



Michigan State University Center for
Community & Economic
Development

TOOLKIT FOR IDENTIFYING

REUSE MARKETS

FOR RECYCLED MATERIAL IN
MICHIGAN

Circular Economy
Research Team

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About the Michigan State University Center for Community and Economic Development (CCED)

The MSU Center for Community and Economic Development (CCED) is committed to creating, applying, and disseminating valued knowledge through responsive engagement, strategic partnerships, and collaborative learning. We are dedicated to co-creating sustainable prosperity and equitable economies with communities. Since its establishment in downtown Lansing, Michigan, in 1969, CCED, in partnership with public and private organizations, has developed and conducted numerous innovative research and outreach programs that address the challenges of Michigan communities in the 21st century while building the capacity of students, scholars, and communities to address future challenges. By adhering to a set of community development principles, the CCED focuses resources on the unique challenges of distressed communities throughout Michigan.¹

In carrying out the mission of the CCED, we:

- Create and **support** an innovative learning environment for collaborative learning in community and economic development.
- Provide **training** and direct assistance designed to increase the capabilities of community-based organizations, private enterprises, and public institutions.
- Conduct **research** that assists in the development and implementation of effective problem-solving strategies.
- Provide a **multidisciplinary** capacity to respond to the complex, interrelated issues of distressed communities.
- Promote and **expand** MSU's capacity to provide needed training, direct assistance, and research to address the issues of communities.

This handbook is the result of several years of effort in partnership with local, state, and industry leaders engaged in creating a more circular economy in our state. We hope you find this material useful as you manage your local recycling infrastructure and help create a more sustainable future for Michigan. For more information on the CCED and its activities, please visit www.ced.msu.edu.

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¹: <https://cdsociety.org/about/#aboutprinciples>

Summary

This document is designed to support Michigan communities, recycling system actors, and industry stakeholders in strengthening connections to reuse markets--the businesses and industries that purchase recycled, reused, or recovered materials to manufacture new products. Reuse markets are the backbone of a functional circular economy as they create the demand for secondary materials and ensure that collected materials are returned to productive use rather than disposed of in landfills. Without strong, accessible reuse markets, recycling efforts stall, public trust in the recycling system erodes, and valuable materials are lost from the economy.

In Michigan, the need to better connect recycling systems with reuse markets is particularly urgent. Landfill disposal costs, inconsistent material quality, limited data transparency, and fragmented coordination across sectors have weakened incentives to reuse materials and invest in material recovery infrastructure. As a result, significant volumes of valuable, recyclable materials are collected and landfilled, while Michigan manufacturers face supply chain volatility and an increasing dependence on diminishing resources. Strengthening connections to the reuse market represents a critical opportunity to retain economic value within the state while reducing environmental harm and supporting local manufacturing.

This toolkit provides resources, strategies, and implementation guidance to help close the gap between material collection and material reuse. It compiles existing tools, such as interactive maps, statewide datasets, and digital exchange platforms, and pairs them with actionable strategies to improve coordination among governments, consumers, materials management facilities, producers, and reuse market buyers. Core strategies include improving material data availability and transparency, expanding incentives for material reuse, facilitating regional market matchmaking, reducing contamination and material loss, leveraging waste brokers, and improving public confidence toward recycled materials and products. Recognizing that no single actor can advance circularity alone, this document clearly identifies stakeholder roles and responsibilities across each strategy. By clarifying these roles, the toolkit emphasizes shared accountability and coordinated action as the foundation of a resilient circular economy.

In all, the strategies outlined in this document offer Michigan a clear pathway to transform existing recycling efforts into a fully functioning circular system that prioritizes strong reuse markets, keeps materials in productive use, and positions the state as a regional leader in circular material management.

The Circular Economy



Our current economic paradigm, the linear economy, is built on a one-way sequence of extraction, production, and disposal. This system promotes one-time use of materials before they are discarded as waste, and is heavily reliant on the continual extraction of raw materials and short product lifecycles. The linear system normalizes and often incentivizes intense waste generation, creating substantial negative environmental impacts and economic loss. The linear economy critically lacks coordination between industry sectors, consumers, and reuse markets, and is increasingly susceptible to economic, environmental, and social disruptions.

The alternative, a circular economy, is a transformative framework for ensuring that **materials never become waste** and that nature is regenerated.² In a circular economy, raw materials are used as inputs in design and production, after which they are sold and consumed. However, rather than being discarded once used, materials are continuously kept in use through recycling, repair, reuse, remanufacturing, or refurbishment, and ultimately re-enter the economy through these processes. In this system, materials follow a continuous feedback loop of production, consumption, and recycling, thereby reducing the amount of raw material extraction and residual waste that occurs.²

Circular practices thus represent a systemic shift towards long-term environmental, social, and economic resilience at both local and global scales. By embracing sustainable resource use, providing end-of-useful-life solutions, and enhancing collaboration throughout a product's life cycle, this transformational paradigm shift has the potential to combat economic instability and social inequalities alongside its well-known environmental benefits. Circularity is thus an important step in creating a regenerative economic system that decouples economic growth from the consumption and exploitation of finite resources.²

2: The Circular Economy | Definition & Model Explained. (n.d.). Ellen MacArthur Foundation. Retrieved January 6, 2026, from <https://www.ellenmacarthurfoundation.org/topics/circular-economy-introduction/overview>

Image Source: Pedro Pinto, What is Circularity? Understanding Its Principles and Benefits, July 2024

Michigan's Circular Efforts

Michigan's economic and environmental challenges under its current linear system extend beyond waste; they reveal a structural disconnect between material value, disposal practices, and reuse markets. Without a deliberate transition to a circular economy, the state is projected to landfill between \$6.2 and \$8.3 billion in recoverable materials by 2035.³ At the same time, Michigan has only an estimated 20 years of remaining landfill capacity.⁴ This paradox of burying billions of dollars in usable materials while landfill space dwindles illustrates a system in which disposal remains easier than material recovery and reuse. Each year that Michigan fails to strengthen its recovery infrastructure, at least \$500 million in potential feedstock is lost to landfills.³ These materials could otherwise supply manufacturers, reduce reliance on virgin resource extraction, and circulate value within local economies. Instead, fragmented reuse policies and weak market signals allow these valuable commodities to be treated as waste.

Michigan industries are often the first to experience the consequences of this misalignment. Manufacturers and small and medium-sized businesses operate in a volatile secondary materials market where recycled inputs must compete against artificially inexpensive virgin resources. A lack of financial incentives and regulations to divert waste further depresses the incentive to invest in recycling, remanufacturing, and material recovery systems. As a result, the financial responsibility for developing recovery infrastructure frequently shifts to local governments and consumers rather than being embedded within market structures.

At the Michigan State University Center for Community and Economic Development (CCED), the Circular Economy Research Team is working to identify further practical, community-level pathways for advancing circularity across Michigan. The team's related work and publications include:

[Tipping the Scale on Recycling in Michigan: A State of the State Survey Policy Brief](#)

[Building a More Sustainable Economy in Michigan: Priority Actions for Supporting an Extended Producer and Circular Economy](#)

[Materials Management Planning Preliminary Survey Results](#)

[The Lansing Tri-County Bio-Manufacturing Feasibility Study](#)

[Muskegon, Michigan Deconstruction Economic Cluster Feasibility Study](#)

[Structural Material Reuse and Recycling Market Study](#)

Michigan's Circular Efforts (cont.)

Recognizing this gap, the State of Michigan has taken steps to shift the state from a disposal-focused system to one centered on resource recovery. Recent updates to Part 115 of the Natural Resources and Environmental Protection Act promote county-level Materials Management Planning as a means to expand local communities' recycling infrastructure and align communities with statewide circular goals. These statewide plans, known as the Benchmark Recycling Goals, have set a target of a 30% municipal solid waste recycling rate by 2029, with progressive rate increases thereafter. Michigan is also investing in developing circular supply chains by strengthening regional processing capacity, reducing material loss, and incentivizing the reuse of recovered materials.⁵



The state's NextCycle Michigan initiative also offers grants, business accelerator programs, and technical assistance to scale up innovation in reuse, repair, remanufacturing, and recycled content product development.⁶ These investments help emerging circular businesses overcome early-stage barriers, while enabling established companies to integrate more recycled feedstock into their operations. Additionally, the Michigan Department of Environment, Great Lakes, and Energy (EGLE) funds local governments, material recovery facilities (MRFs), tribal partners, and private-sector organizations to expand recycling access, improve contamination management, and develop markets that can absorb diverse recycled materials. Collectively, these policy reforms and financial commitments are positioning Michigan as a regional hub for circular material flows, green job growth, manufacturing competitiveness, and long-term ecological resilience. By improving recovery infrastructure and fostering collaboration across sectors, the state is laying the groundwork for a more efficient, transparent, and economically beneficial circular economy.

3: Schoonmaker D., Cruz C., Lowen A., Veldman C. (2024). Economic Impact Potential and Characterization of Municipal Solid Waste in Michigan. Michigan Sustainable Business Forum. misbf.org/msw.

4: Report of solid waste landfilled in Michigan for fiscal ... (n.d.). <https://www.michigan.gov/egle/-/media/Project/Websites/egle/Documents/Legislative/MMD/Part-115/Report-FY24-Landfilled-Solid-Waste.pdf?rev=b1a8a575d427406f8a4ad4fb4de0ff47&hash=430D8389FB9BEE4BA4AA6D076DCC50F7>

5: Michigan Invests in Building Circular Supply Chains - The Environmental Council of the States (ECOS). (2025, February 21). Environmental Council of the States. Retrieved January 6, 2026, from <https://www.ecos.org/news-and-updates/michigan-invests-in-building-circular-supply-chains/>

6: NextCycle. (n.d.). What Is NextCycle Michigan. NextCycle Michigan. <https://nextcyclemichigan.com/>

Reuse Markets

Nationwide, it is estimated that nearly 76% of recyclable materials never reach a secondary use.⁷ This is in part due to the lack of a fortified reuse sector that can adapt and reuse recycled inputs. **Reuse markets, also commonly known as end markets, are the businesses or industries that fill this role through the purchase of recycled, reused, or recovered materials to manufacture new products.** They are a critical component of the entire recycling system, and foundational to a circular economy as they provide the necessary demand and infrastructure needed for the reuse of materials that would otherwise be sent to landfills.⁸

Reuse markets provide outlets for a wide range of recycled materials, such as plastics, cardboard, electronics, food waste, glass, metals, wood, organics, textiles, paper, leather, rubber, and more. There are also numerous types of reuse markets:

- **Primary:** Primary markets involve the direct reuse of an item for its original purpose without any physical change or reprocessing.⁹
- **Secondary:** Secondary markets modify a material to be used in a different way than its original purpose, without altering its fundamental composition.⁹
- **Tertiary:** Tertiary markets chemically break recycled materials down to their raw form to create entirely new products.⁹

7: Download the State of Recycling Report. The Recycling Partnership. (2024, February 8). <https://recyclingpartnership.org/state-of-recycling-report-download/>

8: How2Recycle. (2021, May 6). *How2Recycle announces updated criteria for assessing end markets to determine whether a package is recyclable.* Greenblue. <https://greenblue.org/2021/05/06/how2recycle-announces-updated-criteria-for-assessing-end-markets-to-determine-whether-a-package-is-recyclable/>

9: OC Recycling. (n.d.). What are the 3 Types of Recycling? [Review of What are the 3 Types of Recycling?]. OC Recycling. [https://www.ocrecycling.com/learn-the-3-types-of-](https://www.ocrecycling.com/learn-the-3-types-of-recycling#:~:text=%231%20Primary%20Recycling,laptop%2C%20you%20are%20actually%20recycling.)

recycling#:~:text=%231%20Primary%20Recycling,laptop%2C%20you%20are%20actually%20recycling.

Image Source: Ellen Macarthur Foundation



Reuse Market Challenges

Many challenges exist within the reuse sector of the circular economy, particularly regarding both **visibility** and **viability**. In the United States, only about 32% of recyclable materials are recovered and placed back into circulation, meaning that more than two-thirds of materials never reach a reuse market.¹⁰ These structural barriers contribute to persistent gaps between material recovery efforts and functioning reuse markets.

VISIBILITY

A primary barrier within the reuse sector is limited transparency about who the reuse markets are, what materials they accept, and under what specifications they operate. Unlike primary commodity markets, reuse markets are often fragmented, and information is frequently proprietary. Manufacturers may treat sourcing information as competitive business intelligence, and brokers and processors may not publicly disclose downstream buyers. As a result:

- Communities may collect materials without understanding whether stable buyers exist
- Recyclers may invest in processing infrastructure without clear market signals
- Manufacturers seeking recycled inputs may struggle to locate consistent suppliers
- Economic development practitioners lack reliable data to support reuse market expansion

The combined effects of limited visibility and constrained viability create a recurring imbalance in which **the supply of recycled material exceeds the demand of the reuse market**. With too few stable, competitive reuse markets to absorb these resources, active steps must be taken to remediate the struggles that reuse markets face.

10: United States Environmental Protection Agency. National Recycling Strategy: Part One of a Series on Building a Circular Economy for All. 2021.

11: Okon Recycling. "Current Challenges with Recycling." 2025.

VIABILITY

Even when reuse markets are identified, operating as a reuse business presents economic and technical challenges:

- Virgin materials often cost less and are supported by established supply chains and long-standing subsidies
- Processing recycled materials requires additional sorting, cleaning, and specialized equipment, increasing capital and operational costs
- Inconsistent quality and contamination reduce material reliability and deter manufacturers.¹¹
- Material degradation can limit repeated reuse cycles.¹¹
- Limited consumer confidence reduces recycling participation and increases contamination, affecting supply quality.

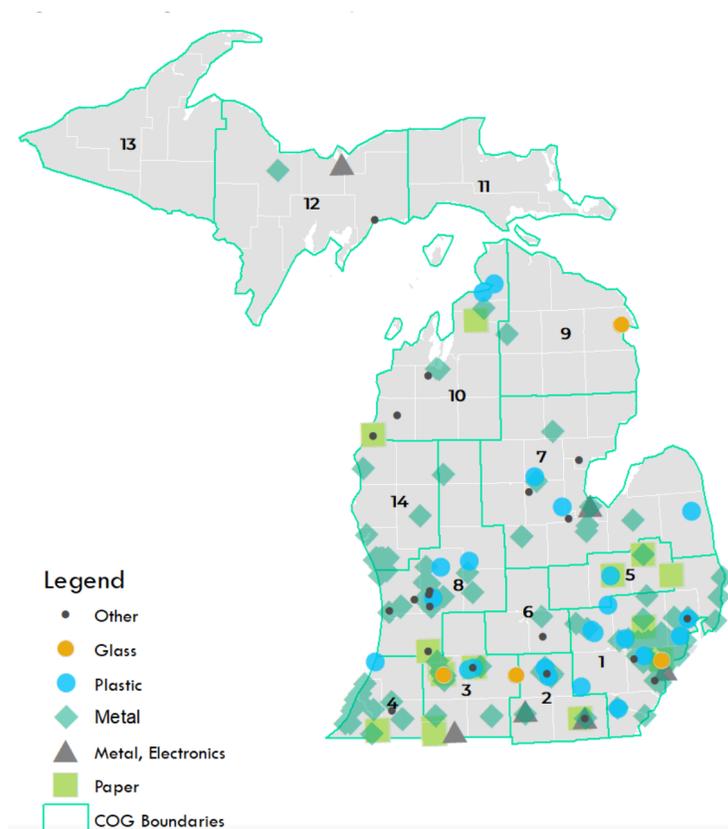
These combined pressures make it difficult for reuse businesses to compete with established virgin material markets. As a result, relatively few firms are willing or able to operate as reuse markets.

Reuse Markets in Michigan

With these challenges in mind, a coordinated framework that efficiently connects recycled materials and industries that can use them is vital to ensuring the growth of an efficient and effective circular economy. Resources readily available to establish this framework are summarized below:

NextCycle: Michigan End Markets Map

In their [2023 Michigan Gap Analysis](#), NextCycle mapped all known reuse markets for recycled material in the state (as of July 2023). These markets are sorted by the types of materials that they purchase and repurpose. In analyzing this information, it must be noted that the companies mapped in the report are only **assumed** to use recycled material. The assessment notes that it is “challenging to determine the exact feedstocks for each company due to the proprietary nature of trade information”, meaning that these companies may or may not utilize recycled material.¹² NextCycle’s list of mapped reuse markets, which can be found in the Appendix of the Gap Analysis document.



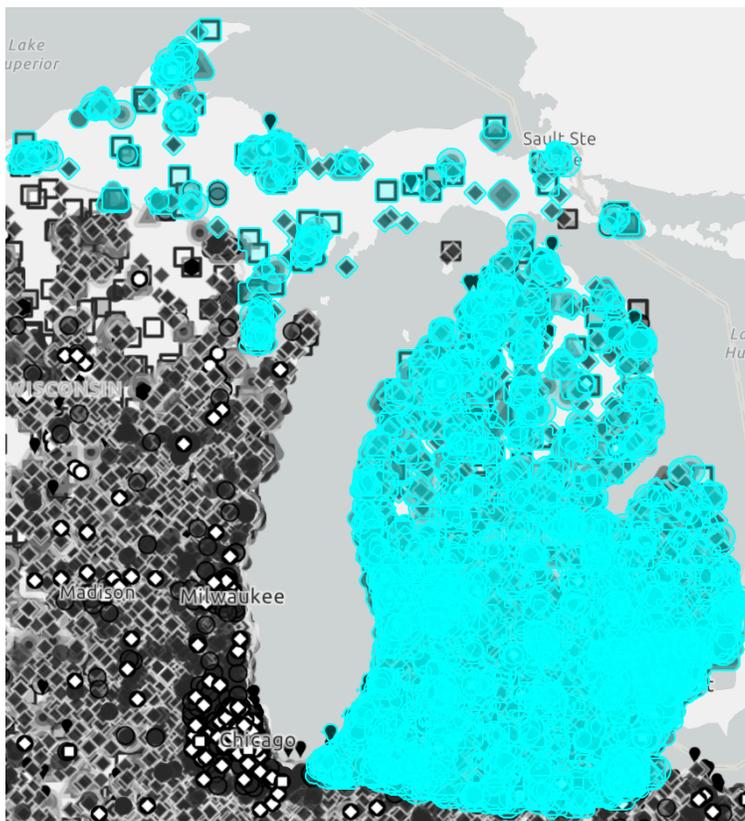
12: Michigan Gap Analysis — NEXTCYCLE MICHIGAN. “NEXTCYCLE MICHIGAN.” NEXTCYCLE MICHIGAN, 2019, nextcyclemichigan.com/michigan-gap-analysis. Accessed 13 Jan. 2026.

Reuse Markets in Michigan

EPA: Recycling Infrastructure and Market Opportunities Map

The Environmental Protection Agency (EPA), in support of the National Recycling Strategy, developed the Recycling Infrastructure and Opportunities Map in 2022 to identify domestic recycling networks, including waste-generation and recycling hotspots, as well as facilities that process specific wastes. Additionally, the map identifies potential primary and secondary end markets for various types of material across the nation, down to the zip code level.

The map enables users to toggle multiple layers to identify where waste is most heavily recycled, and what type of reuse markets may be available for recycled products in these areas.



It is worth emphasizing, however, that this map identifies **potential** reuse markets based on the company's North American Industrial Classification System (NAICS) codes for accepted recycled materials. This, therefore, does not provide a firm guarantee that the company accepts all types of recycled materials noted, but instead suggests it through their categorized business type. The map also may not fully capture the range of companies that do, in fact, accept those recycled materials.

Pictured to the left: The EPA Recycling Infrastructure Map showing potential primary and secondary end markets in Michigan.

Reuse Markets in Michigan

Michigan Materials Marketplace

The Michigan Materials Marketplace is an online platform managed by NextCycle that allows businesses and organizations to list, sell, and buy surplus materials from other entities¹⁴. The purpose of this platform is to prevent surplus manufacturing supplies from being sent to landfills, instead keeping them in circulation for repair, refurbishment, reuse, and recycling.¹⁴ Businesses can use the site to maximize the value of surplus materials, while also creating a generalized positive environmental impact.¹⁴

The website allows users to set their location and view surplus materials available in their area. Users may also list their own materials on the website for sale. Materials can range from sheet metal to office furniture, to crushed glass, to hydrochloric acid, to other commercial/industrial inputs. This resource provides real-time visibility into the availability, location, price, and quality of discarded materials across the state, facilitating direct connections with suppliers (like recyclers or manufacturers with surplus) to build a robust local supply chain.

Browse listings

Filters: East Lansing • 150 mi | Sort: Newest

62 listings • Page 1 of 2

| Item | Price | Condition | Availability | Location |
|--|----------|-------------|--------------|----------------------|
| Playground Surface Repair Materials - Ground Rubber | Free | New | 27 available | Royal Oak, Michigan |
| Hydrochloric Acid 20 Degree, 15 gallon drums, UN1789 | Free | New | 5 available | Royal Oak, Michigan |
| Allsteel Merge Table side table | \$575.00 | Used - Good | 1 available | Southfield, Michigan |
| Allsteel Merge Table with power | \$575.00 | Used - Good | 6 available | Southfield, Michigan |
| Round Breakroom Table - White 42" round | \$75.00 | Used - Good | 6 available | Southfield, Michigan |

Pictured Above: The Michigan Materials Marketplace website showing results for materials (office tables, hydrochloric acid, ground rubber) available within 150 miles of East Lansing, MI.

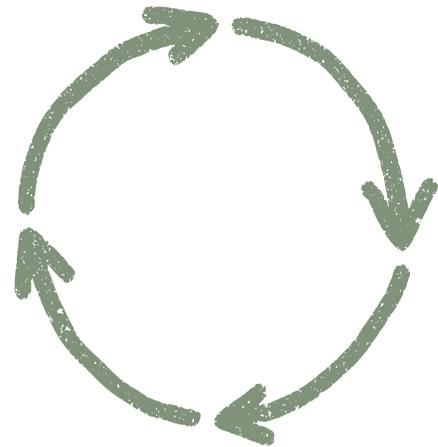
14: Michigan, NextCycle. "NEXTCYCLE MICHIGAN." NEXTCYCLE MICHIGAN, 11 Sept. 2024, nextcyclemichigan.com/news/michigan-materials-marketplace-updated. Accessed 13 Jan. 2026.

Six Strategies for Better Reuse Market Connections

While tools like the NextCycle Michigan End Markets and the EPA Recycling Infrastructure and Market Opportunities maps can provide valuable information, significant blockages still prevent the flow of collected materials to viable reuse markets. By mapping potential buyers/users, processing facilities, and recycling infrastructure, these tools identify supply chains to recyclers, local governments, and manufacturers. However, their existence alone does not automatically guarantee that materials will be used efficiently or consistently. In practice, inconsistent material quality, logistical challenges, limited financial incentives to support reuse, disparate access to collection sites, and limited knowledge of these tools continue to prevent many recovered materials from re-entering production streams.

These challenges illustrate that visibility alone is not enough, and that effective circularity requires coordination, standardization, and market alignment. Without stronger connections between supply and demand, materials will remain underutilized, thus undermining both economic and environmental goals.

Overcoming these barriers requires an effort to strategically strengthen relationships between Material Recovery Facilities (MRFs), governments, reuse markets, and consumers to bridge the gap between material collection and reuse market use. This can be facilitated by establishing standardized material specifications, improving information sharing, coordinating logistics, incentivizing recycled-content use, and creating forums for direct engagement between recyclers and manufacturers. By addressing these structural and operational challenges, Michigan can transform market visibility into tangible material flows, ensuring that recovered resources are efficiently redirected back into productive use rather than being wasted.



The six strategies below identify actionable steps that recyclers, governments, reuse markets, and other key stakeholders can take to help close the gap between material collection and reuse market utilization. Each strategy outlines what needs to occur system-wide and clarifies how each responsible party can contribute through concrete, implementable actions.

Importantly, we recognize that a number of these actions and best practices may already be implemented by the aforementioned stakeholders, and we applaud these efforts. Our goal is that, through highlighting their critical importance in strengthening reuse market connections and improving overall material flow, we can thus encourage further widespread adoption.

1 INCREASE STANDARDIZED, TRANSPARENT MATERIAL DATA

Creating consistent standards for material characterization, contamination thresholds, and publicized data is key to manufacturing reliable recycled feedstocks. By improving data transparency during recycling, manufacturers can predictably use recycled material as production inputs. Over time, these uniform standards can strengthen Michigan's competitiveness by positioning the state as a reliable source of high-quality secondary materials that meet both national and international market requirements.

Implementation Steps by Stakeholder:

- Reuse Markets, Industry, & Producers:
 - Define and publicize clear material specifications for needed recycled feedstocks (e.g., moisture content, contamination levels, bale density, etc.).
 - Share purchasing requirements publicly, so MRFs and local governments know what materials are acceptable and in demand.
 - Participate in state working groups to help shape uniform standards that reflect market realities.
- State & Local Governments:
 - Adopt reporting requirements for local recycling stream data from recycling processors in Materials Management Plans.
 - Invest in public education so residents place cleaner, standardized materials in the recycling stream.
 - Develop a regional/statewide database that provides reuse markets with information on the volume of materials available in localities.
- Materials Management Facilities:
 - Standardize material sorting and characterization procedures that match reuse market needs.
 - Enhance load monitoring and contamination tracking by utilizing consistent measurement tools.
 - Continue to align bale/material quality and labeling with reuse market specifications.
 - Participate in regional coalitions and databases to share market information, coordinate supply, and collectively meet demand.
- Consumers:
 - Ensure compliance with MRF sorting and cleaning requirements to ensure efficient and simplistic material tracking.
 - Advocate at the local and state levels for improved data systems for regional waste and recycling streams.

2 EXPAND INCENTIVES FOR MATERIAL REUSE

The current linear economy incentivizes producers to use raw, virgin materials in their production processes. In some cases, these raw materials receive public subsidies to keep prices low and quantity high. Recycled materials that do not receive these subsidies are often more expensive and unreliable inputs in terms of quality and quantity. To encourage a widespread transition from raw to recycled materials, there must be assurance that this transition will prove to be financially and economically beneficial to both producers and consumers.

Implementation Steps by Stakeholder:

- Reuse Markets, Industry, & Producers:
 - Advocate for full transparency of all subsidies for raw, virgin materials. This ensures the true environmental and economic costs of using virgin inputs are clear and incorporated into pricing decisions, making recycled alternatives more competitive on a level playing field.
 - Publicly report the percentage of recycled content used in products. Increased transparency in the supply chain builds consumer trust and allows reuse markets to differentiate their products based on sustainable practices.
- State & Local Governments:
 - Governments may offer tax credits, deductions, or regulatory consideration to producers who incorporate recycled content into their manufacturing processes.
 - Offer direct funding (grants) or low-interest loans to businesses to cover costs associated with research, recycling infrastructure investments, and the implementation of new production processes.
 - Phase out or repurpose existing subsidies for fossil fuels and other virgin material extraction to remove market distortions that favor linear economic models.
 - Fund public education to inform consumers about the benefits of buying recycled products and the environmental impact of current consumption habits.
 - Support research and technology transfer that accurately measures environmental, social, and economic impacts of current and proposed methods of production.
- Materials Management Facilities:
 - Invest in advanced sorting and processing technologies. This will improve the quality and consistency of recovered materials, making them more attractive to producers.
- Consumers:
 - Consciously choose products made from recycled materials, sending clear market signals to producers to promote circularity and incentivize their transition to recycled inputs.
 - Reduce overall consumption, reuse items when possible, and recycle properly. These actions decrease the demand for virgin resources and improve the quality of the recycling stream.

3 REGIONAL MARKET MATCHMAKING

Regularly scheduled matchmaking sessions facilitated by economic development organizations, business councils, regional planning agencies, and others can directly connect MRFs with market representatives. These events allow manufacturers to communicate their feedstock needs while giving recyclers real-time insight into purchasing requirements, material specifications, and contract opportunities.

Implementation Steps by Stakeholder:

- Reuse Markets, Industry, & Producers:
 - Clearly communicate feedstock specifications, volume requirements, and pricing structures.
 - Identify which materials they can begin accepting with minor adjustments or investment.
 - Provide feedback that helps recyclers adjust bale quality to meet market standards.
- State & Local Governments:
 - Partner with economic development organizations, business councils, regional planning agencies, and others to host annual or quarterly matchmaking sessions.
 - Share local waste-generation data to help identify priority materials for matchmaking or elimination from the waste stream.
 - Provide meeting space, communication support, or convening power to bring sectors together.
- Materials Management Facilities:
 - Prepare and publicize material availability sheets listing quantities, quality, and frequency of recyclable materials
 - Attend sessions to discuss needs such as contamination thresholds or transportation challenges, organized by industry.
 - Continue to build relationships with multiple buyers to diversify demand and reduce reliance on single markets
- Consumers:
 - Support products made from recycled materials to increase demand and provide a stronger market signal for reuse markets and producers to participate in these matchmaking opportunities.
 - Advocate for local government initiatives that promote circular economy practices and the regular hosting of these collaboration events.

4 SUPPLY OPTIMIZATION

Contamination of recycled material is a primary concern for reuse markets, often deterring them from using recycled feedstock due to poor material quality. When a contaminated recycled product is brought to a recycling facility, it is often landfilled, as recycled material needs to be uncontaminated and properly sorted to be reused by reuse markets. It is for this reason that care must be taken to reduce the amount of material that is discarded due to contamination, improving both the quality and quantity of recycled inputs.

Implementation Steps by Stakeholder:

- Reuse Markets, Industry, & Producers:
 - Prioritize using materials and designs that are easy to recycle and less prone to contamination in standard sorting processes.
 - Standardize packaging materials to reduce the variety of plastics and other materials entering the recycling stream, making sorting more efficient for consumers and MRFs.
 - Participate in standardized labeling of materials so consumers are aware of the correct recycling protocols.
- State & Local Governments:
 - Implement consistent recycling guidelines across jurisdictions to minimize consumer confusion about what is accepted, ensuring a cleaner stream of recycled material.
 - If local contamination rates are consistently high, mandate separate collection streams for recyclables and waste, discouraging single-stream collection.
 - Launch public education campaigns to reduce the consumer practice of putting non-recyclable or unclean materials into the recycling bin.
- Materials Management Facilities:
 - Invest in advanced sorting and cleaning technologies to more effectively identify and separate materials, thereby reducing contamination levels in the final product.
 - Provide clear guidelines for what materials can be accepted and the conditions under which they may be brought to the facility (i.e., certain types of plastics should be cleaned, properly sorted, etc.)
 - Ensure that there are numerous quality control and oversight measures throughout the processing chain to reduce the amount of contaminants in the final product.
- Consumers:
 - Adhere strictly to the specific recycling requirements of local facilities or haulers. This information is typically found on a local government or waste management provider's website and on the products themselves.
 - Ensure that all recyclable containers are empty, rinsed, and dry to prevent food waste and liquids from contaminating otherwise clean items.

5 WASTE BROKERAGE

Waste brokers act as strategic connectors in the recycling stream by matching secondary materials with those who can utilize them as viable inputs. By tracking and managing fluctuating market demands and identifying buyers, brokers ensure that products and materials are diverted from landfills and successfully re-enter the manufacturing system. The importance of waste brokers in the circular economy lies in their ability to foster trust and coordination between previously disconnected parties (i.e., waste generators, recycling facilities, reuse markets). Brokers provide an essential infrastructure needed to turn waste into a resource, thereby driving revenue growth and increasing supply chain resilience. To support brokers' vital role in connecting reuse markets with material, each sector must collaboratively provide the product characterization data, infrastructure, and policy frameworks necessary to close the circularity loop.

Implementation Steps by Stakeholder:

- Reuse Markets, Industry, & Producers:
 - Contract with waste brokers to identify high-quality secondary materials that can replace virgin inputs in manufacturing processes.
 - Establish procurement policies that prioritize purchasing secondary materials sourced through verified waste brokers.
 - Partner with digital marketplaces to resell returned or refurbished goods, extending product lifecycles through established circular platforms (such as the Michigan Materials Marketplace).
- State & Local Governments:
 - Establish regional brokerage hubs and platforms that support the collection, sorting, and redistribution of localized waste streams.
 - Standardize material data reporting requirements to provide brokers with the inventory transparency needed to predict supply volumes and attract larger industrial reuse markets
 - Incorporate brokerage services into municipal waste management contracts to ensure that bulky or specialized items are diverted to reuse markets.
 - Work with brokers to identify new business opportunities that reuse materials that are available within the community.
 - Encourage training programs and professional certification to increase the profession's visibility and standardization.
- Materials Management Facilities:
 - Collaborate and contract with brokers to access alternative outlets for specialized or hard-to-recycle materials.
- Consumers:
 - Engage with take-back platforms facilitated by brokers to return end-of-use goods for refurbishment or responsible recycling.
 - Prioritize purchasing refurbished products verified by brokers, which often carry warranties comparable to new items while offering lower environmental footprints.

6 SHIFTING PUBLIC ATTITUDES

The public is a crucial stakeholder on both the supply and demand side of Michigan's circular economy and the ultimate beneficiary of a circular economic system. On the supply side, municipal commercial waste comprises over half of the solid waste landfilled in Michigan. On the demand side, the public drives the market for recycled, remanufactured, and sustainably produced goods.¹⁴

Despite public support for recycling, participation remains uneven. Many worry that their effort will be wasted and their recycling will ultimately end up landfilled after reaching a processing facility. Many also hesitate to purchase green products due to higher prices, perceived ineffectiveness, or concerns of greenwashing.¹⁵ To strengthen Michigan's reuse markets and advance the state's circular economy, conscious collaboration is essential. The public, MRFs, industry, and state and local governments must work together to dispel these misconceptions and restore confidence in Michigan's recycling system.

Implementation Steps by Stakeholder:

- Reuse Markets, Industry, & Producers:
 - Improve transparency on products' material origin using clear labeling.
- State & Local Governments:
 - Invest in education campaigns informing residents of common contaminants and proper product sorting and material origin labels.
 - Improve household sorting by requiring waste management companies to provide a greater number of standardized bins with clear, intuitive labeling.
 - Implement enforceable accountability metrics for MRFs, regulating contamination and diversion rates in Materials Management Plans.
 - Ensure the health and safety of workers who handle waste and recycled materials.
- Materials Management Facilities:
 - Make use of modern technologies like robotics, AI, and optical sorting to better identify contaminated materials.
 - Work with waste haulers to identify hotspots of contamination to more effectively target education campaigns
 - Publicize information on processed materials' reuse markets
- Consumers:
 - Advocate for improved policy, like curbside pickup, public recycling, and extended producer responsibility.
 - Purchase recycled products

14: Michigan EGLE, Report of Solid Waste Landfilled in Michigan for Fiscal Year (FY) 2024

15: Recycling Product News, 2024, EverestLabs study finds 8.6 million tons of recyclables sent to landfill annually

Conclusion

As detailed throughout this toolkit, achieving a circular economy in Michigan requires intentional structural change and cross-sector coordination. Recyclers, governments, reuse markets, and consumers each influence vital components of circularity, shaping everything from material quality to market demand. When these actors can align standards, transparently share information, invest strategically, and communicate clearly, Michigan moves closer to a resilient and economically viable sustainable materials management system.

Yet coordination does not occur automatically. It must be built through stronger reuse markets that can reliably absorb materials and create stable demand. The reuse market sector therefore represents both a challenge and a significant opportunity. While barriers such as inconsistent material specifications, limited visibility into end markets, and fluctuating demand persist, Michigan also possesses strong assets such as established reuse businesses, entrepreneurial manufacturers, and growing public interest in sustainable materials. By identifying these dynamics and outlining practical steps to navigate them, this toolkit is designed to help stakeholders strengthen reuse markets and build pathways for material circulation across the state.

Taken together, these strategies point toward a promising future. With deliberate effort, Michigan can foster stable reuse markets, support local economic development, and reduce environmental impacts simultaneously. To move from strategy to implementation, the following key takeaways distill the most important actions that stakeholders can begin advancing today.

KEY TAKEAWAYS

- Utilize existing resources and market networks to identify potential buyers and strengthen connections within Michigan's reuse ecosystem.
- Advocate for policy and procurement changes that incentivize material reuse, standardize specifications, and bolster in-state reuse markets.
- Engage the public to reduce contamination and build awareness around the value of recycled and reused materials.
- Maintain transparency regarding material quality and availability to build trust and long-term partnerships.



We would greatly appreciate your feedback, input, or questions regarding this project. Please follow [this link](#), or use the QR code to the left.

Thank you,
CCED Reuse Market Toolkit Research Team

