

Making Space for Sustainability:  
*A Kent County Case Study*

**DEQ** **mrc**  
michiganrecyclingcoalition

36TH ANNUAL  
CONFERENCE &  
STATE OF RECYCLING

MAY 15-17, 2018 KALAMAZOO RADISSON

CONNECTING  
THE DOTS  
CLOSING  
THE LOOP

 **KENT COUNTY  
DEPARTMENT OF  
PUBLIC WORKS**

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Communications & Marketing Manager

 **GBB**  
SOLID WASTE  
MANAGEMENT  
CONSULTANTS

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TODAY:  
Circular Economy Vision

Kent County Sustainable Business Park  
-Concept Development  
-Master Plan

National View Forward



**Our Path Here:** Open Dumping in the Grand River  
(pre-1895)



**Our Path Here:** Coal-fired Garbage Burner (1897)



**Our Path Here:** Piggeries (early 1900s)



**Our Path Here:** Dumps Featuring Open Burning  
*29 open dumps by 1965*

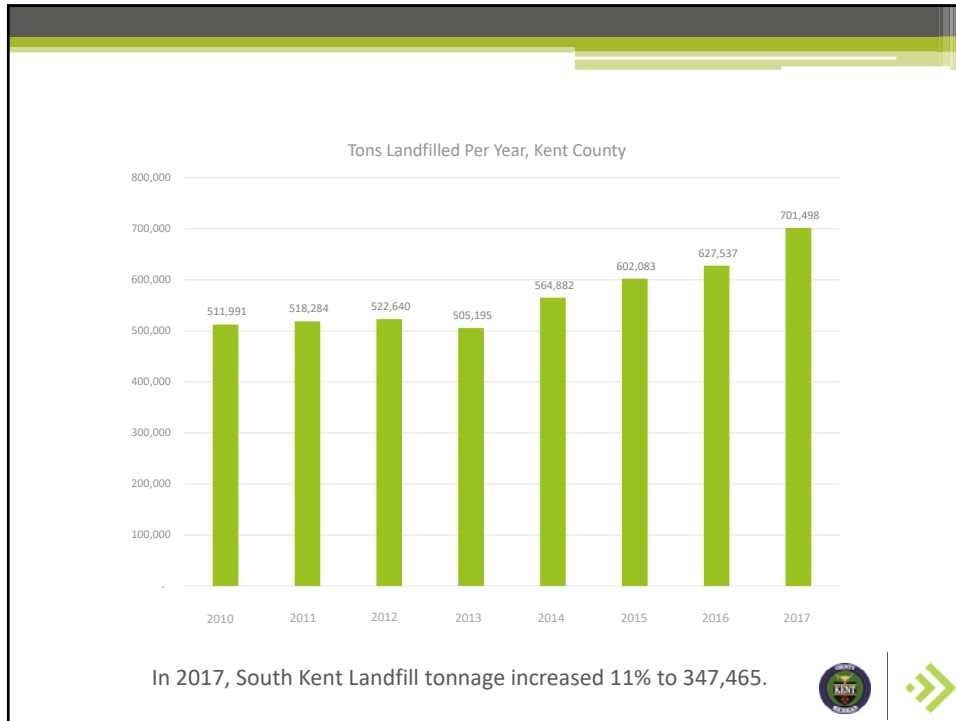


**Today:** An Integrated Solid Waste Management System including:



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






2017 Landfill Reports

**Kent County:**  
**2,104,495 cubic yards**



**2**  
Michigan  
stadiums



## 2017 Landfill Reports


**Kent County:**  
**2,104,495 cubic yards**



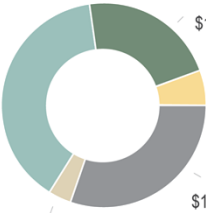
...or  
**9**  
Van Andel  
Arenas



## Landfill Characterization Study




### Total Value of W. Michigan MSW Material Disposed (\$)



Material Category	Value (\$)
Plastic	\$20,270,206
Paper	\$11,702,116
Textiles	\$3,156,777
Metal	\$15,057,855
MI Deposit	\$1,841,993

Source: West Michigan Sustainable Business Forum  
2016 Michigan MSW Valuation Study. [wmsbf.org/msw](http://wmsbf.org/msw)



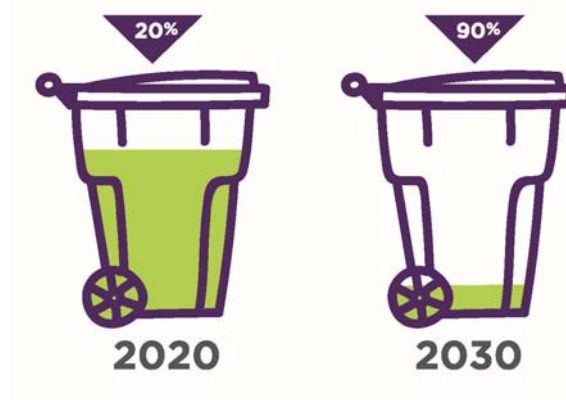
## The Vision: Landfilling as a Last Resort

- Construction & Demolition Debris Processing
- Composting
- Energy Technology
- Materials-specific Processing
- Business Incubator
- One-to-One Materials Exchange
- Research

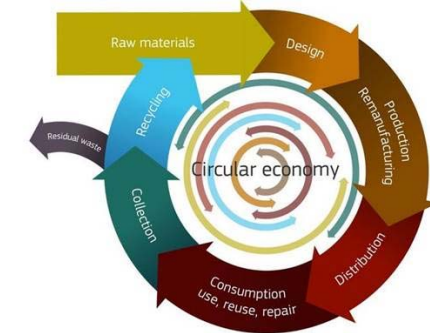
The circular model builds & preserves economic capital, natural resources and social capital for the common good.



## The Vision: A Paradigm Shift



## The Vision: A Circular Economy in West Michigan



Vs

Linear economy



## The Future:



Instead of using these 200 acres for future landfill, we will develop 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**
- Begins to **close the loop** in West Michigan





## The Planning Partners:



Waste Quantity & Characterization Study  
Market Analysis  
Technology Evaluation



Infrastructure & Zoning  
Site Plans



Stakeholder Engagement  
Communications



Funding Sources & Mechanisms



## KENT COUNTY SUSTAINABLE BUSINESS PARK CONCEPT DEVELOPMENT

- HISTORY
- EARLY EXAMPLE
- LOCAL DEVELOPMENT FOR KENT COUNTY

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MANAGEMENT  
CONSULTANTS

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## HISTORY

- **Sustainable Business Parks, known by several names:**
  - Eco-Industrial Parks / EcoParks
  - Industrial Symbiosis
  - Industrial Ecosystem
- **Field: Industrial Ecology - Fairly new: early 1990s**
  - Applies concepts of symbiosis in nature to industry in order to entropy energy, 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.

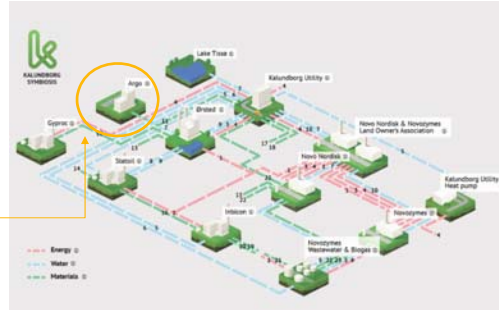
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## EARLY EXAMPLE

- **Kalundborg Eco-Industrial Park**

- **Kalundborg, Denmark**
  - First known Industrial Symbiosis
- **First companies: 1959**
  - Refinery, powerplant, pharmaceutical plant
- **Began organizing as a Symbiosis in late 1980s**
  - "a cooperation between different industries by which the presence of each...increases the viability of the others, and by which the demands of society for resource savings and environmental protection are considered"<sup>2</sup>



- ARGO handles waste for companies in the Kalundborg Symbiosis as well as companies and households in nine municipalities on Zealand. ARGO is a stakeholder owned waste management company. The waste is divided into fractions and recycled and reused as much as possible. The remainder is used for electricity and heat production<sup>2</sup>



<sup>1</sup> <https://web.archive.org/web/20080210080326/http://www.earthportal.org/?p=364>  
<sup>2</sup> <http://www.symbiosis.dk/en/>

## County Waste to Energy Facility



- Two lines; room for a third
- 678 TPD average processed in 2014
- Third line could be as large as 500 TPD (Covanta)
- Current contracts end in 2023



## GBB Zero Waste to Landfill Study

### Purpose

- Identify opportunities for the County DPW to work with industries to increase Zero Waste to Landfill (ZWLF) options in the region
- GBB and SRG hired to investigate

### Scope

- Communicate with major regional industries interested in ZWLF
- Determine feedstock available for processing/conversion
- Evaluate approaches and technologies



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## GBB Zero Waste to Landfill Study (cont'd)

### Methodology

- Collect data about the regional manufacturing marketplace
- Conduct meetings with four manufacturers
  -  GR LABEL
  -  HAWORTH
  -  Herman Miller
  -  Trendway
- Do independent research
- Develop three generalized project concepts
- Analyze information



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## GBB Zero Waste to Landfill Study (cont'd)

### Conclusions

- Industry has high interest in ZWLF
- Significant fuel supply
- Reusable MDF supply possibly
- County has land for SBP
- *The Right Place* wants to help

### Recommendations

- Develop MOU with *The Right Place* to advance ZWLF projects with manufacturers
- Involve other strategic partners, like the Design Group
- County participate as long as industries do
- Develop conceptual site plan for South Kent Landfill SBP
- County expand offerings to provide recycling technical assistance to commercial waste generators



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## KENT COUNTY SUSTAINABLE BUSINESS PARK MASTER PLAN



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## Kent County SBP Master Plan

- The vision is that SBP will replace the need for consuming significant landfill resource continuously
  - with an estimated three (3) major and 3-5 smaller SBP tenants.
  - Likely larger tenants could be a mixed-waste processing facility (MWP), an organics processing facility as well as an energy facility that takes residue from MWP.
  - The smaller tenants may be waste processors who manage specific waste streams or who convert recovered materials into intermediate or final products. Off-site users of engineered fuel produced should also be considered.
- GBB Team will identify the type of technologies and tenants that could inhabit the SBP to be the missing link between the waste stream and the final consumer.
- Develop a Master Plan for the design and construction of public infrastructure to support the businesses locating into the SBP.
- Research and describe potential funding sources for both the SBP infrastructure improvements and the potential SBP tenants.
- Evaluate how the waste management services provided by the SBP tenants might interact with Kent County's existing waste management infrastructure



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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
- Put out RFI and Evaluate Results of the RFI
- Conceptual Site Development Plan
- Conclusions & Recommendations



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## Stakeholder Meetings

- Held November 14-16, 2017 in Grand Rapids
- Participants included:
  - Business/economic development
  - Haulers
  - Regional Manufacturers
  - Municipal Officials
  - Environmental Groups
- Maintain engagement throughout process



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## Stakeholder Review Committee

1. Dick VanderMolen – chair
2. Bill Stough – representing manufacturers
3. John VanTholen – representing waste haulers
4. Rick Chapla – representing economic development interests
5. Katie Venechuk – representing state government
6. Kari Bliss – representing local business
7. Bill Wood – representing environmental interests
8. Steve Achram—representing building and construction industry
9. Doug LaFave—municipal representative (Kent County)
10. Jeff Miling—municipal representative (Allegan County)



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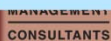
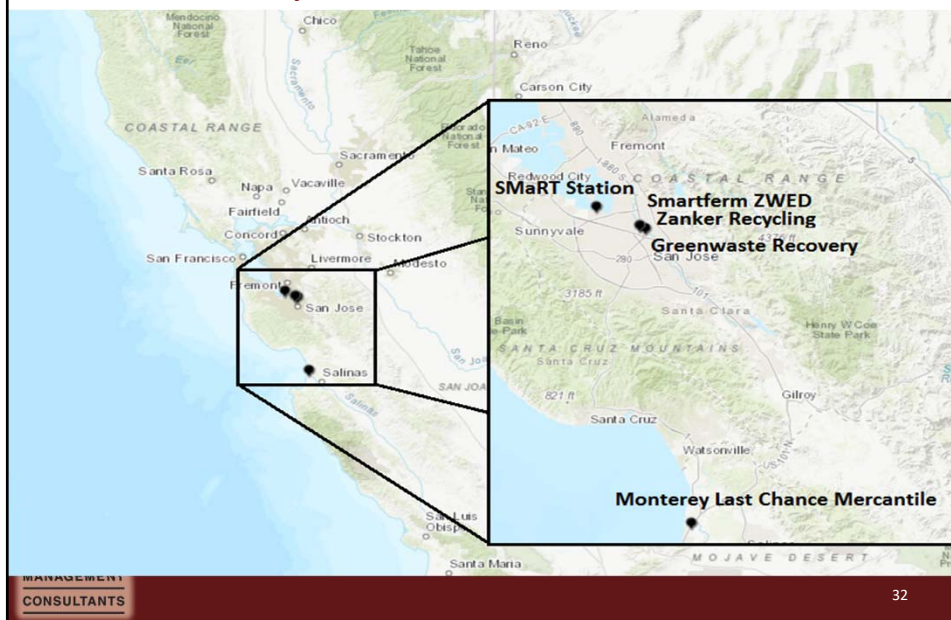
## Facility Tours

- Team of County representatives visited several advanced waste processing facilities
- San Jose, California during the week of March 19, 2018.
- California leader in implementation of policies, programs and technologies that promote recovery and recycling of discarded materials and diversion of waste away from disposal in landfills.
- Over a two and half day period, the County team visited six material processing facilities
- Facilities included publicly and privately-owned systems processing
  - residential and commercial single stream recyclables
  - mixed MSW
  - yard waste
  - source separated organics
  - construction and demolition waste (C&D) and
  - a product reuse center.



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## Facility Locations



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## Request for Information

- Purpose to identify
  - Active technology/equipment suppliers
  - Project developers
  - Technology developers
  - Endmarket users
- Interested in developing a project and advancing DPW's economic and environmental goals
  - Design
  - Build
  - Finance
  - Own
  - Operate
- Seeking information and qualifications from companies who present innovative
  - Waste processing technologies
  - Waste conversion technologies
  - Other beneficial technologies



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## Request for Information (Cont'd)

- Respondents will be expected to
  - Provide solutions to significantly reduce the tonnage of material that require landfill disposal
  - stimulate demand for recycled commodities
- Respondents can present
  - large-scale (greater than 250 ton per day in capacity)
  - medium-scale (between 50 and 250 tons per day in capacity)
  - and small-scale (less than 50 tons per day in capacity)
- Technology status will be categorized as
  - Commercially-Proven (i.e. commercially viable technology with operating reference facility or facilities);
  - Commercially-Demonstrated (i.e. proven technology without a Commercially-Proven reference facility or facilities)
  - Pilot (i.e. start-up/emerging technology with a functioning prototype prepared for deployment on a trial basis).



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## Desired Offerings Matrix

Technology Status	Large scale	Medium scale	Small scale
Commercially-Proven	X	X	X
Commercially-Demonstrated	X	X	X
Pilot			X

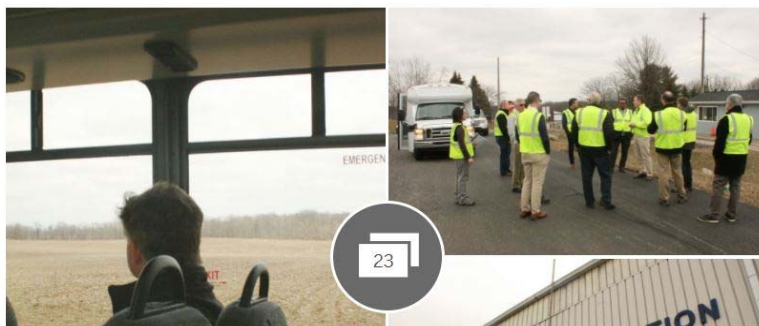


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GRAND RAPIDS NEWS

## 23 respond to Kent County's call for 'sustainable' garbage proposals

Posted Apr 30, 12:30 PM



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## Master Plan Tasks to be completed

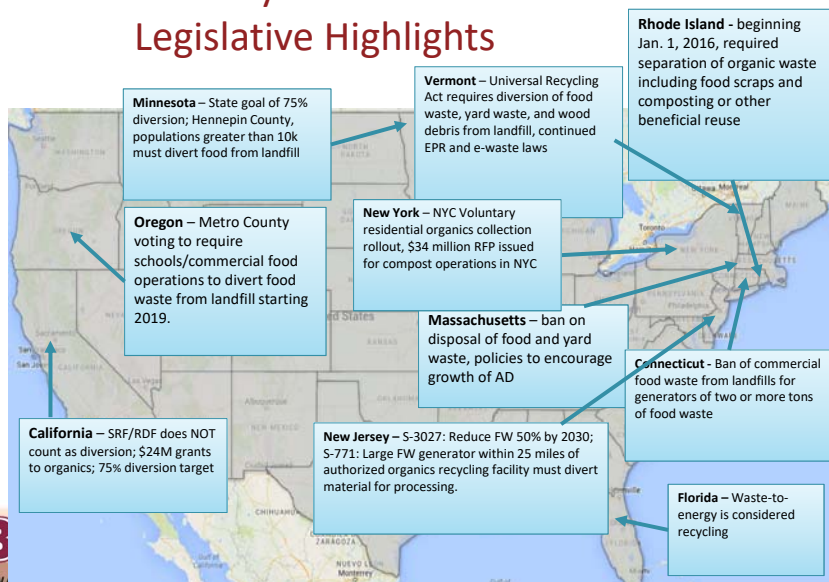
- Evaluate RFI responses;
- Conceptual site development;
- Research funding sources;
- Evaluate how SBP tenants might interact with existing waste management infrastructure.

[www.reimaginetrash.org](http://www.reimaginetrash.org)



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## State-by-State Legislative Highlights



## National Sword Forces Change



Worldwide crisis in recycling markets hits Broward | Opinion

One east coast airport recycling mostly all rejected at MRF.

As of May 7, 2018, 22 Oregon DEQ concurrences for disposal of 10,000 tons of source separated recyclables.



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**2020**  
REIMAGINETRASH.ORG  
**2030**



Thank you for your interest in this  
exciting project!



**KENT COUNTY  
DEPARTMENT OF  
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