Closing the Loop on Blight

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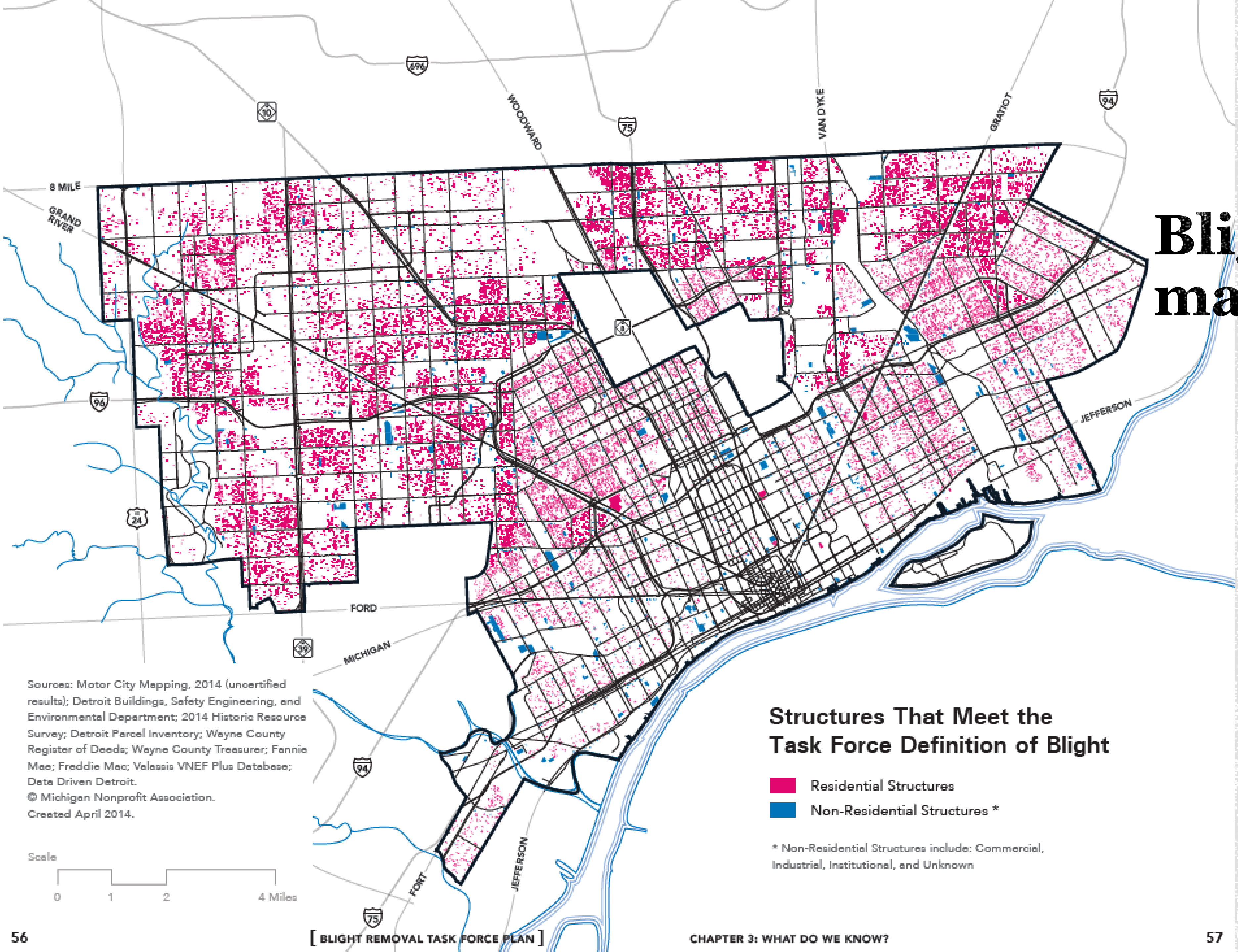
WMSRDC
WEST MICHIGAN SHORELINE REGIONAL DEVELOPMENT COMMISSION

Muskegon, Michigan Deconstruction Economic Cluster Feasibility Study

- Port of Muskegon at risk of losing Coast Guard dredging due to power plant shutdown in 2016
- EDA funded feasibility study conducted by MSU CCED & West Michigan Shoreline Regional Development Commission
- Findings:
  - Sufficient & sustainable supply of materials exists
  - Low tipping fees reduce incentive to recycle/reuse
  - Great Lakes has a weak deconstruction industry supply chain
  - Wood and brick show most promise
  - Deconstruction employs more workers than demolition

Muskegon, MI



Blight as a major player

City of Detroit – 80,000 + vacant / blighted structures as of 2014

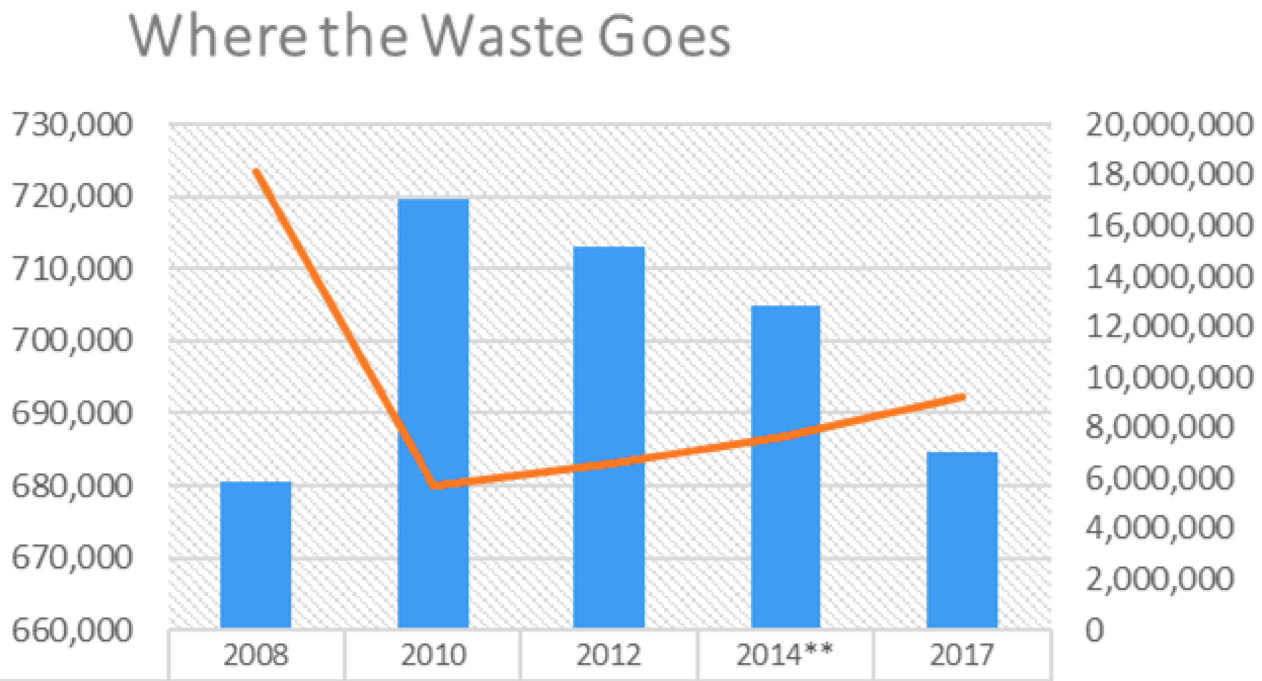
Contributes to higher crime

Disinvestment

Lack of confidence in neighborhood

The road to end blight

- Funding mechanisms – CDBG, Hardest Hit
- Houses demolished
  - Michigan – ~10,000 using HHF
  - Many more from other sources
- But where does the material go?
  - (you already know the answer to this)



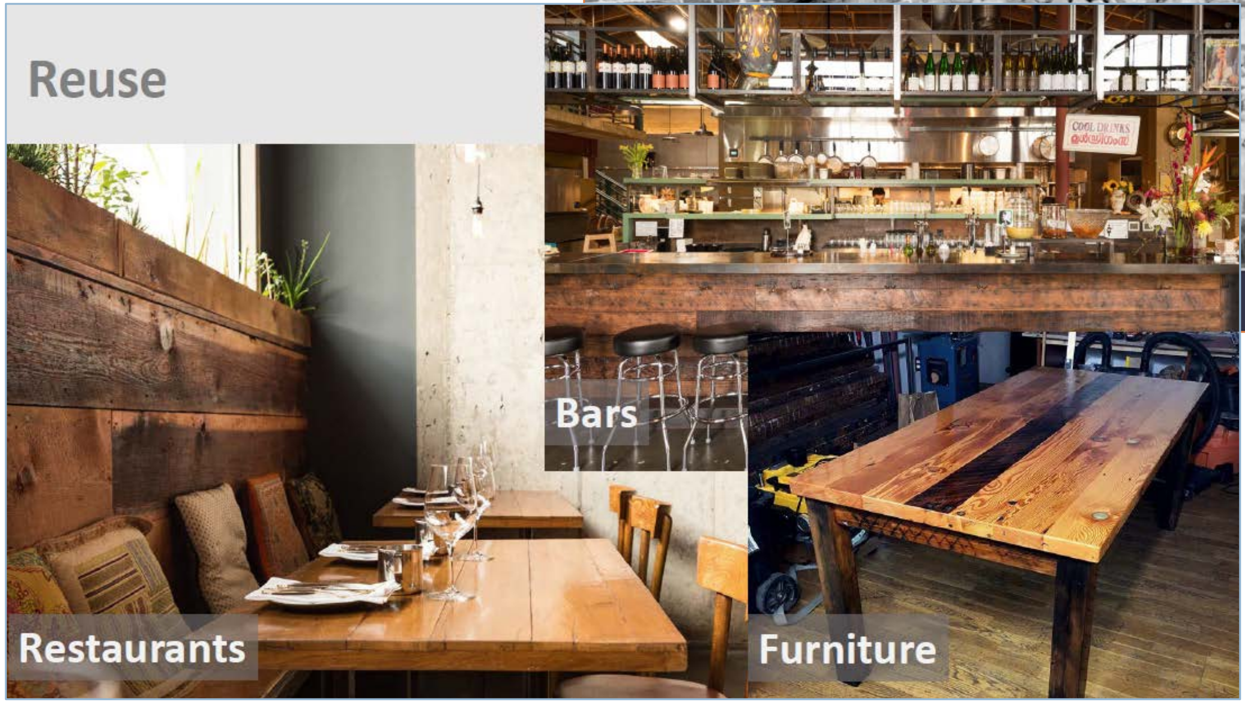
	2008	2010	2012	2014**	2017
Vacant/Abandoned Homes	680,579	719,804	713,027	704,839	684,526
Waste from Consruction/Demolition (tons)	18,130,294	5,714,365	6,553,821	7,670,373	9,263,922

Environmental Impacts

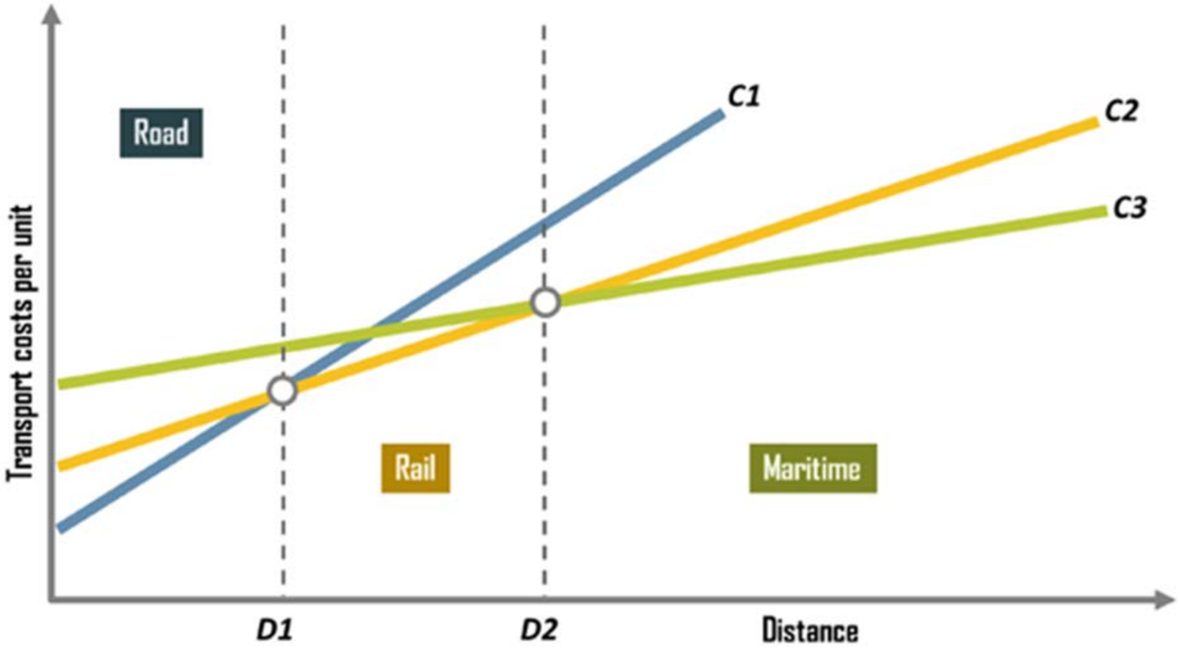
- Pollution
  - Lead
  - Asbestos
- Waste Runoff
  - Methane
  - Carbon Dioxide
  - Other pollutants

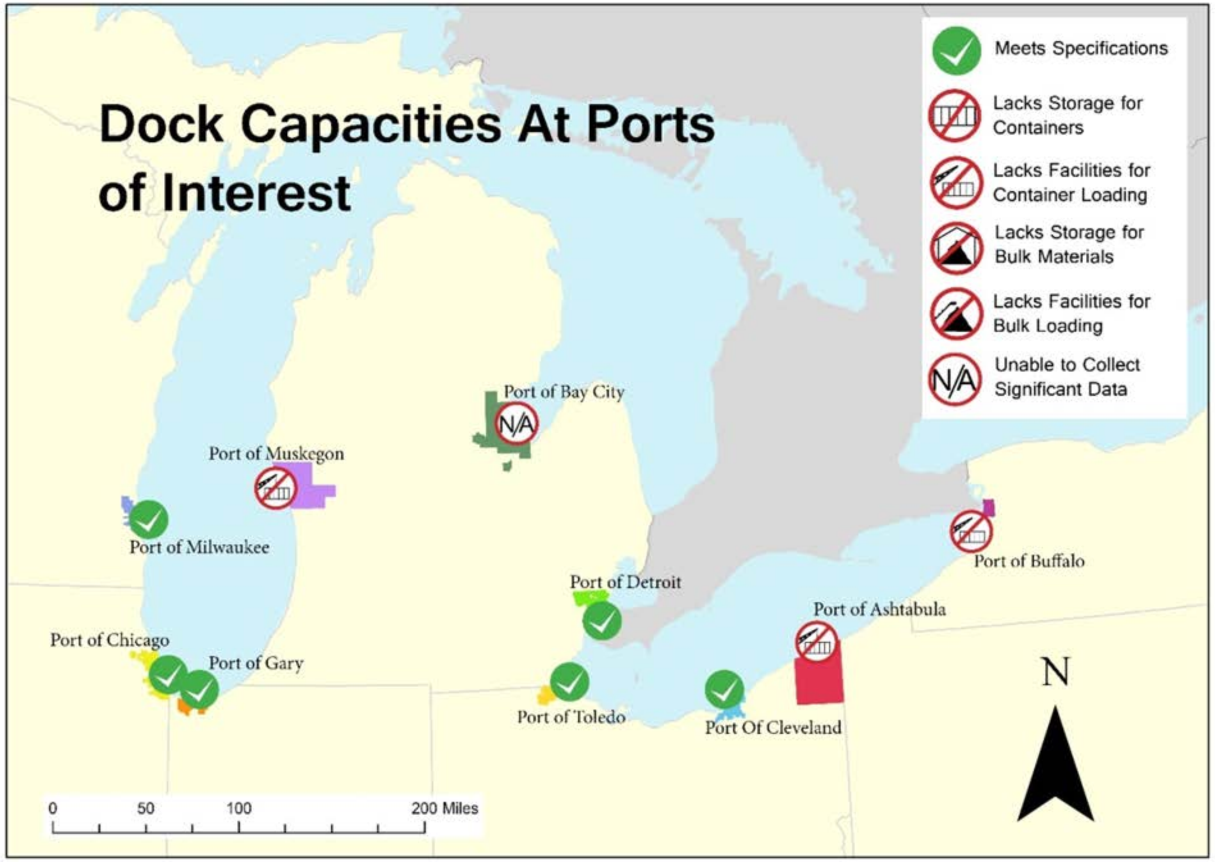
Lost Potential

- Based on average 1,500 sq. ft. home
  - that’s more than 1 billion board feet of lumber
  - Nearly 300 million bricks
- Economic Cost
  - Average Demolition $10,812
  - Average Deconstruction $35,275*
    - Less sale of materials +$9,249
- Jobs lost
  - Deconstruction employs up to 24 workers per site; compared to 3 for demolition
  - Reuse facilities employ 61 more people at 10,000 tons per year than landfills**

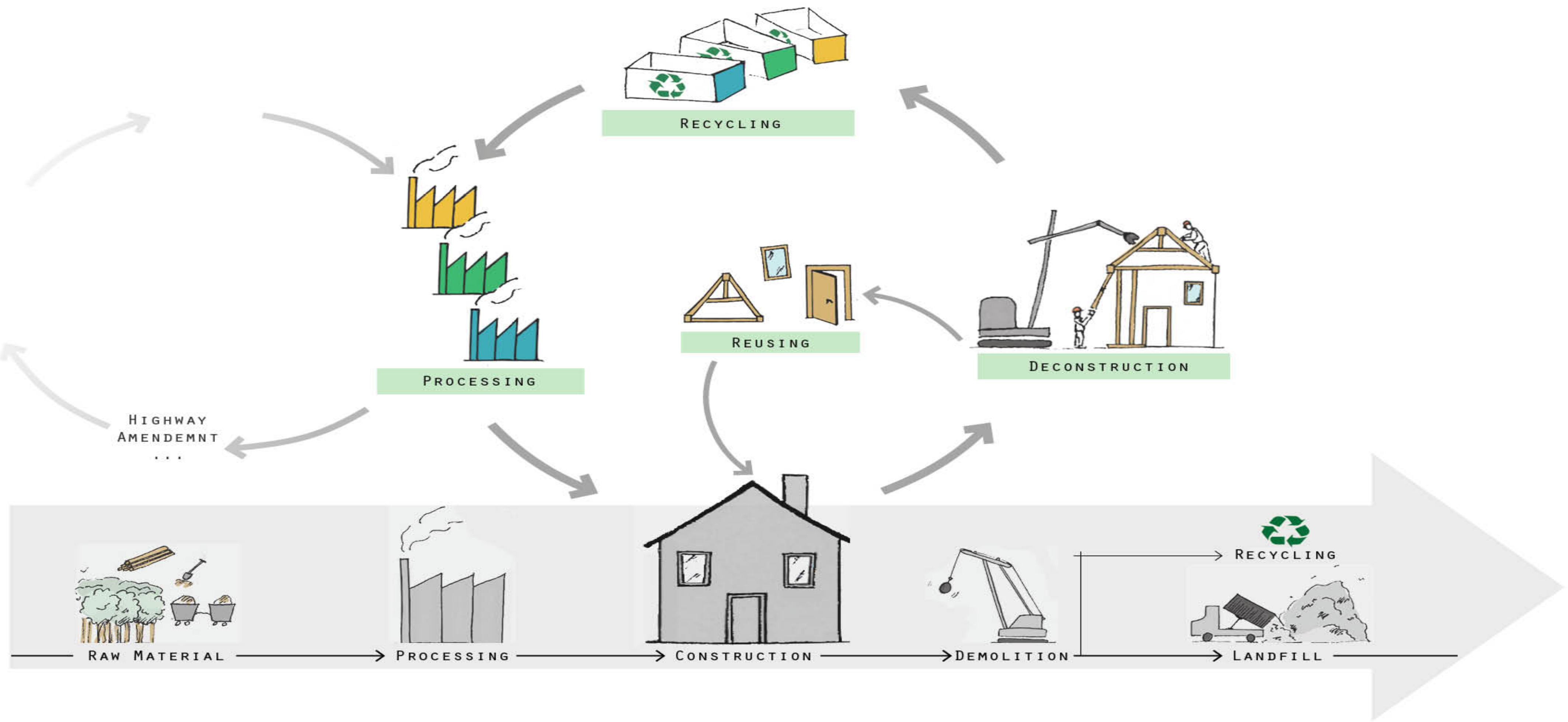


Major Obstacle: Transportation





Materials recycling process



Structural Material Reuse & Recycling Market Study

- Muskegon Study Identified a weak deconstruction & reuse supply chain in Michigan.
- This study aims to Identify where the stakeholders in structural reuse exist in Michigan and the businesses that connect these stakeholders.

DOMICOLOGY
STUDY OF THE STRUCTURAL LIFECYCLE
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Purpose & Scope

The purpose of this study is to identify all the Michigan businesses involved in the:

1) handling of material derivatives of structural demolition and deconstruction; and

2) processing these derivatives in a way that reuses, recycles, and/or repurposes the material.

From this industry profile, data including annual sales volume, number of workers employed, and other metrics about this industry, will be analyzed.

Method

- North American Industrial Classification System (NAICS) code Analysis.
- ArcGIS Business Analyst Software.
- Excel data skimming.
- Spatial analysis using dot density ArcGIS tool, among others.

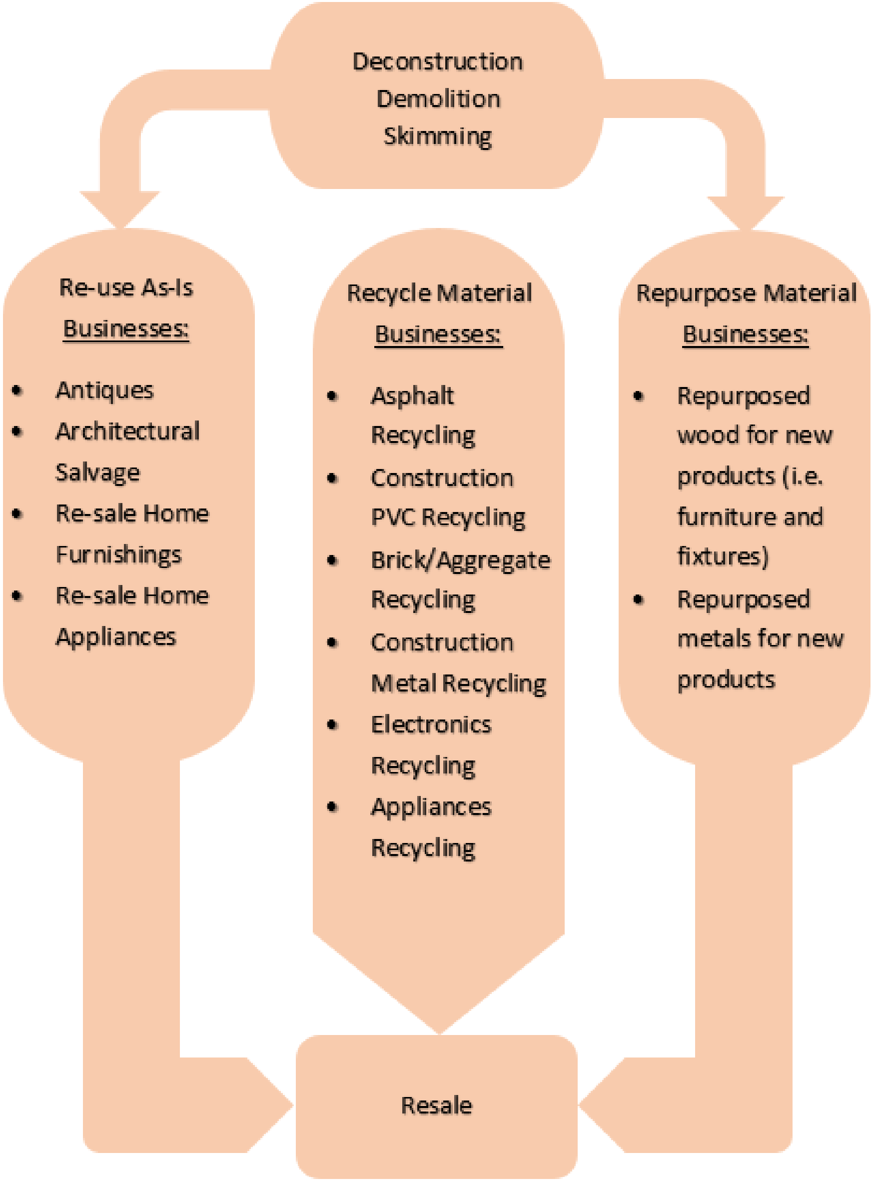
Primary NAICS:

Michigan businesses involved anywhere along the supply chain within the structural material reuse/recycling industry

Secondary NAICS:

Michigan Businesses involved anywhere along the supply chain within the construction and demolition industry.

Structural Material Reuse Industry Schematic



Schematic does not include Construction and Demolition industry, if it did it would be the on the top of this diagram.

Current Market

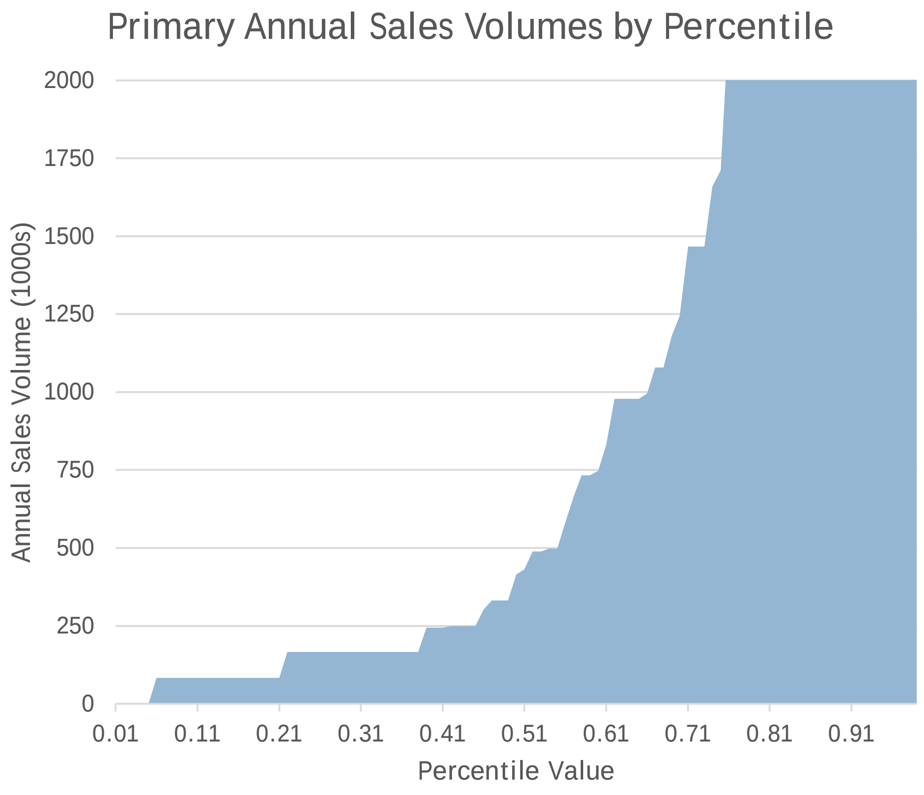
Reuse Industry

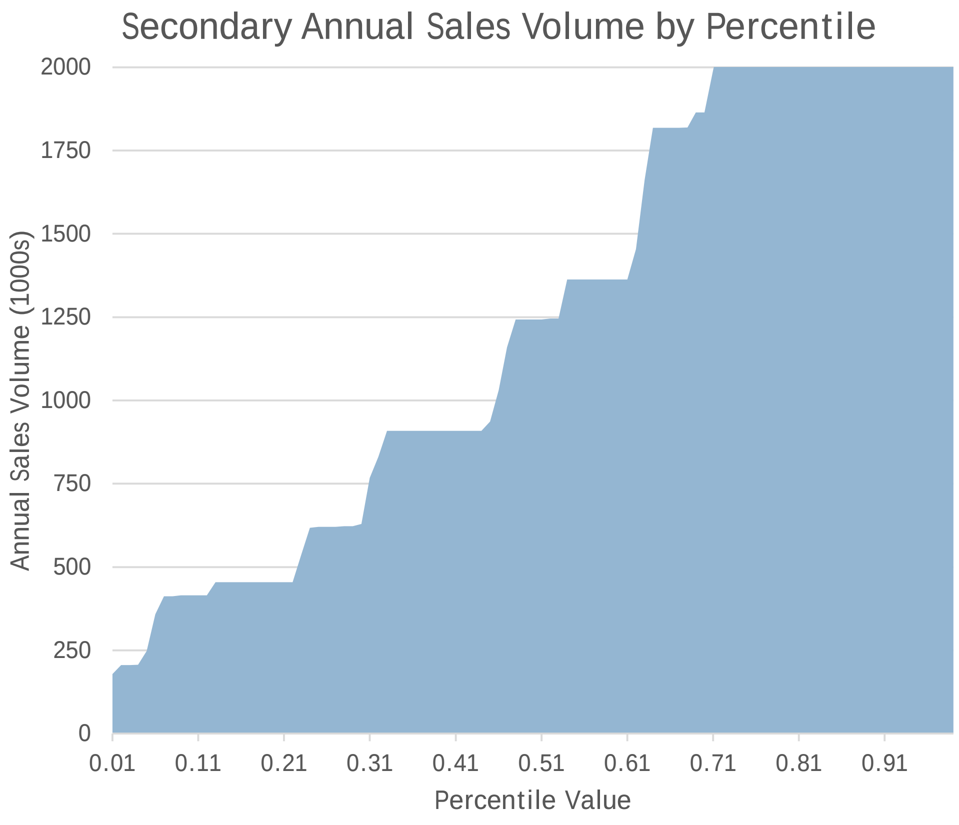
- Over 2,700 Businesses
- 6.6 Million $ average annual sales volume
- 52% are Used Merchandise Stores NAICS
- Highest average sales and employee number is recyclable material merchant wholesaler NAICS

Construction & Demolition Industry

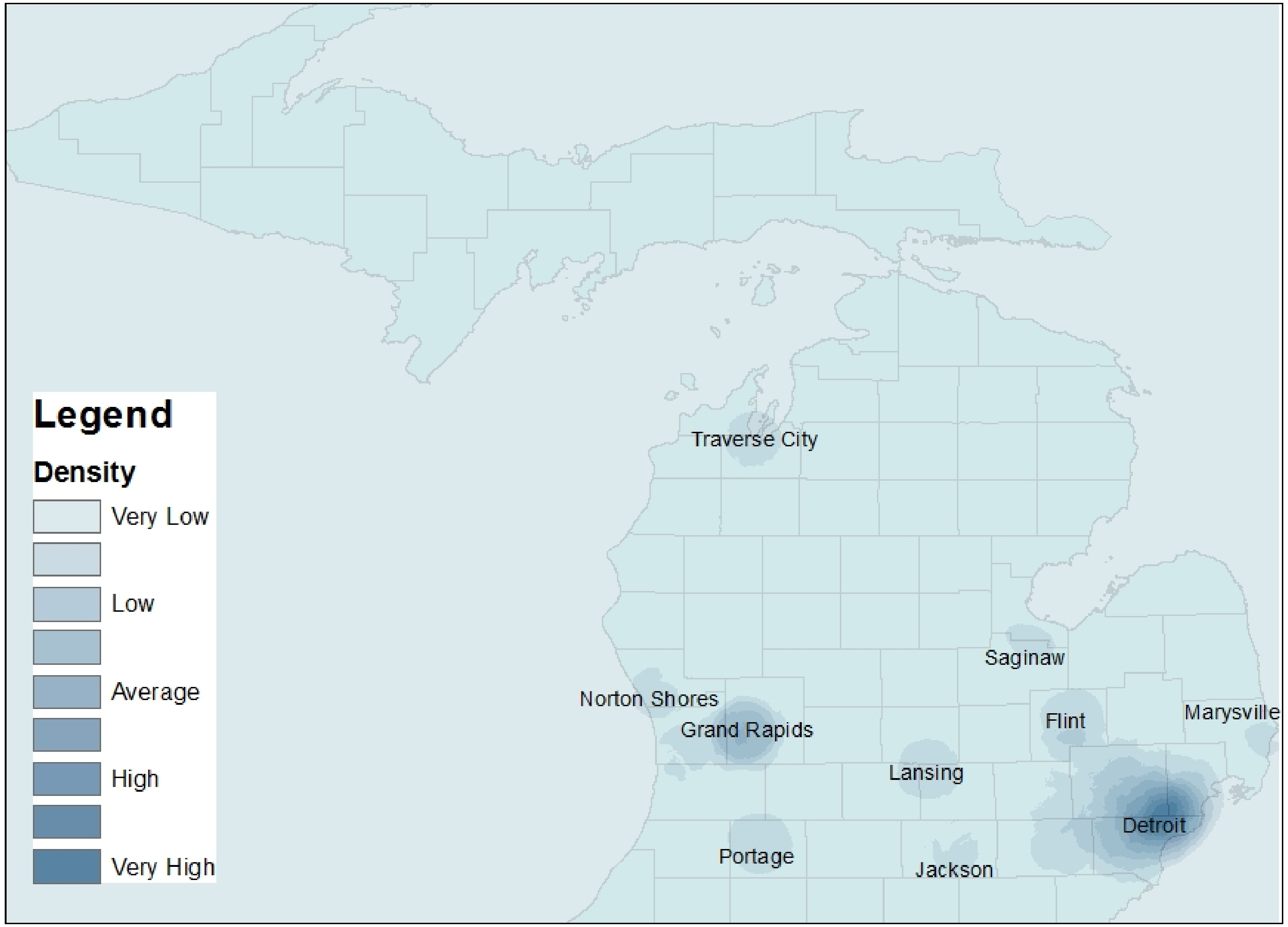
- Over 17,000 Businesses
- 3.5 Million $ average annual sales volume
- 63% are Construction of Buildings NAICS
- Highest average sales and employee number is gypsum product manufacturer NAICS

Business Size According to Sales Volume: A Comparative Analysis





Primary NAICS Business Density

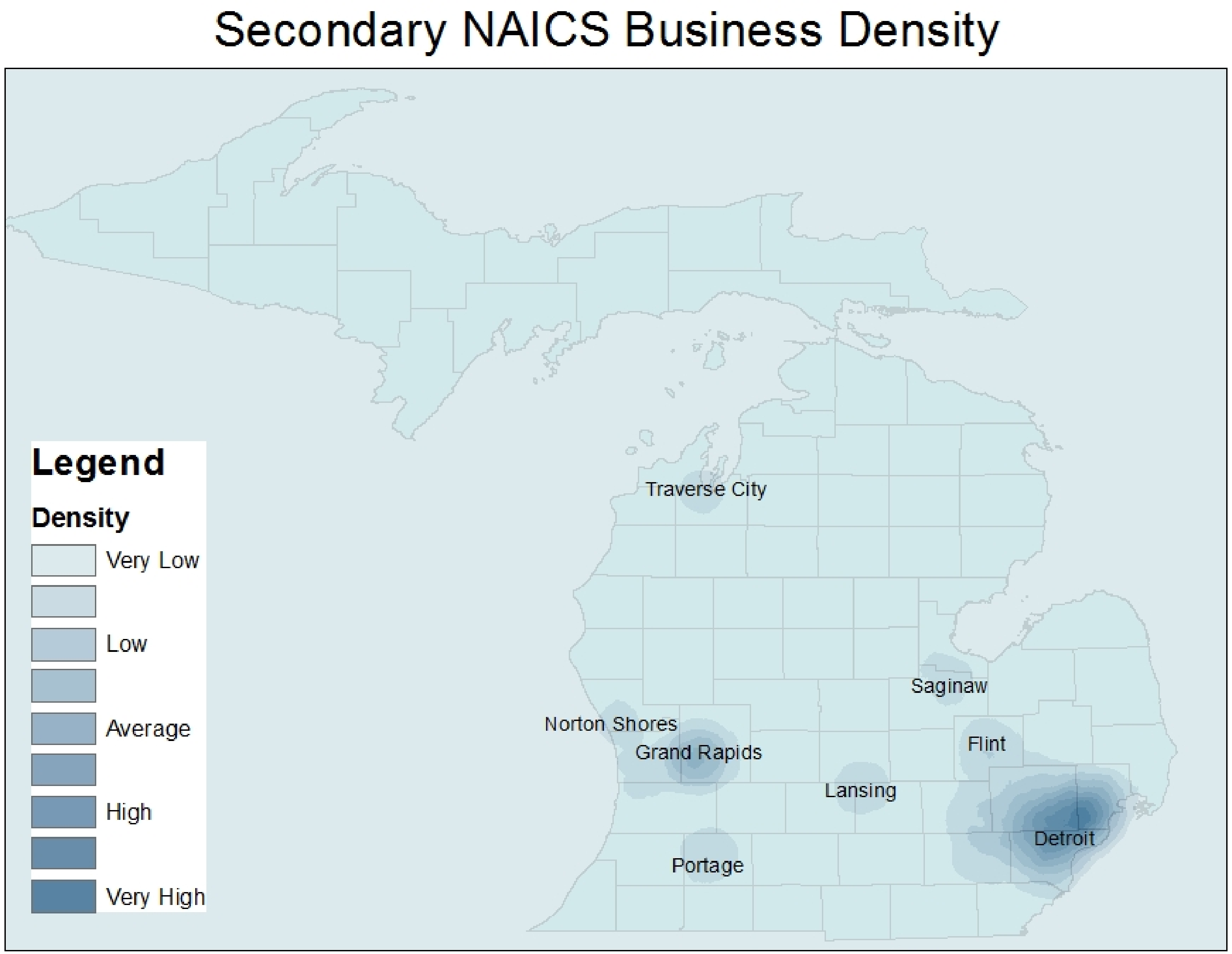


Primary NAICS:

Michigan businesses involved anywhere along the supply chain within the structural material reuse/recycling industry

Key Points:

- Detroit, Grand Rapids and Flint have the most dense reuse economies in Michigan.
- The upper peninsula is lacking a dense reuse economy hub.



Secondary NAICS:

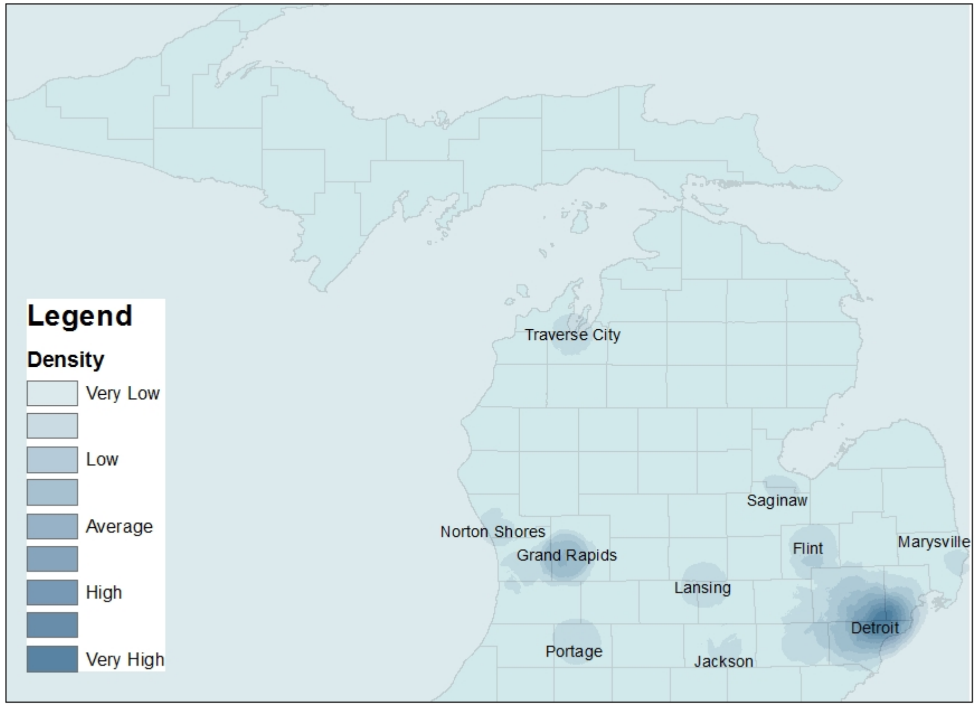
Michigan Businesses involved anywhere along the supply chain within the construction and demolition industry.

Key Point:

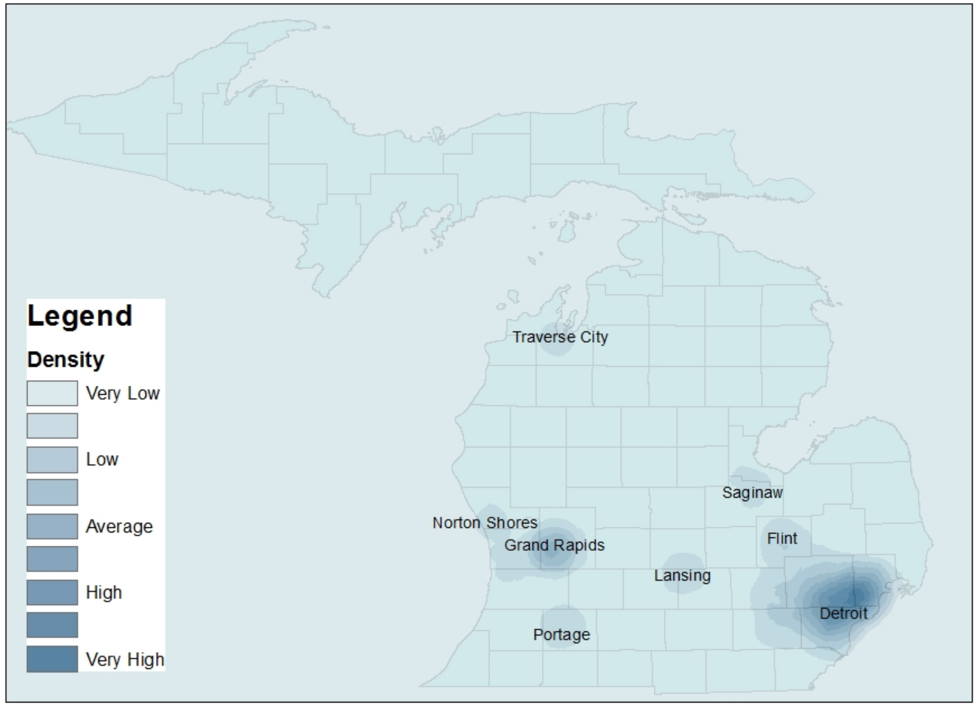
- Detroit and Grand Rapids C&D market is highly developed and dense compared to the rest of the state.
- C&D industry is similarly sparse in the Upper Peninsula.

Comparison of Both density Maps

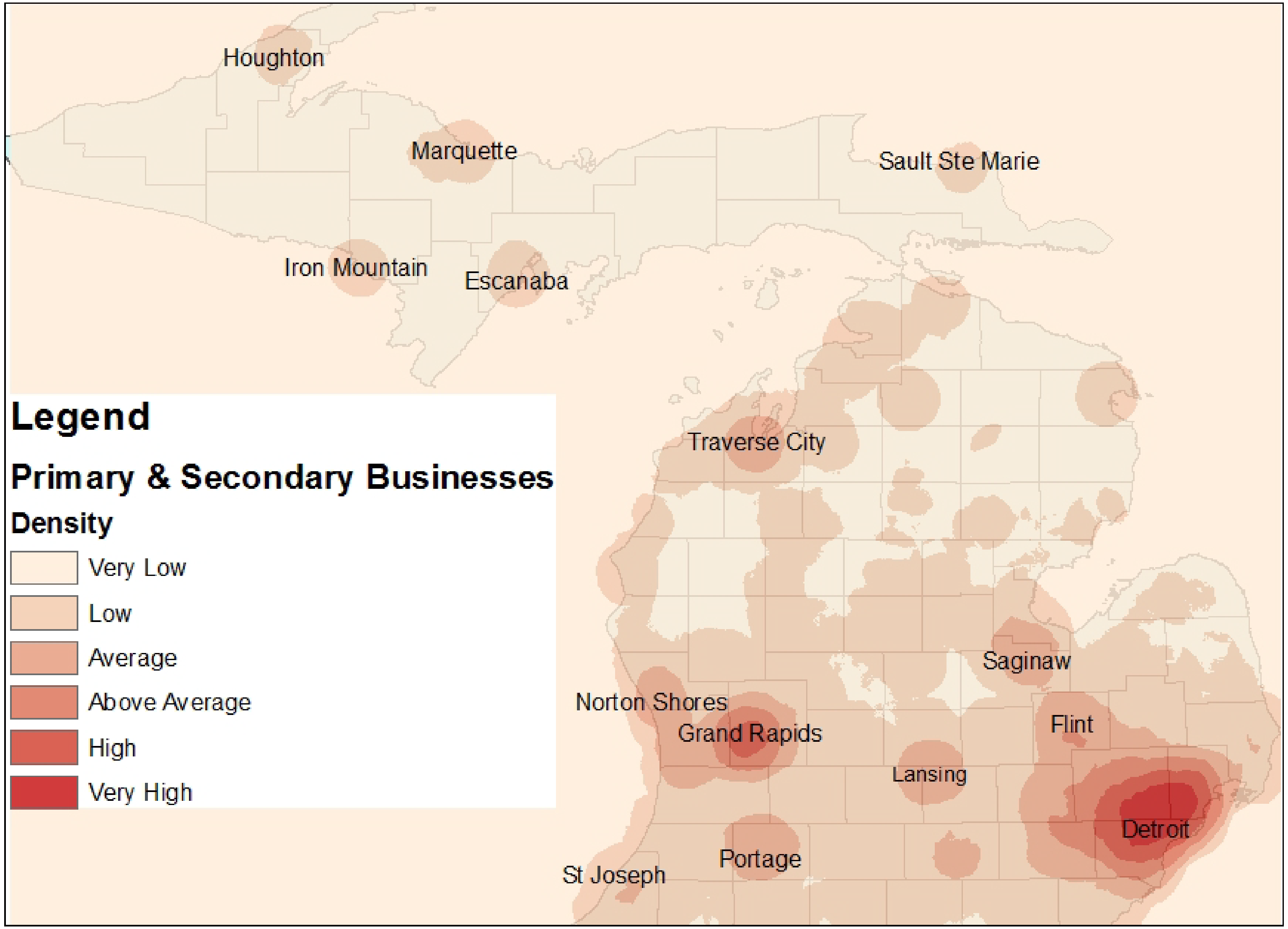
Primary NAICS Business Density



Secondary NAICS Business Density



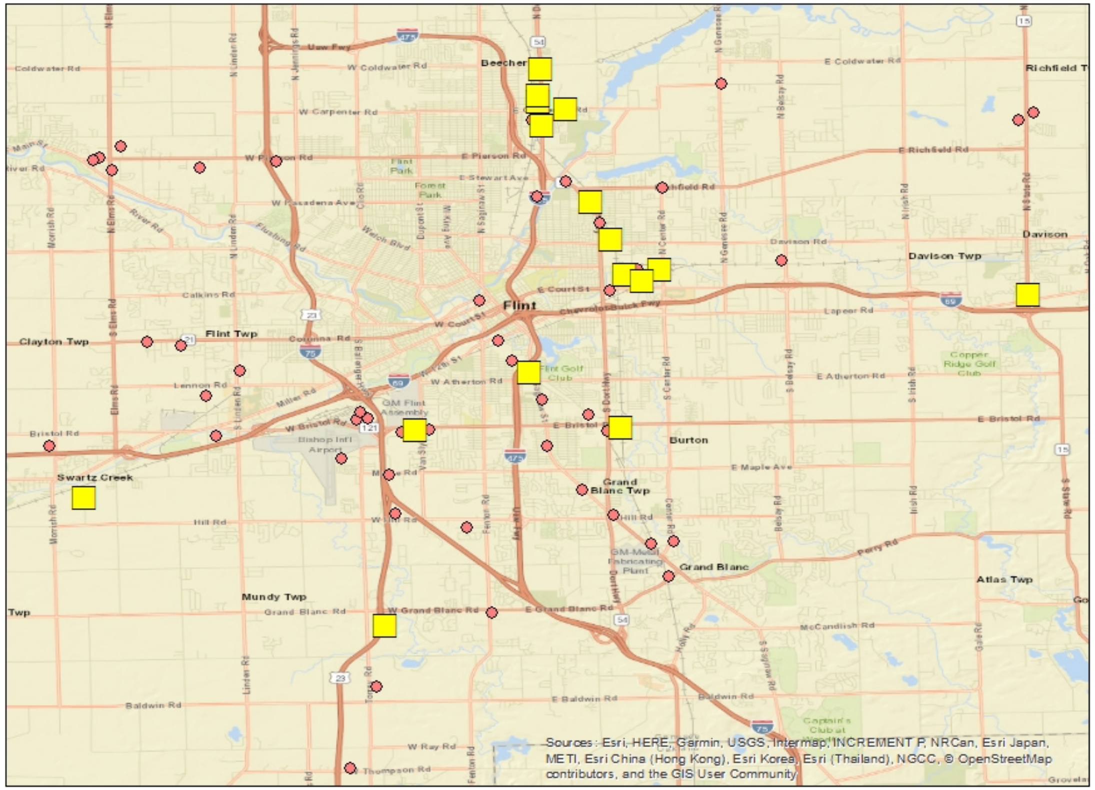
Density of Construction, Demolition, and Reuse Industy in Michigan



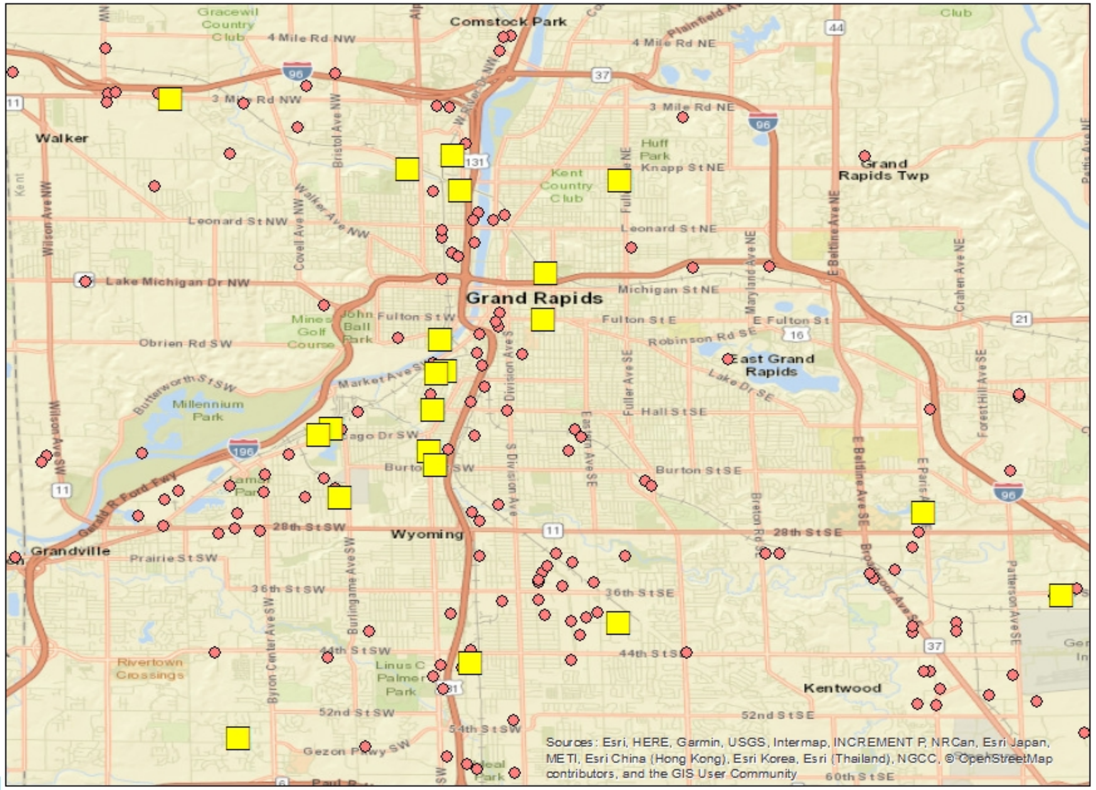
Key Point:

- Areas with above average densities are Detroit, Grand Rapids, and Flint.
- Efforts to connect Primary and Secondary businesses may be most effective in either Detroit or Grand Rapids.
- The Lower Peninsula's Western shoreline maintains a higher density than most of it's eastern shoreline.

Flint | 90th+ Percentile Sales Volume Primary and Secondary Businesses



Grand Rapids | 90th+ Percentile Sales Volume Primary and Secondary Businesses



Legend

- 90th+ Percentile Primary Businesses
- 90th+ Percentile Secondary Businesses

Primary 90th+ percentile sales volume ≥ 13.5 Million

Secondary 90th+ percentile sales volume ≥ 5.9 Million

Avenues for Further Research

- Further define the structural reuse market in Michigan from the dataset created during this study.
- Better understand what drives a strong reuse economy?

Summary & Recommendations

- Develop Initiatives to help bolster the reuse economy in Detroit, and Grand Rapids.
- Advocate for the small locally owned reuse businesses that exist throughout the state of Michigan
- Creating financial incentives for contractors involved in demolition and deconstruction to implement closed loop style practices over traditional practices.
- Develop the demand-side of this reclaimed material, whether that’s to be repurposed or reused as is.