

Executive Summary

Food waste disposal has become a significant environmental issue in North America, but potential mitigation is being considered through new waste management methods. One such method is anaerobic digestion, a four-step biological process that occurs without oxygen to degrade organic material, resulting in the production of biogas and digestate (Capson-Tojo, et al., 2016). The potential for anaerobic digestion as a food waste management method was considered in this report through research conducted using a comparative case study approach. Specifically, the context and features of two anaerobic digestion facilities, located in Richmond, British Columbia and Bay Lake, Florida were studied. This information was then used to examine the feasibility of this method in Kingston, Ontario through the following research questions:

1. What is anaerobic digestion and how is it used?
2. How has anaerobic digestion been used to manage residential food waste in Richmond, BC, and Bay Lake, FL?
 - a. What factors supported the introduction of these systems in each site?
 - b. What factors account for the closure of the facility in Richmond, BC?
 - c. What factors account for the continued operation of the facility in Bay Lake, FL?
3. What are the opportunities and barriers to implementing anaerobic digestion for managing residential food waste in Kingston, ON?

Data were collected through a literature review, a policy review, and semi-structured interviews, which were subsequently analysed. It was established through this analysis that private investment, public education, and legislation were supporting factors to the introduction of anaerobic digestion facilities. Facility design and the impact on air quality were the primary factors that accounted for the closure of the facility in Richmond, BC, while the continued operation of the facility in Bay Lake, FL has been enabled by performance measures, education and training, and partnerships.

In order to feasibly implement anaerobic digestion as a food waste management method in Kingston, it is recommended that the City (1) make an amendment to By-Law Number 2014-5; (2) implement a public education campaign about food waste prevention; (3) set performance measures during the design process; and (4) initiate partnerships with local businesses in preparation.