



**The Regional
Municipality of
Durham**

Works Department

Interoffice Memorandum

Date: June 15, 2020

To: Regional Chair Henry and All Members of Regional Council

From: Susan Siopis, P.Eng., Commissioner, Works

Copy: Elaine Baxter-Trahair, Chief Administrative Officer
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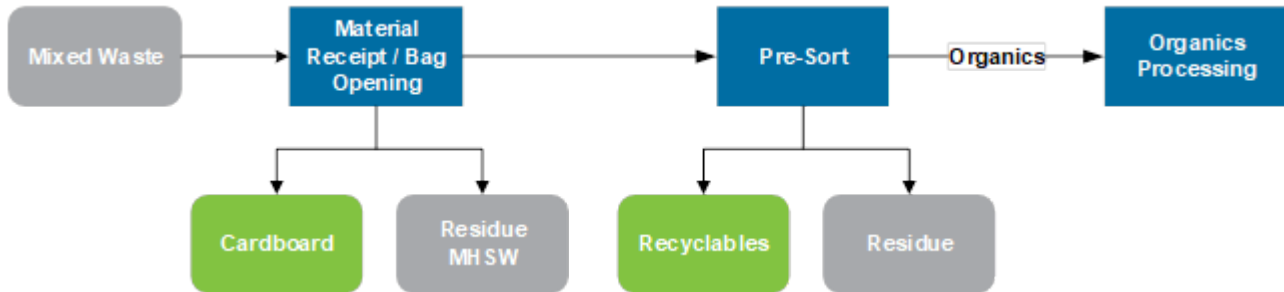
Subject: Mixed Waste Pre-Sort Facilities

At the May 27, 2020 Council Meeting, the next steps for the Mixed Waste Pre-sort and Anaerobic Digestion Project (Project) were approved. At that meeting, there was discussion about the various aspects of the Project and in particular the mixed waste pre-sort component of the Project. This memo is intended to provide Council with more information in that regard. Included in this memo is a listing of several facilities that are currently in operation and a link to information specific to each location has been provided.

Mixed waste pre-sort facilities in Europe are common with some facilities having been in operation for over a decade. Some of these facilities are using artificial intelligence and robotics in the pre-sort system to enhance separation of organics and recyclable materials. Although mixed-waste pre-sort is not common in North America, there are several facilities operating in the United States that perform some aspects of pre-sorting.

The mixed waste pre-sort operation proposed for Durham Region will consist of material receiving, bag opening, mixed waste pre-sorting and organics pre-processing. Figure 1 below illustrates these steps in the mixed waste pre-sort process.

Figure 1 Key Steps in Mixed Waste Pre-Sort



Collected municipal solid waste will be delivered to the facility where initial material separation will occur. This will include removal of large bulky items, materials potentially harmful to the process such as incorrectly disposed household hazardous waste and material easily removed for recycling such as cardboard. Material receipt and the initial sort typically involves a visual inspection and manual sort prior to moving to a bag breaker.

Once the garbage bags are opened, mixed waste pre-sorting operates to recover dry recyclables of value and isolate the organic fraction for further processing. Bag contents are typically separated by size using screens or trommels. The small fraction typically contains the organic portion of the waste and moves to an additional pre-processing step. Additional separation equipment may be used at this step to recover additional recyclables. For example, a magnet and eddy current are used to remove the metals, air currents and optical sorters can be used to separate plastics, containers and fibres. The choice of equipment is based on the materials targeted for removal.

Organics recovery efficiency varies among these technologies and is a function of the nature of the materials being treated. After pre-processing, organics are digested to produce renewable natural gas and digestate in the anaerobic digestion system.

The performance at these facilities supports GHD's technical advice to Durham Region in the business case and Request for Qualifications (RFQ) with inputs such as: separation capture rates, organics diversion, production of biogas and beneficial use of digestate. The following list includes facilities that are comparable to what is being proposed for Durham Region. GHD has visited each of the facilities listed below and have observed them in operation.

- 1) Facility:** Milton-Keynes Waste Recovery Park
Location: Buckingham, England, UK
Homepage: <https://wasteservices.amey.co.uk/where-we-work/milton-keynes/>
Pre-Sort Equipment: <https://wasteservices.amey.co.uk/where-we-work/milton-keynes/our-operations/technology-overview/mechanical-treatment/>
Video: [You Tube video of Milton-Keynes Sorting Plant, UK](#)
- 2) Facility:** Horsham Mechanical Biological Treatment Facility
Location: West Sussex, England, UK
Homepage: <https://www.biffa.co.uk>
Pre-Sort Equipment: <https://www.biffa.co.uk/about-us/waste-journeys/mechanical-and-biological-treatment>
- 3) Facility:** Fos-sur-Mer Integrated Waste Management Centre
Location: Fos-sur-Mer, France
Homepage: <https://www.evere.fr/?lang=en>
Video: [You Tube video of EveRé Integrated Waste Management Centre](#)
- 4) Facility:** Southwark Integrated Waste Management Facility
Location: London, England, UK
Homepage: <https://www.veolia.co.uk/southwark/iwmf/integrated-waste-management-facility>
Video: [Videos of Southwark's Integrated Waste Management Facility](#)
Video: [You Tube video of Veolia's recycling and waste management facilities](#)

This is the first of a series of brief informational memos staff will issue over the coming weeks. The intent is to provide information and resources to Council on specific topics related to Project. Leading up to September, information memos will be provided on: Waste disposal projections, Anaerobic Digestion technology, EPCOR, BioFuels and Digestate beneficial uses.

End of Memo