

# CITY OF APPLETON – OUTAGAMIE COUNTY COMPOST PILOT

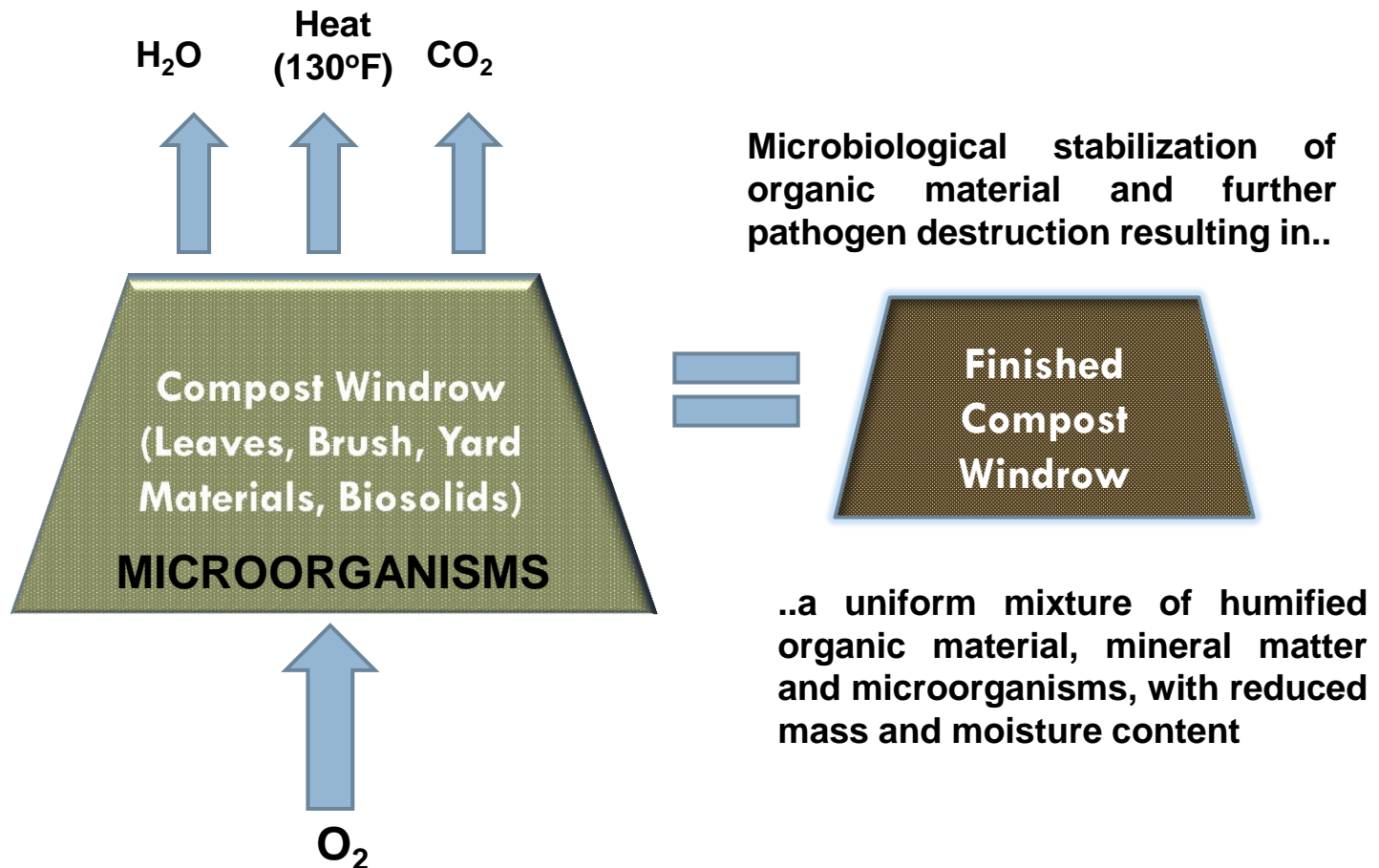


Status Update  
Appleton Utilities Committee  
April 2015

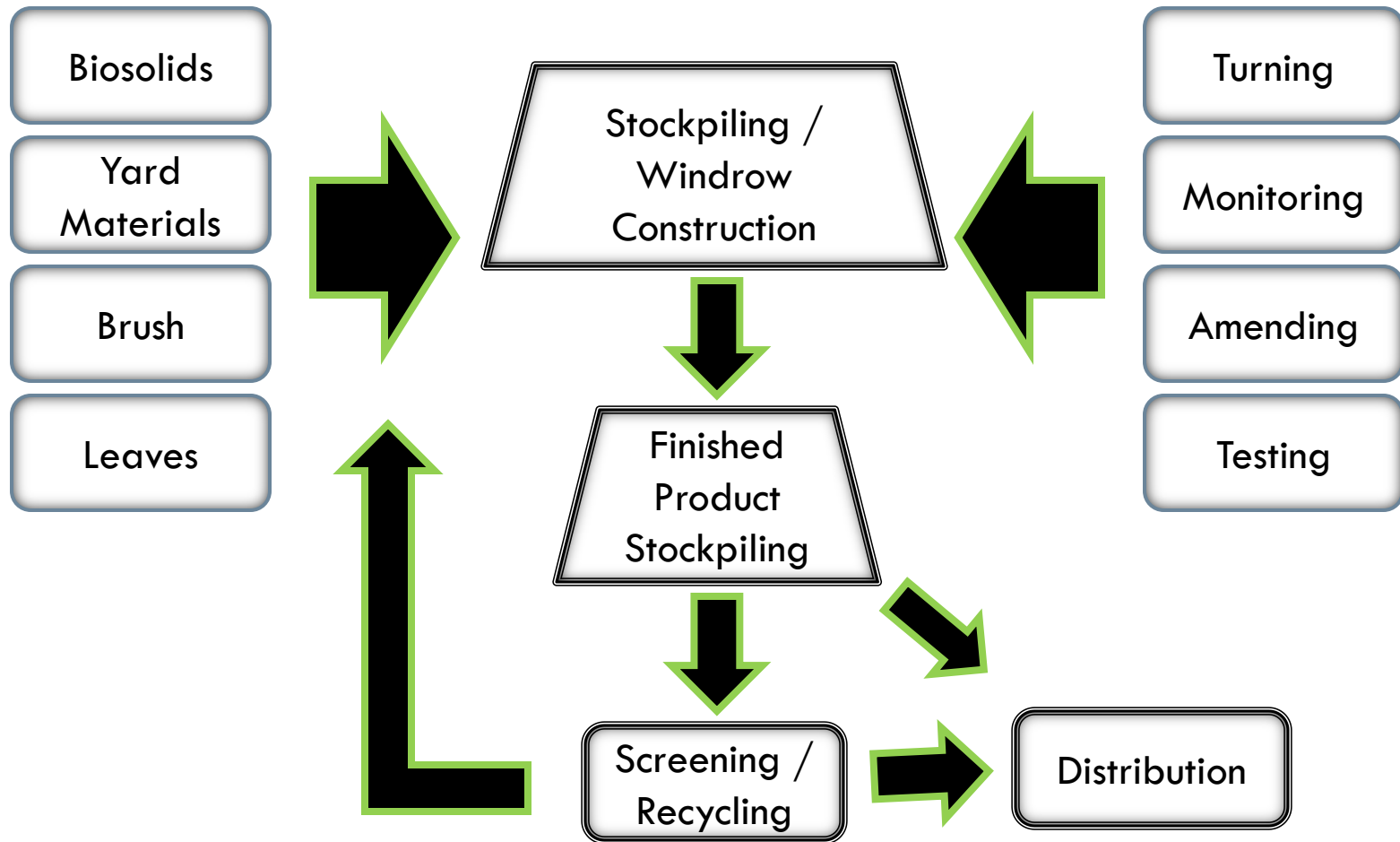
# Presentation Summary

- What is Composting
- Why We Are Composting
- What Has Been Accomplished
- Lessons Learned
- Current Status
- Future Planning

# What is Composting?



# Windrow Processing Overview



# Composting Factors

- Biosolids and Amendment Characteristics
  - ▣ % Moisture, Carbon:Nitrogen, Particle Size/Structure, Porosity, Biodegradability, Energy Content (Volatile Solids from Carbon)
- Initial Mix Ratios
- Aeration Rates or Turning Intervals
- Detention Time

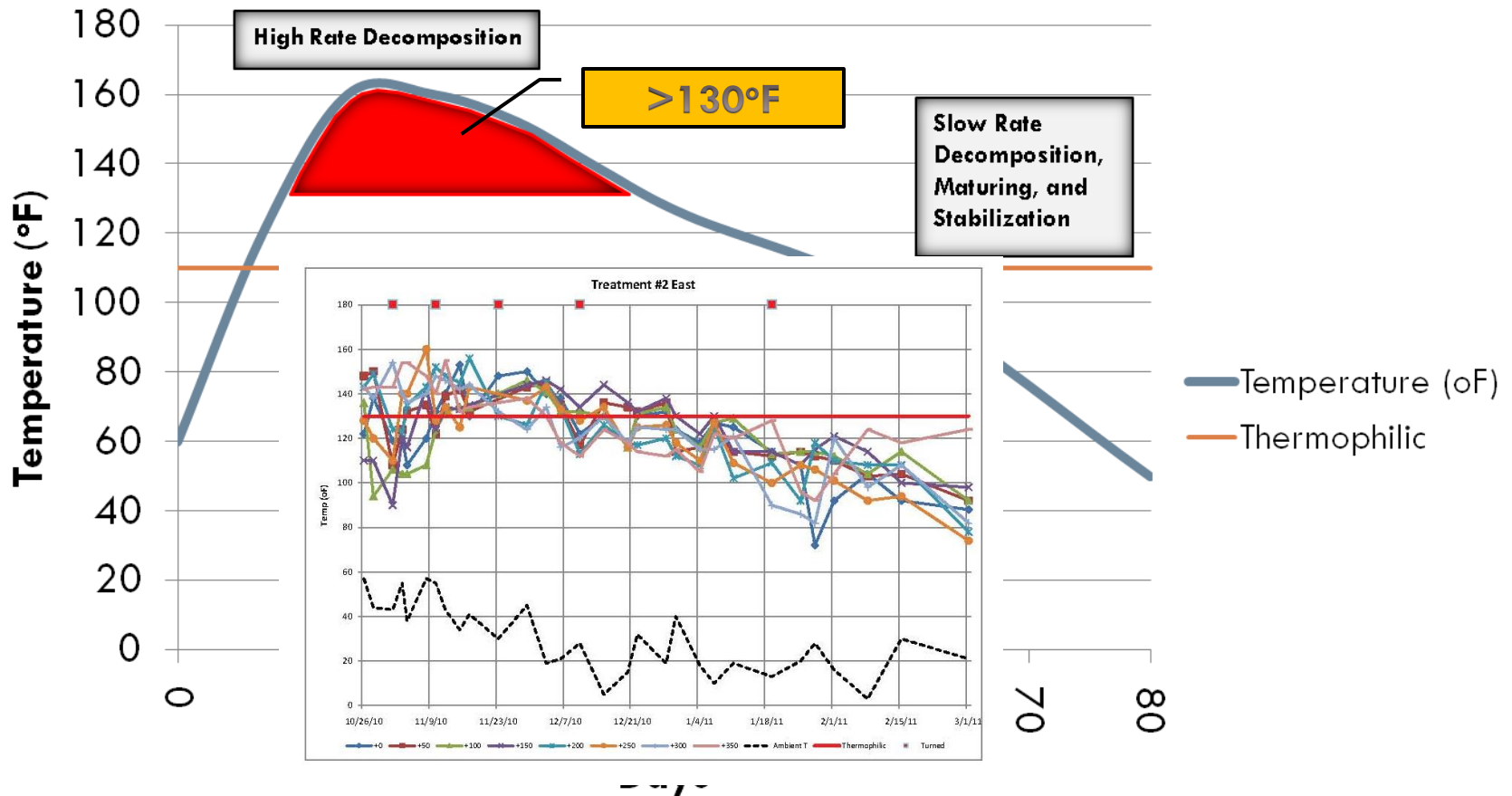


# Biosolids Composting Requirements

- Biosolids regulated under Wisconsin Administrative Codes NR 204.
  - Windrow composting to generate a Class A biosolids must do the following:
    - Maintain  $>130^{\circ}\text{F}$  for 15 days.
    - Minimum of 5 turnings required.
    - Fecal coliform  $<1,000$  MPN/g TS



# Compost Temperature Cycle



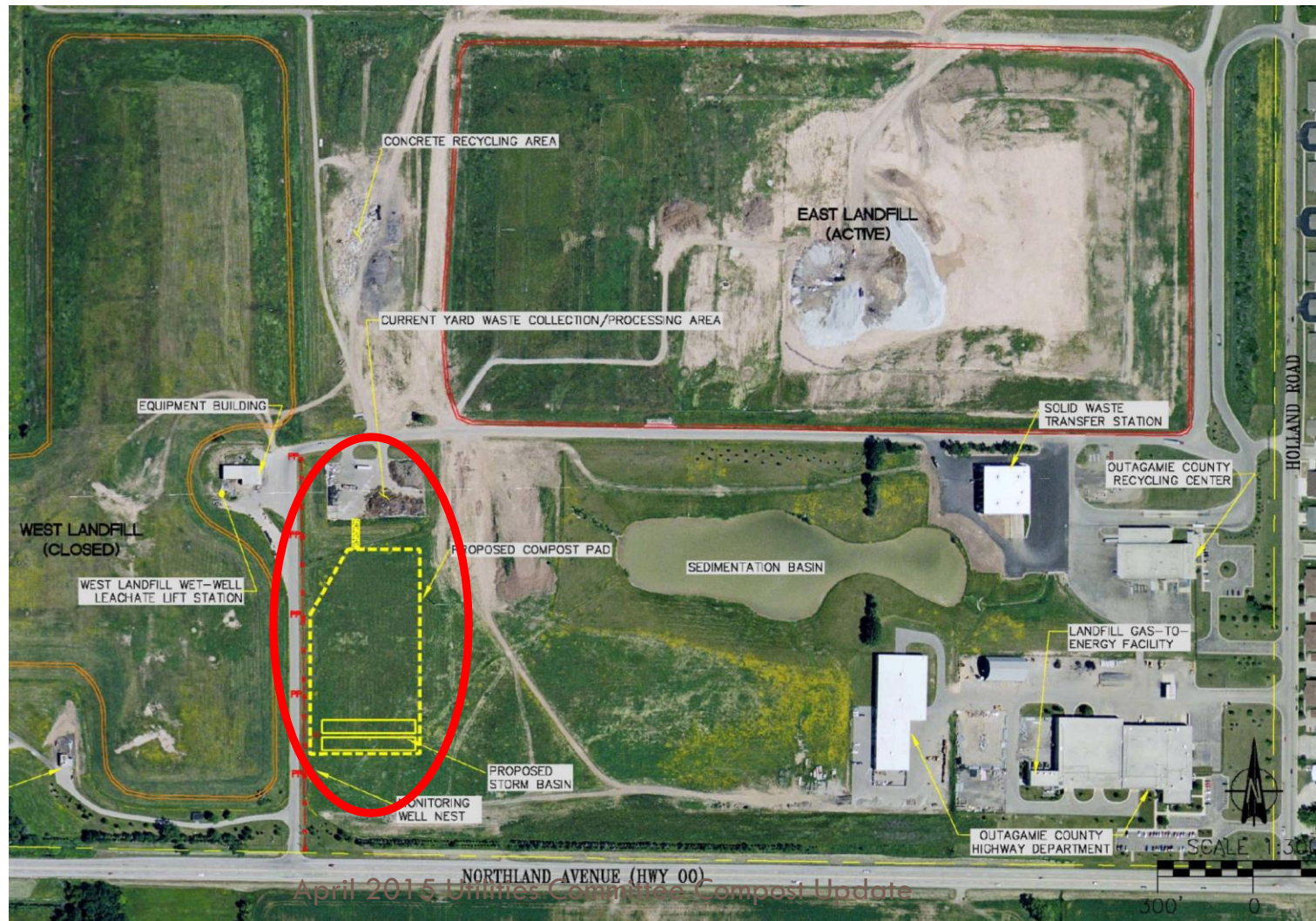
# Biosolids Compost “Advisory Group”

- The City of Appleton Wastewater Treatment Plant (AWWTP)
- Appleton Department of Public Works (ADPW)
- Outagamie County Department of Solid Waste (OCDSW)

**Mission: “Seek long-term, cost-effective, and environmentally sound alternatives for management of organic waste streams.”**



# Compost Pilot Location



# Why Are We Doing It?

- DNR mandated 180-day sludge storage requirement.
  - ▣ The AWWTP has historically not met this NR 204 requirement.
- Increasing and more stringent regulations.
  - ▣ Land based phosphorus standards.
  - ▣ TMDL
- Competing land uses.
  - ▣ Urban and rural sprawl
  - ▣ Expanding large dairy operations (CAFOs)
- Diversify options for environmentally responsible beneficial use.



# Why Are We Doing It?

- Other options exist for the AWWTP:
  1. Agricultural land application
    - Upside: Cost effective when land is close and available.
    - Downside: Weather conditions, various regulations, and farming practices dictate when and how much; unpredictable; contract costs for transportation, land application, and tillage closely associated with fuel costs (i.e. fuel surcharges).
  2. Landfilling
    - Upside: Reliable.
    - Downside: Limited quantities accepted, costly tipping fees, contract costs for transportation closely associated with fuel costs (i.e. fuel surcharges).



# Compost Uses

- Agriculture
- Commercial Landscapers
- Municipal - Parks, Engineering
- Sports Turf
- Restoration/Reclamation
- Soil Blenders/Conditioners
- Retail, Specialty Blenders (Lawn & Garden)





**OCTOBER**



**NOVEMBER**



**DECEMBER**



**JANUARY**

# 2010-2011

- ❑ Trial #1 and Trial #2 completed (approx 6,500 yds each).
- ❑ “Best mix and best method” established
- ❑ All treatments tested for STA parameters; considered high quality “finished”.
- ❑ Greenhouse study verified weed seed destruction and positive impact on plant growth.
- ❑ Registered with the US Compost Council.
- ❑ Compost distribution plan approved by DNR.

# 2012-2013

- ❑ Optimum Compost Blend Identified thus Transitioned from “Trial” Processing
- ❑ Economic Feasibility Report Completed
- ❑ UW Oshkosh Research Study
- ❑ Facility Operations and Marketing Audit
- ❑ Completed Various Demonstration Projects
- ❑ Extended Intergovernmental MOU with County(2013-2016)
- ❑ Staff Transition 2013

# 2014-2015

- Approximately 30,000 CY Composted Since 2010
- “New” Outagamie County Department of Solid Waste Director
- Resume Compost Processing in Spring 2015
- WPDES Permit Expires September 30, 2015. New Permit will include Compost Operation (**1st Biosolids Compost Facility in Wisconsin!**)
- Actively Engage Potential Large Scale Compost Users: Landscapers, Contractors, & Highway Dept



# Lessons Learned

## People Matter

- ❑ Outagamie County Partner – MOU
- ❑ Compost Contractor
- ❑ UC and Common Council Support

## Too Big Too Small

- ❑ Resource Prioritization
- ❑ Product Storage/Availability
- ❑ Program Costs

# Defining Program Costs

<b>Land Application</b>	<b>Contractor Cost (\$/WT)</b>
Biosolids Land Application <40 Miles	\$13
Biosolids Land Application >40 Miles	\$18

<b>Composting</b>	<b>Contractor Cost (\$/WT)</b>
Compost Turning, Biosolids Hauling, Brush, Pad Maintenance and Biosolids	\$30

<b>Landfilling</b>	<b>Contractor Cost (\$/WT)</b>
Disposal and Transportation to the Outagamie County Landfill	\$45

# Future Planning: 2015-2020

- WPDES Permitting/MOU with OC
- Develop Larger Volume Users
- Develop Product Accessibility
- Program and Capital Planning
- Appropriations (Windrow Turner, Staff, etc.)



# Questions and Discussion

