

## REPORT TO COUNTY COUNCIL

# 2024 Annual Wastewater System Performance

**To:** Warden and Members of County Council

**From:** Director of Public Works

## RECOMMENDATIONS

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1. That County Council receive Report PW 2025-19 entitled “2024 Annual Wastewater System Performance”, including the individual 2024 Annual Wastewater Treatment Plant and 2024 Consolidated Linear Infrastructure Summary Reports;
2. And further, that County Council receive the 2024 Annual Biosolids (Non-Agricultural Source Material) Summary Report, including the performance summary of the County’s wastewater treatment plant biosolids processing, land application program and biosolids centralized storage facility.

## REPORT HIGHLIGHTS

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- This report summarizes the annual performance of Oxford County’s nine wastewater treatment plants, 11 municipal wastewater collection systems and biosolids processing program in 2024.
- Of note, the County’s nine wastewater treatment plants (WWTPs) provided effective treatment and demonstrated continued exceptional performance in 2024. Based on approximately 4,528 WWTP effluent samples collected and analyzed in 2024, five of the nine County municipal WWTPs achieved 100% compliance ratings (with the remaining four receiving the following compliance ratings: Norwich 99%, Tillsonburg 98%, Drumbo 97%, Plattsville 94%).
- A summary of annual wastewater system capital investments and an overview of key maintenance activities that were completed on the wastewater infrastructure assets is also noted.
- Consistent with the County’s direction of innovative and green technology, a study to maximize resource recovery continued into 2024 (Woodstock WWTP) to offset facility non-renewable energy consumption and reduce greenhouse gas emissions.

## IMPLEMENTATION POINTS

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Following Council adoption of this report, the 2024 Annual WWTP Reports, Biosolids Report and Wastewater Collection System Consolidated Linear Infrastructure Report will be submitted to the Ministry of the Environment, Conservation and Parks (MECP) in accordance with regulatory requirements by March 31, 2025. These reports will also be posted on the County's website for public access.

### Financial Impact

There are no financial impacts as a result of this report. Any required actions that will result in expenditures have been accounted for in the 2025 Business Plan and Budget of the respective wastewater systems.

### Communications

As indicated, the 2024 Annual Wastewater System Performance Report, the 2024 Biosolids Summary Report and the 2024 Wastewater Collection System Consolidated Linear Infrastructure Report will be posted to the Oxford County website by March 31, 2025 at [www.oxfordcounty.ca/wastewater-reports](http://www.oxfordcounty.ca/wastewater-reports). The results of each system's performance report will also be shared directly with Area Municipality CAOs and Public Works senior management respectively.

In addition, the County will communicate 2024 performance highlights of key Public Works systems (Water, Wastewater and Waste Management) to the public through an annual social media campaign after the last performance report has been submitted to Council later this year. As well, highlights will be further promoted through social media during National Public Works Week (May 18 – 24, 2025).

## 2023-2026 STRATEGIC PLAN

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Oxford County Council approved the [2023-2026 Strategic Plan](#) on September 13, 2023. The Plan outlines 39 goals across three strategic pillars that advance Council's vision of "Working together for a healthy, vibrant, and sustainable future." These pillars are: (1) *Promoting community vitality*, (2) *Enhancing environmental sustainability*, and (3) *Fostering progressive government*.

The recommendations in this report support the following Strategic Plan pillars and goals:

		
<b>Promoting community vitality</b>	<b>Enhancing environmental sustainability</b>	<b>Fostering progressive government</b>
<p>Goal 1.2 – Sustainable infrastructure and development</p> <p>Goal 1.3 – Community health, safety and well-being</p>	<p>Goal 2.2 – Preserve and enhance our natural environment</p>	<p>Goal 3.1 – Continuous improvement and results-driven solutions</p> <p>Goal 3.2 – Collaborate with our partners and communities</p> <p>Goal 3.4 – Financial sustainability</p>

See: [Oxford County 2023-2026 Strategic Plan](#)

## DISCUSSION

### Background

The County's wastewater treatment, biosolids management and wastewater collection systems are all supervised by an appropriately licensed Overall Responsible Operator (ORO) and designated Operators in Charge (OIC) as required by Ontario Regulation (O. Reg.) 129/04.

### Wastewater Treatment and Biosolids Processing Systems

The County operates and maintains:

- Three conventional activated sludge mechanical WWTPs (Woodstock, Ingersoll, Tillsonburg);
- One extended air WWTP (Thamesford);
- One wastewater Membrane Bioreactor (MBR) plant (Drumbo);
- Three wastewater lagoon-based systems (Norwich, Plattsville, Tavistock); and
- One Recirculating Sand Filter (RSF) wastewater system (Mount Elgin).

Wastewater from the communities of Embro and Innerkip is transferred via sewage forcemains to the Woodstock WWTP for treatment.

At the three conventional WWTPs, waste sludge generated during wastewater treatment is stabilized and dewatered through either aerobic or anaerobic digestion. The remaining product, known as biosolids, is a valuable and beneficial fertilizer-like soil nutrient that can be land applied in the agricultural sector (i.e. farms having a non-agricultural source material plan) as per the County Biosolids Management Master Plan. When the material cannot be directly land applied during the winter months, biosolids are stored at the County's Biosolids Centralized Storage Facility (BCSF), located adjacent to the County Waste Management Facility.

### Wastewater Collection Systems Linear Infrastructure

The wastewater collection system includes the wastewater collection mains, sewage pumping stations, and odour control facilities that transfer wastewater to a WWTP. The County owns and maintains all 11 sewage collection systems. Portions of the collection system in the City of Woodstock and the Town of Tillsonburg are under service contracts with the County. In the Town of Tillsonburg and City of Woodstock, the sewage pumping stations, odour control facilities, sanitary trunk sewers and forcemains are operated by Oxford County. The County also operates two privately owned sewage pump stations (401 Service Centre and Verspeeten Cartage). All components of the wastewater collection systems in the remaining communities are operated by Oxford County staff.

The wastewater collection systems include approximately 647 kilometers of sanitary sewers and forcemains, 7,960 manholes, grinder pumps including the Septic Tank Effluent Pumping (STEP) systems, two odour control facilities and 38 sewage pumping stations (including the two privately owned sewage pumping stations (operated by Oxford County)).

### Wastewater Treatment Facility Reporting Requirements

The annual reporting requirements are set out in each wastewater treatment plant's Environmental Compliance Approval (ECA) or Certificate of Approval (CofA) and are generally outlined as follows:

- Preparation and submission of the report to the District Manager of the MECP within 90 days following the end of the period being reported on (which is March 31 since December 31 is the County's year-end);
- Summary and interpretation of all monitoring data and a comparison to the effluent limits set out in the ECA;
- Description of any operating problems encountered, and corrective actions taken;
- Summary of all maintenance carried out on any major structure or equipment;
- Summary of any effluent quality assurance or control measures undertaken;
- Summary of the calibration and maintenance carried out on all effluent monitoring equipment;
- Tabulation of all generated biosolids and a summary of all disposal locations;
- Summary of any complaints, abnormal events, upset conditions, by-passes or spills; and
- Any other information specifically required by the District Manager.

### Wastewater Collection System Consolidated Linear Infrastructure Reporting Requirements

The MECP issued a single Consolidated Linear Infrastructure Environmental Compliance Approval (CLI ECA) for all wastewater collection systems on February 14, 2023. This streamlines the approvals process and enhances environmental protection for all County sanitary sewer systems. The annual reporting requirements of the CLI ECA includes:

- Preparation and submission of the report to the MECP District Manager within 90 days (March 31) following the end of the annual operational period (January 1, 2024 – December 31, 2024);

- Summary of any 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 Authorized System or system operations;
- Summary of any operating problems encountered, and corrective actions taken;
- Summary of all calibration, maintenance, and repairs carried out;
- Summary of complaints related to the sewage works and steps taken to address the complaints;
- Summary of authorized alterations to the system including a list of alterations that pose a Significant Drinking Water Threat;
- Summary of all collection system Overflows and Spills; and
- Summary of efforts made to reduce Collection System Spills, Overflows, and By-passes.

## Comments

### 2024 Wastewater Treatment and Linear Infrastructure System Infrastructure Investments

As per the revised 2024 Capital Forecasts noted in Report [CS 2024-36](#), the County financed \$15.7 M in rate supported wastewater infrastructure which includes, but is not limited to, several notable capital projects as follows (project expenditures are rounded):

- Wastewater Supervisory Control and Data Acquisition (SCADA) Master Plan (\$427,000);
- Wastewater Facility Improvements (\$950,000);
- Woodstock Linear County Road Projects (Oxford Road 35, Oxford Road 9 and Oxford Road 2) (\$270,000);
- Woodstock Lansdowne Pumping Station (\$410,000);
- Woodstock City Projects (\$1,430,000);
- Tillsonburg WWTP Phase 1 Upgrade (\$2,510,000);
- Tillsonburg Town Projects (\$330,000);
- Ingersoll Sewer Relining (\$820,000);
- Ingersoll Town Projects (\$470,000);
- Ingersoll SW Industrial Park (\$350,000);
- Tavistock WWTP Expansion/Upgrade Municipal Class Environmental Assessment (Class EA) Study (\$150,000);
- Tavistock William Street Sewage Pumping Station (SPS) Rehab (\$280,000);
- Thamesford WWTP Upgrade (\$320,000);
- Drumbo WWTP Capacity Expansion Phase 1 (\$1,030,000);
- Drumbo WWTP Capacity Expansion Phase 2 (\$200,000);
- Mount Elgin WWTP Capacity Expansion (\$625,000); and
- Norwich WWTP Class EA (\$45,000).

### 2024 Water and Wastewater Master Plan

The 2024 Water and Wastewater Master Plan details long-term wastewater servicing strategies to support existing needs and accommodate future growth in population and employment through to the year 2046. The final report can be found on the county website ([www.oxfordcounty.ca/wwwmp](http://www.oxfordcounty.ca/wwwmp)).

## 2024 Wastewater Service Agreements

Service agreements for the Town of Tillsonburg and City of Woodstock to perform operations and maintenance (O&M) of a limited portion of the County's water distribution and wastewater collection systems as well as for specific engineering and construction services under contract have been effectively in place since January 1, 2024 (PW (CS) 2023-39). No updates were required in 2024.

## 2024 Annual WWTP System Summary Reports

The individual annual WWTP system reports will be available for review by the public on the County's website at [www.oxfordcounty.ca/wastewater-reports](http://www.oxfordcounty.ca/wastewater-reports) by March 31, 2025.

Highlights include:

- 11 communities were served by the County's municipal wastewater systems;
- Approximately 15.9 million cubic metres of wastewater was responsibly treated;
- Approximately 4,528 WWTP effluent samples were collected and analyzed, from which an overall facility ECA compliance of 99% (61 failed samples) was achieved; and
- WWTP facilities were also largely compliant with the MECP Final Design Objectives (objectives \*) and Final Effluent Compliance Limits (compliance limits \*\*).
- Oxford wastewater operators performed over 1,000 maintenance tasks in 2024 to support the efficient and reliable operation of its wastewater treatment plant assets as indicated in Table 1.

### NOTES:

\* Objectives are non-enforceable effluent quality values which the Owner is obligated to use best efforts to strive towards achieving on an ongoing basis. These objectives are to be used as a mechanism to trigger corrective action proactively, and voluntarily, before environmental impairment occurs and before the compliance limits are exceeded.

\*\* Compliance limits are maximum acceptable concentration for an effluent parameter permitted by the MECP, as detailed within each WWTP ECA. The limits are determined to prevent impairment to the quality of the receiving water body. The Owner is legally obligated to operate and maintain the treatment system to ensure the compliance limits are achieved.

Table 1: Wastewater Treatment Infrastructure Maintenance (2024)

Preventative Maintenance Activity	Quantity
Equipment Lubrications	114
Equipment Inspections	243
Minor Equipment Maintenance and Repairs	161
Equipment Installations	48
Standby Power Generator Maintenance	123
Maintenance Service	377
Equipment Retirement	25

As summarized in Table 2, in 2024, there were two wastewater spill incidents involving a treatment plant. All incidents were reported to the MECP at the time of the occurrence and corrective actions were taken to contain the occurrences.

Table 2: Wastewater Treatment Plant Overflow/Spill Incidents (2024)

Overflow/Spill Incident	Corrective Action Taken	System Affected	Volume (m3)
Wastewater spilled from a corrugated steel pipe inlet sanitary sewer to the WWTP due to corrosion creating weaken points in the pipe, resulting in a spill event.	The area was contained. Vac Truck Service was used to clean up the spillage. The sewer was excavated, and the leaking section was replaced.	Tillsonburg	1
A heavy rain event overloaded the pumping capacity of the WWTP lift station, resulting in an overflow event.	On-call Operator responded to the high-level alarm at the sewage pumping station to monitor conditions and equipment. Vac Truck Service was used to provide hydraulic relief and clean up spillage. Influent was trucked to a neighboring WWTP.	Mount Elgin	15

### *Drumbo WWTP*

In 2024, the Drumbo WWTP achieved 97% compliance to its regulatory compliance limits for all parameters in the effluent (21 exceptions). Specific exceedances of compliance limits and/or effluent objectives are as follows:

- In January, sections of the WWTP were under construction and the new MBR plant was being brought online, which resulted in a non-compliance related to effluent Total Ammonia Nitrogen (TAN) and TAN loading.
- In February and March, the WWTP had one of the two aeration tanks under construction, which limited the amount of air and dissolved oxygen being added into the system. This resulted in seven non-compliance occurrences related to effluent Dissolved Oxygen (DO).
- In October, a non-compliance occurred for effluent DO. Work is currently underway to install inline air spargers on the effluent discharge forcemain. The spargers will inject air into the treated effluent stream, increasing DO concentrations to ensure the WWTP meets all DO effluent limits and objectives.
- The WWTP failed to meet monthly average effluent objectives on four (4) occurrences for TAN and Flow.

In 2021, construction began to expand the rated capacity of the Drumbo WWTP from 300 m<sup>3</sup>/day to 450 m<sup>3</sup>/day, using membrane bioreactor technology. The Phase 1 upgrade reached substantial completion in June 2024. WWTP effluent performance has been vastly improved, as well as increased resiliency to the impacts of inflow/infiltration within the collection network.



A Class EA Study for the Phase 2 Expansion of the Drumbo WWTP began in April 2024 to increase WWTP rated capacity from 450 m<sup>3</sup>/day to approximately 660 m<sup>3</sup>/day. The Class EA Study includes an Assimilative Capacity Study of the receiver. The Phase 2 expansion will include the installation of another set of membrane filters to provide additional capacity to service growth, as well as allow for the continued delivery of effective, safe and dependable services.

#### *Ingersoll WWTP*

In 2024, the Ingersoll WWTP achieved 100% compliance to its regulatory compliance limits.

Specific exceedances of effluent objectives are as follows:

- The WWTP failed to meet the monthly average effluent objective for Total Suspended Solids (TSS) in January.
- The WWTP failed to meet single sample effluent objectives for E. coli (11), TSS (8) and Total Phosphorus (TP) (4).

#### *Mount Elgin WWTP*

The Mount Elgin WWTP has no effluent compliance limits for the system; however, the CofA requires the County to use best efforts to operate the WWTP with annual average 5-day Carbonaceous Biochemical Oxygen Demand (CBOD<sub>5</sub>) and TSS concentration objectives < 10 mg/L in the effluent ahead of the subsurface disposal system, both of which were met in 2024.

As per Report [PW 2022-39](#), Public Works has initiated design work for the Phase 3 and 4 capacity expansion of the Mount Elgin WWTP in order to service future growth in the community. Pending MECP approvals, construction is planned for 2025 with both Phases online in 2026.

#### *Norwich WWTP*

In 2024, the Norwich WWTP achieved 99% compliance to its regulatory compliance limits for all parameters in the effluent (2 exceptions). Specific exceedances of compliance limits and/or effluent objectives are as follows:

- In June, the water levels within the lagoons were very low, as the Spring discharge period was almost complete. There was little dilution water within the lagoons available which increased the potential for short circuiting to occur and resulted in non-compliance for E. coli.
- The WWTP failed to meet the effluent monthly geometric mean density concentration objective for E. coli in June.

To address and potentially eliminate these types of operational issues, a Class EA Study continues for Norwich WWTP into 2025, which will determine the most cost-effective, environmentally sound, and sustainable approach to expand the WWTP capacity and service growth in Norwich over the next 25 years. The second Public Consultation Centre was held on December 12, 2024, with the next steps to be confirmation of the preferred design, and



completion of the Environmental Study Report (ESR), which will be presented to Council in Q2 2025.

#### *Plattsville WWTP*

In 2024, the Plattsville WWTP achieved 94% compliance to its regulatory compliance limits for all parameters in the effluent (10 exceptions). Specific exceedances of compliance limits and/or effluent objectives are as follows:

- In November, above average ambient temperatures led to excessive algae growth within the lagoons, which resulted in non-compliance for TSS and TSS loading.
- The WWTP failed to meet the monthly average effluent objective on two occurrences for TSS and CBOD<sub>5</sub>.
- The WWTP failed to meet single sample effluent objectives for TSS (8), CBOD<sub>5</sub> (2), E. coli (2) and TAN (2).

In response to current operational challenges associated with algae blooms and high TSS concentrations within the waste stabilization ponds, design work will begin on a tertiary cloth disc filtration unit in 2025 and continue in 2026, with construction in 2027. The filter will be capable of consistently reducing WWTP effluent TSS and TP concentration, ensuring the WWTP is compliant with ECA effluent criteria.

#### *Tavistock WWTP*

In 2024, the Tavistock WWTP achieved 100% compliance to its regulatory compliance limits. Specific exceedances of effluent objectives are as follows:

- The WWTP failed to meet the monthly average effluent objective for TAN in May.
- The WWTP failed to meet single sample effluent objectives for TSS (4) and TAN (8).

In response to planned future growth in the Village of Tavistock, a Class EA Study for capacity expansion of the Tavistock WWTP has commenced. The Class EA Study will determine the most cost-effective, environmentally sound, and sustainable approach to expand the Tavistock WWTP to meet the wastewater servicing needs of the community. The Class EA Study is underway and is expected to be completed in 2025.

#### *Thamesford WWTP*

In 2024, the Thamesford WWTP achieved 100% compliance to its regulatory compliance limits for all parameters in the effluent. Specific exceedances of effluent objectives are as follows:

- The WWTP failed to meet single sample effluent objectives for TSS (12), TP (6), CBOD<sub>5</sub> (2), E. coli (2) and DO (1).
- The WWTP failed to meet the monthly average effluent TSS and TP objective in April.

Design is approaching completion and construction is planned to start in 2025 to undertake upgrades to the WWTP headworks and aeration system, which will improve plant performance and reduce operational challenges. Improvements include a new headworks facility with fine screening and grit removal, upgraded backup power generator and the replacement of the plug

flow reactor coarse bubble diffusers with fine bubble diffusers that will improve the oxygen transfer rate efficiency and reduce power consumption.

#### *Tillsonburg WWTP*

In 2024, the Tillsonburg WWTP achieved 98% compliance to its regulatory compliance limits for all parameters in the effluent (9 exceptions). Specific exceedances of compliance limits and/or effluent objectives are as follows:

- During March, the WWTP experienced an upset which impacted the plant biological process causing poor settling within the secondary clarifiers. This resulted in a non-compliance for TSS.
- In December, a missed test on an effluent sample resulted in a non-compliance for failure to adhere to the Final Effluent Monitoring Program sampling schedule for CBOD<sub>5</sub> as required by the ECA.
- The WWTP failed to meet single sample effluent objectives for TSS (11), E. coli (2), TP (2), and CBOD<sub>5</sub> (2).
- The WWTP failed to meet monthly average effluent objectives on two occurrences for TSS.

In 2021, Phase 1 construction upgrades were initiated which included new headworks, primary clarifiers, secondary clarifier, blower, waste activated sludge (WAS) thickening, and various piping and control upgrades. As detailed in Report [PW 2020-54](#), the upgrades will strategically address WWTP system bottlenecks to improve operational performance, plant resiliency and servicing capacity. The Phase 1 project had the Substantial Performance Certificate issued as of February 5, 2025.

#### *Woodstock WWTP*

In 2024, the Woodstock WWTP achieved 100% compliance to its regulatory compliance limits for all parameters in the effluent. Specific exceedances of effluent objectives are as follows:

- The WWTP failed to meet single sample effluent objectives for TSS (3), TAN (2), CBOD<sub>5</sub> (1), TP (1) and E. coli (1).

Oxford County is undertaking a biogas utilization upgrade at the Woodstock WWTP as part of the County's 100% Renewable Energy Plan. This project will implement a Combined Heat and Power (CHP) system to generate heat and electricity from biogas produced at the WWTP, thereby decreasing the WWTP's dependence on the energy grid.

This new CHP system will offset 40% of the grid electricity used at the WWTP, and 39% of the heat energy requirement at WWTP. This project will reduce the annual greenhouse gas emission for heat and electricity at the WWTP by 58%.

This project involves public consultation with the first public meeting held on October 29, 2024 and the second (final) public meeting held Tuesday February 25, 2025. The next step is to submit the Renewable Energy Approval application package to the MECP with final approval anticipated in November 2025. Construction is anticipated to be completed in 2026.

## 2024 Consolidated Linear Infrastructure Summary Report

### *Maintenance of Wastewater System Linear Infrastructure*

In addition to the wastewater system capital investments noted above, several planned preventative maintenance activities are carried out annually to help optimize the useful service life and efficiency of wastewater infrastructure assets. Several key maintenance activities are noted in Table 3 for wastewater collection and wastewater treatment infrastructure respectively.

Table 3: Wastewater Collection Infrastructure Maintenance (2024)

Preventative Maintenance Activity	Quantity	Target
Sanitary Sewer Flushing - 20% of System per Year	120,077 m	100,750 m
Sanitary Sewer CCTV Inspection - 7% of System per Year	52,729 m	35,265 m
Number of Sanitary Manhole Inspections - 20% of System per Year	2,266	1,676
Number of Sanitary Manholes Repaired/Replaced/Adjusted	53	N/A
Number of Sewer Blockages Cleaned	15	N/A
Number of Septic Tank Inspections	284	N/A
Forcemain Cleaning (Swabbing)	205,000 m	N/A
Standby Power Generator Inspection and Maintenance	232	N/A
Sewage Pump Station Clean-outs	62	N/A

In terms of corrective maintenance, Public Works resolved 82 customer complaints (odour, sewage blockage, damaged manhole covers, pump alarms etc.) that were received from within the various wastewater systems across the County. Public Works experienced no wastewater forcemain breaks in 2024.

### *Wastewater Collection System Overflow/Spill Incidents*

As summarized in Table 4, in 2024, there were six wastewater spill incidents involving the collection system. All incidents were reported to the MECP at the time of the occurrence and corrective actions were taken to contain the occurrences.

Table 4: Wastewater Collection System Overflow/Spill Incidents (2024)

Overflow/Spill Incident	Corrective Action Taken	System Affected	Month Volume (m <sup>3</sup> )
A heavy rain event overloaded the Peggy Ave pumping capacity of a sewage pumping station (SPS), resulting in an overflow event.	An Oxford County Vac Truck was used to provide hydraulic relief reducing the volume of the overflow.  The Peggy Ave SPS is a temporary SPS that will be retired when the Mount Elgin Heights Subdivision Phase 3 is constructed.	Mount Elgin	January - 17
A heavy rain event overloaded the pumping capacity of the Sutton St SPS, resulting in an overflow event.	Operational changes were made to increase the pumping capacity of the SPS.  The forcemain flow was increased by temporarily rerouting the lagoon inlet piping.	Norwich	January - 15
Three heavy rain events overloaded the capacity of the collection system, resulting in an overflow event in January, July and August.	Oxford County staff cleaned up the area of the overflow. A bypass pump was made available to increase the volume of wastewater treated by the WWTP in future high-flow events.  Additionally, a continuous monitoring device was installed to alert staff of high-flow conditions, and a response procedure was developed to enhance preparedness and mitigate potential impacts.	Woodstock	January - 2,193  July - 4,120  August - 1,374
A heavy rain event overloaded the pumping capacity of the Main St SPS, resulting in an overflow event.	A new duckbill overflow check valve was installed which will prevent stormwater from entering the sanitary collection system.  Additionally, the 2025 budget includes funding to increase the pumping flow rate from the SPS, which should help minimize sanitary backups.	Drumbo	July - 60

### *Inflow and Infiltration (I/I) Reduction*

The County is implementing a strategy to reduce Inflow and Infiltration (I/I) across its wastewater collection systems to enhance long-term sustainability and efficiency. I/I occurs when excess water enters the sanitary sewer system through direct connections (inflow) or seeps in through cracks and leaks (infiltration), straining infrastructure, increasing treatment costs, and potentially exceeding system capacity, leading to spills or overflows.

In 2024, Oxford County engaged Municipal Vu Consulting to assist in the early stages of developing a long-term I/I reduction strategy. The consultants conducted a high-level assessment of I/I impacts across the County systems using available data to evaluate system vulnerabilities. They prioritized 20 key activities based on project complexity, operational savings, and overall impact. Additionally, they provided recommendations for updating engineering design guidelines to prevent new infrastructure from prematurely becoming susceptible to I/I. In 2025, the County will integrate these recommendations into updated engineering design guidelines and begin developing a GIS-based database for flow monitoring, enhancing data-driven decision-making in I/I management.

In 2024, the County also completed various repairs specifically for the reduction of I/I, including: 12 repairs to sanitary manholes (various systems), 10 spot liner repairs in the Norwich collection system, and one large infiltration repair at the Thamesford Wastewater Treatment Facility pumping station.

### *Wastewater Hydraulic Models*

Oxford County has initiated the development of wastewater hydraulic models to enhance system analysis and planning as required by our CLI ECA. The pilot project began with the Ingersoll wastewater collection system, providing valuable insights into flow hydraulics, capacity constraints, and potential areas for improvement. These models will support data-driven decision-making, optimize infrastructure investments, and improve the County's ability to forecast and aim to mitigate issues such as I/I, surcharges, and system overflows. As the program expands, these tools will play a key role in long-term asset management, operational efficiency, and climate resiliency.

### *2024 Annual Biosolids (Non-Agricultural Source Material) Summary Reports*

The Annual Biosolids (Non-Agricultural Source Material) Report provides the required detail for the biosolids program to the MECP regarding the amounts of biosolids generated at each WWTP, the quantities transported, the quantities stored at the County's BCSF and the quality and quantities of biosolids reused beneficially as a nutrient on agricultural land.

### *Biosolids Generation*

In 2024, there were approximately 7,100 wet tonnes of processed dewatered biosolids generated by the Woodstock, Ingersoll and Tillsonburg WWTPs which were taken for storage at the County BCSF.

The Woodstock and Ingersoll WWTPs received and further processed liquid biosolids from other County WWTP systems as follows:

- Thamesford WWTP transferred approximately 3,200 m<sup>3</sup> of partially digested biosolids to the Woodstock and Ingersoll WWTPs for primary co-thickening;
- Drumbo WWTP transferred approximately 3,300 m<sup>3</sup> of raw/thickened waste activated sludge to the Woodstock and Ingersoll WWTPs for primary sludge co-thickening; and
- Mount Elgin WWTP transferred approximately 470 m<sup>3</sup> of septage sludge (tank maintenance cleanout material) to the Woodstock and Ingersoll WWTPs for processing.

### *Land Application Program*

In 2024, there were approximately 6,000 wet tonnes of dewatered biosolids applied to agricultural land. The quality of biosolids from all facilities were compliant with the *Nutrient Management Act, 2002*.

### *Biosolids Centralized Storage Facility*

When the biosolids material cannot be directly land applied during the winter months, biosolids are stored at the County's BCSF which is designed to provide a minimum of 240 days storage. The capacity that the BCSF can store is approximately 7,000 m<sup>3</sup> of biosolids material.

There were no upsets or spills during operation in 2024 and no complaints (i.e. odour) were received in connection with the BCSF.

The continued enforcement of the Oxford County Sewer Use By-law serves to help protect the quality of the biosolids. The County maintains an active monitoring and enforcement group with the goal of maintaining the quality and reducing the quantity of biosolids produced.

## CONCLUSIONS

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The 2024 Annual Wastewater Systems Summary Reports demonstrate Public Works' continued oversight of the County's municipal wastewater systems to effectively service Oxford residents and businesses, while providing responsible environmental stewardship and support to public health.

The County continues to institute industry best management standards to annually monitor the levels of service and financial performance of its wastewater infrastructure and to ensure wastewater infrastructure assets are maintained in optimal condition through effective preventative maintenance and optimized infrastructure decision-making.

## SIGNATURES

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