

Solid Waste Management Plan

Bay Mills Indian Community

Updated by the Bay Mills Indian Community Biological Services Department

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Recent Update: June 2022

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Introduction

The following Solid Waste Management Plan is a guide to handling non-hazardous, non-medical municipal waste within Bay Mills Indian Community (BMIC). It focuses on environmental friendliness and economic efficiency via waste reduction, recycling and reuse. The five main elements of the planning method include: the Community Service Area; BMIC Solid Waste Management Program Structure and Administration; Current and Proposed Waste Management Practices; Long Term Funding and Sustainability; and Approval of the Plan. Important sub-factors are BMIC's waste stream characterization/waste generation, short and long term goals of waste reduction, and the overall feasibility of the current and proposed waste management practices.

BMIC consists of residential areas, gaming and tourist centers, and is home to a body of students from the Bay Mills Community College. The waste produced by these sectors of the community is highly recyclable and compostable. Open dump sites are cleaned in a collaborative effort between the biological services office and community volunteers throughout the year, in and around the community. The BMIC also implements a "dollar a bag" policy, in which residents could purchase designated green 30 gallon bags from Advanced Office Technologies for one dollar. Those bags can then be disposed of into the compactor at the BMIC Waste Transfer Station (WTS) for removal to the landfill. Also, Bay Mills provides 20 free bags to elders once every two months to help offset the cost and to dispose of trash at the BMIC transfer station. These efforts have succeeded, and continue to succeed, in minimizing illegal dumping and littering.

BMIC is heavily dependent on GFL Environmental Inc. (GLF Inc.), for waste collection and disposal services as it is the only refuse hauler in the area. GFL also owns the only landfill in the area. While recent efforts to divert much of this waste from landfills have been successful there still exist room for improvement with continued creation of reduction programs and policies. While such programs may require initial investment and costs, a solid waste management plan that includes reduction programs and policies can drastically cut waste disposal amounts, and improve economic efficiency, as will be shown later in this plan.

We will present the specific factors affecting BMIC waste management, display current and proposed waste management practices, the overall feasibility of those practices, and outline the proposed implementation of a new solid waste management plan.

1.0 Community Service Area

1.1 Population and Demographics

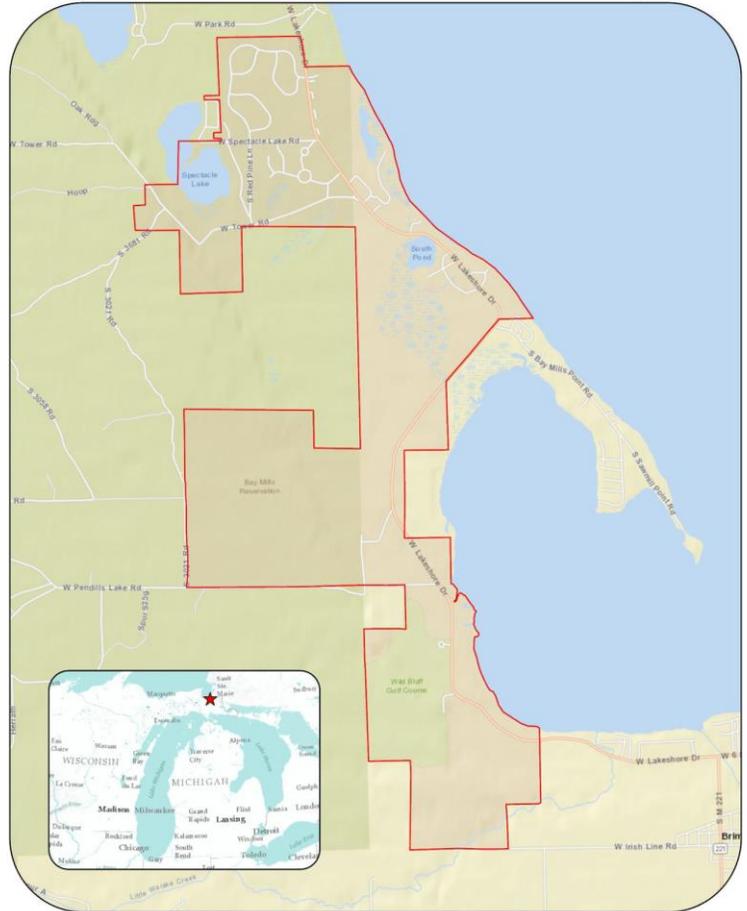
As of 2022, Bay Mills Indian Community has an enrollment of 2,342 tribal members, with 1,354 tribal members living within the Chippewa, Luce, Mackinac service area. 423 tribal members living in the service area are under the age of 18. There are approximately 600-700 students enrolled at the Bay Mills Community College in any given year. For the purposes of this plan, however, we will be using the numbers of on-reservation residents to calculate waste generated from the reservation.¹ Sault Ste. Marie is the closest city with a population of approximately 13,337 people (U.S. Census April 1, 2020) and is located approximately 25 miles from the Reservation.

1.2 Community Assets and Resources

BMIC maintenance department handles numerous waste management responsibilities to include: running a recycling program consisting of collecting recyclables from 7 tribal buildings and transporting a community recycling trailer to the county recycling facility on average bi-weekly; and staffing the waste transfer station at the maintenance grounds. Maintenance equipment includes:

- 1 30 yard compacting rollaway dumpster (maintained by GFL)
- 2 20ft recycling trailers (with separated storage for glass, paper, plastic and cans)
- 1 16ft enclosed trailer
- 2 open 10ft trailers
- 1 20ft ramped Fifth-wheel trailer
- 1 cardboard compactor
- 8 pickup trucks (with 5 plows)

Bay Mills Indian Community Main Reservation Boundary



¹ Retrieved from Tribal Action Plan see Appendix A

- 1 Kubota heavy mover
- Light construction/maintenance resources and facilities.
- 1 fluorescent light bulb crusher

The public works department provides construction services for all reservation facilities, and maintains heavy loading and transportation equipment.

Biological and Conservation Department offices are located at 11801 Plantation Rd, Brimley MI. Though neither specializes in solid waste management/reduction, the biological services department, in conjunction with the BMIC maintenance department, does provide a twice yearly Household Hazardous Waste (HHW) collection event where residents can drop off their stored oil, batteries, paint, and electronic waste for disposal at no cost to the resident.

The Bay Mills Community College incorporates an environmental science program on campus though it is not currently used for recycling/composting research or services. The community college also maintains the Waishkey Bay Farm properties which include several vacant outbuildings. These outbuildings have been used, as is discussed later in this paper, to conduct solid waste assessments.

Several volunteer/tribal community groups are located on-reservation, such as the cultural center and the boys and girls club. The boys and girls club has provided volunteers for previous studies related to solid waste and the Boys and Girls club and the Community college environmental students have expressed interest in being part of solid waste studies, cleanup efforts, and other planning efforts and should be considered as valuable potential resources for future work.

1.3 Households and Housing

BMIC housing consists of 3 residential areas/circles and 2 apartment complexes. These residential units are under the care of the BMIC Housing Authority and Individual tribal members. 33 housing units utilize curbside pickup. All other housing units drop off trash at the maintenance grounds transfer station as they deem necessary. The lack of curbside pickup causes some residents to hold garbage outside for long periods of time; this has raised concern of animal activity (specifically bears) due to the rural nature of the BMIC. Dumpsters are located at each apartment complex for those residents' use. For the purposes of this plan we will be using the BMIC residential areas. Private residents who do not dump trash at the transfer station will not be included in this plan's calculations and projections.

Infrastructure for additional housing is being built on Plantation road. Up to 150 homes are planned to be constructed there.

1.4 Population Projection and Estimated Growth

In recent decades there was dramatic growth of Bay Mills Indian Community when many families moved back to the Reservation. However, it appears that this dramatic growth was short lived and since that initial dramatic growth the Tribe is experiencing a moderate growth rate of approximately six percent per year. While this moderate growth rate of six percent per year is expected to continue it is important to note the punctuated growth events of the Community's past and plan for similar events.

1.5 Economy

The economy of BMIC relies mainly on casino enterprises, business holdings and tourism. There are five commercial enterprises on BMIC, namely: The Bay Mills Resort and Casino (BMRC), Wild Bluff Golf Course, Bay Mart gas station and store, Four Seasons Market & Deli, and Northern Lights Cannabis Company; there is also a RV Campground directly across from BMRC that can house approximately 120 RV's. The gambling and tourism industries create a huge influx of visitors in the tourist months, however the BMRC enterprises listed above maintain their own waste streams and use enterprise revenue to remove waste. No enterprise waste is regularly disposed of by the BMIC maintenance department.

There is also a fishing industry consisting of 12 subsistence and 63 commercial fishermen in BMIC as of 2022. This information was received by Justin Carrick, Bay Mills Public Safety Manager.

1.6 Climate

The Bay Mills Indian Community's climate is lake enhanced and is characterized by moderate temperatures in the summer and severe winters. The average annual precipitation is between 30 and 33 inches. Annual snowfall is between 90 and 110 inches. The average growing season is between 120 and 140 days, starting in early June and ending in late September.

1.7 Geography and Land Use

The Bay Mills Indian Community is located within a narrow strip of land between the shores of Lake Superior (at the St. Mary's River) and the Hiawatha National Forest in Chippewa County, Michigan. Sault Ste. Marie, Bay Mills' nearest city, is located approximately 25 miles east/northeast of the main reservation. Land owned by Bay Mills is geographically fragmented and divided among reservation, trust, and fee lands (see attachment: Bay Mills Community Locator Map). The majority of the land base lies northwest of Brimley, Michigan. The remainder of BMIC land, approximately 600 acres, is located on Sugar Island. The specific acreage distribution is as follows:

Bay Mills Acreage Breakdown:

Original Mission Area	527.85
IRA	1053.91
Sugar Island	607.75
Forest Service Exchange Land	842
Purchased Land	816.89
Total	3848.40

Historically, development on the BMIC Trust land has been extremely limited. Life on the Bay Mills Reservation, as on most Indian reservations, was in a basic survival mode for over 150 years until successful economic development took hold in the mid-1990s. Wetland areas made it difficult to build homes, to farm, or even travel throughout the Reservation. Unemployment had exceeded seventy percent. Most housing was at the bottom end of sub-standard. Social ills were the norm. Educational opportunities bypassed Indian children. Business opportunities other than commercial fishing were nearly non-existent.

The southwest portion of the Reservation was once farmed. An apple orchard once existed and an area of crops was maintained. A small cattle farm also existed until 1976 when the Bay Mills General Tribal Council mandated that it be discontinued because of difficulties associated with wetlands. Agriculture has discontinued on the Reservation with the exception of a few garden plots. Small isolated logging activities also took place on the Reservation throughout the years. These past activities have changed the hydrology, soils, and flora of the area.

Many of the existing homes in the southern portion of the Reservation were built on wetlands, as were many homes off the Reservation throughout the United States before there was any federal legislation protecting wetlands. The BMIC has practiced minimal degradation impact with all of its existing home sites. The homes that were built in wetland areas were constructed on small pads of fill with a density of less than one home per acre. This type of development tends to fragment wetland areas. The area that has probably suffered the greatest detrimental impact is a wetland along Lakeshore Drive that appears to have been completely filled in.

In the 1980s a renaissance was ignited. This resulted from a total community effort, guided by astute tribal officials who had a compelling vision of the future. A philosophy of self-determination was adopted to ensure the Tribe’s future success. In 1984 the people of Bay Mills opened the very first Indian casino in the United States. This helped generate funds that were directed toward meeting community goals.

In October of 1993, the BMIC tribal leaders proposed a specific land management strategy that provided for future residential, commercial, and economic development, as well as wetlands preservation. A future development zone was proposed that consisted of a

combination of uplands and significantly altered, low quality wetlands. The area consists of approximately 116 acres and is located in an area in which residential and recreational development already exists. The boundary for the area runs parallel with Lakeshore Drive, 350 feet from the center of the road, on both sides. Any development within this zone would follow careful environmental assessment prior to any construction activities. In December 1993, the BMIC submitted applications to the U.S. Army Corps of Engineers for a block development permit for this proposed area for the purpose of permitting the discharge of new fill material, as well as After the Fact authorization for the unauthorized placement of fill on several new housing sites.

Bay Mills tribal leaders also set-aside approximately 460 acres of high quality wetlands to be preserved. This preservation area falls under all applicable preservation management objectives that the BMIC adopted, which includes wetland protection codes and ordinances. The area includes roughly 460 acres, which is four times the area proposed for development activities.

Throughout the 1990s major improvements were made in the social-economic fabric of the community. Housing steadily improved and sub-standard homes were replaced. Health care facilities and a medical clinic were constructed. Senior citizens assistance for the elders was developed. A community college was established. Young people learned more about their culture and traditions. Tribal businesses developed. A new state-of-the-art, all season, resort complex with casino, hotel, golf course, and marina was opened on the shores of the Back Bay.

In the summer of 1993, the last three homes built on wetlands occurred. The foundation fill was minimal, and the houses were placed on one-acre parcels. This was considered the last alternative for tribal housing due to the fact that most upland areas that are suitable for residential development have been utilized. The Bay Mills Indian Community had fully developed the land suitable for residential, commercial, economic, and recreational uses when the Tribe began working with the United States Forest Service. The USFS possesses almost the entire land holdings adjacent to the entire western boundary of the Reservation. In 1998, the Tribe successfully completed a land swap with the National Forest Services, which resulted in the Tribe securing 842 acres of new land adjacent to the current tribal boundaries. The land is broken into two separate parcels, one parcel located north of Spectacle Lake. This parcel allowed the Tribe to build 65 new homes for their growing population. The other parcel located adjacent to the southwest Reservation boundary and is earmarked for approximately 150 residential units.

Today existing land uses on Bay Mills land are chiefly comprised of: wooded (1,500 acres), wetlands (1014 acres), residential (520 acres), recreational (203 acres), and business/community services areas (50 acres).

1.8 Geology and Natural Resources

The Bay Mills Indian Community's physical environment can be characterized as mostly flat and wet. Bay Mills Indian Community land consists of glacial deposits and generally low, level terrain with an average slope of 5% and elevations between 600-700 feet. However, the Reservation does contain two ridges that dominant the area's flat landscape. Mission Ridge extends from the northwest to the southeast along the western boundary of the Reservation and has slopes up to 60% and rise 300 to 400 feet above the Reservation. Another small ridge is located in the northeast portion of the Reservation near the North Pond.

Soil types vary throughout the Reservation. According to the USDA Soil Survey of Chippewa County, many of the soil types on the Reservation are hydric. Hydric soils are indicative of wetland conditions. Wetlands account for approximately forty percent of BMIC land. This high percentage of wetland has had significant impacts on meeting housing needs and other development needs. Other areas of the Reservation exhibit soils that are highly permeable. Areas of high permeability have contributed to an excellent groundwater resource throughout the Reservation.

Northern hardwoods largely comprise the wooded lands on the Reservation. Hardwoods include: Sugar and Red Maple, Yellow and White Birch, Aspen, American Beech, and minor species. In the lowlands, Northern White Cedar, Balsam Fir, Black and White Spruce, and Tamarack predominate. On the sandy plains and uplands farther inland, Jack and Red Pine plantations predominate. Some of the timberlands are quite valuable, especially those containing Red Pine pole and saw timber and northern hardwood veneer and saw timber. The Aspen-Birch stands, conifer swamps, and wetlands are of less economic importance.

2.0 Description of BMIC Solid Waste Program Structure and Administration

2.1 Program Administration

The Maintenance Department, located at 5414 S. Nbiish Rd, is responsible for the current solid waste and recycling efforts. As will be described in more detail throughout the plan, GFL Environmental Inc., of Northern Michigan, headquartered in Southfield Michigan and with a local office located at M-28 and I-75, is the primary waste management provider for BMIC. The Conservation Department, located at 11801 Plantation Rd., is responsible for regulating illegal waste dumping due to its occurrence on forested lands throughout the BMIC reservation.

A Solid Waste committee, composed of Tribal Administrative, Biological Services, Maintenance, staff from Bay Mills Resort and Casino and other Tribal department staff as requested, are responsible for the continued updating and maintaining of current solid waste practices and plans.

2.2 Regulatory Requirements and Enforcement

The Bay Mills Conservation Department enforces the following ordinances against illegal dumping:

625. Disposal of trash.

A. Littering. Any person who unlawfully deposits garbage, rubbish, the body of a dead animal, including destruction of a pet, or other litter in or upon any street, tribal waters or the ice thereon or tribal lands, is guilty of littering and may be sentenced to payment of a fine not to exceed \$500 and/or community service to the tribe.

B. Unauthorized dumping. Any person who, without authorization, disposes of any litter, garbage, construction material, or other waste in a refuse container which is not maintained for public use by the Bay Mills Indian Community or any agency thereof, is guilty of unauthorized dumping and may be sentenced to a fine not to exceed \$100 for each occurrence.

3.0 Description of Current and Proposed Waste Management Practices

3.1 Current Waste Management Practices

While BMIC is concerned with all waste generated on the reservation, the waste service areas that the tribe is directly responsible for and comprises the majority of the waste generated in the community consists of 3 residential circles/areas, 2 apartment complexes, 15 tribal service buildings and 5 commercial locations. BMIC businesses like the Bay Mills Resort and Casino (and its associated enterprises) are responsible for their own waste collection and do not utilize the BMIC Transfer station services. Currently the BMRC has its own compactor and several 4, 6, and 8 yard dumpsters which it uses for waste; these are also maintained and emptied by GFL.

Solid Waste

The solid waste program in place consists of a waste transfer station, which is staffed 8 hours a day from Tuesday to Saturday and located at the Maintenance grounds. Maintenance staff performs curbside pickup at 7 locations including BMIC Administration offices and buildings. For all other residents waste is disposed of using the “dollar a bag” policy². Once waste is collected at the transfer station and compacted, it is collected by GFL Environmental and taken to the Dafter Landfill.

General Recycling

There is currently stationed at the BMIC Maintenance Transfer Station a self-sort recycling trailer. Residents can self-sort plastic, metal, glass and paper at this unit. Users must hoist their recyclables to the 6ft-high opening, then squash them into the small opening; this poses as challenge for any persons under 6 ft tall. Recycled materials are taken to Chippewa County Recycling in Sault Ste. Marie and recycled at no cost to BMIC. There exists a second recycling trailer that is rotated into place while the first is being taken into Sault Ste. Marie to be emptied or undergoing maintenance.

Cardboard Recycling

Starting in 2017 the BMIC initiated a corrugated cardboard recycling program. The cardboard is baled and stacked, then ultimately loaded into a semi for transportation to the recycling facility. The frequency of pickup of this cardboard is variable and determined by several factors including, how much storage room is present, weather conditions for storage, and pickup availability. This endeavor has and will continue to eliminate cardboard from entering into the waste stream. Due to the size of the current baler, full bales cannot be made which ultimately reduces the value of the cardboard. Due to space

² See Introduction, Paragraph 2

constraints, the cardboard must be stored outside which reduces the already limited space in the multi-duty Maintenance/WTS area and also lowers the quality and value of the cardboard. These factors reduce the overall quality of the cardboard, thereby reducing the price per bale.

Special Collections

Currently there are several special collection events that happen at the BMIC on a recurring basis, supported by GLRI grants. There is a spring and fall cleanup available for residents where they can dispose of large or bulky items at no cost to themselves. These are large events which are widely participated in. Additionally, there is a regular Household Hazardous Waste and appliance collection event which is held in the spring and fall each year where residents can, at no charge, drop off these materials to the BMIC Biological staff for appropriate disposal. Drop-off for the recycling of tires is available to residents from spring to October 15 at the Maintenance Building. Scrap metal and electronic waste recycling is available to BMIC residents throughout the year.

3.1.1 Waste Generators

The following tribal buildings and residential areas have been identified as the main “waste generators”³ at the BMIC. These generators utilize 13 waste disposal containers, including 4, 6, and 8 yard dumpsters, as well as 2 trash compactors and a cardboard recycling compactor. As mentioned in section 3.1 many of these generators are responsible for their own waste collection and do not currently utilize the facilities at the BMIC Waste Transfer Station.

Table of Waste Generator Locations and Fate of Waste Generated

Maintenance Department	Maintenance Transfer Station Compactor
Advanced Office Technologies	Maintenance Transfer Station Compactor
Boys & Girls Club	Maintenance Transfer Station Compactor
Ellen Marshall Memorial Building	Maintenance Transfer Station Compactor
Tribal Administration Building	Maintenance Transfer Station Compactor
Commodities Distribution Building	Maintenance Transfer Station Compactor
Senior Center	Maintenance Transfer Station Compactor
Ojibway Charter School	GFL pickup
Bay Mart Store	GFL pickup, Cardboard to Maintenance Transfer Station
Bay Mills Resort and Casino	BMRC Compactor
Laundry and Linen	BMRC Pickup
Health Center	GFL pickup
Northern Lights Cannabis Company	GFL pickup

³ See above table

Four Seasons Market and Deli	GFL pickup
Wild Bluff Golf Course	GFL pickup
Child Development Center	GFL pickup
Community College	GFL pickup
Cultural Center	GFL pickup
Emergency Medical Connection	GFL pickup
Housing Authority	GFL pickup
Public Works/Construction	GFL pickup
Residential Curbside Pickup	GFL pickup

The dumpsters and compactors are emptied by GFL Inc. on either a weekly or bi-weekly basis. Each container, after conducting walk through examinations, averaged 70% capacities prior to pick up.

Below, Figures 1 and 2, show a yearly total of the amount of waste generated by the key generators on the BMIC; those being the Bay Mills Resort and Casino Enterprises (BMRC) and the Municipal Waste Transfer Station located at the Bay Mills Maintenance Department. The records here comprise a 12-month period from December 2018 to December 2019. The Municipal Waste Transfer Station disposes between 14.11 and 52.01 tons of waste per month. Figure 3 shows the cost of waste disposal per ton for the BMIC Waste Transfer Station, costing anywhere from \$68.02/ton to \$167.09/ton. This equates to an average monthly cost of \$3,139.27, or roughly \$37,671.28 annually.

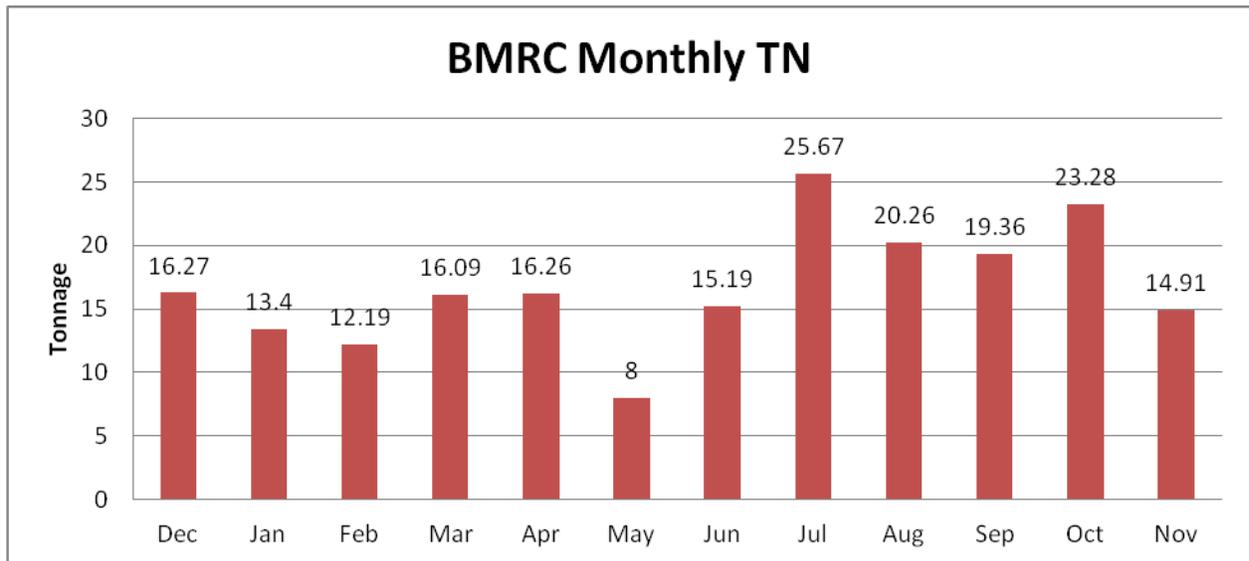


Figure 1: Bay Mills Resort and Casino Monthly Tonnages of Waste

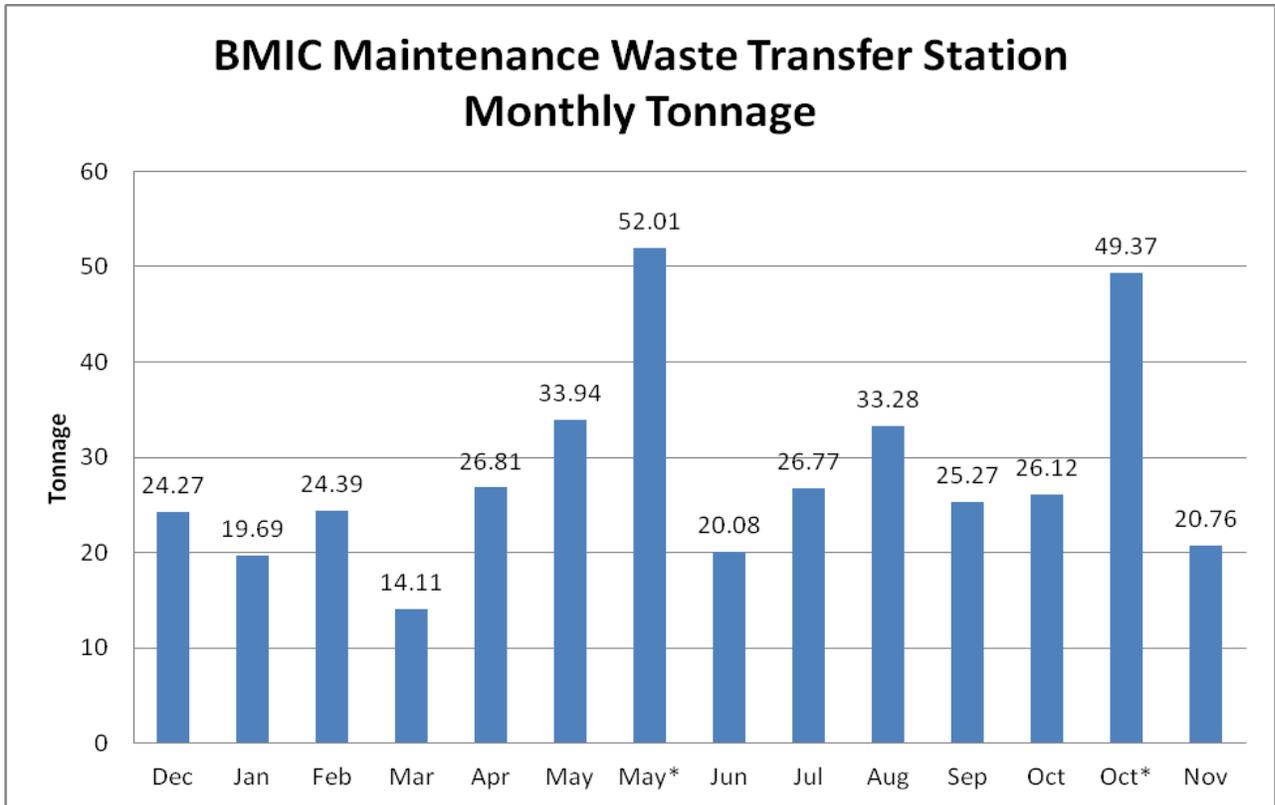


Figure 2: Monthly Tonnage of waste disposed of (* denotes a special cleanup event)

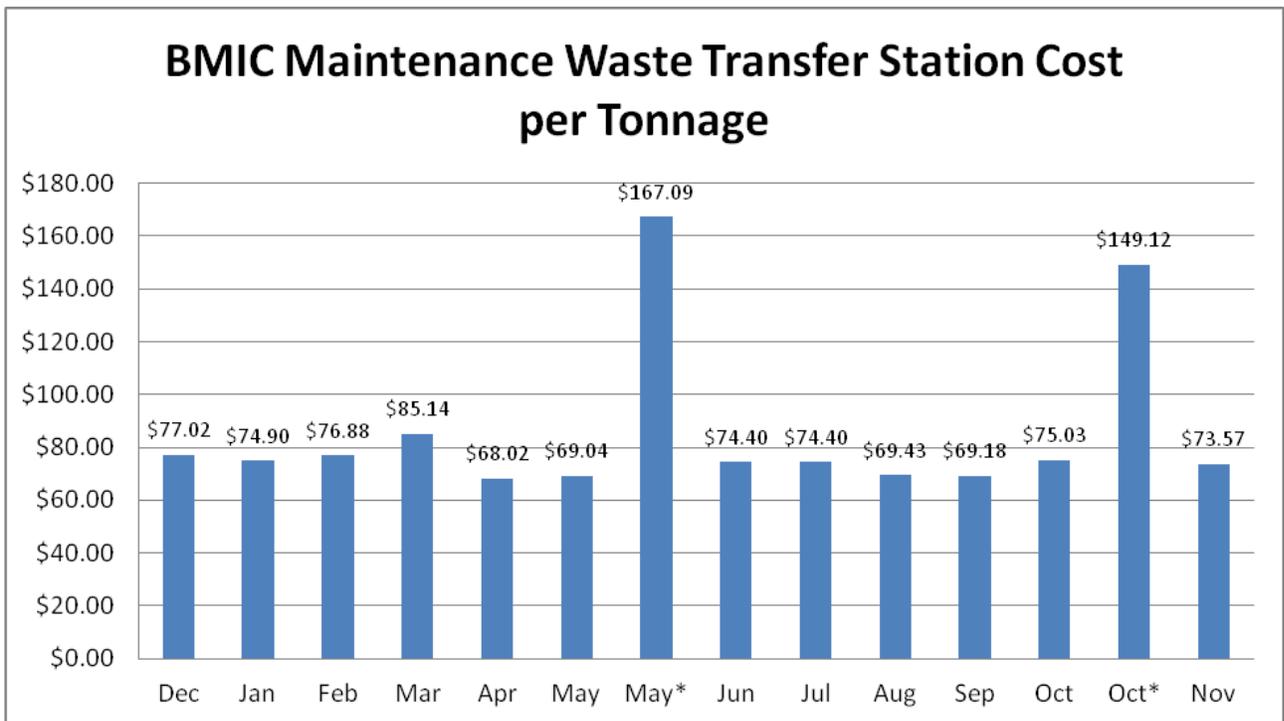


Figure 3: Price per ton of waste disposed of (* denotes a special cleanup event)

3.1.1.2 Weight/Volume

Community Waste Audit 2020

In September of 2020 a waste audit was conducted with waste from the BMIC Maintenance Waste Transfer Station. The waste audit performed was intended to characterize the amount of waste being disposed of at the facility, and to determine if, and to what extent, recycling and other waste sorting practices were being utilized by BMIC residents.

It should be noted that the sort took place during the Covid-19 pandemic; it was determined that since the bulk of waste is from private residences, that the waste stream obtained from the Maintenance Waste Transfer station would be representative of typical use.

Waste was collected in a 16ft enclosed trailer for the week leading up to the sort. In all a total of 9 volunteers composed of BMIC, ITCMI, and EPA staff were able to sort through a total of 677lbs of waste over the course of an 8-hour day. The waste was sorted into 26 categories. These categories were chosen to determine what waste could potentially be removed from the waste stream and recycled with increased infrastructure, outreach, and/or education. The categories that were used as part of the study were chosen to identify recycling facilities that could be immediately available to the BMIC through outside contracts and to determine what types of alternative waste disposal could be feasible for the BMIC to implement directly.



BMIC Maintenance Transfer Station Waste Audit
 14 September 2020

Audit Location and Date: Waishkey Bay Farm, 14 Sep 2020
 Individuals in attendance: Anthony Rinna and Greg Schubel (ITCMI), Aubrey Maccoux-LeDuc, Angela Johnston, Britney Weaver, Ryan Sprague, Shannon Russel, Brian Wesolek (BMIC), Jennifer Manville (EPA)

Category	Material	Final Weight (lbs.)	Percent
Paper	Old Corrugated Cardboard (OCC)	4.1	0.61
	Old Newsprint (ONP), Paper, Magazines	25.6	3.78
	Other Mixed Recyclable Paper/Kraft/Paperboard	26.6	3.93
	Non-recyclable Paper Products	41.1	6.07
Plastic	PET Bottles and Containers	21.1	3.11
	HDPE (#2)	17.6	2.60
	Mixed Bottles/Containers (#3-#7)	13.1	1.93
	EPS Foam (#6)	11.1	1.64
	Film & Flexible Packaging	54.1	7.99
	Rigid Bulky	10.6	1.56
Glass	Recyclable Glass	36.1	5.33
	Non-Recyclable Glass	7.6	1.12
Metals	Ferrous Metal Containers	21.1	3.11
	Aluminum Cans (UBC)	6.1	0.90
	Other Metals/Scrap Metals	8.6	1.27
Organics	Food/Putrescible Waste	152.6	22.53
	Compostable Fibers (Napkins, Papertowels, Etc.)	73.6	10.87
	Other Organics	1.6	0.24
Textiles	Textiles	12.6	1.86
	Leather & Rubber	6.6	0.97
Electronics	All Electronics	2.6	0.38
HHHW	Household Hazardous Waste	2.6	0.38
C&D	C&D	10.1	1.49
Other	Fines/.Residual Refuse	101	14.91
	Other Bulky	N/A	N/A
	Composite Items	9.6	1.42
Total		677.4	100.00

3.1.1.2 Weight/Volume (cont.)

Below is a more detailed analysis of the main waste categories identified in the sort.

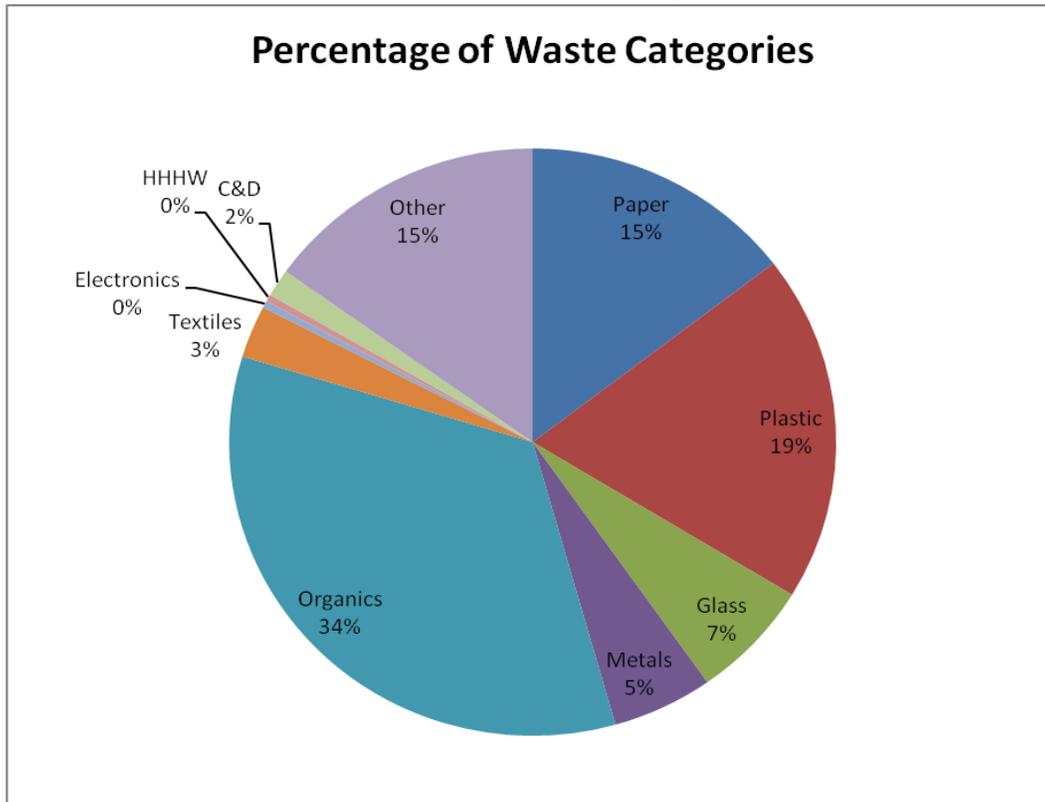


Figure 4: Percentage of Major Waste Categories

Paper

The paper stream was almost completely free of corrugated cardboard. Newsprint/paper and recyclable paper/craft/paperboard was approximately 50lbs and 7.5 percent of the total waste stream. Non-recyclable paper was represented by plastic coated paper, mostly in the form of packaging of food/medicines. Even with these non-recyclable paper products over 50% of the total 97lbs of paper waste is considered to be recyclable.

Plastic Waste

While plastics made up 19 percent of the total waste in the study there was a minimal amount of recyclable materials found. Only approximately 2% each of total waste was easily recyclable plastic (HDPE, PET, and #3-7 plastics). Most of the plastic in the general waste stream (54 of a total of 127lbs of plastic) was attributed to film and flexible packaging, which is not generally considered recyclable with typical facilities. Most of the EPS foam identified in the waste stream is attributed to foam food service containers which were identified to be from home meal delivery to school age children and elders during the Covid-19 pandemic; thus this amount of EPS foam in the waste stream is not considered

typical. Due to a lack of PET, HDPE and other plastic containers in the waste stream it seems that the recycling efforts at the BMIC are being utilized effectively by residents.

Organic waste

As is shown in the totals from the waste audit conducted the largest category of waste that was represented was organic waste. At ~33% of the total waste stream the vast majority of waste is organic in nature. Two thirds of the organic waste is food scraps while approximately one third of all organic waste is compostable fibers (napkins, paper towels, etc.). While much of the organic waste was not of a composition that could be recycled by conventional means there was a large amount of food waste that could be reused through the use of a digester. There were many materials, such as paper-based materials, and coffee grounds that, if separated from the main waste stream, could potentially be part of a community recycling program.

BMRC Waste Audit 2022

In June 2022 a waste audit was conducted with waste from the Bay Mills Resort and Casino (BMRC). The waste audit performed was intended to characterize the amount of waste being disposed of by the hotel, casino, kitchen/restaurants and offices at BMRC and to determine if, and to what extent, recycling and other waste sorting practices were being utilized by BMRC.

Waste was collected in a 16ft enclosed trailer during the weekend leading up to the sort. BMRC was at approximately 50% capacity during the weekend that the waste was collected for the audit. In all, a total of 9 volunteers composed of BMIC staff and the Great Lakes Climate Corps members were able to sort through a total of 976.5 lbs of waste over the course of 6 hours. The waste was sorted into 26 categories. These categories were chosen to determine what waste could potentially be removed from the waste stream and recycled with increased infrastructure, outreach, and education. The categories that were used as part of the study were chosen to identify recycling facilities that could be immediately available to BMRC through outside contracts and to determine what types of alternative waste disposal could be feasible for the BMRC to implement directly.

BMRC Waste Audit June 20-21, 2022			
Audit Location and Date: Farmer's Market Pavilion June 20-21, 2022			
Individuals in attendance: GLCC Crew: Luke, Ari, Kyle, Neveya; BMIC Technicians: James, Kyle, Charlotte, Cameron; BMIC Environmental Coordinator: Jen Parks			
Category	Material	Final Weight	Percent
Paper	Old Corrugated Cardboard (OCC)	10	1.02%
	Old Newsprint (ONP), Paper, Magazines	31	3.17%
	Other Mixed Recyclable Paper/Kraft/Paperboard	57	5.84%
	Non-recyclable Paper Products (greasy food containers)	27.5	2.82%
Plastic	PET Bottles and Containers (clear bottles/water bottles)	83.5	8.55%
	HDPE (#2)	11	1.13%
	Mixed Bottles/Containers (#3-#7)	41.5	4.25%
	EPS Foam (#6)	4.5	0.46%
	Film & Flexible Packaging (plastic wrap, food packaging)	32	3.28%
	Non-Recyclable Rigid Plastic/Mixed Rigid Bulky	0.5	0.05%
Glass	Recyclable Glass	88.5	9.06%
	Non-Recyclable Glass	0	0.00%
Metals	Ferrous Metal Containers (tin food cans)	2	0.20%
	Aluminum Cans (UBC)	24	2.46%
	Other Metals/Scrap Metals	3.5	0.36%
Organics	Food/Putrescible Waste	163.5	16.74%
	towels from restrooms)	120.5	12.34%
	Other Organics (coffee grounds)	18	1.84%
Textiles	Textiles	24.5	2.51%
	Leather & Rubber	0	0.00%
HHW	Household Hazardous Waste	22	2.25%
Electronics	All Electronics	0	0.00%
C&D	Construction & Demolition	12	1.23%
Other	Fines/Residual Refuse	199.5	20.43%
	Other Bulky	0	0
	Composite Items	0	0
Total		976.5	100.00%

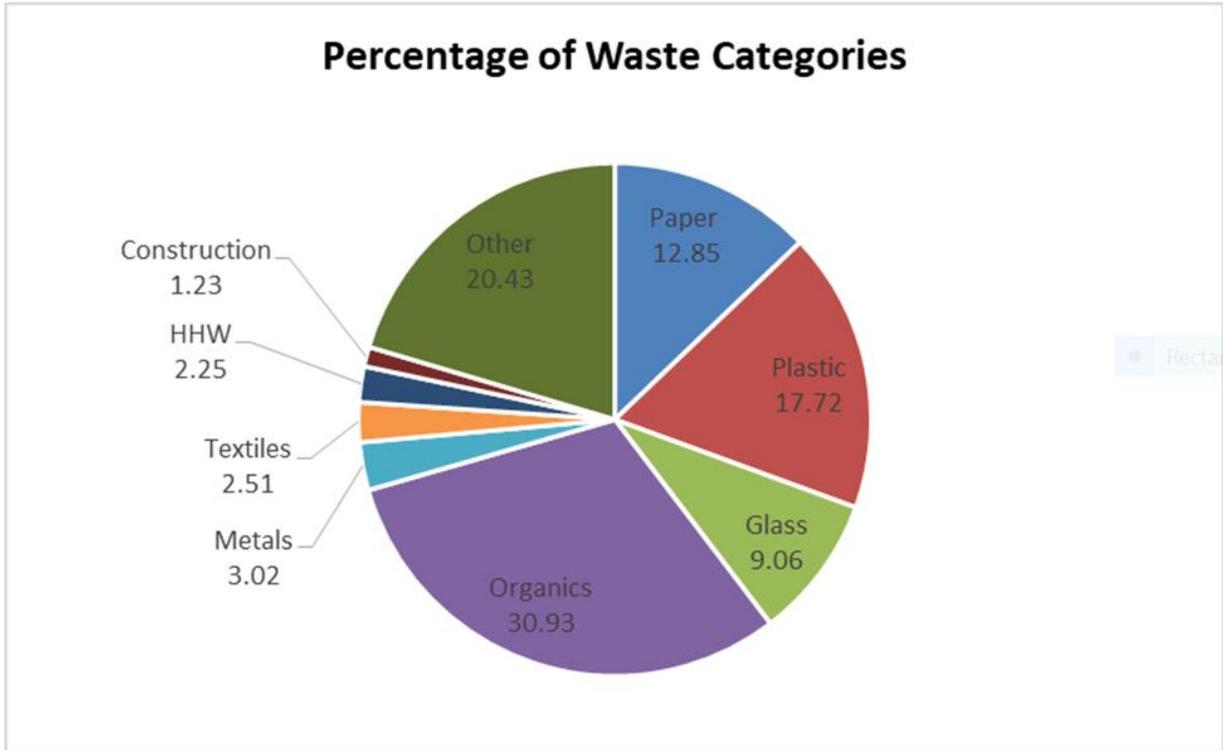


Figure 5: Percentage of Major Waste Categories

Organic waste

As shown in the totals from the waste audit conducted at BMRC, the largest category of waste that was represented was organic at approximately 31% of the total waste stream. Approximately one half of the organic waste was food scraps while the other half was compostable fibers, mainly brown paper towels from the public restrooms. While much of the organic waste was not of a composition that could be recycled by conventional means there was a large amount of organic waste that could be diverted from the landfill through the use of a digester.

Other waste

Other waste comprised approximately 20% of the total waste at BMIC. This included items that could not be diverted from a landfill. Examples include diapers, trash bags, and other non-recyclable or non-compostable materials.

Plastic Waste

Plastics made up 18 percent of the total waste in the study. The majority of plastics included materials that could be recycled at the Chippewa County Recycling Facility such as Plastics # 2-7 and PET. PET was mainly clear plastic bottles including water bottles. Much of the plastic by volume included film and flexible packaging, which is not generally

considered recyclable with typical facilities. Most of the EPS foam identified in the waste stream was attributed to foam food service to-go containers.

Special Collection Events

There are spring and fall cleanup efforts held every year. At these special collection events HHW can be disposed of at no cost to residents. See the tables below for historical totals of special collections waste.

Additionally, the BMIC Maintenance Transfer Station holds a spring and fall cleanup event where residents can dispose of large and bulky items which would not be able to go in the compactor. For total tonnages of these events and the cost of disposal of these events see Figures 1 and 2 in section 3.1.1.

HOUSEHOLD HAZARDOUS WASTE COLLECTION ALL						
<i>(Drug and Laboratory Disposal, LLC)</i>						
Reporting Period	FY	waste type	HHW lbs	Bulbs	Total lbs	Total \$\$
April-Sept 2013	FY13	HHW	0			\$0.00
Oct-March 2014	FY13	HHW	0			\$0.00
April-Sept 2014	FY14	HHW	0			\$0.00
Oct-March 2015	FY14	HHW	2690			\$3,741.20
April-Sept 2015	FY15	HHW	1329			\$1,302.42
Oct-March 2016	FY15	HHW	2214			\$2,169.72
April-Sept 2016	FY16	HHW	3483			\$4,550.84
Oct-March 2017	FY16	HHW	0			\$0.00
April-Sept 2017	FY17	HHW	1943	371	2314	\$3,691.99
Oct 2017-March 2018	FY17	HHW	1173		1173	\$2,451.99
April-Sept 2018	FY18	HHW	2616	405	3021	\$4,436.64
Oct 2018-Mar2019	FY18	HHW	819		819	\$1,992.88
Oct 2019-Mar 2020	FY19	HHW	3109	512	3621	\$5,100.94
Oct 2020-Mar 2021	FY20	HHW	3568	540	4108	\$4,767.44
April 2021-Sept 2021	FY21	HHW	2750	300	3050	\$4,269.94
Oct 2021-March 2022	FY21	HHW	1046	0	1046	\$2,160.70
March 2022 - Sept 2022	FY22	HHW	3244	0	3244	\$4,316.62

Tire Recycling Total					
<i>(Mark's Tire of Brimley, MI)</i>					
Reporting Period	FY	waste type	# tires	Total lbs	Total \$\$
April-Sept 2013	FY13	tires		0	\$0.00
Oct-March 2014	FY13	tires		0	\$0.00
April-Sept 2014	FY14	tires		3265	\$0.00
Oct-March 2015	FY14	tires		1365	\$0.00
April-Sept 2015	FY15	tires		6700	\$737.00
Oct-March 2016	FY15	tires		495	\$54.45
April-Sept 2016	FY16	tires		11,675	\$1,223.00
Oct 2016-March 2017	FY16	tires		2575	\$354.00
April-Sept 2017	FY17	tires		5325	\$732.09
Oct2017 -March 2018	FY17	tires		7870	\$587.25
April-Sept 2018	FY18	tires		5750	\$661.50
Oct 2018-March 2019	FY18	tires		2025	\$362.00
April 2019-Sept 2019	FY19	tires		1349.87	\$490.86
Oct 2019-Mar 2020	FY19	tires		288.86	\$105.04
April 2020-Sept 2020	FY20	tires	286	7150	\$1,667.12
Oct 2020-Mar 2021	FY20	tires	63	1575	\$488.84
April 2021-Sept 2021	FY21	tires	721.64	18041	\$1,984.51

3.1.2 Future Generation and Growth Rate

The growth rate for the on-reservation residents is increasing at a rate of approximately 6% annually. Housing is in extremely high demand and the Tribe is building another housing area on Plantation Road where up to 150 housing units will be built. The increasing population rate and future housing plans for the Reservation may significantly affect future waste management activities, and it is important to implement a comprehensive plan for the current population, and for future residents.

3.1.2.1 Open Dumps and Uncontrolled Waste Sites

Open dumping of difficult-to-dispose-of wastes is prevalent in forested lands in the tri-county area. Open dumping in undesignated sites does occur on the Bay Mills Reservation. In instances where illegally disposed of trash is discovered, BMIC law enforcement and the Biological Services Department work with other organizations and agencies to clean up these sites. Tribal members are often more than willing to be involved in cleanup efforts to help keep their community clean. There are large open dump sites on Sugar Island and in the Gumshoes area of the reservation on the mainland that require cleanup. Current efforts with spring and fall drop-offs for large waste items (mattresses, appliances, etc.) have been effective in deterring regular open dumping on BMIC lands.

3.1.3 Waste Collection, Transport and Disposal

On a weekly and bi-weekly basis, GFL, Inc., collects from all tribal buildings and residential areas, and provides curbside pickup to 33 homes. Waste is ultimately transported to the Dafter Landfill in Dafter, MI.

3.1.5 Waste Reduction: Recycling, Reuse, and Composting

Waste reduction is practiced in some departments and buildings within the community, but not extensively. Despite many past and current efforts to implement a more comprehensive waste reduction program, effectiveness has remained inconsistent.⁴ Based on community reduction effort surveys, facility walkthroughs, and past reports, participation and lack of following prescribed guidelines are responsible for hampering reduction efforts. Also, numerous buildings and tribal members have no recycling immediately available at the point of use.

3.1.6 Facility Descriptions and Capacities

Aside from various 6, 8, and 10-yard dumpsters located throughout the BMIC Reservation, the only waste transfer facility located on the BMIC Reservation is at the BMIC Maintenance department. In 2019, Executive Council and Tribal Administration made the decision to move Bay Mills Maintenance and the undersized Waste Transfer Station from its location on Lakeshore Drive to Nbiish Road, making room for another much-needed facility. The Nbiish Road location was selected as a temporary site (2-5 years) due to its proximity to the newly constructed Maintenance Department building until a new, adequately-sized Waste Transfer Station can be developed. The current facility houses a trash compactor, cardboard baler, recycling trailer, and a building where electronic waste is stored. A trailer is available six months of the year for collecting tires.

All other downstream facilities such as bulk transfer facilities and final disposal/landfill facilities are maintained by GFL, Inc.

3.1.7 Regional Infrastructure

Other than the previously described community transfer station, the final components of the local waste infrastructure are the Dafter Landfill in Dafter, Michigan.

⁴ Based on Facility Waste Reduction Surveys

3.1.8 Current Partnerships

As previously described, GFL Environmental Inc., of Northern Michigan is BMIC's waste services provider. The Chippewa County Recycling Center has been the main drop off point for BMIC's recyclables.

BMIC is participating in an electronic waste recycling program with the Michigan Department of Environment, Great Lakes and Energy. Through this program, certain electronic waste categories are disposed of free of charge while other categories are disposed of at a reduced cost. Transportation to the recycling facility, pallets and Gaylord boxes are all provided at no cost.

BMIC also partners with various non-profit organizations on a variety of opportunities. These include:

- Community Clean Up events with Michigan United Conservation Clubs (MUCC), the Center for Freshwater Research and Education and the Boys and Girls Club.
- Shoreline and inland trash and debris removal with Great Lakes Climate Corps and funded by NOAA.
- Scrap tire disposal through Superior Watershed Partnership.

In past years, as well as currently, the ITCM has contributed to numerous health and environmental programs, among other sectors of service. The EPA is a main source of tribal grants and funding for similar programs and services and Indian Health Services has been identified as a valuable source for technical assistance and supplemental project funding.

3.1.9 Past/Current Public Involvement and Community Education

In 1996-97, the BMIC received funding from the EPA Region 5 for a recycling program. Within the program's goals was community education. Quarterly newspaper articles were submitted and postings promoting recycling in the community were distributed in support of the program.

For the most part the public does involve itself in recycling via independent efforts. The recycling trailer, located at the waste transfer station, receives regular drop offs.

Other grant-funded, special collection events have also increased community awareness. The HHW and eWaste collection events conducted by the BMIC Biological Services, funded by GLRI, are popular. In 2021 BMIC partnered with EGLE to provide electronic recycling services to Residents. Nearly 30,000 pounds of electronic waste was collected. BMIC Biological staff is available at these collection events to answer any questions residents have related to waste streams and other waste management practices. These programs have been proactive in providing residents with information related to HHW and new electronic recycling efforts. These services as well as composting and

recycling in general are communicated to the community through the use of newsletters, Bay Mills News, social media and an all-users email.



Recycling Trailer Located at BMIC Maintenance

3.2 Proposed Waste Management Practices

3.2.1.1 Limitations and Inefficiencies of the Current Program

Due to a low operational budget, the BMIC waste transfer station has always been inadequate and undersized. These same issues persist at the temporary location. Bay Mills Indian Community is not able to afford expenditures for waste reduction efforts or building a new waste transfer station to replace the current temporary station. A new facility on Plantation road has been proposed and will only be able to be constructed through heavy funding of government infrastructure grants.

The current facility was moved to its location on short notice and on a temporary basis when an expansion near the former Maintenance Department made moving necessary. The temporary site hosts the trash compactor, baler and recycling trailer. There are a significantly limited number of waste stream disposal options in the area. Staff are striving to appropriately sort community waste on site—accepting trash, glass, paper, cardboard, plastic, metal, eWaste, light bulbs, batteries, household hazardous waste, tires, white goods. Many of these services are non-existent in the tri-county area. However, the site is located in the storage and staff yard areas of the Public Works and Maintenance Departments. Equipment, large vehicles and various departmental materials are stored in these areas. Residents have to drive through the parking areas of the two departments and past the buildings, storage, and operational yards to the WTS site. Safety is a concern for residents driving to the WTS location due to the heavy equipment and service vehicles moving throughout the area. There are concerns about public access to equipment that could be damaged or cause injury. Due to space limitations, equipment is parked and

interspersed throughout parking spaces for staff and the public which has caused there to be an insufficient amount of parking/ operational space. The area is not suitable for Elders and people with disabilities due to the location, uneven surfaces and traffic flow. Weather at BMIC is extreme and staff and residents unload vehicles and sort waste and recycling in the elements and often under icy and windy conditions which could cause injury. These conditions also make it possible for waste to blow away during handling, thereby becoming litter in the environment. Snow plowing and snow removal is a challenge in the area due to limited space and where the compactor and recycling trailer need to be located. Hydrologic features of the site also limit expansion.

In previous years, recycling services, grant-funded special collections were held hither and yon across the community, sometimes miles apart, with services available at irregular intervals. This led to much confusion across the community. Great efforts were made to relocate all of these services at one central location (the current, temporary WTS) but the site was never designed to accommodate all of these services. Waste storage encroaches on space needed for machine maintenance, mowing, snow removal, and other required department duties. Currently, operation of the WTS in its temporary location occupies 25% of the working space while only occupying 9% of the department staff responsibilities.

Design, layout, and organization is additionally wasteful of precious staff time. Staff must babysit drop-off areas that are hazardous to the public and poorly signed. Staff must handle waste items two to three times, opening and closing multiple doors. This is compounded by the multiple new waste streams now located on site. Staffing is such a challenge that for special collection events, staffing must be bolstered by Biological Services Department biologists. This again leads to community confusion of roles and duties of different departments. Ideally, waste drop-off containers should be safe enough for the majority of the public to unload themselves and allowing the WTS to be overseen by a single Maintenance staff person.

The equipment is located outside which limits lifespan and makes repairs challenging. The compactor was purchased used from GFL and frequently breaks down, limiting access for the community. BMIC is planning to expand by up to 150 residential homes in the coming years and this temporary site with minimal space currently does not, and will not serve the needs of the community. BMIC has a goal of diverting as much waste as possible from the landfill in an effort to eliminate illegal open dumping of difficult-to-dispose-of-items, adopt more environmentally-friendly practices and reduce disposal costs. The limitations of the current WTS site make this a challenging goal to meet. To reach these goals, BMIC is also wanting to expand solid waste services to include year-round electronic waste and household hazardous waste collection and composting of organic material including, food waste and yard waste. The BMIC Maintenance building and waste transfer station have very limited working space for staff. With no dedicated space for waste transfer station personnel, in order to stay protected from the elements they are often

forced to wait for patrons in the Maintenance building break room which does not offer clear sight to the waste transfer station equipment. This has led to patron and staff frustration. The WTS has never had a point of sale system on site, but desperately needs one to capture fees, support the facility's operations and open up electronic waste disposal to the broader community. These logistical issues have proved difficult over the past years, and must be remedied with the development of the new waste transfer station.

A large inefficiency of the current program is the total lack of composting or recycling of organic waste. This waste component is extremely expensive contributing over one third of the total tonnage of waste disposed of during typical waste collection. It is also, however, very reducible with the implementation of a composting program. Also, a successful composting program can provide a gardening, landscaping and agricultural resource, thereby providing another money-saving resource.

The main industry in the community, tourism, restricts the location of waste transfer and compost sites. There is potential to include composting facilities at the proposed WTS site. Composting activities must also consider numerous vectors, such as bears and seagulls, which could become a nuisance and/or hazard to the community, in which case the Conservation Department may need to also take an active role. Depending on the system utilized, composting can become a laborious endeavor; therefore, finding a system that reduces staffing burden is of the utmost importance. Due to these reasons, BMIC has been investigating the purchase of an aerobic digester to handle compostable materials.

Community support and participation is very important to Bay Mills' solid waste reduction. The community may not comply or agree with some disposal methods if they are expensive or inconvenient, such as self-sorting, self-transport to facilities, or increased personal cost of disposal.

The current recycling efforts by the Maintenance Department, which consist of two recycling trailers and pickup of certain recyclables like cardboard at tribal offices, is not sufficient to collect the immense amounts of everyday recyclable waste. This is partially due to the need for staff time to haul the recycling trailer into town to unload it. Often times when this is unloaded at a frequency of one to two times a week, some of the containers within the trailer are full. A freight trailer would allow better efficiency in storing and offloading that waste; thereby reducing operational expenses.

3.2.1.2 Equipment and Facility Needs

The facility used for waste disposal is inconvenient and unsafe both for the community and staff, as it was developed as a temporary location. Equipment used for waste disposal are in fair condition. The purchase of a larger cardboard baler, aerobic digester and new trash compactor would immensely improve services, reduce waste disposed in the landfill and reduce the costs of the waste disposal program. Purchasing a

freight trailer to collect and transport recycling and other materials would benefit the program so that more recycling could be collected and transported efficiently; thereby reducing overhead costs. The Maintenance staff and equipment responsible for collecting trash from locations with no containers is efficient in their role, although the staff time at the Maintenance Department is often stressed by inefficiencies previously mentioned in section 3.2.1.1.

The current recycling program consists of the collection of some recyclables by the Maintenance staff, a recycling trailer located at the Maintenance grounds open to the community, and transport of the trailer to the Sault Recycling Center bi-weekly. This program, however, has several inefficiencies that restrict the amount of waste that can be reduced throughout the community. Use of recycling trailers have proved to be a challenge, as patrons co-mingle recyclables as the trailers get full. This either leads to Maintenance staff hand sorting recycling in the trailer, or the country recycling facility staff sorting the recyclables. Providing a recycling system that will 1) allow Maintenance staff to easily oversee recycling sorting and 2) will provide enough space, both for collection and storage, to prevent co-mingling, is a key consideration in the development of the new waste transfer station. As evidenced by facility walk throughs and waste composition data, there is little use and/or availability of designated recycling containers in community buildings and areas. It is necessary to have containers present and easily accessible as a first step to proper recycling.

As mentioned in part 3.2.1.2 a freight trailer would free up more maintenance staff time by holding more recyclables and reducing the number of trips made to Sault Ste. Marie to offload recyclables.

3.2.2 Alternatives Analysis

In this section we will evaluate 6 alternatives/supplements to the current waste management practices that can increase financial and environmental efficiency.

Based on the data from the community waste stream assessments conducted in 2020 it is estimated that up to 65% of all waste that is disposed of at the BMIC Maintenance waste transfer station is capable of being recycled. This is down from approximately 95% in 2010 when the last solid waste assessment was performed. This tells us that while there has been significant improvement in recycling in the last decade that there is still room for improvement. The waste stream assessment for BMRC in 2022 also points to efficiencies that can be obtained through improved recycling efforts. The following alternatives are presented due to their ability to significantly decrease and redirect the total waste via recycling and composting.

Each alternative requires its own Capital, Costs, and Maintenance estimate, and a Cost-Effective Analysis; as will be displayed in sections 3.2.2.1 and 3.2.2.2. These estimates address the different financial issues inherent with each alternative. The actual costs for

services and equipment to BMIC for any of the following alternatives cannot be accurately summed up here without the BMIC Administration's independent research in regards to its own resources and dialogue between BMIC and any potential provider of services and/or equipment. With that being stated, the sections outlining Capitol, Costs and Maintenance, and Cost-Effectiveness, are outside estimates that must not be viewed as a last amount.

#1 - Community Education and Policy Making

Education and outreach is a continuous process in keeping the community engaged, informed and utilizing the services of a WTS. Many strategies should be used to engage the community including social media, printed media, signage, public meetings, youth education, and public open houses and tours of the WTS. Providing a safe way to view waste transfer station operations is an important part of community education and outreach.

As seen during a facility walk through, recycling activities are not consistent throughout BMIC, nor is buying recycled goods a pursued policy. As previously stated, some residents and facilities undergo independent procedures of reuse. As encouraging as it is to see autonomous community involvement in waste reduction, it is necessary that tribal buildings undergo an in-depth inspection and implementation of waste reduction policy.

#2 - Comprehensive Recyclable Collection Network:

This alternative would increase recycling by departments by providing bins for recycling collection. It would also provide recycling bins to residents to encourage recycling collection in their homes. The most valuable materials include plastics (1+2), mixed magazine and newsprint paper, office/white paper, corrugated cardboard, and tin. A major requirement of this alternative is continuous community education and, in some instances, new policy on waste disposal. Community education and policy advising is extremely important if an effective amount of recyclables are to be properly placed in designated areas and collected without hindrances. Misuse of recycling bins or a low compliance to policy can be curbed by constant education and monitoring. In order to employ this option new staff must be hired or staff capable of taking on these additional responsibilities identified. A freight trailer for collection and transport to Sault Ste Marie, or other locations would streamline the recycling system.

#3 - Composting Program:

As shown by the previous data, an estimated 34% of all waste generated on BMIC is organic or compostable. A compost program consisting of the above described collection

network and composting equipment can create a significant decrease in overall waste. The final product is also a resource of landscaping/gardening, as well as revenue should BMIC engage in compost sales. Some of the requirements of this program are available collection bins for households and departments, and community education and a focus on the food service industry. Additionally, due to the physical nature of most of the organic material (putrescible waste/high oil content) generated by residential and commercial facilities in BMIC and limited space, it would be necessary to procure an aerobic digester to effectively compost most of this waste.

BMRC could also benefit from an aerobic digester located in the kitchen for food preparation waste, plate scrapings and other compostable fibers. This would reduce disposal costs significantly.

#4 - Additional Transport Trailer:

As amounts of recyclables collected increases, it may be necessary to allocate additional storage space. A transport or freight trailer not only provides suitable storage, but is a critical component of freight transport. An increase in load tonnage raises the value of any future loads to paying recycling facilities. Two valuable recyclables found in BMIC that can use extra storage space are cardboard and mixed paper, which make up 17 tons of the total monthly waste stream. The value of this waste is estimated at \$2,500 per month depending on market price. With sufficient storage space and easy transport, a freight trailer can facilitate waste reduction and create revenue.

Average prices for standard freight trailers \$3,000 to \$6,000⁵. Maintenance is minimal due to the probability of infrequent use/loads, and may be \$500-\$1,000 a year. ⁶ A freight trailer will also require a 6" to 8" concrete pad for storage, due to the extreme weight of the trailer and loaded material.

Note: at the time of this writing due to various economic variables these products do not have a positive market value. Having a large transport/freight trailer will allow for longer term storage of these materials until the market fluctuates in the favor of the BMIC or at the least will allow savings to be accumulated by reducing the number of times and thus the staff time required to unload and transport these materials.

#5 – New Waste Transfer Station, Outdoor Yard and Supporting Equipment:

⁵<http://www.truckpaper.com> averages taken from 20 used trailer advertisements.

Accessed 8/12/10

⁶ Maintenance Quote from Tandem Shipping, Inc.
8/12/10

The current waste transfer station area is meant to be a temporary site until funding for a dedicated WTS can be secured. A new waste transfer station including an indoor facility with a yard area would provide safe, efficient operation of a WTS that supports a comprehensive waste disposal and recycling program. Office space within the WTS would be used for waste transfer station personnel. A conference room would provide a location for meetings and educational events related to recycling and waste disposal, which is an important component of a successful program.

#6 No-Action Alternative:

This alternative indicates that the BMIC will refer to its current waste management practices in the future, rather than the presented alternatives.

While the present waste management practices have been outlined previously, the key points are as follows:

- GFL provides all waste collection and disposal services at main trash generation locations
- The maintenance department collects at 7 locations and stores at the transfer station
- Cost for services average \$12,000 per Month
- Environmental Affects – 41.36 tons of solid waste are land filled every month, up to 65% of which is recyclable or compostable
- Current recycling/composting activities exist in BMIC, which if increased through public awareness and outreach, can save money exponentially and create jobs in the community
- The current Waste Transfer Station, which hosts several safety concerns, lacks space and is inconveniently, located remains as is.

3.2.2.1 Capital, Operational and Maintenance Costs

Below are the basic capital, operation and maintenance costs estimates for the stated alternatives.

#1 - Community Education and Policy Making:

It is difficult to track the costs of a community education and policy program. Changing policy in regards to daily solid waste reduction activities is an internal action. Assistance/consultation may be required from the EPA Region 5, ITCM or a private consultant.

#2 - Comprehensive Recycling Program:

(Costs estimated based on necessary employment, supplies, vehicles and equipment)

Supplies: Multiple Material Recycling Bins for 20 departments/buildings - Estimated capitol for 20 bins is \$2000, at \$100 per bin for a total of \$2000.

Household recycling bins for 380 homes: \$20/bin for a total of \$7600

Total Capitol: \$9600

Permanent/Part Time Staff: Additional Staff would not be needed to support this as current staff can be reallocated.

Vehicle: The availability of vehicles in the Maintenance Department makes purchase unnecessary. Monthly costs are negligible due to minimal gas usage or maintenance needs.

Equipment: The Maintenance Department has sufficient equipment and materials for additional staff and duties. The only increase in supplies is heavy duty clear trash bags to line the department recycling containers. 320 trash bags per month will costs \$150.

#3 - Composting Program:

The price of an aerobic digester sized for BMIC needs is approximately \$120,000.

Composting bins for 380 homes: \$30/bin for a total of \$11,400

Additional Staff would not be needed to support this as current staff can be reallocated.

Total Capital: \$131,400

Monthly Costs: \$0

#4 - Additional Transport Trailer:

Average prices for standard freight trailers are \$3,000 to \$6,000⁷. Maintenance is minimal due to the probability of infrequent use/loads, and may be \$500-\$1,000 a year. ⁸

Total Capitol: \$3,000-\$6,000

Maintenance: \$500-\$1,000 (depending on condition and possible breakdowns)

⁷<http://www.truckpaper.com> averages taken from 20 used trailer advertisements.

Accessed 8/12/10

⁸ Maintenance Quote from Tandem Shipping, Inc.

8/12/10

#5 – New Waste Transfer Station, Outdoor Yard and Supporting Equipment:

A Preliminary Engineering Report prepared in 2022 provided for a new WTS facility, outdoor yard and supporting equipment.

Building and Yard: \$2,665,000

Equipment: \$472,000

Misc (furniture, storage, geotechnical report, outdoor lighting, security system): \$117,000

Design & Construction oversight: \$320,530

Total Capitol: \$3,694, 530

#6 - No-Action Alternative:

See description in “Alternative Analysis”.

3.2.2.2 Closure Care and Costs:

Due to the absence of landfills or municipal waste management facilities on reservation or under the responsibility of BMIC, there are no closure care or cost issues. Depending on the amount of waste reduced, Green For Life Inc. containers may have to be removed from some locations, or be collected less frequently; in which case BMIC will spend less in removal fees and total tipping fees.

3.2.2.3 Real Cost of In-Kind, Off-the-Book Transactions:

There are not currently in-kind transactions that are a significant contributor to the BMIC waste reduction strategy. The BMIC Maintenance Transfer Station is a self sufficient operation that relies only on revenue generated and BMIC general funds to supply staff time/equipment for the day to day maintenance operations. There exist however the potential to pursue opportunities for BMIC staff to receive free and frequent training through state and federal avenues which could in and of itself be very valuable.

3.2.2.4 Cost-effective Analysis:

Here the alternatives described in “Capital, Operational, and Maintenance Costs” and the costs associated with those alternatives will be reviewed for costs effectiveness. The following are the cost, returns and final returns of each alternative on a monthly basis.

Note: The data supporting this analysis is largely based on estimates. Without a direct evaluation of the alternatives being implemented on BMIC and an independent review of BMIC resources and capabilities, the actual amount of cost

savings and benefits will differ from the estimates presented. The data below is meant to provide a base estimate for the effectiveness of each alternative.

#1 - Community Education and Policy Making:

Community education and consulting can be provided by outside entities, such as the EPA, ITCM or a private consultant. Policy making, however, is an internal activity. Costs include an indeterminable amount of work hours dedicated to policy writing, posting, and supervision. These activities are inherent to any managerial position.

Costs: Indeterminable/ None

Benefits: Benefits are indeterminable, but education and policy promote recycling and decreases some waste dumping in BMIC.

#2 - Comprehensive Recycling Program: (including containers, staff, vehicles and equipment)

Costs: \$9600 Initial Capital

Returns: \$1100 to \$2040 per month

Note: A reduction of 35% to 65% of the waste, which is recyclable or compostable, equates to matching decrease in garbage pickup and disposal costs; the total of which averages \$3139 per month.

Final Benefit: \$1100 to \$2040 per month

#3 - Compost Program:

Costs: \$131,400 Initial Capital

Returns: \$1,100 per month reduced landfill fees
\$1,100 per month compost sales

Final Benefit: \$2,200

#4 - Additional Transport Trailer:

Costs: \$5,000 Initial Capital

\$50-\$100 per month Maintenance

Returns: \$3,950 to \$10,850 per month

Final Benefit: (-) \$1050 to \$5,850 (initial month)
\$3,900 to \$5,750 (final monthly)

#5 - New Waste Transfer Station, Outdoor Yard and Supporting Equipment:

Costs: \$3,694, 530 Initial Capital

Returns: \$ 1,100 per month in reduced disposal fees with composting system
\$1,100 to \$2,040 per month reduced disposal fees from improved recycling
\$1,100 per month compost sales
\$500 per month reduced fees and staff time due to reduced dumping
\$200 per month from electronic waste collection
\$250 per month reduced cost of HHW transportation

Final Benefit: \$5,190 per month

#6- No-Action Alternative

See description in “Alternative Analysis”.

3.2.2.5 Overall Feasibility:

Community education and policy making and enhancing the recycling program are feasible short-term options. Based on the cost benefit, the implementation of all three can save funds spent on waste management and significantly reduce land filled waste

The additional transport trailer, transport of valuable materials, implementing a composting program, and a new waste transfer station are all long-term options. They require large initial capital, and more extensive management structure. They are not feasible with the current economic status or administrative structure of BMIC unless outside funding sources are secured.

A no-action alternative is not feasible if BMIC wants to increase environmental and economic efficiency. Future GLF costs and land filling will increase with the population, making it more difficult and costly to implement other alternatives.

3.2.2.6 Selected Alternatives:

Here we have selected 4 alternatives based on cost-effective analysis data, overall feasibility, sustainability and need.

Community Education and Policy Making:

This alternative is economically feasible due to minimal cost and the probability of immediate results. It includes a review of current reduction efforts, education/consulting on more successful future policies. New policies can include more diligent waste sorting, storage of recyclables for regular pickup rather than dumping, ordering recycled materials, and other steps that reduce material use in commercial, residential and office areas. This alternative can increase general efficiency by acting at the source of waste generation. Cost/Benefit Analysis is indeterminable. Implementation can take place immediately, and is sustainable as long as policy is followed.

Composting Program:

This alternative can significantly reduce the landfill costs but requires a significant amount of capital. The final product can provide a necessary landscaping/gardening resource, and possible revenue.

Comprehensive Recycling Network:

This alternative has the potential to operate with a solid cost benefit ratio; however, it requires capital. There are no potential partnerships available at this time to share these expenses. This alternative can be self-sustaining, or operate at low cost to BMIC.

New Waste Transfer Station, Outdoor Yard and Equipment:

This alternative requires a significant amount of capital which BMIC is not able to support without outside funding. However, there is a strong need for this facility due to the temporary nature of the current waste transfer station and the concerns that have been stated previously. Due to these reasons, BMIC should consider outside funding sources.

3.2.3 Proposed and Future Waste Management Practices

The current waste management is ineffective due to the location and safety concerns associated with the temporary Waste Transfer Station and a permanent facility is needed. Other future improvements lie in waste reduction. Chosen waste reduction programs may or may not fit the alternatives previously described, however, reduction via composting and recycling are the two most feasible practices.

Recycling is already present via the maintenance department's efforts. The main requirements for better recycling are further participation throughout BMIC and organization.

3.2.3.1 Proposed Waste Collection, Transfer and Disposal

Recycling, as an activity, needs an increase in participation and organization throughout the community. This is especially true because the disposal of recyclable materials does not cost the BMIC anything but the time of maintenance staff to drop-off recycling to the Chippewa County Recycling center. Recyclables are already collected at 7 locations by the maintenance department; however, the other waste generation sites⁹ and BMRC sites should be better included.

Composting may be more successful (initially) if collection is limited to major food generators, such as the Resort and Casino restaurant although it is not thought that the waste generated at these sites is likely to be compostable through traditional means. Due to the use of oil and high protein foods at the casino and the oil and high levels of animal products identified in the waste characterization study, it is likely that composting of food will need to be done with the aid of an aerobic digester. There is however the potential to compost other organic materials from the main waste stream such as coffee grounds, compostable fiber materials, fruits and vegetables, etc.

3.2.3.2 Proposed Special/Hazardous Waste:

Continue with annual hazardous waste, E-waste and tire collection and continue public outreach to make aware of these events.

3.2.3.3 Proposed Waste Reduction: Source Reduction, Recycling, and Composting

The majority of this plan outlines waste reduction as the primary future solid waste action. To provide a detailed plan of waste reduction in this section is redundant.

3.2.3.4 Potential Partnerships

The EPA is the most productive potential partnership, in regards to resources and funding. Indian Health Services is another potential partner for funding a new facility.

⁹ See Waste Generators

Recycling centers can become valuable partnerships in regards to purchase and drop off of materials. Numerous recycling collectors can be found on the Michigan Department of Environmental Quality's Recycled Materials Market Directory.¹⁰

3.2.3.5 Compliance and Enforcement

The current ordinances against unauthorized dumping and littering are sufficient to enforce environmentally harmful dumping. In order to maintain compliance community education, office policy and regular supervision of reducible materials dumping are necessary. These activities must be conducted by proposed staff and workplace supervisors.

3.2.3.6 Proposed Public Involvement and Community Education

Community Education and Public Involvement are essential to Recycling/Composting efforts in BMIC. Employees and managers should receive in person education on daily reduction actions in the workplace. To supplement education, postings that clearly display sorting and disposal instructions, and policies for reduction need to be placed in common areas and near waste disposal containers. Another educational activity is school visits and/or field trips to recycling/composting sites.

Monthly or quarterly reports should be provided to the executive board. Reports should include core information such as comprehensive waste reduction results, financial expenditures, and cost-benefit analysis.

Public involvement can include assistance from volunteer/community service organizations like the senior center, boys and girls club, and the cultural center. Quarterly business/workplace and community surveys are a good means to not only gain information from the public, but to educate on waste reduction activities.

3.2.4 Implementation

Implementing the SWMP is dependent on community discussion and involvement; however, there are general guidelines of implementing a plan that we will suggest here.

The BMIC Executive Council is the administrative body responsible for approving and implementing all administrative actions on the BMIC. During regular working and planning meetings, it is necessary that they examine the plan in detail and edit/add to the plan appropriately. It is currently the practice that the executive council has delegated the day to day operations of the SWMP to tribal administrative staff and the Solid Waste Committee. The Solid Waste Committee is composed of tribal administrators, biological and

¹⁰ See References and Resources

environmental staff, and Bay Mills maintenance staff, and other tribal departments as necessary.

Once the plan is reviewed and updated, the community needs to choose alternatives/improvements to current practices. Alternatives must be based on BMIC's resources and capabilities, overall feasibility and cost-effectiveness; as displayed in previous sections. The successful employment of the chosen alternative(s) is the final goal of the SWMP.

The administration must then create short and long term goals for the chosen alternative(s). Those goals include fully constructing and launching the alternative, attaining a desired effect on the waste stream, instilling an administrative structure/monitoring progress, and improving the plan (if needed). After the establishment of goals, the community must create a timetable of attaining objectives. A typical timetable will include: The allocation of the needed supplies, facilities, staff and revenue for future expenditures; physically implementing the alternative throughout the community; and putting a process of review and updating must in place.

A summarized model of implementation, based on the Compost Alternative, is as follows:

- The Solid Waste Committee Members will review the SWMP. They will clarify the designated resources and capabilities of BMIC in relation to the proposed waste management practices.
- The Waste Committee will choose a composting program as an alternative based on high cost-effectiveness.
- The Executive Board must form an administrative structure responsible for the direction of the proposed program and its goals

The overall goals are:

- Purchase of composting equipment and compost bins for departments and residences.
- Begin accepting compostable materials.
- Waste reduction resulting from the compost program must significantly decrease the frequency of pickup and/or size of waste containers on BMIC. The compost program must produce useable compost, suitable for use in gardening and landscaping.

3.2.5 Tribal SWMP review and updating

The EPA suggests that a review of the SWMP should be conducted every 5-10 years. The solid waste committee has been effective in implementing several recycling efforts, and making possible the building of a new facility through regular monthly or bi-monthly meetings. It is suggested that this group continue to meet as they have and to implement the day to day operations and goals of the SWMP and that they review the SWMP every two

years and submit it to the Executive Council for approval. In this way the quarterly meetings of the solid waste committee can quickly make progress in areas of identified improvement while the 2 year reports provide more comprehensive data and patterns over a longer time period. With current information, the staff and administrators can more quickly adjust the program to increase productivity and decrease cost.

The SWMP is a working plan; in that it is continuously changing, as the service area and its waste stream is continuously evolving. Information taken from quarterly and yearly reviews will affect the editing of the applicable section(s) of the plan. The Executive council, through the Solid Waste Committee, should maintain a working plan, in which they can record changes/proposed changes. Updating the plan every two years is suggested.

3.3 Waste Reduction Success: Mackinaw Island Waste Facility

To support the projected cost effectiveness and feasibility, we will address information taken from a report on the Mackinaw Island Waste Facility¹¹ and statistics provided by manager Paul Wandrie. The Island's waste facility has adopted multiple alternatives to land filling, such as composting, extensive recycling, baling and transfer. These practices decrease incredible amounts of waste, and are extremely efficient, both economically and environmentally.

Note: Mackinaw Island's waste reduction statistics and BMIC projected cost effective analysis will differ according to geographical factors.

Mackinac Island Waste Facility Tour Report 7/29/10

The Mackinac Island Waste Facility provides recycling and composting services for over 100 business and residential areas. Four staff members, working full time on week days and part time on weekends, process organic materials into sellable compost (. Within a 60 process, the organic materials are mixed, shifted from one of six bays during maturation, sorted, stored and sold. The use of heavy machinery, a shredder, and the sorting machine is extensive.

Compostable Materials are not only food scraps and other kitchen waste, but various paper materials, kitchen grease, and many other materials commonly thrown away. The bulking agents are manure, which is abundant, and woodchips from shredded landscape and construction debris. Other bulking materials are yard clippings, and the manager suggested worm composting for less use of facilities and equipment. To address vectors, many larger carnivores do not live on the island, so seagulls are the largest nuisance to composting operations. They are neutralized by constant mixing/movement and burying of edible organics in the piles. The composting program is

¹¹ Mackinaw Island Waste Facility Tour Report. Seth Allard. 7/29/10.

extremely successful, each year selling out quality compost which is inspected by the DEQ. (Details will follow at a later date).

The staff provides separate organic waste and recycling bags to the community, which are later sorted at the facility. They utilize bagging prices as an incentive to recycle; recycling bags being \$1.50 and trash being \$8 per bag. Community education and participation also help make this program successful, though the presence of full time employees ensuring collection, transfer and proper recycling/composting is the key component of the success of this facility.

The facility sells recyclables by the ton and compost/wood chippings by the yard. Later information as to amounts of sale, profit, and costs of operations will be made available later.

The manager suggests that we use worm composting due to smaller scale and less time/money investment. This, along with a modest facility and hard working recycling staff seems to be the best equivalent to this program for bay mills.

Supporting Statistics:

Shipping Revenue:

	Revenue	Cost	Income
Cardboard	\$16,986.95	\$10,621.60	\$6,365.35 (+)
Magazines	\$1,220.65	\$325.00	\$895.65 (+)
Old Newsprint	\$1,274.84	N/A	\$1,274.84 (+)
Glass	\$554.87	\$968.95	\$414.08 (-)
			\$8,121.76 (+)

Revenue- Amount taken in from buyer

Cost- Shepler's and A.M. Express Trucking Bills

Income- Subtract Revenue from Cost for Total Income

	2009	2010
Cardboard	\$55 to \$80 per ton	\$125 per ton

Magazines and Old Newsprint are shipped to Manistique Paper, Inc. on the same load.



Figure 5: Inside the recycling facility. Large bins are organized for separation and storage



Figure 6: Stacked bails of valuable cardboard and plastics



Figure 7: One of six compost bays. This material is the final, sellable product



Figure 8: Community Members bringing in recyclables.

4.0 Description of the Funding and Sustainability/Long-Term Goals of the Solid Waste Program

Current funding for the daily operations of the waste transfer station come from tribal general funds and revenue generated by the dollar a bag policy in place. There have been numerous state and federal grants received for specific cleanup projects such as HHW, e-waste and other recycling infrastructure.

4.1 Financial Implementation

The long term management of the solid waste program is dependent on generating increased revenue. Possible long-term goals to increase revenue identified by the Solid Waste Committee are as follow: diverting waste from the landfill, starting a profitable recycling center with personel to sort these wastes, opening the transfer station to non-tribal members in the surrounding area and charging these individuals a fee to fund the program.

4.1.1 Funding the Plan

The total funds needed to implement and maintain the SWMP is dependent on the chosen alternative(s) and yearly costs, (or the projected period of operation if the plan is temporarily approved). To calculate the projected capital and monthly costs for one of the presented alternatives, refer to the cost-effectice analysis section.

The two areas of funding the SWMP are capital/startup costs and sustained funding. It is extremely important to fund the SWMP's capitol/startup costs, partially or completely, using any and all grant and partnership opportunities. ¹²

4.1.2 Revenue Generators

Current revenue generators on BMIC are the Casino and Resort, the King's Club Casino, and the Bay Mart store and gas station. Details on funds that can be realistically provided via current revenue generators must be placed in this section at a later date. Revenue is not generated from residential waste management service fees; nor do the current practices, as previously described, present a high cost to residents. The only monthly costs to residents are represented in the "dollar a bag" policy, the \$28 optional curbside pick-up, and an average \$11 inclusion in rental rates. A low fee structure is one of the reasons past waste issues, like illegal dumping, have been largely decreased. Increasing costs for the purpose of revenue may cause a reversion to illegal dumping, and is not

¹² See References and Resources, as well as Potential Partnerships

suggested as a source of future revenue. Revenue can be provided by future savings in waste management and sale of valuable recyclables and compost. Each of the alternatives presented, or modifications thereof, are capable of revenue generation and/or self sustainability.

4.1.3 Fee Structure

As described above, residents of the Tribal Housing areas pay waste fees as part of the overall rent. Curbside pickup costs are paid by opting residents. The BMIC's "dollar a bag" policy is an area of heavy cost to BMIC, but also prevents the above discussed waste problems.

The BMIC administration pays all other waste costs from Tribal General Funds.

4.1.4 Financial Sustainability

Financial sustainability of the SWMP is based cost savings and revenue provided by waste reduction, recycling and composting, as described in the Alternative Analysis section. A projection of internal funding must be discussed here at a later date.

External funding for short term sustainability may take the form of grants and partnerships, however, they cannot realistically provide long term sustainability though these can provide needed funding for capital improvements.

4.2 Long-Term Goals and Strategies

The highest priority of the SWMP is to maintain and enforce a safe, sanitary, environmentally healthy waste management program in the community. The current waste transfer station does not meet this priority and therefore should be addressed through seeking funding to support the building of a new waste transfer station.

Two other main goals of future waste management are the reduction of land filled waste produced and waste management costs. There are four strategies for the achievement of the main goals.

Any effective management requires an administrative structure. Authority must be delegated to monitor and direct the progress of the SWMP, its waste management/reduction programs. Proper authority must provide reviews and updates as necessary, as well as research opportunities for improved waste management. The BMIC must research, implement and maintain waste reduction programs in direct support of the main goals. These programs can center on recycling and/or composting. See the Alternative Analysis section for descriptions of the proposed programs. Community education and policy are necessary a components of any future waste reduction efforts.

To direct the SWMP accordingly, it is necessary to continuously monitor the solid waste stream. Future policies are reliant on the current and future waste generators, waste types and amounts, and waste costs. Periodic waste stream assessments and records examinations can provide the base information for accurate waste stream characterization. A description of a timeline can be seen in the Implementation Section, but the immediate goals are as follows:

- Continue the meeting of the Solid Waste Committee
- Research and Implement waste reduction programs
- Implement policy that supports the chosen waste program(s)
- Continuously monitor the SWMP and the BMIC Waste Stream with waste assessments as necessary

4.2.2 Improvements Beyond Basic Compliance

While the majority of this plan concentrates on basic waste reduction, there are numerous improvements and services that can be included in the long term goals.

There are many more materials that are designated as recyclable than are commonly thought. Many classifications of plastics, papers, and styrofoam are present in BMIC's waste stream. Presently, these types are difficult to sort and have a low value on the recyclable materials market.

Tours and presentations are good educational and promotional tools. Such education can assist residents in independent waste reduction, such as home composting. A more in-depth community awareness program can be developed along with other, higher priority, programs.

A comprehensive composting program can, as previously described, contribute to community gardening and landscaping. A pertinent example is the Bay Mills Community College's traditional food growth program.

4.2.3 Strategies for Implementation and Maintenance

A critical strategy for the successful execution of this or any other SWMP, is the delegation of responsibility and authority of the plan's progress. The delegation of the SWMP to the Solid Waste Committee will ensure that the Committee can oversee and direct the development of a SWMP and the goals associated with it.

Other goals and/or steps of implementation can be reviewed in the Long Term Goals and Strategies, and Implementation Sections.

5.0 Demonstration of Approval of Plan By Appropriate Governing Body

Insert executive council agreement adopting updated plan

5.1 By Whom

The governing body of BMIC is the Executive Council. The Executive Council meets for regular business meetings on the 2nd & 4th Monday of each month in the courtroom of the Tribal office.

Working sessions are also held on the 1st & 3rd Monday of each month in the conference room, located upstairs in the tribal office.

The Executive council shall delegate the day to day implementation of the SWMP to tribal administrative staff and the Solid Waste Committee which meets monthly.

5.2 Dating and Timeline

Dates designated for review and approval of a SWMP are to be determined, and are subject to the Executive Council's direction.

Appendix A - References and Resources

Bay Mills Indian Community Homepage

<http://www.baymills.org/>

Bay Mills Indian Community Tribal Action Plan, 2018

Dale Mutch. "Compost Marketing Study". Posted on April 06, 2009 14:20. Michigan State University Extension.

<http://www.newag.msu.edu/Home/tabid/37/articleType/ArticleView/articleId/12/Compost-marketing-study.aspx>

Accessed 8/03/10

Department of Planning and Evaluation, Environmental Protection Programs. "Hannahville Indian Community Solid Waste Management Plan." October 2008.

Dwight Sargent, Staff Geologist. "Waste Stream Assessment-Prepared for the Bay Mills Indian Community." Inter-Tribal Council of Michigan, Inc. 1995.

FreightCenter Full Service Freight Logistics Company.

<http://www.freightcenter.com/QuickQuoteReview.aspx>

Accessed 8/4/2010.

Greenhouse Gases and the Role of Composting: A Primer for Compost Producers

<https://www.sanjoseca.gov/home/showpublisheddocument?id=198>

Michigan Department of Natural Resources and Environment

[-http://www.michigan.gov/deq/0,1607,7-135-3585_4130---,00.html](http://www.michigan.gov/deq/0,1607,7-135-3585_4130---,00.html)

Recycled Materials Market Directory.

<http://www.deq.state.mi.us/P2/rmmdpaper.asp>

Michigan Department of Transportation

"Maximum Legal Truck Loadings and Dimensions"

http://www.michigan.gov/documents/Loads_dim_87014_7.pdf

Accessed 9/1/10

TruckPaper.com Trucking and Trailer Purchasing Publication.

<http://www.truckpaper.com>

Accessed 8/12/10

Tuthill Farm and Composting. Official Website

http://www.tuthillfarms.com/1/235/compost_benefits.asp

Accessed 8/03/10

U.S. Environmental Protection Agency Homepage.

<http://www.epa.gov/reg5rcra/wptdiv/solidwaste/tribes.htm#techassist>

Current Projects and Examples of Previous Projects and Grants Awarded by the EPA Region 5 Solid Waste Program.

http://www.epa.gov/reg5rcra/wptdiv/solidwaste/projects/msw_goals.htm#CCPs

“Integrated Waste Management Planning Method: To Incorporate the Five Elements Into A Tribal Integrated Waste Management Plan.” (Final Regional Draft). April 17, 2007.

Prepared by EPA Region 8, with input from other EPA Regions, IHS, USDA, BIA, and HUD.

“[Measuring Recycling: A Guide for State and Local Governments](#): Standard_Volume-to-Weight_Conversion_Factors” 03-27-2003. This table provided the conversion rates for BMIC waste amounts.

http://www.epa.gov/wastes/conservation/tools/recmeas/docs/guide_b.pdf (PDF

“Tribal Decision Maker’s Guide to Solid Waste Management”. Solid Waste and Emergency Response November 2003.

www.epa.gov/tribalmsw

Appendix B - Additional Resources and Contacts

Environmental Protection Agency Region 5
(Serving Illinois, Indiana, Michigan, Minnesota, Ohio, Wisconsin and 35 Tribes)
77 W. Jackson Boulevard (DW-8J)
Chicago, IL 60604
Homepage:
<http://www.epa.gov/region5/>

Contacts:
Dolly Tong
Tribal Solid Waste &
Pollution Prevention Coordinator
Telephone: (312) 886-1019
Fax: (312) 353-4788
E-mail: tong.dolly@epa.gov

Burdell Chapman
Tribal Solid Waste &
Pollution Prevention
Telephone: 312-353-9564
Cell: 630-605-0815
E-mail: chapman.burdell@epa.gov

Tribal Solid Waste Management Assistance Project

Homepage:
<http://www.epa.gov/epawaste/wycd/tribal/finance.htm#ap>

This is a workgroup whose members include representatives from the Environmental Protection Agency (EPA), Department of Agriculture, Rural Development (RD); Department of Defense (DoD); Department of Health and Human Services, Indian Health Service (IHS); Department of Housing and Urban Development; Department of the Interior, and Bureau of Indian Affairs (BIA).

Contacts:
Tonya Hawkins
Phone: (703) 308-8278
E-mail: Hawkins.tonya@epa.gov

Waste Management in Indian Country Homepage
Homepage:

<http://www.epa.gov/epawaste/wycd/tribal/index.htm>

This is a comprehensive listing of EPA Tribal Waste Management and Planning information and partnerships.

Michigan Department of Environment, Great Lakes, and Energy – Materials Management Division

Homepage:

https://www.michigan.gov/egle/0,9429,7-135-3306_63145---,00.html

Contact: Elizabeth Browne

5172846552

BrowneE@michigan.gov

DNRE Programs by Division page:

http://www.michigan.gov/deq/0,1607,7-135-3306_3329_21563-54665--,00.html

Bank of Recycling

628 West Spruce Street, Sault Ste. Marie, MI 49783

Office Phone: 906-259-0818

Richard Delimonte

Phone: 313-737-6858

Chippewa County Recycling Center

1423 West Easterday Avenue Sault Ste Marie, MI 49783

Office Phone: 906-635-5971

Appendix C - Bay Mills Indian Community and Surrounding Area Contacts

Tribal Office 906.248.3241

Child Development Center 906.248.5820

Emergency Connection (EMT) 906.248.2021

Armella Parker Senior Center 906.248.2108

Cultural Center 906.437.4372

Brimley Area Schools 906.248.3219

Bay Mills Commodity Foods 906.248.2527

Bay Mart 906.248.3675

Bay Mills Public Works 906.248.3356-Mike Carrik 906.248.8171

Enrollment Office 906.248.8342

Bay Mills Resort and Casino 906.248.3715

Ojibwe Charter School 906.248.2530

Bay Mills Community College 906.248.3354 -Research and Development 906.248.8454

Ellen Marshall Health Center 906.248.5527

Bay Mills Housing Authority 906.248.5524

Bay Mills Police Department 906.248.3244

Maintenance Department 906.248.8155 -Sam Hatfield 906.440.0104

Bay Mills Conservation Office 906.248.3251