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Increasing Recycling in Muskegon County, MI



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1 Executive Summary

Introduction to the project

The County has a comprehensive sustainability plan which includes nine actions to insure that “Muskegon County recycles and reduces waste generation.”¹ To facilitate meeting these expectations, in July 2016, Muskegon County, MI (County) retained the consulting services of Gershman, Brickner & Bratton, Inc. (GBB) to assess and analyze current recycling activity and to evaluate how the County might offer greater opportunities to its residents, businesses, and institutions for diverting and recycling more material from landfills, and more convenience when doing so.

In addition to its own County initiatives, other state initiatives also were driving more recycling to take place. There exists in Muskegon, and all across Michigan, waste diversion as a result of container deposit legislation. The state’s Department of Treasury reports that 95 percent or more of the deposits paid are claimed each year.² There is also a legislative inducement to recycle in the form of Public Act 34 (2004) which bans from disposal in a landfill recyclable items such as beverage containers, yard clippings, tires, waste oil, and lead acid batteries.³ Furthermore, Michigan Governor Rick Snyder has set a goal to double the state’s recycling rate from 15 percent to 30 percent,⁴ and each year hosts a statewide conference on recycling as part of efforts to do so.⁵

At that initiation of this study, legislation was pending in the Michigan Legislature which would require reporting of recyclables tonnage, beginning later in 2016.⁶ As a result, the County also wanted to know potential impacts of this legislation.

Historically, the County has not been directly involved in providing waste or collection services. It does, however, operate a landfill with approximately seven years of life remaining⁷ (with an expansion planned), provides a household hazardous waste program for its 172,000 residents,⁸ and publishes educational information to connect people with recycling services or facilities and reuse or donation options.⁹ The County’s influence, to date, has generally been best accomplished through policy, rules, partnerships, and inter-local cooperation.

Prior to the research and field observations in this study, the County knew that businesses, institutions and residents were participating in recycling. The quantity of recyclables generated by these activities, however, was difficult to determine because, in general, the services are provided by private haulers. Additionally, the County knew that curbside collection of recyclables was available to the many of households in the County through private subscription or through municipal contracts like in the City of Muskegon or Roosevelt Park. It was believed that yard waste might also be diverted in a similar manner.

¹ http://www.co.muskegon.mi.us/sustainability/sustainability_plan_summary.pdf

² http://www.michigan.gov/deq/0,4561,7-135-70153_70155_3585_4130-56198--,00.html

³ <http://www.legislature.mi.gov/documents/2003-2004/publicact/pdf/2004-PA-0034.pdf>

⁴ http://www.michigan.gov/deq/0,4561,7-135-70153_69695-313206--,00.html

⁵ <http://www.michiganrecycles.org/images/2016Conference/MRCSSummitConference2016Brochure.pdf>

⁶ <http://legislature.mi.gov/doc.aspx?2015-SB-0507>

⁷ http://www.michigan.gov/documents/deq/DEQ-OWMRP-SW_Landfill_Annual_Rpt_FY2015_512594_7.pdf

⁸ <http://www.co.muskegon.mi.us/hhw/>

⁹ http://www.co.muskegon.mi.us/solidwaste/2014-2017_recycle_guide.pdf



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Drop-off of recyclable materials was known to be available at transfer stations and best serve the less densely populated areas of the County, but, again, quantities and participation were unknown.

The first task of this project was to generate baseline data and a framework for future reporting, including a recycling rate. In addition to supporting the County in compliance with any new legislation that might be enacted, this provided a quantitative means for evaluating present and future recycling and waste reduction activity. The second task of this project was a survey of ideas, suggestions, recommendations, and aspirations for recycling from across the country. The third task prepared a refined set of programs and actions most appropriate for the short-term in Muskegon County, and explored the resources and timelines needed to implement them.

Findings of the Existing Conditions Study

The project began with a kickoff meeting in Muskegon County in August 2016, which included the following initialization and information-gathering activities:

- Collaboration between GBB and the County to clarify the project tasks and methodologies;
- Clarification and expansion of GBB's understanding of the solid waste management system in Muskegon County;
- Site visits to the County Landfill; six rural transfer stations; and, the Community Recycling Materials Recovery Facility (Republic Services);
- Stakeholder meetings with the Muskegon County Recycling Committee; locally-operating waste haulers; community members; and, representatives of the municipalities in Muskegon County; and,
- Field observations of residential, multi-family, and commercial recycling routes and containers.

GBB prepared notes and observations on both the background information provided and its primary research on site in Muskegon County, and prepared findings of the existing condition of recycling in Muskegon County. The findings are summarized as follows:

- Most single-family homes in Muskegon County have access to curbside or roadside collection of trash and recyclables; however, there are barriers to participation which include lack of information, hesitance by some haulers to promote recycling due to economic factors, and a moderate level of engagement regarding recycling. Some routes have been discontinued due to low levels of participation.
- Many residents can access recycling services via the drop-off facilities at the rural transfer stations; however, these facilities are open only to residents of the operating municipality, and not all of them have comprehensive recycling services.
- Commercial recycling appears well-established across the County, with both large and small generators having both garbage and recycling service at their establishments. This information is not reported to the County on a regular or routine basis.
- Larger haulers have excellent access to processing facilities; however, smaller haulers report economic and operational challenges transporting collected recyclables to processing facilities.
- Due to a shortage of documented information, the State of Michigan relies on generation figures, facility reports, and projections to calculate recycling rates for the state and for localities. The lack of detailed reporting from all sources has resulted in the State calculating a rate for Muskegon County that demonstrably does not account for all of the recycling activity that is ongoing. As of



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2017, GBB calculates a documented recycling rate for Muskegon County of 11.16 percent. This rate cannot include all of the recycling activity that was observed by GBB, particularly at the rural transfer stations, because tonnage data cannot be calculated. This rate does, however, reflect all of the tonnages that GBB could obtain and use confidently, including much of the commercial recycling.

The results of the research were compiled for the County and transmitted in an interim report which was reviewed for accuracy by the County. The content comprises Section 2 of this report.

Results of Survey of Program Enhancements

With the baseline established for recycling in Muskegon County, GBB prepared a survey of programs from across the United States wherein other localities are using creative and innovative methods to divert waste from landfill. Five categories of opportunities to increase recycling and waste diversion were explored:

- Policy Changes
- Collection and Transfer Operations
- Regional Collaboration
- Education and Outreach
- Management and Data

Overall, twenty-six programs were researched and summarized in an interim report to the County. In addition to the nationwide program survey, the County requested GBB to prepare profiles of two other Michigan counties about which it wanted a deeper description: Emmet County and Kent County. Emmet County has many creative and high-profile programs, with a rich outreach effort. Kent County aggressively pursues waste reduction and recycling in tandem with efforts to maintain disposal capacity for the County and the cities in its region.

The survey of programs served to provide a panorama of the types of creative and innovative programs other counties and cities in the U.S. have undertaken in order to reduce waste going to landfill. The methods and aspirations of some of the programs contributed directly to the recommended actions for the County to take, described in Section 4. Examples include hauler licensing programs and interlocal agreements where a larger government unit provides procurement services for groups of smaller municipalities. Some were feasible but determined to have less impact per program dollar than desired—programs such as volunteer corps and school-based awards programs. Many were not currently suited for Muskegon, such as inspection and enforcement programs or direct provision of collection services. Review of this broad spectrum of programs allowed the project team to focus on what types of programs warranted further analysis in the next task.

The results of the program survey and the community profiles were assembled into an interim report, which was reviewed and discussed as part of advancing to the next task, and the content is contained in Section 3 of this document.

Transition to Program Action Analysis

After reviewing the sample programs provided by GBB, and drawing on the input from the stakeholders in the Existing Conditions Study and the research in the Survey of Program Enhancements, the County described for GBB the types of programs and actions it would like to see discussed further. Specifically,



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the County wanted to address the following barriers that are limiting recycling or preventing the County from tracking the quantities that are recycled:

- A lack of unified County policy and, effectively, a “patchwork” approach to service provision that makes education difficult;
- The need for tracking and documentation of commercial recycling;
- Marketplace conditions wherein the curbside collection of recyclables is included in all pricing but haulers are hesitant to promote it due to the associated costs;
- A conundrum wherein many residents are entitled to recycling service—are technically paying for recycling service—but due to an opt-in system, a shortage of information, or a lack of interest, they do not take part; and,
- A network of rural transfer stations that are underutilized as solid waste management locations but are hesitant to expand services due to financial challenges and a perception expressed by several parties that the low user fees result in the municipalities subsidizing waste management for a small fraction of residents.

Having determined that these were the most pressing issues, the County directed GBB to provide greater context on the following three approaches to influencing more recycling participation and engagement:

- Policy Changes
- Removal of Barriers to Market
- Improvement of Residential Services at the Curb

Working together with the County staff, GBB outlined specific programs within these three approaches. Each approach was developed into a specific program action. Figure 1-1 shows the program actions reviewed and described in Section 4, which GBB recommends for short-term implementation to have a measurable impact on recycling in Muskegon County:



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Figure 1-1 Waste Reduction and Recycling Programs Analyzed for Muskegon County

Change Through Policy	Establish a licensing program for private haulers in order to expand recycling and collect data
Removal of Barriers to Market	Establish a recycling transfer station at the Muskegon County Landfill to provide more market access for haulers
	Develop a waste exchange with Kent County to transport recyclables to the Kent County MRF in bulk, rather than in small quantities
Improving the Municipal Residential Transfer Station System	Provide advice and leadership to the operating municipalities to improve the level of service at the facilities
	Act as an agent on behalf of the municipalities for procurement of services in order to achieve economies of scale and reduce costs
	Operate the transfer stations as County facilities to provide uniform service and relieve municipalities of operational duties

Each idea is discussed in terms of how it might be implemented, what resources would be needed, how much time would be required, and what the intended outcome of the program would be. Each program idea was developed keeping in mind the County’s preference for actions of positive influence and the critical need to improve data gathering. The results of this analysis constitute Section 4 of this report.

Conclusions and Recommended Timeline

At present, there is a broad spectrum of opportunity for residents and businesses in Muskegon County to recycle. There is a wide variety of service providers, more than one processing facility, ready access to markets, and a tradition of diverting material from disposal in the form of the container deposit system. Reported tonnages remain low due to a combination of absent reporting and a moderate level of engagement, which exacerbates the economic challenges experienced by the haulers and the municipalities providing service. Notably, available information does not reflect what was observed. As discussed in Section 4 and Section 5, GBB concludes that there is ample opportunity for the County to exert positive influence over each of these factors through modest programs and capital investment within a span of three to four years. Adopting the program actions recommended in Section 4 should result in additional participation in recycling at the curb, at the transfer stations, and at places of business. Additionally, the data gathering will enable the County to show its residents and the State that Muskegon County recycles.



2 Existing Conditions Study

For the first phase of this Recycling Study, a solid waste consultant, Gershman, Brickner & Bratton (GBB), was contracted to determine a baseline of the current waste management and recycling that is taking place in Muskegon County, Michigan. The goal of this study was to determine a baseline of existing waste management methods, recycling rates, infrastructure, services, and actionable recommendations that will increase recycling rates in the County of Muskegon, and the region. This will benchmark the existing condition in the County and allow any proposed changes to existing practices to be quantitatively analyzed to determine the impact.

Specifically, the study researched and assembled the following information and data:

- Disposal facilities taking Muskegon County waste with total annual tons and percentage delivered to each disposal facility.
- Recycling facilities currently accepting Muskegon County recyclables with total annual tons and percentage delivered to each facility.
- Waste and recycling haulers and a description of their market activity, in order to determine approximate coverage for recycle services, described both as a percent of the population and as a percent of the geography of the County.
- Waste and recycling infrastructure within Muskegon County and waste disposal and recycling tonnages.
- Discussion and comparison of available data with emerging state data collection requirements.
- Review of the above data, local, regional, and national best practices to make a determination of which action is needed to foster a more robust recycling program, or if the programs within the County are positioned well with the status quo.

The following is the result of the work that was conducted during the period of August – October 2016.

2.1 Existing Disposal and Recycling in and Around Muskegon County

Most single-family homes in Muskegon County have access to curbside or roadside collection of trash and recyclables. Some residents report being unable to obtain curbside service due to service limitations, and the curbside contract in place for City of Muskegon Heights does not provide for recycling. The remainder of homes have either a) collection service negotiated and contracted on their behalf by the local government or a neighborhood association, or b) unrestricted access to subscription service, if they are willing and able to pay market rates. Nearly all haulers report that they offer recycling collection as an optional service, and the open market for subscription service allows customers to find and retain the level of service they want. General consensus appears to be that there are no neighborhoods or public roads considered “unserviceable” due to obstacles such as terrain, slope of vehicular approach, seasonality of access, etc. Nevertheless, some residents have reported being told their home is “too rural” or too remote.

Beyond curbside service, both the rural and urban areas of Muskegon County are served by a network of commercial recycling centers, scrap recyclers, and government-operated transfer stations. In the rural areas, many people bring their waste to these drop-off locations rather than having curbside collection. They pay for services, primarily per-bag or per-unit, and in some cases by volume (e.g. by the truckload). These government-operated facilities are open only to residents of their designated service areas. Most



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of these facilities operate in a deficit, meaning that the townships effectively subsidize waste disposal and recycling service for patrons of the transfer stations.

Of the eight facilities featured in Table 2-1, three offer a comprehensive set of services: Dalton, White Lake Area,¹⁰ and Fruitland. In addition to household waste, these facilities accept a wide variety of recyclables, including yard waste, scrap metal, automotive fluids, and tires. Holton and Cedar Creek offer more limited service, although they do accommodate residents seeking to properly manage and divert yard waste and whole tires (both of which are banned from landfill disposal in Michigan¹¹) as well as valuable scrap metal. There are two single-material or specialty facilities in Table 2-1.¹² The Muskegon Township Transfer Station accepts trash which is consolidated and later hauled to Autumn Hills Landfill in Zeelandt. As a separate activity, it also accepts yard debris for processing which is why it is also sometimes called the “Leaf Drop-off Site” or the “Compost Site.” It accepts only brush, bagged grass, and bulk or bagged leaves.¹³ Only paper bags are allowed: no plastic. Beyond the borders of Muskegon County, the Kent County Materials Recovery Facility (MRF) accepts recyclables from several of the waste haulers in Muskegon County that provide curbside recycling collection.

In addition to the public sector facilities in Table 2-1, people who live and work all across Muskegon County have other opportunities to divert material from landfill for proper management, reuse, or recycling. The Muskegon County Sustainability Office maintains and updates a listing of such facilities, which is shown in Table 2-2. There is also a recycling drop off co-located with the Community Recycling Services MRF, owned and operated by the largest solid waste hauler in Muskegon County, Republic Services. This facility collects mixed recycling, bales the material, and transfers it to other west Michigan locations for processing. Community Recycling Services is open to other private haulers in the area that collect recyclables, and has a free residential drop off for the same materials which are accepted in their residential curbside collection program. Several large local scrapping facilities accept metals, appliances, electronics, and paper from the public. These facilities are generally in the more urban and heavily-populated western portion of the County, and provide similar services as the drop offs available in the more rural portions of the County. For building materials and land clearing debris, there are several for-profit and charitable facilities which accept material for reuse or recycling. Finally, beyond the borders of the County, Westshore Recycling and Transfer Station in Holland accepts deliveries from its own routes and from other sources, such as several of the transfer stations in Muskegon County.

¹⁰ White Lake Area covers six municipalities: City of Montague, City of Whitehall, White River Township, Montague Township, Whitehall Township, and Blue Lake Township.

¹¹ Section 11514 of Part 115, Solid Waste Management, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA), was amended by 2004 PA 34 to prohibit a person from delivering to a landfill for disposal, and a landfill owner or operator, from permitting the disposal in a landfill, of certain materials. Among these are yard clippings and scrap tires. http://www.michigan.gov/deq/0,4561,7-135-3312_4123-96663--,00.html

¹² Holton previously hosted an unmanned single stream recycling drop off station a short distance from its transfer station. It had been placed by Recycle for Newaygo who then transported the materials to the Kent County MRF. As of December 2017, the drop off station was removed due to problems with illegal dumping of refuse and debris at the site.

¹³ One exception is during Spring Clean Up, when residents can bring other bulky items to the transfer station.



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Table 2-1 Public Sector Muskegon County and Regional Solid Waste Reuse and Recycling Facilities

Public Facility Name, Address, and Phone Number	Operating Days and Times		Materials Accepted ¹⁴						Payment Accepted		Notes
	Wednesday	Saturday	Trash	Single-Stream Recyclables	Multi-Stream Recyclables	Yard Waste	Automotive Fluids	Tires	Cash	Tickets	
Dalton Township Transfer Station 291 W Michillinda Rd., Twin Lake (231) 766-3043	Closed	8am-4pm	•	•		•	•	•	•	•	Recyclables are hauled to Westshore Recycling and Transfer Station in Holland; yard waste never removed, just keep pushing it back
White Lake Area Transfer Station 2100 Holton Whitehall Rd Whitehall (231) 893-2095	8am-4pm	8am-4pm	•		•	•		•	•		Joint operation includes: City of Montague, City of Whitehall, White River Township, Montague Township, Whitehall Township, and Blue Lake Township; also accepts furniture and appliances
Fruitland Transfer Station 5281 W Michillinda Rd., Whitehall (231) 766-3208	10am-4pm	8am-4pm	•	•		•	•	•	•	•	Yard waste ground and removed every 18 months or so at great expense
Holton Transfer Station 7675 Holton Duck Lake Road, Holton (231) 821-0160	Closed	8:30am-4:30pm	•			•		•		•	No recyclables, just scrap metal; allow people/companies to come take dropped-off yard waste for free

¹⁴ Single-Stream Recyclables means that common household recyclables (plastic, metal, and glass food and beverage containers along with paper of all types) are collected together as one “stream.” Multi-Stream Recyclables means that the different material types are collected separately in multiple “streams,” typically because this is how the end user wants to receive them or because they are going to different end users.



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Public Facility Name, Address, and Phone Number	Operating Days and Times		Materials Accepted ¹⁴						Payment Accepted		Notes
	Wednesday	Saturday	Trash	Single-Stream Recyclables	Multi-Stream Recyclables	Yard Waste	Automotive Fluids	Tires	Cash	Tickets	
Cedar Creek Transfer Station 6705 Holton Duck Lake Rd., Twin Lake (231) 821-0014	Closed	8:30am-4:30pm	•			•		•		•	No recyclables, just scrap metal; allow people/companies to come take dropped-off yard waste for free
Muskegon Township Transfer Station & Compost Site 101 N. Quarterline Rd., Muskegon (616) 292-8066	Monday – Friday 8am – 3pm Saturdays 10am – 2pm Open seasonally					•					The Transfer Station primarily operates to accept and transfer commercial waste. There are a couple times a year when their residents can bring waste for a free dump day. Residents and customers with passes may bring bagged or bulk leaves, grass clippings, and brush less than 4” in diameter to the DPW seasonally. Bagged leaves must be in paper yard waste bags.
Kent County Material Recovery Facility 977 Wealthy SW, Grand Rapids (616) 632-7940	Monday - Friday 7:30am - 4pm			•							Accepts single stream recyclables from commercial haulers



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Table 2-2 Private Sector Muskegon County and Regional Solid Waste Reuse and Recycling Facilities

Private Facility Name, Address, Phone Number	Operating Days	Materials Accepted ¹⁵
Community Recycling Services (CRS) (owned & operated by Republic Services) 1970 Port City Blvd., Muskegon (231) 773-8551	Mon - Fri 7 am - 3:45 pm	Multi-stream recyclables (Plastics (#1-7), glass, paper, cardboard, metal)
Beacon Recycling, Inc. 1241 E. Keating Ave., Muskegon (231) 727-0722	Mon-Fri 8 am - 4:30 pm	Metals, paper, plastics, etc.
PADNOS Shoreline Recycling Services 259 Ottawa, Muskegon (231) 722-6081	Mon - Fri 8am - 4:15pm Sat 8am - 11:30am	Papers, plastics, metals and more
West Michigan Recycling Center 40 Harvey, Muskegon (231) 773-7582	Mon - Fri 8am - 4:45pm	Will purchase steel (short and long), car bodies, appliances, and cast iron.
White Lake Excavating, Inc. 2571 Holton-Whitehall Road, Whitehall (231) 894-6918	Mon - Fri 8am - 4:30pm (April-Nov)	Brush and stump grinding; leaf, grass and dredge spoil composting; asphalt and concrete
Habitat for Humanity ReStores (3 locations) 280 Ottawa St., Muskegon (231) 727-6020 4345 Airline Rd., Norton Shores (231) 737-4939 112 E. Colby St., Whitehall (231) 894-0880	Mon - Fri 9 am - 6 pm Sat 9 am - 3 pm	Appliances, cabinets, doors, electrical parts, fans, flooring materials, hardware, lighting, lumber, trim, mirror, glass, latex paint, wall covering, pipe, PVC, metal/copper, plumbing, tubs, sinks, showers, roofing material, gutters/canals, tools, windows, screens, etc.
Westshore Recycling and Transfer Station 4368 60th St., Holland (616) 494-0561	Monday – Friday 8am – 4:30pm Saturday 8am – 11:30am	Single stream recyclables (Plastics (#1-7), glass, paper, cardboard, metal)

¹⁵ The various descriptions of accepted materials are based on information provided by the facility. Actual specific materials accepted may vary.



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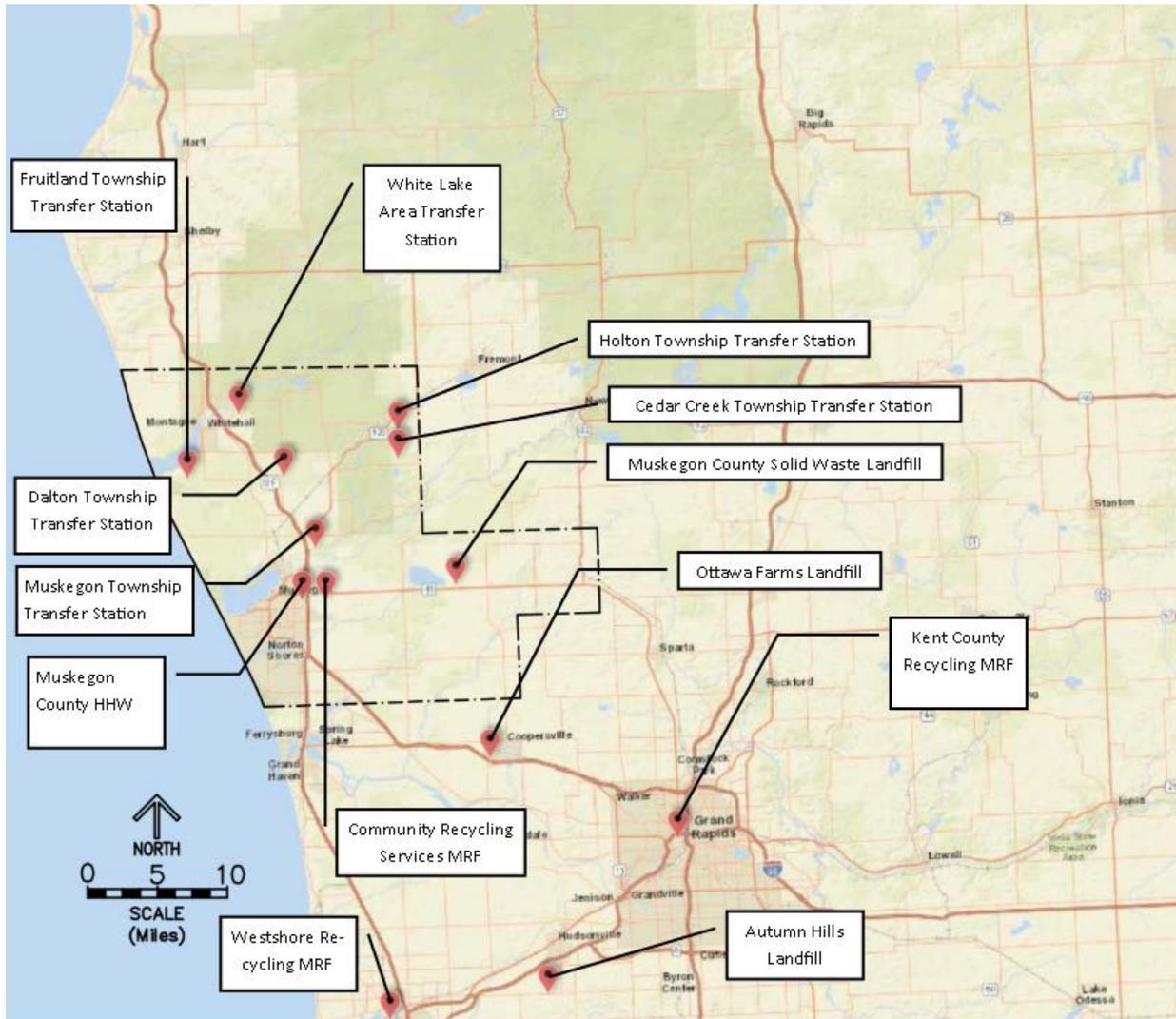
For proper processing and disposal of waste that cannot be reused or recycled, Muskegon County is served by its own public sector landfill; a public household hazardous waste (HHW) facility; and, two privately operated landfills outside the County which generally accept only their own material from inside Muskegon County. These facilities are detailed in Table 2-3.

Table 2-3 Muskegon County and Regional Solid Waste Management Facilities

Private Facility Name, Address, Phone Number	Operating Days	Materials Accepted
Muskegon County Landfill 9366 Apple Ave., Ravenna (231) 724-6001	General Access: Monday – Friday 8am – 4:30pm Saturdays 8am – 2pm	No large appliances, liquid paint, yard waste, whole tires, propane tanks, hazardous waste, or materials banned from landfilling. Accepts waste from Muskegon, Ottawa, Oceana, Mason, Newaygo, and Lake Counties
Muskegon County HHW 1300 Keating, Muskegon (231-724-6001 option 4)	1pm – 3pm on the 2nd and 4th Friday of each month, May thru October; also, two Saturday events each year the 4 th Saturday in April and the 3 rd Saturday in October). The Saturday events collect HHW, Tires, Electronics, and Confidential Document Shredding from 9 AM – 1 PM.	At the bi-weekly collections, the HHW facility accepts: <ul style="list-style-type: none"> • Petroleum products, • Automotive Fluids, • Antifreeze • Pesticides • Insecticides • Herbicides • Aerosol cans (containing hazardous materials) • Acids and Bases (e.g., Muriatic acid, Drain cleaner) • Alkaline and rechargeable batteries. During the two Saturday events, the list of acceptable items is expanded to include electronics, tires, and document shredding.
Ottawa County Farms, Operated by Republic Services 15550 68th Ave., Coopersville (616) 837-8195	Monday-Friday 7am-4:30pm Saturday 7:30am-11:30am	Landfill accepting municipal solid waste
Autumn Hills Recycling & Disposal, Operated by Waste Management 700 56th Ave., Zeeland (616) 688-5777	Monday-Friday 6am-4:30pm Saturday 7am-11:30am	Landfill accepting municipal solid waste

The following maps show the locations of all the facilities listed in these tables. The map in Figure 2-1 shows the transfer stations, landfills, and MRFs from Table 2-1 and Table 2-3. The map in Figure 2-2 shows the facilities in Table 2-2.

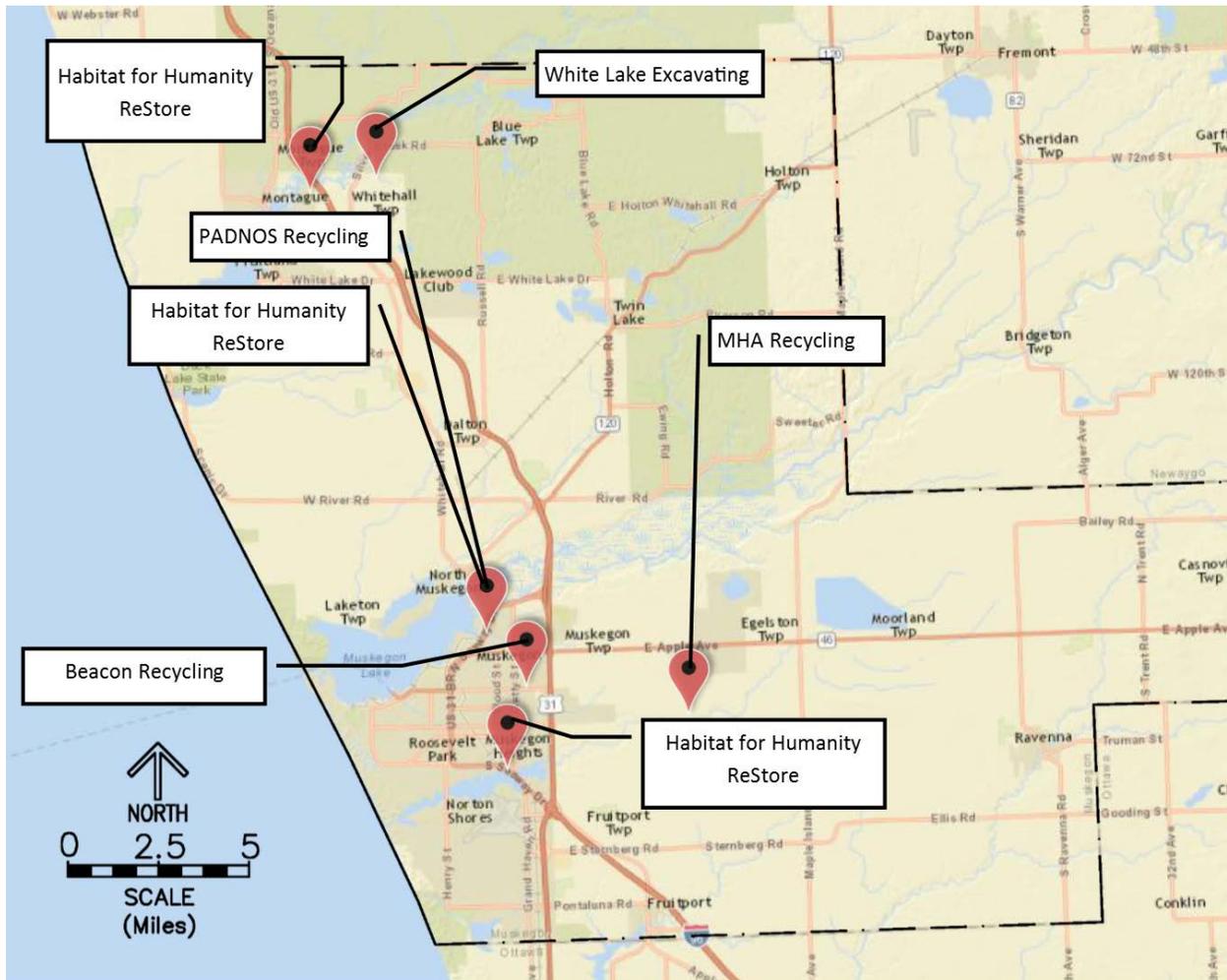
Figure 2-1 Map of Transfer Stations, Landfills, and MRFs serving Muskegon County



Commercial establishments and customers are welcome to bring waste to the County Landfill or to one of the industrial or non-profit recycling and reuse resources shown in Figure 2-2; however, they cannot use the transfer stations, which are reserved for residents of the individual municipalities, only. As a result, commercial establishments that need waste collection presumably arrange service from one of the haulers operating in the County. Nearly all haulers provide commercial service. Most service of front-end loading (FEL) containers—commonly known as “dumpsters”—is provided by the four largest haulers, and predominantly by the two national companies. In the outlying, more rural areas, many businesses have trash service in one or more residential-style rolling carts or in small FEL containers, which can be serviced

by the same type of rear-loading truck, while some others have larger FEL containers that are serviced by front-loading trucks.

Figure 2-2 Industrial and Non-Profit Recycling and Reuse Resources Serving Muskegon County



During field visits conducted on August 31, 2016, GBB observed more than 40 waste set outs and container arrangements at several commercial centers in the more densely developed areas of the County.¹⁶ At the largest properties that were observed, such as malls and major shopping centers, nearly all customers had containers for recycling cardboard or mixed paper (including cardboard). Even at many smaller centers, with five or fewer tenants, there was recycling in place more often than not. The four apartment and condo complexes GBB observed, however, did not have recycling.

Finally, there is an assortment of retailers and charities which accept for recycling or reuse specific materials, such as electronics or appliances, at little or no cost. Listings for these options can be found in the *Muskegon County Household Recycling & Disposal Guide*, included in this report as Appendix A.

¹⁶ The GBB field visits were intended as a general observation period and the entire County was not assessed. The observations related herein reflect only what was directly observed.



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Overall, this data and GBB's observations show that there is a comprehensive network of drop off facilities for a considerable portion of residents and businesses in Muskegon County to reduce, reuse, recycle, and properly manage waste. The condition of these resources, however, is unstable. As noted, the rural transfer stations mostly operate at a deficit, with public funds subsidizing their operations. Over the course of this study, one recycling drop off center closed. Private sector scrap recyclers could change or go out of business at any time. The curbside collection contracts that do not provide recycling service effectively block those residents from accessing recycling, since they are not admitted to any drop off centers except for the handful of private sector scrap facilities or the one remaining recyclables drop off center at CRS.

2.2 Results of Outreach to Haulers

On August 31, 2016, the ten commercial waste haulers operating in Muskegon County were invited to meetings to discuss their operations in the County and the recycling participation by their customers. Five attended the meetings and discussed their experiences. One additional hauler later completed a survey; four were nonresponsive. For this reason, and in the absence of additional reporting, the existing conditions study can only comment on the hauler information that was provided.

The discussions during the August 31 meetings were guided by a survey document, provided in Appendix B, which was also given to each of the haulers. They were asked to complete the survey and return it to GBB.¹⁷ Five surveys were returned, which included four of the haulers who attended the meetings plus one other hauler who GBB followed up with and who agreed to participate.¹⁸

Most of the haulers who participated collect from single family homes, townhouses, and condos. Only one hauler indicated collecting from commercial, institutional, or industrial properties. When asked for confirmation, some haulers did note that they collect from small businesses and multi-family properties along their routes using residential-style containers, such as rolling carts. The national, vertically integrated haulers that also own landfills or MRFs, or both, transfer material to their own facilities. The local haulers that replied to the survey haul their trash to the Muskegon County landfill.

All but one of the participants indicate that they do offer recycling to their customers, and most indicated there is no separate fee structure—customers can opt in or not, their choice.¹⁹ They accept a full range of household recyclables, and checked most of the boxes provided in the survey. The other haulers who responded to the survey said that the materials they accept are determined by what is accepted at the MRFs where they deliver their recyclables, and all of them are currently using the Kent County MRF in Grand Rapids. As such, they collect recyclable single stream materials, with paper, bottles, cans, and jars commingled in one cart or bin. Several haulers noted that they don't promote recycling heavily to their new or existing customers because they have concerns about the economic volatility associated with recycling collection. The haulers reported that the longer drive to Grand Rapids reduced profit margins on

¹⁷ The individual and specific responses of the haulers who participated in the meetings and who completed the survey were promised to be held in confidence by the consultant. Much of the information related by the haulers is considered by them to be proprietary and in need of protection from scrutiny by their competitors.

¹⁸ In this context, the descriptors "participating" or "responded" refer to those that attended the meetings, submitted a survey, or both. If differentiation between the survey responses and the meetings is relevant, it will be noted.

¹⁹ The exception is in City of Muskegon, where residents who opt-in pay an additional fee per month for recycling.



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the recycling service, and at the time of the survey expressed concern about the impending increase in the tipping fee for recyclables.²⁰

All of the haulers said that they provide containers such as carts or bins for their customers to set out recyclables. Carts generally have a capacity of 64 gallons. Most will still provide small bins upon request from the customer. All but one of the participants indicated that they collect yard waste for composting. Most of them deliver it to one of several local excavation or land clearing firms who process and use the materials for various purposes.

The haulers were asked to relate reasons that their **customers** have given for why they do not want to recycle. Answers the customers gave included:

- Perceived costs, both for the collection service and (for commercial customers) the time required to separate recyclables;
- Inconvenience or “hassle” to source separate;
- Perception that recycling is a sham and the materials aren’t actually being recycled;
- Inconsistent interest that ebbs and flows—for example, haulers noted that they can tell when recycling has been promoted to school children because they get more requests for bins and they see volumes surge, but then recede after a few months.
 - They also commented that recycling volumes can surge by roughly a third in the summer when people consume more bottles of water and, in a recent trend, bottled hard cider, which is a fermented beverage that is not part of Michigan’s bottle bill program.

The haulers were asked what, in their opinion, would have a long-lasting impact to increase recycling amounts and participation.

- Referring back to surges due to school-based instruction, they suggested that ongoing reinforcement of the importance of recycling to school children would impact both the students’ parents and also the students’ own actions when they become adults.
- It was suggested that if collection of recyclables by all haulers was required as a rule or law, it would take away any possible price manipulations, level the playing field in a business-sense, and normalize recycling as a regular part of trash collection instead of something “extra.” Relatedly, haulers shared that “people recycle because their neighbors do,” a phenomenon that is well-known to solid waste professionals and documented in academia as well.^{21,22}

²⁰ Kent County sent a letter to all customers on or about June 21, 2016, informing them that the rate would increase from \$10 per ton to \$40 per ton in January 2017.

²¹ Oskamp, Stuart. "Resource Conservation and Recycling: Behavior and Policy." *Journal of Social Issues* 51.4 (1995): 157–177. Print.

²² Burn, Shawn. "Social Psychology and the Stimulation of Recycling Behaviors: The Block Leader Approach." *Journal of Applied Social Psychology* 21.8 (2006): 611–629.

- Several haulers noted that if there were a facility to which they could deliver recyclables which was wide-open like Kent County but closer to their routes, it would make better economic sense for the haulers.²³

There were several points related to possible actions by the County about which the responding haulers had general consensus:

- All of the haulers that take their recyclables to Kent County expressed doubt about their ability to continue to collect recyclables after the Kent County MRF tipping fee increases. They noted that to do so would result in an economic “loss” for them on those tons, but at the same time they say that they cannot increase prices to cover the loss. They predicted that the best-case outcome if they increase their prices or charge for recycling would be that customers decline recycling service, while the worst-case outcome would be that customers switch to another company for their service.²³
- Most of the haulers expressed that there isn’t necessarily opposition to recycling among their customers, there just isn’t a lot of interest. Even though nearly every existing trash customer could have recycling at no additional charge if they wanted to, one hauler estimated only half of his customers have bins or carts. Other haulers and areas of the County are known to have even lower engagement. One hauler cited a customer base where only 0.6% of customers have recycling containers.
- Only one of the responding haulers said that the firm does public education or outreach activities such as conducting waste audits for customers. Nearly all of the firms agreed that they would be willing to distribute to their customers educational materials that might be provided by the County, such as the *Muskegon County Household Recycling & Disposal Guide*.

While haulers generally were open to the idea of supporting efforts to expand recycling activity in the County, they had a few concerns of note:

- One hauler had reservations about distributing materials such as the current version of the *Guide* because it features contact information for all the haulers—i.e., the competition.
- One hauler opined that recycling rates will remain low unless and until more yard waste is recycled or the yard waste recycling that is ongoing is better counted.
- A few haulers expressed concern about or related their experiences regarding capital expenditures to collect recyclables. One hauler told about investing in trucks to collect recyclables, and how that equipment is now idle. Those listening to the story affirmed that they were concerned about finding themselves in the same situation.

We also asked the haulers to estimate how many tons per week they deliver to a MRF from their Muskegon County customers. Five of the haulers provided information on how much they deliver and to which MRF they deliver it. The smaller-volume haulers reported that they deliver to Kent County MRF, but the couple of largest haulers (accounting for the vast majority of recyclables collected in Muskegon

²³ These comments are a good example of conflicting reporting. The CRS MRF was not acknowledged as an option, and no reasons were given in the surveys or comments for why not; however, the operator of the CRS MRF maintains steadfastly that the facility is open to all customers.

County) deliver to Community Recycling Services, Westshore Recycling MRF, or another, unnamed out-of-county MRF.

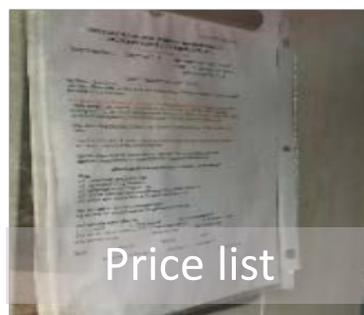
2.3 Results of Outreach to Municipalities

Similar to the meetings and interviews with haulers, local municipal leaders were asked to participate in the study. GBB had several opportunities to speak with such individuals: during the Solid Waste Planning Committee and Recycling Stakeholder meetings on August 30, 2016; on site at five rural transfer stations later that day; and, at a meeting of municipal leaders held on September 1, 2016. During these meetings and in follow-up conversations, information was requested to help determine how much material is being diverted from disposal in Muskegon County.

2.3.1 Dalton Township Transfer Station

This facility is open two days a week and accepts household single stream recyclables which are taken to Westshore Recycling and Transfer Station in Holland via transfer company CHEF. Dalton Township leaders commented that they find the service to be expensive. Many other materials are also accepted, including tires of all sizes, phonebooks, some batteries, and yard waste. The supervisor reported that the collected yard waste has never been removed. He stated that residents bring bundles of brush, bags of grass or leaves, etc., and dump it, but nothing is ever formally removed. He noted that the pile originally began at the fence line and has slowly advanced forward while simultaneously breaking down naturally, and pointed out plants and trees that are growing abundantly from the pile.

At this transfer station, residents can pay with cash or prepaid tickets. While all of the transfer stations were closed to customers when GBB visited on August 30, 2016, this was the only location which did not have prices prominently posted, and there seems to be some uncertainty as to how fees are assessed.



Photos of Dalton Township Transfer Station

2.3.2 Fruitland Township Transfer Station

Also called the Ecology Station or Sustainability Station, this facility accepts trash, household single stream recyclables, yard waste, tires, and automotive fluids. Recyclables are taken to Westshore Recycling and Transfer Station in Holland via transfer company CHEF. Approximately every 18 months, the yard waste is ground and removed at great expense. The supervisors estimated that 20 percent of Fruitland residents use the Transfer Station, which costs \$50,000 to \$60,000 per year. Prices were posted clearly, and the elected and staff officials have been working on a multi-year effort to reduce the annual operating costs. Other ideas discussed included grinding yard waste on-site and distributing it as mulch; promoting battery recycling; and, collecting electronic waste in a trailer for recycling.



Recycling



Yard Waste



Scrap Metal



Price list



Trash Compactor



Trash

Photos of Fruitland Township Transfer Station

2.3.3 White Lake Area Transfer Station

This facility is owned and operated by the White Lake Area Solid Waste Authority, which is a joint effort of the City of Montague, the City of Whitehall, Montague Township, White River Township, Blue Lake Township, and Whitehall Township. The Transfer Station accepts trash, yard waste, and many recyclables. It is different from the others that accept recyclables, in that many of the materials are collected as separate waste streams that go to different markets, such as aluminum cans to the Community Recycling Services MRF and newspapers to a Boy Scout group.

This location is currently being reviewed and revised to improve traffic flow and customer service. The Transfer Station is busy, with 100-150 people per day of operation, but 200 customers on a Saturday is not uncommon. The facility accepts cash only.



Recycling



Yard Waste



Scrap Metal



Price list



Tires



Trash

Photos of White Lake Area Transfer Station

2.3.4 Holton Recycling Drop Off—CLOSED

This facility has closed since the initialization of this study. It was located a few miles away from the Holton Township Transfer Station, adjacent to the Township Hall, and was an unstaffed recycling drop off center hosted by the Township. The material was picked up by the non-profit recycling organization Recycle for Newaygo County (RNC)²⁴ and was transported to the Kent County MRF. It was costing about \$350 per month, and the four dumpsters were pulled each week. When GBB visited this site, there were piles of what appeared to be contractor waste which had been dumped illegally. Eventually, the dumping became too problematic and, as noted, the site was closed and the containers removed.



Instructions



Instructions



Drop off Center

Photos of Holton Township Recycling Drop Off Center

²⁴ <http://recyclingfornewaygocounty.org/>

2.3.5 Holton Township Transfer Station

This site is smaller than some of the others. It accepts tires, scrap metal, trash, and yard waste—no single stream recycling. The site is open on Saturdays only, and sees 70 to 75 customers a day. Switching to a voucher system for payment has helped with loss prevention, but the facility still costs about \$15,000 to \$20,000 per year to operate.



Vouchers



Yard Waste



Scrap Metal



Price list



Tires



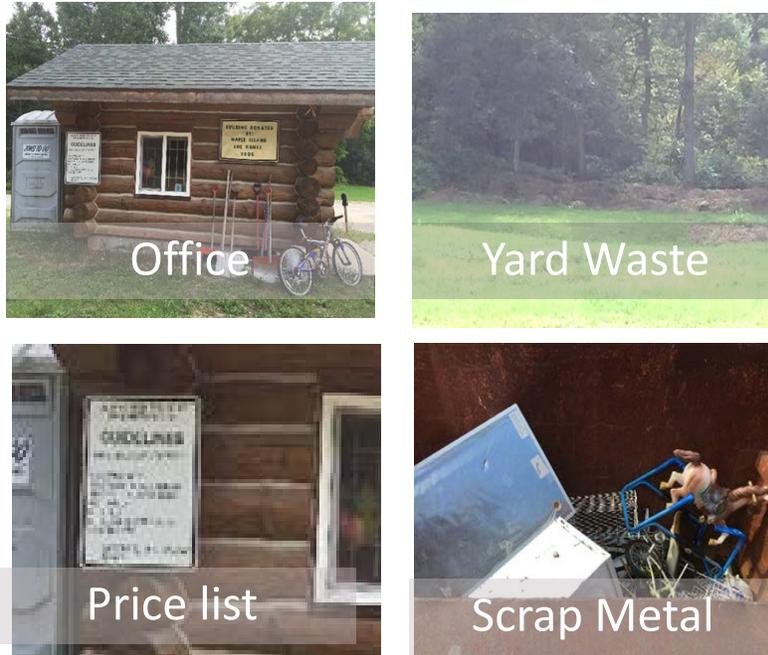
Trash

Photos of Holton Township Transfer Station

2.3.6 Cedar Creek Township Transfer Station

The smallest manned site, this facility accepts scrap metal, yard waste, and trash in an open top container. Yard waste is removed informally by individuals and businesses who come pick up what has been dropped off. There is no single stream recycling. At that time, the supervisor supposed that Cedar Creek residents might use the (now-closed) Holton Township recycling drop off, if they were so inclined. The Cedar Creek Township Transfer Station is open on Saturdays, only. In summer, the estimated customer count was 45 to 90 people; in winter, it might be 45 or less. Prices start at \$0.75 for a kitchen sized bag of trash, \$1 for a black bag, \$1.50 for a 32-gallon cart, \$3 for a roadside cart, and \$20 for a pickup-load. Additionally, each resident receives a card for free dumping annually.

Of note, the Holton Township and Cedar Creek Township Transfer Stations are less than 1.5 miles apart from each other, on the same road.



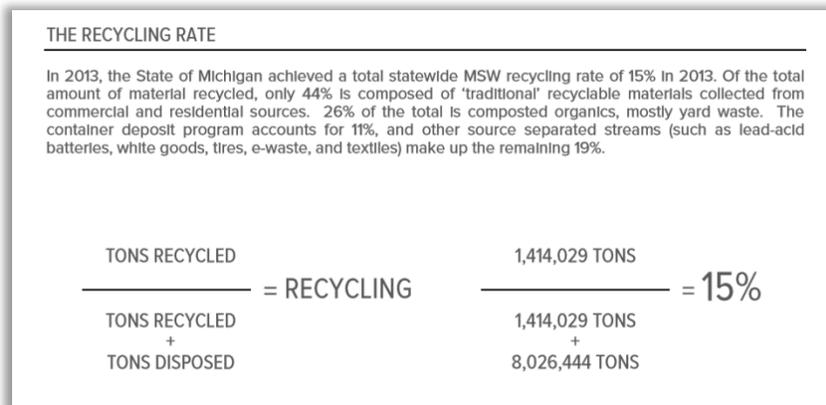
Photos of Cedar Creek Township Transfer Station

2.4 Results of research

2.4.1 How State of Michigan Computes Recycling Rates

The state of Michigan uses a straightforward “tons-over-tons” methodology to calculate a recycling rate, as illustrated in Figure 2-3. It is an excerpt showing 2013 data in *Michigan Recycling Index, May 2015*.²⁵

Figure 2-3 Excerpt from *Michigan Recycling Index, May 2015, Showing Recycling Rate Methodology*



²⁵ <http://www.michiganrecycles.org/images/MRIP2Objective1ReportFinal.pdf>



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According to *Michigan Recycling Index, May 2015*, the values in the numerator and denominator were projected upon the following data:

“Recycled MSW is discarded material that is returned to the economic mainstream through the production of new products, excluding material that is used for energy production (EPA 2013). Diverted quantities were captured through a survey administered to MRFs seeking tonnages of material recycled by communities or facilities. Tonnage was obtained from survey respondents including 53 communities, 15 counties, and 6 MRFs. Additional tonnage data was received from Michigan-based paper mills, plastics processors and takeback programs.” p.23

“Disposal tonnage was retrieved from annual fiscal report of solid waste landfilled in Michigan, as well as from reported data from two incinerators in the state including Kent and the Greater Detroit Resource Recovery Authority. Landfill disposal quantities were adjusted to avoid double-counting incinerator ash, then added to the total incoming quantities of incinerated materials less the recovered metal quantities...

“Disposed MSW is reported to the MDEQ in cubic yards, and reported material quantities are converted to tons using both generic and material-specific conversion factors. These conversions may have a significant impact on disposal data accuracy. For this calculation, reported MSW volumes were converted using the MDEQ’s methodology of 3 cy/ton of waste.” p.24

“In 2013, the State of Michigan achieved a total statewide MSW recycling rate of 15% in 2013. Of the total amount of material recycled, only 44% is composed of ‘traditional’ recyclable materials collected from commercial and residential sources. 26% of the total is composted organics, mostly yard waste. The container deposit program accounts for 11%, and other source separated streams (such as lead-acid batteries, white goods, tires, e-waste, and textiles) make up the remaining 19%.” p. 25.

2.4.2 Muskegon County tonnage information and recycling rate

Using a tons-over-tons methodology based on the State of Michigan methodology, GBB has compiled the following estimation of a recycling rate for Muskegon County. First, the following assumptions were made regarding the numerator in the calculation—i.e., “Tons Recycled”:

- Most of the rural transfer stations were not able to provide accurate information on tonnages for recycling. The transfer stations that accept single stream recycling pay by the haul, not by the ton. Information on the weights received in the roll-off containers was not available; in some cases, the number of hauls of recycling was indistinct from hauls of other materials. For this reason, neither the recycling tonnages nor the disposal tonnages from the rural transfer stations are figured into the calculations below.
- The local waste haulers who completed the survey gave estimations of how many tons they deliver for recycling to the Kent County MRF. Kent County was unable to separate its scale data by customer; therefore, the estimates from the haulers are taken at face value.
- Data provided by the larger haulers includes both their commercial and residential customers.



Increasing Recycling in Muskegon County, MI

- Yard waste recycled includes tons recycled by Republic Services and cubic yards delivered in 2015 to four registered compost sites in Muskegon County. To avoid possible double-counting, it does not include yard waste delivered to the transfer stations or collected by local haulers.
- The recycling tonnage DOES NOT, to our knowledge, include reuse, recycling, donations to charity, or beneficial use of non-MSW materials such as construction and demolition debris (CDD), nor use as alternate daily cover (ADC) in the landfill. These materials are not part of the state methodology.

Second, the following assumptions were made regarding the denominator in the calculation—i.e., “Tons Disposed:”

- The Muskegon County Landfill maintains clear tonnage records by source, including tons from outside the County and non-MSW tons. To compute the “tons disposed” for this recycling rate, the GBB used only in-county, MSW tons.
- Although the County has tonnage information for waste delivered from the rural transfer stations, as described above, accurate recycling information was not available. As stated, for this reason, neither the recycling tonnages nor the disposal tonnages from the rural transfer stations are figured into the calculations below.
- The tons disposed at the Muskegon County Landfill by the four haulers who did not provide recycling tonnage estimates were subtracted from the total.
- Data provided by the larger haulers includes tonnage from both their commercial and residential customers.

The results are compiled in Table 2-4.

Table 2-4 Estimated Recycling Rate for Muskegon County, Michigan, Fiscal Year 2015 Data

2015	Tons
Recycling	
Recycled at Kent County	2280.2
Recycled by Transfer Stations	296.05
Recycled at Other MRFs	3487.77
Organics Delivered to Registered Composters	373.68
Yard Waste Recycled (other)	3,593.63
Muskegon County Special Event Recycling	19.72
Redeemed Deposit Containers	1,861.74
Total Recycling	11,912.79
Disposal	
MSW Disposed at Muskegon County Landfill	56,809.66
Minus tons from non-responsive haulers	(9,583.31)
MSW Disposed at Other Landfills	47,532.26
Lost Deposit Containers	108.36
Total Disposal	94,866.97
11,912.79 / (11,912.79 + 94,866.97) = 11.16%	



2.5 Benchmarking Comparisons

The state reports recovery by planning region. Muskegon is part of the West Michigan Shoreline Regional Development Commission (WMSRDC), also known as Region 14. The Counties in WMSRDC are Clare, Ionia, Isabella, Kent, Lake, Mason, Mecosta, Montcalm, Muskegon, Newaygo, Oceana, Osceola, and

**Figure 2-4 “Table 4 – Recovery by Region,”
2013 data as reported in MI Recycling Index,
May 2015**

Region	Tons Recovered	Average Lbs per Household Recovered	Total Households
Region 1: SEMCOG	239,109	259	1,844,758
Region 2: R2PC	5,043	87	116,077
Region 3: SCMPC	19,157	177	216,840
Region 4: SWMPC	6,261	111	112,586
Region 5: GLSPDC	33,864	295	229,459
Region 6: TCRPC	13,236	144	183,422
Region 7: EMCOG	36,540	233	313,452
Region 8: WMRPC	35,932	166	433,931
Region 9: NEMCOG	4,218	143	58,955
Region 10: Networks NW	9,332	153	122,388
Region 11: EUPRPDC	1,891	174	21,765
Region 12: CUPPAD	4,169	114	73,020
Region 13: WUPPDR	1,120	65	34,561
Region 14: WMSRDC	8,071	145	111,294

Ottawa. For 2013, the state reported that all of Region 14 recovered just over 8,000 tons of material, as shown in Figure 2-4.

Considering that Muskegon County is one of five counties in Region 14 and reports 11,072.02 tons of recycling in 2015, it seems likely that the State of Michigan is undercounting recycling tons.

The data in Figure 2-5, below, shows the most recent data available for Muskegon County, WMSRDC, the State of Michigan, and the United States. In the case of the latter two, we have provided information from two different data sources: the Columbia University Earth Science and Engineering Center and the U.S. Environmental Protection Agency (USEPA). These sources are both well-known and respected in the industry. Their different methodological and research

approaches to assembling data and projecting into gaps makes consulting both sources a worthwhile venture.

A Note about Comparing and Benchmarking

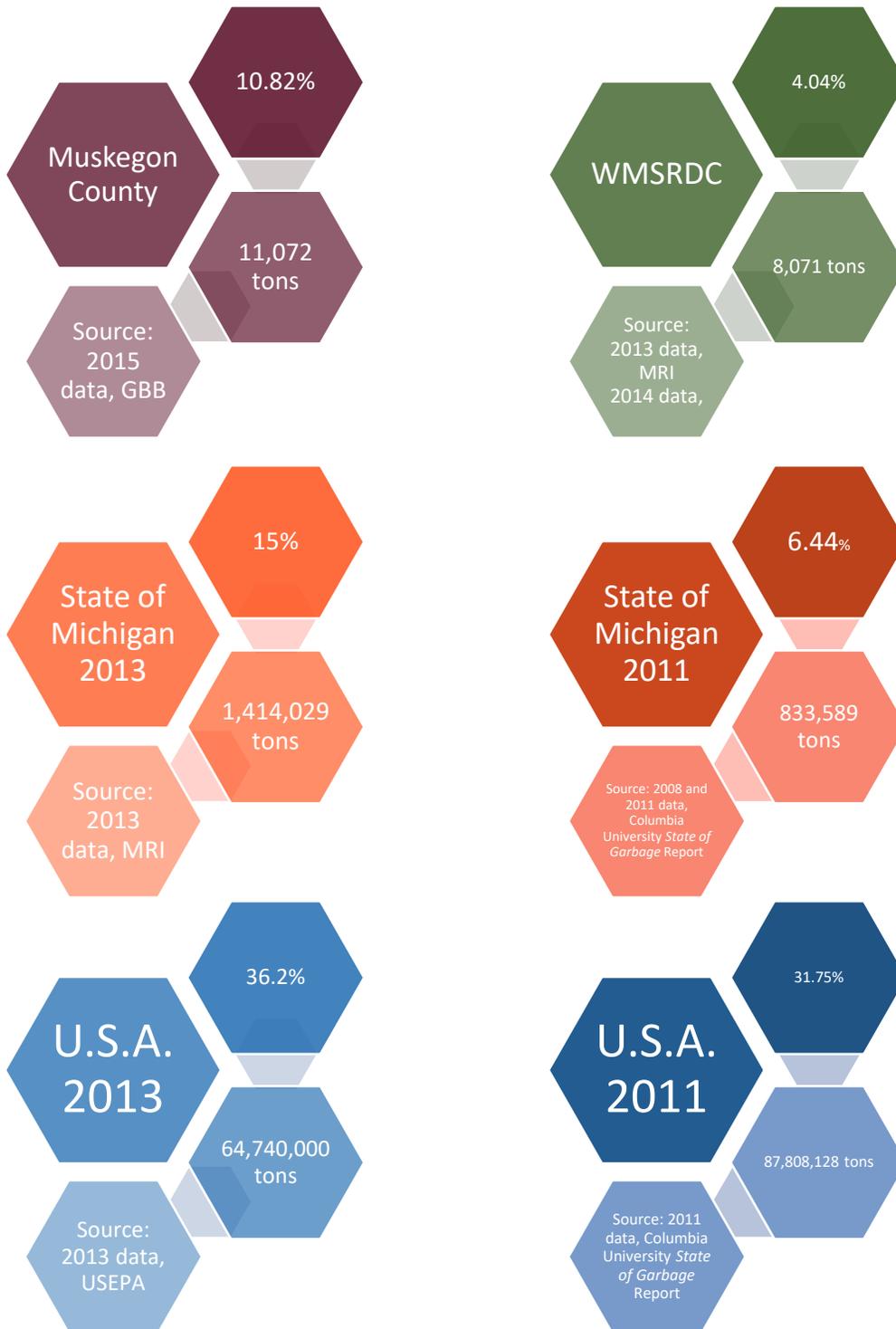
Recycling rates across the country are calculated in various different ways. While some factors in the equations are straightforward—source-separated recyclables sent to a MRF go in the numerator, garbage sent to a landfill goes in the denominator—others are not as clear. For example, sometimes the recycling values used in the equations are tons collected—i.e., what is put in the bin at the curb and weighed-in at a facility—while other calculations call for tons produced—i.e., what is marketed by the MRF after processing, less residues and contamination. Some methods give full or partial credit for material that is processed for use as alternate daily cover (ADC) in a landfill. Various communities count tons sent to a waste-to-energy facility (which combusts material to recover energy) as recycling, diversion, or disposal.

In addition to many more differences, large and small, in what “counts,” there are different methods of populating the values. A simple tons-over-tons approach can rely on hard numbers from scalehouses and weight tickets. The less data that is available, however, the more projections or estimations must be employed. This also often accompanies a larger geography, such as a state or a country. National recycling rates, for example, rely heavily on projections of waste generation that are derived from economic activity.

For all these reasons—and more—one must be especially wary when comparing the recycling rates of one community to another. In particular:

- Note if and how organics or yard waste are counted. A robust yard waste collection program that counts the diversion of organic material to composting as “recycling” may account for 30 or more percentage points on a reported rate.
- A mature, comprehensive, broadly-implemented recycling program with moderate to good participation should be able to produce a rate in the 30 to 35 percent range; if yard waste is included, it should be able to reach at least 40 percent. Generally, rates lower than these levels indicate opportunity for improvement, data shortages, or both.
- Beyond reported recycling rates, look at and compare pounds per person generation rates of both garbage disposed and source-separated recyclables. In its recent publication, *The 2016 State of Curbside Report*, the Recycling Partnership recommends “The average pounds per household metric provides consistency when comparing performance among communities and provides a budgeting figure for communities to use when expanding curbside recycling.”

Figure 2-5 Recent Recycling Rates and Tonnages from Muskegon, Michigan, and the United States



The County requested recycling data from some other localities in the U.S. The information in Table 2-5 shows four cities in the west and Midwest, and also Knoxville, TN, which is comparable but slightly smaller and has weekly recycling. Looking at the fifth row of data regarding Curbside Garbage Collection, one can



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see that the tons disposed is comparable to Muskegon County, and the recycling rates range from 11 to 20 percent. Of note, these cities also have yard waste recycling, which is not reflected or included in this table, but when added to their recycling efforts doubles, triples, or quadruples the tons recycled.

Table 2-5 Benchmarking Data for Other Cities Regarding Trash and Recycling (Source: GBB)

	Muskegon County, MI	Fort Wayne, IN	Boise, ID	Des Moines, IA	Knoxville, TN	Toledo, OH
City Information						
Population (2014)	172,344	258,522	216,282	209,220	184,281	281,031
Size (Area, mi²)	499 (land)	110.6	79.36	80.87	98.52	80.69
Population Density (people per mi²)	345	2,293	2,592	2,516	1,816	3,559
Curbside Garbage Collection						
Public or Private	Private, various; also, self-hauling	Republic Services	Republic Services	Dep. Of Public Works-Sanitation Collection Division	Waste Connection	Republic Services
Number of Households in Program	64,889	80,976	72,500	63,869	60,010	94,850
Cart Size(s)	Mostly 64 gallon	95 gallon	95, 65 & 48 gallon	64 & 96 gallon	32 gallon	64 and 96
Collection Frequency	weekly	weekly	weekly	weekly	weekly	weekly
Annual garbage Tonnage	94,866.97²⁶	87,000	741,058 cu yards	73,370	40,442	80,000
Garbage Pounds per Household per week	56.2	41.3	46.7	44.2	25.9	32.4
Curbside Recycling						
Public or Private	Private, various; also, self-hauling	Republic Services	Republic Services	Dept. of Public Works-Sanitation Collection Division	Waste Connection	Republic Services

²⁶ Includes only tons used to calculate the recycling rate in this report.



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	Muskegon County, MI	Fort Wayne, IN	Boise, ID	Des Moines, IA	Knoxville, TN	Toledo, OH
Number of Households in Program	Unknown	80,976	72,500	63,869	22,500	94,850
Collection Frequency	EOW ²⁷ or Weekly	EOW	EOW	EOW	Weekly with trash	EOW
Cart Size(s)	64 gallon, but also some smaller bins	64 gallon	95. 65 & 48	96-gallon	>80-gallon	64 and 96
Annual Recyclables Tonnage	11,912.79 ²⁸	13,026	12,220	10,516	5,083	20,000
Pounds per Household per week	7.1	12.4	14.3	27.44	8.7	8.1
Recycling Diversion Rate Garbage and Recyclables only	11.16%	13.0%	12.3%	12.5%	11.2%	20.0%
Processing Location (Public/Private)	Kent County; Community Recycling; unknown WM facility	Republic Services	Western Recycling	Mid America Recycling	Rock-Tenn Recycling	ReCommunity

²⁷ EOW signifies “every other week”

²⁸ Includes only tons used to calculate recycling rate in this report.

3 Survey of Program Enhancements

The second task of this project is to identify programs, techniques, initiatives, and technologies which have been shown to increase recycling, in terms of participation, tonnage, or both. Programs from around the U.S. were selected that have been successfully implemented to exemplify how each has increased recycling.

3.1 Research and Consideration of Possibilities

To increase recycling and waste diversion, the following five opportunities have been identified, as shown in Figure 3-1. These are areas of activity where the County could take action or exert influence to empower programs, influence behavior, or improve results in recycling and waste reduction. For each opportunity area, there are several broad descriptions provided. Each of these descriptions is described further, below, and examples in action in other communities are provided.

Figure 3-1 Opportunities to Increase Recycling and Waste Diversion

Opportunities to Increase Recycling and Waste Diversion	
Policy Changes	<ul style="list-style-type: none"> •Regulations and laws •Market influence (franchising, etc.) •Technical assistance and enforcement
Collection and Transfer Operations	<ul style="list-style-type: none"> •Supporting cities and townships with their procurements •Providing support to the townships with the transfer stations •Direct provision of services
Regional Collaboration	<ul style="list-style-type: none"> •Public/private partnerships •Authorities •Long-haul and Zero-Waste to Landfill (ZWLF)
Education and Outreach	<ul style="list-style-type: none"> •Outreach planning and branding •Use of social, earned, and placed media •Staffing and professional services •Integration and messaging in school programs
Management and Data	<ul style="list-style-type: none"> •Planning and reporting •Data collection and utilization •Funding and financing



3.2 Description of Possibilities and Examples of Current Programs

For each opportunity, there are various techniques, approaches, technologies, or methods described (underlined for emphasis), with one or more high-level descriptions of communities or organizations that utilize the technique. The order of magnitude of cost, participation and tonnage is provided (as available) to show the impacts on the recycling for each program.

3.2.1 Policy Changes

3.2.1.1 Regulations and Laws

Collection of solid waste is most typically regulated at the local level by municipal or county government. Most often, the laws apply to service providers, although they may also apply to businesses, property managers, or even individuals.

Laws that apply to haulers typically require safe operations, and set conditions for haulers to operate within their borders. There are often restrictions on when collection can be conducted—within certain hours, for example, or even disallowing collection on Sundays. Sometimes, the operating licenses or the local laws require reporting of certain information. Examples of the types of information required include tonnages, operating areas, and recycling implementation. More comprehensive laws exist in communities that have prioritized waste reduction and recycling, whether it is a local aspiration or a state-level mandate. Those laws may have requirements for haulers to provide recycling to all customers; to provide recycling at a particular level of service; to distribute educational information to customers; and, most always, to report to the locality any of these activities.

Laws that apply to businesses or property managers usually involve removal of waste in a manner that is sanitary and prevents pollution. There are also sometimes regulations that create a requirement to provide and/or participate in a recycling program. For example, a building owner might be required to provide service for tenants, and businesses might be required to divert certain materials from disposal or prohibited from disposing of certain items, such as cardboard. Laws also regulate behavior by individuals in residential programs. Examples of these types of laws are requirements to participate in recycling—i.e., to put all program materials in the recycling system—or bans on contaminating recyclables—i.e., penalties for putting unacceptable items in the recycling system.

The following are two examples of regulations and laws: one related to haulers and one related to implementation of recycling programs.

- Licensing/Permitting Hauler In Loudoun County, VA, all haulers must have an annual permit to operate. The function of the permit is to gather information about solid waste activity in the county and to mandate a minimum level of service. Application for the permit includes information about the hauler's service areas, where material is delivered, and other statistical data. Haulers that qualify as Major Collectors (operating four or more collection vehicles and/or collecting 2,000 tons of MSW per year) pay \$30 per truck, per year; Minor Collectors (3 or fewer vehicles or less than 2,000 tons per year) pay \$10 per truck, per year. Conditions of the permit include submission of annual tonnage data and the requirement to provide recycling services for residential and non-residential customers, although Minor Collectors are not required to provide recycling. <https://www.loudoun.gov/collectors>
- Mandatory Recycling Participation The Onondaga County Resource Recovery Agency in upstate New York oversees mandatory recycling in that area, along with other programs, since 1990. Everyone in

the county is required to recycle. By 2010, 95% of households and 90% of businesses were participating in the recycling program. The county has sustained an overall recycling rate of 60% for over a decade. Blue recycle bins are provided for free via the cities, towns, and villages. Service is provided by private companies. Property owners are required to provide recycling containers for their tenants. Businesses must also provide collection containers for customers. Households, businesses, recyclables collectors, waste haulers, materials recovery facilities and drop-off centers can all be fined. Violations carry a fine of \$15 to \$2,000. Fines are determined by the facility type, with households paying the least amount and waste haulers paying the most. <http://ocrra.org/services/recycle/>

3.2.1.2 Market Influence

Some localities choose to exercise influence over the marketplace by franchising or licensing collection, contracting out service for one or more areas, or directly providing service to some or all customers. The intent of these actions is twofold: to ensure a desired level of service and to control costs for customers.

Franchising or licensing limits who can sell service to customers in a particular area. Franchising is usually more comprehensive, and frequently includes negotiated pricing. It limits in how many haulers can participate in the franchise. Licensing is more general, as described above in *Regulations and Laws*, and may allow for an unlimited number of haulers to join the marketplace. Franchises and licenses can apply to collection from residential customers, commercial customers, or to both.

Contracting out one or more areas is a procurement process by which the government has control of waste collection in the area and requests bids or proposals to provide a particular set of services to those customers. Prices are restricted by granting exclusive, long-term customers to the winning bidder or proposer. The locality uses contract compliance to ensure the desired services.

Direct provision by public employees is a traditional way to deliver services. The locality has direct control on level of service, and prices should be contained due to the lack of a profit motivation by governments.

- **Regulation by Licenses and Rate Setting** The City of Eugene, OR, regulates solid waste, recycling and yard debris collection within the city limits. This includes licensing haulers, developing standards and setting rates for collection service. Standards for collection are contained in the Eugene City Code and the Administrative Rule. Collection services are provided by licensed haulers. Haulers may collect from any area in Eugene. <https://www.eugene-or.gov/436/Rules-Rates-Regulations>
- **Contract for Services** The City of Port St. Lucie, FL, has a contract with a private company to haul all household garbage, recyclables, yard clippings, bulk items and other trash from every residential property in the city. The contract with Waste Pro is managed by the city's Public Works Department. Services are paid for directly by property owners on the annual property tax bills. Service requests can be submitted via an online form or calling the contractor directly. <http://www.cityofpsl.com/kpslb/singlestream/index.html>
- **Direct Provision of Collection Service** Shawnee County, KS, provides curbside collection of garbage, yard waste, and bulky on a weekly basis, and recyclables on a bi-weekly schedule from urban and rural residences. Customers pay monthly based on the size of their garbage carts, and the program is operated via an enterprise fund. The County reports that each day they collect 40 tons of recyclables and 150 tons of refuse, for a basic residential recycling rate of 27 percent. <http://www.snco.us/sw/service.asp>



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3.2.1.3 Technical Assistance and Enforcement

Many solid waste agencies provide personnel who work primarily in the field, with activities ranging from community organizing, to expert coaching and inspection. More intensive than education efforts like advertising or web sites, technical assistance and enforcement are usually associated with seeking compliance with regulations. The former is a “help me help you” approach, and the latter issues consequences. Use of field staff to perform these functions can be more expensive than outreach and education, in the sense of impressions per dollar spent; however, the results are more readily observed, adapted, and measured. Individuals engaged in technical assistance can increase their impact by building “champions” for the desired impacts when they work with organizations and individuals, so that their influence will be exponential. On-the-spot enforcement makes real the prospect of non-compliance with regulations, whether or not penalties are issued.

The examples below relate several versions of technical assistance and efforts to build support among the population and the regulated community. Use of inspectors to induce compliance is also described.

- Training of community trainers In Kanawha County, WV, the solid waste authority created a program called Recycling Ambassadors. The intention is for volunteers to receive information and training about recycling and other sustainability matters and then volunteer their time to teach and mentor others in their community. Suggested activities they could create are large or small, from participating in online forums to distributing information door-to-door to hosting informational or waste diversion events. <http://www.kanawharecycles.org/Volunteer/default.aspx>
- Training of volunteers The University of Utah operates an on-campus Recycling Ambassador program. Participants attend a 1-hour training and get to tour a recycling facility. They pledge to volunteer at least 4 hours of their time to conduct outreach and education, in addition to generally encouraging and coaching others about recycling. In one year, the program reported that they reached 405 new recyclers. <https://sustainability.utah.edu/engagement/programs/recycling-ambassadors/>
- Engagement of businesspeople Sustain Charlotte, serving Charlotte and Mecklenburg County, NC, offers customized “Lunch and Learn” workshops on a variety of sustainability topics including transportation, water conservation, energy, and waste. The aim of the workshops is to engage a company’s employees to become sustainability champions at home and at work. The workshop about waste and recycling includes a consultation to analyze the host organization’s waste disposal and recycling systems and provide input and advice. <http://www.sustaincharlotte.org/wasteworkshop>
- Deployment of inspectors The City of Glendale, AZ, uses a team of about five recycling inspectors to spot-check recycling bins. Recycling containers found to be contaminated with unacceptable materials receive a red tag with information on the correct items to recycle. Residents are required to remove the incorrect items and clean the container, if needed. If the inspector finds contamination a second time, the container will be removed and the resident will not be eligible to participate in the recycling program for three months. To get their recycling container back, the resident must write a letter acknowledging they understand how to correctly recycle. The inspectors also make educational presentations, such as to schools. <http://bit.ly/2mACmdy> and <http://www.glendaleaz.com/green/documents/CleanGreen2017FINAL.pdf>



3.2.2 Collection and Transfer Operations

3.2.2.1 Supporting cities and townships with procurements

There are many ways that a larger, overarching, or administrative organization can support other communities without “taking over” a service. There is usually a partnership of some kind, such as an authority, a planning unit, an intergovernmental relationship (such as all the municipalities within a county or parish), or a memorandum of understanding. The partnership may be general or exist for a specific purpose. The basic premise for the examples below is that by working together to procure goods or services, buyers can benefit from more advantageous economies of scale. In many situations, buyers do not have full-time professional procurement staff. By working together, however, they can rely on experts employed by one of the other buyers or by the partnership itself.

The degree to which the partnership unites the members can vary. Sometimes prices and services are negotiated, and members elect to contract with the provider(s) or not. The pricing might be with the partnership (or a member thereof) or with a vendor.

- Combined Procurement of Services Burlington County, NJ owns and operates the Burlington County Resource Recovery Complex, the site of all solid waste processing and disposal activities undertaken by the County. Waste from all the County's forty municipalities is accepted at this facility. When traditional flow control methods were deemed unconstitutional in 1997,²⁹ the County offered contracts to the municipalities within its jurisdiction for waste processing and disposal services at the Resource Recovery Complex and recycling collection services provide through the County's Regional Recycling Program. The Board of Chosen Freeholders administers the recycling program including collection, processing, and marketing of materials for the 40 communities within the County's jurisdiction. <http://www.co.burlington.nj.us/344/Solid-Waste> and <http://www.co.burlington.nj.us/201/Board-of-Chosen-Freeholders>
- Providing Member Cities/Counties Access to Solid Waste and Recycling Services The Virginia Peninsulas Public Service Authority (VPPSA) is a regional governmental agency established, as a political subdivision of the State in 1989 under the Virginia Water and Waste Authorities Act. VPPSA was established to offer solid waste management services to the member cities and counties that are implemented through service agreements executed by both VPPSA and the member jurisdiction. Services (including curbside recycling, composting, HHW collection, computer recycling, drop off

²⁹ In 1993, the U.S. Supreme Court heard *C & A Carbone Inc. v. Clarkstown*. The case was in regard to a flow control ordinance. The Court said a county could not force a private waste hauler to dump garbage at a private site, because it was in violation of the Commerce Clauses in the Constitution. The result of this ruling was that communities across the country abandoned their existing flow control laws and sought other ways to induce waste to go where they wanted or needed it to be. In 2007, a lawsuit *United Haulers Association Inc. v. Oneida-Herkimer Solid Waste Management Authority* was brought regarding a flow control law in New York. The Court found that Oneida and Herkimer Counties were within their rights to force the haulers to bring the garbage to the county-owned and -operated facility. As the decision read, “Disposing of trash has been a traditional government activity for years, and laws that favor the government in such areas—but treat every private business, whether in-state or out-of-state, exactly the same—do not discriminate against interstate commerce for purposes of the Commerce Clause.” In the broadest terms, from the perspective of local governments, *United Haulers* “overturned” *Carbone*. (This summary was sourced from *Public Works Magazine*, http://www.pwmag.com/water-sewer/stormwater/legality-of-flow-control-ordinances-upheld_o.)



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center/transfer station use, special waste, commercial cardboard/mixed paper collection) are made available to members and the governing body of each member makes the decision to participate in any service. Member cities and counties pay only for the services they select to use. <http://www.vppsa.org/services.htm>

- **Procuring Services on Behalf of Members of Consortium** The Solid Waste Association of Central Ohio (SWACO) serves Franklin County, OH and neighboring areas with solutions for Solid Waste through effective reduction, recycling and disposal. SWACO helps its members (including three “Community Consortiums”) achieve the most competitive collection services by releasing Invitations to Bid (ITB) for the collection, processing and disposal of solid waste and recycling on behalf of the consortium. <http://www.swaco.org/public-notice.aspx>
- **Assistance with Joint Procurement of Hauling and Other Services** Tehama County is a rural county located in Northern California. To help meet state requirements, the jurisdictions formed a solid waste management authority and granted new franchise agreements to private haulers to provide collection of recycling, yard debris, and trash. Residents paid haulers directly for services and all trash service subscriptions sold under the franchise were required to collect recycling and yard debris separately, no exceptions. After one year, diversion skyrocketed to 43%. After three years of program implementation, a third of PAYT customers had sized-down to the smallest available trash cart. (Source: GBB primary research)

3.2.2.2 Providing support to the townships with their transfer stations

A partnership as described herein might provide management. Members consolidate operations and benefit from consistency and reduced costs.

- **Provide Grant to Build Transfer Station** Salisbury/Sharon Connecticut received \$500,000 from a state grant program to construct a transfer station that jointly benefits the residents of both the Town of Salisbury and the Town of Sharon. This project will directly benefit the 7,000 residents of both towns because no other outlet for municipal solid waste is available in either. <http://portal.ct.gov/office-of-the-governor/press-room/press-releases/2016/09-2016/gov-malloy-announces-state-grants-to-assist-sixteen-small-towns-with-capital-improvement-projects>

3.2.2.3 Direct provision of services: community/organization allocate resources to provide services for citizens

A partnership might result in direct service provision by the joint organization. The member localities often are billed per customer, per ton, etc., for their use of the services.

- **Centralized Collection of Recycling for Transfer to MRF** West Central Iowa Solid Waste is a solid waste management consortium that operates a landfill and MRF. The member counties and cities each have a transfer station/drop off center where material is centrally collected and transferred to landfill or MRF for disposal/processing to create efficiencies in collection and hauling costs. <http://www.carrollcountylandfill.com/index.php>
- **Operate Re-use Collection Center** The City of Fort Worth, with Texas Commission on Environmental Quality (TCEQ) grant and City funding, has a permanent household hazardous waste (HHW) collection facility known as the Environmental Collection Center (ECC) that collects HHW from residents throughout Tarrant County and beyond through contracts with over 50 local jurisdictions. The facility



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also offers products for reuse, through a “give-and-take” area called the “Help Yourself Shelf.” Fort Worth also works with two other groups of cities in Tarrant County to implement three HHW Mobile Collection Units (MCUs) that can be loaned out to participating cities throughout the year to be used as one-day drop-off centers throughout the ECC service area. <http://fortworthtexas.gov/env/ecc/>

3.2.3 Regional Collaboration

3.2.3.1 *Public/private partnerships: work with private sector organization to implement programs to increase recycling*

A public/private partnership can mean different and specific things in different localities and different states. In general, however, it means governmental entities working together with nonprofit organizations or businesses to achieve a common goal. Solid waste diversion is a natural fit for charities that accept donations of household goods, since they can work together to attract and filter materials as needed. Additionally, charities that serve to find work suited for adults with challenges or disabilities often find there are appropriate and rewarding jobs for their clients in the processing of items and materials bound for reuse or recycling.

- Operate re-use and recycling centers The Metropolitan Environmental Trust (The M.e.t.) in Tulsa, OK, got its start in 1987 as a committee charged with considering alternatives to landfilling Tulsa’s trash. The M.e.t. has 12 recycling centers in 9 of its member communities accepting a variety of recyclables, including aluminum cans, #1 and #2 plastic bottles, glass bottles, newspapers, office paper, magazines, oil, antifreeze, phone books, and batteries. The M.e.t. employs more than 100 people with disabilities to staff its centers and sort recyclables. The M.e.t. produces educational resources for member governments, schools and non-profits, and provides recycling opportunities for event organizers, schools and other entities. The M.e.t. publishes an annual recycling directory, listing all local recyclers and companies that provide recycling services. <http://metrecycle.com>

3.2.3.2 *Authorities: create an organization that brings together stakeholders committed to increasing recycling and waste diversion*

An authority is a public corporation founded by law for a specific purpose. Typically, the authority has the ability to raise revenues, such as by collecting fees or issuing bonds. Their funds are isolated from the member governments’, and they are usually required to meet all their financial needs through their service fees and other revenue sources. Solid waste authorities can be founded by multiple governments working together, or serve a single locality. Sometimes, the members of a local government council or board are also the members of an authority that exists for specific purposes, such as one or more aspects of public works.

The level of activity can vary widely, depending on the charge of the authority. As the examples below show, an authority might exist for a very narrow reason such as operating one single facility. In other cases, authorities are comprehensive solid waste planning units serving hundreds of thousands of residents and providing a variety of services including collection, outreach and education, and facilities.

- Low-Level of Public Sector Involvement The City of Franklin, TN, and Bi-County Solid Waste System entered an interlocal agreement to establish the terms and financial responsibilities for the provision of hauling and transfer of solid waste processed at the City’s transfer station. As part of the agreement, the City of Franklin retains Bi-County as an independent contractor to transport, deliver,

and dispose of all solid waste from the City's transfer station to the sanitary landfill owned by Bi-County at an all-in rate of \$32.00/ton (as of 2012).

<http://www.franklintn.gov/home/showdocument?id=10183>

- **Medium-Level of Public Sector Involvement** The Tulsa Authority for the Recovery of Energy (TARE) manages solid waste including refuse, trash, garbage and other discarded or salvageable solid materials and processes it into fuel and usable materials and products and disposes of non-usable solid waste by burial, waste-to-energy or other methods. TARE administers the disposal facilities and solid waste collection system to effectively manage the material generated within the City of Tulsa. TARE is funded through user fees collected by the tax-roll for both residential and commercial waste customers. <http://www.tulsarefuse.org/>
- **High-Level of Public Sector Involvement** The Lancaster County Solid Waste Management Authority (LCSWMA) is responsible for the integrated waste management system (IWMS) in this southeastern Pennsylvania County. It became a regional authority when it purchased the Harrisburg, PA, Waste to Energy Facility from the City of Harrisburg and now serves a much larger region encompassing several counties. Each year, LCSWMA processes more than 600,000 tons of waste through the facilities that comprise that Integrated System. LCSWMA is governed by the Board of Directors (nine members) who are appointed by Lancaster County Commissioners. The Board establishes the policies and procedures of LCSWMA, and employs staff to administer those policies. The Executive Team is made up of six individuals: chief executive officer, chief operating officer, chief business development officer, deputy chief of communications, deputy chief of human resources, and director of business solutions. LCSWMA has a staff of about 90+ full-time, 10+ part-time, and several seasonal employees. <http://www.lcswma.org/>

3.2.4 Education and Outreach

3.2.4.1 Outreach planning and branding

Comprehensive and strategic planning for outreach and education can make a considerable impact on participation in a solid waste system. The existence of a multi-year strategy and the ability to track success helps shield this “soft science” from financial reductions.

Part of a good outreach plan should include a brand. Branding is the use of a consistent “look and feel” across all the education efforts. This builds familiarity and helps reinforce all the messages whenever someone sees one.

Both comprehensive planning and sophisticated branding can be difficult or require the assistance of professional services. This makes planning and branding an opportunity for communities who can avail themselves of them to support others by sharing the results.

- **Public Education and Outreach Campaign** In 2016 Lee County, FL launched “5 for the cart,” a multi-media brand aimed at increasing recycling and reducing contamination of recycling with non-program or non-recyclables materials as shown in Figure 3-2. The outreach coordinator used feedback and observations when visiting schools and talking with children to develop the theme and content. The campaign using “5 for the cart” includes web content, print items, and giveaways like magnets. The branding and messaging is also used in video spots. The video spots are currently published online on YouTube, but not on broadcast television.

<http://www.leegov.com/solidwaste/residential/recycling>

https://www.youtube.com/channel/UCOuW6G_qYRm6WraaX2MBuLw

Figure 3-2 Lee County “5 for the Cart” Logo



3.2.4.2 Use of social, earned, and placed media

Although most programs now have content on the internet, they don't always take full advantage of the media. Media is more than press releases. Where a web site is passive, requiring a user to find the page and look through it, media reaches people where they are: using Facebook or Twitter; watching the news or listening to the radio; and perusing sources that interest them, such as humor sites or “mommy blogs.” Reaching out to people on social media, writing releases that have interest for local TV or radio, and placing ads in nontraditional publications are all part of new media.

- Facebook Groups to Educate the Community The Office of Sustainability at Tulane University located in New Orleans, LA manages a webpage on Facebook called Recycle Tulane. Recycle Tulane supports Tulane's recycling program by educating the campus community and developing new opportunities to recycle. Students and Faculty work to develop content identifying ways to increase recycling and other sustainability news that may be of interest to those that are interested in decreasing the environmental impact of campus operations. <https://www.facebook.com/recycle.tulane/>

3.2.4.3 Integration and messaging in school programs

“You have to get to the kids,” is a common sentiment among professionals and residents, alike, seeking to build inroads about recycling. There are many isolated efforts in schools across the country that solid waste management organizations may not even know about. Identifying and supporting them is a good start for building on children's activism without having to build an entire new program.

- Rewarding Outstanding K-12 Recycling Initiatives The Virginia Recycling Association honors an outstanding K-12 school program that promotes sustainable resource use through waste reduction, reuse and recycling on school grounds. The selection criteria for this award includes the level to which the school integrates innovative and educational content regarding waste reduction, reuse or recycling into its program.



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<http://www.vrarecycles.org/Awards/Awardcategories/OutstandingK12School/tabid/1187/Default.aspx>

3.2.5 Management and Data

3.2.5.1 Planning and reporting

A system of planning and reporting can be described as a “self-fulfilling prophecy” of recycling programs. If a plan is required, and then reporting on the success of that plan follows, the general result will be recycling activity. Sometimes the hardest part of doing something is getting started, and planning addresses that. Afterwards, a requirement for reporting reinforces that the activity was important and valued. The contents of the reports then inform future planning for service provision and improvement.

- The State of Maryland requires that all counties within the state submit an annual report outlining the waste and recycling tonnages generated from each county. The counties report such things as yard waste and brush utilized as mulch, single stream recyclables, additional metal recycling, waste oil recovered, and materials to landfill. The state also assigns a waste reduction percentage, usually around 4 percent, that is also used to calculate the counties’ overall diversion. Wicomico County, a mostly rural county in Southeastern Maryland used the requirements of the state report to provide better infrastructure for recycling using convenience centers and providing recycling and yard waste drop locations at the centrally located landfill. The state report also required a breakdown of the types of plastics recycled. Instead of estimating, the County set up a small sorting system to separate the PET and HDPE individually from the rest of the recyclables, enabling them to sell the collected commodities at a much higher value than a mixed product. Additionally, the diversion of the yard waste has extended the life of the landfill, allowing the facility to further accept dredging waste from the County’s Chesapeake Bay access waterway, an important economic infrastructure to the region.
<http://www.wicomicocounty.org/147/Solid-Waste>

3.2.5.2 Data collection and utilization

The most powerful way to plan for and evaluate a solid waste management effort is the use of data. Records of tonnages and fees reflect activity level, funding sufficiency, capacity needs, market growth or contraction, impacts of education efforts, and trends in waste generation, among other effects.

With more sophisticated data and analysis, forecasting can be used to help improve performance. Perhaps managers want to know why particular events occur, such as equipment break-downs, worker absenteeism, or dips and spikes in participation in household hazardous waste programs. Detailed data, properly managed, can have other seemingly unrelated data applied to it for analysis that can lead to improvements. Weather, schools, or even popular local events can affect conditions indirectly, and data management can be used to make decisions that considers those effects.

- Orange County, North Carolina has one of the best recycling rates (above 60 percent) in North Carolina and all the eastern states. They have accomplished this partly through extensive curbside recycling access throughout the mostly rural county, and an ordinance which controls the materials from construction and demolition (C&D) that can be disposed without additional processing. To ensure compliance with the ordinance, nearly all C&D materials are tracked by the County and where they are taken for processing gives monthly reports to the County via email and utilizing Excel spreadsheets. For a builder to receive a permit within the County, they must use (or be) a licensed C&D hauler for the County. Each roll-off or bin is assigned a tracking number by the county and tagged

as such. The container must be taken to one of four County approved C&D facilities that will track the incoming tonnage for each bin tracking number, as well as any other incoming loads from Orange County. The approved facilities provide a monthly report of tons for each tracking number, overall tons from the County, and an estimate of the amount of materials recovered for recycling from the incoming tonnages for that month. To remain an approved facility, each processor must recover a certain percentage of materials. In addition to the C&D, all collected recyclables from curbside and convenience centers are consolidated at the County's solid waste facility for transport to the regional MRF. The materials are weighed before transport at the facility scales. The records from the scale and the records provided by the C&D recyclers give the County a very clear picture of the material flow and recovery of materials. This also provides extensive data to track such things as growth, the effects of education and ordinances, and to estimate the lifespan and utility of the existing C&D landfill.

3.2.5.3 Funding and Financing

There are nearly as many ways to assess fees and generate funding. The description below shows how one partnership uses per-ton fees to fund programs and incentivize less use of the landfills.

Supporting a Solid Waste District with Disposal Fees The Coshocton-Fairfield-Licking-Perry Solid Waste District located in Central Ohio coordinates and manages the solid waste disposal efforts among the four member counties. The four counties work together to reduce reliance upon landfills and to increase recycling. The Solid Waste District generates revenue from disposal fees collected by four in-district municipal solid waste landfills, at a rate of \$2.00 per ton for waste generated within the district or outside of Ohio, and \$4.00 per ton for waste generated by other solid waste districts in Ohio, as well as a generation fee of \$1.25 per ton for waste generated in the four member counties, collected by landfills wherever the waste is disposed. http://www.cflpswd.org/newcflp_002.htm

3.2.6 Community Profiles

Below are two community profiles of counties in Michigan that provide comprehensive systems for integrated solid waste management. In Michigan, it is somewhat unusual for a County to offer extensive services, but Emmet and Kent do so. As a result, either of these communities could have provided multiple examples for the approaches above. Rather than trying to choose what to highlight, a more complete description of each county's solid waste management program is provided below.

3.2.6.1 Emmet County

Emmet County is located at the northern tip of the Lower Peninsula of Michigan. It is primarily bordered by bodies of water—Lake Michigan to the west and the Straits of Mackinac to the north—with Cheboygan County to the east and Charlevoix County to the south. The population in 2010 was 32,694. There are two cities—Harbor Springs (about 1,200 people) and Petoskey (about 5,700 people)—both of which are considered “resort” communities. There are also three villages, each with fewer than 1,000 residents, but they are also tourist destinations and their occupancy increases during the summer months with visitors and temporary employees. These communities are part of one of the most popular tourist areas in Michigan.



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3.2.6.1.1 System and Facilities

Emmet County households and businesses subscribe directly with private waste haulers for garbage collection service,³⁰ but the Emmet County Department of Public Works and Recycling collects recyclables curbside from three of the townships, the two cities, and two unincorporated resort communities. The service, which started in 2004, is provided to single family homes, and is available upon request at a very low annual cost to larger condo and apartment complexes. This covers about 60 percent of residents. Material is collected dual stream, meaning that residents source separate their recyclables by type into two bins: Paper, Boxes, and Bags; and, Mixed Containers. Paper, Boxes, and Bags includes any clean paper that tears, including cardboard and shredded documents. Plastic bags and film (if bundled/tied together) may also be placed in this bin. Mixed Containers includes cartons; plastic and paper cups, plastic bottles, jugs, jars, and tubs; metal cans, foil, and trays; and, glass bottles and jars. Materials have traditionally been collected in open-top bins; however, in the summer of 2016, some customers started getting rolling carts for their paper, boxes, and bags, to pair with the bins which are still used for containers. The carts were purchased primarily with sponsorship money from public and private partners and with a grant from the Recycling Partnership in Washington, DC.

The Department operates thirteen drop-off centers. Twelve of them are called Drop Sites, and they accept the same dual-stream recyclables as at the curb. They are located across the county at various public facilities like fire stations or town halls and semi-public sites like parking lots or shopping centers. The thirteenth location is a comprehensive convenience center called The Drop-Off Center, located in Harbor Springs. This staffed facility is open six days per week and accepts a wide variety of materials. In addition to yard waste, garbage, and the dual-stream recyclables, the Drop-Off Center takes dozens of other hard-to-recycle materials that are not accepted anywhere else. This includes textiles, special plastics, mattresses, automotive fluids and tires, batteries, appliances, latex paint, fluorescent lights, rubble and debris, scrap metal, cooking oil, and e-waste. Some are accepted for free, while others have nominal fees.

The Department also has a comprehensive program to collect hazardous materials and chemicals. There are four household hazardous chemical drop off days per year, which are free to attend. The events are held on the site of The Drop-Off Center. During the events, there is a waste exchange, where attendees can take something they see they want which someone else brought in. The events are free for residents, and guests can participate but must pay \$1 per pound for their material. Typical guests include seasonal visitors or owners of rental properties. Furthermore, the events are open to conditionally-exempt small quantity generators (CESQGs) like churches, civic groups, and qualifying businesses. Emmet County's Department of Public Works and Recycling also participates in two grant programs from the state of Michigan aimed at reducing toxic releases: the clean-sweep program, which accepts for free pesticides from any users including households, farmers, and businesses; and, a mercury recovery program which is also open and free to any user.

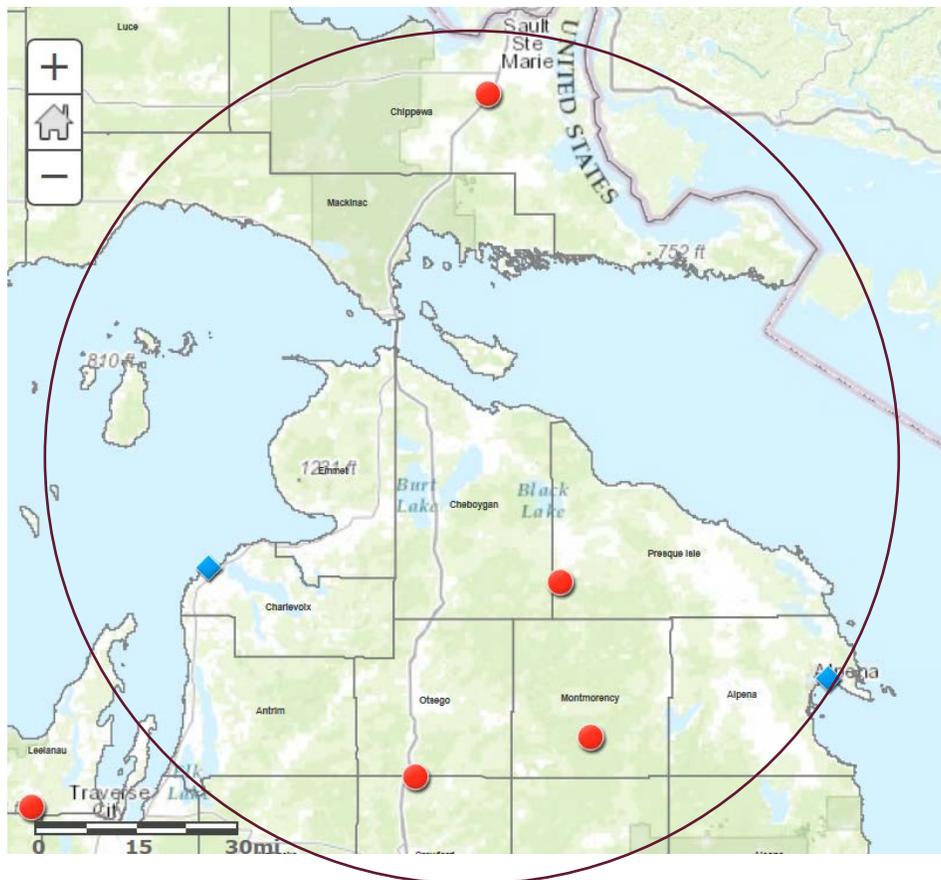
Also at The Drop-Off Center, yard waste is accepted, composted or ground, and re-distributed to residents and other users. Since 2015, the Department has done seasonal food scrap diversion with local businesses, and in 2017 will begin operating drop off services for residents' food scraps. The County also subsidizes purchase of at-home composting bins and machines by residents.

³⁰ There are presently three haulers providing garbage collection—two local/regional firms and one national firm. All of them offer both rolling carts and “bargain bag,” the local vernacular for bag-based pay-as-you-throw service.

Emmet County operates a regional MRF that serves the immediate localities plus Cheboygan, Presque Isle, and Otsego Counties. The original recycling center opened in 1990 with a grant from the Michigan Department of Natural Resources. In 2010, the current processing facility opened. The materials, which were collected dual stream, are also processed dual stream on two sorting lines. The processing of the Paper, Boxes, and Bags is all done by hand into office paper, books, plastic film, cardboard, and a news mix. Processing of the mixed containers uses equipment similar to a single-stream MRF, utilizing magnets, forced air, and other machinery, in addition to manual sorting. Emmet County markets materials almost exclusively to domestic users. The relatively clean process of dual-stream collection allows the MRF to ship about 12,000 tons directly to manufacturers each year—in fact, the County prides itself on marketing 97 percent of its materials to Michigan-based users.

The County's Transfer Station is a centrally located facility where garbage is loaded into semi-trailers and hauled to the Republic Services landfill in Presque Isle County. The map in Figure 3-3 shows there are two MSW landfills within 50 miles of Emmet County: the Republic Services landfill in Presque Isle County and The City Environmental Services Inc. of Waters Landfill in Crawford County. Just beyond the 50-mile radius is the Montmorency-Oscoda-Alpena Landfill in Montmorency County.

Figure 3-3 Map from Michigan Department of Environmental Quality showing Landfills





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FINANCIAL SUMMARY	
REVENUE	
Waste Transfer Station	
Charges for Services	\$2,165,938.77
Interest Income	\$783.70
Clean Sweep grant Funds	\$2,923.45
Other Income*	\$4,410.80
County General Fund	\$0.00
SUBTOTAL	\$2,174,056.72
Recycling Program	
For-Fee Recyclables**	\$83,883.09
Sale of Materials	\$686,902.21
From Waste Revenues	\$348,676.68
Out-of-County and Other Services	\$375,908.31
Curbside Recycling	\$317,492.65
Compost, Mulch & Bin Sales	\$23,621.50
Other Income ***	\$6,786.05
County General Fund	\$0.00
SUBTOTAL	\$1,843,270.49
Total DPW Revenue.....	\$4,017,327.21
EXPENSES	
Waste Transfer Station	
Personnel	\$423,469.68
Contractual Services	\$266,186.64
Landfill Fees	\$1,078,139.80
Operations	\$104,876.15
Depreciation	\$208,284.00
SUBTOTAL	\$2,080,956.27
Recycling Program	
Personnel	\$456,047.30
Contractual Services	\$494,055.05
Revenue Sharing	\$3,000.86
Operations****	\$575,946.01
Depreciation	\$349,920.00
SUBTOTAL	\$1,878,969.22
Total DPW Expenses.....	\$3,959,925.49
<p><i>*Transfer Station "Other Income" includes monies from business and out-of-county users of the Household Chemical Drop-off (HCD) program and donations to the HCD program.</i></p> <p><i>**For-Fee Recyclables" includes fees for recycling of large appliances (including fees for removal of refrigerant), televisions, rubble, tires, shingles and wood, 2) recycling of batteries and fluorescent bulbs from businesses, and 3) tipping of brush to be composted or chipped.</i></p> <p><i>***Recycling Program "Other Income" includes sale of county property and contract baling and hauling.</i></p> <p><i>****Operations includes Straits Area Services sort crew.</i></p>	

3.2.6.1.2 Solid Waste Organization

The solid waste program operates as part of the Disposal System Fund, which is an enterprise fund which has been in existence since 1991. 2017 revenues are projected in the budget process to be \$4,392,913.00 and expenditures to be \$4,384,704.00. The Department has six administrative and managerial staff, ten operational and facility staff, and various contract and temporary employees. The enterprise is governed by the seven-member DPW Board, which is composed of local officials.

3.2.6.1.3 Outreach and Education

The Department of Public Works and Recycling maintains an immersive web site at a URL separate from the main county pages, www.emmetrecycling.org. This comprehensive site is well-organized and written in a friendly, approachable manner. Educational productions include extensive use of video content, such as video illustrations of how the MRF works. These are prepared for both adults and children.

The DPW recognizes a “recycler of the year” each year since 2002, to honor people and organizations leading recycling efforts in the community.

3.2.6.1.4 The Takeaway

The Emmet County program thrives under the leadership of a dedicated original employee from 1990. The program has been built on the spirit of conservation, dedication to proper preparation and marketing, and partnerships.



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3.2.6.2 Kent County

Kent County is located in West Michigan, has a population of approximately 629,237, and is bordered by Allegan County to the Southwest, Ottawa County to the West, Muskegon County to the Northwest, Newaygo County to the North, Montcalm County to the Northeast, Ionia County to the East, and Barry County to the Southeast. About 31 percent of the population is concentrated in the City of Grand Rapids.

3.2.6.2.1 System and Facilities

The region has seven MSW sanitary landfills and three Materials Recovery Facilities (MRFs). Within the region, most solid waste collection, processing and disposal services are provided by the private sector, with Kent County having the only publicly-owned and operated integrated system with a MRF, transfer station, recycling drop-offs, WTE facility, and landfills. Figure 3-4 shows the locations of the County assets within Kent County, the regional disposal facilities, and the surrounding counties.

The award-winning Kent County Solid Waste System is comprised of a network of facilities and services that started to be put in place in the 1980s that also includes even older closed legacy disposal facilities. The system includes recycling, recovery and disposal services, and does not provide any collection services. The Department of Public Works (DPW) has a transfer station, three recycling drop-off stations, a single-stream materials recycling facility (MRF), four household hazardous waste (HHW) drop-off sites, a WTE facility, an active landfill, and three closed landfills. Additionally, the County provides an array of educational services promoting waste reduction, reuse, recycling, recovery, and disposal.

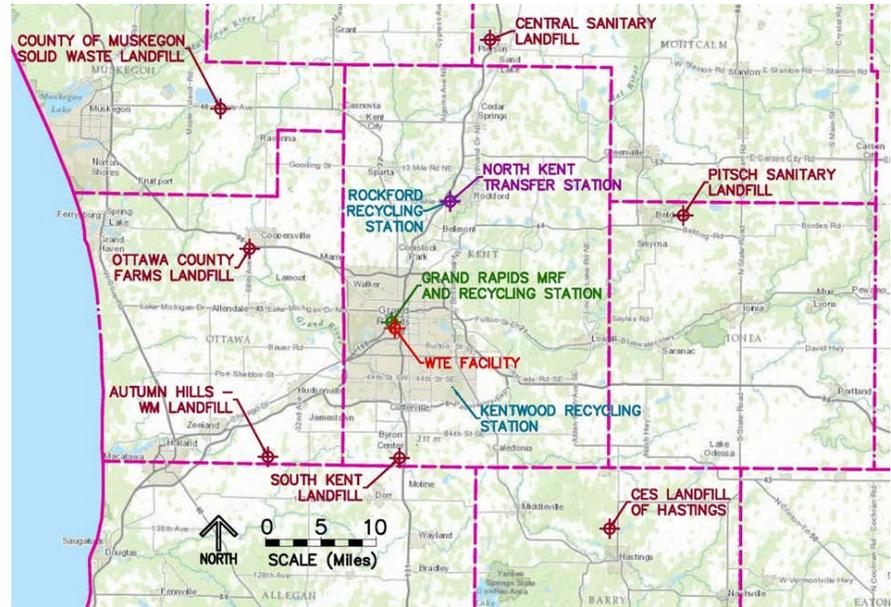
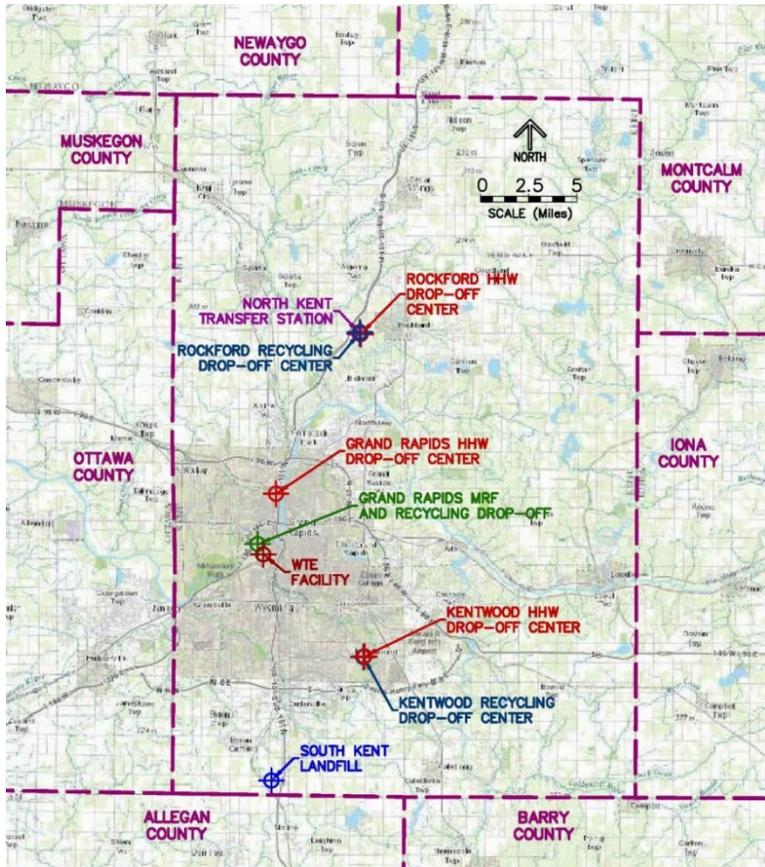
Waste generated within Kent County goes to four locations:

- Waste from the north side of the County goes to the North Kent Transfer Station;
- Waste from the south side of the County goes to the South Kent Landfill;
- Waste from the six communities of Grand Rapids, East Grand Rapids, Grandville, Kentwood, Walker, and Wyoming goes to the Waste to Energy Facility; and
- Approximately half the collected waste flows out of the County to private landfills.

The DPW manages approximately 450,000 tons per year through its assets. Not all the waste and recyclables in the County go through or are managed by the DPW assets; approximately 300,000 additional tons are managed by private parties in and out of the County. Last year, the County recycled approximately 32,000 tons through its MRF. Without counting private recycling programs and deposit redemptions, the recycling diversion rate in the County for 2015 appeared to be in the 8-10 percent level, accomplished through a combination of the DPW's MRF and by several private yard waste mulching/composting operations in the County and neighboring Ottawa County.

Refuse collection activities within Kent County are handled by a combination of public and private haulers, mainly by private haulers. The metropolitan cities of Grand Rapids, East Grand Rapids, Kentwood, Grandville, Walker and Wyoming require all private waste haulers to be licensed within their cities.

Figure 3-4 Waste Assets in Kent County and Disposal Facilities in the Surrounding Area



3.2.6.2.2 Solid Waste Organization

The County DPW is divided into two divisions: Solid Waste, and Finance and Administration. The Solid Waste Division has four components: Resource Recovery and Recycling, Waste-to-Energy, Landfill and Transfer Station, and Closed Landfills and Environmental Compliance. There are approximately 50 full-time equivalent employees (FTEs) in the County DPW; this does not include contracted employees of Covanta or Goodwill. In August 2015, the County Board of Public Works adopted an excellent vision, mission, and values statement for DPW to keep in mind as it advances its organization. This is shown in Figure 3-5.

Figure 3-5 Kent County Board of Public Works Vision, Mission and Values

Our Vision: Implement sustainable materials management strategies to reduce dependency on landfill disposal.

Our Mission: Foster collaborative and innovative solutions that deliver value to our stakeholders by managing discarded materials to conserve natural resources and promote a healthy, vibrant and sustainable community.

Our Values:

- Employees are our most valuable resource and essential in delivering our mission.
- Visitors, customers and employees will receive prompt, courteous service that exceeds expectations.
- We will be innovative in our thinking, thoughtful in our planning and efficient in our execution.
- Community leadership, transparency and public-private partnerships drive our business decisions.
- We are committed to fostering a culture that embraces diversity, inclusion and equity. We believe that our unique differences enrich and empower the lives of all and we will work collaboratively to achieve common goals.
- We will not compromise on safety or environmental compliance.
- We consider today's actions for tomorrow's benefit.

adopted by the Board of Public Works on August 6, 2015

Kent County DPW also has seven stated operational goals³¹:

³¹ <https://www.accesskent.com/Departments/DPW/>



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- Ensure availability of long-term disposal services and transfer capacity for Kent County residents;
- Operate disposal and transfer facilities in compliance with license and permits;
- Accept and process increased curbside recycling tonnage at the Recycling Education Center;
- Expand participation through a comprehensive educational and advertising program (HHW);
- Process 26,000 tons in the new single stream recycling facility;
- Accept all solid waste delivered and process solid waste for energy recovery or transfer in a cost effective and environmentally responsible manner; and
- Maintain Clean Corporate Citizen certification.

Furthermore, DPW also established eight strategic goals:

- Develop and implement a strategy for sustainable solid waste management, processing, and recycling services;
- Deliver services to our residents, customers and stakeholders without the use of Kent County General Fund support;
- Participate in the economic development, sustainability and environmental planning efforts of the region;
- Implement approved Solid Waste Management Plan goals and objectives that include adoption of a solid waste management ordinance;
- Expand South Kent Landfill capacity with initial priority on ash monofill requirements including the feasibility of implementing a mechanical stabilized wall on the existing ash monofill;
- Improve the operational efficiency of facilities; and
- Continue the long-term stewardship and management of closed landfills.

The DPW is set up as a stand-alone Enterprise Fund within the County government and requires no subsidy from the County's general tax revenue relying solely on revenue derived from services, sale of products, and interest income on financial deposits. Its annual revenue and expense budget is approximately \$28.6 million for FY2015. As of December 31, 2014, the DPW Enterprise Fund has a healthy total retained earnings position of approximately \$92.5 million, and an unrestricted retained earnings balance in excess of \$66 million. This financial position puts DPW in a very good position to fund significant changes to improve and modernize its infrastructure as well as contribute to funding new infrastructure and services.

The DPW monitors a variety of performance measures through each budget cycle. These performance measures are identified in Table 3-1. The source of this information is the annual Department of Public Works, *Selected Performance Measures* document, which is published on their website.



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Table 3-1 DPW Performance Measures³²

Indicator	2010	2011	2012	2013	2014	2015 Expected
Outcome:						
Receive zero major non-conformances/ violations on the ISO 14001 certification	0	0	0	0	0	0
Percent of tons sold/tons processed (MRF)	88.00%	91.00%	88.00%	90.00%	91.00%	91.00%
Electricity sold (Mwh) WtE	104,000	101,549	96,640	104,438	100,000	96,000
Output:						
Tons of solid waste processed at NKTS	62,131	60,228	61,474	65,000	65,000	65,000
Tons Processed (MRF)	14,940	23,640	26,196	30,000	32,000	35,000
Number of households served/year at HHW facility	2,761	2,877	3,152	3,284	3,500	3,500
Tons of solid waste processed at WtE facility	188,000	185,998	183,849	189,321	189,000	187,000
Tons of ferrous metal recovered	3,900	3,282	2,669	3,500	3,300	3,500
Efficiency:						
Cost per ton for processing at SKL	\$14.81	\$16.30	\$19.50	\$19.50	\$19.50	\$20.00
Cost per ton for processing at NKTS	\$22.18	\$23.87	\$24.52	\$25.17	\$25.17	\$25.00
Net cost/ton processed (MRF)	\$90.22	\$101.05	\$93.93	\$101.00	\$101.00	\$100.00
Cost per pound collected (HHW)	\$1.23	\$1.41	\$1.03	\$1.28	\$1.28	\$1.50

3.2.6.2.3 Outreach and Education

Since 1995, Michigan’s Public Act 264 has prohibited yard waste from being disposed in landfills and established a 25 percent recycling goal. Additionally, Michigan has a bottle deposit program. Recently, with a 15 percent overall recycling level achieved, a new goal of 30 percent has been set to reach in 2017. Part of reaching that goal will be outreach and education. The Kent County DPW accomplishes this, in part, with its Recycling and Education Center.

The Recycling and Education Center is a single-stream recycling facility located at 977 Wealthy Street SW in Grand Rapids. It accepts residential recyclables, but it is also a place for people to learn. The facility is designed to process 18 tons per hour for approximately 6 hours per day, and private waste haulers and the City of Grand Rapids deliver recyclables to this facility Monday through Friday. Sorting labor at the facility is provided through partnership with Goodwill Industries. The facility’s 5,000 square foot education

³² Source: Kent County Department of Public Works Budget 2015.



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area has public meeting and classroom areas and a viewing platform above the recyclables processing machinery and sorting lines.

3.2.6.2.4 The Takeaway

The Kent County system is managed by a relatively new leadership group that has a strong desire to identify and implement positive changes to take the Department of Public Works into the future.

3.2.7 Conclusion

As shown in the examples above, there are a wide variety of solid waste programs that have successfully implemented initiatives, projects, campaigns and other efforts to increase recycling and waste diversion. While the techniques reviewed do provide insight on several actions Muskegon County could take to increase recycling and waste diversion, none of them are a one-size-fits-all solution. Therefore, understanding the strengths, challenges, prospects, and limitations of each opportunity as it relates to Muskegon County's geographical, demographic, economic and political landscape will be critical to identify and move forward to implement the most effective program(s).

This further analysis will be carried out by GBB as part of Task 3, where the opportunities to increase recycling and waste diversion that are most compatible with Muskegon County will be reviewed in-depth to provide a clear understanding of the effort required to prepare and carry out the development of such program(s).



4 Waste Reduction and Recycling Program Action Analysis

As a result of the observations by the GBB Team and the interactions with Muskegon County stakeholders, it is clear that recycling is occurring in Muskegon County. The non-deposit recycling system has three primary components: transfer stations, collection by small haulers, and the large contracts held by townships and cities. It was discovered, however, that a significant quantity of recycling was occurring that, to date, had not been reported. Some of this can be attributed to the success of Michigan's Deposit legislation and its ban on yard waste from disposal.

Specific barriers were found to be limiting the increase to recycling in Muskegon or preventing the County from tracking the quantities that are recycled including:

- There is a lack of unified County policy to drive an increase in recycling;
- Commercial recycling appears to be widespread but the tracking and documentation of this tonnage is not occurring;
- The complex matrix of recycling programs makes it difficult for the County to have clear, uniform messages about recycling and how to participate;
- The cost for residential curbside collection of recyclables has been built into the existing collection service but relies on the residents knowing that they must request the containers.
- Haulers often offer curbside collection for recyclables but don't promote this because it adds costs without adding revenues;
- Haulers have limited options for the disposition of recyclables for processing within easy access to their routes; and,
- Each rural community has separate transfer stations which:
 - Do not have economies of scale to obtain the best revenues from recyclables; and
 - Are difficult to operate cost effectively.

After a review and analysis of the current and potential infrastructure, it is recommended that the County explore three options to make changes that will influence the increase in recycling:

- Change Through Policy
- Removal of Barriers to Market
- Improvement to the Municipal Residential Transfer Station System

4.1 Change Through Policy

4.1.1 Program Intention

The GBB Team believes that Muskegon County has a recyclables collection infrastructure available that has the potential to handle its recyclables but, because it is fractured and unorganized, the results do not meet expectations. Regulatory tools available to the County could be used to orchestrate the existing haulers to operate according to an established protocol. This would allow the County to leverage the infrastructure that is already in place while maintaining the open market and private enterprise system that supports the private businesses in the County.



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4.1.2 Methods, Resources, and Tools Needed for Action

Although there are many approaches to legislating recycling, based on our discussions from stakeholders, the GBB Team recommends that the focus be on regulating provision of recycling services rather than regulating participation in recycling. Accordingly, GBB recommends that the County establish a licensing program for private haulers operating in its jurisdiction. To obtain this license, haulers must agree to operate according to the County's requirements. At a minimum, it is recommended that the County's license require:

- Providing recycling service to their residential customers;
- Offering, at a minimum, collection of cardboard for recycling to their commercial customers who generate more than a certain amount of this material per week;
- Providing multi-family properties (of a certain size) recycling collection for the materials provided to single-family home customers.

As a condition for licensing renewal it is recommended that the County require haulers to report on all recycling activities. The reporting forms should be developed by the County and be detailed, accurate, and provide feedback that the County can use to support both customers and haulers, perhaps through a future program of technical assistance in the field.

It is recommended that a licensing fee be assessed to offset administration of the program. The fee should be assessed based on the size of the company. Examples of ways other municipalities assess fees include per truck, per account, or per ton. Furthermore, the County might follow the example of other municipalities and have a two-tiered fee schedule, with smaller firms paying a different amount per unit of assessment than larger firms.

To revise local ordinances, the County would likely follow existing resources and standard procedures, including executive leadership and legal counsel. Having examples from other communities and advising on recommended elements could provide value to the process. To implement a new regulatory program, the County would likely need to allocate 0.25 to 0.5 of a full-time equivalent staff position. Significant changes to regulations typically require at least one year to complete, including development of the new content, review by legal counsel, public input including hearings, and adoption. After staff resources are allocated, initiation of the new regulatory program would take an additional six to nine months of planning and implementation. Consideration will need to be given for the adjustment of any municipal contracts that are not in compliance with the revised regulations.

4.1.3 Optimal Outcomes

The intended outcome of the licensing would be to increase participation in all sectors and improve tracking of recycling tons. The anticipated outcomes of the program would be the following:

- A uniform approach to recyclables collection will be established;
- The County will be able to send clear messages about what can be recycled and how to engage in the process;
- All residential customers in Muskegon County that receive curbside collection will have recycling service provided, regardless of municipality or contract status;
- All commercial customers in Muskegon County will have recycling service or can avail themselves of it;



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- Records of recyclable material tonnage will be reported to the County;
- The current private sector collection system will not be undermined; and,
- Costs of the administration of the regulation will be covered via licensing fees.

4.2 Removal of Barriers to Market

4.2.1 Program Intention

The GBB Team believes that haulers in the region have been hesitant to provide recycling services to their customers because of the limited options available to them for convenient and economic options for processing of the material. Additionally, if the County establishes licensing that requires collection services, it will be even more important that processing options are reasonably available. Because of this it is recommended that the County establish a transfer station. With the large quantities of recyclables consolidated at this facility, the County will be able to negotiate better pricing for the materials. One option that should be further explored is a local agreement with Kent County, MI.

4.2.2 Methods, Resources, and Tools Needed for Action

4.2.2.1 Recyclables Transfer Facility at Muskegon County Landfill

Under this option, the County will provide a recyclables consolidation and transfer facility. This would be a facility where licensed haulers could bring loads of recyclables collected from their customers and deposit recyclables by the truckload without having to manually unload their trucks. Recyclables would be consolidated from various sources for transport to a recyclables processor via transfer trailer.

It is recommended that the County consider siting this facility at the Muskegon County Landfill. The facility should be open to any licensed hauler but be sized with the understanding that it would primarily serve smaller-volume haulers since several of the larger haulers have processing facilities of their own and are not likely to use this facility.

GBB suggests designing the site and building with a double-bay covered structure where at least two recyclables collection vehicles could tip simultaneously, or one truck could tip while a loader operates to move material. The tipping floor could be semi open-air but covered and heated. The delivered recyclables would be deposited into an open-top trailer. The trailer would transport the consolidated, larger-volume loads to a MRF for processing.

GBB suggests that given the relatively small customer base for the facility, full-time operations may not be required—i.e., the facility might only need to be open three or four days per week, or limited hours per day, based on demand. Professional services needed will include facility design, equipment procurement, and site development services. GBB would expect that the recyclables transfer station could be completed within two years of the allocation of funds, including site design, construction, and approval. It is recommended that this facility be operating when the licensing of haulers is initiated.

Based on experience with other sites, GBB estimates that the cost to construct a transfer facility as described above could initially cost of \$1.7 to \$2 million, which could be amortized over a 15 year period.



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4.2.2.2 Development of Waste Exchange with Kent County, MI

The development of a recyclables transfer station at the landfill will require the County to secure a facility to which it can deliver the recyclables for processing. This could be done through a traditional bidding process. Kent County has previously expressed interest in a waste exchange with Muskegon County. Under this relationship, Muskegon County would send recyclables to the Kent County MRF in Kentwood, approximately 50 miles—a 1-hour drive—from the Muskegon County landfill. In exchange, Kent County would bring MSW from its North Kent Recycling & Waste Center to the Muskegon County Landfill. GBB notes that there are two other MRFs within hauling distance of the landfill, namely the Republic Services facility in Muskegon and the Westshore facility in Holland (see Section 1.1 of this report). One of the primary benefits of the waste exchange is that Kent County has a transfer fleet. Considerable efficiency is gained when the empty MSW transfer trailers can “back-haul” something of value—i.e., the recyclables from Muskegon. To deliver recyclables to Westshore, Muskegon County would have to operate one or more transfer trucks or pay for a service provider to do so. It is unknown if Republic Services would want to receive transfer trailers at its Muskegon facility, or would rather provide the hauling service directly from the Muskegon County landfill to its processing facility. This option should be considered in detailed analysis of this program; however, the cost efficiency gained by back-hauling is undetermined because Republic Services does not currently deliver significant amounts of MSW to the Muskegon County landfill.

In developing a waste exchange with Kent County, Muskegon County should negotiate for Kent County to provide the transfer trucks. This will allow Muskegon to avoid operation of such a vehicle. If successful, minimal additional equipment or staffing should be required to participate in the waste exchange. The two counties will need to negotiate financial arrangements that consider disposal fees, recyclables processing fees, recyclables revenues, and transportation costs. GBB would expect that these negotiations and the acceptance thereof by the local elected official would happen concurrently with the two-year development of the recyclables transfer station and be conducted by staff and legal counsel.

4.2.3 Optimal Outcomes

The intended outcomes of developing a recyclables transfer facility and moving the recyclables to market via a waste exchange with Kent County are to increase recycling tonnage, improve data quality, and reduce transportation costs to local haulers.

Specifically, the ambitions of the programs would include the following:

- Remove reported and perceived barriers to recyclables processing for smaller-volume local haulers, including transportation costs related to long-distance hauling, thereby improving the economics of collecting recyclables from their curbside customers;
- Encourage and support smaller-volume local haulers to expand their offerings of recyclables collection;
- Realize increased recycling tonnage due to increased participation by curbside collection customers; and
- Capture improved data on recycling activity.



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4.3 Improving the Municipal Residential Transfer Station System

4.3.1 Program Intention

A significant portion of the County is rural. The communities offer residents the option of disposing of waste and recyclables at drop-off facilities known as transfer stations. The approach is a patchwork of services that does not lend itself to good communications or efficiencies of operations.

In this option, the County would become a partner with the municipalities operating the rural transfer stations. The level of involvement could vary, depending on what is mutually agreeable to all the partners. The objective would be to improve access to waste and recycling drop-off for rural residents and standardize the programs for better education potential and economies of scale.

4.3.2 Methods, Resources, and Tools Needed for Action

There are three primary ways the County can get involved in the operation of the transfer stations. In order of increasing level of engagement, the three ways are:

- Providing advice and leadership;
- Acting as an agent on behalf of the municipalities; or,
- Assuming operation of the transfer stations as County facilities.

4.3.2.1 Providing Advice and Leadership

Under this approach, the County would simply facilitate standardization of services for the transfer station locations. It would not have control or say in any changes that would be made, but would develop a vision of how a transfer station system may work and encourage the operating municipalities to adopt it.

As a first step, the County would formally and intensively review the tonnage, operation logistics and financials of the transfer stations and produce a report. The resulting report would describe a theoretical transfer station system that:

- Recommend the materials that would be collected;
- Describe optimal locations for transfer stations;
- Suggest minimum hours of operation; and
- Estimate cost and price of service.

The analysis would go beyond the documentation provided in Section 1 of this document: the County would review the customer experience, breadth of available services, and financial performance of the transfer stations. The review would also consider industry best practices for facilities like these. The County would then provide detailed recommendations for each facility and for the system as a whole. The analysis and recommendations could likely be prepared within six to eight months of initializing the project. This report could provide a template from which standardization of the transfer stations could begin.

If the municipalities wanted to continue the partnership, the County would provide leadership in adopting the recommendations of the analysis report. For example, if a recommendation was adopted to allow residents to use any transfer station regardless of where they live, the County could help the operating municipalities devise a way to financially compensate one another for service provided to residents of other cities, towns, and townships. Any effort that involves transferring funds from one municipality to



Increasing Recycling in Muskegon County, MI

another will take eighteen to twenty-four months to accomplish due to the need to negotiate the terms and provide for the transfers in upcoming budget years. The financial components of this option would need to be managed well in order to protect the interests of both the local units and the County.

If the operating municipalities adopted a recommendation to standardize service from one transfer station to another, the County could identify the target level of service, create universal signage, and prepare site plans to accommodate any changes. The standardization of service from one transfer station to another will take varying amounts of time. The decision-making regarding the standardized level of service will take approximately six months to a year. The locations needing the least amount of change might need only six months after the plans are set in order to refine services and install new signage; locations requiring more adjustments and possibly construction would need twelve to eighteen months. Additional time may be needed for certain locations to wait until their existing service contracts are expiring or to procure new ones. The effort would be well served by a collaboration among the staff and Supervisors currently administering the transfer stations. The services of a design firm would likely be of good use for the sites needing significant redesign. The costs associated with this activity would include staff time from the County and the participating municipalities, and capital costs and professional services as needed for redesigns.

4.3.2.2 Acting as an Agent on Behalf of the Municipalities

To assist the transfer stations in combining their purchasing power, the County could help conduct procurements for hauling, trucking, processing, equipment, and special waste handling. The purchasing professionals at the County could bundle the buying for the operating municipalities, helping to set up and administer shared contracts. After evaluating and negotiating what to co-procure, the process would need an additional eighteen to twenty-four months due to the need to conduct the procurement, negotiate the terms, and allocate funding in upcoming budget years. A team of the municipal staff and Supervisors currently administering the transfer stations would work with County purchasing staff on this method of change. Going forward, the municipalities might also negotiate for the County purchasing staff to monitor the performance of the contractors and act as contract administrator on their behalf. This would require dedicated staff time from the County.

4.3.2.3 County Operation of the Transfer Stations

After considering the analysis and recommendations for the transfer stations, the operating municipalities might determine that the simplest way to adopt changes would be for Muskegon County to operate some or all of the facilities.

In this scenario, a memorandum of understanding (MOU) or similar interlocal agreement would be required. All signatories would agree to certain performance standards, levels of service, and operational requirements (e.g., days and hours the facility is open). Instead of operating the transfer stations, the municipalities would make payment to the County to operate them. One possible payment scenario would be annual transfers based on use of the facilities by residents of each municipality—i.e., per actual use. Another payment scenario would be to take the annual operational funding need and divide it proportionally by the population of each participating municipality—i.e., by opportunity or potential use.

This approach would require at least three years: six months for the analysis and recommendations, six months to a year for decision-making and negotiations; six months to a year for adoption of the agreements; and, six months to a year to implement changes, including budgetary appropriations. If this

method were under serious consideration, the County would need outside services for the initial analysis. The County would also need to assign a staff person half- to full-time to the process transferring the operations to the County. All parties would require the services of legal counsel. Enabling legislation will likely be required. Procurement staff will be required for contracting, as described above, and after the County begins operations, at least one full-time field supervisor or superintendent would be needed.

4.3.2.4 Timeline

Figure 4-1 shows how review of the transfer stations and the implementation of the changes described herein would unfold over the course of two years with the County providing advice, leadership, and acting as an agent for the municipalities. It bears noting that while all the recommended changes are shown on the timeline concurrently, they are all mutually exclusive. First, the standardization of service does not require shared procurement, although shared procurement would likely somewhat mitigate the costs of doing so across all the municipalities. Second, many of the transfer stations already offer similar services—e.g., tire or scrap metal recycling—and could share procurement for hauling those materials without changing any customer level of service. Third, an agreement to allow any County resident to use any transfer station requires neither the standardization of services nor the shared procurement.

Figure 4-1 Timeline of Implementing Standardized Transfer Stations and Shared Procurement with County Advice, Leadership, and Agent Services

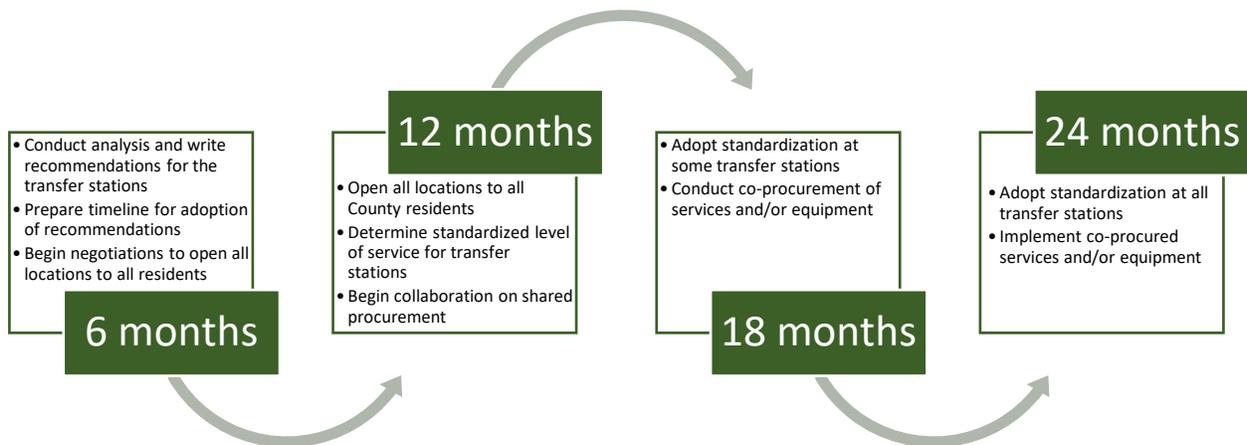
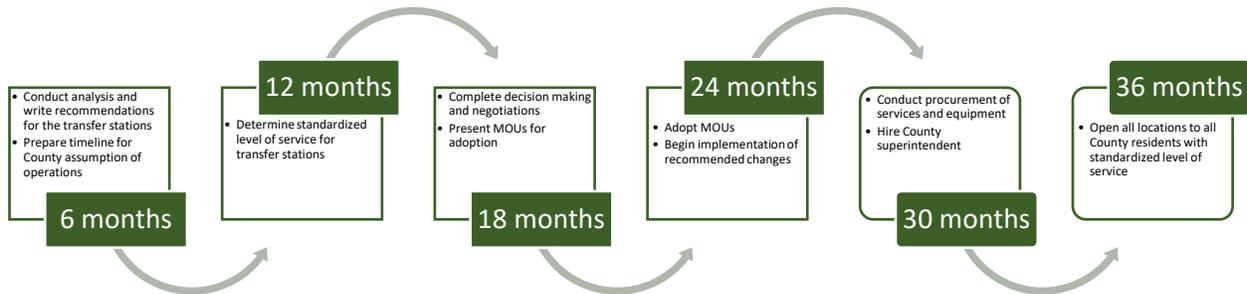


Figure 4-2 shows how review of the transfer stations and the implementation of the changes described herein would unfold over the course of three years if the County were to assume operation of the transfer stations as County facilities.

Figure 4-2 Timeline of Implementing Standardized Transfer Stations and Shared Procurement with County Assuming Operations of Transfer Stations



4.3.3 Optimal Outcomes

The intended outcomes of efforts to standardize the services, share procurement, and allow all residents to use any transfer station would be to improve reporting, capture data, increase participation, and contain per-user costs for expanded services. The ambitions of the programs would include the following:

- Encourage and increase recycling and reuse by expanding the offerings at the transfer stations and making the facilities easier to use;
- Promote recycling as an integral part of proper waste management and an amenity available to all residents of Muskegon County;
- Improve data collection, especially of recycling users and tonnages, to better capture and report on the recycling efforts in Muskegon County; and,
- Negotiate competitive rates for hauling, processing, equipment, and special waste handling and monitor the performance of those contracts.



5 Recommended Timeframe for Program Implementation

GBB recommends that Muskegon County begin development of the recyclables transfer station at the landfill, negotiation of the waste exchange with Kent County, and establishment of the hauler licensing regulation concurrently and in the near term. Although they are primarily internal programs reliant on administrative decisions and organizational will, two to three years will be required to have them fully functioning. These three programs are complementary and would have an immediate impact on participation in recycling in Muskegon County.

Regarding the rural transfer stations, GBB recommends the County begin with the Advice and Leadership program, sponsoring additional review of the transfer stations and making the information available to the operating municipalities. GBB further recommends that the County could likely provide significant support in the near term by assisting the operating municipalities to share procurement of the common services they already have—specifically, hauling of waste, recyclables, tires, and scrap metal. Decisions regarding further changes to the transfer stations could be affected by the impacts of expanded curbside recycling, above, and therefore are best be delayed until that time.



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6 Appendices

Appendix A 2014-2017 *Muskegon County Household Recycling & Disposal Guide*

Appendix B Solid Waste Hauler Survey, August 31, 2016



Increasing Recycling in Muskegon County, MI

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Save this guide

HOUSEHOLD RECYCLING & DISPOSAL GUIDE



Muskegon County

2015-2017

How to recycle or dispose of everything
from antifreeze to yard waste

Listing for disposal & recycling facilities

REDUCE • REUSE • RECYCLE

Printed on
100% RECYCLED
paper



RECYCLING OPTIONS FOR MUSKEGON COUNTY RESIDENTS THE THREE RS: REDUCE, REUSE, RECYCLE

We all have a stake, and a responsibility, to do more with less. Adhering to the principles, REDUCE, REUSE, RECYCLE (in that order!), can help curb energy and raw material consumption in the face of growing demand on our natural resources. You can REDUCE packaging waste by purchasing items in bulk and/or looking for items with minimal packaging, made of recycled content. Reduce unwanted “junk” mail by customizing your direct mail preferences at www.DMAchoice.org.

Find ways to REUSE or repurpose things! ExChangeWestMI.com, Craigslist.com and freecycle.org are excellent tools for turning your trash into someone else’s treasure. Invest in a refillable water bottle—it will save you money while reducing packaging waste, transportation fuel use and air pollution! Remember your reusable bags when you visit your local grocery store or farmer’s market. And, RECYCLE everything you can! You can even earn recycling rewards at www.recyclebank.com!

Many private haulers (and a few municipalities) offer curbside recycling options for free, or for a nominal fee, to the majority of Muskegon County residents. Contact your waste hauler for details and be sure to follow their collection guidelines. When a household includes unacceptable items with recyclables, such as food waste, refuse, broken glass or pizza boxes, it can contaminate the entire load and your diligent efforts to recycle can end up in the trash!

Here is a list of local haulers and municipalities that offer curbside recycling services in and around Muskegon County:

Recycling Haulers	Phone Number	Recycling Location
Ames Disposal Inc.	(231) 744-3031	Kent County Recycling and Education Center
City of Muskegon (residents only)	(231) 724-6411	Community Recycling Services
City of Roosevelt Park (residents only)	(231) 788-5096	Kent County Recycling and Education Center
Kuerth’s Disposal Inc.	(231) 744-4967	Kent County Recycling and Education Center
Lake Effect Disposal, LLC	(616) 717-0166	Westshore Transfer & Recycling Center
Muskegon Charter Township (residents only)	(231) 777-2555	Community Recycling Services
Republic Services	(877) 698-7274	Community Recycling Services
RMS Disposal Inc.	(231) 788-5096	Kent County Recycling and Education Center
SWS Waste Service, Inc.	(231) 788-4524	Community Recycling Services
Village of Fruitport (residents only)	(231) 865-3577	Kent County Recycling and Education Center
Village of Ravenna (residents only)	(231) 853-2360	Community Recycling Services
Waste Management	(866) 797-9018	Kent County Education Center

This publication is brought to you by Muskegon County Sustainability Office and funded by our Solid Waste program. If you have additional disposal questions that are not covered in the guide, please do not hesitate to contact our office at (231) 724-8846.

The County of Muskegon is committed to fostering a sustainable ecology, economy, and community. Please visit the Muskegon Sustainability Office online at www.co.muskegon.mi.us/sustainability. There you will find more comprehensive resources and ways we can all contribute to making Muskegon County a premier place to live, work and play!

If you live in an area where curbside recycling is not offered, or you have unique recycling or disposal needs, below is a current list of facilities in Muskegon County that offer a wide range of recycling and disposal options. Please note that some of these facilities do charge a nominal fee.

MUSKEGON COUNTY RECYCLING FACILITIES

DAYS / HOURS

*MATERIALS COLLECTED

<p>Cedar Creek Township Transfer Station (residents only) Located on Holton Duck Lake Road (231) 821-0014</p>	Sat 9 am - 4:30 pm	Household and yard waste, scrap metal
<p>Community Recycling Services (owned & operated by Republic Services) 1970 Port City Blvd., Muskegon (231) 773-8551</p>	Mon - Fri 7 am - 3:45 pm	Plastics (#1-7), glass, paper, cardboard, metal. Visit www.recyclemuskegon.com for list.
<p>Beacon Recycling, Inc. 1241 E. Keating Ave., Muskegon (231) 727-0722</p>	Mon-Fri 8 am - 4:30 pm	Metals, paper, plastics, etc. www.beaconrecycling.com
<p>Dalton Township Located at Russell & Michillinda (231) 766-3043</p>	Wed & Sat 8 am - 4 pm	Any metals, clear glass only, plastics (#1-7), cardboard, batteries, car batteries, office paper, junk mail, newspapers, phones, books, leaves, grass clippings, brush up to 4" in diameter, concrete, fill dirt, boats, hot tubs, etc. Visit www.daltontownship.org
<p>Fruitland Township Ecology Station (residents only) 5281 Michillinda (231) 893-0226</p>	Wed 10 am - 4 pm Sat 8 am - 4 pm	Yard waste, household garbage, paper, cardboard, plastic, clear glass, metals such as tin cans, aluminum, brass, steel, tires, used oil, appliances, and building materials (no cement). www.fruitlandtwp.org
<p>Habitat for Humanity ReStore 280 Ottawa, Muskegon, between Causeway & Downtown near Marquette (231) 727-6020 112 E. Colby St., Whitehall (231) 737-4939</p>	Mon - Fri 9 am - 6 pm Sat 9 am - 3 pm	Appliances, cabinets, doors, electrical parts, fans, flooring materials, hardware, lighting, lumber, trim, mirror, glass, latex paint, wall covering, pipe, PVC, metal/copper, plumbing, tubs, sinks, showers, roofing material, gutters, canales, tools, windows, screens, etc. www.muskegonhabitat.org
<p>Holton Township Recycling Station (A service of recycling for Newaygo County) 6511 Holton Whitehall Road (231) 821-2168</p>	Recycling Anytime!	Paper, plastics (#1 and #2 only), cardboard, metal. Visit www.recyclingfornewaygocounty.org for a complete list.
<p>Holton Transfer Station 7675 Holton Duck Lake Road (231) 821-2168</p>	Sat 8:30am - 4:30pm	Waste only, tires (fee)
<p>Ken Cooper Recycling 5750 Airline Road, Fruitport Township (231) 865-3337</p>	Mon - Fri 7am - 5pm Sat by appointment	Concrete, asphalt, brick and cinder blocks.
<p>PADNOS Shoreline Recycling Services 259 Ottawa, Muskegon (231) 722-6081</p>	Mon - Fri 8am - 4:15pm Sat 8am - 11:30am	Papers, plastics, metals and more. Please visit www.shorelinerecycling.com for information.
<p>White Lake Transfer Station 2100 West Holton-Whitehall Road, Whitehall (231) 893-2405</p>	Mon - Fri 8am - 4:30pm (April-Nov)	Metal, yard waste, used oil, newspapers, tin and aluminum cans, clear glass (NO GREEN GLASS), #1 and #2 plastics.
<p>West Michigan Recycling Center 40 Harvey, Muskegon (231) 773-7582</p>	Mon - Fri 8am - 4:45pm	Will purchase steel (short and long), car bodies, appliances, and cast iron. Call for details.
<p>White Lake Excavating, Inc. 2571 Holton-Whitehall Road, Whitehall (231) 894-6918</p>	Mon - Fri 8am - 4:30pm (April-Nov)	Brush and stump grinding; leaf, grass and dredge spoil composting; asphalt and concrete. www.whitelakeexcavating.com

*Please note that while Muskegon County has made every effort to keep this information up to date, this list may not be exhaustive and may be subject to change at the discretion of each facility operator. Contact facilities prior to visits.

HOUSEHOLD RECYCLING

ELECTRONIC WASTE RECYCLING

Best Buy [Recycle Program](#)

5425 Harvey St., Muskegon, MI 49444 (231) 798-6407
They will accept tube TVs and monitors to recycle for free.

Goodwill Industries of West Michigan, Inc.
271 E. Apple Ave., Muskegon, MI 49442,
(231) 722-7871 • www.goodwillwm.org

Goodwill Industries recycles computers, printers, and a wide variety of other electronic devices. NO TUBE TV or MONITORS ACCEPTED. Donations are collected at all western Michigan **Goodwill Stores and Donation Centers**. Non-working electronics are sorted by Goodwill workers based on its salvageable value.

Goodwill partners with **Valley City Electronic Recycling** in Grand Rapids to provide domestic disassembly of all nonworking and outdated equipment to maximize the commodity value for recovered metals, plastics, glass and circuit boards with a zero landfill policy for all regulated material. Revenue from this program benefits thousands of people right here in West Michigan through a variety of services provided by Goodwill.

Please visit Valley City's website for a complete list of accepted items: www.valleycityer.com

APPLIANCE RECYCLING

If you are replacing an old dishwasher, stove or refrigerator, check with the sales clerk or the manufacturer about whether they offer appliance recycling. If the appliance is in working order, you can also call 2-1-1 from any landline to find out if any charities are in need of working appliances (cell phone users dial (231) 733- 1155).

Note: Most scrap metal recyclers require refrigerants and compressors to be properly reclaimed prior to acceptance (e.g., dehumidifiers, refrigerators, etc.). This must be done by a licensed refrigerant reclamation specialist.

Quality Appliance Co., LLC, 874 E. Apple Ave., Muskegon is a licensed refrigerant reclamation company and accepts non-working appliances containing refrigerants, free of charge, for recycling; (231) 767-3152.

CELL PHONES

Many organizations will accept old cell phones for emergency use by local person in need:

Volunteer Muskegon
(231) 722-3134 ext. 240
www.volunteermuskegon.org

Distributes unwanted cell phones to seniors and disabled residents so they may have access to call 911 in an emergency.

Every Woman's Place
(231) 759-7909
www.everywomansplace.org

Recycles gently used cell phones for client use.

Verizon Wireless HopeLine
www.verizonwireless.com

Collects cell phones and parts for victims of domestic violence. Visit a local Verizon Wireless store to make a donation.

INK CARTRIDGES

Most ink cartridges can be refilled or recycled. Drop off ink cartridges at any of the locations listed below and you can even earn store credit!

Staples
Westshore Plaza
1773 East Sherman Blvd., Muskegon
(231) 739-7739
840 Jackson St., Grand Haven
(616) 847-2946
2337 North Park Dr., Holland
(616) 393-8103

SMOKE DETECTORS

Some smoke detectors contain a very low-level radioactive material encapsulated in a metal chamber. Contact the manufacturer to find out if they offer a mail-back disposal program. Otherwise, the State of Michigan, Radiation Safety Section recommends wrapping spent ionization chamber smoke detectors securely in newspaper, bagging them and disposing of them with your household waste.

You can learn more about smoke detectors and ionization technology at www.epa.gov.

FLAG DISPOSAL

The U.S. Flag Code specifies proper display etiquette as well as disposal guidelines. You can drop off any flag at any local **VFW** post. They work with the Boy Scouts of America to see that your flag is properly disposed. For more information about flag etiquette and disposal, or to find a VFW post near you, visit www.vfw.org and select Community--> Flag Education.

You can also drop-off your old stars and stripes to the **Muskegon County Department of Veterans Affairs, Veteran Services Center**, 165 E. Apple Ave., Suite 201, Muskegon; (231) 724-7143.

YARD WASTE

Michigan law currently prohibits yard waste from disposal in municipal solid waste landfills. Yard waste is defined as: leaves, grass clippings, vegetable/garden debris and shrubbery, brush or tree trimmings less than 4 feet in length and 2 inches in diameter. Contact your city or township office to ask whether they provide a yard-waste drop-off location. Consider composting your yard waste as a free way to return nutrients to your soil or garden and make your own potting soil.

Contact the Muskegon Conservation District at (231) 828-5097.

TIRE DISPOSAL

Proper tire disposal is very important, not only for the environment, but for human and animals health as well. Disease-carrying pests can inhabit tire piles. These retailers accept tires:

Discount Tire Company, Inc.
647 W. Norton Ave., Muskegon
(231) 739-3555

Accepts all passenger and light truck tires for a fee of \$2-\$5 each Monday-Friday 8 a.m.-6 p.m. and Saturdays, 8am - 5pm

Randy's Auto Salvage
1641 S. Wolf Lake Road, Muskegon
(231) 788-5075

Accepts passenger and light truck tires no larger than 19.5" rims, for \$2.25 - \$3 each Mon -Fri 8:30am - 5:30pm and Sat 8:30am - 12:30pm.

Smith Tire Station
499 W. Broadway, Muskegon Heights
(231) 733-9406

Accepts all passenger and light truck tires for a fee of \$2.50 each Mon - Fri 8am - 5pm and Sat 8am - noon. They ask that the tires be free of water and debris.



HOUSEHOLD RECYCLING

HOUSEHOLD HAZARDOUS WASTE DISPOSAL

Hazardous materials can be found in common household items such as cleaners, paint thinners, gasoline and motor oil, pesticides, fertilizers and even Compact Fluorescent Light bulbs (CFLs). Once these items can no longer be used, they become Household Hazardous Waste (HHW), and it's important to make sure they are disposed of properly to safeguard families, pets and the environment.

The Muskegon County Department of Public Works offers a free HHW disposal program to Muskegon County residents. Please note that commercial and industrial waste is prohibited. Should you possess any of the following materials, the HHW programs will dispose of them in a safe and responsible manner.



- Mercury or mercury-containing devices (i.e. Compact Fluorescent Light Bulbs and other fluorescent lamps, mercury thermometers or thermostats, etc.)
- Petroleum products
- Antifreeze and other automotive fluids
- Pesticides
- Insecticides
- Herbicides
- Aerosol cans (containing hazardous materials)
- Alkaline batteries (we do not accept lead acid/car batteries)
- Acids (i.e. muriatic acid)
- Bases (i.e. drain cleaner)
- Fire extinguishers
- Other products with approval

Recycling used oil is preferred over disposal as HHW. Used oil can be recycled, free of charge, at any AutoZone location and most other quick oil change service locations.

Note: Paint is not considered a hazardous waste. The best way to dispose of paint is to use it or recycle it.

Regular Collection Hours:

The second and fourth Friday of each month, May - Oct, 1 - 3pm.

Late fall and winter collection is by appointment only. Appointments are made only for those who are not able to wait for a normal collection day.

Collection Location:

Household Hazardous Waste Site
Rear lot of Pound Buddies Rescue
1300 Keating, Muskegon

Contact: If you have any questions regarding materials that you'd like to dispose of, please contact the Household Hazardous Waste line at (231) 724-6001 (option 4)

To learn more about health and safety information on household products, help identify potential sources of HHW in your home and find ways to seek out alternatives, visit <http://householdproducts.nlm.nih.gov>

ANTIFREEZE

Antifreeze contains ethylene glycol and should never be dumped on the ground or down the drain. It is toxic to humans, animals, and aquatic life. In addition to the Muskegon County Household Hazardous Waste Facility, you can take unwanted or used antifreeze to:

Speedy Lube Inc. locations:

2211 E. Apple Ave. (231) 773-4941
409 Center St. (231) 744-5203
57 W. Broadway Ave. (231) 737-1521

Firestone Complete Auto Care

700 W. Sherman Blvd. (231) 733-2591

MERCURY THERMOSTATS

Many old thermostats contain mercury about 3 grams of mercury per device.

According to the Michigan Department of Environmental Quality, the improper disposal of mercury thermostats results in about 8% of the mercury released annually in the U.S., equal to about 9.6 tons.

Make sure you dispose of your old mercury-containing thermostat properly, NOT with regular household trash. Once in the environment, it can transform into methyl mercury, which can be extremely harmful to human health.

Please contact your thermostat manufacturer to determine whether they have a mail-back program, or bring them to the **Muskegon County Household Hazardous Waste** facility.

You can also visit www.michiganenergyoptions.org for more information and disposal options in Michigan.

FLUORESCENT LAMPS & CFLS

Fluorescent lamps, including Compact Fluorescent Light bulbs, or "CFLs," contain trace amounts of mercury. While they use 75% less energy, and last about 10 times longer than traditional incandescent bulbs, you should take care that they do not break and dispose of them safely. CFL bulbs can be recycled at any Home Depot or Lowe's. Simply bring in your spent, unbroken CFLs to the store and ask an associate to point out the recycle container.

Home Depot, Roosevelt Park

2699 Henry, Roosevelt Park
(231) 755-0440

Lowe's*

2035 East Sherman Blvd, Muskegon
(231) 739-1100

*this location also accepts fluorescent tubes.

Note: The Muskegon County Household Hazardous Waste Program also accepts CFLs. See Household Hazardous Waste for schedules and directions.



HOUSEHOLD RECYCLING

BATTERIES

Muskegon County South Campus Central Services Building
141 E. Apple Ave., Muskegon, 49442

- AA, AAA, C, D, 9V and button batteries.
- Battery packs from cameras, cell phones, laptop computers, power tools, etc.
- Batteries from handheld electronics like iPods, PDAs, pagers, etc.
- Important: They do not accept lead acid batteries

Note: The Muskegon County Household Hazardous Waste Program also accepts batteries. See Household Hazardous Waste for schedules and directions.

Batteries Plus Bulbs Norton Shores will accept everything from car and boat to laptop batteries. \$1 per pound or \$25 per 5-gal bucket, and get \$10 off next battery purchase. Located at: 5839 Harvey St., Norton Shores, (231) 747-9168.

Radio Shack will accept nickel-cadmium rechargeable batteries at no charge, no purchase necessary. Examples are those used in cell phones, laptops and camcorders. There are four retail locations in Muskegon County:

850 W. Sherman Blvd., Muskegon	(231) 759-7597
1819 E. Sherman Blvd., Muskegon	(231) 739-9249
5600 Harvey St., Lakes Mall, Muskegon	(231) 798-3468
511 E. Colby, Whitehall	(231) 894-2469

U S A-1 Battery Auto Electric Service will PAY YOU \$9 for car batteries, or larger! They are located at: 1225 South Getty, Muskegon; (231) 722-0327. Hours: Mon - Fri 8:30am - 5:30pm and Sat 9am to 1pm.

USED OIL RECYCLING

AutoZone accepts motor oil at all three locations at no cost. AutoZone asks for clean motor oil only (not mixed with water, gas, leaves, etc.) and no more than five gallons per person, per day.

1236 E. Apple Ave., Muskegon, (231) 773-4479
Monday-Saturday 7:30 a.m.-10 p.m.,
Sunday 9 a.m.-9 p.m.

705 W. Sherman Blvd. Muskegon,
(231) 737-2502
Monday-Saturday 8 a.m.-9 p.m.
Sunday 9 a.m.-9 p.m.

1740 Holton Road, Muskegon, (231) 744-4265
Monday-Saturday 7:30 a.m.-10 p.m.,
Sunday 9 a.m.-9 p.m.

In addition to AutoZone, the following locations accept small quantities of used motor oil for recycling.

Advance Auto Parts Locations
1333 E. Apple Ave., (231) 767-9459
2703 Henry St., (231) 755-1811

Firestone Complete Auto Care
700 W. Sherman Blvd.,
(231) 733-2591

White Lake Area Solid Waste Authority
2000 Holton-Whitehall Road,
(231) 894-4048

Speedy Lube Inc. Locations
211 E. Apple Ave., (231) 773-4941
409 Center St., (231) 744-5203
57 W. Broadway Ave., (231) 737-1521

Miller's Oil Lube Express
624 E. Colby St. Whitehall,
(231) 894-9340

Walmart Tire and Lube Express Locations
1879 E. Sherman Blvd.,
(231) 739-6202
3267 Henry St., (231) 739-4710

Fruitland Township Ecology Station
5281 Michillinda Road,
(231) 766-3208



STYROFOAM RECYCLING

NuPak Solutions Inc. will recycle CLEAN Styrofoam used in packaging at no charge, Monday-Friday from 7 a.m.-3 p.m. Styrofoam that has come into contact with food or drink is NOT accepted. Please call ahead for details and directions.

NuPak Solutions Inc.
2850 Lincoln St., Norton Shores (231) 755-1662

Note packaging peanuts are accepted for reuse at Muskegon **UPS** store locations:
1934 E Apple Ave.
1887 Holton Road, Suite D
2743 Henry St.



HOUSEHOLD RECYCLING

MEDICATION & SHARPS DISPOSAL

The **Muskegon Area Medication Disposal Program (MAMDP)** is a collaborative of community organizations providing an outlet to safely dispose of unused, unwanted and expired medications. FDA and EPA no longer recommend flushing or landfilling medications due to environmental concerns about the effects on safe drinking water and the ecology of our watersheds.

MAMDP partners offer collection events as well as an expanding network of daily disposal options. Visit www.mamdp.com for more information.

DAILY DISPOSAL OPTIONS FOR CONTROLLED SUBSTANCES

All law enforcement offices throughout Muskegon County have a drop box located just inside their front doors. Medications can be dropped off any time during their regular business hours, and without question. Please visit www.mamdp.com for additional information about this program.

Glenside Pharmacy

1663 W. Sherman Blvd., (231) 755-2443
(inside Glenside Plumb's)

Westshore Professional Pharmacy

1150 E. Sherman Blvd., (231) 672-2204
(inside the Health Pavilion)

Hackley Professional Pharmacy*

1675 Leahy, Suite 111, (231) 728-5888
(inside Hackley Professional Center)

*will also accept sharps in appropriate container

Wolf Lake Pharmacy

5483 E. Apple Ave., (231) 788-4087
(inside Wolf Lake Plumb's)

Healthcare Equipment & Pharmacy

6401 Prairie St., (231) 727-7968
(in Lakes Campus near The Lakes Mall)

Benson Drug SavMor Pharmacy*

961 Spring St., (231) 722-2861

* will also accept sharps in appropriate container.

SHARPS

If you do not have access to sharps disposal options through your pharmacy, health center, or otherwise, MAMDP, in partnership with Muskegon County Department of Public Works, will accept used sharps at their one-day events **ONLY** in sealed, safe sharps container or empty laundry soap jug. (Drop off events will be announced at www.mamdp.com)

There are also a number of mail-back disposal services, such:

BD Sharps Disposal Home

(800) 327-4277

Stericycle Sharps Mail-Back Program

(866) 783-7422

Medwaste Tracker

(866) 699-6466

Ask your pharmacist about other sharps mail-back programs.

EXPLOSIVES & AMMUNITION

The Muskegon County Household Hazardous Waste program does not generally accept bullets, shotgun shells, fireworks, flares, grenades and other explosives. Contact your local law enforcement agency for disposal options.

MERCURY THERMOMETERS

The Muskegon County Household Hazardous Waste Program accepts mercury-containing devices.



PAINT RECYCLING & DISPOSAL

If you find you have leftover latex/water-bases paint that has never been frozen, contact one of these organizations for recycling:

Muskegon County Habitat for Humanity ReStore

FREE latex paint recycling

Ottawa St., Muskegon

(231) 727-6020

4345 Airline Rd., Norton Shores

(231) 737-4939

NEW LOCATION: 112 E. Colby St., Whitehall

Port City Paints RepcoLite Paints Inc.

(231) 726-5911

Charges \$1 per gallon to recycle latex paint.

AS A LAST RESORT: Latex and oil-based paints are not considered hazardous waste, therefore, paints that have been

frozen or aged too long may be disposed of with your household

trash, as long as it is dried or solidified. Try adding kitty litter or other drying media and leaving the can open to dry in a well-ventilated area, away from children and animals.

FREE Muskegon County Recycling and Collection Events

will take place in April and October at the City of Muskegon's Department of Public Works parking lot at 1350 E. Keating in Muskegon.

These events will collect and properly recycle and dispose of problem items to help protect the health and safety of Muskegon County residents.

Please visit www.co.muskegon.mi.us/HHW for updates and announcements for future events!



MUSKEGON COUNTY LANDFILL

9633 Apple Ave.
(231) 724-6001
www.co.muskegon.mi.us/solidwaste

The County operates a licensed Type II landfill to properly dispose of non-hazardous solid waste. If you have unwanted solid waste that cannot be reused or recycled, you can visit the landfill, which is located approximately 2.5 miles east of Maple Island Road on Apple Avenue.

Please call or visit the website for updates on future recycling efforts at the Muskegon County Landfill!

HOURS

COMMERCIAL HAULERS
Monday—Friday 7am-4:30pm
Saturdays 8am-2pm

NON-COMMERCIAL HAULERS
Monday—Friday 8am-4:30pm
Saturdays 8am-2pm

HOLIDAY CLOSURES:

New Year's Day
Memorial Day
Independence Day
Labor Day
Thanksgiving Day
Christmas Day

RATES (as of March 2014)

NON-CONTRACTED HAULERS (within landfill):
\$34 per ton
CONTAMINATED SOIL: \$48 per ton
CARS (Transfer Station drop-off):
2 ¼ cents per lb.
(\$8 minimum, up to 360 lbs.)
ALL OTHER VEHICLE TYPES
(Transfer Station drop-off): 2 ¼ cents per lb.
(\$22 minimum, up to 980 lbs.)

NO LARGE APPLIANCES, LIQUID PAINT, YARD WASTE, WHOLE TIRES, PROPANE TANKS, OR HAZARDOUS WASTE ACCEPTED.



Survey of Muskegon County Haulers

Muskegon County’s Department of Public Works has asked solid waste consultants from Gershman, Brickner & Bratton, Inc. (GBB) to explore ways in which the County can support residents, businesses, municipalities, and haulers in order to increase recycling and decrease disposal in landfills.

As an active hauler in the County, you play an important role in the County’s solid waste system. In order to better understand the trash and recycling collections currently ongoing in the County, we have developed a brief survey. Your answers to this questionnaire will help us consider how the County can provide leadership and services so that the current system might be improved and more material diverted from the landfill. At the same time and as a result, your business will be more successful.

GBB understands that for waste hauling companies, information about your business operations and your customer base are as vital resources as your trucks and your people. We understand the role of pricing as a marketing tool, and we understand the criticality of territory to making your economics work. That is why there are no questions in this survey asking for rates and no questions about territory in this survey.

The questions here are designed to get a clearer understanding of the services being offered and utilized by residents and businesses in Muskegon County. We therefore want to express our assurance to you of the following:

- GBB will not share the specific responses to the survey with County staff or any other local governments;
- All information gathered from the surveys will be reported in aggregate and summary, in general terms; and,
- Any specific responses, such as those given as examples, will be anonymous and unnamed.

We have provided a non-disclosure agreement as further documentation of our dedication to integrity.

Please complete the following brief survey and return it to GBB by September 23 via mail, fax or email:

Mail: Kate Vasquez, Gershman, Brickner & Bratton, Inc., 8550 Arlington Boulevard, Suite 304, Fairfax, VA 22031

Fax: 703-698-1306 to Kate Vasquez

Email: KVasquez@gbbinc.com

Contact Information (Please print)

Company Name:	Your Name:
Company Website:	Your Title:
Phone:	Email:
Company Address:	

General Survey Questions

1. Do you collect trash/refuse from the following customers (please check all that apply):

- Residential properties (single family and town homes only)
- Multi-unit residential properties (condominiums, apartments)
- Commercial, institutional or industrial properties (excludes multiunit apartments, condos)
- Other (please specify)

2. Do you collect recyclable materials from the following customers (please check all that apply and indicate the materials you collect from each customer type):

Residential properties (single family and town homes only)

- | | | |
|---|--|---|
| <input type="checkbox"/> Plastic #1 & 2 only | <input type="checkbox"/> Newspaper, magazines and catalogs | <input type="checkbox"/> Cardboard |
| <input type="checkbox"/> Plastic #1-7 | <input type="checkbox"/> Paperboard/boxboard | <input type="checkbox"/> Glass bottles and jars |
| <input type="checkbox"/> Metal food and beverage cans | <input type="checkbox"/> Other paper | <input type="checkbox"/> Yard waste |
| <input type="checkbox"/> Foil and pie pans | <input type="checkbox"/> Milk and juice cartons | <input type="checkbox"/> Other (please list) |

Multi-unit residential properties (condominiums, apartments)

- | | | |
|---|--|---|
| <input type="checkbox"/> Plastic #1 and #2 only | <input type="checkbox"/> Newspaper, magazines and catalogs | <input type="checkbox"/> Cardboard |
| <input type="checkbox"/> Plastic #1-#7 | <input type="checkbox"/> Paperboard/boxboard | <input type="checkbox"/> Glass bottles and jars |
| <input type="checkbox"/> Metal food and beverage cans | <input type="checkbox"/> Other paper | <input type="checkbox"/> Yard waste |
| <input type="checkbox"/> Foil and pie pans | <input type="checkbox"/> Milk and juice cartons | <input type="checkbox"/> Other (please list) |

Commercial, institutional, industrial properties (not including multifamily apartments, condos)

- | | | |
|--|---|--|
| <input type="checkbox"/> Plastic #1 and #2 only | <input type="checkbox"/> Paperboard/boxboard | <input type="checkbox"/> Batteries |
| <input type="checkbox"/> Plastic #1 -#7 | <input type="checkbox"/> Other paper | <input type="checkbox"/> Motor oil |
| <input type="checkbox"/> Metal food and beverage cans | <input type="checkbox"/> Milk and juice cartons | <input type="checkbox"/> C&D |
| <input type="checkbox"/> Foil and pie pans | <input type="checkbox"/> Cardboard | <input type="checkbox"/> Other (please list) |
| <input type="checkbox"/> Newspaper, magazines and catalogs | <input type="checkbox"/> Glass bottles and jars | |
| | <input type="checkbox"/> Yard waste | |
| | <input type="checkbox"/> Food scraps | |
| | <input type="checkbox"/> Cooking oil/grease | |

I do not collect recyclable materials from any customers. *Besides customer refusal, please explain reasons for not collecting recyclables.*

3. Please describe or discuss reasons your customers give you if they decline to have recycling service.

If you DO provide recycling collection services, please answer the following questions:

4. Do you charge a separate fee for trash and recycling collection, or one fee for both?

- | | |
|---------------------------------------|---|
| <input type="checkbox"/> Separate fee | <input type="checkbox"/> One fee for both |
|---------------------------------------|---|

5. Do you provide customers with recycling containers?

- | | |
|--|---|
| <input type="checkbox"/> Yes (please indicate type/s of container below) | |
| <input type="checkbox"/> Bins | <input type="checkbox"/> Front end |
| <input type="checkbox"/> Carts | <input type="checkbox"/> Other (please specify) |
| <input type="checkbox"/> Roll off | |
| <input type="checkbox"/> No | |

6. Do you provide recycling technical assistance to commercial and multiunit customers (e.g., waste audits, educational materials, training)?

Yes (please indicate type of assistance)

No

7. What facility or facilities do you use for processing recyclable materials? Please list.

8. Do you have to pay to tip recyclables? How much?

9. In your opinion, what can the County do to improve recycling programs and decrease landfill disposal?

10. Please provide information on number of amount tons you take to a recycling processor—for example, tons per week. Include single stream, newspapers, yard waste, and any other materials you pick up other than refuse.

Thank you for completing this questionnaire!



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McLean, Virginia 22102
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www.gbbinc.com