Agenda – Executive Policy Committee – December 9, 2025

Report – Standing Policy Committee on Water, Waste and Environment – December 1, 2025

Item No. 1 Biosolids Treatment Capacity for the City of Winnipeg – 2025 Update

STANDING COMMITTEE RECOMMENDATION:

On December 1, 2025, the Standing Policy Committee on Water, Waste and Environment concurred in the recommendation of the Winnipeg Public Service and submitted the following to Council:

1. That this report be received as information.

Agenda – Executive Policy Committee – December 9, 2025

Report – Standing Policy Committee on Water, Waste and Environment – December 1, 2025

DECISION MAKING HISTORY:

STANDING COMMITTEE RECOMMENDATION:

On December 1, 2025, the Standing Policy Committee on Water, Waste and Environment concurred in the recommendation of the Winnipeg Public Service and submitted the matter to the Executive Policy Committee and Council:

COUNCIL DECISION:

On December 17, 2020, Council concurred in the recommendation of the Standing Policy Committee on Water and Waste, Riverbank Management and the Environment and adopted the following:

1. That the December 12, 2012 Council decision delegating authority to the Chief Administrative Officer to negotiate and approve service sharing with Winnipeg Metro Region municipalities be rescinded.

2. That any future service sharing agreements within the Winnipeg Metro Region be approved by Council.

3. That the current sewer service sharing agreements with the Rural Municipalities of Rosser and West St. Paul which do not have capacity limits, and current and new industrial users in the City of Winnipeg proposing to expand capacity, be reviewed by the Public Service with a report back to the Standing Committee in 90 days with recommendations to mitigate the potential impacts to remaining sewage treatment capacity.

4. That the current sewer service sharing agreements with the Rural Municipalities of Rosser and West St. Paul which do not have capacity limits, and current and new industrial users in the City of Winnipeg proposing to expand capacity, be reported on by the Public Service to the Standing Committee, explicitly including the impact on the City of Winnipeg's remaining sewage treatment capacity.

Report – Standing Policy Committee on Water, Waste and Environment – December 1, 2025

DECISION MAKING HISTORY (continued):

COUNCIL DECISION (continued):

5. That a sewer service sharing agreement with the Rural Municipality of St. Andrews be approved, and that the authority be delegated to the Chief Administrative Officer to negotiate and enter into an agreement due to a previous commitment under a Memorandum of Understanding, and ensure it stipulates a cap of 1,800 dwelling units over the next 10 years.

6. That the Winnipeg Public Service be directed to provide the Standing Committee with the following:

    A. Semiannual verbal reports on the remaining biosolids capacity for the City of Winnipeg.

    B. Annual written reports on the remaining biosolids capacity for the City of Winnipeg.

7. That the Proper Officers of the City be authorized to do all things necessary to implement the intent of the foregoing.

ADMINISTRATIVE REPORT

Title: Biosolids Treatment Capacity for the City of Winnipeg – 2025 Update

Critical Path: Standing Policy Committee on Water, Waste and Environment – Executive Policy Committee – Council

AUTHORIZATION

Author	Department Head	CFO	CAO
C. D. Wiebe, P. Eng., CAMP, Manager of Engineering Division	Tim W. Shanks, M. Eng., P. Eng., Director of Water and Waste Department	N/A	J. Dunford

EXECUTIVE SUMMARY

This report provides an update on the City's biosolids treatment capacity for 2025.

Available capacity continues to decrease. Approximately 40,000 people equivalent of capacity remains. This compares to a capacity of 60,000 in the 2024 report. Some internal maintenance processes have a negative impact on capacity. In particular, digester cleaning and shutdowns. Combined with other factors like the large growth seen in the early 2020s, the remaining capacity is trending down slightly more this year than it has in the past. Current trends indicate capacity could be reached late 2029. In the 2024 report, it was estimated capacity could be reached in 2028-2030. If the NEWPCC Project 2 Biosolids Facilities digestors are completed, but the Project 3 Nutrient Removal is not, it is estimated capacity of the new digesters will be reached in 2032.

Contributions from the Rural Municipalities (RM) remain steady. A decrease in sewage strength from the RM of Rosser has led to an overall decrease in RM contribution from 4.3 percent to approximately 2.5 percent.

The Public Service continues to review and make changes to optimize capacity. Several projects underway will remove additional grit, solids, and water from the digesters. This will give some capacity back to the digesters. Further, a Digestor Capacity Contingency Plan is underway. It's estimated to be complete by the end of 2025.

The following table identifies several actions and factors that will impact biosolids capacity.

Table 1: Projects and factors that can impact digester capacity

Actions underway that help extend digestor capacity	Actions underway that decrease digestor capacity
• NEWPCC* Upgrade Headworks Facilities Project will improve screening and grit removal, decreasing solids in sludge – *project in progress* • WEWPCC** Screening and Grit Removal Project will improve screening and grit removal, decreasing solids in sludge – *project in progress* • NEWPCC Primary Clarifier Upgrades Project will improve sludge dewatering processes, decreasing water in sludge – *project in progress* • SEWPCC*** Upgrade uses biological phosphorus treatment that is being optimized to create less sludge – *project in progress*	• Interim Phosphorous Removal uses a chemical that creates bulkier sludge – *ongoing optimization in progress to optimize this ferric dose* • SEWPCC Upgrade captures additional wet weather flow being sent to treatment plant. The impact of this is being evaluated. New dewatering process is also returning a thinner-than-expected sludge – *project in progress*
Factors that could help extend digester capacity	**Factors that could decrease digester capacity**
• Lower than expected rate of growth in the service area (residential/commercial/ industrial) • Loss of sewage intensive industrial/commercial customers in the service area • Ongoing process and operational adjustments to optimize/maximize remaining digester capacity	• Higher than expected rate of growth in the service area (residential/commercial/ industrial) • Introduction of new sewage intensive industrial/commercial customers in the service area

* North End Sewage Treatment Plant
** West End Sewage Treatment Plant
*** South End Sewage Treatment Plant

RECOMMENDATIONS

That this report be received as information.

REASON FOR THE REPORT

On December 17, 2020, Council concurred in the recommendation of the Standing Policy Committee on Water and Waste, Riverbank Management and the Environment and directed the

Public Service to provide the Standing Committee with annual, written reports on the remaining biosolids capacity for the City of Winnipeg.

IMPLICATIONS OF THE RECOMMENDATIONS

There are no implications to receiving this report as information.

HISTORY/DISCUSSION

On December 17, 2020, the Public Service reported that the Biosolids Facility was expected to reach capacity in five to nine years based on historical residential, commercial, and industrial growth rates. In response, Council directed the Public Service to provide annual written reports on the remaining biosolids capacity for the City of Winnipeg.

Sludge Treatment in the City of Winnipeg

The City's three sewage treatment plants generate sludge that must be collected and treated (i.e. turned into biosolids) before disposal. All sludge generated in the city is sent to the biosolids facility (a sludge treatment system) at the North End Sewage Treatment Plant (NEWPCC). NEWPCC also receives sludge from the Rural Municipality (RM) of East St. Paul for treatment, and wastewater from portions of the RMs of West St. Paul, Rosser, and St. Andrews.

The biosolids facility uses bacteria in digesters (large tanks) to treat the sludge, converting it to biosolids. The amount of sludge that NEWPCC receives can vary from year to year depending on a number of factors including weather, wastewater flows, and growth and changes in industrial, commercial, and residential sectors. Capacity can also be impacted by how the treatment plants are operated (e.g. sludge dewatering, chemical usage, etc.).

All sludge must be treated in accordance with the City's Environment Act Licences. Treating the sludge makes it safer and easier (less pathogens and drier) to handle. It also reduces the amount of biosolids that need to be disposed of through beneficial reuse or landfilling. The Water Protection Act requires the City to reuse biosolids, and to recover nutrients from biosolids as much as possible.

Current Capacity and Future Demands

Various engineering parameters are evaluated to estimate capacity. These include solids loading, biogas production, chemistry (i.e. pH and alkalinity) and the length of time the solids are exposed to the bacteria (how long they remain in the digesters, which is known as solids retention time).

To communicate capacity in plain language, the Public Service estimates capacity as a "people equivalent" by correlating these parameters with historical growth. The parameters used to estimate capacity are trended over time. While a single year's data will impact the trend, it can take several years of change to influence the overall pattern.

Based on recent trends, it is estimated there's approximately 40,000 people equivalent of capacity remaining (compared to 60,000 people equivalent capacity in the 2024 report).

In the last number of years, the estimated remaining capacity has decreased by 10,000 people equivalents annually. This past year, remaining capacity is estimated to have decreased by 20,000 people equivalents. The remaining capacity is trending slightly lower than in previous few years. This is attributed to three main factors:

- The larger residential growth seen in the past few years has increased the historical growth trend (Winnipeg grew by 75,000 people between 2020 and 2024).
- The thinner than expected sludge from the South End Sewage Treatment Plant (SEWPCC) Upgrade.
- The chemical used for interim phosphorous removal results in a bulkier sludge.

Current trends indicate that capacity could be reached late 2029. Previous reports have estimated that capacity could be reached between 2028 and 2030. If the NEWPCC Project 2 Biosolids Facilities digestors are completed, but the Project 3 Nutrient Removal is not, it is estimated capacity of the new digesters will be reached in 2032. Significant work is underway to mitigate the impact of internal processes and population growth.

It's important to remember that the forecasted capacity is an estimate only and the actual remaining life will be influenced by:

- The rate of growth in the City and RMs that have service sharing agreements: City growth appears is forecasted to decrease a bit.
- Changes in large industrial developments that produce significant quantities of sludge and/or overstrength sewage: no significant changes in industrial loadings this year.
- The performance of SEWPCC post upgrades: thinner than expected sludge adds more water to the tanks. Work continues to optimize sludge dewatering (e.g. working with different chemicals). The impacts of the new wet weather flow treatment facility are also being evaluated.
- The impacts of ongoing capital projects that are expected to increase available biosolids capacity (e.g. improved screening, grit and solids removal, dewatering improvements):
    - The NEWPCC Headworks project is expected to be complete in 2026. This will remove solids and grit before it can enter the digesters.
    - The NEWPCC Primary Clarifier Upgrades is expected to be complete in 2027. This project will improve sludge dewatering to maximize digester capacity.
    - The West End Sewage Treatment Plant Screening and Grit Removal is expected to be complete in 2029. This project will decrease solids in the sludge to maximize digester capacity.
    - Process and operational adjustments including ongoing optimization of interim phosphorous removal.

Contributions from Rural Municipalities (RMs)

The relative contributions from the RMs of West St. Paul, St. Andrews and East St. Paul are similar to last year. Sampling from the RM of Rosser indicates wastewater strengths are lower than previous years.

A service sharing agreement to receive wastewater from the RM of West St. Paul was approved on February 7, 2013. The RM's loading to the biosolids facility is approximately 0.9 percent of the total process load.

A service sharing agreement with the RM of St. Andrews was signed in 2021, with wastewater flowing through the RM of West St. Paul to the City. Their wastewater contributions in 2025 were small(less than half a percent of process load) but residents in the RM still have several years left before they are required to connect.

A service sharing agreement to receive wastewater from the RM of Rosser was approved on May 1, 2014. In 2025 the RM's contribution was small(less than half a percent of process load).

The RM of East St. Paul hauls their wastewater sludge and solids to NEWPCC for treatment. The RM represents approximately 1.2 percent of process loading.

The approximate share of total digestor load that each RM contributes is summarized in the table below.

Rural Municipality	Approximate share of total digestor load
RM of West St. Paul	0.9%
RM of St. Andrews	<0.5%
RM of Rosser	<0.5%
RM of East St. Paul	1.2%

Managing Remaining Capacity and Mitigating Capacity Loss

The Public Service continues to monitor biosolids capacity by reviewing data and assessing the impacts of various projects on a regular basis. Ongoing efforts to preserve capacity continue and include a number of operational improvements and capital projects.

Additionally, the Winnipeg Sewage Treatment Program is evaluating options to extend existing digestor capacity. The Digestor Capacity Contingency Plan is underway with an estimated completion by the end of 2025.

FINANCIAL IMPACT

Financial Impact Statement **Date:** 22-Sep-25

Project Name:

Biosolids Treatment Capacity for the City of Winnipeg - 2025 Annual Update

COMMENTS:

As this report is submitted for information purposes only, there is no financial impact associated with this recommendation.

Angela Wiebe for L. Szkwarek

Lucy Szkwarek, FCPA, FCGA
Manager of Finance and Administration

CONSULTATION

This Report has been prepared in consultation with:

N/A

OURWINNIPEG POLICY ALIGNMENT

This report is in accordance with the OurWinnipeg 2045 policies through Policy 2.17 Regional Water Resource Management, by protecting local and regional watershed resources from the negative impacts of development, flooding and pollution.

> Objective: Protect and value ecosystems as essential components to quality of life through municipal activities and urban environment.

WINNIPEG CLIMATE ACTION PLAN ALIGNMENT

This report aligns with the Winnipeg Climate Action Plan through Strategic Opportunity 6: Waste Reduction and Diversion

> Key Direction:
> 6.3 Utilize Biosolids in Agriculture and Land Scaping Industries
> 6.4 Support Integrated Resource Recovery

WINNIPEG POVERTY REDUCTION STRATEGY ALIGNMENT

Consideration was given as to whether this report connects to the Winnipeg Poverty Reduction Strategy (PRS) and its Goals and Objectives. It was determined that the PRS is not applicable to this specific report.

SUBMITTED BY

Department: Water and Waste
Division: Engineering Division
Prepared by: Michelle Paetkau, P.Eng., M. Sc.
Date: November 4, 2025
File No.: S-972