



- ✧ **Advanced composting**
- ✧ **Renewable energy**
- ✧ **Organic food production**

Project Update: Prince William County Integrated Organics Processing Facility

Metropolitan Washington Council of Governments
Recycling Committee

September 17, 2020



Introduction and Outline

About Us:

Freestate Farms transforms food and yard waste from cities, businesses, and individuals into high-quality compost, renewable energy, and organic produce.

The benefits of Freestate's integrated facilities are increased soil health and productivity, reduced water use and pollution, minimized greenhouse gas emissions, and overall more sustainable communities.

Having recently opened Phase I of its initial facility through a public-private partnership with Prince William County, Freestate Farms has begun delivering these benefits to Northern Virginia and Metro DC.

Presentation Outline

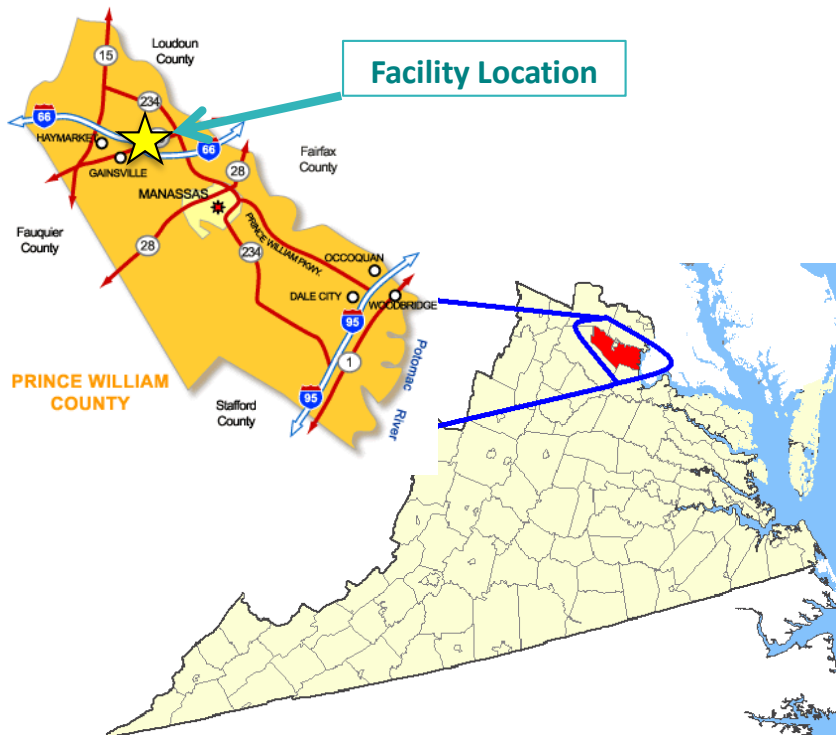
- Freestate – Prince William County Public-Private Partnership
 - Pre-Project Background
 - Driving Forces and RFP
 - Key Project Info
 - Legacy Site Layout
 - Construction
 - Current Status
 - Walk-through of Process
- Benefits, Trade-offs, and Lessons Learned

Pre-Project Background: Prince William County's Municipal Facility



Background

- Suburban county of $\approx 430,000$ residents ($\approx 150,000$ households, and 8,000 businesses)
- Located ≈ 30 miles from downtown Washington, DC



Balls Ford Road Composting Facility

- Began composting leaves and grass on the 30-acre site in 1994
- Citizens Convenience Center
- Commercial and residential yard waste and brush tipping
- Original permitted capacity of 50k tons per year; recently handling ≈ 30 k tons per year
- Simple windrow composting – large piles turned every few weeks with an excavator



Pre-Project Background: Driving Forces and Request for Proposals



Path to the Project

- **Spring 2009** – Began internal discussions about enhanced organic waste processing opportunities and technologies
- **Winter 2011** – Began pilot program to accept Category 1 pre-consumer plant-based food scraps at Balls Ford Road
- **Summer 2012** – Began accepting pre-consumer plant-based food scraps under amended PBR
- **November 2013** – Issued RFP for organic waste management project
- **February 2015** – Executed 20-year contract with Freestate Farms LLC to redevelop existing site for expanded throughput capacity and range of organics processed

Driving Forces Behind Project

- Stagnated recycling rates
 - County recycling rate has hovered around 37% since 2006
- Desire to implement mandatory county-wide yard waste recycling program
- Large regional demand for food waste processing infrastructure

Request for Proposals

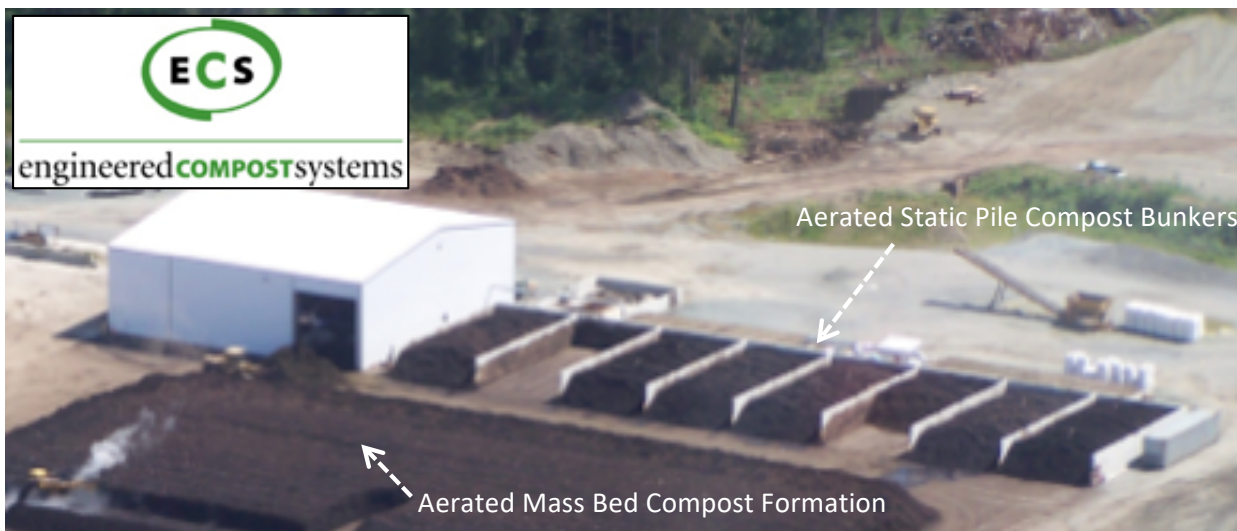
- Technical Proposal
 - Focus on domestic reference sites for technology adoption and operational capabilities
- Financial Proposal
 - Capital Plan
 - Financial Guarantees
 - Insurance / Bond

Freestate — Prince William County P-P-P Key Project Information



| | | |
|--|--|--------------------------------------|
| <p>Phase 1</p> <p>Yard Waste and Food Scraps</p> | <ul style="list-style-type: none"> ✓ Expansion of throughput capacity from 50,000 tpy of yard and wood waste (via traditional composting / mulching) to 100,000 tpy of food, yard, and wood waste (via advanced aerated composting and mulching) ✓ Capable of handling up to 20,000 tons per year of full spectrum (incl. proteins) pre- / post-consumer food scraps | <p>35 Miles from The White House</p> |
| <p>Phase 2</p> <p>Additional Food Scraps, Renewable Energy, and CEA</p> | <ul style="list-style-type: none"> ✓ Expand capacity for an additional 100,000 tons per year of material (including $\geq 40,000$ tpy of food scraps) via additional advanced aerated composting ✓ Installation of ≥ 250 kW of solar panel generation to offset portion of the facility's demand for electricity ✓ Organic food production through controlled environment agriculture (CEA), utilizing electricity generated and heat captured from Ph.II compost system | |

Phase I System Reversing Aerated Static Pile Composting



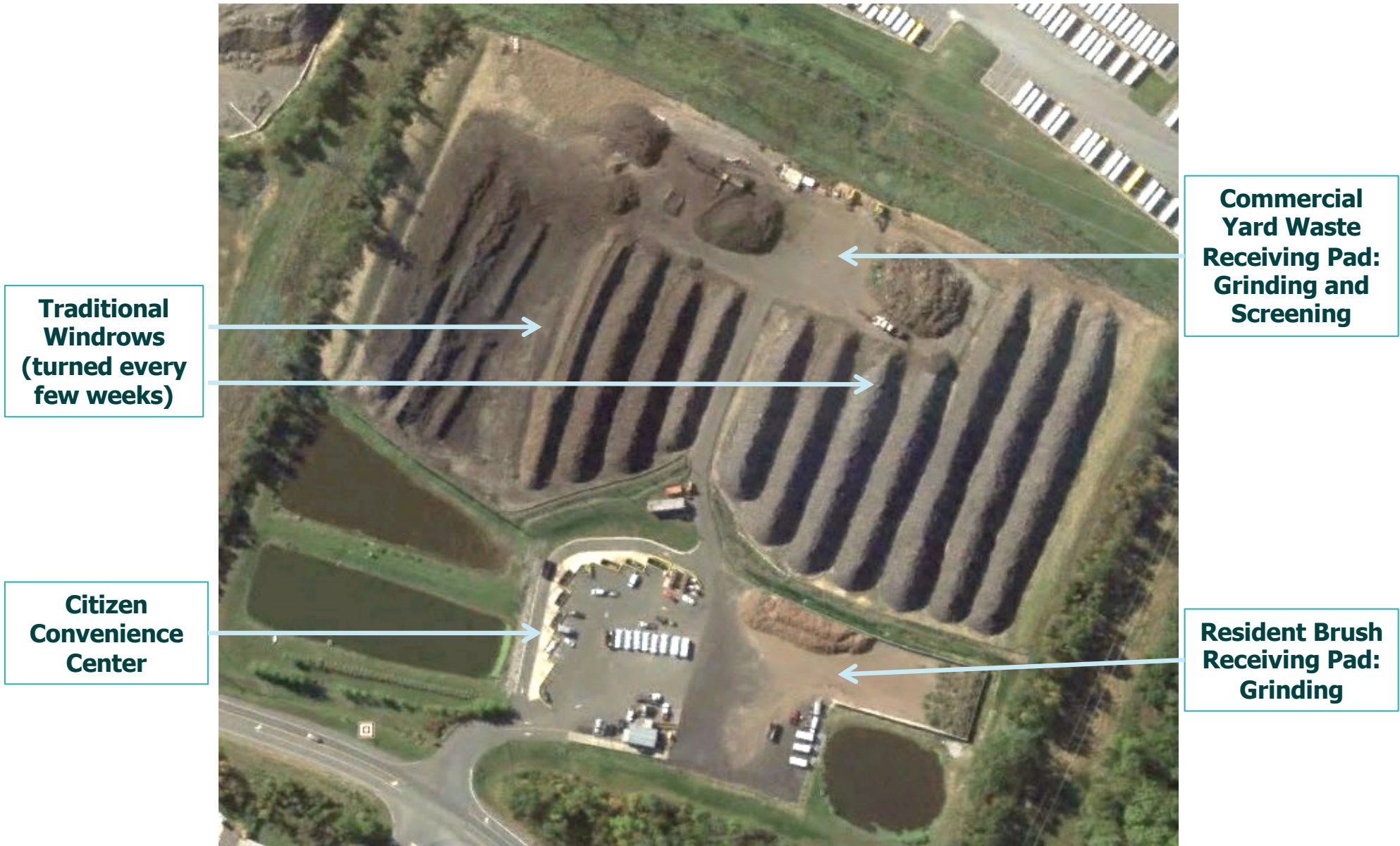
The foundational strategic element of the Freestate Farms system is advanced aerated composting, and we have chosen to partner with **Engineered Compost Systems** of Seattle, Washington for our initial project in Prince William County.

ECS's in-house engineering and design expertise has been well proven at the 35+ sites across the U.S. where its systems are presently in operation, with many more under construction and development.

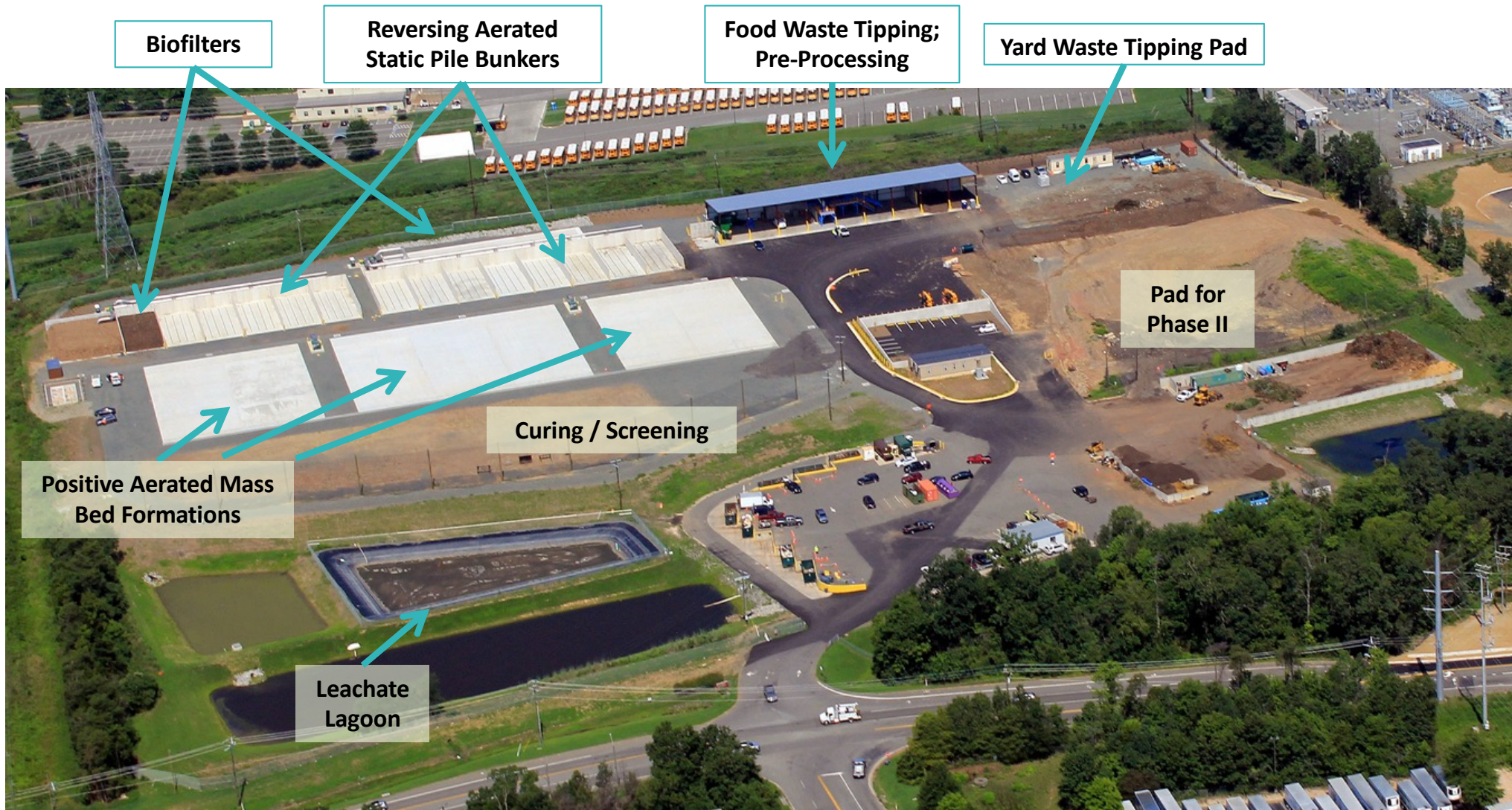


ECS's systems include intelligent process control and reliable environmental protections in the production of top quality compost products that conform to health and safety regulations and also meet the USCC's Seal of Testing Assurance (STA) Standards.

Balls Ford Road Compost Facility: Legacy Operation



Balls Ford Road Compost Facility: Current Status – Phase I System Operational



as of August 10, 2020

Phase I Construction Time-Lapse



Phase I Operation – Pre-Processing Equipment



Phase I Operation – Static Pile Bunkers with Reversing Aeration



Phase I Operation – Biofilter and Mass Bed with Positive Aeration



Benefits of the Freestate – Prince William Public-Private Partnership



Benefits to Prince William County

- Long term solution for yard- and food-waste management, which make up 30% of incoming tipped material, and thus extending the life of the County landfill by 10-15 years.
- Increased overall recycling levels through wider range and greater capacity of organic waste processing.
- Optimization of existing asset — same site, with almost 4x the processing capacity, and which will result in an increased variety and volumes of sustainably generated products.
- Donated compost/mulch to County-based non-profits and discounts for County agencies.
- Receive annual profit sharing payment and portion of proceeds from sales of environmental attributes (e.g., renewable energy credits, carbon offset credits, etc.)
- Collaboration with County K-12 schools — organic waste division policies/practices at schools, and educational space and opportunities at the integrated full-circle Freestate site.

Benefits to Freestate

- Site control; use of amenities
- 20-year term and two 5-year renewals
- Payment for “County Material” and policy allowing residents and businesses to tip for free
- Permitting support – state and local, environmental and building
- Public support and public relations assistance
- Ongoing operations and second ancillary location
- Reservoir of knowledge, information, and existing relationships / introductions
- Assistance with tax-exempt financing



Thank You!

Chief Executive
Douglas Ross

www.freestatefarmsva.com