



ECONOMIC IMPACT POTENTIAL

AND CHARACTERIZATION OF MUNICIPAL SOLID WASTE IN MICHIGAN



2016

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West Michigan Sustainable Business Forum
MRC Conference
May 3, 2016



About WMSBF

- Local Education and Facilitation
- “Boundary organization”
- Working Groups:
 - Climate Resiliency
 - Solid Waste Task Force
 - Green Labs
- Become a member today!



“Trash Research Project”

- Determine composition of Michigan MSW now being disposed of in landfills and incinerators
- Compare the composition of Michigan’s MSW to the MSW waste of other Midwest states
- Economic analysis of MSW composition



Research Partners



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Sort Events

- Muskegon County Solid Waste Mgt.
- Ottawa County Farms
- South Kent Landfill
- Kent County Waste to Energy
- Oakland Heights Development
- Central Sanitary Landfill (Pierson)
- Elk Run Landfill (Onaway)
- North Kent Transfer Station



Methodology

- Random samples of 300 pounds
- 22 categories
- Based on diversion stream
- In-field adjustments documented























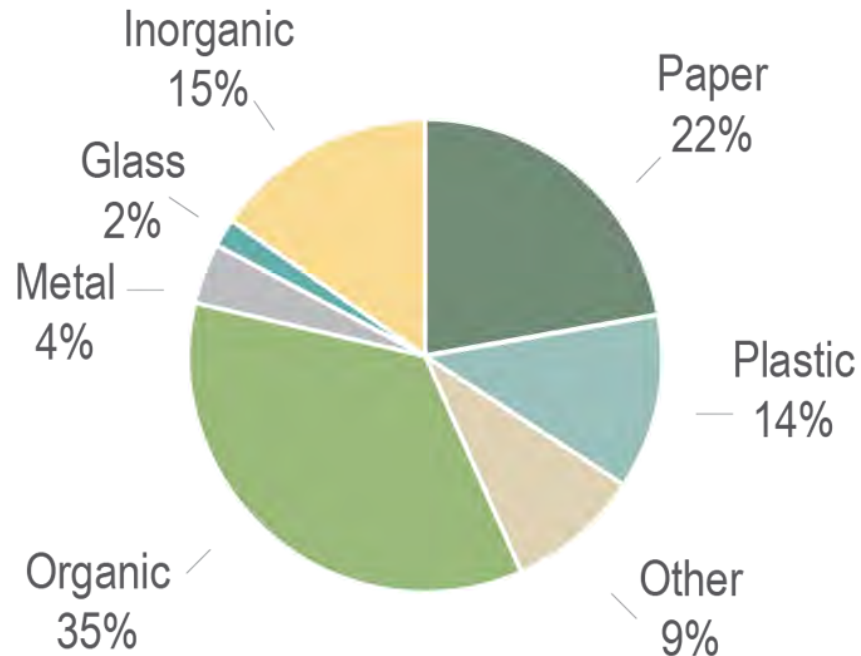
Steelcase

SAFETY
THINK
IT'S THE RIGHT THING

Characterization



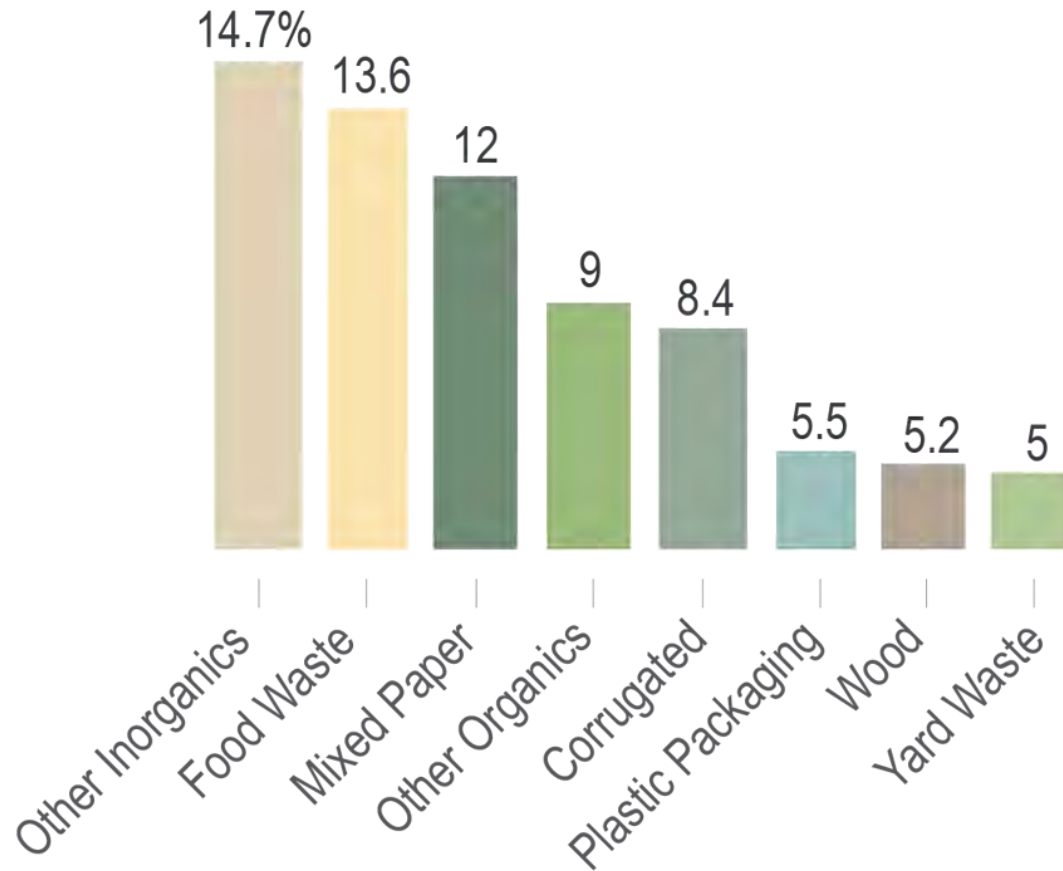
Michigan Municipal Solid Waste Composition (mean % by weight)



Source: West Michigan Sustainable Business Forum
2016 Michigan MSW Valuation Study. wmsbf.org/msw



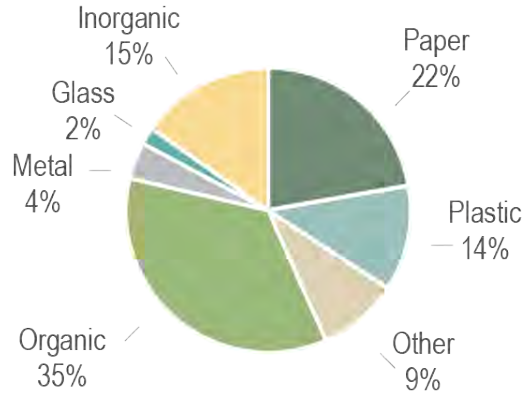
Top Materials in Michigan MSW Composition (mean % by weight - 5% or greater)



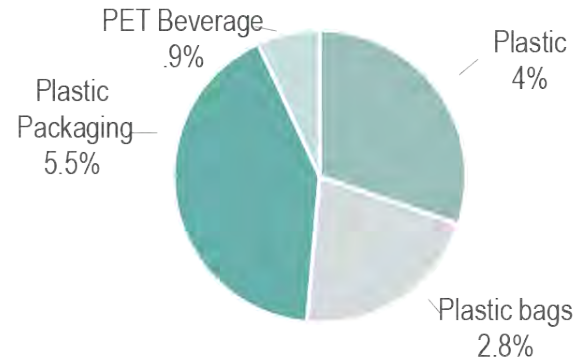
Source: West Michigan Sustainable Business Forum
2016 Michigan MSW Valuation Study. wmsbf.org/msw



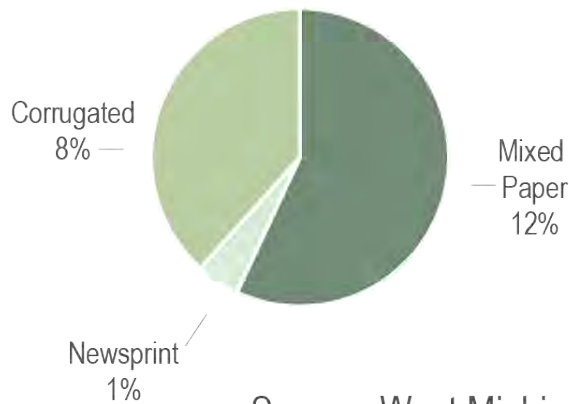
**Michigan
Municipal Solid Waste Composition
(mean % by weight)**



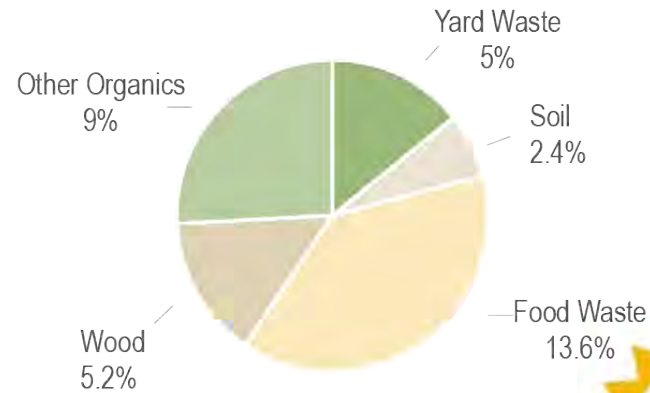
**Plastics
in Michigan MSW Composition
(mean % by weight)**



**Paper
in Michigan MSW Composition
(mean % by weight)**



**Organics
in Michigan MSW Composition
(mean % by weight)**



Source: West Michigan Sustainable Business Forum
2016 Michigan MSW Valuation Study. wmsbf.org/msw

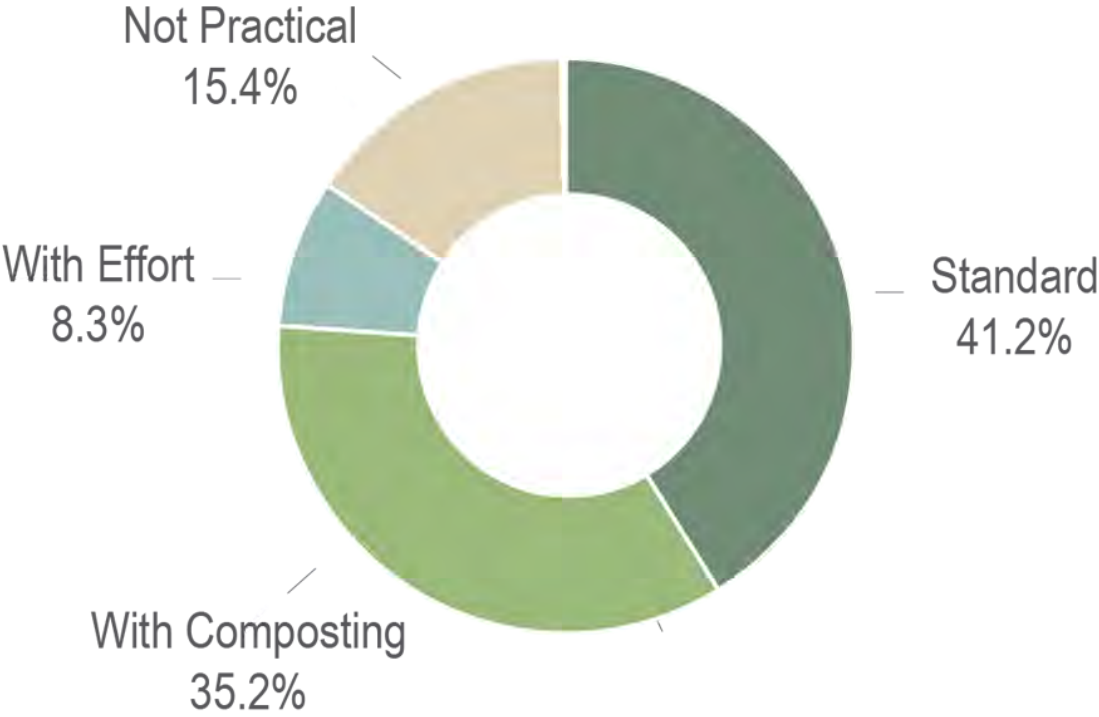


Considerations

- Yard Waste needs further study
- Ferrous reclaimed from incinerator ash
- Categories consistently challenged
 - Cigarettes, diapers, coffee grounds...
- Counted vs. observed
- Deposit container surprise
- Everything was contaminated



Michigan MSW Material by Ease of Recycling (mean % by weight)



Source: West Michigan Sustainable Business Forum
2016 Michigan MSW Valuation Study. wmsbf.org/msw





CLEAN TECH

planning

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Plastipak

AFFILI

CYC

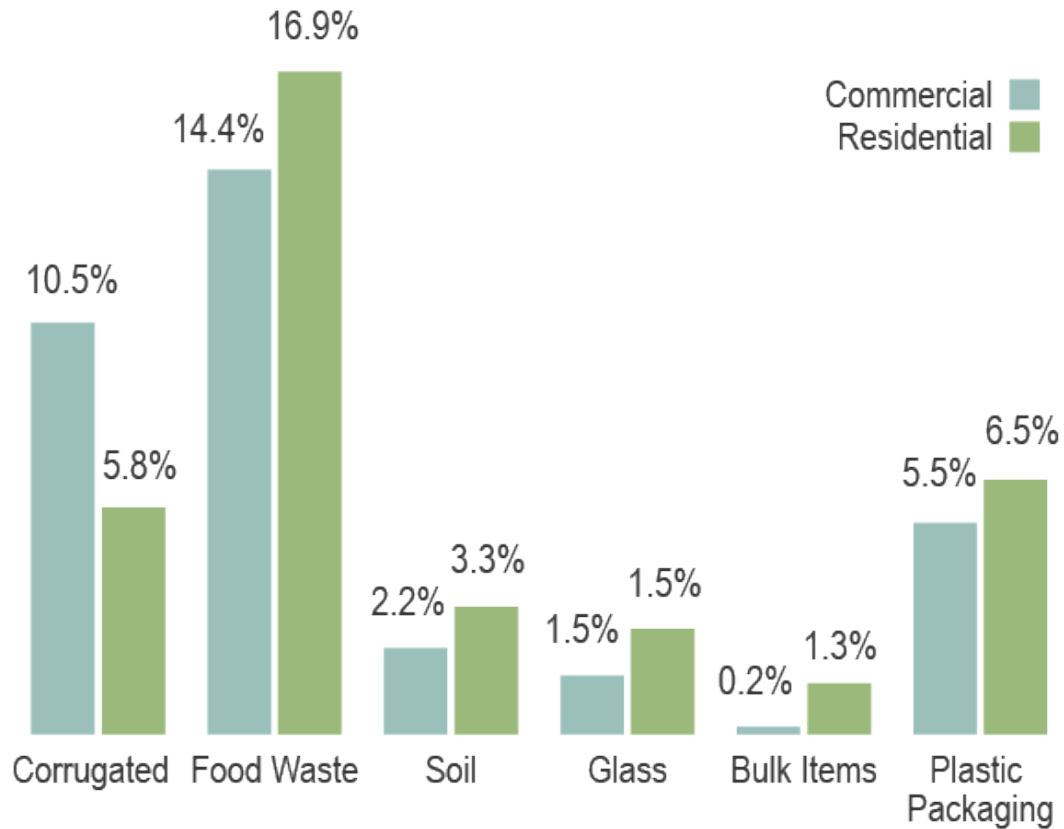
EDU

&

REU

CLEAN TE

FIGURE 2-8
Michigan MSW Material Disposed Notable Variances
Commercial vs. Residential
(by weight)



Other Findings

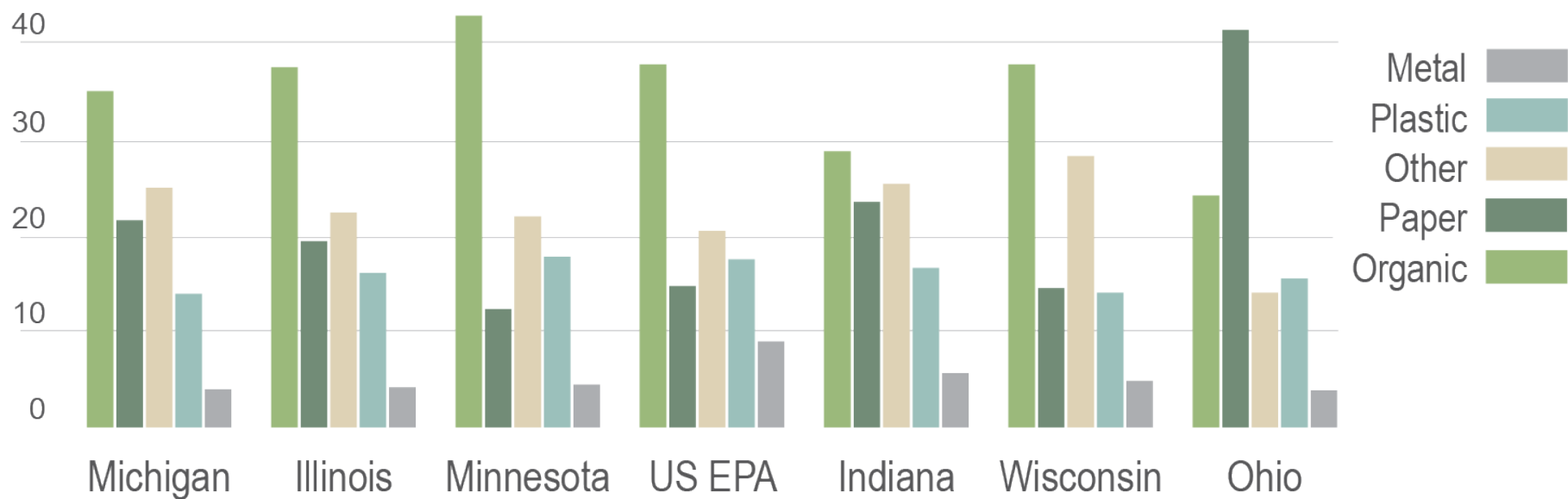
- Electronic waste
 - More than comparable states
 - Low value
 - Low materials of concern
- Deposit containers
 - More prevalent than expected
- EPS
 - Confirmed industry claims



Comparison



Between States Comparison MSW Disposed (by mean% of weight)

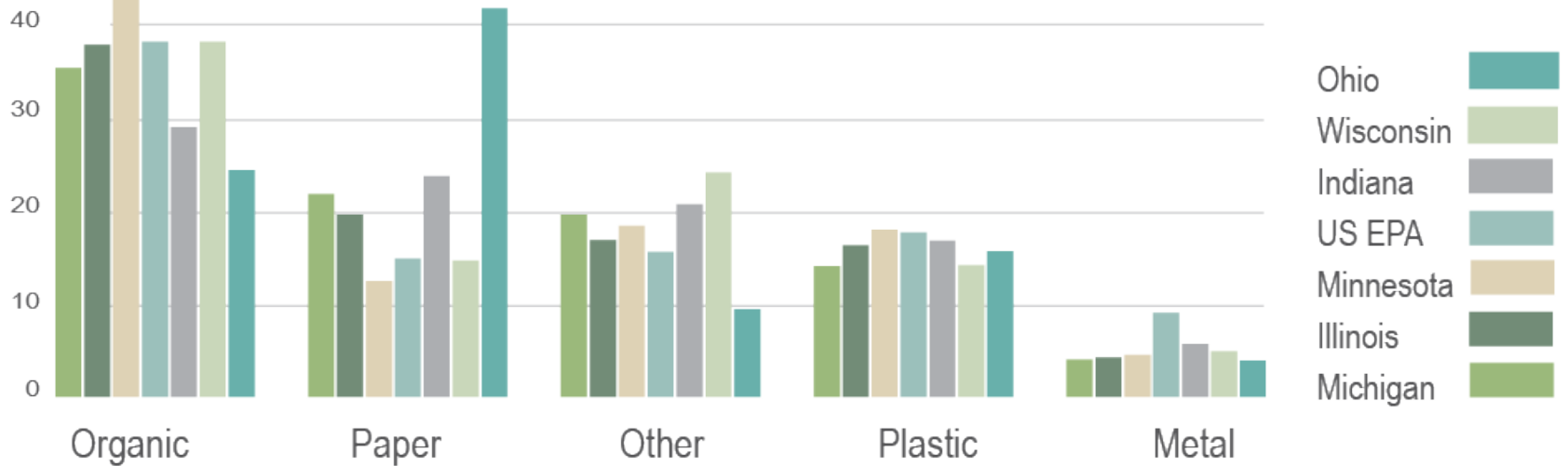


Source: West Michigan Sustainable Business Forum
2016 Michigan MSW Valuation Study. wmsbf.org/msw



FIGURE 3-2

Between States Category Comparison MSW Disposed (by mean% of weight)



Valuation

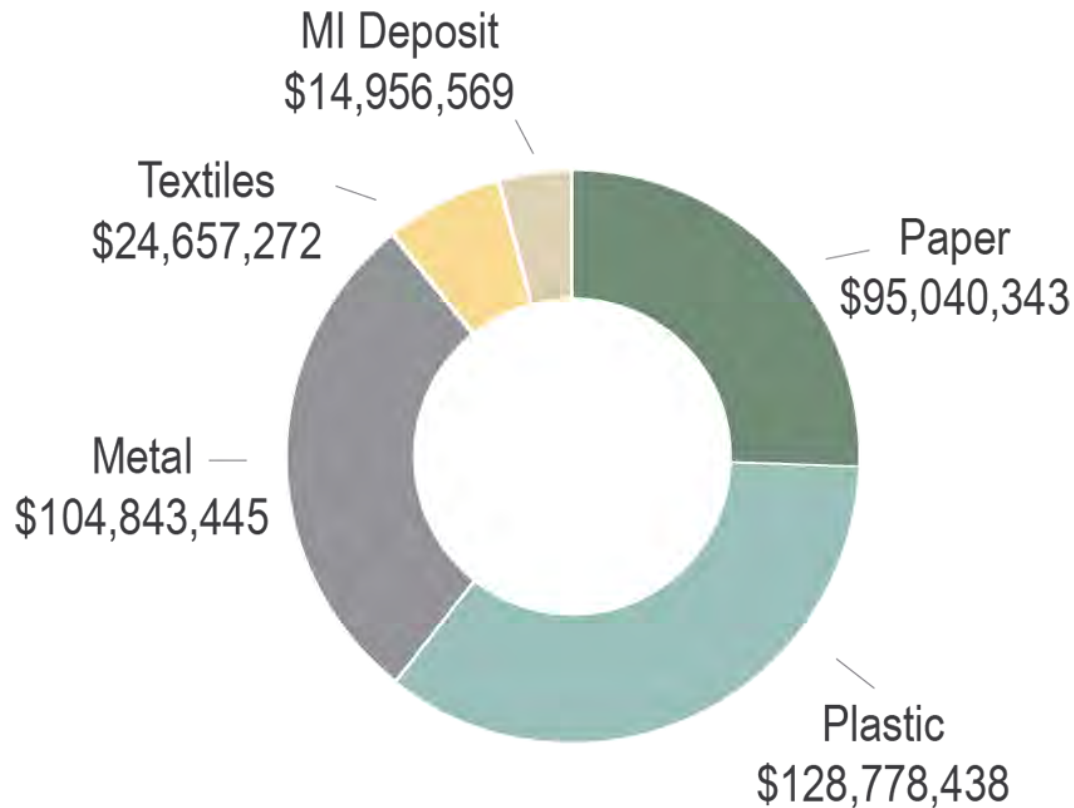


MSW VALUE

\$368 MILLION



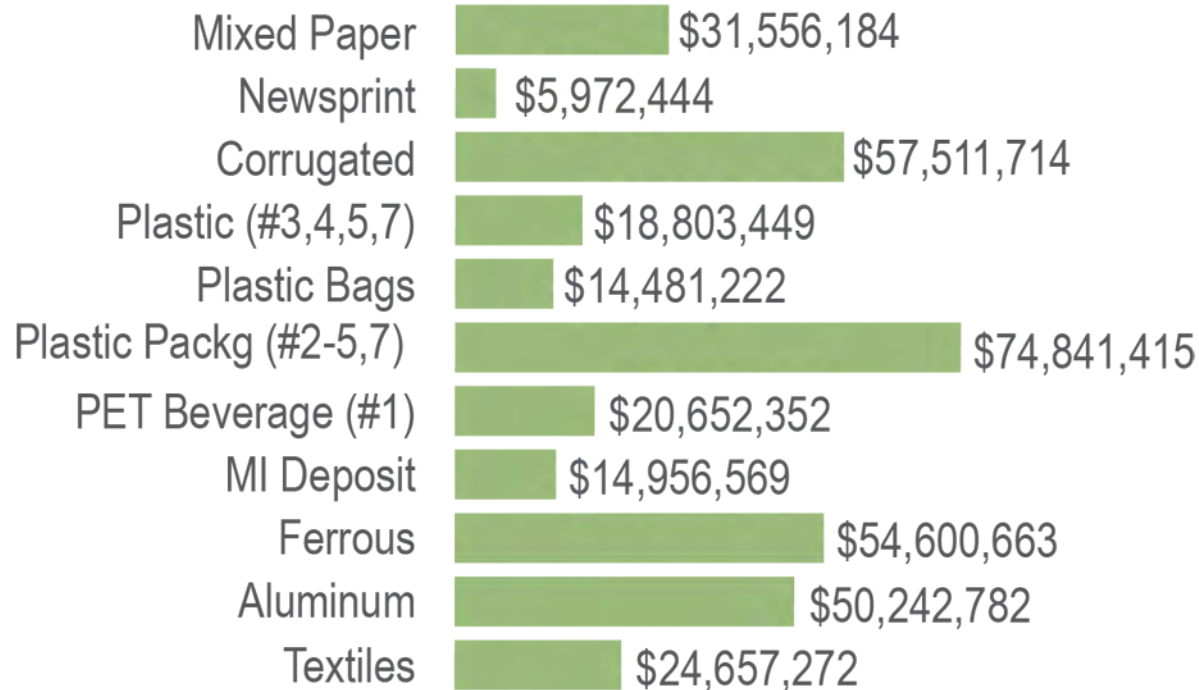
Total Value of Michigan MSW Material Disposed (\$)



Source: West Michigan Sustainable Business Forum
2016 Michigan MSW Valuation Study. wmsbf.org/msw



Total Value of Michigan MSW Commodities Disposed (\$)



Source: West Michigan Sustainable Business Forum
2016 Michigan MSW Valuation Study. wmsbf.org/msw



FIGURE 4-1
Market Value of MSW Commodities Disposed
(\$ per ton)

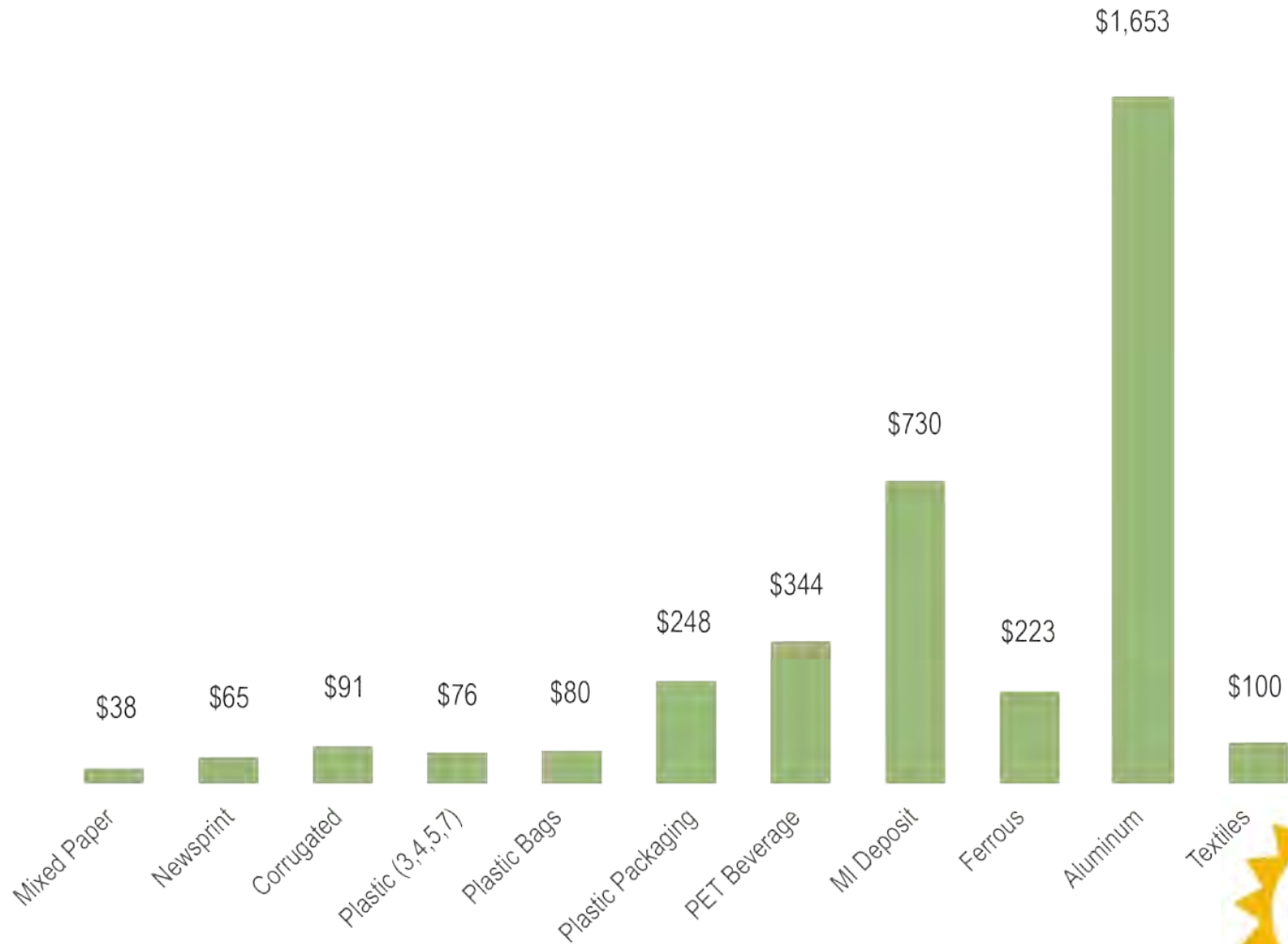
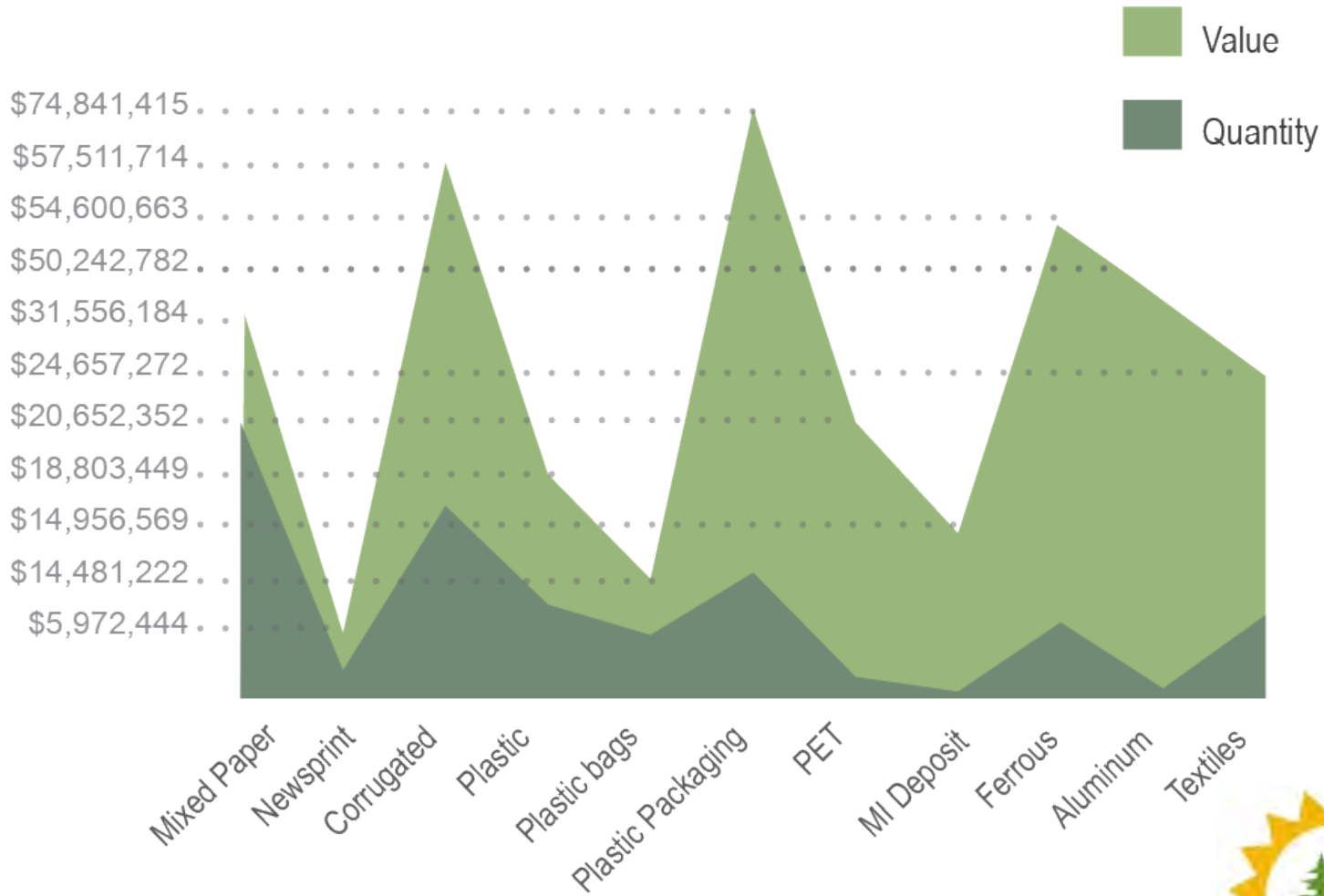


FIGURE 4-4
Total Value vs Total Quantity



Net Value

- Operating Costs
- Indirect Effects
 - Landfill Capacity
 - Real Estate Values
 - Environmental (GHG)
 - Health Impacts



Potential Economic Impact

\$399 MILLION

2,619 jobs



Takeaways



Recommendations

- Focus on 42% that has value
- Target high value, high supply materials first
 - Corrugated Cardboard
 - High-value resins
- Availability and usage of conventional recycling programs



FIGURE 5-3
Comparison of 2014 and 2008 Illinois
Recovery/Diversion Commodity Materials

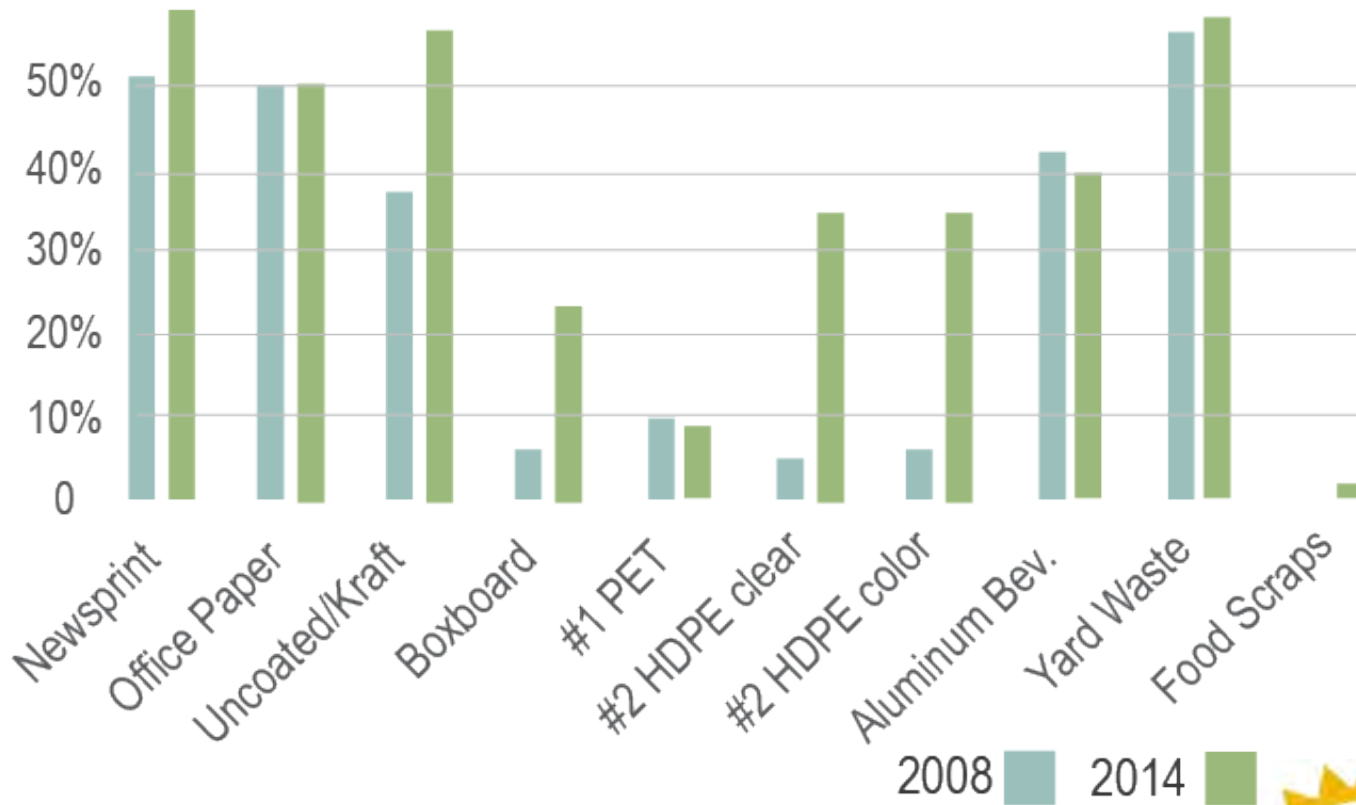
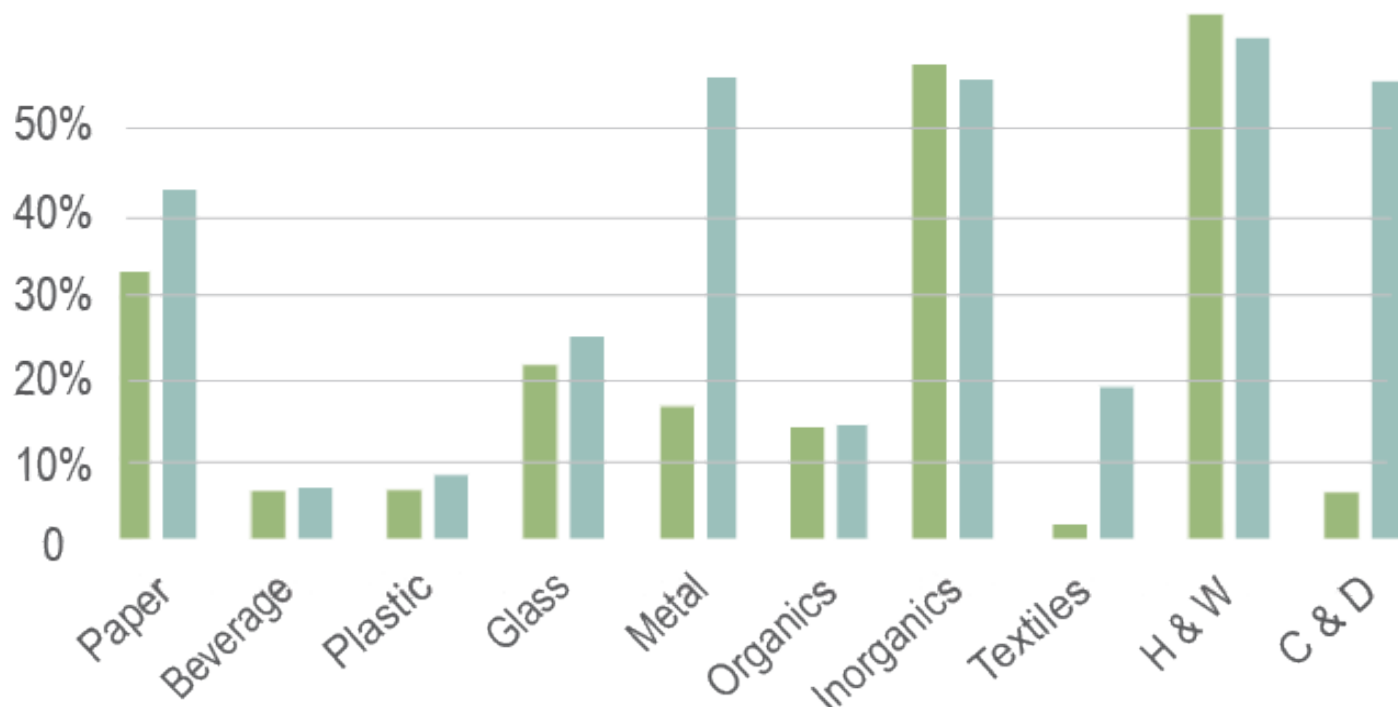


FIGURE 5-2
Comparison of 2014 and 2008 Illinois
Recovery/Diversion Rates



Recommendations

- Address food waste
- Source reduction of low-value materials
 - Low-value resins
 - Misc.
- Decrease electronic waste by half
- Promote availability of textile recycling
- Educate public on costs of recycling
- Pursue further study

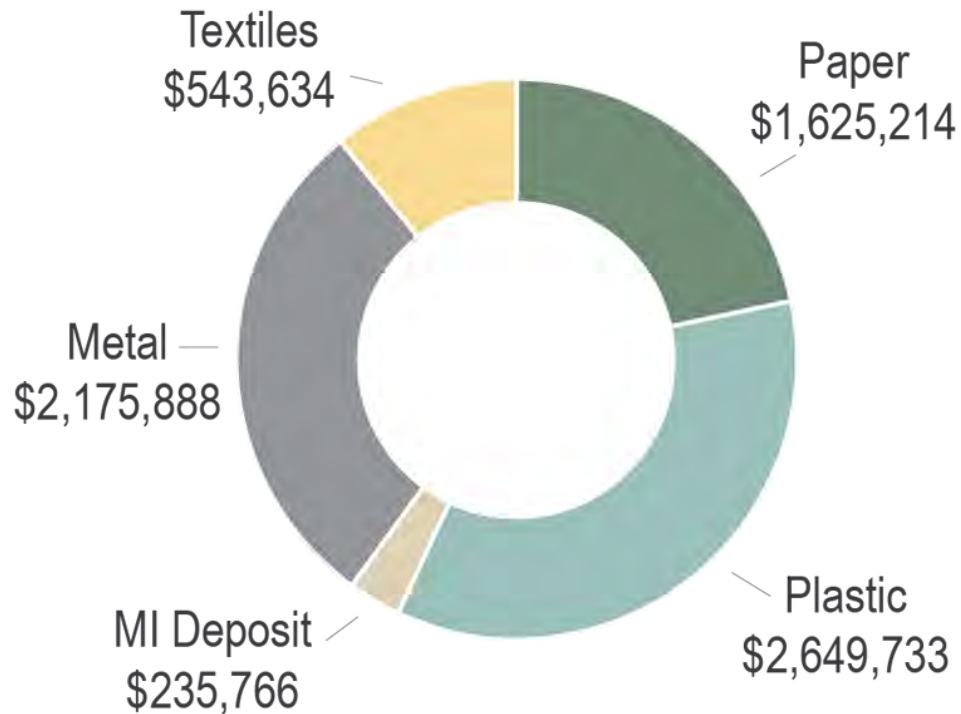


**Learn More:
wmsbf.org/msw**

Thank you



Total Value Muskegon Co. MSW Disposed (\$)



Source: West Michigan Sustainable Business Forum
2016 Michigan MSW Valuation Study. wmsbf.org/msw



Do Your Own: wmsbf.org/msw

Table 2-1 x MSW = Available Weight

Table 4-2 x AW = Market Value

