


Energy Recovery in Resource Recovery Parks

The Kent County, MI Project

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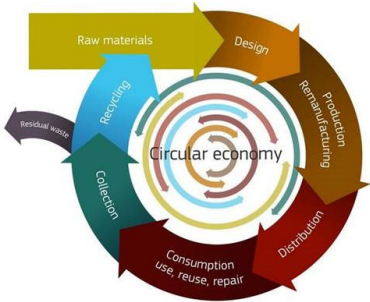
2018 EEC / WTERT Bi-Annual Conference
October 4, 2018



The Vision: A Circular Economy



Focus on *(In this order)*:

- Reduce
- Reuse
- Recycle
- Recover



Vs

Linear economy



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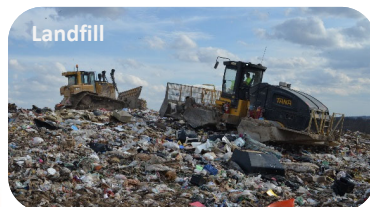
WHAT IS A RECOVERY PARK?

- **Recovery Parks, known by several names:**
 - Sustainable Business Parks,
 - Eco-Industrial Parks; or
 - EcoParks
 - In academic circles: Industrial Symbiosis or Industrial Ecosystem
- **Field: Industrial Ecology - Fairly new: early 1990s**
 - Applies concepts of symbiosis in nature to industry in order to reduce energy use, reduce entropy, maximize efficiency, and gain economic edge
 - Companies in proximity to each other collaborate to use each other's by-products as inputs and share resources when possible.



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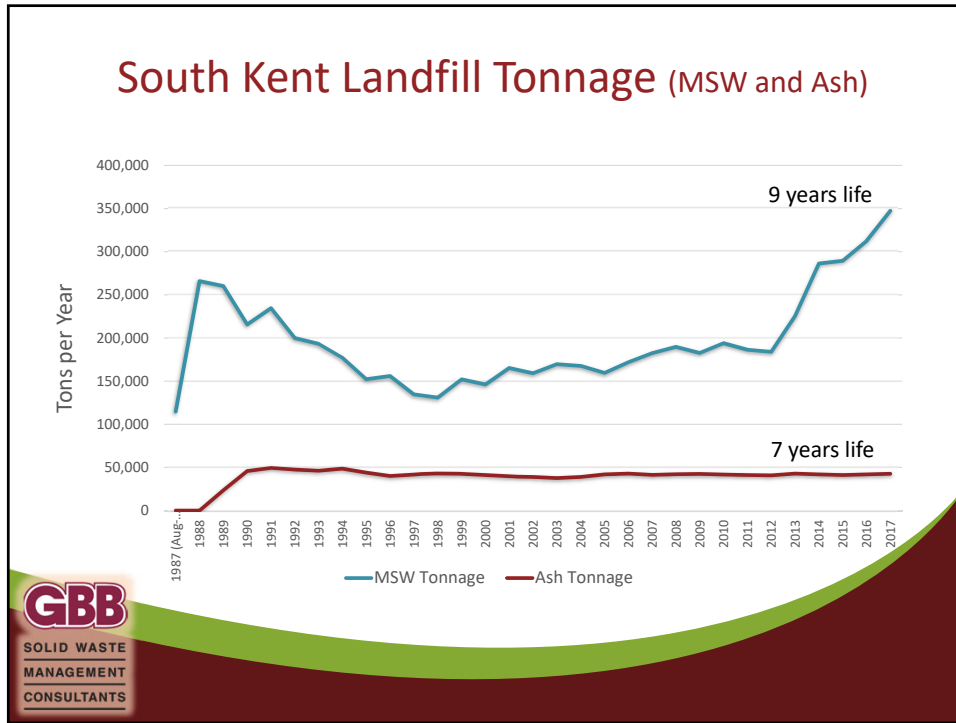
Kent County Michigan Today: An Integrated Solid Waste Management System including:



- + Transfer Station
- + SafeChem Centers
- + Recycling Drop-Off Stations
- + Legacy Landfills



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KENT COUNTY DEPARTMENT OF PUBLIC WORKS

THE VISION: A PARADIGM SHIFT



20%

2020



90%

2030

2020

REIMAGINETRASH.ORG

2030

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 SOLID WASTE
 MANAGEMENT
 CONSULTANTS

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Why a Resource Park?

- Increase options for landfill diversion
- Support Local Businesses that want to go Zero Waste to Landfill – Western Michigan furniture industry
- Build environmental industry
 - Employment
 - Green jobs
 - Redevelopment



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The Planning Partners



Waste Quantity & Characterization Study
Market Analysis
Technology Evaluation



Infrastructure & Zoning
Site Plans



Stakeholder Engagement
Communications

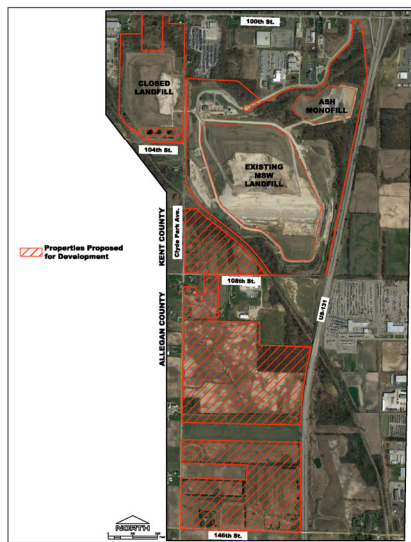


Funding Sources & Mechanisms



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The Future



250 acres for future landfill, will become a Sustainable Business Park that:

- Lays the **critical infrastructure** to support a regional circular economy
- Leverages **private sector development**
- **Attracts business** to localize the entire recycling or conversion process
- Preserves **open space**
- Expands **research**
- Generates and uses **renewable energy**



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Kent County SBP Master Plan

- Stakeholder Meetings and Facility Tours
- Existing Condition Analysis (Local A&E on team)
- Waste Stream and Market Analysis
- Funding Sources
- Technology Overview & Analysis
- Issue Technology Request for Information (RFI) and Evaluate Results
- Conceptual Site Development Plan



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Technology RFI

- Proposals for managing all or a part of the waste stream
- Open to all processing technologies
- Classified according to level of maturity

Classification	Reference Plant	Allowable Scale up	Allowable Facility size
Proven	3 years operation	No greater than 2X	> 50 tpd
Demonstrated	1,000 hours operation	No greater than 10X	> 50 tpd
Pilot	NA	NA	< 50 tpd



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23 RFI Submittals Received:

- WTE Ash processing & mining
- Source separated organics
- Mixed waste material recovery with composting
- Mixed waste material recovery with RDF / SRF production
- Mixed waste material recovery with conversion to biofuels



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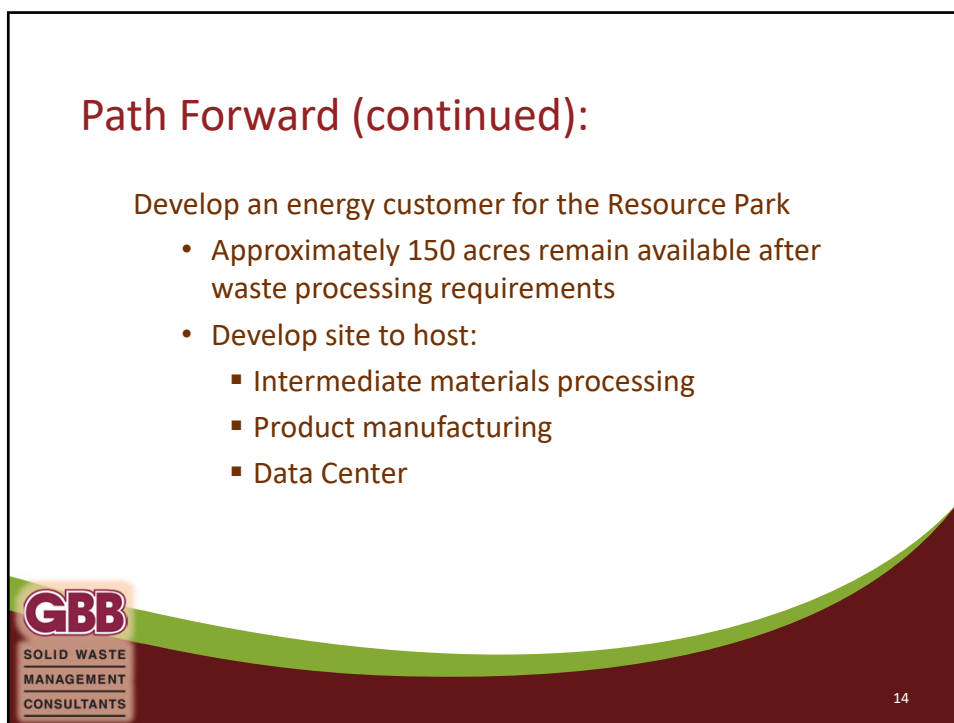


PATH FORWARD

- Master plan presented to Kent County DPW Board for approval in early August
- Approval from the DPW Board and the Kent County Commissioners Q4 2018
- Early “low hanging fruit” projects
 - WTE Ash reuse / mining
 - C&D Recycling
 - Source separated organics
- Industrial push for Zero Waste to Landfill capacity
- RFP for mixed MSW processing 2019




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Path Forward (continued):

Develop an energy customer for the Resource Park

- Approximately 150 acres remain available after waste processing requirements
- Develop site to host:
 - Intermediate materials processing
 - Product manufacturing
 - Data Center



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Thank you !

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