Subject: 2024 Reserve Water and Wastewater Treatment Capacities

Report to: Public Works Committee

Report date: Tuesday, May 6, 2025

Recommendations

1. That Report PW 20-2025 **BE RECEIVED** for information; and

2. That Report PW 20-2025 **BE CIRCULATED** to the Ministry of the Environment, Conservation and Parks and Local Area Municipalities.

Key Facts

- The purpose of this report is to inform Council about the reserve treatment capacities at Niagara Region's Water and Wastewater Treatment Plants. This desktop analysis is required by the Ministry of Environment, Conservation and Parks (MECP).
- The data contained in this report contributes to the review of new development proposals and related servicing, as well as long-term planning for future treatment capacity.
- The results of this capacity assessment indicate that all of Niagara Region's Water Treatment Plants (WTPs) and Wastewater Treatment Plants (WWTPs) have sufficient capacity to accommodate growth beyond the minimum 10-year planning horizon.
- This conclusion is based on the Region’s current infrastructure plan, which includes the construction of the new South Niagara Wastewater Treatment Plant to expand overall capacity.
- The assessment also assumes that existing treatment facilities will be maintained or refurbished as needed to remain fully operational.
- Additionally, the analysis is based on design capacity, and does not account for the impact of wet weather flows. Peak wet weather conditions may limit sanitary sewer capacity. As such, ongoing efforts to reduce wet weather flows are critical to supporting future development.
- The Region’s Master Servicing Plan builds upon the MECP desktop analysis by incorporating relevant local factors, including wet weather impacts, to provide a more comprehensive, real-world assessment of capacity.

Financial Considerations

There are no direct financial implications related to this report.

Analysis

Annual Wastewater Treatment Capacity Report Required by MECP

The purpose of this report is to inform Council of the reserve treatment capacities at Niagara Region's Water and Wastewater Treatment Plants. This reporting is required by the Ministry of Environment, Conservation and Parks (MECP) and is intended to highlight potential capacity constraints to help municipalities plan for infrastructure projects needed to service anticipated growth.

This desktop exercise follows a specific methodology established by the MECP, which involves comparing five-year average flows to the respective MECP Environmental Compliance Approval(s), formerly known as Certificate of Approval(s) for each facility. It then incorporates 10-year growth forecasts from the most recent MSP into the analysis.

This methodology reflects the Region’s current infrastructure plan, which includes the construction of the new South Niagara Wastewater Treatment Plant to expand overall capacity. It also assumes that existing treatment facilities will be maintained or upgraded as needed to remain fully operational. Additionally, the assessment is based on design capacity and does not account for the impact of wet weather flows.

The Region’s Master Servicing Plan builds on the MECP analysis by incorporating wet weather flow impacts, as well as phasing and staging strategy work with the Region’s local municipal partners to fully define development capacity needs.

All Plants have 10 Year+ Available Design Capacity

The results of this desktop average flow capacity assessment indicate that the design capacity of all Niagara Region Water Treatment Plants (WTPs) and Wastewater Treatment Plants (WWTPs) is sufficient to accommodate growth beyond the minimum 10-year planning horizon.

Appendices 1 and 2 provide annual average daily flows and five-year average flows from 2020 to 2024 for the water and wastewater treatment plants, respectively. Appendices 3 and 4 provide a summary of Niagara’s six (6) water treatment facilities and 11 wastewater treatment facilities presenting their respective reserve capacities.

The reserve capacity calculations are based on the Region's official long-range population and employment forecasts. It is important to note that actual growth rates in recent years have exceeded these forecasts. Because higher-than-expected growth can impact the accuracy of this desktop exercise, Regional staff will review growth trends annually and adjust the forecasted growth rates used in reserve capacity calculations as needed.

Risks that Reduce Available Treatment Capacity

It is important to note that the results of this capacity assessment, calculated according to MECP requirements, do not fully reflect real-world operating conditions. The assessment assumes dry weather flows, no constraints within the conveyance system, and that all existing equipment is properly maintained.

In practice, precipitation—particularly rainwater—can reduce the available capacity of municipal wastewater systems. Because rainwater does not require the same level of treatment as sewage, it should be directed to the stormwater system. However, when rainwater enters the sanitary collection system, it consumes capacity intended for sewage and future growth. As such, ongoing efforts to reduce wet weather flows are essential to alleviating system limitations and enabling future development.

Additionally, this assessment does not account for operational deficiencies or risks related to the condition of existing assets at treatment plants or within trunk conveyance and transmission systems. While not addressed in detail in this report, infrastructure failures could significantly impact the Region's ability to support new development or permit servicing extensions.

Alternatives Reviewed

No alternatives were reviewed as this report is a requirement of the MECP.

Relationship to Council Strategic Priorities

The report aligns directly with Council's Priority of Responsible Growth and Infrastructure Planning by forecasting the reserve capacity available for growth at all Regional Water and Wastewater Treatment Facilities. By understanding reserve capacity, the Region can better plan infrastructure needed for growth.

The report also provides MECP and local municipal partners operational summary and reserve capacity projections for Region's Water and Wastewater Treatment facilities.

Other Pertinent Reports

PDS 16-2024, May 8, 2024, 2023 Reserve Water and Wastewater Treatment Capacities (https://pub-niagararegion.escribemeetings.com/Meeting.aspx?Id=b480eb56-6bb4-466f-982d-31237205b6be&Agenda=Merged&lang=English&Item=16&Tab=attachments)

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Appendices

Appendix 1	Annual Average Daily Flow 2020 to 2024 WTP
Appendix 2	Annual Average Daily Flow 2020 to 2024 WWTP
Appendix 3	Water Reserve Capacity Calculations for 2024
Appendix 4	Wastewater Reserve Capacity Calculations for 2024