

Membrane Aerated Biofilm Reactor (MABR) Full Scale Demonstration at Hespeler Wastewater Treatment Plant

Grid Innovation Fund Project Details

Lead Proponent: Region of Waterloo

Partners: Ontario Clean Water Agency, Federation of Canadian Municipalities, University of Waterloo

Strategic Area(s):	Electrification / Decarbonization
Project Total Cost:	\$4,696,400
Year Contracted:	2020
Status:	Active
Location:	Cambridge
Economic Development:	3 Jobs

Project Objectives

As part of a major facility upgrade at the Hespeler Wastewater Treatment Plant (WWTP) in Cambridge, Ontario, this project aims to optimize the existing treatment process (especially aeration and digestion) through the installation of membrane-aerated biofilm reactor (MABR) technology that is expected to significantly reduce the electricity and demand consumption at the Hespeler WWTP and improve resiliency of the plant.

This project will replace the existing aeration equipment (primarily aeration blower motors) with MABR technology, optimize the aeration process and conduct measurement and verification on the new process, resulting in the potential to reduce energy consumption of aeration blowers by up to 75 per cent.

The project will quantify and verify greenhouse gas savings/reductions resulting from the MABR compared with the existing aeration equipment.

Expected Outcomes

Through measurement and verification, the project will compare the performance of the existing aeration blowers with the new MABR technology and quantify energy and demand reduction and related bill savings resulting from the MABR.

Based on the M&V results, desktop assessments will be conducted to analyze the feasibility, in terms of energy and cost, of implementing the MABR technology in 5 additional wastewater treatment plants located in Ontario. Final reporting will include lessons learned to further improve understanding of implementing MABR at other facilities.



Aerial view of the Hespeler Waste Water Treatment Plant in Cambridge, Ontario.