Staff Memorandum

To	Mayor A. Nuttall and Members of Council
Subject	2024 Wastewater Operations Annual Reports
Date	June 11, 2025
Ward	All
From	S. Diemert, P. Eng., Director of Infrastructure
Executive Member Approval	B. Araniyasundaran, P. Eng., PMP, General Manager of Infrastructure & Growth Management
CAO Approval	M. Prowse, Chief Administrative Officer

The purpose of this memorandum is to provide Members of Council with an update concerning the 2024 operation of the City of Barrie's (City) Wastewater Treatment Facility (WwTF), and Wastewater Collection System (WWCS) through a summary of the mandated annual reports and a compilation of information that demonstrates the commitment of the Branch towards protecting the health of Lake Simcoe, and the residents of Barrie.

As required by the Ministry of Environment, Conservation, and Parks (MECP), under their respective Environmental Compliance Approvals (ECA), annual reports are to be submitted each year. The City submitted the reports on March 27, 2025. Full reports are available on the City's website, and their links are provided below.

Wastewater Treatment Facility Annual Report:

https://www.barrie.ca/Wastewater-Treatment-Facility-Annual-Report.pdf

Wastewater Collection System Annual Report:

https://www.barrie.ca/Wastewater-Collection-System-Annual-Report.pdf

Wastewater Treatment Facility

The WwTF operates under MECP amended ECA No. 0284-B2ML52. Fully treated effluent is discharged to Kempenfelt Bay, while residual solids are converted to biosolids for use as fertilizer on local farms. Methane from the biosolids process is used for co-generating heat and electricity, offsetting approximately $360,000 in annual electricity costs.

The average daily effluent flow was 52.2 megalitres per day (MLD) (68.7% of the 76 MLD capacity). The maximum daily flow reached 82.2 MLD on July 11, 2024, due to heavy rainfall entering the sanitary system.

The WwTF was fully compliant with all ECA effluent concentration and loading limits, met daily objectives with few exceptions, and consistently produced high-quality effluent.

Key nutrients, phosphorous and ammonia, that contribute to plant growth and oxygen depletion in receiving waters, were effectively controlled. The annual average phosphorous concentration was 0.04 mg/L (99.3% removal by concentration), and ammonia averaged 0.23 mg/L (99.1% removal). Phosphorous loading totaled 765 kg, or 27.6% of the 2,774 kg annual compliance limit, meeting both the Lake Simcoe Protection Act and Phosphorous Reduction Strategy requirements. Other regulated parameters were also well below limits, with Total Suspended Solids and Carbonaceous Biochemical Oxygen Demand removal efficiencies at 99.1% and 99.0%, respectively.

Wastewater Collection System

The City owns and operates a WWCS terminating at the WwTF, under MECP ECA No. 014-W601. The system includes 12 sewage pumping stations (SPS) and over 590 km of gravity sewers. The City is responsible for maintaining sanitary laterals from the sewer main to the property line in cases of structural failure and completed 72 such repairs or replacements in 2024. There were no spills, overflows, or bylaw violations related to SPS.

Within the gravity system, 7 incidents required investigation or response. Of these, 5 involved private-side lateral issues due to misuse or equipment failure, resulting in overland spills and were reported to the MECP, as required. One incident involved City infrastructure damaged by a contractor, and another was caused by a sewer main structural failure. No directives or orders were issued as a result.

Wastewater Operations Branch Successes

The Wastewater Operations Branch had several successes that are not reflected within the annual reports. Notable accomplishments include:

- Completed a pilot project to assess the effectiveness and feasibility of biosolids dewatering through a $100,000 grant from the MECP,
- Returned primary digester 2 to service after leading a project to reline the interior of the tank,
- Continued the Septage Receiving Program, generating over $300,000 in revenue with no discernable impact on treatment efficiency, and;
- Flushed over 12 kms of sanitary trunk main sewers. Sanitary trunk mains are the largest sewers and the most difficult to clean.

Appendix:

Appendix A - Wastewater Treatment Facility Annual Report

Appendix B - Wastewater Collection System Annual Report

Memo Author:

Greg Jorden, Manager of Wastewater Operations, Infrastructure Department

File #:

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Pending #:

Not Applicable