

MANAGING DISCARDS IN AN EMERGING CIRCULAR ECONOMY

Michigan Recycling Coalition
2016 Annual Conference



**KENT COUNTY
DEPARTMENT OF
PUBLIC WORKS**

Grand Rapids Herald



July 24, 1897

Source: Grand Rapids Public Museum



**KENT COUNTY
DEPARTMENT OF
PUBLIC WORKS**



Source: City of Grand Rapids Community Archives and Research Center



**KENT COUNTY
DEPARTMENT OF
PUBLIC WORKS**



Source: City of Grand Rapids Community Archives and Research Center



**KENT COUNTY
DEPARTMENT OF
PUBLIC WORKS**



Source: City of Grand Rapids Community Archives and Research Center



**KENT COUNTY
DEPARTMENT OF
PUBLIC WORKS**



Source: City of Grand Rapids Community Archives and Research Center



**KENT COUNTY
DEPARTMENT OF
PUBLIC WORKS**



Source: City of Grand Rapids Community Archives and Research Center



**KENT COUNTY
DEPARTMENT OF
PUBLIC WORKS**

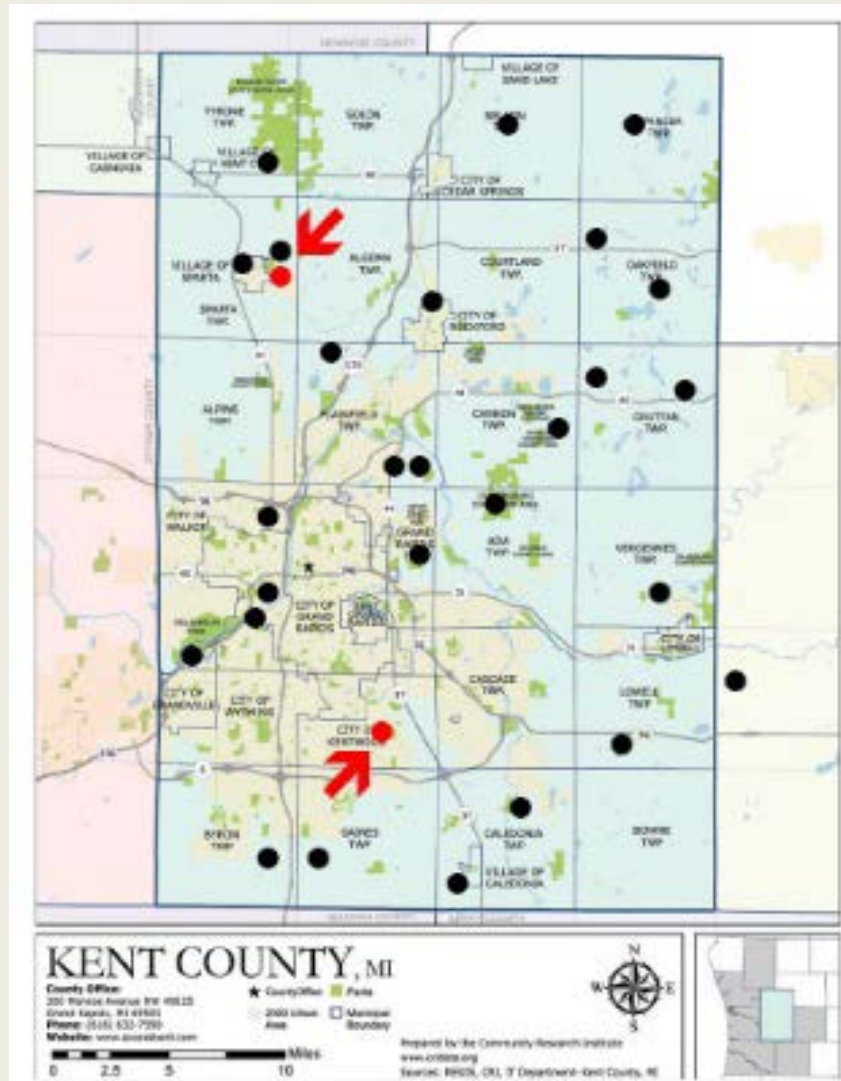


Source: City of Grand Rapids Community Archives and Research Center



**KENT COUNTY
DEPARTMENT OF
PUBLIC WORKS**

Fast Forward 1940s - 1960s



- By 1965 Kent County had 29 local dumps



**KENT COUNTY
DEPARTMENT OF
PUBLIC WORKS**

What Happens Today?



**KENT COUNTY
DEPARTMENT OF
PUBLIC WORKS**

2016 Solid Waste Disposal Infrastructure



**KENT COUNTY
DEPARTMENT OF
PUBLIC WORKS**

Kent County's Integrated Solid Waste Management System

- Includes **Waste To Energy, Single Stream Recycling, Landfill, Transfer Station, and Recycling Service Centers.**



**KENT COUNTY
DEPARTMENT OF
PUBLIC WORKS**

2015 Discards Landfilled

- 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

3.8 million cubic yards



**KENT COUNTY
DEPARTMENT OF
PUBLIC WORKS**



9:11
MICHIGAN

M
2012
MICHIGAN

I am
Michigan.

Kent County Discards



Kent County discards fill two Big Houses every year.

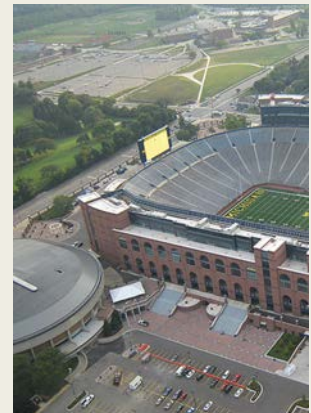


**KENT COUNTY
DEPARTMENT OF
PUBLIC WORKS**

West Michigan Discards



Kent, Ottawa, Muskegon and Allegan discards fill nearly 4.5 Big Houses every year.



**KENT COUNTY
DEPARTMENT OF
PUBLIC WORKS**

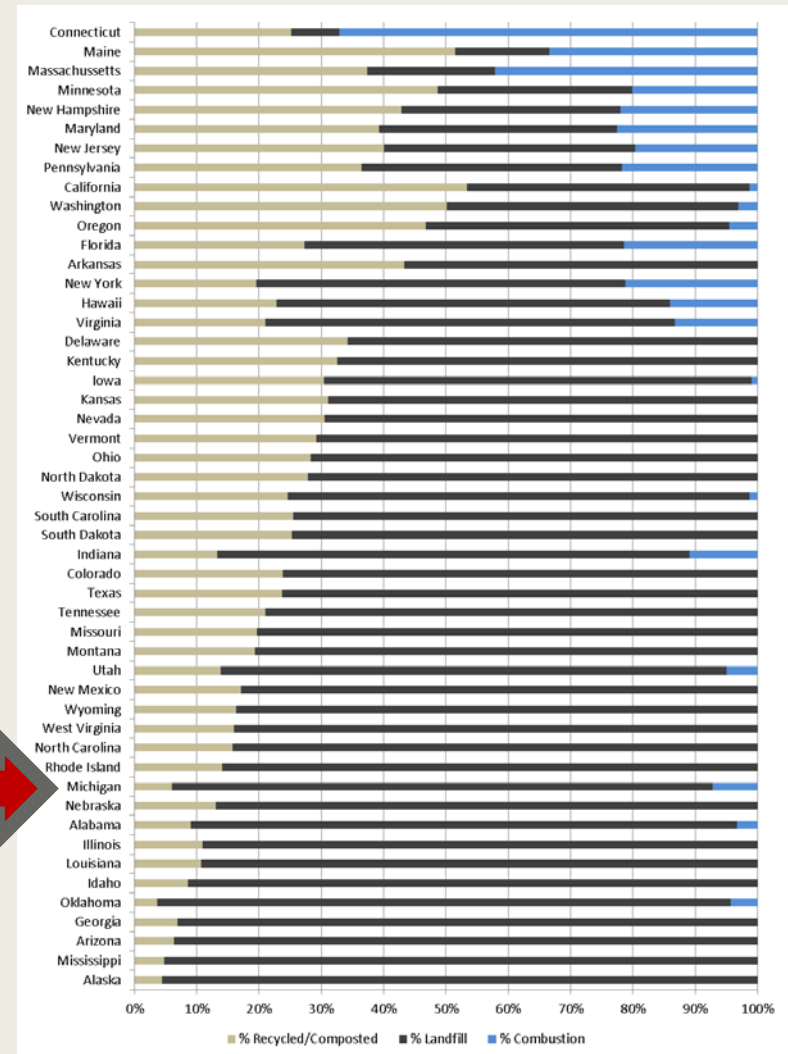
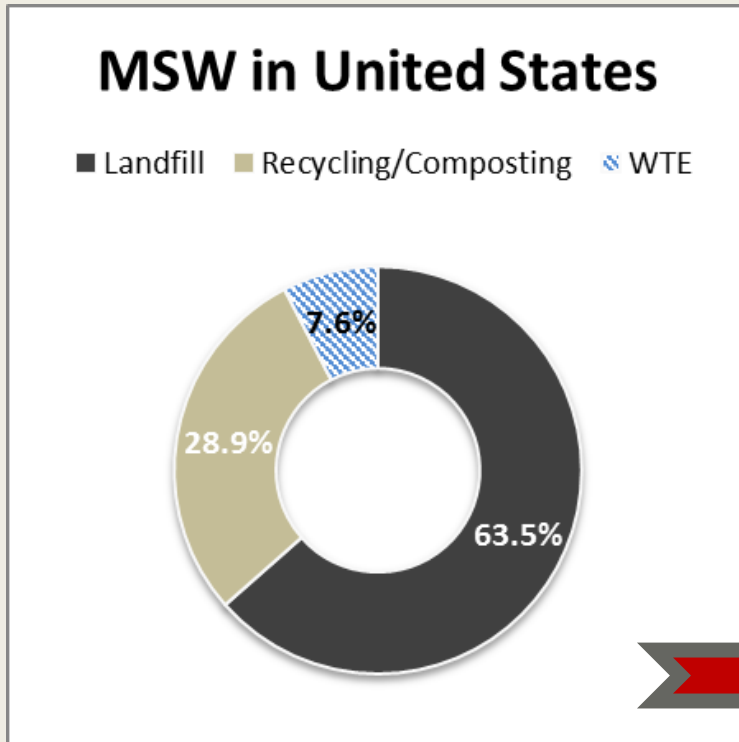
Too Much Trash... is Buried

- Solid Waste policy is failing us in the United States.
- **63 percent** of waste in the United States goes to landfills.
- Landfilling rates are even higher in Michigan.
- In Kent County **75 percent** destined for landfills.
- In other communities **nearly 100%** landfilled.



**KENT COUNTY
DEPARTMENT OF
PUBLIC WORKS**

MSW in the United States

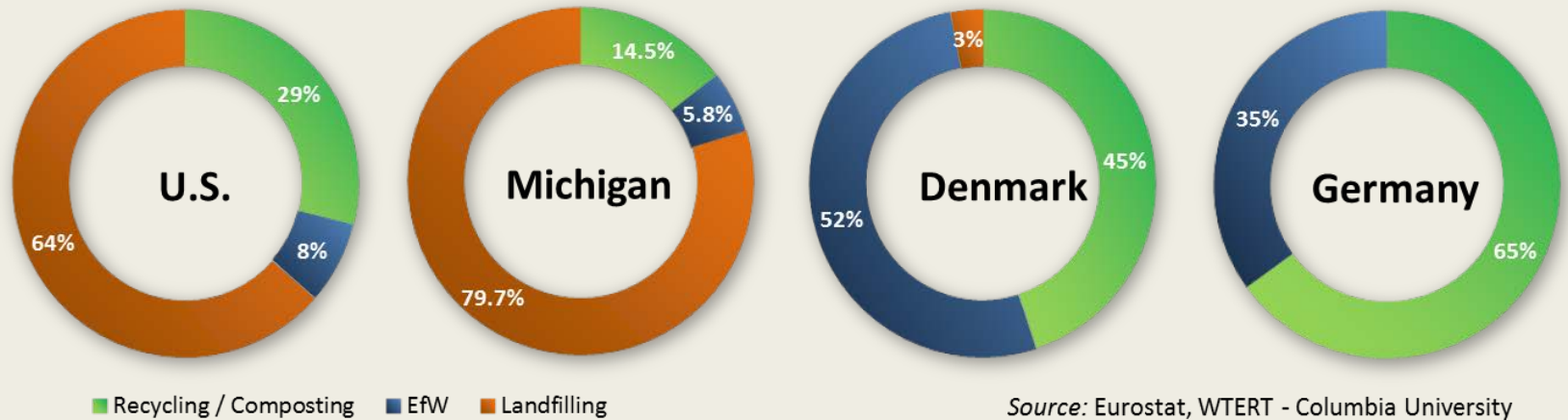


Source: 2011 data based on Columbia University EEC 2013 Survey



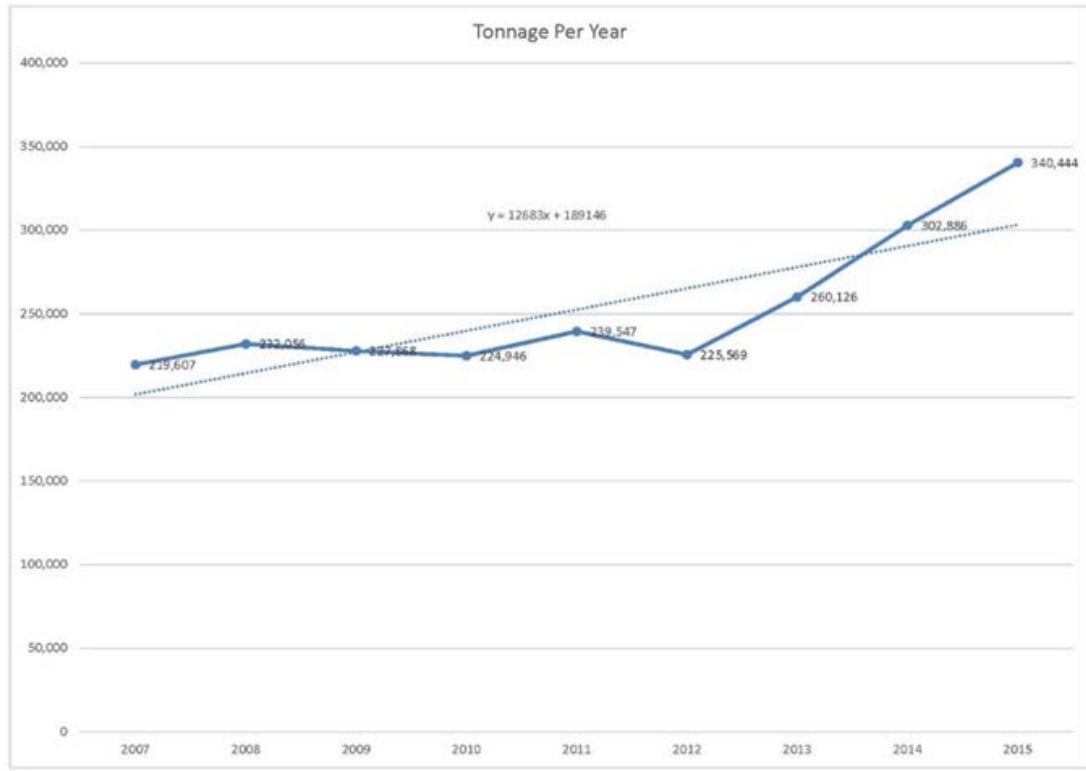
**KENT COUNTY
DEPARTMENT OF
PUBLIC WORKS**

How Does Michigan Compare?



**KENT COUNTY
DEPARTMENT OF
PUBLIC WORKS**

South Kent Landfill Trends

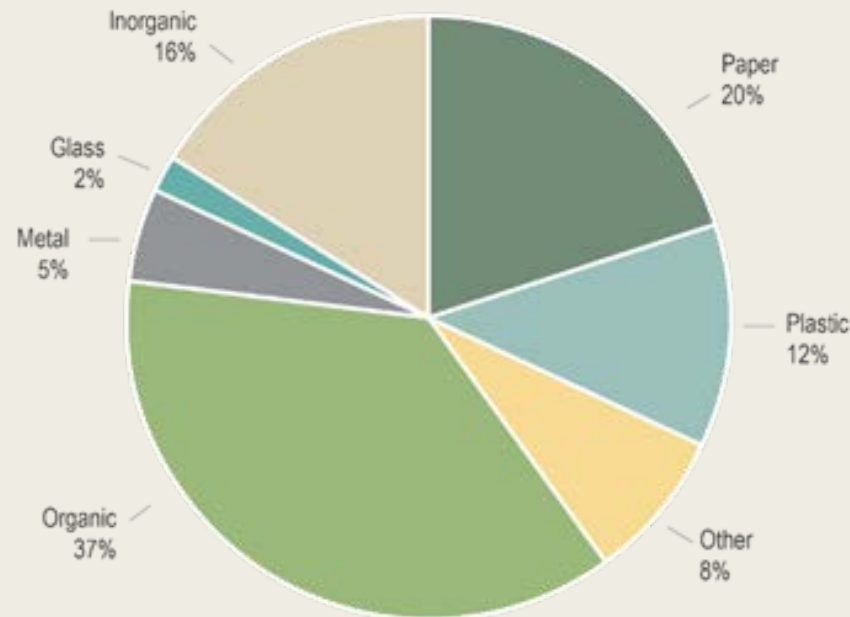


**KENT COUNTY
DEPARTMENT OF
PUBLIC WORKS**



Composition of Kent County Discards

FIGURE 6-3
Composition of Kent County MSW Disposed



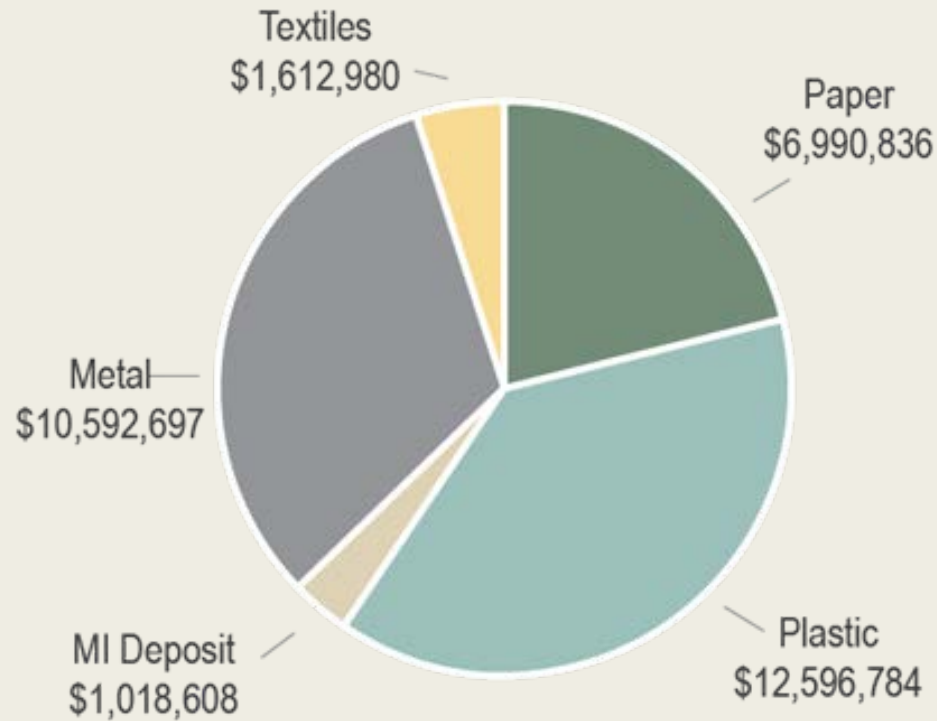
Source: Economic Impact Potential and Characterization of Municipal Solid Waste in Michigan, December 2015 - WMSBF



**KENT COUNTY
DEPARTMENT OF
PUBLIC WORKS**

\$32.8 Million Thrown Away Annually

FIGURE 6-10
Total Value Kent County MSW Disposed



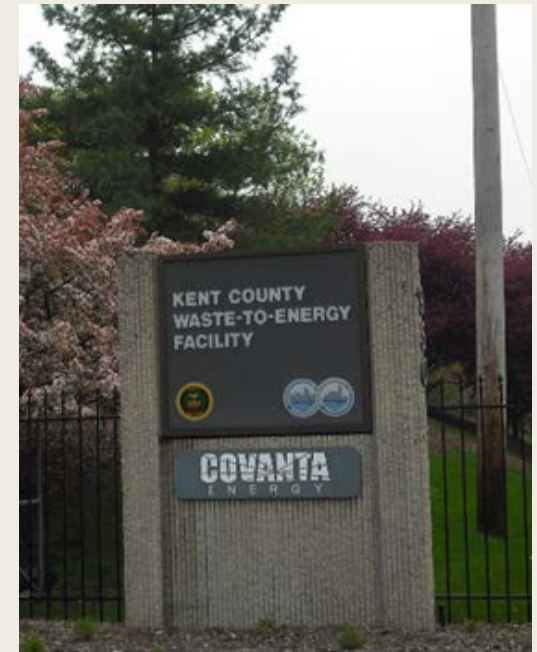
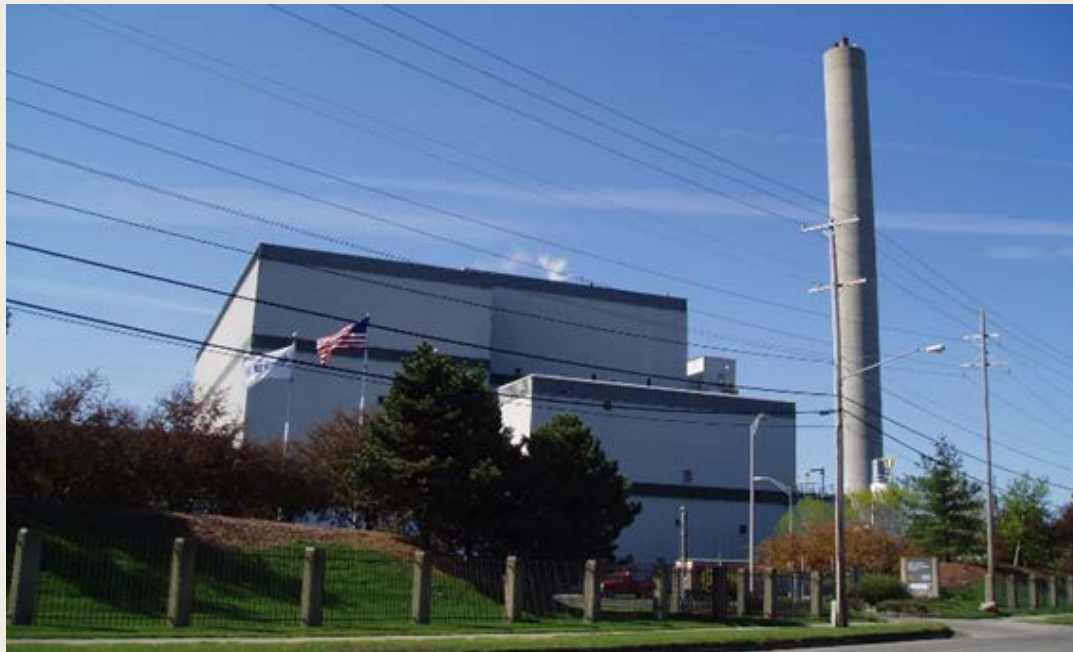
Source: Economic Impact Potential and Characterization of Municipal Solid Waste in Michigan, December 2015 - WMSBF



**KENT COUNTY
DEPARTMENT OF
PUBLIC WORKS**

Waste to Energy

Producing 15 MW of renewable, base load electricity.



124,389 tons of ferrous metal recovered in 25 years.



**KENT COUNTY
DEPARTMENT OF
PUBLIC WORKS**



**KENT COUNTY
DEPARTMENT OF
PUBLIC WORKS**

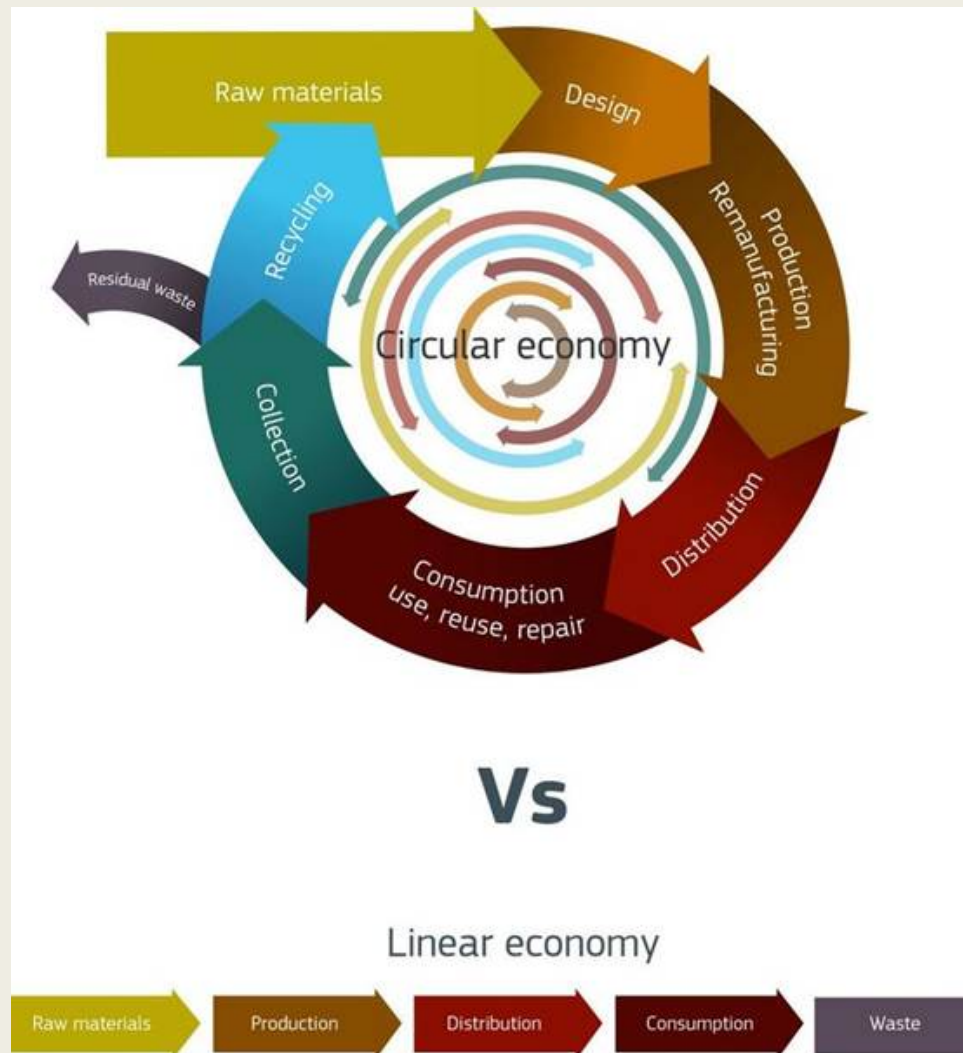


**KENT COUNTY
DEPARTMENT OF
PUBLIC WORKS**

What Excites You?



The Circular Economy



**KENT COUNTY
DEPARTMENT OF
PUBLIC WORKS**

Circular Economy = Sustainability

It's about Energy, Food, Water

- 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



**KENT COUNTY
DEPARTMENT OF
PUBLIC WORKS**

*“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



**KENT COUNTY
DEPARTMENT OF
PUBLIC WORKS**

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



**KENT COUNTY
DEPARTMENT OF
PUBLIC WORKS**

Recycling is *resource* management
not waste management.



**KENT COUNTY
DEPARTMENT OF
PUBLIC WORKS**

It's about *Jobs*



= 37 people employed



= 7 people employed



**KENT COUNTY
DEPARTMENT OF
PUBLIC WORKS**



**KENT COUNTY
DEPARTMENT OF
PUBLIC WORKS**



**KENT COUNTY
DEPARTMENT OF
PUBLIC WORKS**

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.



**KENT COUNTY
DEPARTMENT OF
PUBLIC WORKS**

“The concept of funneling discarded materials back into the manufacturing process is a no-brainer”



David P. Steiner, Waste Management CEO



**KENT COUNTY
DEPARTMENT OF
PUBLIC WORKS**

West Michigan is all grown up...

- We are an emerging large metropolitan area need to act on this when managing discards.

- Population:

| | |
|--------------------------|-----------------------|
| – <i>Kent County</i> | <i>629,237</i> |
| – <i>Ottawa County</i> | <i>276,292</i> |
| – <i>Muskegon County</i> | <i>172,344</i> |
| – <i>Allegan County</i> | <u><i>113,847</i></u> |

1,191,720 residents

Source: 2014 Census Estimates



**KENT COUNTY
DEPARTMENT OF
PUBLIC WORKS**

Setting Real Goals

Divert discards from landfilling

- *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*



**KENT COUNTY
DEPARTMENT OF
PUBLIC WORKS**

Our Vision

20 x '20

20% diversion by 2020

90 x '30

90% diversion by 2030



**KENT COUNTY
DEPARTMENT OF
PUBLIC WORKS**

Provide the Space

Repurpose 200 acres of future landfill to attract waste conversion processes to West Michigan:

- *(re) Manufacturing Hub*
- *Construction and Demolition Debris Processing*
- *Organics Composting*
- *Anaerobic Digestion*
- *Gasification*
- *Pyrolysis*
- *Waste-to-Energy*



**KENT COUNTY
DEPARTMENT OF
PUBLIC WORKS**

Resource Innovation Campus

- Collaborate, research, educate, manufacture products from the waste stream and use new technologies to help transition West Michigan to a circular economy.
- 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.
- Incubator for emerging businesses, university research and technologies converging as catalysts



**KENT COUNTY
DEPARTMENT OF
PUBLIC WORKS**

Throughputs

- Manufactured goods
- Compost
- Energy
- Steam
- Chilled Water
- Chemicals
- Liquid Fuels



Contact Information

*Darwin (Dar) J. Baas
Public Works Director
Kent County DPW*

616.632.7919

darwin.baas@kentcountymi.gov



**KENT COUNTY
DEPARTMENT OF
PUBLIC WORKS**