

# Public Information Centre

June 13, 2019

## Stratford Water Pollution Control Plant: A Net Zero Plant Through Resource Recovery



Please sign-in at the  
registration table upon arrival



Please feel free to approach  
any team member to discuss  
the project



Please share your thoughts  
with us by completing a  
comment form to ensure your  
input is captured

# WELCOME!

The purpose of this event is to discuss the proposed upgrades to the Stratford Water Pollution Control Plant (WPCP).

These upgrades will allow the WPCP to accept and treat organic waste currently sent to landfill *and* continue to treat wastewater from the Stratford community.

## Today we will:

Provide an introduction to the project

Describe the proposed changes to the WPCP

Provide information on the new technologies proposed

Discuss environmental considerations and planned mitigation measures

Collect your feedback and outline next steps for the project

**Comments**

To ensure your views are considered, please submit your comments by:

**June 27, 2019**



# Curbing Greenhouse Gas Emissions

The City is seeking to implement proven technology to optimize existing infrastructure and increase the production of biogas, upgrading the existing WPCP into an energy positive co-digestion facility, which will allow it to accept and treat organic waste.

The facility will treat solid and liquid organic waste from both residential and commercial sources and co-digest this waste with sewage sludge.

## A clean, carbon-neutral energy source



The resulting biogas will be converted into Renewable Natural Gas (RNG) and fed back into the local natural gas distribution system for use by the community.

## What is unique about this approach?

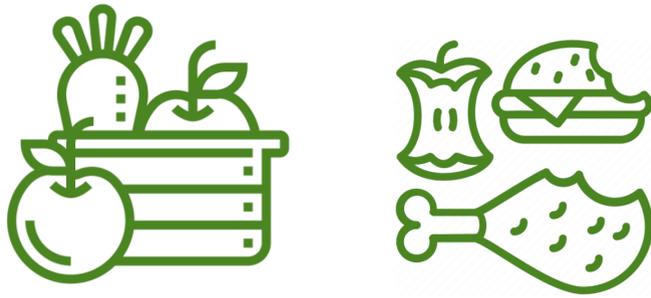
- RNG is an untapped, eco-friendly resource that reduces harmful Greenhouse Gas Emissions
- Although done elsewhere, it will be the first co-digestion facility in Canada to produce RNG with grid connection
- It will maximize the use of existing City infrastructure
- It will divert waste from traditional landfills and public sewer lines
- It will produce a nutrient-rich material that can be used by the surrounding community
- It will promote the circular economy of waste
- It will serve as an international model for other municipalities



# Organic Waste Material

## What is Solid Organic Waste Material?

Solid Organic Waste Material to be processed includes food waste from residential, industrial, commercial and institutional sources.



It is often disposed of in landfills, however some is suitable for processing and land application as fertilizer.

## What is Liquid Organic Waste Material?

Liquid Organic Waste Material is made up of wastewater, fats, oils and grease from a variety of sources, including food processing plants.

## How is the waste processed?

### Anaerobic Digestion

Anaerobic digestion is the process of using fermentation to break down organic material. The material that is left is called "digestate", which is rich in nutrients and can be used as fertilizer for crops. Biogas, which is high in energy, is also generated through the process.

### Co-Digestion

Co-digestion is the process of digesting biosolids with solid and liquid organic wastes in existing biosolids digesters.

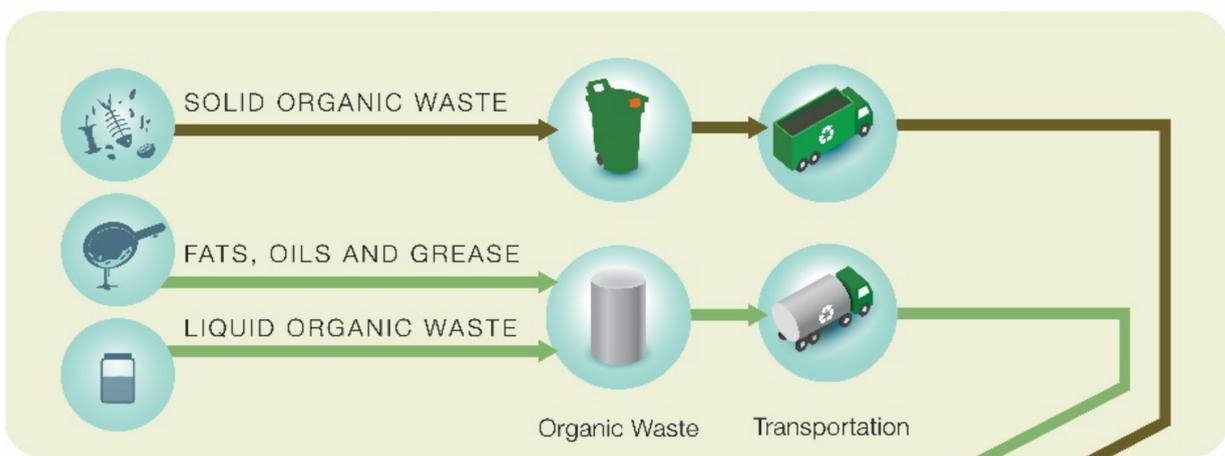
## Where will the waste come from?



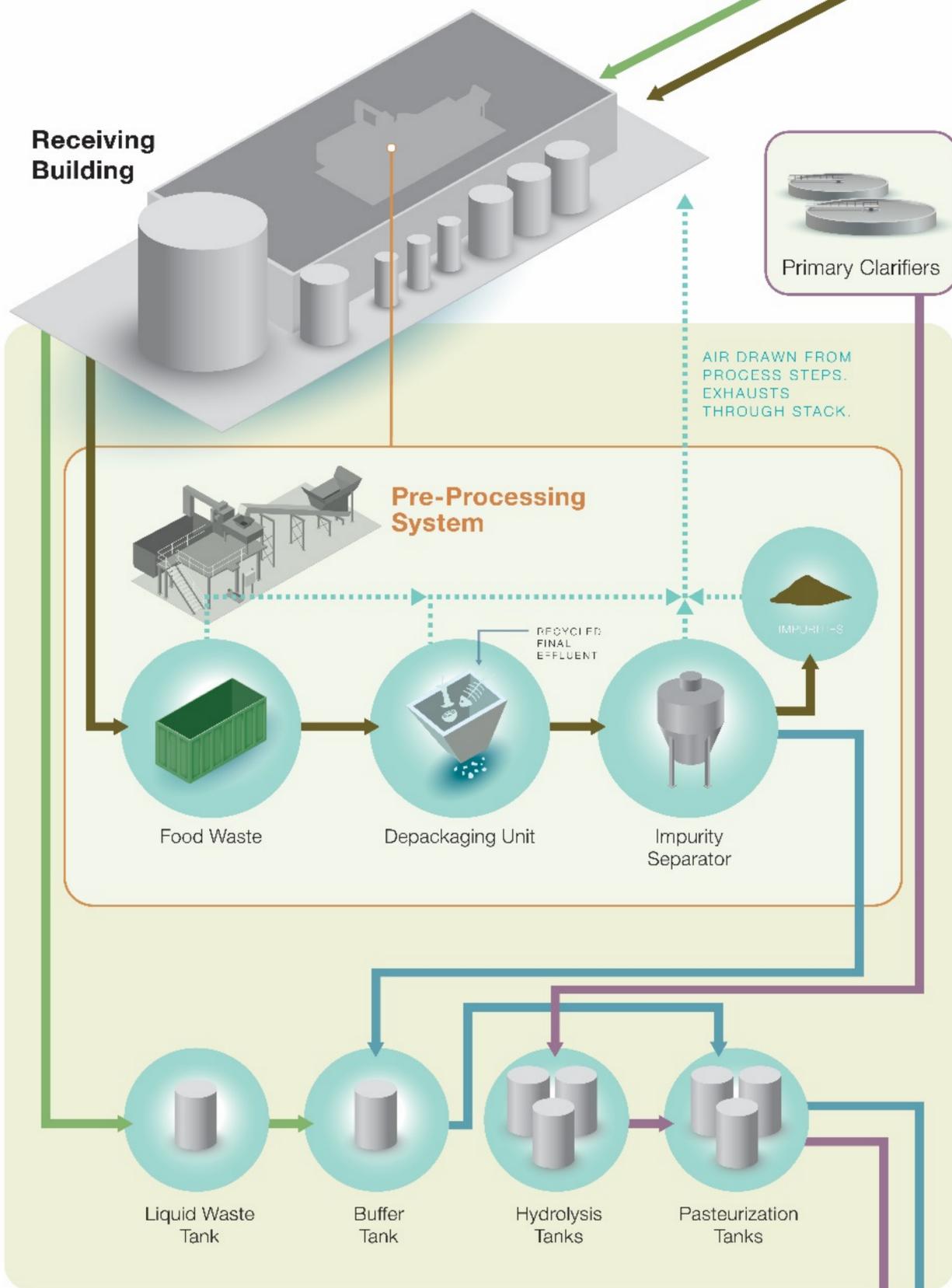
A priority will be to accept Stratford's organics collected from businesses and residences. The facility will be permitted to accept organic waste from across Ontario.

# How It Works

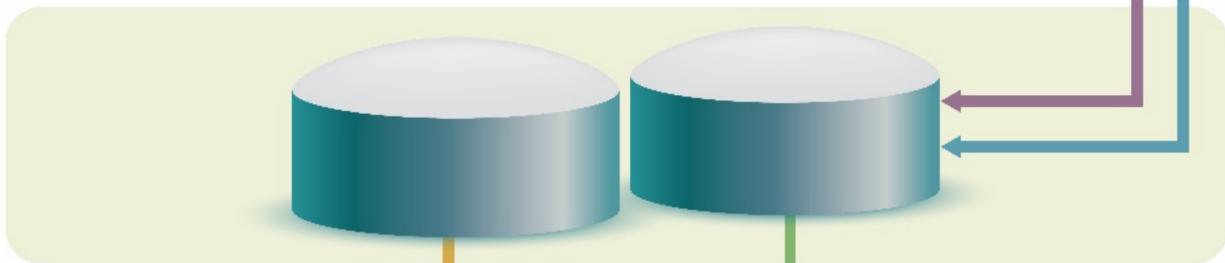
## Collection and Transportation



## Receiving Building



## Existing Anaerobic Digesters

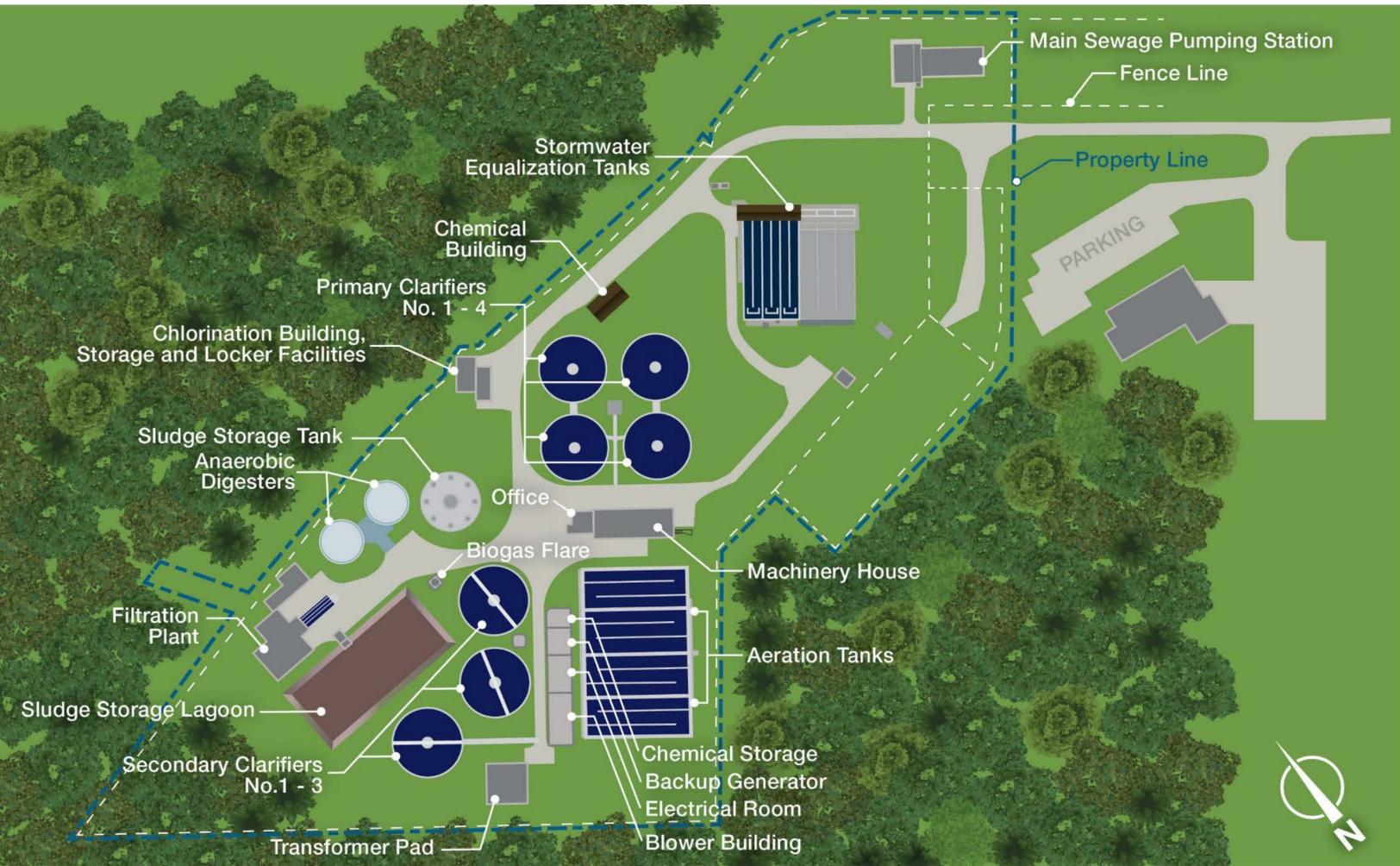


## Product



# The Existing Site

## Existing Stratford WPCP



The site is located at 701 West Gore Street in Stratford, Ontario.

## Surrounding Community



### LAND USE ZONING PLAN - LEGEND



1 km Radius

Parks / Flood Plain

Residential

Industrial

Commercial

Future Residential

Institutional

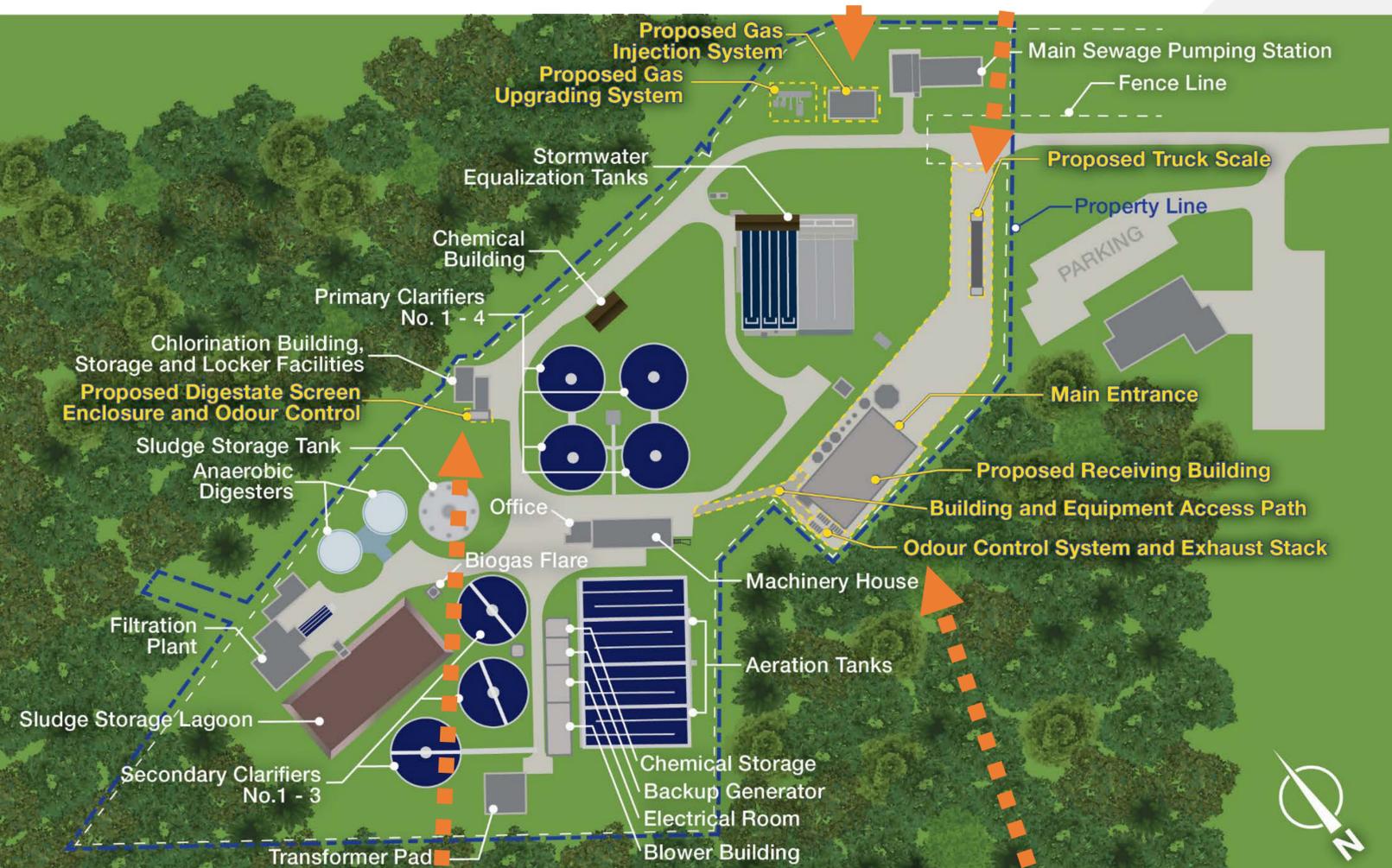
Approx. Site Boundary

Lake Victoria

# Proposed Changes

Construction of a Gas Upgrading and Injection System for processing biogas to RNG

Truck scale to weigh organic waste trucks upon arrival and departure



Construction of a Post Digestate Screen Container for removal of remaining impurities

Construction of a 21 m x 40 m receiving building that will accept and pre-process organic waste

## What changes should I be aware of?

- Improved Digester efficiency will permit an increase in the amount of material being processed within the anaerobic digesters
- The facility will now accept a variety of different types of material and the amount of material being processed at the site will increase
- The receiving building will accept up to 20,900 wet tonnes per year of solid organic waste and 5,000 tonnes per year liquid waste
- Pre-processed organics will be co-digested with up to 29,200 tonnes of wastewater sludge, which is already being generated at the site
- Waste trucks will be routed to the Site via Erie Street/Highway 7 to West Gore Street, with the intent to limit truck traffic between 9am and 3pm

# Mitigation Measures



The site will continue to be operated by the Ontario Clean Water Agency (OCWA) – they will continue to follow standard operating procedures, as detailed in their corporate contingency plan.

## What about odour?

Studies have been conducted to examine this potential issue, and an Odour Baseline Data and Management Plan (Plan) has been developed. The Plan compares current site operations with how operations will change once co-digestion operations begin.

**The Result:** The Plan concludes that concentrations of odour in the air on-site will not increase with co-digestion in comparison to current conditions.

## Mitigation

- OCWA has long-established contingency plans for safety on-site, which will be adhered to during operations of the co-digestion project
- All material is contained and processed inside the engineered buildings
- The receiving building will be kept under negative pressure to manage fugitive odour emissions
- Odour control system will treat air from inside the receiving building to remove odour, and exhaust treated air through a stack



# Biogas

In addition to fertilizer, the anaerobic digestion process also produces biogas. Due to the high content of methane in biogas (50-75%) it can be used as an energy source and distributed through the natural gas pipeline.

## How does it work?

Large air-tight tanks used to simulate the natural processes that produce biogas, by allowing the digestion of organic matters under anaerobic conditions.

**Step 1:** Organic waste is shredded, cleaned, and pre-processed. Remaining organics are placed inside existing air-tight anaerobic digesters with wastewater biosolids.

**Step 2:** Biogas begins to form through natural microbial activity and accumulates at the top of the tank.

**Step 3:** Biogas is piped to the gas upgrading skid for Renewable Natural Gas production. In the event that the gas upgrading system is out of operation, a biogas flare acts as emergency backup.

**Step 4:** Leftover material (sludge/digestate) can be land applied as nutrient-rich material.



# The Waste-Free Ontario Act

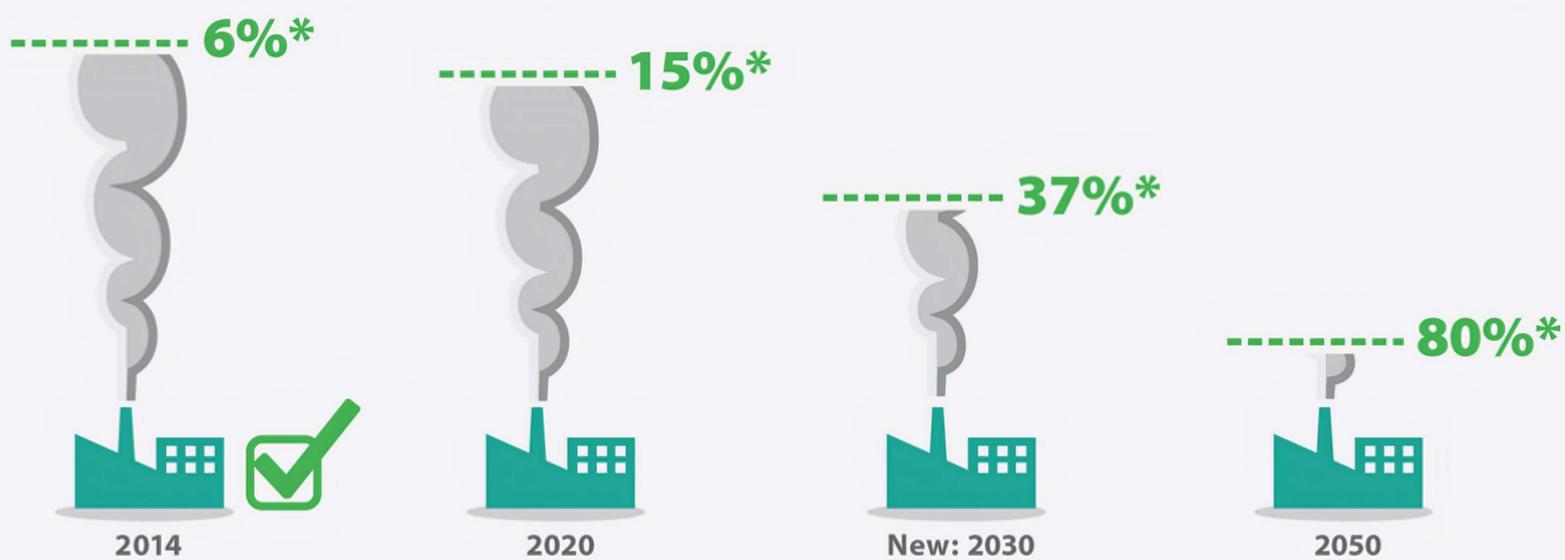


The Strategy for A Waste-Free Ontario: Building the Circular Economy sets a course for resource recovery and waste reduction in Ontario to achieve a zero waste Ontario and zero greenhouse gas emissions from the waste sector.



Ontario's Food and Organic Waste Framework suggests a potential organics ban to landfill in the future.

## Ontario's Greenhouse Gas Emission Targets



\* below 1990 greenhouse gas emission levels

The driver for this project is to produce a substantial realization in GHG emission reductions by transforming the WPCP into an energy positive co-digestion facility.

## Measurable Results

- Reduce GHG emissions by approximately 49,000 tonnes carbon dioxide equivalents per year
- Divert 20,900 tonnes per year of solid organic waste from landfills.
- Produce over 2 million cubic metres of RNG per year, to be sold and utilized in the natural gas pipeline

# Timeline

MAY 2019	<ul style="list-style-type: none"><li>• Environmental Compliance Approval applications submitted to MECP for review</li><li>• Presentation to City Council</li></ul>
JUNE 2019	<ul style="list-style-type: none"><li>• Public Information Session </li><li>• Public Review Period</li><li>• Design Begins</li></ul>
LATE SUMMER 2019	<ul style="list-style-type: none"><li>• Anticipated MECP Approval to begin construction</li><li>• Pre-construction site clearing</li></ul>
FALL 2019	<ul style="list-style-type: none"><li>• Anticipated MECP Final Approvals</li><li>• Construction begins</li></ul>
WINTER 2020	<ul style="list-style-type: none"><li>• Processing and RNG equipment to arrive on site</li><li>• Construction concludes</li></ul>

Construction is expected to be completed by **December 2020**

The City, in conjunction with Ontario Clean Water Agency (OCWA), will continue to operate the Site in accordance with the requirements of the MECP ECA's, and applicable City of Stratford By-Laws and Provincial Regulations.

The City will be requesting the following approvals under this application:

- Environmental Compliance Approval (Waste Disposal Site)
- Environmental Compliance Approval Amendment (Air & Noise)
- Environmental Compliance Approval Amendment (Industrial Sewage Works)

# Next Steps

- ▶ The public comment period will be open for 2 weeks following today's event
- ▶ Following the comment period, the City may request approval from MECP to begin construction
- ▶ MECP may grant final approval
- ▶ Construction may begin in Fall 2019 with completion scheduled for December 2020
- ▶ Designs may be finalized over the summer and fall 2019



## *Comments*

To ensure your views are considered, please submit your comments by:

**June 27, 2019**

If you would like more information and/or to provide comments after today, please contact us directly.

**Ed Dujlovic**  
Director of Infrastructure and  
Development Services  
City of Stratford

519-271-0250 Ext. 224  
edujlovic@stratford.ca