

The Return of BIG COMPOSTING



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North American Composting

Besides Leaves, Yard Waste & Farms

- **1980's through 2007 – Biosolids**
 - Over 200 facilities built for biosolids
 - Facilities handling a few tpd up to 400+ tpd (3 facilities)
 - After 2007 large Biosolids facilities tapered off
- **1990's MSW**
 - 9 (+/-) Facilities constructed
- **Recently SSO Spurred facility construction**

SSO Composting Facilities

Large Facilities Mostly in Canada

- Several 100+ tpd facilities
 - Guelph
 - Hamilton
 - Ottawa
 - London
- All are Tunnel Systems
- ASP
 - Richmond, BC
- Fabric Cover
 - Deleware – now closed
 - 2 in Ontario

Three Case Studies

- Belleville, ON
 - SSO, Biosolids, Yard Waste
- Columbus, OH
 - Biosolids
- Calgary, AB
 - SSO, Biosolids, Yard Waste

Belleville, ON

- Commercial Facility – Astoria Organics Matters
- 77,000 tpy
 - 15% to 20% biosolids
 - 25% food waste
 - 55% to 60% yard waste
- Fabric Cover with a twist
 - Portion fabric cover and in a building



Belleville, ON

Unique Features

- Due to extremely stringent odor requirements (1 D/T at receptors in 10 minutes)
 - First 4 weeks of composting is Gore cover inside a building
 - Remaining outside with Gore cover
 - Biofilter (in a building) odor control for tipping building
 - Ventilation from biofilter and first four weeks of composting goes to 26 meter stack

Columbus, OH

- Constructed in 1980
 - Open ASP no odor control
- Rebuilt in 2001- (intended as temporary)
 - Open ASP with negative aeration and biofilter
 - Plan was to enclose facility for odor control



Columbus, OH

2001 Rebuild

- 2 pads
- Negative aeration
- Biofilter for each pad



Columbus, OH

- Three part Biosolids management
 - Incinerators
 - Land application
 - Composting 28 to 44 dtpd – loading varied
- City taking incinerators out of service
- Composting to be expanded by adding a third pad to improve odor control

Columbus, OH

- Add third pad
- Rehab existing two pads
- Various improvements
- \$10,000,000 budget



Calgary, AB

- Facility currently under construction
- Design Build Operate
- Chinook Resource Management Group
 - Maple Reinders
 - Bird Construction
 - Nason Contracting Group
 - Aim Environmental Services (Operator)
- Technology
 - Christiaens (tunnel composting)
- Design
 - Stantec

Calgary, AB

- Facility Capacity
 - 100,000 tpy SSO
 - 45,500 tpy Biosolids
- Loading of each material varies over the year
 - Peak SSO 739 tpd
 - Peak biosolids 234 tpd (52 dtpd)
- Biosolids and food waste to be composted separately
- Yard waste to be blended with both materials

Calgary, AB



Calgary, AB



Calgary, AB

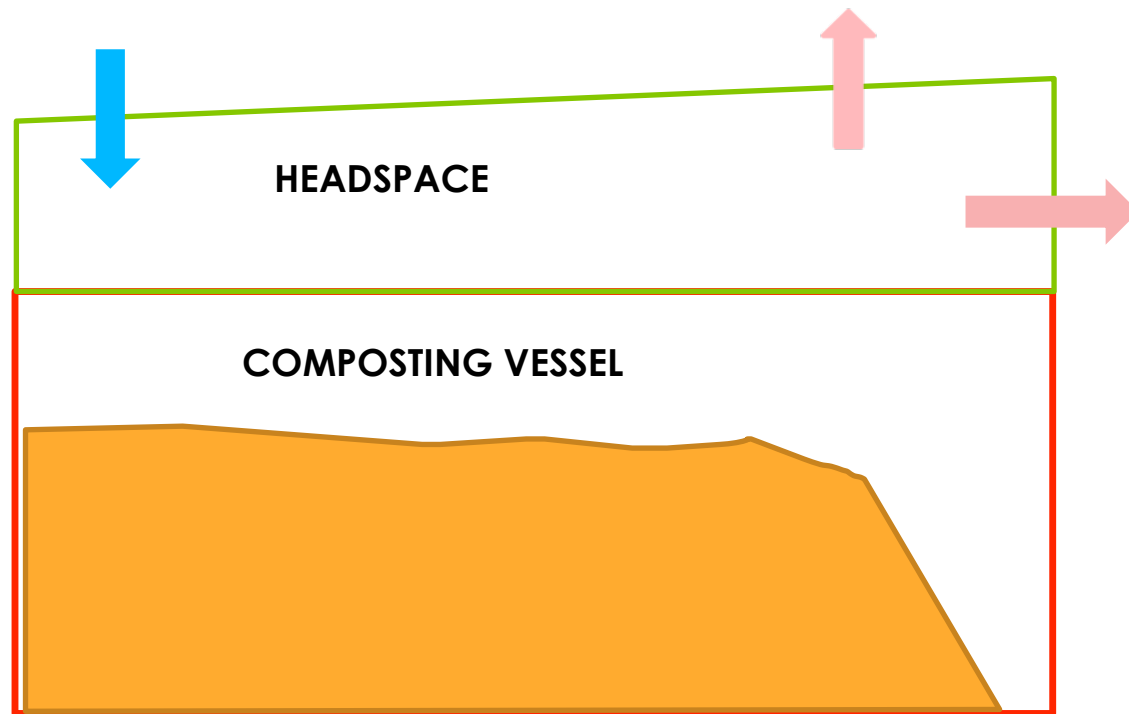
Unique Features

- THP for WAS digestion for all Biosolids
 - Boiler to heat going into biosolids tunnels to ensure PRFP temperatures
- Heating and cooling compost hall
- Odor Control

Calgary, AB

Heating and Cooling

- Winter/Summer Ventilation



Calgary, AB

Odors

- Stringent requirements (5 D/T at odor boundary)



Calgary, AB

Odor Control

- Facility completely enclosed
 - 6 ACH through out facility
 - 10 ACH in screening building
 - 830,000 m³/hr (488,000 cfm)composting building
 - Curing ventilation 618,000 m³/hr (365,000 cfm)

Calgary, AB

Odor Control

- Compost Building
 - Ammonia scrubber
 - Biofilter (enclosed)
 - Roof exhaust fans with mini stacks
- Curing Building
 - Curing process – aerated turned windrow
 - Process exhaust in negative sent to compost building odor control system
 - Roof exhaust fans with mini stacks

Calgary, AB



