Antrim County
Materials Management Planning Committee

Date: March 26, 2026
Time: 2:00 p.m. – 3:00 p.m.
Location: 203 E. Cayuga Street
Bellaire, MI 49615

PROPOSED AGENDA

I. **Call to Order**
II. **Public Comment**
III. **Approval of Agenda**
IV. **Approval of October 23, 2025 Meeting Minutes**
V. **MMPC Membership Reduction**
VI. **Election of Officers**
VII. **2026 Meeting Dates**
VIII. **Materials Management Planning**
    a. **Process Update**
    b. **Draft Language Review**
        i. **Community Input**
        ii. **Previous Planning**
        iii. **Existing Conditions**
    c. **Siting Criteria**
    d. **Funding and Contract Mechanism**
    e. **Goals and Objectives**
IX. **Committee Member Comments**
X. **Public Comment**
XI. **Adjourn**

Posted:_____

Signature: _____

Antrim County
Materials Management Planning Committee Minutes
October 23, 2025 at 2:00 PM
Antrim County Government Center
203 E. Cayuga St., Bellaire, MI 49615

MMPC Member Attendance			
Andre Grobaski, GFL *rep. of a solid waste disposal facility*	*E*	Bill Hefferan, Antrim County *elected official of the county*	*P*
Melissa Zelenak, Sunshine Recycling *rep. of a hauler*	*P*	Mark Byard, Central Lake Township *elected official of a township*	*P*
Mark Bevelhymer, GFL *rep. of a materials recovery facility (MRF)*	*E*	Michelle Fox, Village of Central Lake *elected official of a city or village*	*E*
Vacancy *rep. of a composting facility*	-	Vacancy business rep. generating material	-
Vacancy *rep. of waste diversion, reuse, or reduction*	-	Isha Pithwa, Networks Northwest *rep. of the regional planning area*	*P*
Lindsey Mason, ECT *rep. of an environmental interest group*	*P*	*Attendance Key:* *P – Present* *A – Absent* *E - Excused Absence*	
Others in Attendance: Terry VanAlstine (Antrim County BOC), Aubree Carlisle (EGLE), Dean Whitt (Whitt Farms), Mathew Cooke (DPA – Networks Northwest)			

I. Welcome and Introductions

Melissa Zelenak, Chair, called the meeting to order at 2:05 p.m.

II. Public Comment

None.

III. Review Proposed Agenda

Motion by Andy Grobaski, supported by Mark Byard, to approve the August 28, 2025 MMPC agenda. Motion carried unanimously.

IV. Approval of July 24, 2025 Meeting Minutes

Motion by Mark Byard, supported by Bill Hefferan, to approve the July 24, 2025 MMPC meeting minutes. Motion carried unanimously.

V. Food Waste Presentation

VI. MMP Process Update

a. Process Update

Mathew Cooke provided an update on the MMP process:

- 180 Resident responses in Charlevoix County
- Kearney Township posting on their webpage for survey promotion
- Municipal data collection completion
- Business and LUG survey collection continues, identify non-responding units
- Filling compost vacancy on MMPC
- Review of County Resident Survey Analysis at next meeting

b. MMP Discussion

The MMPC members went through some question and answer prompts using polling software.

1. Is there anything you would like to learn about, relating to materials management, that would assist in the planning process?
    - Food Waste audits
    - Home composting
    - What is recycling costing the county vs how much is being recycled
    - What do existing contracts say? Do we need to add data?
2. What is one word that describes Charlevoix County materials management?
    - Necessary
    - Primitive
    - Basic
    - High potential
    - Educational opportunity
    - Bare minimum
3. What is the largest opportunity for materials management in Charlevoix County?

- Cutting cost
- Expand materials
- Special materials

4. What residential recycling goals do you have for Charlevoix County?
    - Education
    - Curbside
    - Contracts for residential recycling
5. What commercial recycling goals do you have for Charlevoix County?
    - Need to do it
    - What is the cost?
    - Feasibility study for businesses
    - Logistics of this
    - Textiles

VII. Committee Member Comments

None.

VIII. Public Comment

Dean Whitt introduced himself to the MMPC and has an interest in composting.

IX. Adjourn

Melissa Zelenak, Chair, adjourned the meeting at 3:30 p.m.

Thursday, March 26, 2026

To: Antrim County MMPC
Fr: Mathew Cooke, Community Planner
Re: MMP Update

MMPC Membership Reduction
After several attempts to fill the vacancies on the Antrim County Materials Management Planning Committee and running into issues with meeting quorum to hold official meetings, Chair Melissa Zelenak, Vice-Chair Lindsay Mason, and myself met with EGLE staff members Christina Miller and Tracy Tomaszewski. In our meeting we discussed the provision in 324.11572 Planning committee; membership; terms of Part 115 which states, "*If the CAA has difficulty finding qualified individuals to serve on the planning committee, the department may approve a reduction in the number of members of the planning committee."*

The provision includes a minimum of 7 members which still must meet certain requirements (see below). When we have not had a quorum, there has been a consistent 4 members available for meeting business. With the current membership we have, we can rearrange members without eliminating any besides one of GFL's members. This would also be beneficial as GFL members have had difficulties both attending. The following is the motion sent to the Board of Commissioners, as the County Approval Agency for the MMP, being the authority for appointments to the MMPC.

> *Motion by _____, seconded by _____, to direct the Designated Planning Agency to communicate with EGLE a reduction of members to the Antrim County Materials Management Planning Committee to include:*
>
> 1. *A representative of the solid waste disposal industry that provides service in the planning area.*
>   - *Melissa Zelenak - Sunshine Recycling*
> 2. *A representative of a materials utilization facility that provides service in the planning area.*
>   - *Mark Bevelhymer or Andre Grobaski - GFL*
> 3. *Two individuals, each of whom is either a member of an environmental interest group who resides in the planning area or a representative of the regional planning agency.*
>   - *Isha Pithwa – Networks Northwest (RPA)*
>   - *Lindsay Mason - Elk Rapids MMPC/ECT (Environmental Interest Group)*
> 4. *An elected official of the county.*
>   - *Bill Hefferan - Antrim County Board of Commissioners*
> 5. *An elected official of a township in the planning area.*
>   - *Mark Byard - Central Lake Township*
> 6. *An elected official of a city or village in the planning area.*
>   - *Michelle Fox - Village of Central Lake*

Election of Officers
Below are motions for the election of officers for the Antrim County Materials Management Planning Committee.

Motion by _____, supported by _____ to nominate _____ as Chair of the Charlevoix County Materials Management Planning Committee.

Motion by _____, supported by _____ to nominate _____ as Vice-Chair of the Charlevoix County Materials Management Planning Committee.

Motion by _____, supported by _____ to nominate _____ as Secretary of the Charlevoix County Materials Management Planning Committee.

Motion by _____, supported by _____,, to close nominations and elect the slate of _____ as Chair, _____ as Vice-Chair, and _____ as Secretary for the Charlevoix County Materials Management Planning Committee.

Data Analysis
Attached you will find the Charlevoix County Data Analysis draft assisted by RRS. Please note that we are meeting with RRS on Thursday, January 15, 2026 to discuss the draft, but we wanted to provide it to you as it is a robust document.

Memo

TO: Mathew Cooke, Networks Northwest
FROM: Caitlyn Wouters and Kristen Wieland, RRS
DATE: January 8, 2026
RE: Antrim County MMP Data Analysis - DRAFT

Introduction

The RRS team undertook a comprehensive analysis to support the five counties' waste management planning efforts. As part of this work, RRS developed a baseline data set based on known waste data, where available, and supplemented with modeled projections of waste generation and recovery potential. This data will serve as a foundational resource to guide each committee's decision-making on key planning and policy issues.

The baseline data will support the identification of strategies for meeting the Benchmark Recycling Standards, both in the near term and over the planning horizon. This memorandum presents a summary of the current materials generation and recovery conditions within Antrim County. It incorporates modeled data prepared by RRS, along with any available actual data provided by the Networks Northwest planning agency or county MMP Committee participants. The information contained herein offers a comprehensive overview of the counties' materials management landscape to serve as a supporting component of the Materials Management Plans.

Recycling Rate

Based on this assessment, RRS estimates that **approximately 54% of landfilled MCW by weight from Antrim County is either readily recyclable or compostable**. Based on the available data, as described in detail within this memo, RRS estimates Antrim County is currently achieving the following countywide recycling rate (including traditional recycling and organics):

- **Countywide Recycling Rate Estimate:** 13.3%

Preliminary Opportunities

RRS has highlighted several key opportunities that should be discussed by the MMP Committee for potential goal setting in the next phase of the MMP development. These opportunities are described below, with additional detail provided throughout the memorandum.

While the data points discussed in this analysis are comprehensive and valuable for general understanding of the current recycling and diversion taking place and the general makeup of the waste stream, it is critical to note that the preliminary opportunities outlined below are based on the data and information that was provided to RRS or otherwise publicly available.

Reliable data is a critical component of MMP implementation. In the absence of data, we have supplemented with modeled data based on actual data from other similar regions to provide a starting point for discussion purposes and aid in goal setting. In the case of Antrim County, RRS found the per capita MCW generation rate to be unusually high (12 pounds per person per day), so even modeled recycling data based on reported landfill tonnage would have been minimally informative. Having actual community-level data is the only way to monitor progress toward goals and therefore should be considered in all future MMP Committee discussions to ensure impact can be measured during implementation of the MMP. Additional information about the modeling and methodology can be found in the RRS MCW Modeling section of this report. Additional examples of data gaps for Antrim County include:

- Establishing consistent reporting of event participation and material quantities collected would improve the County's ability to quantify recovery, identify priority material streams, and track progress over time.
- Establishing consistent tonnage reporting and tracking systems represents a key opportunity to quantify these missing material flows, calculate a documented diversion rate, and track progress toward the goals established through the MMP process.
- Establishing consistent **hauler reporting requirements** would allow the County to capture this missing data and better understand the full scale of recycling activity occurring outside of publicly managed programs.
- Food waste is typically disposed of in the landfill as part of mixed MCW, and without a robust waste audit system there is no clear way to quantify how many tons of disposed MCW are food waste over time. Alternatively, meaningful measurement can be achieved by **separating food waste at the source**, through food rescue and/or composting programs, and **tracking the weight** of diverted material. Expanded source separation paired with consistent tonnage reporting would allow the County to quantify diversion more accurately and track reductions in landfilled food waste in a measurable way.

Drop-off recycling locations are well distributed across the county, providing 24/7 access to recycling receptacles for paper, cardboard, glass, plastic bottles and jugs, and metal cans. With eight drop-off sites, the Conservation District's system exceeds the Benchmark Recycling Standard (BRS) for drop-off access. Antrim County should continue to monitor usage of the recycling locations, including periodically surveying participants to ensure the centers are meeting their needs, to ensure compliance with the BRS in Part 115, as well as monitoring the growth of single-family dwellings to determine access needs for curbside recycling, consistent with the BRS.

The top six materials with diversion significance, by weight, in the county present a prime opportunity for meaningful and measurable impact in the 5-year planning window:

1. Wasted food - discarded food scrap byproducts that are not consumed by humans or food that was edible but ended up wasted - comprises over 3,800 tons of landfill-bound materials leaving Antrim County. This category of waste is not only the most significant by weight but is also significant in its potential social and economic value directly within the County. Good food can be redistributed to people in need instead of sent to landfills, thereby supporting the needs of residents through existing food distribution networks. Food that is unsuitable for redistribution can be processed locally through basic backyard composting to generate a soil amendment for use directly by the homeowner. A more sophisticated collection system that aggregates residential and commercial food waste along with other agricultural waste could be processed at a privately operated composting facility or anaerobic digester operator (potentially

through a public-private partnership) to generate a large amount of compost to regenerate soils in the entire county and region and support local agriculture. As noted in a 2021 SEEDS study, Antrim, Benzie, Charlevoix, Kalkaska, Manistee and Missaukee Counties all have relatively small amounts of organics collection and recommended that these counties focus efforts on food rescue initiatives (recovering edible food before disposal), education on food waste reduction, and promotion of backyard composting practices. Furthermore, the study identified the proximity to large scale composting operations in Grand Traverse County could present an opportunity for increased organics collection.

2. Plastic film totals over 1,800 tons of landfill-bound materials generated in Antrim County. From residential sources, these typically include plastic shopping bags, grocery bags, and dry-cleaning bags. From commercial sources, these thin, flexible plastics could include stretch wrapping used to stabilize pallets and cases, greenhouse and agricultural bale wrapping, shipping pouches and bubble wrap among others. While not typically accepted in single stream recycling programs due to the low value and difficulty in marketing it post-processing, drop-off programs and commercial plastic film collection programs can keep these plastics clean and dry, resulting in significant volumes of valuable material that has strong end market potential.

3. Corrugated cardboard has become a significant waste material type in recent years due to the shift in online purchasing. RRS estimates Antrim County is landfilling more than 1,500 tons of cardboard from both residential commercial sources. Cardboard was formerly generated primarily at retail establishments and was sometimes collected for recycling. While online purchasing trends have shifted some tons away from the commercial waste stream and into the residential waste stream, 70% of the cardboard remains in the commercial stream, creating opportunities for increased recovery in both. Local manufacturer, Packaging Corporation of America (PCA) in Filer City (Manistee County), would directly benefit from the additional collection of corrugated cardboard from the Northwest Michigan region.

4. Compostable paper refers to paper products that are typically unsuitable for recycling due to their low quality or because they are often soiled during use, such as paper plates, napkins, facial tissues, and paper towels. When combined with food scraps, this compostable paper could be a valuable input to either composting or anaerobic digestion when done at a commercial scale. This fraction of the waste stream comprises nearly 1,400 tons in the county.

5. Mixed paper, estimated at over 1,100 tons in the county, is a general grade of clean but varied qualities of mixed fiber materials including mail, office paper, paper bags, books, magazines, greeting cards, index cards, cereal boxes, etc. This paper is often the largest output, by volume, of single stream recycling facilities and has strong Midwest markets ready to accept more material for production of new paper products.

6. Textiles are a significant waste category in Antrim County, comprising over 900 tons in our model. Clothing, towels, rope, household linen, leather products, and other similar products that are either discarded out of convenience or due to rips, excessive wear, or are otherwise unsuitable for reuse. Local resale stores could be ideal partners to evaluate additional textile recovery opportunities to get more usable textiles into the hands of people who need them, keeping them out of landfills.

Materials that are readily marketable but currently being landfilled offer strong diversion potential due to established recycling channels and typically yield positive economic returns and should be prioritized for enhanced recovery in the Antrim Materials Management Plan. While not represented in the top six categories by weight, the following materials have consistent value and market demand and are ubiquitous in the waste stream, making them natural opportunities for increased recovery across the region.

Listed in order from highest-lowest potential yield, these materials include:

- **mixed paper** (as identified above, 1,119 tons)
- **ferrous metal** (426 tons)
- **#1 PET plastic** (bottle and non-bottle) (344 tons)
- **#2 HDPE plastic** (colored and natural) (185 tons)
- **white office paper** (174 tons)
- **magazines** (151 tons)
- **steel cans** (142 tons)
- **newspaper** (125 tons)
- **aluminum cans** (122 tons)
- **#5 PP plastic** (104 tons)
- **polycoated paper cups and cartons** (96 tons)

The materials listed below can be **difficult to recycle due to their bulkiness, weight or other challenges** but are generally frequently requested by community members for recycling and disposal options. As such, RRS recommends these be considered in the development of Antrim County's MMP:

Construction and demolition (C&D) materials – primarily clean lumber, pallets, cardboard, concrete, and scrap metal - represent a high-volume opportunity for landfill diversion and reuse. Many of these materials have market value, and reuse programs like Habitat ReStore provide both social and environmental benefits. However, current waste characterization studies exclude most C&D debris, meaning its true volume is underrepresented and not well understood. A dedicated study is needed to quantify and stratify C&D materials to develop effective recovery strategies and estimate recovery amounts.

Glass bottles and jars, estimated at 363 tons annually in Antrim County, are endlessly recyclable but require clean separation from contaminants to maintain quality. Mixed collection often leads to contamination, reduced yield, and degradation of other recyclables. When local markets are accessible, clean glass can retain material and economic value; otherwise, it may be diverted to lower value uses like landfill cover. Developing a system to aggregate clean glass for efficient delivery could unlock recycling potential.

Expanded polystyrene (EPS) foam is rarely accepted in curbside recycling because it's difficult to process in automated facilities. When source-separated, it can be recycled but requires densification to improve shipping efficiency and market value. Antrim County discards an estimated 181 tons annually, indicating a strong opportunity for recovery if a collection network and basic processing infrastructure are developed.

Electronics (e-waste) have become pervasive in modern life thanks to technological advancements that make them smaller and more affordable, but these same innovations lead to rapid obsolescence, driving consumers to replace them frequently. Since they are not banned from landfills, computers, cell phones, printers, toasters, coffee pots, and many more devices can be found in the waste stream, with some containing batteries that pose fire and environmental

risks. If recycled, precious metals, scrap metal, and rigid plastics can be recovered and diverted from landfills. Residents routinely seek out a permanent collection program to provide ongoing benefits and convenience.

Batteries, especially lithium-ion, are increasingly common in consumer products and pose serious disposal risks. Improperly discarded batteries can ignite fires in collection vehicles, processing facilities, or during shipment, making safe handling and recycling critical. While not quantified in the model, battery collection is a public safety issue that should be addressed to protect people, infrastructure, and the environment.

Mattresses are hard to dispose of, causing illegal dumping and landfill issues due to their bulk and springs. Antrim County generates an estimated 13 tons annually, but a local recycler (BARC) offers a solution through community partnership.

Scrap tires are banned from Michigan landfills but can be recycled into products like rubber mulch, road additives, or energy sources. They are often illegally dumped, creating health risks from mosquito breeding and a public nuisance for public agencies. With no documented scrap tire collection sites in Antrim County, periodic collection events are key to safe disposal and environmental protection.

Storm debris can place significant strain on landfill capacity and, depending on the severity of the event, may generate large volumes of material that could be diverted from disposal if adequate infrastructure and systems are in place. RRS recommends integrating disaster debris planning with MMP development, as both rely on the same foundational materials management framework - facilities, collection and processing capacity, transportation logistics, and end markets - though they operate on different timelines. Even without a finalized County or local Disaster Debris Management Plan, the MMP can establish this connection by documenting the core operational elements needed during an emergency.

Commercial recyclables present an opportunity for high volumes of targeted materials to be recovered but services are often limited for commercial routes. Employment data shows that aligning strategies with Antrim County's business profile ensures maximum diversion impact and supports progress toward Materials Management Plan goals.

- The concentration of establishments and employment in Accommodation and Food Services aligns with waste characterization findings that food waste is one of the largest components of the MCW stream, underscoring the importance of food waste prevention, food rescue, and organics diversion strategies targeted to restaurants, lodging, and institutional food service operations in Antrim County.
- Similarly, the scale and growth of Retail Trade, Manufacturing, and Construction point to corrugated cardboard and other packaging materials as high-volume, readily recyclable commodities with strong recovery potential. These sectors collectively represent a significant share of establishments and jobs and are well-suited for targeted commercial recycling initiatives, improved access to recycling service, and outreach to private haulers and businesses.
- Overall, the 2023 establishment and employment data support a planning approach that prioritizes sector-specific strategies, consistent with EGLE's emphasis on focusing resources where they will yield the greatest diversion impact. By aligning program development with Antrim County's evolving business profile, the County

can more effectively reduce disposal, increase recovery of high-value materials, and support progress toward its Materials Management Plan goals.

State Landfill Report

The Michigan Department of Environment, Great Lakes, and Energy (EGLE) requires quarterly reporting of all materials landfilled within the state. This reporting, documented through the *Annual Report of Solid Waste Landfilled in Michigan*[1], provides actual data on waste disposed of at Michigan landfills. The dataset includes the total tonnage of waste, identified by county of origin, and classifies materials into broad waste categories.

These categories include **Municipal and Commercial Waste (MCW)**, such as household waste, commercial waste, garbage, regulated medical waste, and municipal solid waste incinerator ash; **Industrial Waste (IW)**, including ashes, auto shredder residue, cement kiln dust, coal ash, food processing residuals, foundry sand, and industrial sludge; **Construction and Demolition (C&D)**, including asbestos waste, scrap wood, and treated or untreated wood; **Other Waste**, such as contaminated soils and technologically enhanced naturally occurring radioactive materials (TENORM); and **Alternative Daily Cover (ADC)**, materials such as chipped tires, ash, foundry sand, sludge, or contaminated soils approved for landfill cover use.

The annual report also includes estimates of remaining landfill capacity. However, it does not account for waste generated in Michigan and disposed of out of state, nor does it provide detailed quantities of specific materials within each category. In addition, the assignment of broad categories (MCW, C&D, ADC, IW, and Other) is not necessarily consistent across the state and may vary by facility and even by individual scale operator. This is particularly relevant for mixed loads that contain multiple material types (e.g., both MCW and C&D), where the total weight of a container or load is typically attributed to a single category, potentially obscuring the true distribution of materials.

For this analysis, RRS reviewed EGLE's annual reported data covering fiscal years 2020 through 2024.

TOTAL TONS LANDFILLED IN MI GENERATED FROM ANTRIM, CHARLEVOIX, MANISTEE, MISSAUKEE AND WEXFORD COUNTIES

Table 1 below presents the aggregated total tons of all material categories (MCW, IW, C&D, ADC, and Other) landfilled in Michigan and attributed to each county in the past fiscal year. It is important to note that these figures represent tonnage as reported. While the data reflects the best available information, it is possible that some materials were reported under incorrect category types or mixed loads were categorized under a single type.

2024	Tons from Charlevoix	242,114.42
2024	Tons from Manistee	93,033.15

[1] https://www.michigan.gov/egle/-/media/Project/Websites/egle/Documents/Legislative/MMD/Part-115/Report-FY24-Landfilled-Solid-Waste.pdf?rev=b1a8a575d427406f8a4ad4fb4de0ff47&hash=430D8389FB9BEE4BA4AA6D076DCC50F7

2024	Tons from Antrim	78,111.39
2024	Tons from Wexford	58,665.15
2024	Tons from Missaukee	29,706.13

Table 1: Total Tons Landfilled in MI from Each County 2024

ANTRIM COUNTY

TOTAL TONS LANDFILLED BY TYPE

Table 2 and Figure 1 below present the total tons of landfilled material in each of the five broad categories attributed to Antrim County on the annual landfill reports from 2020 to 2024. The largest share by weight is Municipal Solid Waste (MCW), representing approximately 82% of the total.

According to demographic data provided by Networks Northwest, originally sourced from the American Community Survey, Antrim County had an estimated population of 23,876 in 2023. This corresponds with an estimated MCW disposal rate of approximately 12 pounds per person per day based on the 5-year average reported tonnage, which is unusually high. For comparison, the state average reported by EGLE is 4.64 pounds per person per day.

One potential explanation for the elevated MCW per capita rate is robust commercial activity. Commercial waste contributes to the total landfilled tonnage but does not increase the resident population used in the per capita calculation, thereby inflating the apparent per capita disposal rate. However, this result could also reflect a reporting or categorization error, or it may accurately indicate a genuinely higher-than-typical disposal rate for the county's population. Improved data reporting and tracking infrastructure would help clarify these possibilities. **For planning purposes, the county should anticipate a waste generation rate that falls between the state average of 4.64 pounds per person per day and approximately 12 pounds per person per day.**

REPORTED LANDFILL WASTE TYPE, TONS[2]	2020	2021	2022	2023	2024	AVERAGE 2020 - 2024	% OF TOTAL AVERAGE
ADC	1.00	137.00	1,035.00	-	-	234.60	0%
C&D	1,194.00	1,033.00	1,256.00	1,807.97	1,789.74	1,416.14	2%
IW	7,334.00	10,262.00	6,569.00	8,395.63	9,736.89	8,459.50	13%
MCW	39,523.67	54,506.00	44,198.67	62,471.46	61,232.00	52,386.36	82%

[2] Fiscal years 2020 – 2022 were reported in cubic yards, converted to tons using: MCW = 3 cy : 1 ton, C&D = 2 cy : 1 ton, ADC, IW, OTHER all 1 cy = 1 ton.

OTHER	170.00	136.00	766.00	255.10	5,352.76	1,335.97	2%
Grand Total	**48,222.67**	**66,074.00**	**53,824.67**	**72,930.16**	**78,111.39**	**48,222.67**	

Table 2: Michigan Landfill Waste Disposed by Antrim County by Type 2020 – 2024

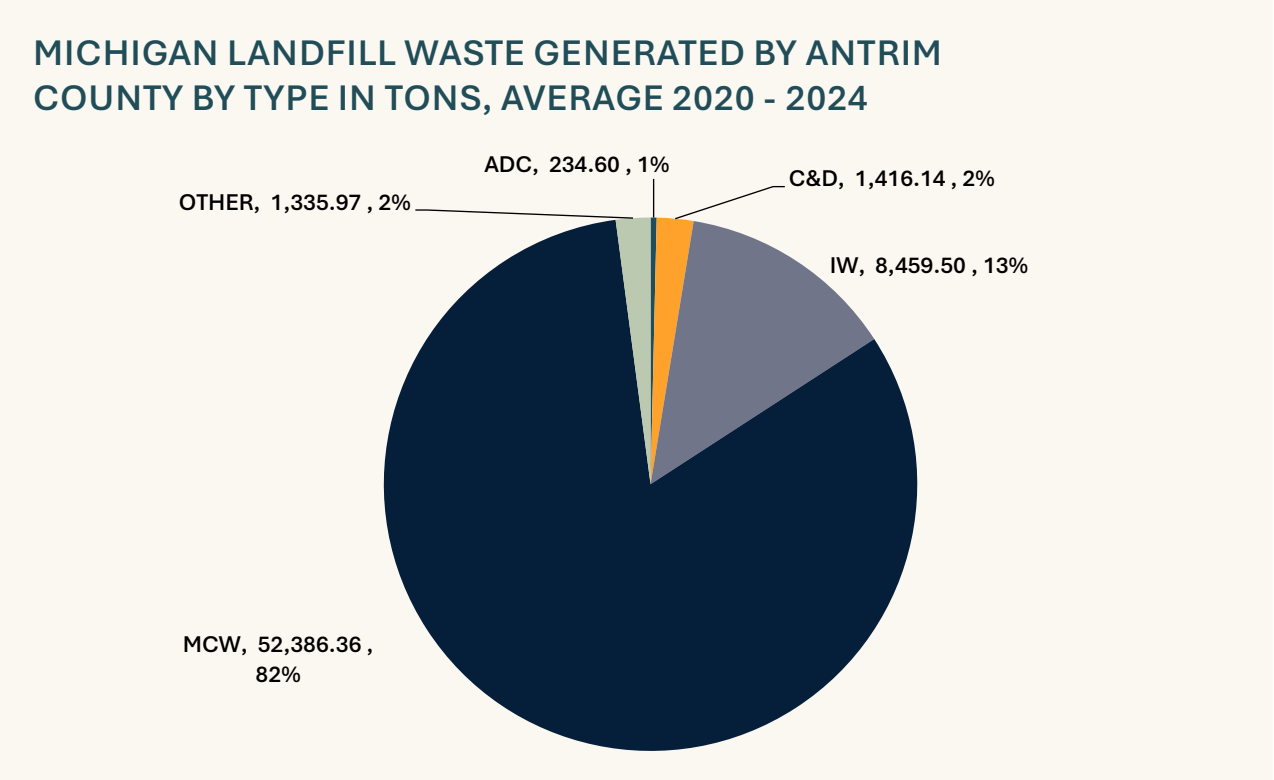

Figure 1: Michigan Landfill Waste Generated by Antrim County by Type in Tons, Average 2020 - 2024

DISPOSAL FACILITIES RECEIVING LANDFILLED MATERIAL FROM ANTRIM COUNTY IN FY 2024

Table 3 below lists the disposal facilities that received landfilled materials originating from Antrim County in 2024 and provides corresponding quantities, by material type, reported in tons. Table 4 presents information on landfill capacity at each location, reported in cubic yards. The remaining years of capacity are presented as a range for each facility: one value is self-reported by the landfills, and the other is calculated by EGLE by dividing the remaining capacity by the amount of capacity used in FY 2024.

Differences between these two values account for the range in remaining years of capacity shown in the table.

Landfills Receiving Waste from Antrim County 2024

	Tons	Wexford County Landfill (Wexford County)	City Environmental Services, Inc of Waters (Crawford County) (City Environmental Services, Inc of Water)	Montmorency-Oscoda-Alpena SWMA (Montmorency County)	GFL North Michigan Landfill, LLC (Presque Isle County)	Glens Sanitary Landfill (Leelanau County)	Whitefeather Landfill (Bay County)
ADC	-	-	-	-	-	-	-
C&D	1,790	305	1,089	128	68	200	-
IW	9,737	-	9,357	-	-	275	105
MCW	61,232	56,132	2,230	2,013	733	117	8
OTHER	5,353	54	5,293	-	-	5	-
Grand Total	**78,111**	**56,491**	**17,970**	**2,140**	**801**	**597**	**112**

Table 3: Landfills Receiving Waste from Antrim County in 2024

	Wexford County Landfill (Wexford County)	City Environmental Services, Inc of Waters (Crawford County) (City Environmental Services, Inc of Water)	Montmorency-Oscoda-Alpena SWMA (Montmorency County)	GFL North Michigan Landfill, LLC (Presque Isle County)	Glens Sanitary Landfill (Leelanau County)	Whitefeather Landfill (Bay County)
Remaining Capacity (CY)	15,820,706	17,590,764	1,517,378	871,763	17,590,764	794,195
Capacity Used in 2024 (CY)	366,293	54,650	91,437	111,477	54,650	170,961
Est Years of Remaining Capacity	43 - 46	321 - 322	17	8 -9	321 - 322	5

Table 4: Estimated Landfill Capacity 2024

RRS MCW Modeling

The RRS Municipal and Commercial Waste (MCW) Characterization Model is designed to identify potential recovery opportunities within the MCW stream, broken down by specific material types and generating sectors, including single-family residential, multi-family residential, and commercial sources. The model was developed using multiple waste characterization and capture rate studies conducted over the past five years, including studies specific to Michigan as well as broader research from the Midwestern United States. This model is intended as a planning tool to help the County understand which specific materials are being landfilled within the MCW stream, thereby identifying the greatest opportunities and potential tons available for recovery.

The model estimates the composition of MCW by dividing it into approximately 50 distinct material categories, expressed as percentages of the total waste stream. **For most counties where the reported MCW disposal tonnage is considered reliable, these percentages can be applied directly to the county's reported MCW tonnage to estimate the tons of each material category being landfilled.** However, because Antrim County's 2024 reported MCW tonnage appears unusually high and cannot be confirmed as representative of typical disposal conditions, **RRS applied the characterization model to an alternative baseline: the amount of MCW Antrim County would be expected to generate if it were disposing waste at the Michigan statewide average per-capita rate.** This approach supports planning by providing a more reasonable estimate of landfilled material composition and recoverable tonnage in the absence of verified local disposal reporting.

In addition, the model uses aggregated data to differentiate between waste generated by commercial businesses and residential sources. Within the residential sector, housing data from the 2020 U.S. Census is incorporated to allocate tonnages between single-family and multi-family residences.

The approximately 50 material categories were also ranked according to their ease of recovery. The rankings are as follows:

1. **Readily Recyclable** – materials that are almost universally accepted in existing curbside recycling programs. Examples include cardboard, plastics #1-2, aluminum cans.

2. **Compostable** – materials that break down naturally, including food waste, yard waste, brush, and leaves.

3. **Recyclability Variable by Municipality** – materials that are sometimes accepted in established curbside recycling programs. Examples include HHW, plastic films, textiles.

4. **Minimal Access for Recycling/Specialty Recycling** – materials that may be recyclable through drop-off or specialized programs, such as bulky waste, tires, and polystyrene.

5. **Not Recyclable** – materials that are currently not recyclable through existing programs.

Based on this assessment, RRS estimates that approximately 54% of landfilled MCW by weight from Antrim County is either readily recyclable or compostable. This approach provides a detailed, data-driven foundation for evaluating material-specific recovery potential and informing county-level planning efforts.

RRS LANDFILLED MCW RECYCLABILITY MODEL BY WEIGHT IN TONS

Figure 2 below illustrates the recyclability of municipal and commercial waste (MCW) by weight for materials currently landfilled, based on an estimated MCW tonnage of 21,360; the amount of MCW Antrim County would be expected to generate if it were disposing waste at the Michigan statewide average per-capita rate. It highlights the potential opportunities to divert waste from landfill toward higher-value outcomes, such as established recycling programs or composting initiatives.

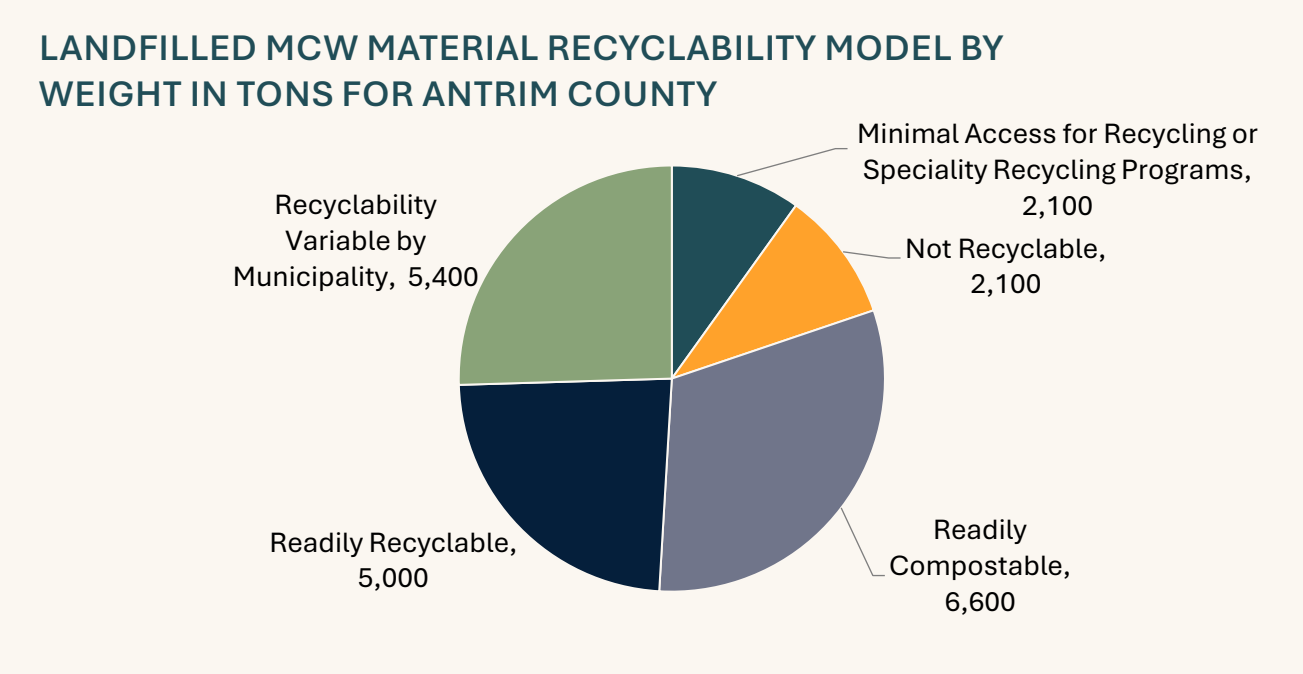

Figure 2: RRS Model, Landfilled MCW Recyclability by Weight in Tons

RRS MCW COMPOSITION MODEL BY WEIGHT

Figure 3 below outlines the 25 most prevalent materials within the MCW stream by weight, as identified by the RRS model. It also illustrates the proportional generation of each material by single-family households, multi-family households, and the commercial sector. The tonnage and relative proportions of these materials provide valuable insights for planners to target key materials for diversion efforts as discussed previously in the Preliminary Opportunities section. Clearly, wasted food represents a significant opportunity to both increase diversion and reduce overall waste through food rescue and composting. In addition, the large quantity of compostable paper further increases the potential feedstock for expanded composting infrastructure. The model also indicates a strong potential to increase recovery of corrugated cardboard and plastic films, particularly within the commercial sector, where these materials represent a larger share of total generation. Textile waste also represents a significant tonnage and therefore presents an opportunity to expand or encourage textile reuse and donation outlets within the county.

A full depiction of all 50+ materials and their anticipated composition in the waste composition model can be found in the Appendix.

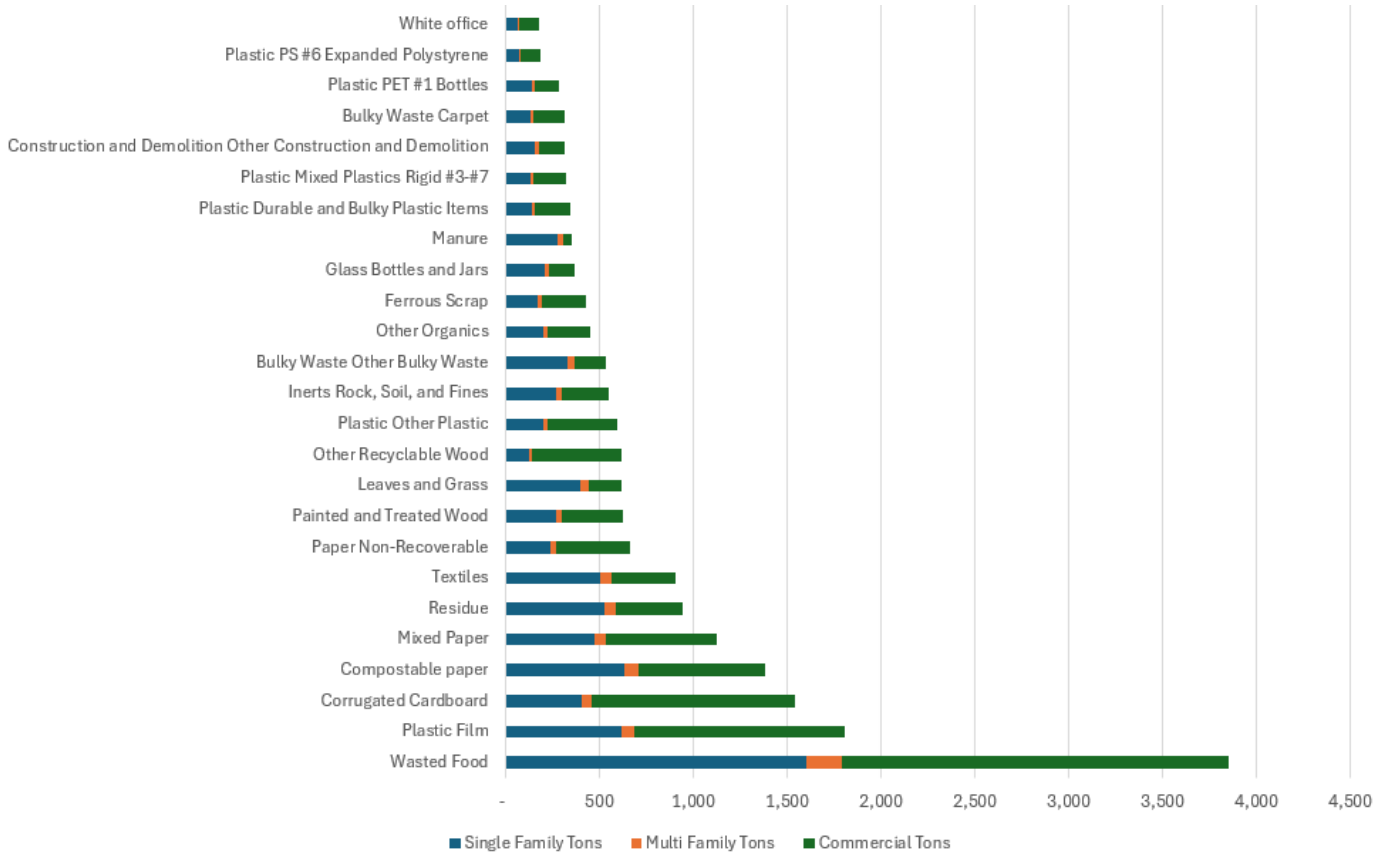

Figure 3: RRS Modeled MCW Composition by Weight

POTENTIAL ECONOMIC OPPORTUNITY

When approached strategically, materials management plans present significant economic opportunities for the county. Recovered materials, often considered "waste," can be valuable resources when properly sorted and processed, serving as key inputs for various industries. The following table illustrates the potential economic value of materials currently being landfilled by residents and businesses in Antrim County. It provides a breakdown of Antrim's estimated MCW tonnage into specific material categories, based on the RRS model. Additionally, commodity values for each material were sourced from Recyclingmarkets.net, a trusted industry resource, to demonstrate the potential value of these landfilled materials if they were properly captured, sorted, and prepared for market (e.g., baled). While this analysis serves as an illustration of potential value, it is recognized that achieving a 100% capture rate for all landfilled recyclables is unlikely. Furthermore, the snap-shot values presented reflect a relatively low commodities market, so the estimated value should be considered somewhat conservative. **Even under these conservative assumptions, the analysis indicates that more than $200,000 in "Readily Recyclable" materials from Antrim County are currently landfilled each year.**

Type Modeled	Ease of recoverability	Total Tons	Recyclingmarkets.net value 9.15.25	Est Market Value of Tons
Corrugated Cardboard	Readily Recyclable	1,537	$ 65.00	$ 99,893
Mixed Paper	Readily Recyclable	1,119	$ 35.00	$ 39,155
Steel Cans	Readily Recyclable	142	$ 160.00	$ 22,798
White office	Readily Recyclable	174	$ 125.00	$ 21,778
Aluminum Cans	Readily Recyclable	122	$ 80.00	$ 9,764
Magazines	Readily Recyclable	151	$ 35.00	$ 5,279
Newspaper (ONP)	Readily Recyclable	125	$ 35.00	$ 4,388
Plastic HDPE #2 Bottles Natural	Readily Recyclable	89	$ 46.00	$ 4,075
Plastic PET #1 Bottles	Readily Recyclable	280	$ 5.75	$ 1,608
Paperboard Boxboard	Readily Recyclable	40	$ 35.00	$ 1,408
Plastic PET #1 Non-Bottle	Readily Recyclable	64	$ 5.75	$ 370
Plastic HDPE #2 Bottles colored	Readily Recyclable	96	$ 2.50	$ 239
Plastic HDPE #2 Non-Bottle colored and natural combined	Readily Recyclable	5	$ 0.50	$ 3
				$ 210,757
Plastic Film	Recyclability Variable by Municipality	1,804	$ 1.00	$ 1,804
Plastic PP#5	Recyclability Variable by Municipality	104	$ 7.50	$ 783
Plastic Mixed Plastics Rigid #3-#7	Recyclability Variable by Municipality	320	$ 1.50	$ 480
				$ 3,067
				$ 213,824

Figure 4: Example Recycling Market Values for 9.15.2025

Organic Material

Organic material includes edible surplus food, inedible food scraps, and yard debris such as leaves, brush, grass clippings and trimmings. In Michigan, yard clippings are prohibited from disposal in municipal solid waste landfills under Part 115 of the Natural Resources and Environmental Protection Act (NREPA) [3]. Despite this prohibition, waste characterization studies routinely indicate that yard materials still appear in disposed MCW streams (typically due to seasonal cleanouts, mixed loads, or limited access to convenient organics options). Within Antrim County, **Elk Rapids Village** and **Mancelona Village** operate municipal curbside yard waste collection programs; however, the tonnages collected through these programs are not currently available, limiting the County's ability to quantify organics diversion and track progress over time.

SEEDS ORGANICS ANALYSIS

A 2021 report[4] prepared by RRS and commissioned by SEEDS Ecology & Education Centers and funded with a 2021 EGLE Market Development Grant, evaluated current prevention, rescue/recovery and recycling processing opportunities and applied

[3] https://legislature.mi.gov/Laws/MCL?objectName=mcl-324-11514&utm

[4] https://michiganrecycles.org/wp-content/uploads/2022/08/RRS-FINAL-REVISED-NW-Lower-MI-Regional-Organics-Strategy-Report.pdf

feasibility of each option to each county in the region and modeled centralized composting and operating costs and a preliminary collection and transportation plan. It also projected GHG emission savings and job creation and identified actionable next steps for the region to support the organics circular economy. The study concluded that Antrim County generated an estimated 6,149 tons of organic waste per year with approximately 41 tons diverted to permitted composting sites annually. Based on RRS's current model of landfilled MCW and the average MCW tons for the county, in 2024 RRS estimates that Antrim County generated approximately 6,600 tons of organic waste that was landfilled. **For planning purposes, Antrim County should estimate 6,149 – 6,600 tons of organic waste generated (food scraps, yard waste, brush, leaves, branches and trimmings) annually.**

SEEDS REPORT ESTIMATED ORGANICS GENERATION AND DIVERSION 2021

Figure 5 below summarizes the ten counties analyzed, showing their estimated annual generation of organic waste (food and yard waste) in tons, the amount currently diverted, and the additional tonnage that could potentially be diverted through various methods. If all identified strategies were implemented, Antrim County's overall organics diversion rate would reach 22.8%. The 2021 study noted that Antrim, Benzie, Charlevoix, Kalkaska, Manistee and Missaukee counties all have relatively small amount of organics collection and recommended that these counties focus efforts on food rescue initiatives (recovering edible food before disposal), education on food waste reduction, and promotion of backyard composting practices. Furthermore, the study identified the close proximity to large scale composting operations in Grand Traverse County could present an opportunity for increased organics collection. At the time, it was estimated that ~ 110 tons of food waste is generated per year from food stores within the county and ~240 tons per year from food processing operations.

ANNUAL TONS YARD AND FOOD WASTE								
			Estimated Potential Diversion					
COUNTY	Generation	Current Diversion*	Prevention	Rescue/ Recovery	Recycle**	Centralized Composting	Tons Diversion	Percent Diversion
Antrim County	6,149	41	81	39	345	935	1,400	22.8%
Benzie County	5,101	108	62	30	360	686	1,138	22.3%
Charlevoix County	6,687	1,286	91	44	387	1,415	1,937	29.0%
Emmet County	8,006	1,048	236	127	678	2,806	3,847	48.0%
Grand Traverse County	19,074	4,003	319	302	1,551	8,301	10,473	54.9%
Kalkaska County	5,114	14	61	30	229	721	1,041	20.4%
Leelanau County	5,850	751	76	36	447	861	1,420	24.3%
Manistee County	6,366	421	85	41	321	992	1,438	22.6%
Missaukee County	4,608	1	52	25	194	561	832	18.1%
Wexford County	8,035	77	115	56	547	1,789	2,507	31.2%
TOTAL	**74,989**	**7,750**	**1,179**	**729**	**5,060**	**19,066**	**26,034**	**34.7%**

*Current Diversion tonnage is estimated based on 2021 survey data and 2019 EGLE Waste Data System (WDS) of reported volumes to permitted composting sites.
**Recycle includes backyard composting, community composting and animal feed. The estimated diversion by sub-category is included in the appendix.

Figure 5: Potential Organic Tonnage, SEEDS 2021

Demographic Data & Waste Generation

MCW GENERATION PROJECTIONS

Networks Northwest provided RRS with county-level demographic data obtained from the American Community Survey, the Bureau of Labor Statistics, and the Michigan Department of Technology, Management & Budget. These data include projected five-year population estimates through 2050. The table below applies both the state average MCW disposal rate of 4.6 pounds per person per day and the 12 pounds per person per day calculated from 2020 - 2024 reported landfill tonnages to illustrate the potential range of MCW volumes the county may need to manage in the coming decades.

	Projected County Population	Annual MCW Tons at 4.6 Lbs / PP / day	Annual MCW Tons at 12 Lbs / PP / day
2025	24,645	20,869	54,073
2030	25,045	21,208	54,951
2035	25,175	21,318	55,236
2040	25,000	21,170	54,852

2045	24,504	20,750	53,764
2050	23,992	20,316	52,641

Table 5: RRS Potential MCW Tonnage Projections

BUSINESS SECTOR DEMOGRAPHICS

Detailed business establishment and employment data for **2018 and 2023**, provided by Networks Northwest and originally sourced from Esri, further refine the understanding of Antrim County's commercial landscape and its implications for materials management planning. These data form the basis for Figure 6, Figure 7, and Figure 8 and highlight both growth trends and sector-specific recovery opportunities. The full 2018 and 2023 establishment and employment datasets are provided in the Appendix.

Between **2018 and 2023**, Antrim County experienced notable growth in the number of business establishments, particularly in sectors associated with higher waste generation and recoverable materials. **Construction** increased from **82 to 97 establishments**, **Retail Trade** from **68 to 89**, **Accommodation and Food Services** from **41 to 58**, and **Health Care and Social Assistance** from **32 to 52** establishments. Growth was also observed in **Manufacturing** (38 to 44 establishments), **Professional, Scientific, and Technical Services** (26 to 47), and **Administrative Support and Waste Management Services** (23 to 31). These trends indicate an expanding and diversifying business base, with direct implications for both MCW generation and diversion potential.

Employment data further clarify where material recovery efforts may be most impactful. In 2023, the largest employment sectors in Antrim County include **Accommodation and Food Services (899 jobs)**, **Retail Trade (687 jobs)**, **Manufacturing (678 jobs)**, and **Construction (599 jobs)**. Employment growth was particularly strong in **Construction** (448 to 599 jobs), **Wholesale Trade** (52 to 98 jobs), and **Arts, Entertainment, and Recreation** (145 to 181 jobs). From a materials management perspective, these 2023 data reinforce several priority opportunities identified in EGLE's MMP guidance. The concentration of establishments and employment in Accommodation and Food Services aligns with waste characterization findings that food waste is one of the largest components of the MCW stream, underscoring the importance of food waste prevention, food rescue, and organics diversion strategies targeted to restaurants, lodging, and institutional food service operations in Antrim County.

Similarly, the scale and growth of **Retail Trade**, **Manufacturing**, and **Construction** point to **corrugated cardboard** and other packaging materials as high-volume, readily recyclable commodities with strong recovery potential. These sectors collectively represent a significant share of establishments and jobs and are well-suited for **targeted commercial recycling initiatives**, improved access to recycling service, and outreach to private haulers and businesses.

Overall, the 2023 establishment and employment data support a planning approach that prioritizes **sector-specific strategies**, consistent with EGLE's emphasis on focusing resources where they will yield the greatest diversion impact. By aligning program development with Antrim County's evolving business profile, the County can more effectively reduce disposal, increase recovery of high-value materials, and support progress toward its Materials Management Plan goals.

Figure 6 : Industry and Employment Statistics, Courtesy Networks Northwest

ANTRIM COUNTY BUSINESS SECTORS BY NAICS CODE (# OF ESTABLISHMENTS) 2023

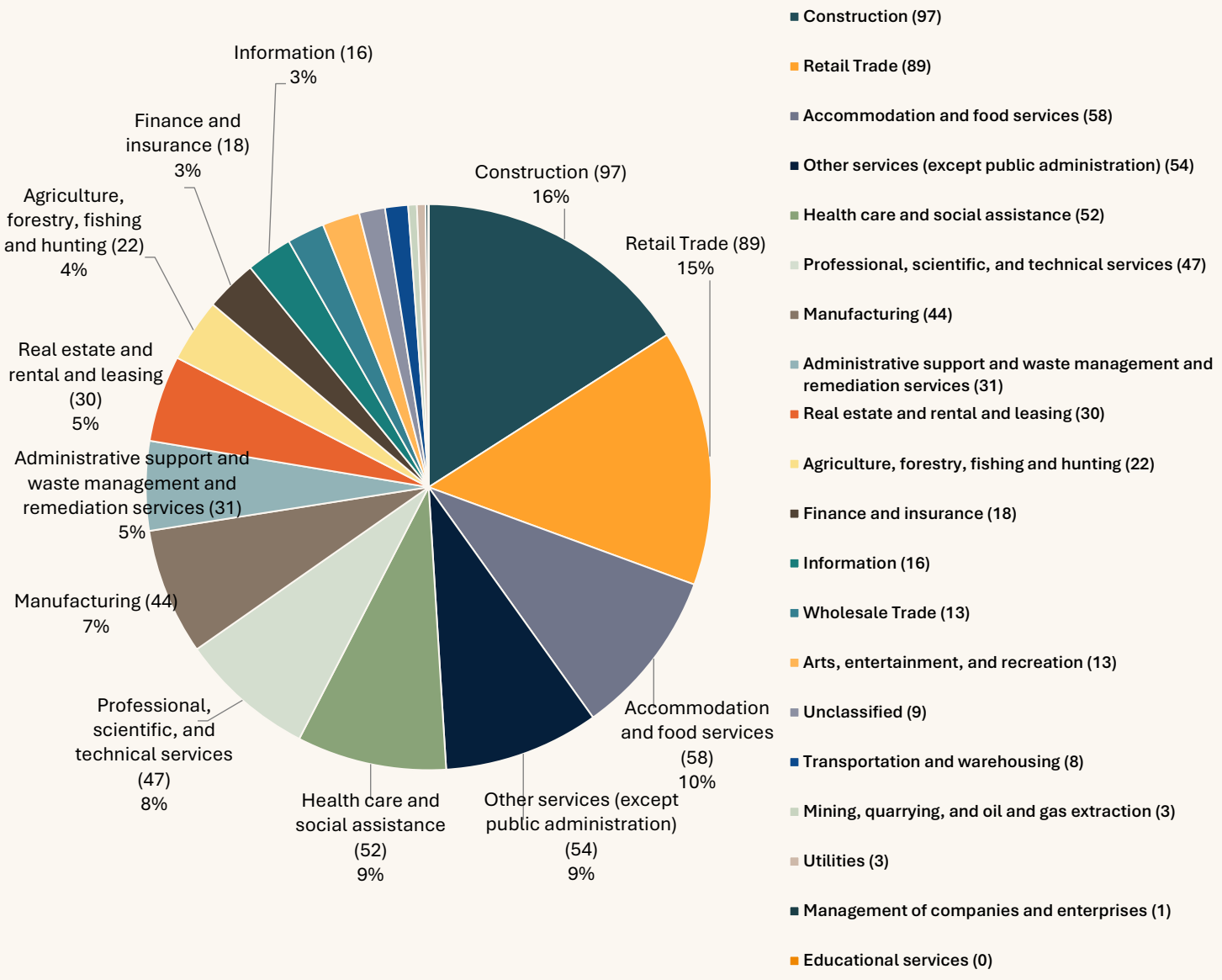

Figure 7: Antrim Country Business Sectors by NAICS Code, # of Establishments. Data provided by Networks Northwest

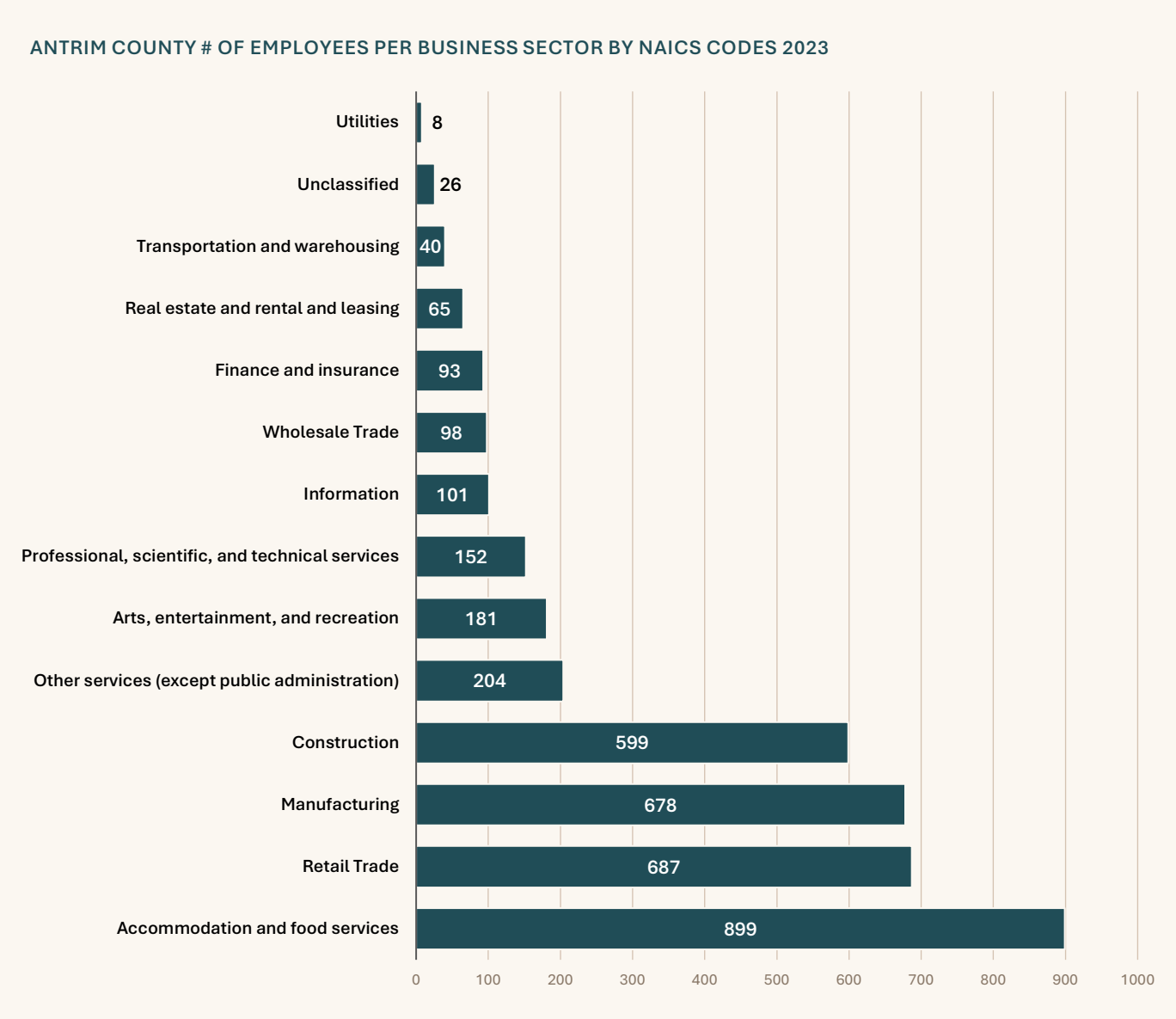

Figure 8: Antrim County # of Employees by NAICS Code, 2023. Data Provided by Networks Northwest

Compliance with Part 115 and Benchmark Recycling Standards

Antrim County is in compliance with Michigan's Part 115 Benchmark Recycling Standards, which are designed to ensure that counties provide convenient and accessible recycling opportunities for residents and businesses in support of the state's broader recycling goals. Because Antrim County does not contain any urbanized areas or communities with populations exceeding 5,000 residents, the first two benchmark standards do not apply.

Currently, there are no municipal or municipally contracted curbside recycling programs operating within the county. However, many residents may be able to subscribe directly with private waste haulers for curbside recycling services on an individual basis. Antrim County's recycling program consists of drop-off sites managed by the Antrim County Conservation District. The drop-off locations include:

- **Alden** – Helena Township Hall, 8751 Helena Road, Alden
- **Bellaire** – Antrim County Transportation (ACT) Building, 4700 M-88
- **Central Lake** – Central Lake Governmental Center, 1622 M-88
- **Elk Rapids** – Elk Rapids Government Center, 315 Bridge Street
- **Ellsworth** – Behind the Ellsworth Dollar General, 9643 Lake Street
- **Kewadin** – Old Milton Township Hall, 7268 Cairn Hwy
- **Mancelona** – Mancelona Township Hall, 9610 M-88 Hwy South
- **Star Township** – Star Township Hall, 6886 Alba Hwy

Drop-off locations provide 24/7 access to recycling receptacles for paper, cardboard, glass, plastic bottles and jugs, and metal cans. With eight drop-off sites, the Conservation District's system exceeds the **Benchmark Recycling Standard** for drop-off access.

CURBSIDE SERVICE TYPES

More broadly, curbside waste, recycling, and organics/yard waste collection programs can be categorized as:

1. **Municipal** – municipal staff collect material using municipal equipment.
2. **Contracted or franchised** – a municipality contracts with a single hauler to provide curbside service to all residents (funded through a variety of approaches, such as general funds, special assessments, utility-style fees, or billed service fees).
3. **Subscription (open-market)** – residents contract directly with the hauler of their choice for curbside services.

4. **No curbside program** – there is no verified curbside service being actively provided within the municipality (regardless of cost).

EGLE instructs counties to calculate curbside recycling access according to this formula:

$$\text{Curbside Recycling Access} = \frac{\text{Sum of single family dwellings which have curbside recycling access}}{\text{Total number of single family dwellings}} \times 100$$

Currently, there are no municipal or municipally contracted recycling programs operating within the county. However, some residents may be able to subscribe directly to curbside recycling service through private waste haulers on an individual basis. The figure below does not list any communities under 'Subscription' because there are no publicly confirmed haulers documented as providing curbside recycling services in those areas.

Importantly, Part 115's benchmark recycling standards treat subscription/open-market service as "access" for purposes of curbside recycling. Specifically, the statute provides that curbside recycling qualifies when: "The curbside recycling is provided by the municipality or the resident has access to curbside recycling by the resident's chosen hauler."[5]

At the same time, the statutory "access" language does not specify that subscription/open-market service must be affordable (e.g., it does not define an acceptable price, require rate caps, or require that service be provided at no additional cost). As a result, a community may be counted as having "access" through subscription service even if cost remains a practical barrier for some households.

RECYCLING AND COMPOSTING ACCESS IN ANTRIM COUNTY

As noted previously, there are no confirmed haulers offering subscription-based curbside recycling service, and there are no municipally managed curbside recycling programs for traditional recyclables (packaging). However, there are two known municipal curbside collection programs for yard waste, located in **Elk Rapids Village** and **Mancelona Village**. Table 6 below provides a summary by community.

[5] https://www.legislature.mi.gov/documents/mcl/pdf/mcl-451-1994-ii-3-115.pdf

SUMMARY TABLE OF RECYCLING ACCESS BY COMMUNITY

COMMUNITY NAME	2020 CENSUS NAME	COMMUNITY POPULATION	# OF HOUSEHOLDS	POPULATION IN SINGLE FAMILY HOMES (1-4)	POPULATION IN MULTI-FAMILY HOMES (5+)	RECYCLING CURBSIDE ACCESS	RECYCLING DROP-OFF ACCESS
Ellsworth Village	Ellsworth Village	367	147	367	0	No Curbside Program	Antrim Conservation District Drop-Off
Banks Township	Banks township	1222	516	1222	0	No Curbside Program	Antrim Conservation District Drop-Off
Central Lake Village	Central Lake Village	960	416	916	44	No Curbside Program	Antrim Conservation District Drop-Off
Central Lake Township	Central Lake Township	1199	588	1177	22	No Curbside Program	Antrim Conservation District Drop-Off
Chestonia Township	Alba CDP (1 of 2)	136	53	136	0	No Curbside Program	Antrim Conservation District Drop-Off
Chestonia Township	Chestonia Township	376	162	376	0	No Curbside Program	Antrim Conservation District Drop-Off
Custer Township	Custer Township	1150	518	1069	81	No Curbside Program	Antrim Conservation District Drop-Off
Echo Township	Echo Township	952	369	952	0	No Curbside Program	Antrim Conservation District Drop-Off
Elk Rapids Village	Elk Rapids Village	1528	728	1321	207	No Curbside Program	Antrim Conservation District Drop-Off
Elk Rapids Township	Elk Rapids Township	993	489	906	87	No Curbside Program	Antrim Conservation District Drop-Off
Forest Home Township	Bellaire Village (1 of 2)	469	185	435	34	No Curbside Program	Antrim Conservation District Drop-Off
Forest Home Township	Forest Home Township	1206	604	1201	5	No Curbside Program	Antrim Conservation District Drop-Off
Helena Township	Alden CDP	123	75	123	0	No Curbside Program	Antrim Conservation District Drop-Off
Helena Township	Helena Township	814	413	755	59	No Curbside Program	Antrim Conservation District Drop-Off
Jordan Township	Jordan Township	888	367	888	0	No Curbside Program	Antrim Conservation District Drop-Off
Kearney Township	Bellaire Village (1 of 2)	582	238	540	42	No Curbside Program	Antrim Conservation District Drop-Off
Kearney Township	Kearney Township	1198	506	1082	116	No Curbside Program	Antrim Conservation District Drop-Off
Mancelona Township	Lakes of the North CDP (1 of 2)	596	278	596	0	No Curbside Program	Antrim Conservation District Drop-Off
Mancelona Village	Mancelona Village	1345	498	1310	35	No Curbside Program	Antrim Conservation District Drop-Off
Mancelona Township	Mancelona Township	2371	876	2349	22	No Curbside Program	Antrim Conservation District Drop-Off

Milton Township	Milton Township	2355	991	2355	0	No Curbside Program	Antrim Conservation District Drop-Off
Star Township	Alba CDP (1 of 2)	151	60	151	0	No Curbside Program	Antrim Conservation District Drop-Off
Star Township	Lakes of the North CDP (1 of 2)	448	183	448	0	No Curbside Program	Antrim Conservation District Drop-Off
Star Township	Star Township	429	180	424	5	No Curbside Program	Antrim Conservation District Drop-Off
Torch Lake Township	Eastport CDP	206	97	206	0	No Curbside Program	Antrim Conservation District Drop-Off
Torch Lake Township	Torch Lake Township	1006	478	1006	0	No Curbside Program	Antrim Conservation District Drop-Off
Warner Township	Warner Township	364	134	364	0	No Curbside Program	Antrim Conservation District Drop-Off

Table 6: Summary of Recycling Access by Community

Data Currently Available

The Conservation District has provided tonnage data for recyclable materials collected at the drop-off locations from 2018 through 2024. This is a valuable dataset, and RRS strongly recommends that the County continue to obtain and track these tonnages throughout the MMP planning process and beyond to support performance monitoring over time. Notably, the drop-off tonnages show an overall upward trend across this period, indicating increasing participation and/or improved capture through the drop-off system.

Across this period, the data indicate that approximately **2,100 tons of recyclable material** were collected on average each year. At present, however, there is no available information regarding recyclable tonnages that may have been collected curbside from residents or commercial businesses. Similarly, there is no data on industrial recycling activity that may be occurring in the county. While two municipalities manage curbside yard waste collection programs, tonnage data are not available. In addition, tonnages of organic material that may have been delivered to municipal or private composting or mulching facilities are not currently tracked or reported.

Due to these data gaps, the County does not currently have a measured recycling rate or diversion rate. Establishing consistent tonnage reporting and tracking systems represents a key opportunity to quantify these missing material flows, calculate a documented diversion rate, and track progress toward the goals established through the MMP process.

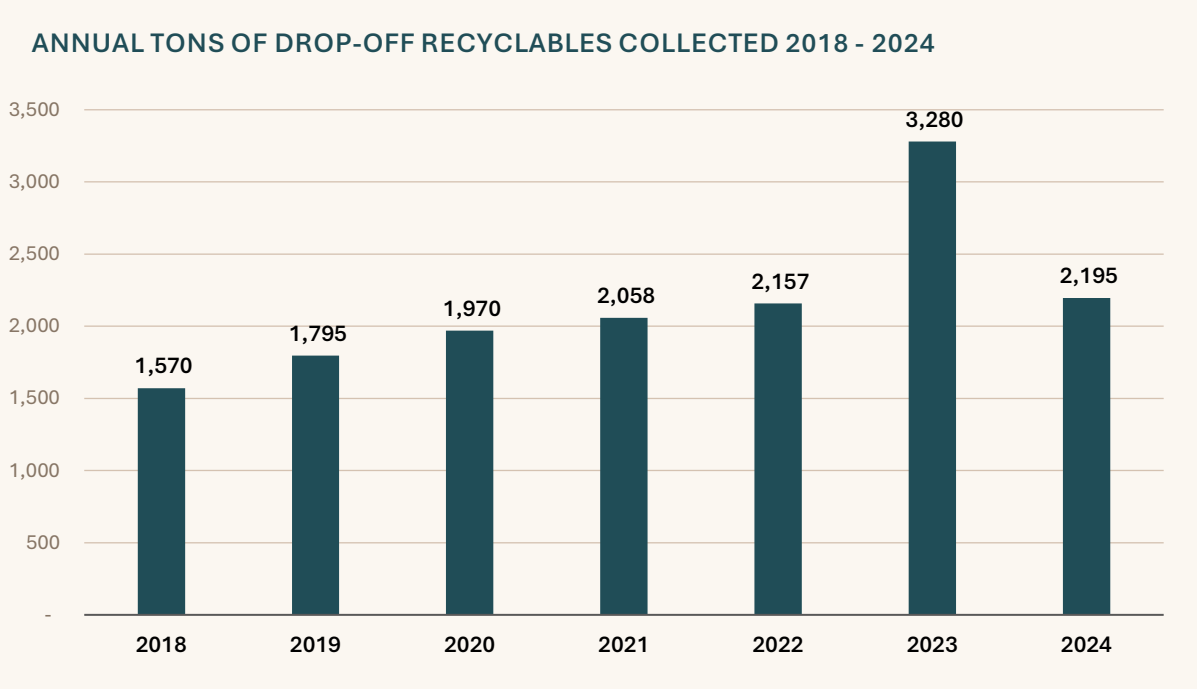

Figure 9: Annual Tons of Antrim County Drop-Off Recycling

Recycling Rate Estimates

RECYCLING RATE VS DIVERSION RATE

As noted previously, RRS estimates an MCW generation of 4.6 to 12 pounds per person per day from the available data. This MCW generation rate represents the average quantity of **waste disposed** per person per day and is used to estimate total disposal system demand.

To evaluate recycling performance and calculate a measured Recycling Rate it is also necessary to quantify the **weight of material recycled.** It is important to understand that for the MMP process, as defined by EGLE, the term **"Recycling Rate"** incudes both traditional recyclables (packaging and paper) and organic material (food scraps and yard waste).

The term **"Diversion Rate"** accounts for additional material diverted from landfill via reuse, recovery, donation, co-generation, digestion or other processes along with traditional recycling and composting. In order to calculate a complete diversion rate, the county would need tonnage data for material diverted via these additional methods.

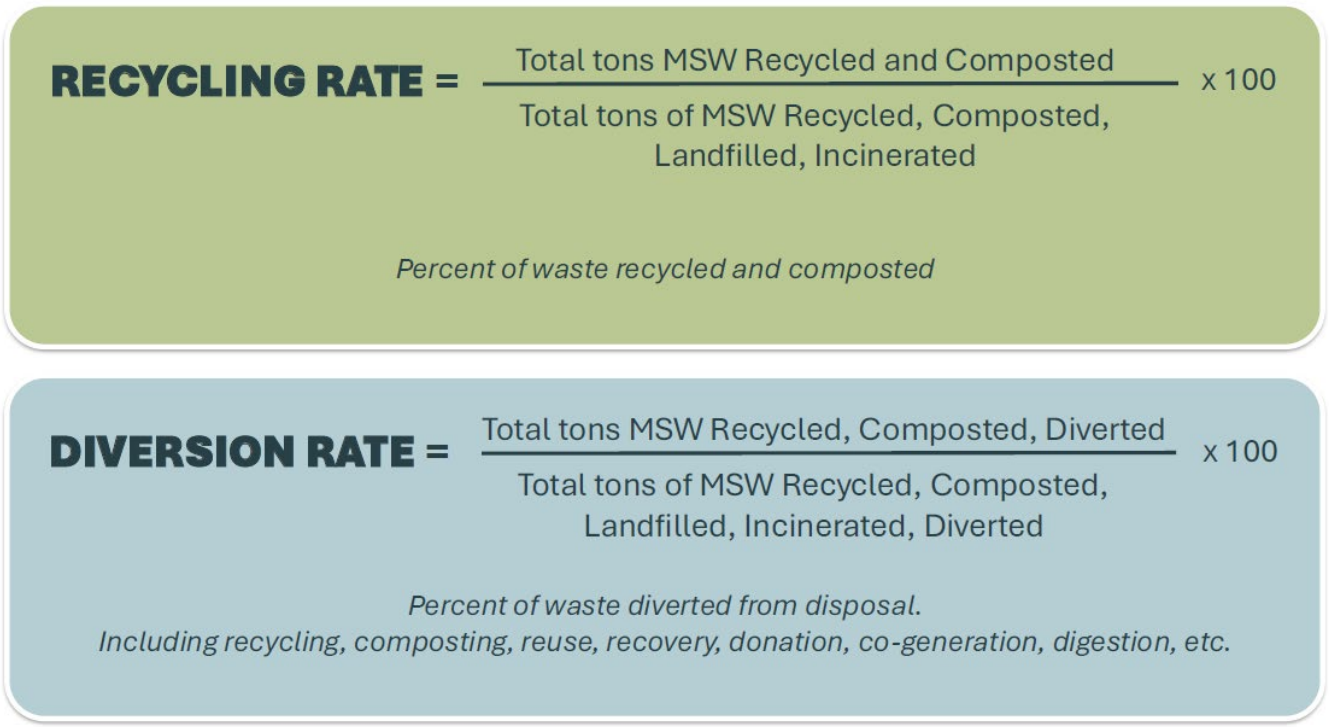

Figure 10: Recycling and Diversion Rate Definitions, EGLE, "Setting Materials Management Goals"[6]

RECYCLING RATE

In the absence of comprehensive, measured, and reported tonnages for recyclables collected through curbside programs and from commercial and institutional sources, proxy data may be used for planning purposes. RRS developed an estimation model during the statewide Mega Data Collection Project[7] to project recovered quantities using variables related to recycling access and recycling program design. The model draws on findings from The Recycling Partnership[8], which identifies characteristics of recycling programs that are associated with varying levels of material recovery per household.

The Recycling Partnership has identified several characteristics associated with high-performing residential recycling programs that capture higher quantities of material per household. These factors include:

- Curbside collection (rather than drop-off access),

[6] https://www.michigan.gov/-/media/Project/Websites/egle/Documents/Programs/MMD/Recycling/MMP-Goals-MRC-Presentation-Slides.pdf

[7] https://www.michigan.gov/egle/about/organization/materials-management/materials-management-in-michigan/mega-data-collection-project

[8] https://recyclingpartnership.org/wp-content/uploads/2018/05/state-of-recycling-report-Jan2017.pdf

- Use of collection carts instead of bins for curbside collection,
- Automatic enrollment and service delivery (residents receive recycling service with no action required) rather than opt-in participation, and
- Programs supported by public policy mechanisms (such as automatic service provisions or ordinances requiring haulers to offer curbside recycling alongside trash collection) compared with programs that lack supporting public action [9].

Based on the 2020 – 2023 MegaData Project, the projected recycling rates are as follows [10]:

- **Residential Recycling Rate Estimate (Recycling + Compost):** 15.6%
- **Commercial Recycling Rate Estimate:** 5.6%
- **Countywide Recycling Rate Estimate:** 10.4%

Since completion of the Mega Data Project, Antrim County now has reported 2024 recycling tonnage from the Antrim County Conservation District drop-off sites, totaling 2,195 tons. While reported tonnages of diverted organic materials are not available, applying the Mega Data estimate of approximately 888 tons per year of organics diversion results in an estimated **3,082 tons recycled in 2024** (2,195 tons of traditional recyclables plus 888 tons of organics).

The reported tonnage of MCW disposed on average from 2020 - 2024 is 52,386 tons. Using this disposal figure, the estimated countywide recycling rate would be approximately 5.5%, which is significantly lower than the 10.4% recycling rate projected during the Mega Data Project. However, this disposal tonnage corresponds to an implied disposal rate of roughly 12 pounds per person per day, which is unusually high. Given this discrepancy, it is more reasonable for planning purposes to apply the **state average MCW disposal rate of 4.6 pounds per person per day**, which corresponds to an estimated 23,127 tons of MCW disposed annually in Antrim County.

Using the estimated **3,082 tons diverted** and **23,127 tons landfilled**, the countywide recycling rate for 2024 is estimated at approximately **13.3%**.

It is important to emphasize that this figure remains an estimate, given the lack of measured organic diversion tonnages and the likelihood of misreported or inconsistently categorized MCW disposal data. Antrim County has a clear opportunity to improve the accuracy of future recycling rate calculations by clarifying and standardizing landfill reporting procedures and by

[9] https://recyclingpartnership.org/wp-content/uploads/2018/05/state-of-recycling-report-Jan2017.pdf

[10] Note: the MegaData project used the term "Diversion Rate" referring to traditional recyclables and organics composting. Per the most recent EGLE definitions shared on May 15, 2025 at the Michigan Recycling Coalition Conference and available online at the following link, this document will use the term "Recycling Rate" referring to traditional recyclables and organics composted. https://www.michigan.gov/-/media/Project/Websites/egle/Documents/Programs/MMD/Recycling/MMP-Goals-MRC-Presentation-Slides.pdf

establishing systems to consistently track and report organic material composting. Doing so would enable the County to calculate a measured recycling rate and more effectively track progress toward the goals established in the MMP.

Table 7: Estimated Waste Diversion Rates

ANTRIM COUNTY	TOTAL WASTE GENERATION (TONS)	TOTAL RECYCLING (TONS)	TOTAL REQUIRING DISPOSAL (TONS)	RECYCLING RATE
MegaData Estimates, 2020-2023	22,002	2,292	19,710	**10.42%**
Updated Estimate 2024: Reported MCW Average 2020-2024. Reported Recycling Tons. Estimated Organics Tons.	55,469	3,083	52,386	**5.56%**
Updated Estimate 2024: State Average MCW per Capita Tons. Reported Recycling Tons. Estimated Organics Tons.	23,127	3,083	20,044	**13.33%**

Recycling Data Gaps

Several significant data gaps limit Antrim County's ability to fully quantify recycling and diversion performance. Most notably, there is no reliable accounting of **commercial and institutional recycling tonnage** that may be collected directly by private haulers. Many businesses and institutions may be recycling materials through contracted services, but without standardized reporting requirements, these recovered materials are not reflected in countywide diversion calculations. Establishing consistent **hauler reporting requirements** would allow the County to capture this missing data and better understand the full scale of recycling activity occurring outside of publicly managed programs.

In addition, there is a lack of information regarding any **curbside recycling services** that may be operating on a subscription basis for residential or commercial customers. Even limited or informal curbside collection can contribute meaningful tonnage to overall diversion, yet these materials remain unaccounted for in the absence of hauler reporting. Similarly, **organic material diversion data**. including both food waste and yard waste, is incomplete. While some municipal yard waste programs are known to exist and organics may be managed through private composting or mulching facilities, tonnage data are not consistently tracked or reported. As a result, the County cannot calculate a fully **measured recycling rate or diversion rate** and must rely on estimates and partial datasets.

These gaps also limit the County's ability to quantify progress on **food waste reduction**, which is a key materials management priority from EGLE. Food waste is typically disposed of in the landfill as part of mixed MCW, and without a robust waste audit system there is no clear way to quantify how many tons of disposed MCW are food waste over time. Alternatively, meaningful measurement can be achieved by **separating food waste at the source**, through food rescue and/or composting programs,

and **tracking the weight** of diverted material. Expanded source separation paired with consistent tonnage reporting would allow the County to quantify diversion more accurately and track reductions in landfilled food waste in a measurable way.

Hard-to-Recycle Materials and Collection Events

The Antrim Conservation District[11] (ACD) coordinates Household Hazardous Waste (HHW) collection events that provide residents with a safe disposal option for a wide range of hard-to-manage materials. Based on ACD's published program information, commonly accepted items include tires (under specified size limits), fluorescent light bulbs, mercury-containing items, pesticides, used motor oil, oil-based and latex paints, electronics, cleaners and household chemicals, propane tanks, fertilizers, gasoline and kerosene, pool chemicals, poisons, automotive fluids, batteries, and other materials such as plastic boat wrap. ACD also provides electronics drop-off at its office during normal business hours, offering a year-round pathway for residents to manage these items outside of event dates.

In addition to countywide programming, the Village of Elk Rapids advertises a Super Recycling Day[12] that expands access to specialty material collection, including white goods (appliances), mattresses, and a variety of other household items not typically accepted through standard recycling channels.

At this time, tonnage data are not readily available for materials collected through these HHW events, electronics drop-offs, or special collection days. Establishing consistent reporting of event participation and material quantities collected would improve the County's ability to quantify recovery, identify priority material streams, and track progress over time.

Construction & Demolition (C&D) Debris

Based on landfill reporting, C&D waste accounts for an average of just 2% of total landfill tonnage over the last 5 years as shown in Table 2 above. C&D debris includes anything used in the construction of roads, bridges and buildings. Typically, these materials include concrete, asphalt, wood (treated or blond), drywall, asphalt shingles, metals, rigid and film plastics, vinyl siding and windows, carpet and other flooring, ceiling tiles, cardboard and other paper, glass, and insulation.

While population and economic growth is a significant factor in the generation of C&D debris, most landfill reporting would attribute an average of between 20% and 40% of inbound tonnage from construction and demolition activities, with some landfills actively seeking C&D debris by offering discounted rates. According to US EPA reports, the amount of construction and demolition waste generated in the United States is more than twice that of MCW. This variance suggests that Antrim County's C&D tonnage may be under-reported. A true representation of the C&D debris generated in the county would require

[11] https://www.antrimcd.com/household-hazardous-waste-days.html?utm

[12] https://www.elkrapids.org/village-news/super-recycling-day-accepted-items-list?utm

either reporting on an ongoing basis or periodic waste characterization studies that focus on C&D.[13] Some landfills actively seek out C&D debris and even offer discounted disposal rates. Sometimes the landfills are diverting clean wood and/or concrete for use on-site (after chipping, grinding, or crushing); others are diverting it from landfill entirely by sending it to local markets that can use it for landscaping, fuel, or road building aggregates.

C&D debris can be diverted from landfills at multiple points in the disposal chain. The most effective approach - yielding the cleanest material with the highest reuse or recycling value - is source separation at the construction site. Achieving this requires clear, consistent communication and convenient processes, whether through voluntary programs or mandatory policies. Alternatively, mixed C&D processing offers convenience by eliminating on-site separation, but recovered materials have lower value due to contamination and the cost of processing. Mechanical or conveyor-based sorting also produces fine debris such as drywall dust, dirt, and wood particles (referred to as 'fines') with little to no market value.

Markets exist for some C&D materials when prepared according to specification and generated at a consistent rate:

WOOD

Clean wood, including woody vegetation, untreated dimensional lumber, and pallets, would likely constitute sufficient tonnage on a regular basis to warrant separation and would result in meaningful and measurable impact on landfill-bound tonnage. Markets are likely to include:

- reuse of dimensional lumber 6 feet or longer and plywood/engineered boards at least 16 square feet that has not been painted or nailed
- landscaping for woodchips/mulch, with colorization potentially adding value
- energy sector, particularly where renewable energy inputs are sought as feedstock for energy production

SCRAP METAL

Though much of the scrap metal generated on construction sites is already recovered through informal collection by subcontractors and tradespeople, there could remain some fraction of scrap metal in the construction site debris that goes for disposal. A scrap metal container with clear labelling and discreetly positioned on the construction site would present an opportunity for anyone on the construction site to contribute any amount of metal for diversion. Local scrap metal companies would be interested in purchasing mixed or sorted metals from a construction site.

CARDBOARD (OCC)

A collection container for OCC generated at strategic junctures during the project timeline will enable recovery of clean cardboard from product installation, such as cabinetry, appliances, and furniture. This large format cardboard will

[13] C&D loads are typically excluded from most MSW/MCW waste characterization studies. While a waste characterization study may include a category for "C&D" it would be de minimis amounts that were co-collected in an MSW/MCW collection truck. A specific C&D characterization is needed to capture material coming in rolloff boxes from construction projects.

require a large container, ideally with a lid to protect it from precipitation. Cardboard can typically be delivered loose to a buyer but will carry higher value if baled.

CONCRETE

A designation of "clean" concrete is typically made by vendors that accept and produce a higher standard "crusher-ready' aggregate material. "Mixed aggregate", containing pieces of brick, ceramic, or other engineered inert materials, such as plastics and compound materials is not considered clean. Rebar presents additional processing challenges for aggregate producers and therefore markets for concrete with rebar are often limited. Partners for concrete recycling include local excavation companies and aggregate manufacturers.

VINYL

Rigid vinyl can come from several sources in a building or renovation project: siding, piping/conduit, window frames, flooring, and fencing are common. These materials can be transported to a centralized collection point where they can be recycled into new vinyl products. Vinyl is typically not accepted at MRFs but specialty vinyl recyclers, like Fryman's Recycling in Dowagiac or others participating in Revinylize, the national vinyl recycling collaborative, may offer collection bins and pay the transportation costs in exchange for localized collection of rigid vinyl materials.

Storm Debris

At the request of Networks Northwest, RRS evaluated storm debris measurement and quantification methodologies to support Antrim County's preparedness for debris generated by major storms and severe weather events. Establishing baseline debris estimates is an important first step in emergency debris management planning, which is typically implemented through a countywide Emergency Operations Plan (EOP) and supporting annexes.

The Michigan State Police, Emergency Management & Homeland Security Division provides a **Local Disaster Debris Management Plan Template**[14] for counties, cities, and townships to adapt. The template positions disaster debris planning as a companion to the EOP and as a local counterpart to the State's Disaster Debris Management Plan. Adoption of local debris plans varies, and EGLE has noted that outside of hurricane-prone regions, many communities do not complete disaster debris pre-planning. As a result, the Materials Management Plan (MMP) process represents a timely opportunity to "connect the dots" by documenting the infrastructure, roles, and material pathways that emergency management will depend on during surge conditions.

[14] https://www.michigan.gov/-/media/Project/Websites/msp/EMHSD/Publications/Local_Disaster_Debris_Management_Plan_Template_2008_Final_Edition.pdf?rev=f548c2a196c248c69772fa733bc01714&utm

RRS recommends aligning disaster debris planning with MMP planning because both efforts rely on the same underlying materials management system, facilities, collection/processing capacity, transportation logistics, and end markets, operating under different time horizons. Even without a finalized County or local Disaster Debris Management Plan, the MMP can formalize this linkage by capturing core operational elements that will be needed during an incident, including:

- **Sites:** Existing solid waste and recycling facilities, as well as candidate temporary debris staging and reduction sites, including key constraints (e.g., access, drainage, and traffic control). This enables emergency operations to begin with identified options rather than starting from zero.
- **Capacity:** Normal throughput versus surge conditions, including overflow routing options. The County can also pre-define "activation triggers" tied to capacity constraints (e.g., transfer station queues exceeding a defined threshold for multiple days, or primary MRF downtime exceeding 48 hours).
- **Roles and responsibilities:** Identification of who supports the Emergency Operations Center (EOC) with materials management decisions, regulatory coordination, and communications.
- **Contractors and end markets:** Pre-identified pathways for hauling, grinding, C&D handling, white goods, and HHW management; recognizing that surge volumes may require intermediate staging and alternative destinations.
- **Public guidance hooks:** Pre-developed reuse- and recycling-first messaging where feasible, consistent with EGLE storm debris guidance, including separating materials and emphasizing recovery options when conditions allow.

RRS has developed preliminary storm debris estimates (in cubic yards) for multiple weather scenarios. These estimates are presented in the following subsections.

SCENARIO 1: ICE STORMS

The first scenario evaluates an ice storm producing between **0.25 inches and 1 inch of ice accumulation** with sustained winds between **10 and 30 mph**. The debris estimate uses roadway mileage as a key input, based on MDOT's published **System Length / Route Miles** metric[15], which for Antrim County is **1,024 miles.** In MDOT's reporting, System Length / Route Miles generally represent roadway centerline mileage (counting only one side of divided roads and excluding ramps) for public roads open to travel and certified by public road agencies; MDOT notes this dataset is GIS-based, tied to federal mileage certification processes, and available historically back to 1990.

Using the county's applicable route-mile input and the scenario assumptions above, RRS estimates that ice storms of these magnitudes could generate the approximate debris quantities shown in Table 8. These calculations are based on methodology

[15] https://www.michigan.gov/mdot/-/media/Project/Websites/MDOT/Programs/Planning/Asset-Management/HPMS/Statewide-Statistics-LS-County.pdf

laid out in a published 2011 study *Rapid Assessment of Tree Debris Following Urban Forest Ice Storms*[16], including a negative correlation between wind speed and debris volume (as wind speed increases less debris observed). FEMA guidance[17] indicates that ice and snowstorm debris streams are typically dominated by **vegetative debris** (downed limbs and trees), along with **overhead utility system components** associated with damaged lines and service infrastructure.

COUNTY NAME	SYSTEM MILES	WIND SPEED MPH	ICE THICKNESS (INCHES)	SCENARIO 1 DEBRIS ESTIMATE CUBIC YARDS
Antrim	1,024	10	0.25	99,824
		20	0.25	62,445
		30	0.25	25,065
		10	0.50	199,648
		20	0.50	124,889
		30	0.50	50,130
		10	0.75	299,473
		20	0.75	187,334
		30	0.75	75,195
		10	1.00	399,297
		20	1.00	249,778
		30	1.00	100,259

Table 8: RRS Estimated Ice Storm Debris Volumes CY

SCENARIO 2: SEVERE WEATHER EVENTS

Scenario 2 evaluates debris generation associated with **severe weather events**, with or without precipitation, characterized by **wind speeds ranging from 74 mph to 157+ mph**. At the upper end of this range, the scenario includes **tornado events**, which can produce highly variable and localized debris conditions. The debris estimates generated under this scenario incorporate multiple variables beyond wind speed, including **household density**, **vegetation cover**, and the **prevalence of commercial properties**, all of which influence both the quantity and composition of storm debris.

For Antrim County, the model inputs include **10,147 households**, a **Heavy vegetation** classification, and a **Light commercial property** designation. Heavy vegetation is typically associated with mature neighborhoods and wooded areas where dense tree canopy cover limits visibility of the ground or structures, increasing the likelihood of vegetative debris during severe wind events. The Light commercial property classification reflects a lower concentration of large commercial structures relative to

[16] Hauer, Richard J.; Hauer, Angela J.; Hartel, Dudley R.; Johnson, Jill R. 2011. Rapid Assessment of Tree Debris Following Urban Forest Ice Storms. Arboriculture & Urban Forestry 37(5):236–246. https://www.srs.fs.usda.gov/pubs/ja/2011/ja_2011_hauer_001.pdf

[17] https://www.fema.gov/sites/default/files/2020-07/fema_325_public-assistance-debris-mgmt-plan_Guide_6-1-2007.pdf, Chapter 6

residential land uses, which influences the proportion of construction and demolition (C&D) debris expected in the debris stream.

The resulting debris estimates, segmented by precipitation condition and wind speed category, are presented in the Table 9. These estimates are intended to support emergency planning by illustrating the potential range of debris volumes that could be generated under severe weather scenarios affecting Antrim County.

COUNTY	HOUSEHOLDS	COMMERCIAL PROPERTY	VEGETATION	WIND SPEED	PRECIPITATION	SCENARIO 2 DEBRIS ESTIMATE CUBIC YARDS
Antrim	10,147	Light	Heavy	74-95 MPH	None to Light	30,441
				74-95 MPH	Medium - Heavy	36,529
				96-110 MPH	None to Light	121,764
				96-110 MPH	Medium - Heavy	146,117
				111-129 MPH	None to Light	395,733
				111-129 MPH	Medium - Heavy	474,880
				130-156 MPH	None to Light	761,025
				130-156 MPH	Medium - Heavy	913,230
				157+ MPH	None to Light	1,217,640
				157+ MPH	Medium - Heavy	1,461,168

Table 9: RRS Estimated Severe Weather Debris Volumes CY

In addition to debris volume estimates, it is important to consider anticipated debris composition. FEMA guidance [18] describes typical tornado debris as including vegetative debris, construction and demolition (C&D) debris, personal property/household items, hazardous waste, household hazardous waste (HHW), white goods, and vehicles and vessels as shown in Figure 11.

[18] https://www.fema.gov/sites/default/files/2020-07/fema_325_public-assistance-debris-mgmt-plan_Guide_6-1-2007.pdf, Chapter 6

		Typical Debris Streams								
		Vegetative	Construction & Demolition (C&D)	Personal Property/ Household Items	Hazardous Waste	Household Hazardous Waste (HHW)	White Goods	Soil, Mud and Sand	Vehicles and Vessels	Putrescent
Types of Disasters	Hurricanes / Typhoons	X	X	X	X	X	X	X	X	X
	Tsunamis	X	X	X	X	X	X	X	X	X
	Tornadoes	X	X	X	X	X	X		X	X
	Floods	X	X	X	X	X	X	X	X	X
	Earthquakes		X	X		X	X	X		
	Wildfires	X		X		X	X	X		
	Ice Storms	X				X				

Figure 11: FEMA-325 "Figure 6.2 – Typical Debris Streams for Different Types of Disasters"[19]

Facility Inventory

Name	Address	Address	Description
Hooks & Chains Recycling	3385 Alba Rd	Mancelona	Materials Recovery Facility
Central Lake Township Waste Receiving Station	3510 North M-88	Central Lake	Processing & Transfer Facility
Village of Elk Rapids Trash Compactor	8228 Herrman Rd.	Elk Rapids	Processing & Transfer Facility
Antrim County Solid Waste Facility	10164 M-32	Elmira	Processing & Transfer Facility
Antrim Conservation District Household Hazardous Waste Days	Multiple locations	Multiple locations	Other Source Separated Facility
Antrim County Recycling - Ellsworth Site	9627 Lake Street	Ellsworth	Other Source Separated Facility
Antrim County Recycling - Mancelona Site	9610 S M 88 Hwy	Mancelona	Other Source Separated Facility

[19] https://www.fema.gov/sites/default/files/2020-07/fema_325_public-assistance-debris-mgmt-plan_Guide_6-1-2007.pdf

Antrim County Recycling - Alden Site	8751 Helena Rd	Alden	Other Source Separated Facility
Antrim County Recycling - Kewadin Site	7262 Cairn Hwy	Kewadin	Other Source Separated Facility
Antrim County Recycling - Elk Rapids	321 Bridge St	Elk Rapids	Other Source Separated Facility
Antrim County Recycling - Bellaire Site	4700 S M88 Hwy	Bellaire	Other Source Separated Facility
Antrim County Recycling - Star Township Site	6775 Alba Hwy.	Elmira	Other Source Separated Facility
Antrim County Recycling - Central Lake Site	1622 North M-88	Central Lake	Other Source Separated Facility
Village of Bellaire brush and leaf drop-off	South Court St.	Bellaire	Compost Facility
Mancelona DPW Garage Yard Waste & Brush Drop Off	404 Center St	Mancelona	Compost Facility
Village of Bellaire brush and leaf drop-off	South Court St.	Bellaire	Other Organics Facility

Table 10: Materials Management Infrastructure

Appendix

RRS MCW Composition Model

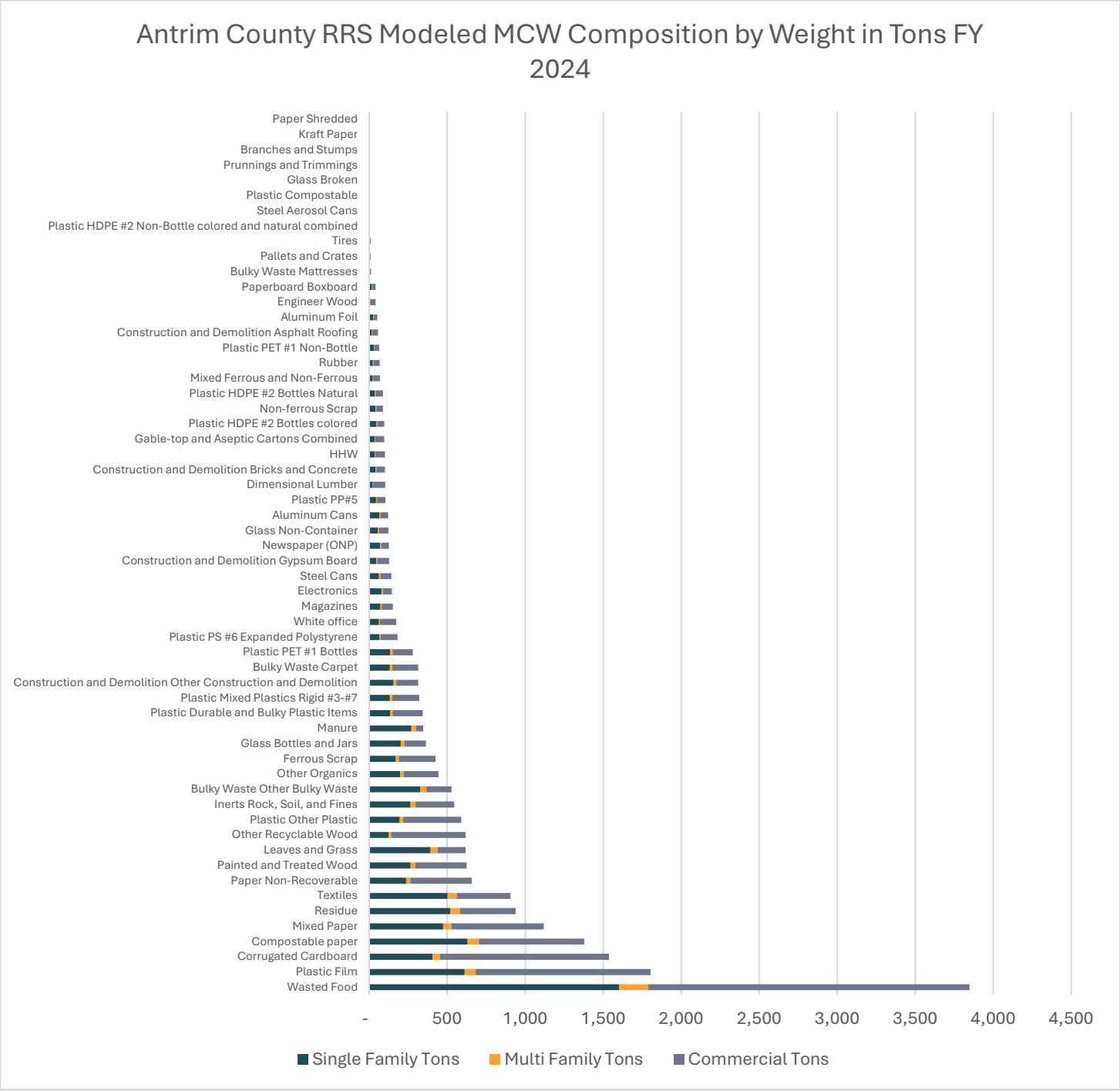

Figure 12: Antrim County RRS-Modeled MCW Composition 2024

Definitions of the Benchmark Recycling Standards

Michigan Legislature. (1994). Natural resources and environmental protection act, Act 451 of 1994, Part 115, § 11502. Retrieved from Michigan Legislature website: https://www.legislature.mi.gov/documents/mcl/pdf/mcl-451-1994-ii-3-115.pdf

(6) "Benchmark recycling standards" means all of the following requirements:

(a) By January 1, 2026, at least 90% of single-family dwellings in urban areas as identified by the most recent federal decennial census and, by January 1, 2028, at least 90% of single-family dwellings in municipalities with more than 5,000 residents have access to curbside recycling that meets all of the following criteria:

(*i*) One or more recyclable materials, as determined by the county's material management plan, that are typically collected through curbside recycling programs, are collected at least twice per month.

(*ii*) If recyclable materials are not collected separately, the mixed load is delivered to a solid waste processing and transfer facility and the recyclable materials are separated from material to be sent to a solid waste disposal area.

(*iii*) Recyclable materials collected are delivered to a materials recovery facility that complies with part 115 or are managed appropriately at an out-of-state recycling facility.

(*iv*) The curbside recycling is provided by the municipality or the resident has access to curbside recycling by the resident's chosen hauler.

(b) By January 1, 2032, the following additional criteria:

(*i*) In counties with a population of less than 100,000, there is at least 1 drop-off location for each 10,000 residents without access to curbside recycling at their dwelling, and the drop-off location is available at least 24 hours per month.

(*ii*) In counties with a population of 100,000 or more, there is at least 1 drop-off location for each 50,000 residents without access to curbside recycling at their dwelling, and the drop-off location is available at least 24 hours per month.

BUSINESS SECTOR DEMOGRAPHICS, NUMBER OF ESTABLISHMENTS AND NUMBER OF JOBS

Datasets generated by Esri, provided by Networks Northwest

ESTABLISHMENTS

Industry	2018	2023
Construction (97)	82	97
Retail Trade (89)	68	89
Accommodation and food services (58)	41	58
Other services (except public administration) (54)	52	54
Health care and social assistance (52)	32	52
Professional, scientific, and technical services (47)	26	47
Manufacturing (44)	38	44
Administrative support and waste management and remediation services (31)	23	31
Real estate and rental and leasing (30)	24	30
Agriculture, forestry, fishing and hunting (22)	19	22
Finance and insurance (18)	19	18
Information (16)	8	16
Wholesale Trade (13)	13	13
Arts, entertainment, and recreation (13)	10	13
Unclassified (9)	7	9

JOBS

Industry	2018	2023
Agriculture, forestry, fishing and hunting	N/A	N/A
Mining, quarrying, and oil and gas extraction	N/A	N/A
Management of companies and enterprises	N/A	N/A
Administrative support and waste management and remediation services	71	N/A
Educational services	N/A	N/A
Health care and social assistance	218	N/A
Accommodation and food services	932	899
Retail Trade	605	687
Manufacturing	918	678
Construction	448	599
Other services (except public administration)	215	204
Arts, entertainment, and recreation	145	181
Professional, scientific, and technical services	125	152
Information	85	101
Wholesale Trade	52	98

Transportation and warehousing (8)	12	8
Mining, quarrying, and oil and gas extraction (3)	1	3
Utilities (3)	2	3
Management of companies and enterprises (1)	N/A	1
Educational services (0)	N/A	0

Finance and insurance	92	93
Real estate and rental and leasing	87	65
Transportation and warehousing	N/A	40
Unclassified	23	26
Utilities	N/A	8

MMP Community Input

A key component of any solid planning process involves the collection of input from a variety of stakeholders. In respects to the materials management planning process, the targeted audiences selected were County residents, local businesses, local units of government, and haulers and operators. As part of the collection of public input, multiple surveys were developed and distributed to the above stakeholder groups.

The following is a brief analysis of the input, with full survey results located in the appendices.

Community Input Events

In order to promote the Materials Management Plan process and survey's, Networks Northwest staff attended several community events during the 2025 summer. Each event was 3-4 hours long, with staff on hand to answer or discuss anything materials management related, distribute survey business cards, display boards with question and answer prompts, and a materials sorting game aimed for younger crowds.

Antrim County Community Events

- August 1, 2025 Elk Rapids Harbor Days - Farmers Market
- August 6, 2025 Ellsworth Concert on the Square
- August 12, 2025 Mancelona Outdoor Summer Concert
- August 16, 2025 Bellaire Rubber Ducky Festival
- September 27, 2025 Antrim County HHW Collection - Mancelona

The following questions and responses are from the events.

1. *What types of materials do you find challenging to properly dispose of or recycle of in our community?*

- Tires, styrofoam, agricultural tires, water softener bags, glass, batteries, oil, salt bags (snowmelt), and bins constantly being too full

2. *What ideas do you have for reducing waste and increasing reuse in our community?*

- Additional township trash pick-up days, single stream recycling, outlaw single use plastics, food waste drop-off, deposits on all bottles, and consumers awareness of what can be recycled, plastic bag ban, community compost bins

3. *What resources or information would help you make more sustainable choices about the materials you use?*

- Economics of recycling, school experiments on pollution and recycling, smarter container materials, more HHW events, encourage youth/young adults to recycle, flyers of what is allowed to be recycled

County Resident Survey

The County Resident Survey was distributed to residents for responses from June 23, 2025 to January 5, 2026 through a variety of mediums including multiple press releases, social media (including popular community group pages), news articles, survey business card distribution, and flyer distribution.

Efforts led to 230 total responses including 189 permanent and 41 seasonal residents, with 53% living in the County for 10 years or more. 89% of respondents believe that recycling is very or extremely important for our communities, environment, and natural resources, as well as reducing the amount of waste going into landfills.

Material management services are typically paid through by property taxes (94), private hauler (76), County millage (64), and subscription service (42). Other responses to paying for materials management included purchasing pre-paid trash bags, transfer stations, or covered by taxes, water bills, or rent/association dues.

Recycling is primarily collected at drop-off sites, while some utilize curbside services, and others include at-home composting of yard and food waste, local collection sites, Township clean up days, and reuse organizations.

The main reasons for recycling were environmental responsibilty (193), reducing pollution (139), and promoting sustainability (121). Other reasons for recycling include environmental concerns and potential cost savings. 91% of respondents noted that they participate in recycling a variety of materials with the most popular being:

1. Cardboard (201)
2. Plastic Bottles and Jugs (188)
3. Glass Bottles and Jars (182)
4. Metal Cans (181)
5. Plastic Tubs and Containers (173)
6. Paper (173)

Of the 21 who do not recycle, there was interest from 16 in increased availability. The top barriers to recycling were lack of curbside (59) and location of drop-off sites (39). Other barriers that prevent recycling were access issues such as distance and bins being full and transparency and confidence of recycled materials. Clearer guidelines (104), community recycling events (96), and online resources (71) were noted as resources helpful for recycling and waste reduction. Other information and resources mentioned were promotion and education for all, transparency of materials reused vs. landfilled, and improved accessibility of services.

Trash is typically disposed of through private hauler (124) but many utilize drop-off sites (86), but others use taking trash to work or business dumpsters, condo association dumpsters, or at home composting or burn pits.

52% of responses participate in composting, primarily by composting at home (59%), while others use compost subscription services (22%) or local farms (12%). Other composting methods were taken to Traverse City or only doing yard waste. For the 48% who did not compost, they would be encouraged to participate by increased access (31%), access to composting equipment (21%), and increased information (20%). Other ways to encourage composting were addressing lack of space or ability, pest issues, and education of what composting is.

70% find the rules and guidelines are clear in their community, and 74% know what items are not accepted by their local programs. Materials that residents find difficult to recycle or dispose of included bulky items and construction waste (like furniture, mattresses, appliances, tires, wood), household hazardous waste items, specialty items (Styrofoam, plastic bags, light bulbs), and electronic waste.

Reducing waste (142), reusing items (111), and composting more (92) were selected as ways communities can do a better job of managing waste. Other ways communities can do a better job include curbside recycling implementation, more promotion of recycling events, and education and transparency of collected materials.

Services that residents would like to see in their community included electronic waste drop-off (120), more household hazardous waste collections (112), bulk waste pick-up (89), increased recycling access (79), and green waste pick-up (67). Additional services included curbside pickup, more access to household hazardous waste and bulky items, and concerns of costs and transparency.

76% of respondents have a moderate or higher interest in learning about waste reduction and management, recycling and organics. 90 residents marked that they would not want to pay for increased services, while others would pay for increased household waste services (76), bulk waste materials (65), recycling services (61), and organics services (48).

Considerations for the MMPC included programs and partnerships like Zero Waste in Schools or upcycling workshops, policy changes such as extended producer responsibility and curbside services, adding drop-off site access, improving infrastructure for bulky items, household hazardous waste, and composting, and furthering education, promotion, and enforcement, and costs of services and programs.

Local Unit of Government Survey

The Local Unit of Government Survey was distributed to a contact list of all Antrim County government clerks and supervisors or administrators via email and a mailing to the Clerk's address asking for a response to the survey. Additionally, the survey was included in the August 20, 2026 Local Unit of Government MMP Newsletter and in email communications of the Materials Management Planning Committee's public notices.

25 responses were received from 16 of the 21 jurisdictions in Antrim County. Primary responses came from Clerks and Supervisors, with a few administrators. 17 responses identified that their communities have a recycling drop-off site, 11 support household hazardous waste collection, and a few have curbside (3), composting and public education (2 each).

86% found the effectiveness of the current materials management services and infrastructure to be moderately effective or better. Recycling contamination (9), public participation (7), infrastructure (7), and educational awareness (6) were noted as the biggest materials management challenges communities face.

On a scale of Excellent (1) to Non-existent (6), respondents were asked how well different materials are managed in the County. Below are the top five highest and lowest ranked materials.

How well are different types of materials currently managed within your county?	
Highest Ranked *(avg score)*	**Lowest Ranked** *(avg score)*
Paper *(2.13)*	Bulky Waste *(3.87)*
Glass *(2.13)*	Tires *(3.73)*
Plastics *(2.20)*	White Goods - appliances *(3.67)*
Metals *(2.67)*	Mattresses (*3.53)*
Household Hazardous Waste *(2.80)*	Yard Waste *(3.36)*
Scale: Excellent (1), Good (2), Average (3), Poor (4), Terrible (5), Non-Existent (6)	

Perspectives for the primary focus of the County MMP included increased recycling participation, composting options, increased ease of proper disposal, and creating options that are viable for all community members. The areas for the most attention were funding for infrastructure development (10), market development initiatives (9), reducing contamination (8), and guidance (7).

Infrastructure investments included recycling facility funding (8), transfer stations (7), composting sites (6), landfills (5), and collection equipment (4). Multiple household hazardous waste events or year round collection were the most popular choices for considering household hazardous waste year round, waste authority, or regional/Multi-county HHW contracts.

Increased community events (9), funding local campaigns and standard materials (6 each) were the most effective ways to educate the public. Education (7), access (3), and funding (2) are the biggest barriers to an increased recycling rate.

There was a 50-50 split of those who knew where the collected materials go, most aware of GFL's Elmira Transfer Station. The recycling millage (7) and county funding (4) are the primary ways that communities pay for recycling, while one does have contracts with a waste company. Costs associated with recycling drop-off sites (7), trash pick up (3) and education (2) were selected.

Lastly, things to consider regarding communities and materials management included being aware of visitors and their materials generation and proper disposal and increasing rates of recycled materials actually being used.

Local Business Survey

The Local Business Survey was distributed to local businesses through a business press release, requesting distribution through local Chambers of Commerce, Downtown Development Authorities, and Northern Lakes Economic Alliance, business survey cards, and hand delivered letters to businesses within the downtown and industrial areas of Bellaire, Central Lake, Elk Rapids, Ellsworth and Mancelona,

Overall the survey received 63 responses with 13 identified from Antrim County businesses primarily from the non-profit/government (4), service industry (3), or agriculture (3). Food service and construction were also mentioned.

6 estimated that they generate less than 50 pounds of non-hazardous waste on an average week, while 2 each estimated 50-200 or 201-500 pounds and 1 generated 1000 or more pounds. Businesses estimated their recycling to waste rate at 47% recycling to 53% trash with 4 using single stream recycling, 5 separating their recycled materials, and 3 not currently recycling. A reason for not recycling was too much work and only having a waste dumpster.

9 businesses noted they did not participate in organic waste diversion or composting. Food waste collection was handled by a local farm or done on site, if it was applicable at all. Hazardous waste recycling was primarily dropped off at a transfer station (7 each) while 2 paid for collection by private hauler. It was noted that the one business who uses take out order materials uses compostable materials. Trash services are typically taken care of by private hauler (10) while some do take it to a drop off site (3)

Most businesses did not have specific goals or initiatives aimed to reduce waste generation or increase recycling (9), but 3 did have some which included the use of commercial composting, recycling curbside, and efficiency and responsibility.

Challenges that local businesses face with implementing or expanding sustainable materials management practices were logistical challenges (6), lack of space (5), lack of employee engagement (5), and lack of information or resources (5). 9 responses were interested in learning more about or participating in local programs or initiatives that support business recycling, composting, or waste reduction and those not interested or unsure.

Only one business noted a significant change in the types or volumes of materials expected in the next 3-5 years which was a decrease in materials due to retirement. Materials produced that currently do not have an end user included compostable cups, styrofoam, wood scraps, and food waste. 5 businesses currently purchase recycled materials for use which include recycled plastics (4), paper and cardboard (3), textiles (2), and concrete and aggregates.

Lastly, ways that a business can better engage with the circular economy through re-use of materials identified using recycled for office supplies and packaging (9), partner with companies that specialize in processing specific materials (8), using recycled plastic in packaging (8), product

design for easier recycling (5), and incorporate recycled fabrics (5).

Previous Planning

2000 Antrim County Solid Waste Plan

The 2000 Antrim County Solid Waste Plan was the guiding document for the collection, transportation, and disposal of solid waste, prepared in compliance with the previous language of Part 115 of the Natural Resources and Environmental Protection Act (NREPA). The plan seeks for waste management practices to protect public health, conserve natural resources, and be economically feasible for residents. Additionally, a detailed inventory of existing waste generation data, facilities, and goals, objectives and strategies were laid out to meet the County's needs.

See Table X below for the 2000 Solid Waste Plan Goals and Objectives Status Update.

2024-2028 Antrim County Master Plan

The Antrim County Master Plan examines the County's natural environment, demographics, economic development, existing land use trends, agricultural, and transportation to create guiding principles, future land use map, and implementation strategy to guide County Planning decision-making.

Most of the Antrim County Guiding Principles are applicable to materials management and include:

- Keep Antrim County Rural
- Protect the Water
- Promote Healthy Living
- Direct Development towards Existing Communities
- Retain Farming and Farmlands
- Promote Diverse Working Opportunities
- Maintain the Rural Appearance of the Highway and Road Corridors
- Balance Property Rights with the Public Interest
- Mitigate Natural Hazards and Meet the Challenges of Climate Adaptation

While the Antrim County Master Plan does not have direct mention of materials management, trash, recycling, or organics, there are still actions associated with the Guiding Principles within that should be considered in the materials management planning process including;

- Facilitate development and land use consistent with the rural environment.
- Encourage land uses that could negatively impact water quality to be placed at an appropriate distance from streams, rivers, wetlands, and creeks.
- Encourage land uses to be placed at an appropriate distance from streams,rivers, wetlands and creeks to avoid negative impacts on water quality.
- Recommend to community leaders performance standards that minimize noise, visual access, odor, vibration, dust and particulate matter, and the other potential impacts of industrial, commercial, and resource based land uses when they abut residentially zoned areas.
- Encourage businesses to locate within "infrastructured" communities.
- Encourage new agricultural activity within the community.
- Keeping the public informed and involved in key land use issues. The more difficult the issue, the more input should be elicited from the public, including going beyond the normal required public hearing requirements when there is a major issue of concern.
- Encouraging direct citizen engagement in the process.

Municipal Master Plans, Zoning, and Other Ordinances

Of the twenty municipalities in Antrim County, twelve including all five villages, have a zoning ordinance. Many of the townships on the east half of the County do not have active zoning. Therefore, consideration of existing municipal Master

Plans, zoning, and other ordinances is important to the materials management planning process for multiple reasons. One is to be aware of the direction of the local communities, another is when considering siting procedures for facilities, the local zoning must be taken into consideration. Additionally, some have existing ordinances that apply to materials management.

See Municipal Planning, Zoning, and Ordinance Table.

Materials Management County Engagement Report

Networks Northwest, with assistance from RRS and funding from EGLE's Materials Management County Engagement Grant, developed the Antrim County Materials Management County Engagement report in March 2023. The report was meant to assist counties in the transition to materials management from solid waste, identify current materials management opportunities and gaps, and included a survey with 41 responses from Antrim County residents.

The MMCE Report identified the top five needs of the County.

1. Sustainable funding
2. Consistent education and outreach
3. At least one Center for Hard to Recycle Materials (CHaRM)
4. Hub-and-spoke collections for key materials
5. More frequent household hazardous waste collection opportunities

The MMCE Report also laid out three materials management projects that may have significant impact on accessibility, awareness, and sustainable funding for programs and services.

1. Engage County and municipal leaders in conversations about materials management solutions in light of changes in state law.
2. Evaluate the funding and infrastructure needed to collect additional materials, including more frequent household hazardous waste events, mattresses, food waste, and other difficult to recycle items, regularly or periodically.
3. Develop consistent recycling outreach materials in partnership with the hauler, the processor, the mills, and, as appropriate, the region.

EGLE Antrim County Materials Management Profile

In February 2023, EGLE with assistance from RRS, developed the County Profile's to summarize materials management information such as access and collection, facilities, existing policies, and waste projection data. The Profile offers a baseline of what trash, recycling, and organic waste services and facilities are available in the County.

SEEDs Organic Waste Solutions - Antrim

SEED's is an environmental non-profit who seeks "To implement local solutions to global issues at the intersection of ecology, education, and design." In 2024, they set a goal to see a ⅓ of estimated organic waste, mainly food scraps, being diverted from the landfill by 2030. It was estimated that Antrim County creates 6,149 tons of organic waste in a year, with 41 tons being currently diverted and a 2030 target of 1,402 tons diverted.

They also provided recommendations to achieve this which were:

- Incentivize and allow on-site and backyard composting solutions.
- Enhance food donation opportunities by clearly communicating options, especially with institutions, schools, and farms.
- Develop selective food waste collections within portions of the County and coordinate with Emmet County on the development of food waste collection and hauling strategies.
- Use the MMP planning process to develop and right-size strategies and

incentives that work for Antrim County residents and institutions.

2000 Antrim County Solid Waste Plan Goals and Objectives		
		Status Notes
Goal 1.0	Establish and maintain a high quality environment within Antrim County by developing and implementing a planned solid waste management system, which provides for the protection of public health and the natural environment through conserving natural resources.	Ongoing
Objective 1.1	Develop a solid waste management plan which provides adequate guidance for both short term and long term concerns.	Achieved by 2000 Solid Waste Plan
Objective 1.2	Ensure that solid waste management methods comply with water and air quality standards.	Ongoing
Objective 1.3	Develop and enforce regulations governing odor, noise, and appearance of solid waste collection, recovery, disposal, and storage facilities.	Achieved by 2000 Solid Waste Plan
Objective 1.4	Eliminate illegal dumping of waste in authorized areas by developing and enforcing a county ordinance which provides for fines and other penalties and encourage witness to report illegal dumping by offering cash rewards.	Ongoing
Objective 1.5	Encourage and support practices of volume reduction of solid waste.	Ongoing
Objective 1.6	Annually provide means for the proper disposal of household hazardous wastes.	Multiple HHW collections are offered
Objective 1.7	Participate in or provide means for the proper disposal of waste generated by agricultural and manufacturing interests which may require special handling and disposal.	Ongoing
Objective 1.8	Annually provide means and submit evidence to the Michigan Department of Environmental Quality for at least sixty six months of landfill capacity for Antrim County's waste stream.	Achieved by 2000 Solid Waste Plan
Goal 2.0	Educate the public in order to assure all citizens are properly informed and understand the solid waste management system within Antrim County	Ongoing
Objective 2.1	Establish a solid waste management educational program which makes information readily available to students in the Antrim County educational system.	Ongoing

Objective 2.2	Utilizing the available media (radio, T.V., newspapers, newsletters), provide advanced notification to citizens regarding the various solid waste management opportunities which exist, such as recycling, household hazardous waste collections, composting, and special planning concerns.	Ongoing
Objective 2.3	Involve and encourage citizen participation in all aspects of solid waste management, including education on costs of solid waste management facilities, funding alternatives, solid waste planning, resource recovery, and composting,	Ongoing
Objective 2.4	Involve and encourage the commercial/manufacturing sector of Antrim County to participate in waste reduction, recycling, and composting programs to reduce the amount of materials being disposed of in landfills.	Ongoing
Goal 3.0	Maintain support, and expand recycling programs and facilities to decrease the dependence on landfills for solid waste disposal.	Ongoing
Objective 3.1	Encourage local research and experimental efforts in volume reduction and recycling by private, governmental, and civic groups.	Ongoing
Objective 3.2	Support inter-county (regional) cooperation in the research and development of recycling and resource recovery programs and facilities.	Ongoing
Objective 3.3	Promote development of local industries which use recycled materials.	Ongoing
Objective 3.4	Encourage source separation of recyclables by providing drop off sites throughout the city.	Ongoing
Objective 3.5	Encourage reduction of non-recyclable materials in packaging.	Ongoing
Objective 3.6	Encourage solid waste management information sharing from private, public, and civic groups.	Ongoing
Objective 3.7	Encourage and pursue a county-wide coordinated recycling program for the County of Antrim.	Ongoing
Objective 3.8	Develop a waste exchange program with Antrim County which utilizes a waste exchange handbook which lists all the opportunities for recycling and the exchange of potential items which may still be available to other individuals/organizations.	Not Achieved
Goal 4	Develop and implement a financially feasible solid waste	Recycling Millage has been

	management program.	approved 4 times
Objective 4.1	Encourage development of multi-county disposal/recycling facilities which maximize energy and materials recovery while minimizing costs.	Ongoing
Objective 4.2	Develop recycling programs which are self-supporting	Ongoing
Objective 4.3	Where economically feasible, utilize private enterprise in the ownership and operation of solid waste management facilities	Ongoing
Goal 5	Provide for a solid waste management implementation program which best suites the solid waste management needs of Antrim County	Ongoing
Objective 5.1	Define the solid waste management authorities of the various units of government, private sector, and civic groups.	Not Achieved
Objective 5.2	Identify opportunities for efficient and effective coordination between operations of solid waste facilities serving the various communities of northern lower and the State of Michigan.	Ongoing
Goal 6	Recommend being involved in waste-to-energy facilities as part of an integrated solid waste management program when technologically, economically, and environmentally feasible.	Ongoing
Objective 6.1	If solid waste management conditions warrant, identify and encourage additional inter-county research and cooperation in the development of waste-to-energy facilities.	As Needed
Objective 6.2	Encourage work in identifying potential customers and markets which will purchase the energy form such facilities.	Ongoing
Goal 7	Develop inter-county and contingency agreements for collection. transportation, and disposal of solid waste to be utilized in the event that any portion of the primary system of use becomes unavailable.	As Needed
Objective 7.1	Designate specific backup sites for all facilities included in the selected system.	Not Achieved
Objective 7.2	Negotiate and sign inter-county agreements as needed for contingencies.	As Needed

Objective 7.3	Encourage the use of landfills located in other regions of the state as a potential disposal option in order to assure the residents of Antrim County have economic feasible disposal of solid waste.	Ongoing

2000 Antrim County Solid Waste Plan Goals and Objectives		
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Objective 1.3	Develop and enforce regulations governing odor, noise, and appearance of solid waste collection, recovery, disposal, and storage facilities.	Achieved by 2000 Solid Waste Plan
Objective 1.4	Eliminate illegal dumping of waste in authorized areas by developing and enforcing a county ordinance which provides for fines and other penalties and encourage witness to report illegal dumping by offering cash rewards.	Ongoing
Objective 1.5	Encourage and support practices of volume reduction of solid waste.	Ongoing
Objective 1.6	Annually provide means for the proper disposal of household hazardous wastes.	Multiple HHW collections are offered
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Goal 2.0	Educate the public in order to assure all citizens are properly informed and understand the solid waste management system within Antrim County	Ongoing
Objective 2.1	Establish a solid waste management educational program which makes information readily available to students in the Antrim County educational system.	Ongoing

Objective 2.2	Utilizing the available media (radio, T.V., newspapers, newsletters), provide advanced notification to citizens regarding the various solid waste management opportunities which exist, such as recycling, household hazardous waste collections, composting, and special planning concerns.	Ongoing
Objective 2.3	Involve and encourage citizen participation in all aspects of solid waste management, including education on costs of solid waste management facilities, funding alternatives, solid waste planning, resource recovery, and composting,	Ongoing
Objective 2.4	Involve and encourage the commercial/manufacturing sector of Antrim County to participate in waste reduction, recycling, and composting programs to reduce the amount of materials being disposed of in landfills.	Ongoing
Goal 3.0	Maintain support, and expand recycling programs and facilities to decrease the dependence on landfills for solid waste disposal.	Ongoing
Objective 3.1	Encourage local research and experimental efforts in volume reduction and recycling by private, governmental, and civic groups.	Ongoing
Objective 3.2	Support inter-county (regional) cooperation in the research and development of recycling and resource recovery programs and facilities.	Ongoing
Objective 3.3	Promote development of local industries which use recycled materials.	Ongoing
Objective 3.4	Encourage source separation of recyclables by providing drop off sites throughout the city.	Ongoing
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Objective 4.2	Develop recycling programs which are self-supporting	Ongoing
Objective 4.3	Where economically feasible, utilize private enterprise in the ownership and operation of solid waste management facilities	Ongoing
Goal 5	Provide for a solid waste management implementation program which best suites the solid waste management needs of Antrim County	Ongoing
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Objective 5.2	Identify opportunities for efficient and effective coordination between operations of solid waste facilities serving the various communities of northern lower and the State of Michigan.	Ongoing
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Objective 6.1	If solid waste management conditions warrant, identify and encourage additional inter-county research and cooperation in the development of waste-to-energy facilities.	As Needed
Objective 6.2	Encourage work in identifying potential customers and markets which will purchase the energy form such facilities.	Ongoing
Goal 7	Develop inter-county and contingency agreements for collection. transportation, and disposal of solid waste to be utilized in the event that any portion of the primary system of use becomes unavailable.	As Needed
Objective 7.1	Designate specific backup sites for all facilities included in the selected system.	Not Achieved
Objective 7.2	Negotiate and sign inter-county agreements as needed for contingencies.	As Needed

Objective 7.3	Encourage the use of landfills located in other regions of the state as a potential disposal option in order to assure the residents of Antrim County have economic feasible disposal of solid waste.	Ongoing

Antrim Recycling Millage

Existing Conditions

Facilities Inventory

The following is a brief analysis of the existing materials management facilities located within Antrim County, as identified by EGLE licensing and . See Map XX for MMP Facility Locations.

An in depth facilities inventory can be found in appendix XX.

Landfills

There are no existing public or private landfills within Antrim County.

Materials Recovery Facilities

There are no existing material recovery facilities (MRF) within Antrim County.

Transfer Stations

GFL Elmira Transfer Station

Located in Warner Township, GFL operates a transfer station primarily for hauling and transfer of materials to be sent to landfill facilities. The facility is open to the public for the disposal of household and commercial waste.

Village of Elk Rapids Compactor

The Village of Elk Rapids operates a trash compactor for Village of Elk Rapids resident trash, or by pay-per-bag. Fees and guidelines are set by the Village of Elk Rapids City Council. The Compactor site also serves as a brush drop off site for village residents.

Central Lake Township Waste Receiving Station

Central Lake Township operates a waste receiving station for residential trash of Central Lake Township and the Village of Central Lake, or by pay-per-bag. Fees and guidelines are set by the Central Lake Township Board of Trustees. Additionally, the Waste Receiving Station also collects yard waste from residents.

Compost Facilities

While there are no formal compost facilities, the Village of Elk Rapids and Central Lake Township collect yard waste. The Village of Bellaire also collects yard waste from village residents, while the Village of Elk Rapids offers seasonal monthly yard waste pick-up.

Treatment, Storage, and Disposal Facilities

Treatment, storage, and disposal facilities receive and treat, store, or dispose of hazardous waste. Anchor Lamina America in Bellaire is a designated treatment, storage, and disposal facility but does not accept offsite hazardous waste.

County Recycling and Household Hazardous Waste

Antrim County, supported by the County Board of Commissioners, offers drop-off recycling and household hazardous waste collections for County residents. The Antrim County Conservation District is primarily contracted to manage the recycling and household hazardous waste, with support from the County Administration and Planning Department.

Funding for recycling comes from the Antrim County Recycling Millage, which was renewed by voters (66% approved) in 2024 at 0.25 mills for a period of four years to fund recycling programs and services. The funding for the household hazardous waste collections comes from the County's general fund.

2024 Antrim County Recycling Millage Renewal Estimates	
2025	$654,963
2026	$681,162
2027	$708,408
2028	$736,744
Estimates based on projected taxable values at a 4% increase per year from 2024 baseline	

The County, in cooperation with local units of government in many cases, hosts recycling drop-off sites with bins for the collection of single-stream recycling. This is collected by GFL, under contract as the recycling hauler until 20xx.

The eight recycling drop off sites are located at:

- Alden
    - Helena Township Hall, 8751 Helena Road, Alden
- Bellaire
    - Antrim County Transportation (ACT) Building, 4700 M-88
- Central Lake
    - Central Lake Governmental Center, 1622 M-88
- Elk Rapids
    - Elk Rapids Government Center 315 Bridge Street
        - To be moved
- Ellsworth
    - Ellsworth Sports Park 9627 Lake St, Ellsworth, MI 49729
        - Bins are behind the Dollar General
- Kewadin
    - Old Milton Township Hall 7268 Cairn Hwy
- Mancelona
    - Mancelona Township Hall 9610 M-88 Hwy South
- Star Township
    - Star Township Hall 6886 Alba Hwy

Detailed drop-off site information is available in appendix XX.