

# City of Toronto Disco Road Source Separated Organics Processing Facility



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**With thanks to:**

**Bob Kearse, P.Eng. City of Toronto**

**Nadine Kerr, P.Eng., City of Toronto**

**Tej Gidda, GHD Engineering**

# Overview of Presentation

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- Toronto's Green Bin Program
- Siting the Disco facility
- Project delivery methodology
- Design and construction
- 1<sup>st</sup> year of operation
- Renewable energy



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# Toronto's Green Bin Program

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- Since 2002
- Maximizes convenience for residents
- Currently introducing to:
  - Apartments/condos
  - Schools
  - City-run buildings



# Toronto's Green Bin Program

✓ **Food Waste**

PLUS

✓ **pet waste, cat litter**

✓ **diapers, sanitary items**

✓ **paper food packaging  
(soiled)**

✓ **tissues, napkins, paper  
towels**

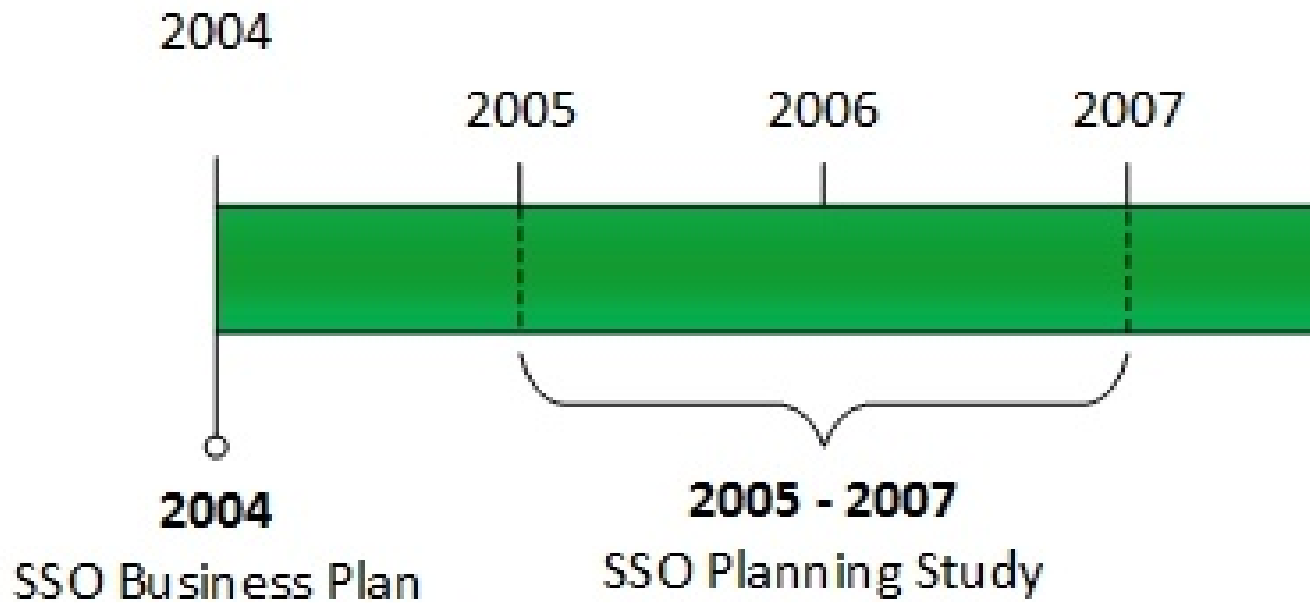
✓ **houseplants, soil**





# Siting an SSO Facility

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# Siting an SSO Facility

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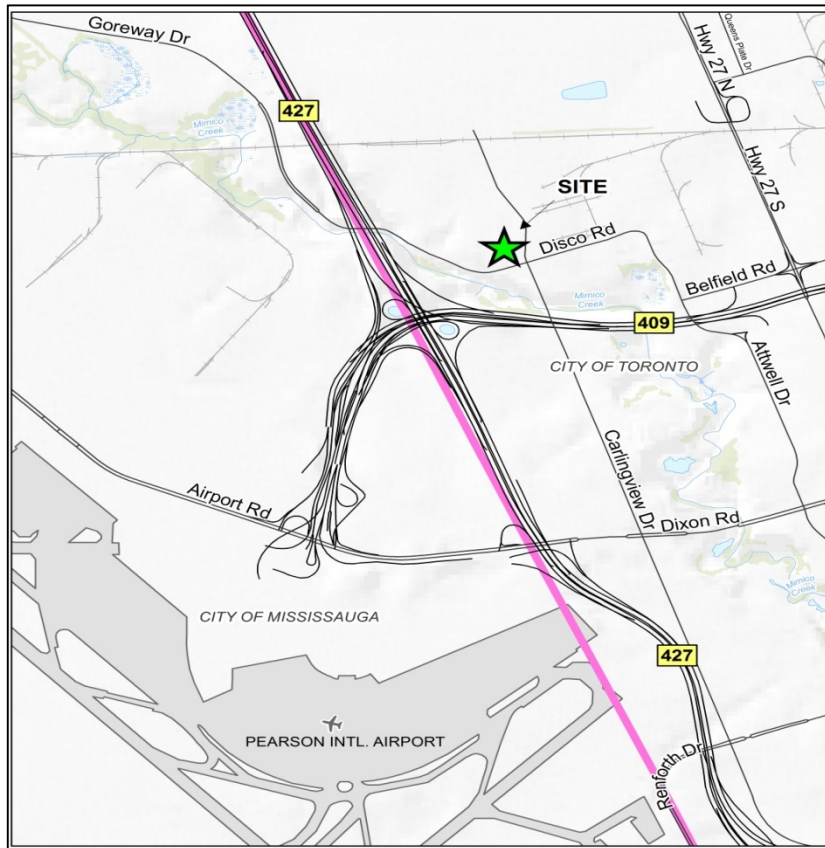
- **In-City** vs. External Sites
  - Planning requirements
  - Dufferin AD Facility working well
- Aerobic vs. **Anaerobic**
  - Space requirements

# Siting an SSO Facility

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- Public Consultation/support
  - support for Green Bin Program
  - odour, traffic, and health concerns
  - industrial area preferred
- 103 Combinations Considered
  - Emissions, land displaced, cost

# Disco Site Selected



# Project Approach

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- 75,000 tonnes/year of Source Separated Organics (SSO)
- Pre-Processing + Anaerobic digestion
- City owned facility

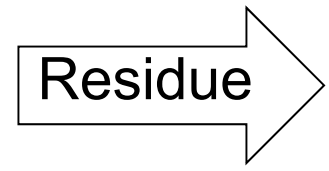


# Technology Selection

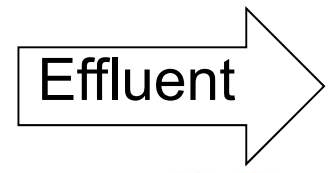
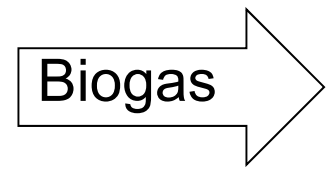
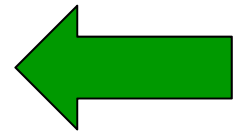
Tip Floor



Pre-Processing



Digester Solids



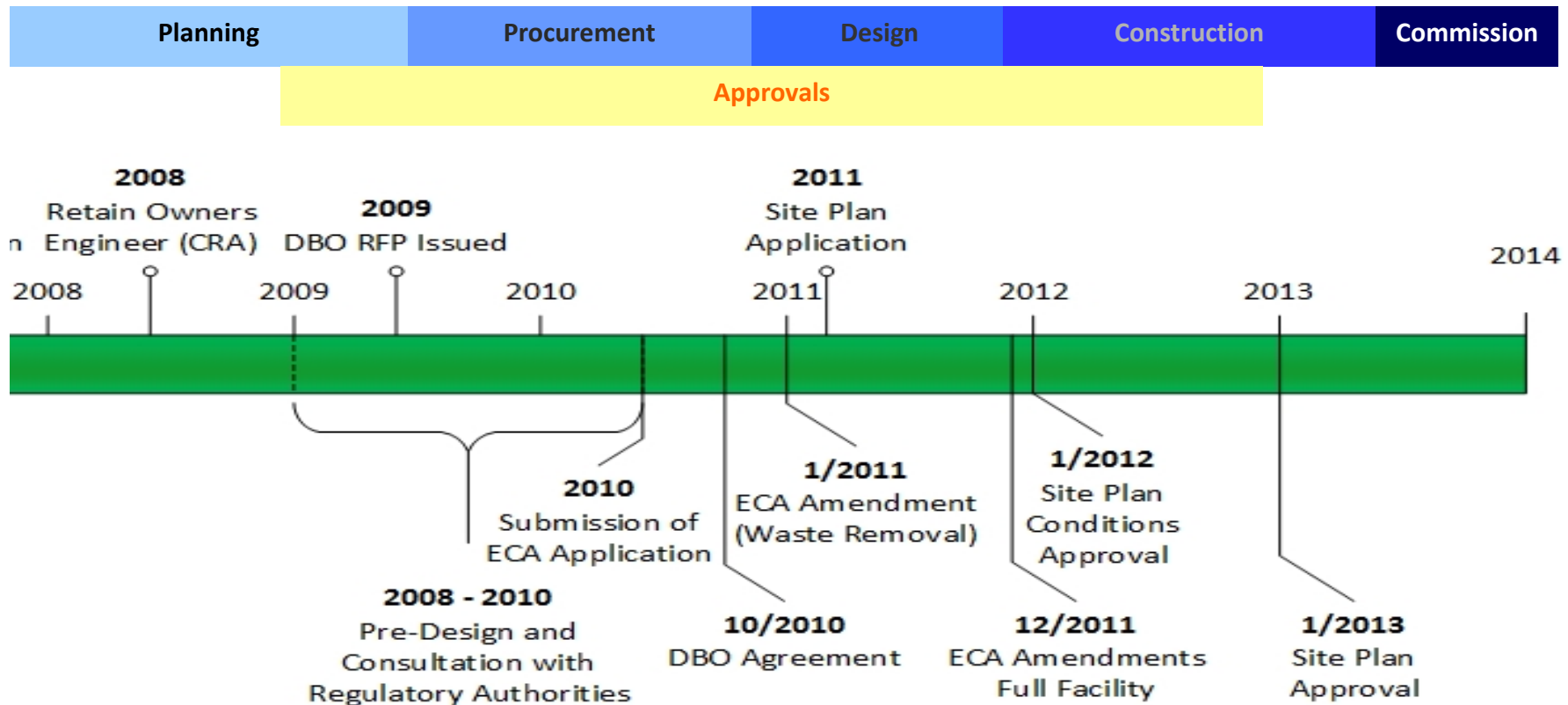
Anaerobic Digestion



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# Project Delivery



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# Owner's Engineer

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- Engineering Studies
- Preliminary Design
- Approvals Support
- Design Review
- Contract Administration



# Permits and Approvals

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- ECA Approvals
  - Amendment for waste removal
  - Amendment for facility
  - EARLY Consultation Key!
- Municipal Approvals
  - Site Plan
  - Building Permit

# Contractor

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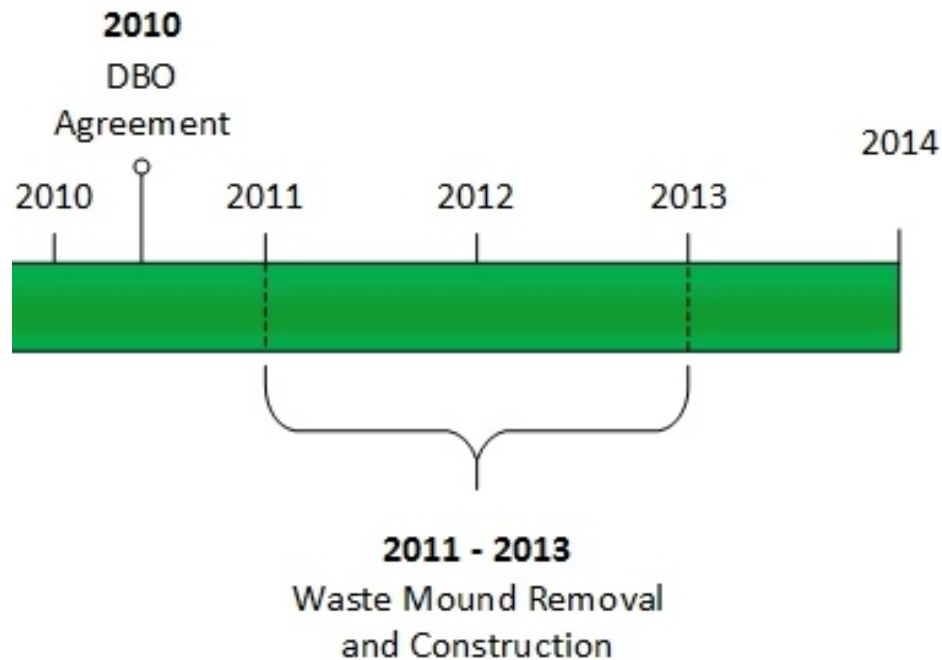
- One Contractor
- Two Contracts
  - Design-Build
  - Operate-Maintain



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# Design and Construction

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# Waste Mound Removal

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# Pile Foundations



# Tank Farm Area

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# Tanks

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# Pulper Area





# Tip Floor

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# Biofilter

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# Building Shell

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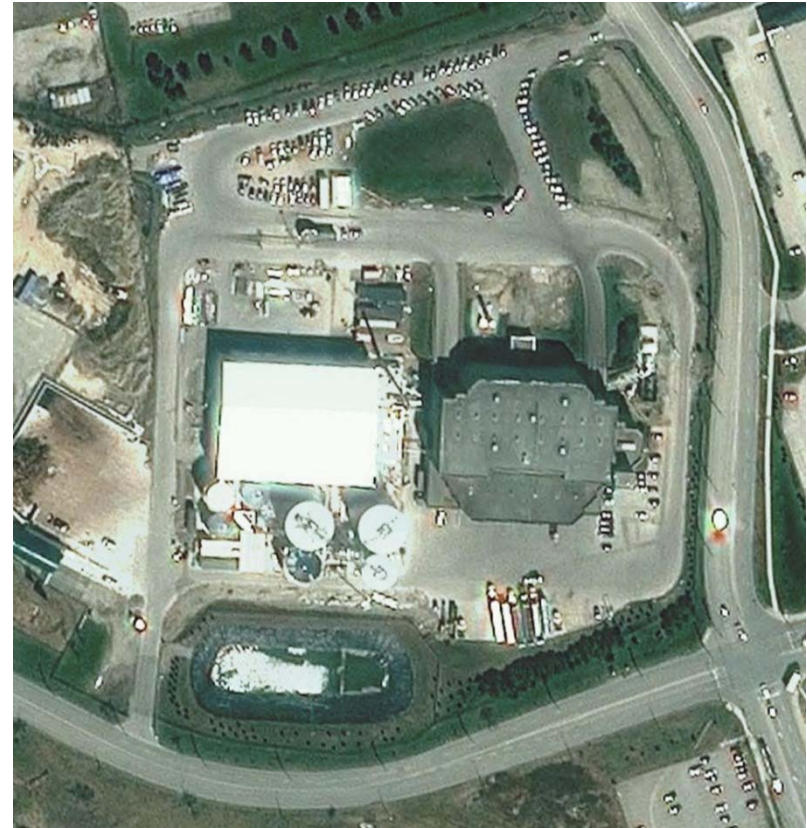
# Biogas Flare

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# Completed Facility



# 1<sup>st</sup> Year of Operation

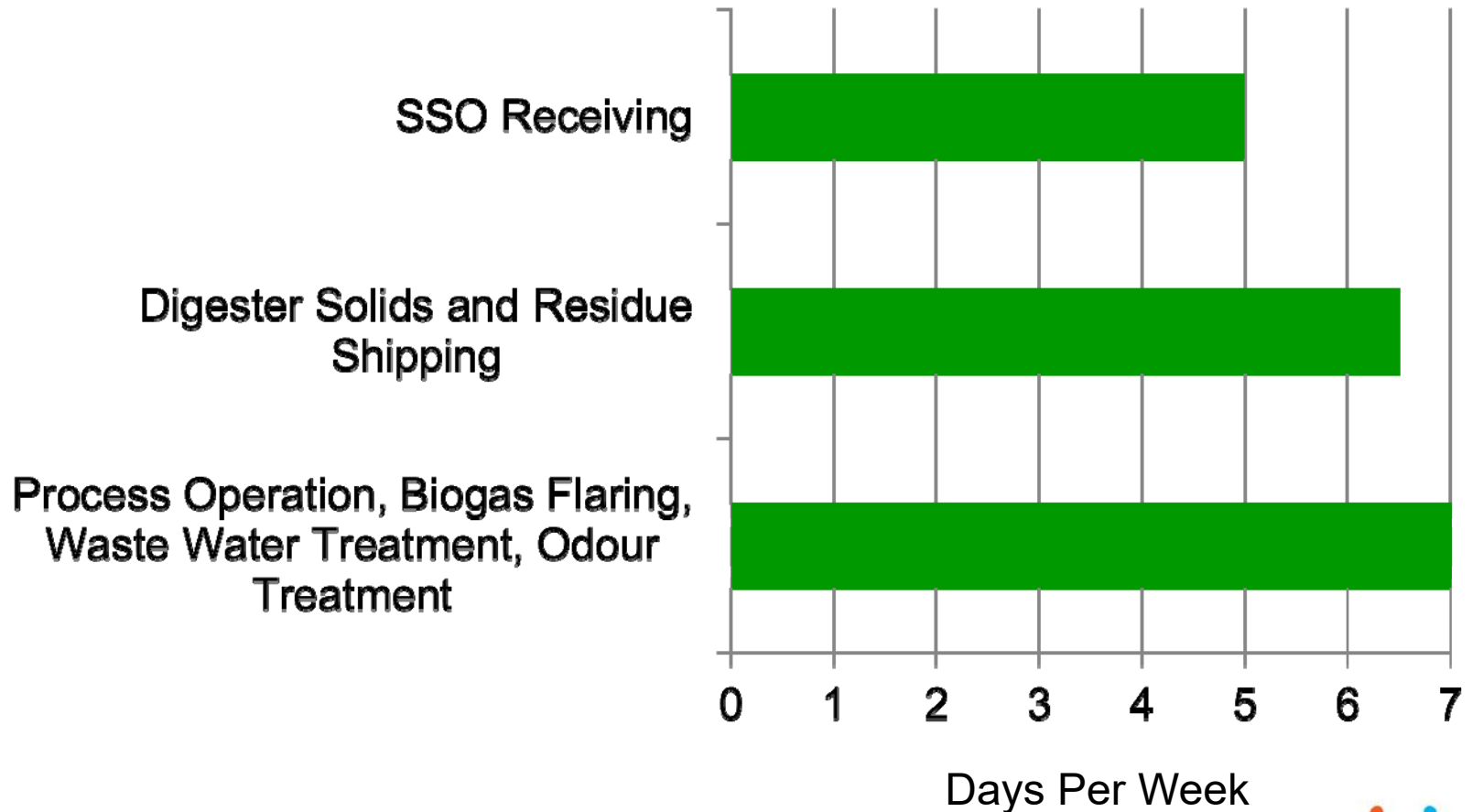
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- First waste receipt in November 2013
- Full scale waste receipt January 2014
- Substantial Performance July 2014



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# Facility Operations



# Inbound SSO – 1<sup>st</sup> Year

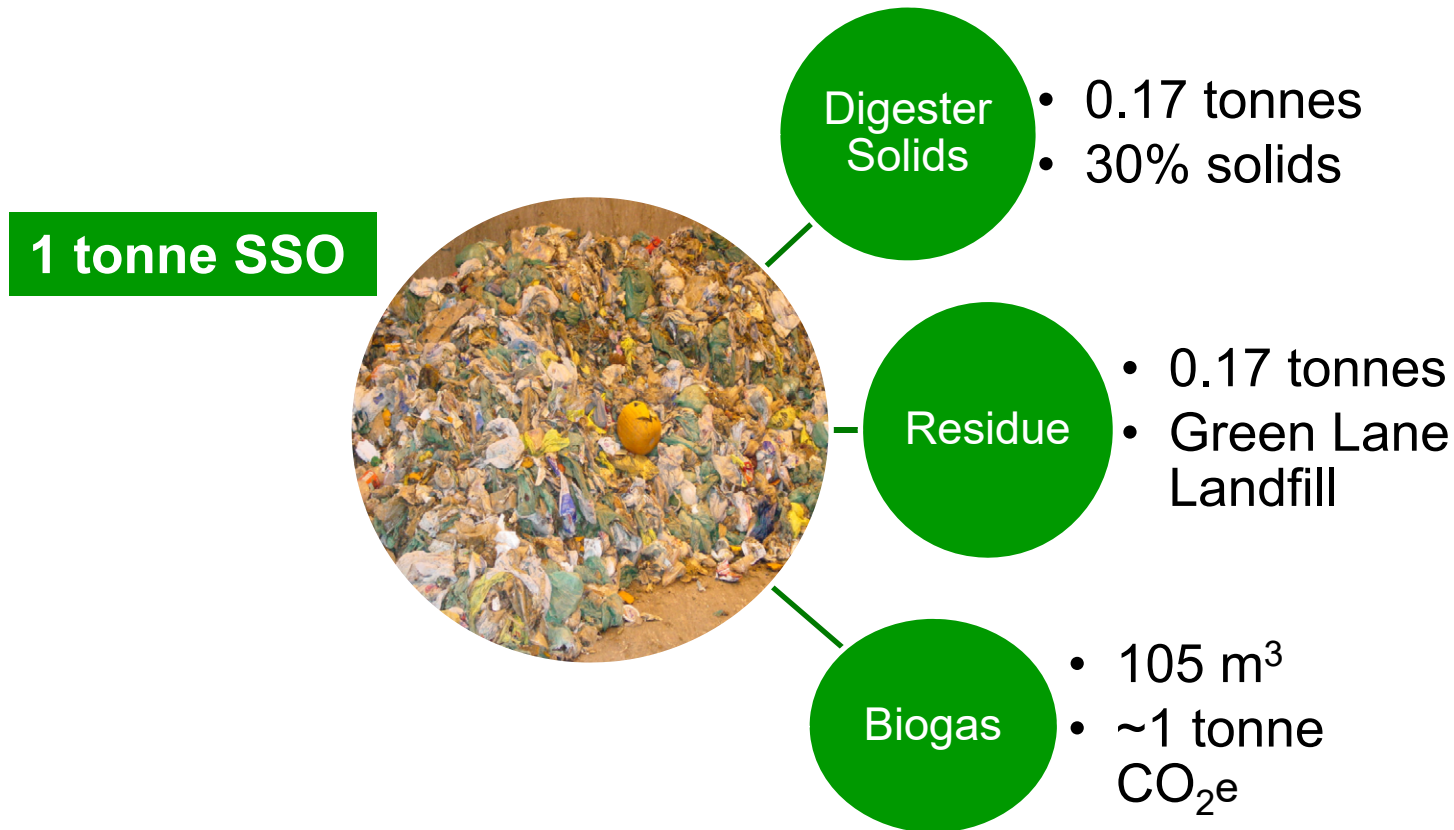
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- 66,300 tonnes SSO in 1<sup>st</sup> year (est.)
  - 1,275 tonnes /week
- 2,800 trucks / year
  - 28 transfer trailers / week
  - 25 curbside trucks / week





# SSO Processing – 1<sup>st</sup> Year



1 tonne SSO

# Digester Solids

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# Renewable Energy

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- Approximately 110 m<sup>3</sup> of biogas per tonne of SSO at 65% methane
- City is proceeding to develop a 2 MW biogas fuelled combined heat and power plant
- An energy self-sufficient facility

# Renewable Energy

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- **Using energy from organic waste to process organic waste!**
- Future opportunities to utilize the remaining biogas are being explored



# Renewable Energy



- The City is installing 380 solar panels on the roof of the Disco Transfer Station to generate renewable electricity for sale under a Feed In Tariff (FIT) contract



# Thank You

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