

ALTERNATIVE DISPOSAL TECHNOLOGIES & TRANSFER STATIONS

Transfer Plan Review Workshop 2

August 22, 2013



Department of Natural Resources and Parks

Solid Waste Division

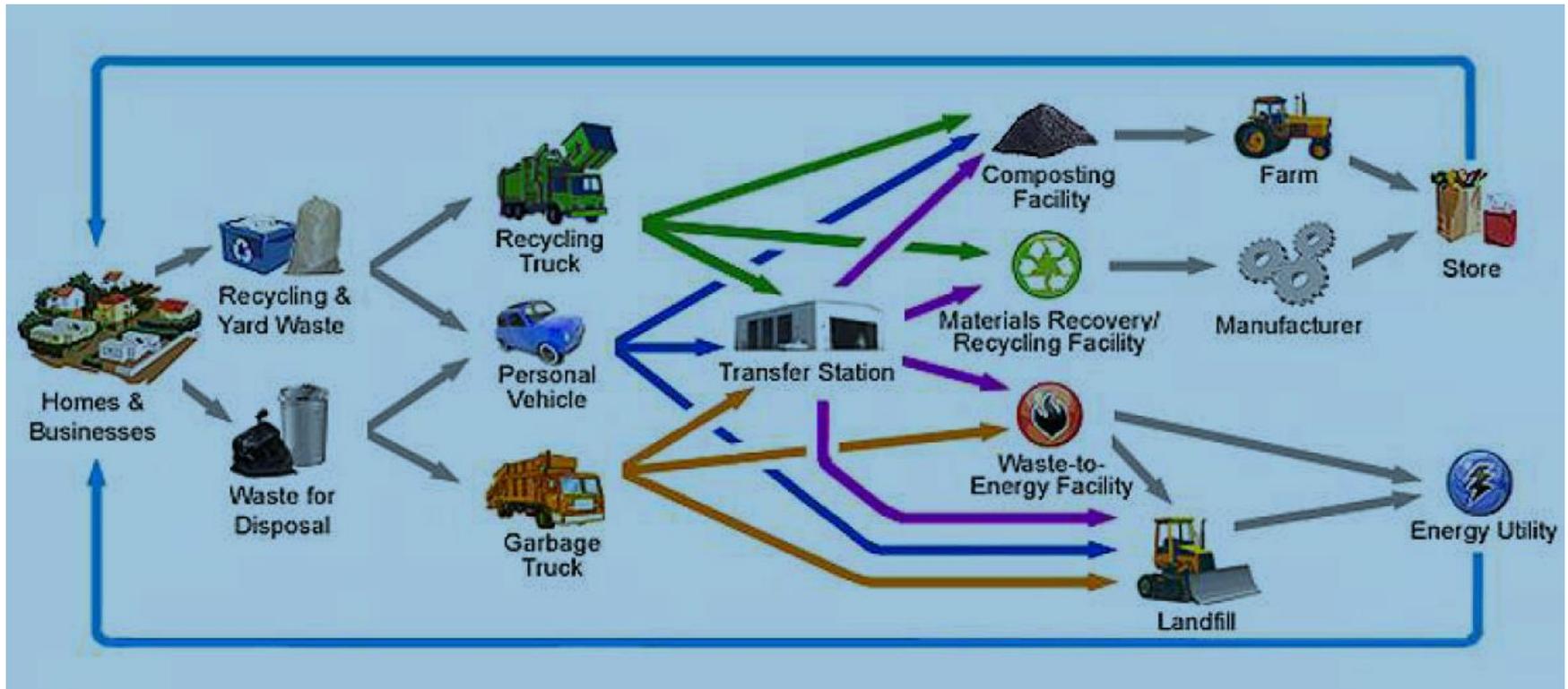
Background

- The division actively tracks developments in waste conversion technologies (WCT) and waste-to-energy (WTE)
- Draft comprehensive solid waste management plan
 - Consideration of WCT and WTE for disposal after Cedar Hills reaches capacity and closes and possible early diversion
 - Consideration of multiple technologies to maximize value
- Optimized Transfer Station Recycling Feasibility Study considers co-location of WCT at transfer stations
- Sustainable Solid Waste Management Study will address alternative disposal technologies

We are not alone

- WCT and WTE are being studied and considered by many jurisdictions
- Conditions vary widely from region to region, community to community
- Common objectives
 - Reduce or eliminate material going to landfills
 - Produce a valuable product – energy, fuel
- All recognize the significant role transfer stations play in any solid waste management system – enabling material to come to a site and be processed and redirected as desired

Massachusetts 2010-2020 Solid Waste Management Plan



What is possible?

- Co-location can have benefits
 - Readily available feedstock
 - Fuel or energy for transfer station operations
 - Share resources
- Space requirements vary
 - Quantity processed
 - Equipment
 - Storage
 - Secondary processing
- Space available at Bow Lake and Factoria and planning for flexibility to use space at South County and Northeast

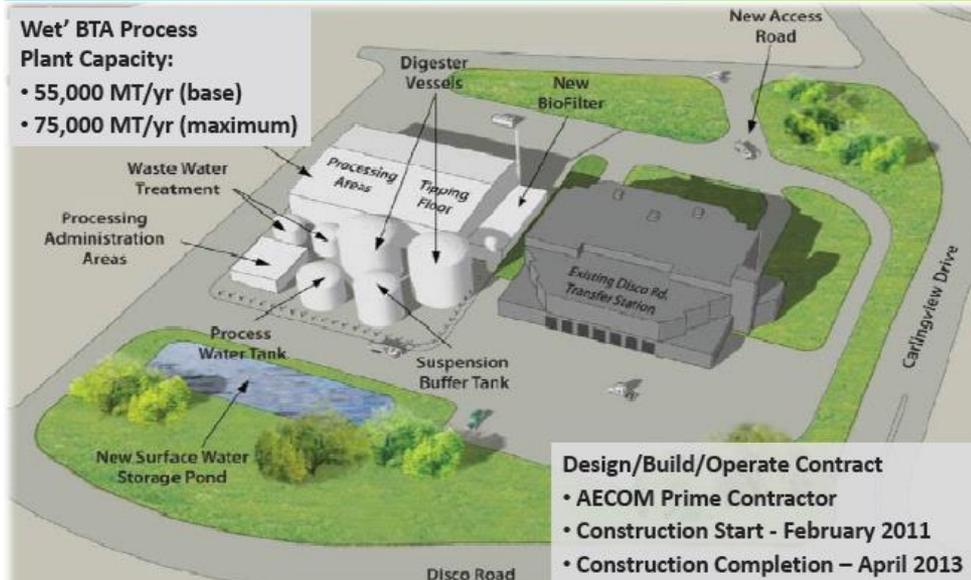
Anaerobic Digestion

Disco Road, Toronto

Disco Road Waste Transfer Station with New SSO Anaerobic Digestion Facility

Wet' BTA Process Plant Capacity:

- 55,000 MT/yr (base)
- 75,000 MT/yr (maximum)



Disco Project Fact Sheet

- Cost; \$59million + \$14million site preparation
- Size (hectares); ~ 1 ha
- Capacity; 75,000+ tonnes / yr SSO
- Residue; 16,500 tonnes / yr (22%)
- Digestate; 28,000 tonnes / yr
- Water consumption; minimal
- Gas production; 8.7 million Nm³ / yr

Accepted Material:

- § fruits
- § meat, shellfish, fish products
- § pasta, bread, cereal
- § dairy products, egg shells
- § coffee grounds, filters, tea bags
- § soiled paper towels, tissues
- § soiled paper food packaging: fast food paper packaging, ice cream boxes, muffin paper, flour and sugar bags
- § paper coffee cups, paper plates
- § household plants, including soil
- § diapers, sanitary products
- § animal waste, bedding (e.g. from bird/hamster cages), kitty litter
- § pet food

Plastics-to-Fuel



Waste Management Agilyx, Portland

Cost (and revenue)

- Costs are highly variable
 - Property – ownership, current use, space needed/available
 - Facility construction, maintenance, and downtime backup
- Partnerships
 - Cedar Hills landfill gas-to-energy plant
 - Designed, built, owned and operated by BioEnergy Washington (BEW)
 - Central Maui Landfill
 - Anaergia Services to design, build, own, operate and privately finance a renewable fuel facility that converts municipal solid waste, food waste, sewage sludge, oils, and grease into renewable liquefied natural gas and refuse derived fuel
 - Disco Road Toronto
 - City owned
 - Privately designed, built, operated
- Revenue can come in various forms
 - Payment for feedstock, lease of space, sale of products, energy credits

Environment

- Regulations/rules are changing based on technological advancements

[Oregon Conversion Technology Rulemaking](#)

- Benefits
 - Diversion from landfilling
 - Fossil fuel replacement
 - Reduced greenhouse gas emissions
- Concerns
 - Air emissions and other pollutants
 - Compatibility with recycling
 - Residue

Service

- Provides an opportunity to beneficially dispose of materials which are not being recycled, creating value which might otherwise be lost
- Encourages a growing and diverse King County economy and vibrant, thriving and sustainable communities
- Safeguards and enhances King County's natural resources and environment

Conclusions

- The transfer system is complementary to WCT/WTE
 - Transfer stations will continue to fill their role as geographically dispersed locations where small loads can be consolidated for more efficient transport to disposal or a processor
 - WCT facilities may be co-located at transfer stations – new transfer facilities would have the flexibility to be compatible
- WCT may provide an opportunity to better utilize the materials that come to the transfer system
- WCT and WTE need further exploration

Links

[Preaching Conversion](#)

[Marketing and Implementing Emerging Waste Conversion Technologies: The Local Effect](#)

[The Southern California Conversion Technology Project](#)

[Waste-to-Energy in California: Technology, Issues, and Context](#)

[Vadxx Energy in Akron](#)

[Zero Waste Energy](#)



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