LOOKING TO OUR FUTURE

Managing West Michigan Discards in an Emerging Circular Economy
Kent County’s Integrated Solid Waste Management System

We’ve Been in the Business since 1968.

“... it is necessary in (Kent) County to provide refuse disposal facilities... and has directed its Board of Public Works to take the necessary steps to implement a county refuse disposal system...that the county system shall be known as the Kent County Refuse Disposal System...”

Board of Supervisors Minutes, June 1968
Our Mission

Foster collaborative and innovative solutions that deliver value to our stakeholders by managing discarded materials to conserve natural resources and promote a healthy, vibrant and sustainable community.
Our Vision

Implement sustainable materials management strategies to reduce dependency on landfill disposal.
(Figure 6) Grand Rapids’ city incinerator built on Island Number Three in 1897. The city chronically neglected the location.
*Figure 18* The movement of garbage by rail entailed the construction of a spur line for rail cars and a loader near the incinerator on Island Number Three.

Source: Grand Rapids Public Library
This... is a Piggery

(Figure 12) The Alvah Brown Pig Farm in Paris, Township, 1912. Brown promoted numerous other ventures and made his work known in a number of publications.

Source: Grand Rapids Public Library
Fast Forward: 1940s - 1960s

- By 1965, Kent County had 29 local dumps
- Study conducted and two sites were selected for continued operation while a new facility could be sited.
- Kentwood and Sparta dumps were re-engineered to 1970s landfill regulations
Closed Landfills

Kentwood Landfill
*Superfund site

Sparta Landfill
*Superfund site

North Kent Landfill
What Happens to Your Trash Today?
Source: Michigan Department of Environmental Quality
2016 Solid Waste Disposal Infrastructure
Waste Logistics in Kent County

Source: 2009 “Report of Solid Waste Landfilled in Michigan, Department of Natural Resources and Environment” and Kent County reports.
2014 Discards

- Kent County – 1,694,647 cubic yards
- Ottawa County – 941,586 cubic yards
- Muskegon County – 665,784 cubic yards
- Allegan County – 346,597 cubic yards

Discards landfilled... **3.65 million cubic yards** in a **single** year.
2015 Discards

- Kent County – 1,806,249 cubic yards
- Ottawa County – 998,059 cubic yards
- Muskegon County – 686,009 cubic yards
- Allegan County – 321,046 cubic yards

Discards landfilled... **3.81 million cubic yards** in 2015.

*(4.4% increase over 2014)*
Kent County Discards

Kent County discards fill two Big Houses every year.
West Michigan Discards

Kent, Ottawa, Muskegon and Allegan discards fill nearly 4.5 Big Houses every year.
Solid Waste policy is failing us in the United States.

63% of waste in the United States goes to landfills.

Landfilling rates are even higher in Michigan.

In Kent County over 75 percent of discards are destined for landfills.

In other communities nearly 100% of discards are landfilled.
MSW in the United States

Source: 2011 data based on Columbia University EEC 2013 Survey
How Does Michigan Compare?

- **U.S.**
  - Recycling/Composting: 64%
  - EFW: 8%
  - Landfilling: 29%

- **Michigan**
  - Recycling/Composting: 79.7%
  - EFW: 5.8%
  - Landfilling: 14.5%

- **Denmark**
  - Recycling/Composting: 52%
  - EFW: 3%
  - Landfilling: 45%

- **Germany**
  - Recycling/Composting: 35%
  - EFW: 35%
  - Landfilling: 65%

*Source: Eurostat, WETRT - Columbia University*
South Kent Landfill Trends
Projected Landfilled Waste
Based on 2020 & 2025 Population Projections

Source: The Right Place
Dumpster Diving 101
Composition of Kent County Discards

FIGURE 6-3
Composition of Kent County MSW Disposed

Source: Economic Impact Potential and Characterization of Municipal Solid Waste in Michigan, December 2015 - WMSBF
$32.8 Million Thrown Away Annually

Source: Economic Impact Potential and Characterization of Municipal Solid Waste in Michigan, December 2015 - WMSBF
Composition of West Michigan Discards

Source: Economic Impact Potential and Characterization of Municipal Solid Waste in Michigan, December 2015 - WMSBF
Waste to Energy
Producing 15 MW of renewable, base load electricity. 124,389 tons of ferrous metal recovered in 25 years.
The Circular Economy

Circular economy vs Linear economy
Another Way to Look at It...
“Instead of mining new resources, this ‘circular economy’ mindset urges us to use and reuse materials time and again…”

David P. Steiner, Waste Management CEO
Recycling Defined

“Recycling is a series of activities by which material that has reached the end of its current use is processed into material utilized in the production of new products.”

National Recycling Coalition
Recycling is *resource* management not waste management.
"People ask, 'What is the recycling industry?' We think of it as a thing, but it's not really a thing. It's a loosely connected, highly dependent network that we rely on to get materials back to us.

If (policy makers and the public) are not looking at recycling as a mechanism of developing materials for manufacturing, then they're missing the point.

If we're looking at this just currently from an environmental (standpoint), then we're missing what recycling is really doing: developing materials for manufacturing."

Keefe Harrison, The Recycling Partnership
It’s about *Jobs*

= 37 people employed

= 7 people employed
Landfill Pricing is one Barrier to Change

Average price per ton at each US State's Largest Landfills

Less Waste, wasted...

- Absent thoughtful, targeted policy incentives to change market behaviors, least costly disposal options will continue to dominate.

- We must provide space for recycling, reuse and conversion technologies for them to succeed.

- We need to send a viable signal to the West Michigan market that businesses can operate profitably in this arena.
“The concept of funnelling discarded materials back into the manufacturing process is a no-brainer”

David P. Steiner, Waste Management CEO
We’re all grown up...

- West Michigan is a large metropolitan area and it’s time to act on this when managing discards...

- Population:
  - Kent County 629,237
  - Ottawa County 276,292
  - Muskegon County 172,344
  - Allegan County 113,847

1,191,720 residents

Source: 2014 Census Estimates
Circular Economy = Sustainability
It’s about Energy, Food, Water & our future

■ Discards – we all generate them
■ Community
■ Economic growth
■ Job catalyst
■ Environmental protection
■ Continuous improvement in environmental performance

■ Access to innovative recovery options
■ Reducing logistics footprint
■ Access to recovered materials
“West Michigan will continue to be heavily dependent on landfilling discards for years to come if we don’t act now.”

Darwin J. Baas, Kent County Public Works Director
So, what if...

... we set **real goals to divert** discards away from landfills?

- Develop robust collection infrastructure
- Drive new recycling markets
- Provide technical assistance for the commercial sector
- Business-to-business material exchange
- One-on-one business assistance to improve diversion
Road Map to Zero Waste

- In Kent County we are ready to achieve a **25 percent reduction** in landfilled discards **by 2021**.
  - \[1,694,647 \text{ cubic yards} \times 25\% = 423,662 \text{ cubic yards diverted}; \text{ or } 586,105 \text{ tons} \times 25\% = 146,526 \text{ tons}.\]

- Can we reduce the amount of waste sent to area landfills **by 90 percent by 2040 or sooner**?
Future Landfill Expansion Property
What if we re-envisioned 200 acres of future landfill space; laying the foundation and critical infrastructure to support our regional economy, leverage private sector development and attract business to localize the entire recycling or conversion process and begin to close the loop in West Michigan?

- (re) Manufacturing Hub
- Construction and Demolition Debris Recycling
- Organics Composting
- Anaerobic Digestion
- Gasification
- Pyrolysis
- Waste-to-Energy
Resource Innovation Campus

- Where public and private partners can collaborate, research, educate, manufacture products from the waste stream and use new technologies to help transition West Michigan from a linear economy to a circular economy.

- Envision the RIC as a hub for businesses, entrepreneurs and industries focused on capturing value from solid wastes and transforming them into resources and materials for consumers, while stimulating the local economy through job creation and potential revenues.

- Partner with university(s) to provide an incubator for emerging businesses and technologies that will act as catalysts in the transition to a circular economy.
Resource Innovation Campus

- Manufactured goods
- Compost
- Energy
- Steam
- Chilled Water
- Chemicals
- Liquid Fuels
Putting a Stake in the Ground

Are we ready to...

1. bring the conversation to decision makers,
2. begin managing discards differently, and
3. create a paradigm shift in West Michigan

... become a sustainable community where we work, play and live?
Public, Private & Nonprofits need apply:

To be successful this must be a highly collaborative: *a private, nonprofit and publicly led* effort.
What do you need from us?

So what is your biggest challenge to seeing discards in a new way and the economic benefit and business advantage to your organization?
Contact Information

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