Wastewater Operations

Annual Performance Report

Lakeshore Wastewater Treatment Plant

Environmental Compliance Approval (ECA) #2748-C5EJLK, as amended

~Town of Innisfil~

Reporting Year – 2025

Introduction

Effective January 1, 2016, the Town of Innisfil (TOI) transferred ownership of its municipal sewage works to InnServices Utilities Inc. (InnServices). InnServices is a municipal service corporation, wholly owned by the Town of Innisfil, charged with the responsibility to operate, maintain, and expand the municipal sewage works that service the Town of Innisfil.
The Board of Directors are appointed by the Shareholder and represent the Owners of the System.
InnServices has prepared this Performance Report for the operations conducted during the 2025 calendar year.

This Performance Report has been prepared to meet the following commitments:

- To provide InnServices Utilities Inc., Board of Directors, as "Owners" of the sewage works, a summary of the operations and maintenance of the Lakeshore Wastewater Treatment January 1 to December 31, 2025; and
- To comply with Condition 11 of Environmental Compliance Approval (ECA)*#2748-C5EJLK,* issued April 11, 2022.

This Performance Report, provided to the InnServices Board of Directors, conveys information related to the performance of operations and maintenance, which aids decision making related to system expansion needs.

The Lakeshore Wastewater Treatment Plant (LS WWTP) is an extended aeration facility. It is located at 1578 St. John's Road in Innisfil.
The collection system consists of approximately 110 km of gravity sewers, 13 km of force mains, and ten pumping stations servicing the Sandy Cove, Alcona, Belle Ewart, Friday Harbour, and Lefroy areas of Innisfil.

Environmental Compliance Approval (ECA)

For the reporting period covered in this report, InnServices Utilities Inc. was defined as the Operating Agency of Lakeshore Wastewater Treatment Plant (LS WWTP) and the associated collection system.
The Innisfil Sanitary Sewage Collection System is now subject to the conditions as set out in Environmental Compliance Approval (ECA) Number 120-W601, issued March 28, 2023. As such, there is a requirement to prepare an annual performance report which is submitted to the Director.

The treatment facility and collection system are operated under the following Certificates of Classification:

Class III Wastewater Treatment Certificate #267
Class II Wastewater Collection Certificate #2450

A Class Environmental Assessment (Class EA) was completed in 2011 that defined a two-stage increase in the capacity of the Lakeshore WWTP, to 25 MLD and ultimately to 40 MLD. The new ECA includes the Proposed Works which will bring the Plant to 25,000 m^3/day (25 MLD) rated capacity.

Influent Monitoring Data

The 2025 average daily influent flow was 10,463m^3 (cubic meters), which equates to 61.5% of the plant's design rated capacity of 17,000m^3 per day.

The 2025 maximum daily flow occurred on April 3,2025, the recorded flow was 35,993m^3, equating to 84.69% of the plant's design peak flow rate of 42,500m^3 per day.

The plant received a total raw influent flow of 3,818,938m^3 in 2025.

The overall removal efficiency is 96.34%.

Flows	Design Capacity	80% of Rated Capacity	2025 Flows	Performance
Daily Flow	17,000 m³/ day	13,600	10,463m³/day Average Daily Flow	61.5% of Design
Peak Flow	42,500 m³/day	34,000	35,993m³/day ()	84.69% of Design
Annual Total	-----	------	3,818,938m³	

Chart 1 below provides a visual display of the annual average day influent flow trend for the ten-year period of 2016 – 2025. (Note ADF increased from 14,700 m³ to 17,000 m³ effective July 2019)

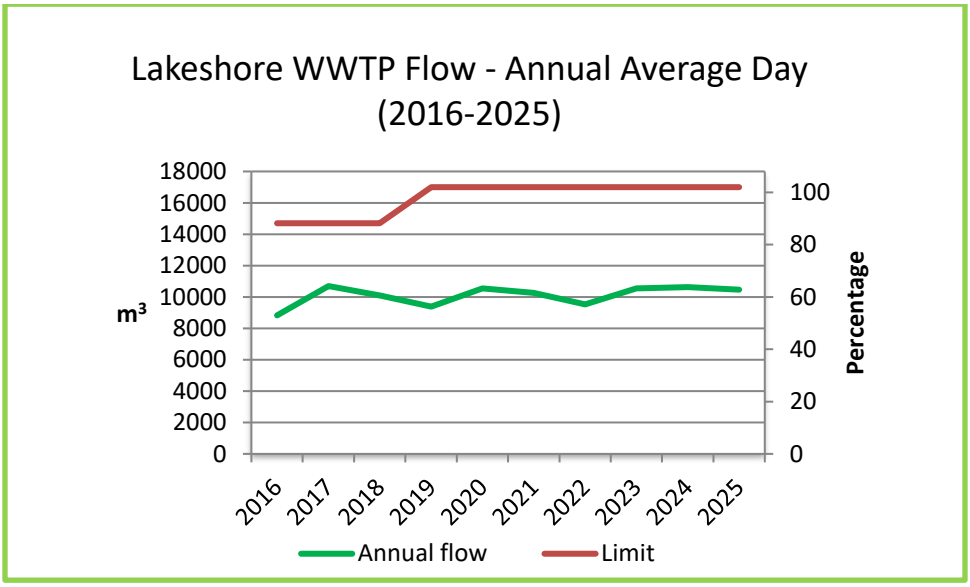

Chart 1: Annual average daily flow 10-year trend

Monitoring of influent requires weekly composite sampling. The annual averages and removal efficiencies are depicted in this table:

Parameter-Influent	Sample Type	Minimum Frequency	Monthly Average (mg/L)	Removal Efficiency
Total Suspended Solids (TSS)	24-hour composite	Weekly	188	98.60%
Total Phosphorus (TP)	24-hour composite	Weekly	2.92	97.60%
Total Kjeldahl Nitrogen (TKN)	24-hour composite	Weekly	30.55	92.83%

Below is a table showing removal efficiencies of the past five (5) years:

Parameter-Influent	Removal Efficiency 2025	Removal Efficiency 2024	Removal Efficiency 2023	Removal Efficiency 2022	Removal Efficiency 2021
Total Suspended Solids (TSS)	98.60%	98.29%	98.08%	98.41%	98.70%
Total Phosphorus (TP)	97.60%	97.33%	96.80%	97.57%	97.20%
Total Kjeldahl Nitrogen (TKN)	92.83%	95.12%	91.85%	94.20%	92.20%

Imported Sewage (Hauled Wastewater) Monitoring

During the 2025 calendar year, the Lakeshore WWTP did not accept any hauled septic waste. It has been shut down for since 2024 for construction related to the WWTP upgrade.

Final Effluent Monitoring Data

The Lakeshore WWTP operated below the limits set out in the ECA Effluent parameters. Final Effluent is monitored by weekly 24-hour composite sampling.
Design Objectives were achieved more than the required 50% of the year, (97.3%) with no deterioration of the Final Effluent quality trending.
A summary of the plant's performance in 2025 relative to the amended ECA limits is reflected in these tables and on the following page.

Effluent Parameter	ECA Effluent Limit: Monthly Avg Concentration (mg/L)	Design Objective Monthly Avg. Concentration (mg/L)	2025 Treated Effluent Monthly Avg. Concentration (mg/L)
$CBOD_5$	10.0	5.0	2.10
Total Suspended Solids	15.0	5.0	2.63
Total Phosphorus	0.20	0.10	0.07
Total Ammonia Nitrogen	5.0	3.0	1.70
E. coli	200 CFU/100mL	150 CFU/100 mL	57
pH	6.0 to 9.5 inclusive	6.5 – 8.5 inclusive	7.03

Effluent Parameter	ECA Annual Total Effluent Limit	2025 Annual Effluent Loading
Total Phosphorus*	629 kg/yr	246.26 kg/yr

**Lake Simcoe Phosphorus Reduction Strategy Effluent Limit for Total Phosphorus is 0.12 mg/L Annual Average Baseline Concentration; the Total Annual Baseline Load is 629 Kg.*

Parameters for LS WWTP Final Effluent Monitoring were reviewed for 2025.
There were no exceedances of Compliance Limits related to effluent quality in 2025. This can be attributed to operational process optimization, use of in-line monitoring and instrumentation.

The design objective for the monthly average concentration of Total Phosphorus (0.10 mg/L) was met for most of 2025, with monthly averages remaining below or equal to the target except for September, which recorded a monthly average of 0.11 mg/L. Despite this exceedance of the design objective, all monthly averages remained below the compliance limit of 0.20 mg/L, demonstrating continued regulatory compliance.

The design objective for the monthly average concentration of Total Ammonia Nitrogen (TAN) (3.0 mg/L) was met for most of 2025, with monthly averages remaining below or equal to the target except for April and December, which recorded a monthly average of 3.63 mg/L and 3.15 mg/L respectively. Despite this exceedance of the design objective, all monthly averages remained below the compliance limit of 5.0 mg/L, demonstrating continued regulatory compliance.

Testing for toxicity – Acute Lethality of Effluents to Rainbow Trout was conducted in July as required by Wastewater Systems Effluent Regulations (SOR/2012-139) under the Federal Fisheries Act and was determined to be not acutely lethal.

InnServices is participating in a study commissioned by the Williams Treaty First Nations to assess the health of fish in Lake Simcoe and the potential effects of municipal wastewater discharges on the traditional fishery. The first round of sampling was conducted in July 2025, with samples analyzed for pharmaceuticals, personal care products, and selected hormones. Concentrations observed were consistent with levels reported globally in previous studies. Additional monitoring is planned for the winter of 2026.

The tables on the next page depict the monthly averages for Final Effluent parameters.

LS WWTP – 2025 FINAL EFFLUENT LOADING

MONTH	A.D.F.	TOTAL PHOSPHORUS (629 kg/yr max.)			NH3 + NH4 as N	
2025	m^3	Month Avg.*	Loading kg/d	Total Monthly Load	Month Avg.	Loading kg/d
limits**		0.20 mg/L	0.87 kg/d	kg	5.00 mg/L	72.00 kg/d
objectives		*0.10 mg/L*			*3 mg/L*	
January	*9451*	*0.04*	0.40	11.25	*2.03*	19.14
February	8382	0.06	0.46	12.91	0.98	8.17
March	16090	0.07	1.13	34.92	1.23	19.71
April	19249	0.03	0.63	18.77	3.63	69.78
May	10022	0.03	0.33	10.10	1.65	16.54
June	9005	0.04	0.40	11.89	2.00	18.01
July	8466	0.10	0.80	24.93	1.03	8.68
August	8259	0.10	0.83	25.60	0.55	4.54
September	7631	0.11	0.82	24.72	1.00	7.63
October	7314	0.08	0.57	17.57	2.65	19.38
November	10155	0.08	0.84	25.13	1.48	14.98
December	11133	0.08	0.92	28.47	3.15	35.07
TOTAL	125156	0.82	8.11	246.26	21.35	241.62
AVG.	10430	0.07	0.68	20.52	1.78	20.14

Values outside of Design parameters are highlighted in the above table.

MONTH	E. Coli.	C.B.O.D.		TSS		pH
2025	Geo. Mean	Month Avg.	Loading kg/d	Month Avg.	Loading kg/d	Single grab sample
limits**	200/100ml	10.0 mg/L	144.00 kg/d	15.0 mg/L	216.00 kg/d	6.0 - 9.5
objectives		*5 mg/L*		*5 mg/L*		*6.5 - 8.5*
January	15	2.0	18.90	2.0	18.90	7.05 - 7.15
February	41	2.3	18.86	2.3	18.86	6.99 - 7.07
March	11	2.0	32.18	4.3	68.38	7.03 - 7.14
April	6	2.0	38.50	2.0	38.50	7.09 - 7.11
May	2	2.0	20.04	3.3	32.57	7.00 - 7.10
June	0	2.0	18.01	2.0	18.01	6.62 - 7.07
July	0	2.0	16.93	2.3	19.05	6.55 - 6.69
August	5	2.0	16.52	2.5	20.65	6.87 - 6.99
September	11	2.0	15.26	2.0	15.26	6.96 - 7.10
October	15	2.0	14.63	2.0	14.63	6.87 - 7.50
November	3	2.5	25.39	2.3	22.85	7.10 - 7.28
December	42	2.5	27.83	3.0	33.40	7.26 - 7.50
TOTAL	151.87	23.25	263.05	29.75	321.06	6.55 - 7.50
AVG.	6.59	1.94	21.92	2.48	26.75	7.03

Operational Issues and Corrective Actions Taken

Much of the equipment, structures, mechanisms, and apparatus comprising the Works are aging and require frequent condition assessments. Repairs and/or replacements are completed as required, and items of larger scope are identified and advanced as Capital Works projects.
During the reporting period, performance issues were identified with the Lystek heat-hold pump. The pump was determined to be undersized for current operational demands and was unable to sustain the required flow rate. Corrective action included rebuilding the pump to restore functionality. The planned plant expansion project will address several obsolete and aging structures and equipment to improve overall reliability and performance.

Repairs and Maintenance Activities

The Maintenance Mechanic and Operations Staff perform a variety of scheduled, preventative, predictive and reactive maintenance on a variety of equipment throughout the year. Equipment replacement and upgrades contribute to greater process control at the Plant and increased capacity in the collection system.
Notable maintenance activities in 2025 include:

At LS WWTP

- Lystek steam pressure regulation actuator replaced January 2025
- Storage blower #2 VFD fan and control board replaced January 2025
- Lystek steam feed control valve replaced February 2025
- Digester blower motor replaced February 2025
- Final effluent sampler hoses replaced February 2025
- South side outdoor lightening & photocell replaced April 2025
- Automatic gate repaired April 2025
- New Lystegro truck loading pump picked up May 2025
- Odor mitigation piping for Biorem sump building installed May 2025
- Sludge transfer pit cleaned out May 2025
- Lystek steam pressure release valve repaired May 2025
- UV UPS and 2x control boards replaced May 2025
- New Lystegro motor installed June 2025
- New Lystegro sump pump with float system installed June 2025
- New air compressor installed July 2025
- Air compressor hour meter installation complete July 2025
- Lystek new sludge storage valve installed July 2025
- Lystek chemical pumps repaired September 2025
- Lystek alkali feed lines replaced September 2025
- Storage & aeration blowers serviced + batteries replacement complete October 2025
- Lystek PRV & steam system checked; ball valve, siphon, and wika sensors replaced October 2025
- Screwlift 2 repaired October 2025
- Lystek KOH pump repaired November 2025
- Air compressor repaired November 2025

- New flanges installation on reject discharge piping complete November 2025
- Lystek heat hold pump lobes & back plate replaced December 2025
- Biorem flow meter replaced December 2025
- Screwlift 1 repaired December 2025
- Heaters in inlet & digester buildings diagnosed and repaired December 2025

Effluent Quality Assurance

Analytical tests to monitor required parameters are performed by SGS Environmental Services.
Annual laboratory testing for toxicity (Acute Lethality of Effluents) is performed by NAUTILUS Environmental.
Both labs are accredited by the Canadian Association for Laboratory Accreditation Inc. (CALA) in accordance with the recognized International Standard ISO/IEC 17025:2005.

Plant operation and performance is monitored by licensed operators.

Calibration & Maintenance on all Influent and Final Effluent Monitoring Equipment

Annual verifications/calibrations of flow monitoring equipment were performed in October 2025 by a third-party instrumentation and controls technician. This included influent, effluent, septic receiving, and Parshall flume monitoring equipment.
All were found to be within the tolerance of the equipment as recommended by the manufacturer. Notable Calibration and maintenance activities in 2025 include:

- Annual backflow preventor re-certifications completed by Western Mechanical January 2025
- Annual lifting/fall arrest equipment inspections completed by Acu-Tec January 2025
- Forklift re-certified July 2025
- Annual gas detector calibrations completed by Concept Controls September 2025
- Annual flow meter calibrations completed by FlowMetrix October 2025
- Filter building roof inspection complete November 2025

Summary of Efforts made to achieve Design Objective

Design Objectives were achieved 97.3% of the year, more than the required 50% with no deterioration of the Final Effluent quality trending.
The 2025 average daily influent flow was10,463m^3, which equates to 61.5% of the plant's design rated capacity of 17,000 m^3 per day.

Sludge Generation & Removal

The biosolids handling facility, Lystek, uses biosolids created by the system and processes into a marketable Class A (EQ) quality, fertilizer product which is hauled from the facility and injected into farm fields. Lystek is responsible for all aspects of the marketing and application of LysteGro fertilizer produced at the facility.

The amounts hauled and applied in 2025 totaled 2767.97 cubic meters.

LYSTEK REMOVAL

- 331.97m³ removed by Saugeen May 2025
- 2436.00m³ removed by Saugeen July 2025

A total of 8395.8m3 of Non-Agricultural Source Material (NASM) was removed from the Lakeshore WWTP in 2025 by two contractors.

BIOSOLIDS HAULAGE

- 1307.70m³ hauled by Wessuc January 2025
- 1635.70m³ hauled by Wessuc April 2025
- 667.10m³ hauled by ROHES May 2025
- 52.30m³ hauled by Wessuc May 2025
- 415.20m³ hauled by ROHES June 2025
- 1098.60m³ hauled by Wessuc August 2025
- 1885.00m³ hauled by Wessuc September 2025
- 1334.20m³ hauled by Wessuc October 2025

Complaints Received & Steps taken to address Complaints

Customer Service inquiries are received and logged through the Town of Innisfil. There were 51 inquiries related to the operation of the Lakeshore WWTP and collection system in 2025. All incidents were resolved and logged.
There were eleven (11) calls for sewer back-ups. Eight (8) back-ups were found to be on homeowner's side.
The remaining inquiries involved other sewer problems, flushing concerns, and an odour complaint.
In 2025, there was two (2) backups in the sanitary sewer main causing surcharge, one (1) back up caused by a power failure at the pump station (PS #7, located in front of the home), the second was an accumulation of non-organic material in the main which was flushed, resolving the issue.

Bypass, Overflows, Spills, and other situations outside Normal Operating Conditions

On March 30, 2025, the Lakeshore Wastewater Treatment Plant experienced four partial bypass events resulting from an ice storm that caused significant precipitation and a prolonged power outage. The events occurred between 5:50 a.m. and 3:28 p.m., with individual durations ranging from 0.33 to 0.66 hours. The total estimated volume discharged was 1,544.4 m³. In each case, the wastewater had received secondary treatment but did not undergo disinfection. All events were reported to the MECP (Reference No. **1-MYUWPZ**).

On April 3, 2025, two additional bypass events were recorded.
The first event occurred between 4:09 a.m. and 7:30 a.m., with a duration of approximately 1.83 hours. An estimated 100 m³ of wastewater that had received primary treatment, but no disinfection, was discharged as a result of a splitter box overflow (MECP Reference No. **I-N7PYIS**).

The second event occurred between 3:08 a.m. and 6:56 p.m., lasting approximately 15.8 hours. An estimated 11,583 m^3 of wastewater that had received secondary treatment, but no disinfection, was discharged due to a tertiary filter bypass (MECP Reference No. **I-N7PYA9**).
Both bypass events were attributed to hydraulic overload conditions.

Quarterly reports documenting all of these incidents were submitted to the MECP.

Notices of Modifications to Sewage Works

The ECA allows for certain pre-authorized modifications to be made to the facility. The Ministry is notified of these modifications via a *Notice of Modification to Sewage Works*. There were zero (0) Notices of Modification submitted to the Water Supervisor as per Paragraph 1.d of Condition 10.
A new ECA for the Lakeshore WWTP was issued April 11, 2022, which includes Proposed Works which will bring the Plant to 25,000 m^3/day (25 MLD) rated capacity.

Efforts to Achieve Conformance with Procedure F-5-1

InnServices Utilities Engineering and Operations have been working on several projects and initiatives to eliminate Bypass/Overflow incidents. These include, but are not limited to the following ongoing efforts:

- UI Engineering is working with TOI Development Engineering to ensure all un-assumed sanitary maintenance holes are equipped with bulkheads. Implemented for the following development projects: LSAMI P1/P2/P3/P4, Grand Sierra, Innis Village, Melrose, Sleeping Lion Ph4 and underway for upcoming projects.
- Regular flushing and CCTV (closed-circuit television) inspection program of sanitary mains. All sanitary mains in the central area of Alcona were flushed and inspected via CCTV in 2024 under InnServices annual capital program.
- Annual pump station wet well clean out programs.
- Sewer laterals inspections are done with a lateral launch and repairs made if deficiencies are discovered from the main to the property line.
- External Maintenance Hole (MH) wrapping of horizontal joints on recent Capital projects and Development projects underway. All new development projects are still following the MH wrapping requirements.
- Flow Monitoring of active subdivision under progress in Alcona Capital, Sleeping Lion Phase 3, Innis Village, LSAMI P3/P4 and select condominium developments.
- Flow Monitoring of existing sewered areas to target areas contributing to I&I
- Condition assessment of MH at multiple locations leading to a repair/replacement plan as required.
- Working on a pre-qualified list of approved contractors to complete large sanitary sewer connections for site plans and developments.

Proposed Works Update

The Lakeshore Wastewater Treatment Plant (LS WWTP) expansion construction commence in Q1 of 2025, with the tentative commissioning by Q1-2027. Hatch has been awarded the project management and the construction was awarded to North America Construction.

Monitoring Schedule

Influent sampling is required at a minimum frequency of weekly by 24-hour composite sampling. The influent sampling point is located near the grit tanks in the preliminary treatment system building (Inlet Building).

The Final Effluent sampling is required at a minimum frequency of weekly. Sampling type is determined by the parameter and includes 24-hour composite, grab, probe, or analyzer. The weekly Final Effluent composite sampler is located downstream of the disinfection channels.

Flow rates are monitored by continuous flow measuring devices for influent and effluent.

As per Condition 9.1.d of the ECA, effective January 2025, Monday was designated as the scheduled day for sampling, except for statutory holidays when this may shift to the next appropriate day. This schedule was maintained to the end of 2025. The scheduled sample day will be rotated to Wednesday (in January 2026) and is expected to be maintained for the next year.