

Organic Solid Waste Resources and Management

David Gordon
Project Manager
City of Guelph

Guelph

- Guelph is a city of around 132,000 citizens
- Solid Waste Resources provides services to approximately 48,000 households
- Guelph has a history of environmental stewardship- original recycling system 25 years ago

Why build an Organic Waste Processing Facility (OWPF) for Guelph?

Solid Waste Management Master Plan

- **3 Guiding Principals & Goals**
 1. To minimize solid waste disposal requirements
 2. To minimize impacts of solid waste diversion and disposal
 3. To ensure fiscal responsibility
- **Update to Masterplan project is currently underway now-** <https://guelph.ca/plans-and-strategies/solid-waste-management-master-plan/#latest-updates>

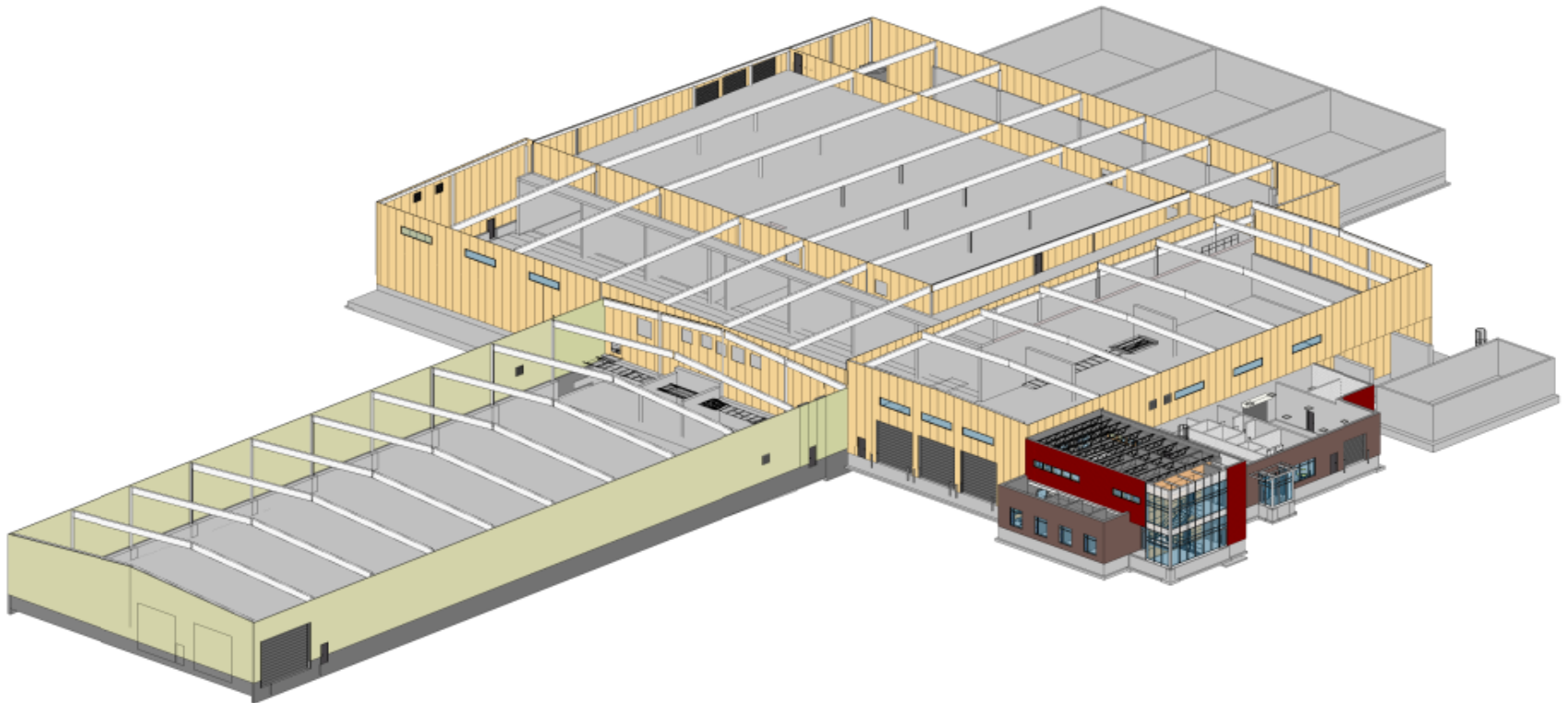
Building an organic waste processing facility (OWPF) in Guelph

- Aeration composting facility
- 30000 tonnes per year capacity of source separated organics (Guelph generates about 10,000 per year)
- Design, build, operate contract
- Maple Reinders did the design, build, partnered with AIM environmental who operate. Completed 2011
- 5 year contract renewed sept 2016, option of another 5 year extension in 2021 (15 years total)
- Capital cost \$27.5 million, project cost \$31.5 million

Project Conceptual Design



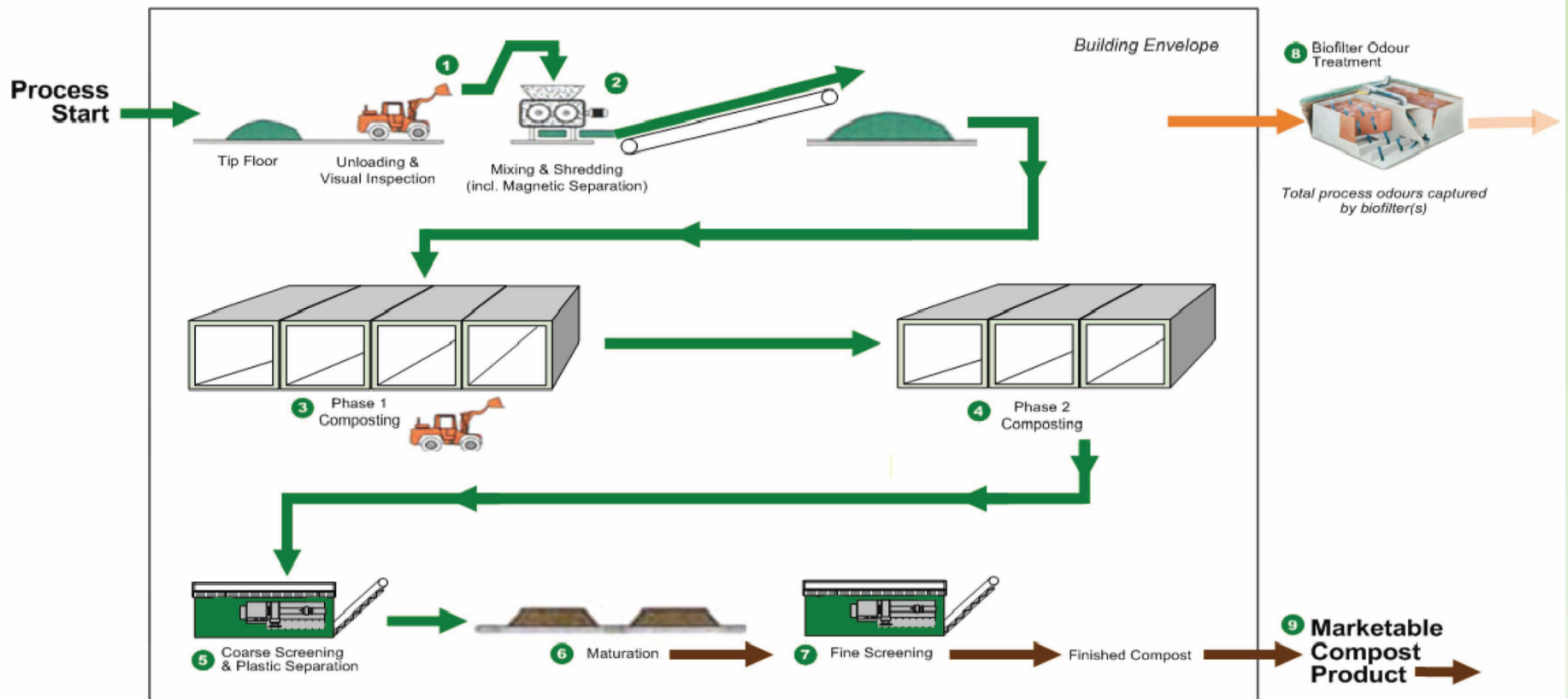
Facility Design



UPPER LEVEL

Process Design

Process Flow Diagram



Operation- tipping

- Receive waste in packers or roll off containers
- Dumped on floor
- Inspected for large contaminants
- Placed into shredder
- Mixed with overs- C:N ratio
- Placed into tunnels



Operation- Processing

- 7 tunnels in Guelph, 4 phase 1, 3 phase 2
- 10 to 14 days in phase 1
- 5 to 7 days in phase 2
- Phase 2- pasteurised- heated up to 55 degrees and only clean water after this process
- Loses up to 60% weight (moisture loss)
- Water deficient process



Operation- screening

- Out of tunnels and placed into walking floor hopper
- Screening plant- multi star screener
- Magnets to remove metal
- Wind sifters to remove plastic
- Compost placed into windrows for a minimum 21 days







Operation- maturing

- Compost monitored, temps taken periodically
- Water added
- Tested for heavy metals, pathogens, etc
- Shipped out the door
- 2019 produced 6892 tonnes of finished compost on 30460 tonnes incoming Organic waste
- Class AA compost used for agricultural purposes

Operation- odour control

Elements of Odour Control

- Processing carried out indoors
- Building under negative pressure
- Biorem biofilter- inorganic media
- 47.5 meter stack
- Acid system to remove ammonia from exhaust air
- 3 air exchanges per hour
- Closely monitored by the MOE

Operation- odour control

Odour measurement

- Measured in odour units
- Carried out by odour panel
- Not overly scientific, subjective. (my opinion!)
- Permits allow 1 OU at the nearest sensitive receptor
- Tested each year to ensure compliance

Operation- regulatory framework

Environmental Compliance Approvals

- Feedstock controlled
- SCADA system to record various parameters
- Testing of finished product
- Stack emissions testing

Contact Information:

David Gordon

Project Manager, Solid Waste Resources
City of Guelph

Phone: (519) 822-1260 ext.3629

Email: david.gordon@guelph.ca

Website: www.guelph.ca

- If anyone has any questions??