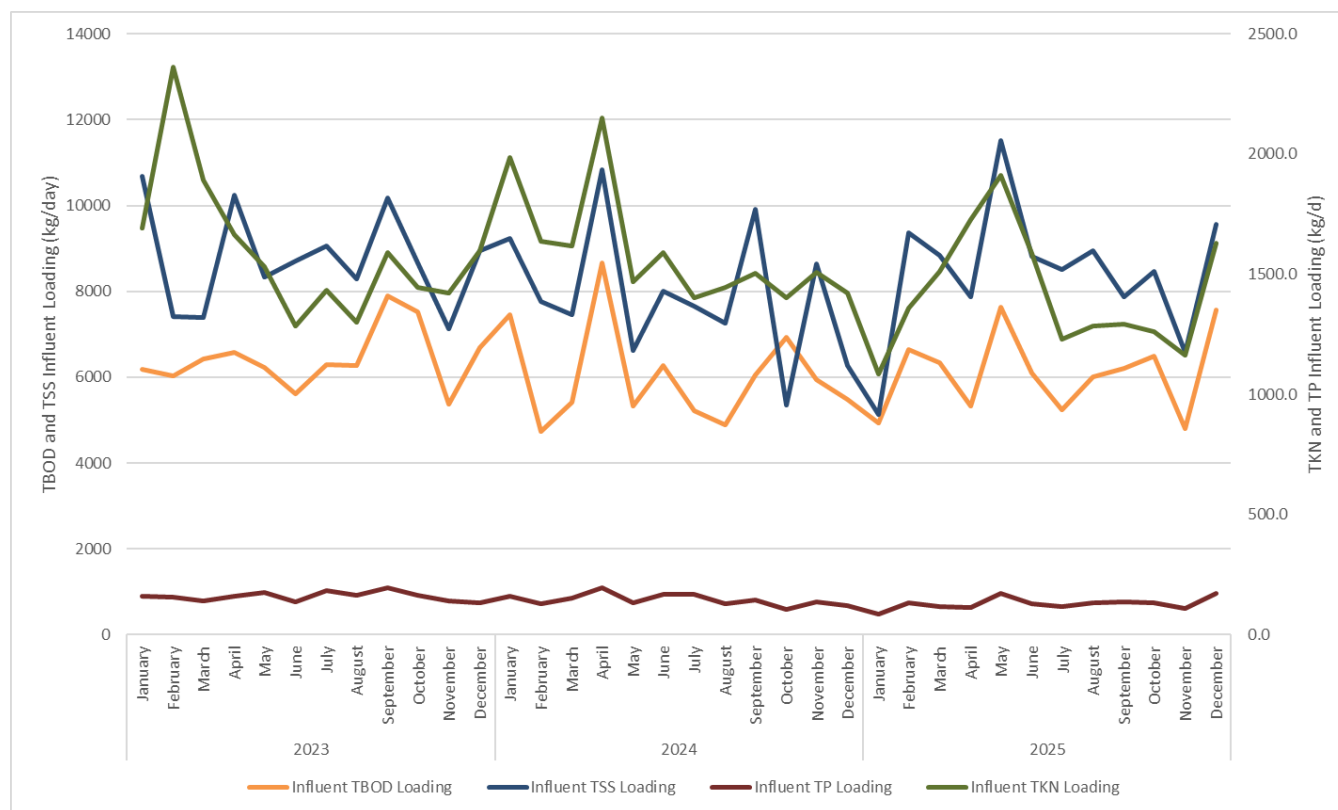


Figure PW-T-2: Figure of monthly plant loadings to the Port Weller WWTP for Total Biochemical Oxygen Demand (TBOD), Total Suspended Solids (TSS), Total Kjeldahl Nitrogen (TKN) and Total Phosphorus (TP), in kg/d, for the period 2023 to 2025.

Reviewing the calculated loadings for TBOD, TSS, TKN and TP for the past three years shows no trends of concern.

Review of Imported Sewage Sampling and Monitoring

Imported Sewage is sampled bi-weekly to ensure sewage being received will not have an adverse impact to the treatment process or the beneficial-use of biosolids resulting from the wastewater treatment process. In 2025, there were 30 samples of imported sewage collected and submitted for testing by an ISO 17025:2017 accredited laboratory. Results were reviewed and compared to the Niagara Region Sewer Use By-law. Where exceedances of the by-law were noted, the source of the imported sewage is investigated. Exceedances of treatable parameters (BOD, TP, TSS, and pH) are allowable under the SUBL.

Table PW-T-2: Table of Imported Sewage monthly average analysis results

Analyte	Units	SUBL Limit	January	February	March	April	May	June	July	August	September	October	November	December
Total Solids	mg/L	-	10,020	20,455	2,910	12,050	20,905	8,120	11,383	1,755	17,000	6,663	8,770	22,564
Phosphorus	mg/L	10	73.03	148.30	48.60	191.65	37.60	143.45	87.70	29.25	90.80	89.80	62.33	107.70
Arsenic	mg/L	1	0.22	0.28	0.01	0.01	0.26	0.50	0.50	0.50	0.50	0.50	0.50	0.34
Cadmium	mg/L	0.7	0.08	0.11	0.01	0.03	0.10	0.20	0.20	0.20	0.20	0.20	0.20	0.13
Chromium	mg/L	3	0.22	0.28	0.02	0.02	0.26	0.50	0.50	0.50	0.50	2.30	0.53	0.34
Cobalt	mg/L	5	0.08	0.11	0.01	0.00	0.10	0.20	0.20	0.20	0.20	0.20	0.20	0.13
Copper	mg/L	3	1.72	4.54	0.46	0.34	0.91	2.40	0.90	1.35	8.20	6.17	5.03	2.41
Lead	mg/L	1	0.22	0.28	0.03	0.02	0.26	0.50	0.50	0.50	0.60	0.63	0.57	0.34
Mercury	ug/L	10	0.05	0.30	0.28	0.30	0.50	1.02	0.21	0.96	0.35	0.55	3.10	0.98
Molybdenum	mg/L	5	0.09	0.11	0.07	0.03	0.11	0.20	0.20	0.20	0.20	0.20	0.20	0.14
Nickel	mg/L	2	0.09	0.12	0.06	0.03	0.11	0.20	0.20	0.20	0.20	1.17	0.33	0.13
Selenium	mg/L	1	0.22	0.28	0.04	0.02	0.26	0.50	0.50	0.50	0.50	0.50	0.50	0.34
Zinc	mg/L	3	1.77	3.40	3.06	2.24	3.74	8.00	3.67	2.50	4.00	28.33	8.00	5.80
Aluminum	mg/L	-	4.20	15.70	2.87	3.17	21.38	11.50	3.67	4.50	2.00	58.67	33.00	5.22
Antimony	mg/L	5	0.43	0.55	0.02	0.02	0.53	1.00	1.00	1.00	1.00	1.00	1.00	0.68
Barium	mg/L	-	0.22	0.35	0.09	0.11	1.18	0.50	0.50	0.50	0.50	0.70	0.77	0.34
Beryllium	mg/L	-	0.22	0.28	0.01	0.01	0.26	0.50	0.50	0.50	0.50	0.50	0.50	0.34
Boron	mg/L	-	4.33	5.50	0.40	0.20	5.10	10.00	10.00	10.00	10.00	10.00	10.00	6.80
COD	mg/L	600	20,273	9,940	4,110	12,300	15,940	11,190	6,573	2,490	35,900	5,240	12,373	10,530
Conductivity	us/cm	-	1,973	2,777	2,570	19,365	16,480	15,700	8,887	2,090	3,020	5,247	3,910	25,118
Iron	mg/L	-	3.94	27.39	7.30	5.56	25.05	25.90	19.53	5.80	5.20	78.30	42.07	9.25
Manganese	mg/L	-	0.47	1.05	0.34	0.51	0.80	1.50	1.00	1.00	1.00	3.33	1.67	0.88
pH		6-11	5.10	6.75	6.95	7.75	8.05	8.10	7.47	7.45	3.60	4.70	5.40	10.32
Silver	mg/L	5	0.22	0.28	0.01	0.01	0.26	0.50	0.50	0.50	0.50	0.50	0.50	0.34
Tin	mg/L	5	0.43	0.55	0.08	0.04	0.54	1.00	1.00	1.00	1.00	1.00	1.00	0.68
Total Volatile Solids	mg/L	-	8,123	5,885	1,805	5,455	14,590	4,055	7,370	1,055	12,100	3,653	5,833	4,970
Vanadium	Mg/L	-	0.09	0.11	0.01	0.04	0.10	0.20	0.20	0.20	0.20	0.20	0.20	0.14

Review of Final Effluent Sampling and Monitoring Activities

In 2025, there were 105 samples of final effluent collected and tested. Individual as well as monthly average results are reviewed and compared to the objective and compliance limits stated in the facility ECA. Table PW-T-3 below summarizes the number of monthly objective and compliance limit exceedances at the Port Weller WWTP in the reporting year.

Table PW-T-3: Evaluation of Final Effluent sample results to ECA objectives and compliance limits

Pollutant	ECA Monthly Concentration Objective	ECA Monthly Concentration Limit	Number of Objective Concentration Exceedances	Number of Monthly Limit Concentration Exceedances
pH ¹	6.5-9.0	6.0-9.5	0	0
Carbonaceous Biochemical Oxygen Demand (CBOD)	15 mg/L	25 mg/L	1	0
Total Suspended Solids (TSS)	15 mg/L	25 mg/L	4	0
Total Phosphorus (TP)	1.0 mg/L	1.0 mg/L	1	1
Total Residual Chlorine (TRC) ²	0.5 mg/L	-	0	-
E-Coli (<i>geomean</i>) ³	200 MPN/100 mL	200 MPN/100 mL	0	0

Port Weller WWTP did not meet the ECA monthly compliance limit for Total Phosphorus (TP) in September 2025. Throughout 2025, Port Weller experienced mechanical failures to aeration and mixing equipment, which decreased the amount of oxygen available to the secondary treatment process causing a process upset. This process upset caused a “die-off” of a significant portion of biomass resulting in solids carryover and ineffective uptake and removal of total phosphorus from the system.

The monthly objective for Total Suspended Solids (TSS) was not met in February, September, October and December 2025. The objective exceedance in February was attributed to maintenance issues with the primary clarifiers resulting in reduced effectiveness on solids removal. One secondary clarifier was taken out of service in September resulting in objective exceedances for TSS in September, October and December. This is covered in more detail in section PW-T-3 Operating Issues Encountered below.

¹ pH must meet objectives/limits at all times (inclusive)

² Total Residual Chlorine monitoring only required April 01 to October 31 inclusive

³ E.Coli monitoring only required April 01 to October 31 inclusive

The monthly objective for Carbonaceous Biochemical Oxygen Demand (CBOD) was not met in September 2025. Contributing factors to this objective exceedance are failure of mechanical mixers in the aeration system. The aerators at the Port Weller WWTP are aging and failures occurred throughout 2025.

A review of individual results against ECA objectives was also complete. Below summarizes the percentage of samples that were over the ECA objective:

- CBOD – 10%
- TSS – 15%
- TP – 10%
- E.Coli – 2%

Final Effluent sample results did not exceed the ECA objective greater than 50% of the time.

Despite aging infrastructure, the plant generally continues to provide effective wastewater treatment. An annual summary of monthly average final effluent sample results can be observed in Table PW-T-4 below.

Effluent Quality Assurance Measurements and Control Measures

To ensure Port Weller WWTP continues to produce a high-quality effluent the following measures have been implemented:

- Development and implementation of a Wastewater Quality Management System (WWQMS) program
 - This program promotes an environment of continuous improvement for all staff impacting the quality of wastewater
- Development of an ISO 14001:2015 Environmental Management System
- Compliance samples are analyzed by an ISO 17025:2017 accredited laboratory unless sample results are required to be collected in the field at the time of sampling
- Standard Operating Procedures (SOPs) are in place to support proper sampling and field measurements
- A compliance sampling schedule is created each year to ensure regulatory requirements are being met, as a minimum
- Equipment used in the monitoring and measurement of Final Effluent quality are calibrated annually

Table PW-T-4: Annual Summary of Port Weller Plant and Imported Sewage Flows, Influent and Effluent Sampling and Monitoring Results

Measured Parameter	January	February	March	April	May	June	July	August	September	October	November	December	Total / Average	Total Samples Collected
Influent - Monthly Average TSS (mg/L)	171	234	180	180	243	290	318	362	329	270	234	264	256	
Number of Influent TSS Samples	9	8	9	9	8	8	11	8	10	8	9	9		106
Influent - Monthly Average TBOD5 (mg/L)	164	166	129	122	161	201	196	243	259	207	171	209	186	
Number of Influent TBOD5 Samples	9	8	9	9	8	8	11	8	10	8	9	9		106
Influent - Monthly Average TP (mg/L)	2.8	3.3	2.4	2.6	3.6	4.3	4.4	5.3	5.8	4.3	3.9	4.7	4.0	
Number of Influent TP Samples	9	8	9	9	8	8	11	8	10	8	9	9		106
Influent - Monthly Average TKN (mg/L)	36.14	33.94	30.79	39.52	40.30	52.18	45.85	51.93	54.06	40.29	41.37	44.89	42.61	
Number of Influent TKN Samples	9	8	9	9	8	8	11	8	10	8	9	9		106
Total Plant Flows (ML)	931.688	1120.130	1522.677	1311.732	1469.006	911.154	830.620	766.284	717.642	971.448	842.654	1123.812	12518.847	
Daily Average (MLD)	30.054	40.005	49.119	43.724	47.387	30.372	26.794	24.719	23.921	31.337	28.088	36.252	34.298	
Maximum Flow (ML)	49.172	99.772	108.041	135.981	127.338	53.974	43.496	42.555	41.960	82.582	43.900	122.560	MAX	135.981
Minimum Flow (ML)	25.639	26.149	28.212	28.990	28.294	24.665	22.788	21.456	20.534	21.097	18.806	24.742	MIN	18.806
Volume Imported Sewage Received (ML)	0.950	0.552	0.825	1.253	1.019	1.042	1.252	1.147	1.498	1.784	1.267	0.756	13.344	
Final Effluent - Monthly Average TSS (mg/L)	8.2	16.0	11.1	9.1	8.9	8.3	9.8	10.4	15.4	19.9	9.6	19.3	12.2	
Final Effluent - Average Daily TSS Loading (kg/d)	246	640	545	398	422	252	263	257	368	624	270	700	417	
Number of Final Effluent TSS Samples	9	8	9	9	8	8	10	8	10	8	9	9		105
Final Effluent - Monthly Average CBOD5 (mg/L)	4.6	11.3	5.3	5.4	4.7	4.8	6.0	7.1	18.9	11.7	6.5	8.6	7.9	
Final Effluent - Average Daily CBOD5 Loading (kg/d)	138	452	260	236	223	146	161	176	452	367	183	312	271	
Number of Final Effluent CBOD5 Samples	9	8	9	9	8	8	10	8	10	8	9	9		105
Final Effluent - Monthly Average TP (mg/L)	0.21	0.43	0.31	0.30	0.26	0.40	0.55	0.81	1.15	0.86	0.50	0.64	0.54	
Final Effluent - Average Daily TP Loading (kg/d)	6.31	17.20	15.23	13.12	12.32	12.15	14.74	20.02	27.51	26.95	14.04	23.20	18.35	
Number of Final Effluent TP Samples	9	8	9	9	8	8	10	8	10	8	9	9		105
Final Effluent - Monthly Average TKN (mg/L)	29.04	27.55	27.84	34.81	30.04	42.35	32.79	41.90	41.61	30.84	30.50	31.49	33.40	
Number of Final Effluent TKN Samples	9	8	9	9	8	8	10	8	10	8	9	9		105
Final Effluent - Monthly Average NH3 (mg/L)	24.11	19.74	21.23	25.63	21.59	34.04	26.23	35.96	32.48	23.35	25.50	23.71	26.13	
Number of Final Effluent NH3 Samples	9	8	9	9	8	8	10	8	10	8	9	9		105
Final Effluent - Monthly Average NO3 (mg/L)	0.83	0.80	0.80	0.80	0.83	0.80	0.93	0.98	1.01	0.83	0.80	0.80	0.85	
Number of Final Effluent NO3 Samples	9	8	9	9	8	8	10	8	10	8	9	9		105
Final Effluent - Monthly Average NO2 (mg/L)	0.40	0.40	0.40	0.40	0.41	1.40	1.88	1.64	1.70	1.09	0.40	0.41	0.88	
Number of Final Effluent NO2 Samples	9	8	9	9	8	8	10	8	10	8	9	9		105

Measured Parameter	January	February	March	April	May	June	July	August	September	October	November	December	Total / Average	Total Samples Collected
Final Effluent - Monthly Geomean E.Coli (mpn/100mL)				3	2	2	3	2	9	5			3	
Number of Final Effluent E.Coli Samples				16	16	13	21	13	17	14				110
Final Effluent - Monthly Average TRC (mg/L)				0.00	0.00	0.00	0.00	0.00	0.01	0.00			0.00	
Number of Final Effluent TRC Samples				30	31	30	31	31	30	31				214
Final Effluent - Monthly Average Temperature (°C)	7.67	6.74	10.47	12.09	15.06	18.33	21.57	21.41	20.02	18.08	13.29	10.88	14.63	
Number of Final Effluent Temperature Samples	9	8	9	9	8	8	10	8	10	8	9	9		105
Final Effluent - Monthly Average pH	7.62	7.55	7.69	7.66	7.75	7.63	7.68	7.55	7.51	7.59	7.69	7.57	7.62	
Number of Final Effluent pH Samples	9	8	9	9	8	8	10	8	10	8	9	9		105

Deviations from Scheduled Sampling Days

Compliance sampling activities at the Port Weller WWTP are scheduled to ensure all provincial and federal requirements are met. A schedule is prepared for the upcoming year and is submitted to the MECP as part of the annual reporting requirement.

In 2025, there were four (4) deviations from the scheduled sampling days. Table PW-T-5 below provides the instances where a deviation occurred and a reason for the deviation.

The 2026 sampling schedule is available upon request.

Table PW-T-5: Table of 2025 sampling schedule deviations

Sampling Date Deviation	Sample Type(s)	Reason
2025-01-15 2025-06-04	Hauled Waste	No sample available
2025-09-25	Hauled Waste	Hauled sewage shut down due to plant operational issues. No sample available.

PW-T-3 Description of Operating Problems Encountered and Corrective Actions Taken

Failure of Multiple Mechanical Mixers – September 2025

In September 2025, Port Weller did not meet the ECA limit for Total Phosphorus (TP).

Throughout the month of September, Port Weller WWTP experienced a series of significant mechanical failures to aeration and mixing equipment that decreased the amount of oxygen available to the secondary treatment process. The reduced availability of oxygen over several days caused a “die-off” of a significant portion of biomass which reduced solids settling efficiency in the final clarifiers. This resulted in solids carryover into the final effluent as well as reduced uptake and removal of total phosphorus from the system. Both factors contributed to high final effluent total phosphorus results.

The following corrective actions were taken:

- Additional loadings to the plant were reduced by restricting hauled sewage and centrate disposals to the facility.
- Temporary aeration jet mixers were utilized to increase dissolved oxygen in the aeration tanks
- Two of the mechanical aeration mixer gearboxes were rebuilt and brought back on-line

- Once the dissolved oxygen concentrations were sufficient to support the growth and reproduction requirements of aerobic bacteria, the aeration tanks were seeded with mixed liquor from Port Dalhousie WWTP to help kickstart biological activity.
- The dosage of coagulant (aluminium sulphate) was increased throughout the entire period of the upset to try and settle out as much TP as possible.

In 2025, there were several failures of the aeration mixers. Up to five (5) mixers were out of service at any given time over this period. Maintenance and repair efforts were ongoing to address the following issues:

- concrete repair
- vibration issues
- motor failures
- structural integrity of mixers

Currently, seven out of eight mixers are in service. Spare gearboxes are available on site.

PW-T-4 Summary of Major Maintenance Activities and Capital Works

Summary of Maintenance Carried out on Major Equipment

Niagara Region works to keep wastewater infrastructure in a state of good repair. Maintenance activities completed include regular preventative maintenance (PM) activities and normal and emergency equipment repair or replacement. Where a substantial amount of upgrade is required, this work is carried out under the capital works program.

Below is a summary of normal and emergency repairs carried out on major equipment at the Port Weller WWTP:

- Rebuild of two digester gas boosters
- Repair of pipe hangers in primary clarifier gallery
- Rebuild of raw sludge pump #2
- Purchase of new waste activated sludge pump
- Rebuild of raw sewage pump #1
- Installation of jet mixers as a temporary solution
- Rebuild of two aeration gearboxes
- Purchase of four aeration gearboxes

This list does not include PM activities. PMs are completed and tracked in a computerized maintenance management system. PM activities completed during the reporting year are available upon request.

Planned Capital Upgrades

The following is a list of capital upgrades forecasted for the Port Weller WWTP:

- Chlorine/Dechlorination System Upgrades – Phase Two 2026
- Port Weller digester instrumentation upgrades – Construction anticipated for 2026.
- Port Weller Optimization Study – Design
- Port Weller Primary Clarifier Upgrades

Summary and Update of Notice of Modifications Completed

Through the facility ECA, MECP has given System Owners the ability to complete low risk changes to a treatment plant without requiring approval from the MECP. These modifications are documented on a Notice of Modification form and are signed off by the Owner or delegate of the system. Any pre-authorized modifications must be reported on annually to the MECP.

During the reporting year 2025, no Notices of Modification were completed.

No Notice of Modification forms were completed in previous reporting years. No status update is required.

Proposed Works – Status Update

There are no proposed works to be completed under the facility’s ECA.

PW-T-5 Summary Calibration Activities

Flow Meter Calibration – Influent, Effluent and Imported Sewage

Flow meters measuring discharges to the environment are calibrated at minimum, once per calendar year. Below in Table PW-T-6 provides a summary of flow meter calibration.

Table PW-T-6: Summary of Flow Meter Calibration

Meter Name	Date Calibrated	Comments
Port Weller Influent Meter	2025-07-31	Passed
Port Weller Final Effluent Meter	2025-05-06	Passed
Port Weller Final Effluent Meter	2025-11-03	Passed
Port Weller Secondary Bypass Meter	2025-06-27	Passed
Port Weller Secondary Bypass Meter	2025-11-03	Passed
Port Weller Plant Overflow Meter – Replaced in 2025	2025-02-13	Passed

Calibration certificates are available upon request.

The volume of Imported Sewage received at site is reported by the sewage hauler on submitted paper manifests. No calibration required.

Effluent Monitoring Equipment Calibration/Verification

It is a requirement to calibrate, or, where unable to calibrate, verify equipment that is used to measure effluent quality.

Some effluent monitoring equipment calibration or verification is completed daily or as used by operations staff such as pH meter calibration or verification of the Total Residual Chlorine colorimeter.

Once annually, calibration or verification on all effluent monitoring equipment is completed. A summary of annual calibration/verification activities are available in Table PW-T-7 below.

Table PW-T-7: Summary of Calibration/Verification of Effluent Monitoring Equipment

Equipment Description	Date Calibrated	Comments
DR2800 Spectrophotometer	2025-09-15	Passed
HQ40D Portable Meter with pH probe	2025-09-15	Passed
COD Reactor (Hach DRB200)	2025-09-15	Passed
Pocket Colorimeter	2025-09-15	Passed
Hach DR 1900	2025-09-15	Passed
Balance ML204/03 - 46213	2025-08-15	Passed
Balance ML204/03 - 47732	2025-08-15	Passed
Balance ML204/03 - 49662	2025-08-15	Passed
HQ40D DO Meter	2025-08-15	Passed

Calibration certificates are available upon request.

PW-T-6 Solids Handling

Processed Organics Received

3.2 ML of processed organic waste was received at the Port Weller WWTP in 2025 from the Queenston WWTP. This transfer of waste was necessary to allow for further anaerobic digestion of sludge waste before transporting it to the Garner Road Biosolids Facility.

Port Weller WWTP also received 32.9 ML of centrate for further treatment from the Niagara Falls WWTP in 2025.

Volume Sludge Generated and Removed From Site

Solids removed from the treatment process are digested and transported from site for further processing and beneficial re-use. All sludge removed from the Port Weller WWTP is taken to Niagara Region’s Garner Road Biosolids Facility where it is stored, further thickened and either sent for land application or for dewatering and conversion to a pelletized fertilizer.

Table PW-T-8 provides a summary of 2024 and 2025 sludge volumes removed from site.

Table PW-T-8: Summary of Sludge Removed from Site 2025

Month	2025 Volume Sludge Hauled (ML)	Prior Year Volume Sludge Hauled (ML)
January	7.024	6.808
February	5.680	6.981
March	6.938	7.024
April	7.328	7.068
May	5.940	7.805
June	7.458	5.160
July	8.542	7.154
August	7.805	8.845
September	7.631	8.368
October	8.108	10.276
November	8.108	8.412
December	8.152	8.325
TOTAL	88.714	92.227

A 4% decrease in sludge removed from site in 2025 versus reporting year 2024 was observed. In 2025, the plant received a lower volume of centrate, resulting in reduced sludge production and, consequently, a smaller volume of sludge requiring removal.

No changes to sludge handling is anticipated for 2026.

Sludge Quality Monitoring

Digested sludge is sampled and analyzed bi-weekly to meet regulatory requirements of the Garner Road Biosolids Facility and Port Weller WWTP ECA and maintain our ability to beneficially re-use biosolids. Results are trended and compared to Nutrient Management Act (NMA) limits. Where a trend is detected, investigations are initiated to identify potential sources of the pollutant and correct any issue identified. Average monthly results for 2025 biosolids analysis from the Port Weller WWTP is included in Table PW-T-9.

Table PW-T-9: Summary of Monthly Average Biosolids Results

Analyte	Units	January	February	March	April	May	June	July	August	September	October	November	December
Total Solids	%	1.90	1.75	2.07	2.25	2.25	2.25	1.90	1.70	1.80	1.80	1.85	1.60
Ammonia as N	mg/kg	733	865	1,030	1,090	1,040	885	670	600	690	720	710	745
Nitrate+Nitrite	mg/kg	1.00	1.00	0.99	0.99	0.75	0.99	1.00	1.00	1.00	1.00	1.00	1.00
Phosphorus	mg/kg	28,567	28,750	27,633	27,950	26,950	25,450	26,550	25,250	29,000	24,700	27,000	29,250
Arsenic	mg/kg	3.23	1.80	2.93	5.70	4.60	4.70	4.45	2.45	2.67	3.20	1.75	2.15
Cadmium	mg/kg	0.63	0.60	0.90	0.85	0.80	0.65	0.70	0.60	0.77	0.80	0.80	0.75
Chromium	mg/kg	48.60	22.30	25.83	33.55	30.50	30.15	30.65	26.95	28.00	26.50	19.75	26.00
Cobalt	mg/kg	2.50	2.15	2.67	3.15	3.50	3.10	3.05	2.60	3.00	3.00	2.80	2.50
Copper	mg/kg	412	493	487	463	490	428	462	446	506	476	462	490
Lead	mg/kg	14.33	10.50	19.67	19.00	22.00	15.00	12.50	16.00	17.33	17.50	11.00	11.00
Mercury	mg/kg	0.17	0.26	0.13	0.14	0.16	0.21	0.11	0.16	0.18	0.21	0.18	0.26
Molybdenum	mg/kg	7.33	6.00	5.67	6.00	5.50	4.50	5.50	6.00	8.00	7.50	6.50	6.00
Nickel	mg/kg	12.23	12.00	13.13	14.70	15.00	14.10	13.90	11.25	12.67	13.00	11.05	13.50
Potassium	mg/kg	5,313	6,070	5,923	6,090	6,415	5,900	5,670	4,775	5,837	4,700	4,945	5,510
Selenium	mg/kg	1.97	3.00	3.07	3.05	2.95	3.40	3.60	3.95	3.07	2.90	2.80	2.50
Zinc	mg/kg	548	577	682	724	691	597	642	595	649	601	581	576

PW-T-7 Complaints

One (1) complaint regarding noise and 34 odour complaints were received in 2025 regarding the operation of the Port Weller WWTP. When a complaint is received, operations staff attend the site to verify the complaint. Corrective actions are taken if required based on the site verification. All complaints and corrective actions are logged in a complaint tracking system.

Noise complaint was related to issues with the aging mechanical mixers. To resolve the issue, sound attenuation was installed around the mechanical aerators.

Odour complaints were related to the operational issues encountered with the aerators in 2025.

PW-T-8 Bypasses, Overflows, situations outside Normal Operating, Spills and Abnormal Discharges

Bypasses and Overflows

There were 13 secondary bypass events and eight (8) plant overflow events at the Port Weller WWTP in 2025. Secondary bypasses from this facility receive partial treatment prior to discharge to the environment including screening, grit removal, phosphorus removal, settling (solids removal), chlorination and dechlorination (from April 1 to October 31). Plant overflows from this facility receive preliminary treatment prior to discharge to the environment including screening, chlorination and dechlorination. Table PW-T-10 provides a monthly breakdown of bypass events occurring at the Port Weller WWTP during the reporting period.

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Table PW-T-10: Annual Summary of Secondary Bypass and Plant Overflow Events by Month

Month	Number of Secondary Bypass Events	Total Volume of Secondary Bypass (ML)	Number of Plant Overflow Events	Total Volume of Plant Overflow (ML)
January	0	0.000	0	0.000
February	3	10.266	0	0.000
March	1	17.025	0	0.000
April	1	30.083	1	7.500
May	3	39.221	1	124.168
June	2	4.857	2	51.090
July	0	0.000	2	14.244
August	0	0.000	0	0.000
September	0	0.000	0	0.000
October	2	11.451	1	21.410
November	0	0.000	0	0.000
December	1	19.900	1	42.897
Total	13	132.763	8	261.309

Secondary bypass and plant overflow events are sampled and submitted for analysis. Samples are collected at the start of an event and best efforts are used to collect another sample near the end of an event. Secondary bypass analytical results are included in Table PW-T-11 below. Plant overflow sampling results are available in Table PW-T-12 below.

Table PW-T-11- Annual Summary of Port Weller WWTP Secondary Bypass Sampling Results

Date	T BOD (mg/L)	Total Suspended Solids (mg/L)	Phosphorus (total) (mg/L)	Total Kjeldahl Nitrogen (mg/L)	Ammonia as N (mg/L)	Nitrate (mg/L)	Nitrite (mg/L)	E. Coli ⁴ (MPN/100mL)
2025-02-24/ Event Start	175	108	3.50	42.50	33.50	0.20	0.10	
2025-02-24/ Event End	60	105	2.10	20.80	12.20	0.20	0.10	
2025-02-25/ Event Start	40	37	0.90	12.80	9.00	1.10	0.20	
2025-02-25/ Event End	65	54	0.30	11.30	7.10	0.20	0.20	
2025-02-27/ Event Start	48	57	1.00	13.00	9.50	0.40	0.20	
2025-02-27/ Event End	87	76	1.10	13.80	7.50	0.90	0.10	
2025-03-05/ Event Start	148	195	2.80	23.40	10.70	0.60	0.10	
2025-03-06/ Event End	44	63	0.80	7.60	4.20	2.90	0.10	
2025-04-02/ Event Start	177	180	3.40	56.10	33.40	0.20	0.10	4,880,000
2025-04-04/ Event End	73	75	2.40	23.20	13.70	1.30	0.20	880,000
2025-05-01/ Event Start	120	116	4.60	55.00	30.30	0.20	0.10	4,610,000
2025-05-01/ Event End	87	139	1.40	18.70	5.20	0.70	0.40	1,330,000
2025-05-16/ Event Start	220	312	7.20	67.00	37.40	0.20	0.10	8,660,000
2025-05-16/ Event End	133	293	4.40	35.20	16.20	0.60	0.20	5,170,000
2025-05-21/ Event Start	103	101	3.60	38.90	20.90	0.20	0.10	2,140,000
2025-05-23/ Event End	60	61	1.60	13.20	4.80	1.60	0.70	4,839
2025-06-18/ Event Start	186	130	5.70	76.00	59.60	0.20	0.10	3,870,000
2025-06-18/ Event End	130	257	3.50	22.40	11.00	1.40	0.50	3,650,000
2025-06-30/ Event Start	160	153	4.40	52.20	45.50	0.20	0.10	30,000
2025-06-30/ Event End	115	162	2.60	21.90	14.90	0.20	0.10	10,000
2025-10-07/Event Start	140	145	6.20	62.10	51.30	0.20	0.10	6,490,000
2025-10-07/Event Start	46	119	1.80	15.10	8.00	0.70	1.70	14,100,000
2025-10-30/ Event Start	270	466	9.30	40.00	13.40	0.20	0.10	4,610,000
2025-10-30/ Event End	68	84	1.80	12.70	5.20	0.20	0.10	3,450,000
2025-12-28/ Event Start	113	92	3.90	43.60	23.00	0.20	0.10	
2025-12-29/ Event End	51	76	1.40	13.30	6.60	3.70	0.20	

⁴ Sampling and analysis of E.Coli is required April 01 to October 31 annually
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Table PW-T-12: Annual Summary of Port Weller WWTP Plant Overflow Sampling Results

Date	T BOD (mg/L)	Total Suspended Solids (mg/L)	Phosphorus (total) (mg/L)	Total Kjeldahl Nitrogen (mg/L)	Ammonia as N (mg/L)	Nitrate (mg/L)	Nitrite (mg/L)	E. Coli ⁵ (MPN/100mL)
2025-03-05/ Event Start	60	79	1.60	13.90	7.70	1.90	0.10	
2025-03-05/ Event End	40	40	0.60	6.50	4.80	2.80	0.10	
2025-04-02/ Event Start	83	206	1.30	18.80	11.20	0.20	0.10	1,470,000
2025-04-03/ Event End	60	70	0.60	15.00	9.00	4.00	0.10	30,000
2025-05-01/ Event Start	131	249	2.60	23.10	6.70	0.20	0.10	2,760,000
2025-05-01/ Event End	66	107	1.40	19.00	5.50	0.90	1.00	220,000
2025-05-16/ Event Start	161	309	4.00	27.50	11.90	0.20	0.10	4,880,000
2025-05-16/ Event End	152	2.40	22.50	12.30	0.40	0.20	152	1,350,000
2025-05-21/ Event Start	141	329	3.30	22.10	9.20	0.40	0.80	50,000
2025-05-21/ Event End	40	31	0.80	5.00	1.60	3.00	0.60	10,000
2025-06-18/ Event Start	182	530	3.80	27.00	11.40	0.80	0.10	2,400,000
2025-06-18/ Event End	44	100	1.20	16.30	12.20	2.50	0.20	120,000
2025-10-07/ Event Start	122	674	4.50	30.10	10.50	1.30	0.50	1,090,000
2025-10-07/ Event End	40	56	1.10	7.60	2.40	4.80	0.80	10
2025-12-28/ Event Start	119	313	4.20	26.20	6.90	0.70	0.10	
2025-12-29/ Event End	60	30	1.10	9.50	4.60	4.30	0.10	

⁵ Sampling and analysis of E.Coli is required April 01 to October 31 annually
Section: Port Weller WWTP – Treatment (PW-T)

Situations Outside of Normal Operating Conditions

The MECP defines “Normal Operating Condition” as when all unit process(es), excluding Preliminary Treatment System, in a treatment train is operating within its design capacity.

While one secondary clarifier was out of service as described above in section PW-T-2, the clarifier was still available during times of high flow to treat up to the plant rated capacity.

In addition, issues experienced with aeration mixers was outside of normal operating conditions and was described above in section PW-T-3.

Spills

Niagara Region strives to maintain and operate wastewater infrastructure so spills to the environment do not occur. However, circumstances arise where a spill occurs due to equipment malfunction, failure or other reasons. Occasionally, a planned spill may be required to safely complete required maintenance to critical equipment. If this is necessary, approval from the MECP is obtained in advance.

All spills are reported to the MECP Spills Action Centre upon discovery and follow up written reports are completed and submitted to the MECP and Environment and Climate Change Canada as required by regulation. Below in Table PW-T-13 summarizes spills that occurred at the Port Weller WWTP in 2025.

Table PW-T-13: Summary of spills occurring at the Port Weller WWTP during the reporting year

Spill Date	MECP Incident Number	Short Description of Spill	Link to Public Spill Report
No spills occurred in 2025.			

Abnormal Discharges

An abnormal discharge is a discharge to the environment that is abnormal in quality or quantity.

There were no instances of abnormal discharge during the reporting year.

PW-T-9 Summary of Efforts to Achieve Conformance with F-5-1 and/or F-5-5

Summary of Efforts – Procedure F-5-1 – Secondary Treatment Equivalent

Procedure F-5-1 states wastewater treatment facilities are to provide treatment of wastewater to a minimum of secondary treatment equivalence. This means the WWTP should be designed to meet objectives of 15 mg/L for CBOD and TSS and 1 mg/L for TP.

As demonstrated above in section PW-T-2, Port Weller WWTP provides effective secondary treatment. The Final Effluent annual average quality achieved in 2025 were below the secondary treatment equivalent MECP design objectives. The observed annual average for CBOD was 8 mg/L, the observed annual average for TSS was 12 mg/L, while the annual average TP concentration of the Final Effluent was less than 0.6 mg/L.

Summary of Efforts – Procedure F-5-1 and F-5-5 – Bypassing from Combined Sewer Systems

The Port Weller WWTP receives sewage from portions of the City of St. Catharines where combined sewer systems still exist. Procedure F-5-1 and F-5-5 require that a staged program be developed for the goal of total containment and treatment of all sewage flows.

Being a two-tier system, Niagara Region works closely with the City of St. Catharines, City of Thorold, and the Town of Niagara-on-the-Lake to reduce bypasses at the wastewater treatment plant. Pollution Prevention and Control Plans (PPCP) are undertaken by area municipalities with support and participation from Niagara Region. As well, Niagara Region undergoes a Master Servicing Plan every five years to identify areas that require I&I reduction or capacity increases based on expected development growth in the area. Both studies take into consideration impacts from wet weather and provide recommended actions to reduce wet weather overflows/bypasses.

Niagara Region participates in a cost sharing strategy with lower tier municipalities to fund overflow reduction projects and pollution prevention and control plan updates. In 2024, Niagara Region had an approved budget totaling \$4.0M for the overflow reduction cost sharing program. One project was approved for cost sharing in the City of St. Catharines with Niagara Region contributing \$743,700 to support sewer separation activities.

Excess Primary Treatment Capacity

F-5-1 allows for excess primary treatment where it is impractical or uneconomical to provide secondary treatment to wet weather flow. As Port Weller WWTP services a collection system

that is impacted by wet weather flow, fully treating the combined sewage and stormwater is not feasible. Port Weller is equipped with excess primary treatment for flows greater than 112,360 m³/d, up to a maximum flow of 136,200 m³/d. Flows greater than the peak secondary treatment design flow of 112,360 m³/d receive screening, grit removal and primary treatment and are then diverted around the secondary treatment process and recombine with the final effluent for seasonal chlorination and dechlorination prior to discharge to the Welland Canal.

Industrial Waste

Industrial waste can contain material that can have negative impacts on collection system infrastructure as well as the wastewater treatment process itself. Upsets to the treatment process can cause a plant to become non-compliant with ECA objectives and limits. To protect our infrastructure, the Niagara Region has a Sewer Use By-law in place. Environmental Enforcement Officers conduct industry inspections as well as sampling and monitoring of industrial discharges on a routine basis to ensure that they meet the Sewer Use By-law limits.

In 2024, an update to the Sewer Use By-law was approved by Council. Sewer Use By-law 2024-51 is still in place ensuring better protection of Niagara Region wastewater infrastructure.

PW-C-1 Overview of the Port Weller WWTP Collection System

The Port Weller WWTP collection system is a class IV system that collects wastewater from domestic, commercial and industrial sources from portions of the City of St. Catharines, portion of the City of Thorold and portions of Niagara-on-the-Lake. The collection system consists of the following:

- Local sanitary sewers
- 26.1 kilometres of regional gravity mains
- 7.1 kilometres of regional force mains
- 9 pumping stations:
 - Airport Road Sewage Pumping Station
 - Black Horse Sewage Pumping Station
 - Carleton Street Sewage Pumping Station
 - Centre Street Sewage Pumping Station
 - Spring Gardens Sewage Pumping Station
 - Lombardy Avenue Sewage Pumping Station
 - Thorold Tunnel Sewage Pumping Station
 - Peel Street Sewage Pumping Station (Niagara Region) and Sanitary Storage Facility (City of Thorold)
 - Haulage Road Sewage Pumping Station
- 4 Combined Sewer Overflows (CSOs) on Niagara Region infrastructure

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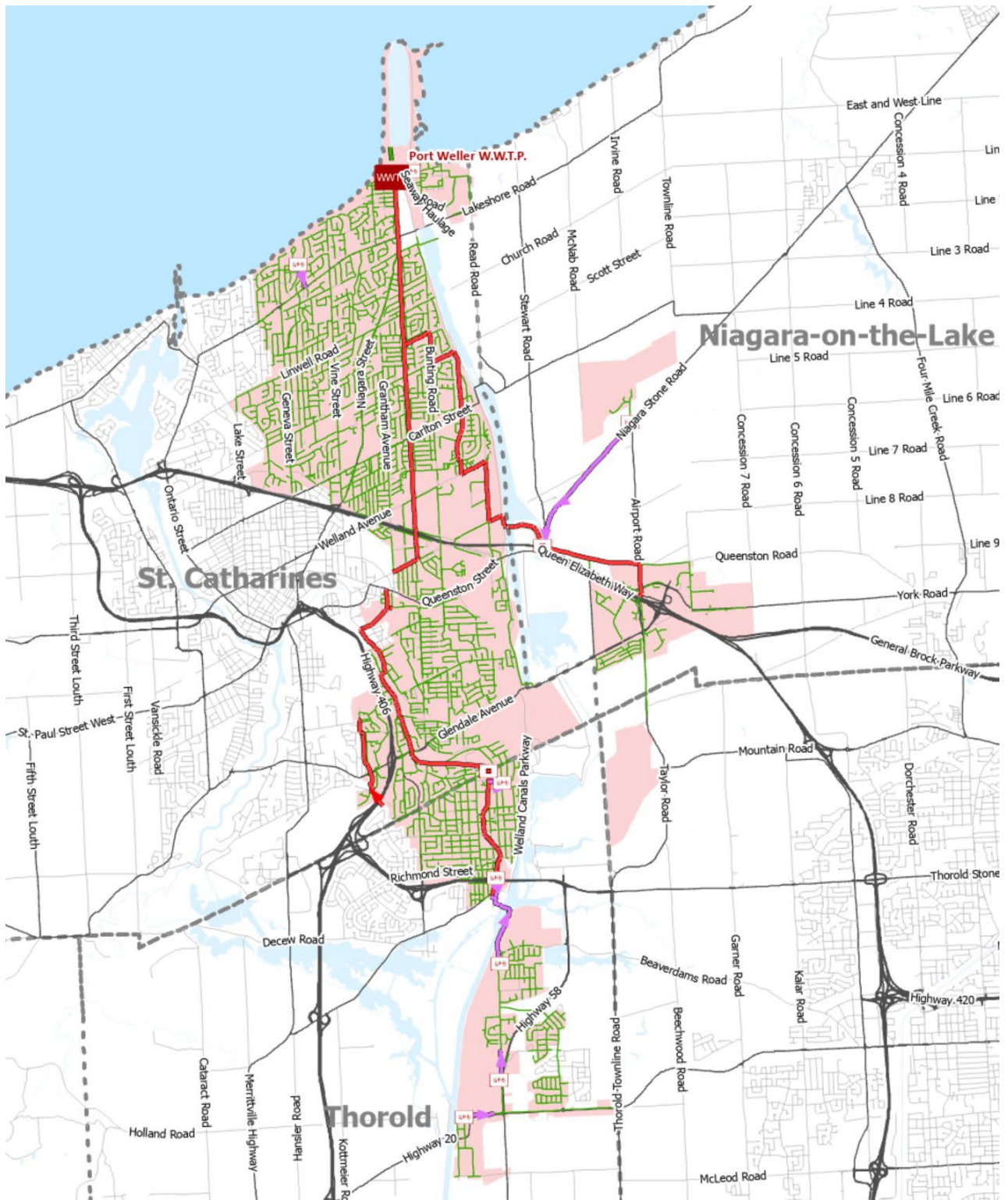


Figure PW-C-1: Map of Port Weller WWT.P. Collection System

The collection system is operated under a two-tier system, where the area municipalities own and operate local gravity sanitary sewers and some sewage detention facilities and Niagara Section: Port Weller – Collection (PW-C)

Region owns and operates sewage pumping stations, forcemains and larger gravity sanitary sewers or trunk sewers. It is classified as a combined sewer system. This means there are a small portion of pipes still remaining in the system that were designed to collect sanitary sewage and storm water in a single pipe. Combined sewers are no longer allowed to be constructed in Ontario and are being replaced with separate sewer systems as funding allows. Combined systems are heavily impacted during wet weather and snow melt events. While the majority of the collection system is separated, the separated system may still be impacted by inflow and infiltration from sources such as roof leaders, foundation drains, leaky pipes and joints and maintenance holes.

The collection system operates under the following Consolidated Linear Infrastructure ECA:

- Port Weller Wastewater Catchment System, 007-W606, issue number 2

Annual reporting has been prepared to meet the requirements of this approval.

PW-C-2 Summary and Interpretation of Collection System Monitoring Data

Monitoring of Pump Station Operations

Pump stations operate through automatic control and are monitored continuously using Supervisory Control and Data Acquisition (SCADA). Stations alarms are programmed to alert the operations staff at the Port Weller WWTP 24 hours a day of potential issues including but not limited to high wet well levels, pump faults, communication failures and standby generator status. Operators will respond to station alarms as required to ensure proper station operation.

Station operation is trended in SCADA. SCADA trends are reviewed daily by operations staff to evaluate station performance. Operators will look at pump cycle times, station discharge flow and pump duty rotation to identify potential issues. Where potential issues are identified, work orders are generated for follow up by maintenance staff.

In addition to SCADA monitoring, monthly station inspections are completed by operations staff. This includes inspection of the station and testing of standby generator equipment. In addition, starting in 2025, annual visual inspections were completed on the 12 unique system overflow location and wet weather storage tanks

Sanitary Sewer Closed-Circuit Television Inspection Program

Niagara Region owns and maintains 151 kilometers of trunk sanitary gravity sewers, 175 kilometers of sanitary forcemains, and 2,093 sanitary access chambers across 11 municipalities. Approximately 85% of its conventional trunk sanitary gravity system is inspected

using closed-circuit television (CCTV) once every three years. The remaining 15% is large diameter trunk sewers, which are inspected once every 10 to 15 years due to the necessity for specialized equipment to access and inspect sewers that have continuous high flow levels.

Table PW-C-1 details the total length of sewers inspected over the past four years.

Table PW-C-1- CCTV Program Summary

Measurement in Kilometers (km)	2022	2023	2024	2025
Inspection Length (km)	59.3	33.0	31.3	58.7

Observations from the inspections are recorded for structural and operational deficiencies of the pipes. Operational deficiencies (blockage from grease, roots, debris) are addressed through the cleaning/flushing program. Structural deficiencies (broken, fractured, surface damage, holes) as well as Inflow and Infiltration are forwarded for consideration in the asset management plan and capital upgrade program.

Flow Monitoring

Niagara Region monitors sewer flows at 158 locations. Flow monitoring information is used for municipal Pollution Prevention and Control Plans (PPCPs), Master Servicing Plans (MSPs) including the 2021 Water and Wastewater MSP, Inflow and Infiltration studies, billing, development planning, and capital project design.

PW-C-3 Summary of Operating Issues Encountered and Corrective Actions Taken

Pump Stations and Forcemains

No operational issues were encountered with the pump station and forcemains in the Port Weller collection system.

Gravity Trunk Sewers

No operational issues were experienced in the gravity trunk sewers in 2025.

PW-C-4 Summary of Major Maintenance, Capital Projects and Pre-Authorized Alterations

Summary of Maintenance Carried out on Major Equipment

Niagara Region works to keep wastewater infrastructure in a state of good repair. Maintenance activities completed include regular preventative maintenance (PM) activities and normal and emergency equipment repair or replacement. Where a substantial amount of upgrade is required, this work is carried out under the capital works program.

Below is a summary of normal and emergency repairs carried out on major equipment in the Port Weller Collection System:

- Lombardy Avenue SPS
 - Rebuild of pump
- Peel Street SPS
 - Replacement of impeller and liner for pump #3
 - Rebuild of pump
- Black Horse SPS
 - Replacement of pump #2
 - Rebuild of pump #2

This list does not include PM activities. PMs are completed and tracked in a computerized maintenance management system. PM activities completed during the reporting year are available upon request.

Planned Capital Upgrades

The following is a list of capital upgrades forecasted for the Port Weller Collection System:

- Spring Gardens SPS upgrades - construction anticipated for 2026.

Summary of Pre-Authorized Alterations Undertaken

Through collection system ECAs, MECP has given System Owners the ability to complete low risk changes to a sewage pumping station, forcemain or gravity main without requiring further approval from the MECP. These modifications are documented on an applicable MECP form and signed off by the Owner or delegate of the system. Any pre-authorized modifications must be reported on annually to the MECP.

During the reporting year 2025, no pre-authorized modifications were completed.

No pre-authorized works were completed and therefore, there were no alterations that would pose a significant threat to drinking water.

PW-C-5 Summary of Calibration Activities

Collection system overflow meters are calibrated at minimum once per year. Other instrumentation used in process control is calibrated on an as needed basis. Table PW-C-2 below provides a summary of calibrations completed in the collection system in 2024.

Table PW-C-2 - Summary of Calibration Activities Undertaken in the Port Weller Collection System

Equipment Description	Date Calibrated	Comments
Peel Street SPS Overflow Meter	2025-04-22	Passed
Glendale Flume	2025-06-27	Passed
Glendale Flume	2025-11-05	Passed
Thorold Townline Flume	2025-07-02	Passed
Thorold Townline Flume	2025-11-05	Passed

Calibration certificates are available upon request.

PW-C-6 Summary of Complaints

Three (3) odour complaints were received in 2025 regarding the operation of the Port Weller collection system. When a complaint is received, operations staff attend the site to verify the complaint. Corrective actions are taken if required based on the site verification. All complaints and corrective actions are logged in a complaint tracking system.

PW-C-7 Summary of Collection System Overflows and Spills

Collection System Overflows

The Port Weller wastewater collection system is classified as a combined sewer system. This means the collection systems consists of a small portion of sewers that are designed to collect both sanitary and storm water while most sewers are separated. Collection system overflows occur during wet weather events due to combined sewers but also because of inflow and infiltration of storm water into sections of the sewage collection system that are separate. Overflows are necessary to prevent basement flooding and to protect downstream infrastructure and wastewater treatment processes.

Table PW-C-3 provides a summary of collection system overflows that occurred during the reporting year. The table includes volume discharge, overflow durations as well as pollutant loading to the environment.

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More [information on sewage overflows and inflow and infiltration](http://www.niagararegion.ca/living/sewage/cso), is available on the Region's website (www.niagararegion.ca/living/sewage/cso).

Table PW-C-3- Collection System Overflow Event Details.

Overflow Location	Overflow Date	Overflow Volume (ML)	Overflow Duration (hhh:mm)	BOD Loading (kg)	TSS Loading (kg)	TP Loading (kg)	TKN Loading (kg)	E.Coli ⁶ (MPN/100 mL)	Was the Overflow Disinfected (Yes/No)	Were Any Adverse Impacts Observed (Yes/No)	Corrective Actions Taken
Peel Street SPS	2025-12-29	1.878	04:53	88.3	214.1	2.25	18.40		No	No	Awaited End of Event

⁶ E.Coli sampling and analysis is required April 01 to October 31 annually.
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Collection System Spills

Niagara Region strives to maintain and operate wastewater infrastructure so spills to the environment do not occur. However, circumstances arise where a spill occurs due to equipment malfunction, failure or other reasons. Occasionally, a planned spill may be required in order to safely complete required maintenance to critical equipment. In the event that this is necessary, approval from the MECP is obtained in advance.

All spills are reported to the MECP Spills Action Centre upon discovery and follow up written reports are completed and submitted to the MECP and Environment and Climate Change Canada as required by regulation. Below in Table PW-C-4 summarizes spills that occurred in the Port Weller collection system in 2025.

Table PW-C-4: Summary of Spills Occurring in the Port Weller Collection System

Spill Date	MECP Incident Number	Description of Spill	Link to Public Spill Report
No spills occurred in the collection system in 2025.			

PW-C-8 Summary of Efforts to Reduce WWTP Bypasses/Overflows and Collection System Overflows

Projects Undertaken to Reduce Bypasses or Overflows

Being a two-tier system, Niagara Region works closely with the City of St. Catharines, City of Thorold, City of Niagara Falls and Town of Niagara-on-the-Lake to reduce overflows at the wastewater treatment plant. Niagara Region participates in a cost sharing strategy with lower tier municipalities to fund overflow reduction projects. In 2025, Niagara Region had an approved budget totaling \$4.0M for the overflow reduction cost sharing program. One project was approved for cost sharing in the City of St. Catharines with Niagara Region contributing \$743,700 to support overflow reduction activities.

There was one (1) overflow from the Niagara Region portion of the Port Weller collection system in 2025.

Public Reporting of Bypasses and Overflows

Niagara Region reports all [bypass and overflow events](https://www.niagararegion.ca/living/sewage/CSO/Reporting/CSOLocations.aspx) publicly on the Niagara Region website (<https://www.niagararegion.ca/living/sewage/CSO/Reporting/CSOLocations.aspx>)

Niagara Region updates the data on recent overflows four times a year and displays any overflows that may have occurred in the past 12 months.

A [listing of overflow data back to 2008](https://niagaraopendata.ca/dataset/combined-sewage-overflow) is available through the Niagara Open Data website (<https://niagaraopendata.ca/dataset/combined-sewage-overflow>)

A new public tool is now available that shows bypass and overflow status in near real time. It includes [a map of overflow locations](https://experience.arcgis.com/experience/76c72e893f93447c87e6ff717f78556d#data_s=id%3AdataSource_1-1922f276303-layer-1-0%3A37) and their current status. The status shows if an overflow is happening now or if one occurred in the past 48 hours. This tool can help people make informed decisions about recreational water use.

(https://experience.arcgis.com/experience/76c72e893f93447c87e6ff717f78556d#data_s=id%3AdataSource_1-1922f276303-layer-1-0%3A37)

Niagara Region has posted signs at publicly accessible sites close to overflow locations that warn about potential hazards and precautions on water use following wet weather. These precautions are not in place at all times but are recommended after wet weather when overflows may affect water quality and safety.



Figure PW-C- 2 - Image of Sanitary Sewer Overflow Public Signage