

City of Peterborough

Proposed Peterborough Organics Facility

November 4, 2020

1.0 Project Overview

The City of Peterborough (City) is implementing a City-wide organic waste collection and composting program: GROW (Green Resource Organics Works) Peterborough, with support from the federal government's Low Carbon Economy Fund. The program is expected to launch in fall 2023 after consultation; obtaining the necessary approvals; designing and building the centralized composting facility; acquiring the collection equipment including containers, trucks; and, rolling out City-wide collection.

The federal government is contributing \$ 6.1 million toward the \$ 15.3-million project over a 4-year period, ending March 31, 2024.

GROW Peterborough will help the City achieve the goals of the Waste Free Ontario Act, which aims to divert 100% of organic material from landfills with an expected ban on landfilling organics by 2023.

GROW Peterborough includes the development of a facility to accept and process leaf & yard waste and source separated organic materials (Peterborough Organics Facility) from the City and County of Peterborough. The Peterborough Organics Facility will be developed in a phased manner, including the potential to eventually accept materials from other municipalities. The facility will not be open to the public; only collection vehicles will be allowed access.

For the purposes of the Environmental Compliance Approval and municipal planning applications, the Peterborough Organics Facility will be designed to receive a maximum of up to 45,000 tonnes per year and temporarily store up to 90,000 tonnes of material undergoing composting, immature compost, finished compost and residual waste, at any time.

The Peterborough Organics Facility will be operated by the City and located on a 12 ha property, adjacent to the northern boundary of the Peterborough County/City Waste Management Facility (Bensfort Road Landfill Site), on lands owned jointly by the City and County, within the Township of Otonabee-South Monaghan.

2.0 Background

The City has been running a pilot Green Bin program for a number of years and plans to expand this program City-wide. In 2014, the City commissioned a study entitled "Organics Collection and Processing Strategy for the City of Peterborough and

Surrounding Area” that identified potential options to process organic wastes from an expanded City-wide Green Bin program.

A site selection process was undertaken by the City to evaluate candidate properties for the Peterborough Organics Facility. The criteria for site selection included: need for three (3) phase power; year-round road; existing land uses; distance to sensitive receptors; railways and overhead utilities; and, environmental constraints such as natural heritage features and existing aggregate resource areas. The City selected a property, owned jointly by the City and County of Peterborough, adjacent to the existing Bensfort Road Landfill Site.

The City has selected the Gore® System, including the Gore® Cover and ancillary equipment as the preferred technology. The Gore® System is proven technology, accepted by the Ministry of Environment, Conservation and Parks, and is used at several sites in Ontario.

3.0 Site Location

The Peterborough Organics Facility will be located on the southern half of Lot 16, Concession 14 of the Otonabee Ward, within the Township of Otonabee-South Monaghan in the County of Peterborough. The 12 ha property is bordered by the Peterborough County/City Waste Management Facility to the south, and agricultural and residential properties to the west, north and east.

Sensitive land uses in proximity to the property include three (3) residences to the north and southeast. The two (2) residences to the north are located approximately 400 m from the facility and the residence to the southeast is located approximately 340 m from the facility.

4.0 Selected Technology

The City has selected the Gore® System, including the Gore® Cover and ancillary equipment. The GORE® System is the most widely distributed composting system in the world with over 200 facilities located in more than 20 countries treating more than 3.5 million tons of organic waste annually. This technology is in use at several sites in Ontario.

The technology is proven and equipped with an oxygen controlled; positively aerated process and an oxygen and temperature monitoring system. This level of monitoring creates ideal composting conditions while efficiently trapping odors and other emissions such as dust and volatile organic compounds (VOCs).

The Gore® System consists of three (3) main components: aeration, controls, and a membrane cover. The three (3) components interact to produce a unique, economical and reliable composting system. In order to provide the essential basic requirements for the aerobic micro-organisms, medium pressure aerators are connected to in-floor

aeration ducts. The aerators are controlled by means of oxygen, for which the necessary operating data is obtained directly from the main body of the heap using stainless steel probes. The data is stored in an on-site computer to document operating parameters during the composting process.

Organics will be delivered to the receiving building and mechanically prepared and homogenised before being placed in the aeration bunkers using wheel loaders. Oxygen and temperature probes will be inserted into the material to be composted and the Gore® Cover is immediately pulled over the body of the heap. Through this process, the Gore® Cover System helps control the emission of odours and greenhouse gases. As a physical barrier, the cover is secured over the compost pile and as the organic material decomposes, a fine film of condensation develops on the inside of the cover. Odours and other gaseous substances dissolve within this film and drop back into the pile, where bacteria continue to break these substances down. Using the Gore® technology, a 97% odour reduction can be achieved.

In addition, the Gore® system is designed to minimize the production of leachate (wastewater) by including an impermeable slab to prevent groundwater contamination, as well as, the use of the Gore® cover to prevent mixing with precipitation. Aeration channels, cast in the impermeable slab, also act as a leachate collection system to prevent any leachate migrating from the concrete pad.

5.0 Project Components

Utilizing the Gore® Cover Technology will require the construction of several above ground components including concrete pads; leachate collection system; receiving, office and maintenance buildings; staging area; and, aeration technology.

The Gore® System combines positive aeration, control and the Gore® Cover to create mature compost through a five-step process, as follows:

1. The Organics are delivered to an enclosed, negative pressure receiving building at the composting facility where it will be mixed, shredded and then transferred to a “bunker”.
2. Once in the bunker, the material is covered with the Gore® membrane fabric, aeration is added and the material is monitored for four (4) weeks.
3. After four (4) weeks, the material volume will be reduced whereby, the material from two bunkers can be added together. The material is then covered, aerated and monitored for an additional two (2) weeks.
4. After two (2) weeks, the material is transferred to the final bunker where it is again aerated and monitored. The material is not covered at this stage as there is very little odour.
5. In the final step of the process, the material is screened to the desired size and the compost is stored on-site and ready for use.

Along with the Gore® Cover Technology, additional infrastructure will be included in the design of the Peterborough Organics Facility, as follows:

- Site and emergency entrance.
- Receiving building and preparation area.
- Office and maintenance building.
- Active composting area (Gore® covered bunkers).
- Leaf and yard waste open air, windrow composting area.
- Compost curing area.
- Compost screening area.
- Finished compost storage area.
- Stormwater (non-contact rain water) management pond.
- Wastewater (contact - leachate) collection system for conveyance to the existing leachate collection system at the Bensfort Road Landfill Site and treatment by the City of Peterborough Water Pollution Control Plant.
- Buffer area (from property line and natural heritage features).
- Visual screening (via berms and/or plantings).

6.0 Project Development Process

GROW Peterborough is expected to launch in fall 2023 after building the Peterborough Organics Facility. The federal government is contributing \$ 6.1 million toward the \$ 15.3 million GROW Peterborough program over a four year period, ending March 31, 2024. The development of the Peterborough Organics Facility is described in the following sections.

The development includes completion and submission of the planning applications; preliminary design elements; public consultation and stakeholder engagement; and, submission of the Environmental Compliance Approval (ECA) application(s) and supporting documentation. The project development will include the following:

- Planning Requirements
- Preliminary Design
- Consultation Program
- Environmental Compliance Approval Requirements
- Detailed Design and Tendering
- Construction and Commissioning

7.0 Project Timing

The Project commenced on May 4, 2019 and the Peterborough Organics Facility is expected to be commissioned by October 27, 2023. The Project Schedule includes the following key milestone dates, generally based on the phase duration presented in the LCEF funding application:

Table 1 – Key Milestone Dates

Phase of Work	Start	Completion	Duration
Permitting & Approvals	May 4, 2020	Jan. 31, 2021	39 weeks
Planning Application Review	Jan. 31, 2021	Dec. 17, 2021	46 weeks
MECP Application Review	Dec. 20, 2021	June 17, 2022	25 weeks
Detailed Design & Tendering	June 20, 2022	Feb. 3, 2023	32 weeks
Construction & Commissioning	Mar. 6, 2023	Oct. 27, 2023	33 weeks
Overall Timeframe	May 4, 2020	Oct. 27, 2023	177 weeks

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