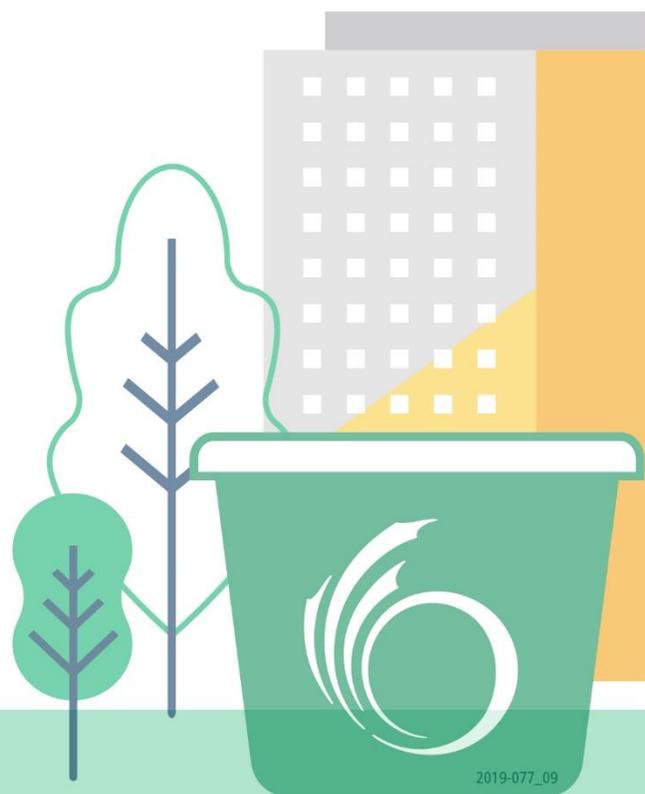




# Waste Management Technologies and Approaches

## EXECUTIVE SUMMARY

Technical Memorandum #5  
January 2020





## Executive Summary

The City of Ottawa (City) is in the process of developing a Solid Waste Master Plan (SWMP). This 30-year plan is intended to consider the successes and failures of the past and present and will define a vision for the future. The intention of this Technical Memorandum is to review and document existing, and to recognize emerging technologies and approaches to manage municipal solid waste. Technologies reviewed were those that could possibly be applicable to the City's future solid waste management system. Nine categories of technologies and approaches were included in this review:

- Waste avoidance, reduction and reuse;
- Waste diversion;
- Collection fleet technologies;
- Collection approach alternatives;
- Recycling processes;
- Source separated organics;
- Mixed waste processing;
- Recover; and
- Landfill disposal.

While reviewing this Technical Memorandum, the following should be noted:

- Separate Technical Memoranda have been prepared as part of Phase 1 which include:
  - Solid Waste Management: Current System Summary;
  - Legislative Review Memo;
  - Policy and Trends Memo; and,
  - Comparative Scan of Municipal Strategies, Practices and Initiatives Memo.



- The purpose of this memo was to document high level attributes of different technologies and approaches (e.g., type, availability, approval requirements). Further detail, specific to the Ottawa context, will be researched in Phase 1.
- The best readily available data has been used in this Technical Memorandum noting that some sections had more information than other sections as some approaches and technologies are more advanced compared to emerging/new approaches and technologies. Information was obtained via calls to municipalities, professional experience and online research. The focus of the review was on the technology or approach itself and not on the potential upstream and downstream benefits or impacts.
- Costing and revenue information has, in general, been provided at a high level as detailed information is not readily available.
- Case studies have been provided for each grouping of technologies and approaches, and where information is available, details and references are included.
- The type of regulatory requirements may not yet be known as similar facilities do not exist in Ontario and have not undergone permitting processes. It is assumed that any waste management facility must meet all conditions required as part of any necessary approvals at the time which have been established to protect public health. Approval requirements for specific options under consideration (e.g., Environmental Assessment, Environmental Compliance Approval, etc.) will be identified in Phase 2.
- It is noted that Ontario has some of the most stringent air emissions in the world and any facility operated in the province would be required to meet the limits prescribed in the legislation by demonstrating compliance prior to construction of a facility through analysis such as modelling.
- Health impacts are typically considered and addressed through the technology evaluation process and/or technology vendor procurement process, which could include a Human Health and Environmental Risk Assessment as part of the Environmental Assessment process prior to issuance of the Environmental Compliance Approval.



- Information presented in this Tech Memo #4 is intended to give a general representation of the types of waste management initiatives, practices and technologies that could be considered for Ottawa's SWMP.
- Data and online research in this Technical Memorandum is based on information that was available up to and including March 1, 2020.

The technologies and approaches that were reviewed are provided by category in Sections 3 through 11. Each section includes: a brief summary of the City's current experience and current practices as it relates to that category; sub-sections for each of the technologies / approaches identified for the category; and a summary table of the technology and/or approach researched, the potential applicable material stream and the potential customers the technology and/or approach could be applied.

The customer categories considered in this memo include single family residential, multi-residential buildings (e.g., apartments, condominiums, townhouse complexes, stacked townhouses), City facilities (e.g., recreational facilities, libraries, community centres, and fire stations), public spaces and parks, and partner program / non-City waste (e.g., Yellow Bag Program, Green Bins in Schools program, places of worship).

The following tables provide a high-level summary of each category and the approaches/technologies reviewed. Additional information can be found in the relevant sections.