

Co-Digestion

Harnessing a valuable resource

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Department of Natural Resources and Parks Wastewater Treatment Division

CO-DIGESTION

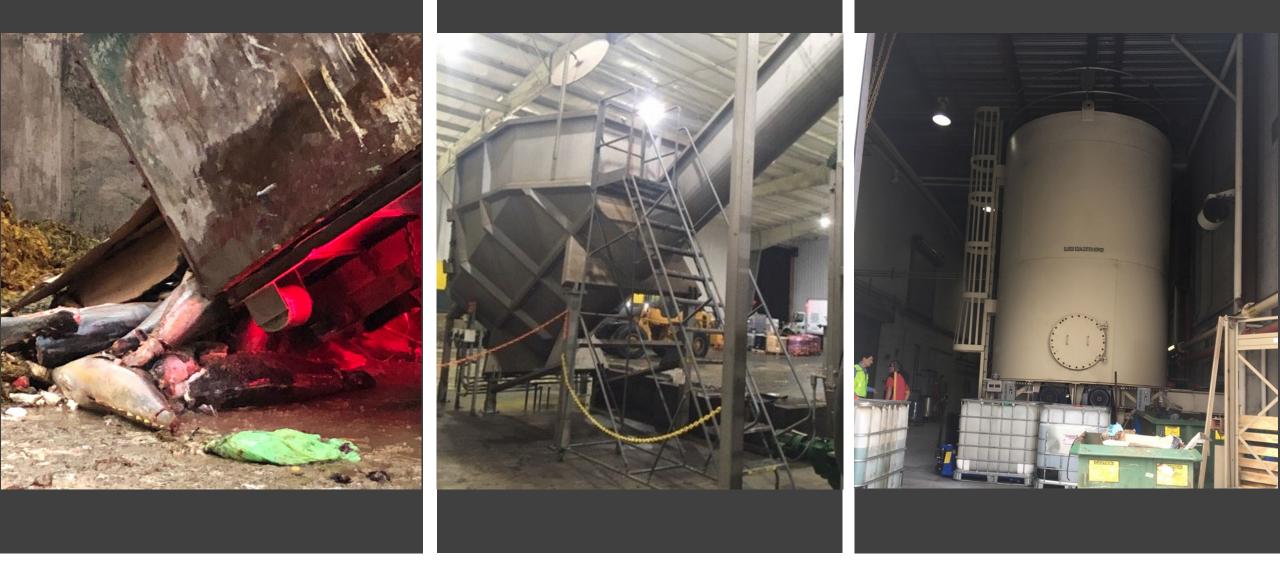
- Commercial food waste is screened to remove contaminants and sent through a blend tank
- Food waste is converted into an organic slurry
- The slurry can then be directly pumped into anaerobic digesters at wastewater treatment facilities
- Co-digestion enhances the digestion process at the treatment plant and increases gas production

2019 WM PROPOSAL: CO-DIGESTION

King County approached by Waste Management

- Wastewater Treatment Division (WTD) and Solid Waste
 Division met to discuss potential for co-digestion in WA State
- King County representatives headed to East Coast for an exploratory visit
 - 3 wastewater facilities, 3 solid waste facilities and 3 food waste process facilities

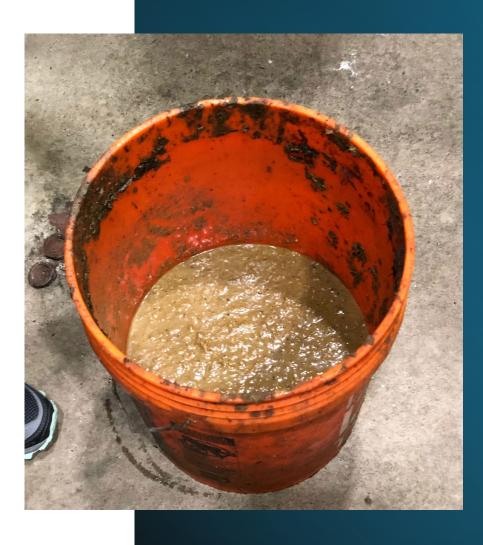
Harnessing valuable resources that would otherwise be lost.



The Process

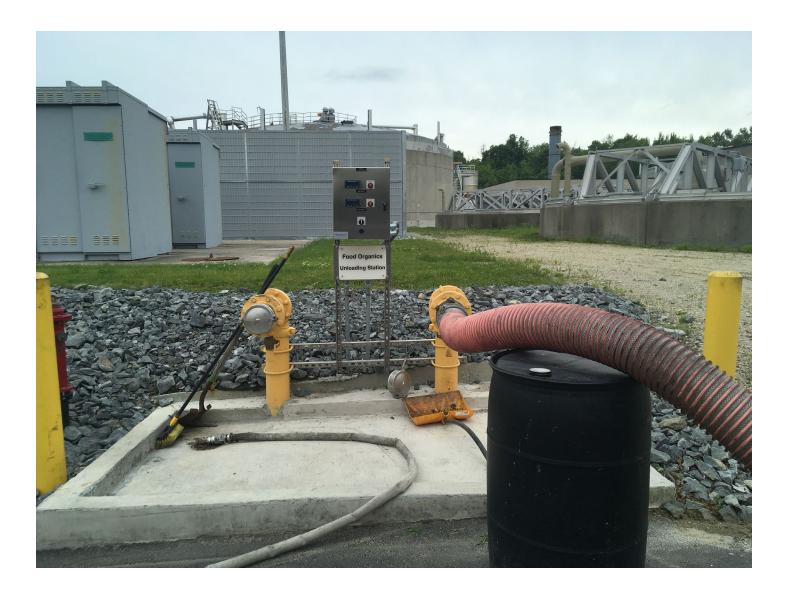
Product Quality

- WTD highest priority: protecting our processes and products.
- Testing:
 - Metals
 - Nutrients
 - pH
 - Chemical Oxygen Demand
 - Total Solids
 - Physical inerts



Boston Key Takeaways

- 2014 Massachusetts banned disposal of organic material.
- Compost facilities maxed out.
- Biogas production reduced greenhouse gas (GHG) emissions by 20%.
- Potential to generate 100% of its energy needs.



New York Key Takeaways

- Facility used to prove the concept.
- The goal is to reduce GHG to 40% below 2005 levels by 2050 and carbon neutral by 2050.
- Two phased approach.



New Jersey Key Takeaways

- Drivers were finance and performance.
- Sought a contract:
 - guaranteed pricing and schedule
 - odor guarantee
 - minimum slurry delivery commitment with specific pricing
 - maximum solids production based on percent increase over historical trend
- Anticipate reaching Net Zero by 2025.



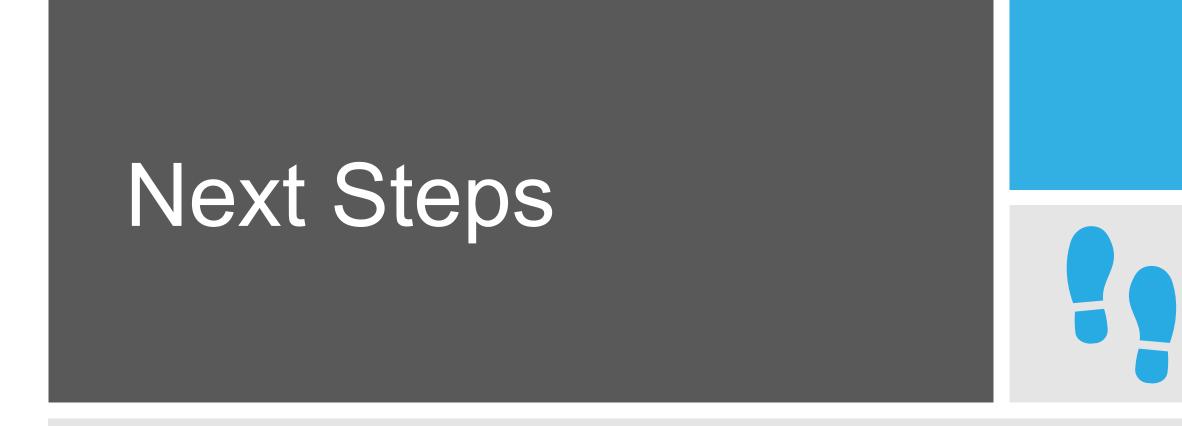
SUMMARY OF FINDINGS

- $\,\circ\,$ 50% increase in gas production
- Little change or variability to the biosolids end-product
- Benefits to the wastewater treatment plant include:
 - Increased Volatile Solids Reduction (VSR)
 - Increased biological activity
 - Increased stabilization of biosolids
 - Decrease in digester foaming events
- Benefits to the environment include:
 - Reduction in GHG emissions
 - Sustainable waste management process
 - Potential landfill diversion (future exploration)

- Largest portion of food waste is on the South End
 - Focus is on Bow Lake and South Treatment Plant
- Phased approach will work best
 - Build volume received over time
- Timing is important
 - Policy changes
 - Permitting
 - Outreach/education



Initial Exploration



- 1. Working with Solid Waste Division to establish internal team
- 2. Determine costs, benefits, revenue potential, constraints
- 3. Siting, processing, operating, etc.
- 4. Consistent volume availability

Questions?

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