

July 31, 2019

Ms. Lisa Potswald Town Administrator Town of La Pointe PO Box 270 La Pointe, WI 54850

Re: Solid Waste and Recycling Operations Analysis

Dear Ms. Potswald,

At the request of the Town of La Pointe (Town), Cornerstone Environmental Group, LLC, a Tetra Tech company, (Tetra Tech) performed an analysis of the current solid waste management practices including the existing recycling facility operations and economics. The analysis was performed to assist the Town with determining the technical and financial feasibility of modifying or improving how solid waste and recyclables are collected, recycled, and/or disposed. The main challenge is due to the fluctuating population compounded with the need to transport most of the generated waste and recyclables off the Island.

Project Background

The Town of La Pointe is the only town located on Madeline Island, and has a population of approximately 300 permanent residents. During the tourist season (mid-June through Labor Day) the population increases to approximately 3,000. Access to Madeline Island for cars and trucks is provided by the Madeline Island Ferry Line (MIFL) during the spring, and via windsleds and an ice road during the winter months. Recyclables and waste materials removed from the Island are primarily transported by ferry. The Town previously owned and operated a small landfill which was closed in 1993.

Recyclables and solid waste that is generated on the Island is taken by residents and business owners to a Material Recovery Facility/Transfer Station (MRF/TS) located north and east of La Pointe. The MRF/TS is owned and operated by the Town. The majority of the recyclables and solid waste are collected at the MRF/TS during the tourist season, which includes recyclables and solid waste from Big Bay State Park. The MRF/TS consists of four buildings with a drive through drop off area that is accessed from Big Bay Road (see Attachment 1).

Current Recyclable and Waste Management Practices

The current practices for managing recyclables and solid waste materials on Madeline Island were reviewed and evaluated based on discussions and meetings with Town staff, a site visit, and a review of applicable regulations and provided financial information. The current practices have developed over several decades and reflect the values of residents in wanting to "do their part" by recycling and reusing materials to the largest extent possible.

The MRF/TS is open Mondays, Wednesdays, and Saturdays from Labor Day to Memorial Day, and are also open on Sundays during the tourist season to accommodate for the influx of material. An average of 374 tons of solid waste and 123 tons of recyclables are processed annually. Residents and businesses haul their own waste materials to the MRF/TS where they place the solid waste in one of two 40-yard trash compactors. When the 40-

yard compactor boxes are full, the Town self-hauls the solid waste to the Ashland Transfer Station operated by Waste Management, Inc. and located in Ashland, Wisconsin as needed. The round trip for distance to haul solid waste to the Ashland Transfer Station is 60 miles and includes a Ferry ride to and from La Pointe. Self-hauling began in 2016 with the Town's purchase of a 1997 Ford L-900 truck. Waste hauling was previously contracted out by the Town.

Recyclables are brought to the MRF/TS and presorted by residents and businesses dropping off their items. Glass, metal, aluminum, and plastics are placed into their respective barrels, and paper and cardboard are dropped off inside the Main Drop-off & Recycling Center Building. Paper, cardboard, metal cans, and aluminum are baled and stored on the MRF/TS site until they are picked up by Chicago Iron & Supplies, Inc. and hauled to their facility in Ashland, Wisconsin. Glass is crushed, processed, and stored on the MRF/TS site until it is used in roadway construction projects on the Island through an exemption from the Wisconsin Department of Natural Resources (WDNR).

Other materials accepted at the MRF/TS include scrap metal, tires, major appliances, electronics, mattresses, used lead acid batteries, used oil and used oil filters, and other regulated wastes. Appliances, scrap metal, and tires are either self-hauled by the Town or hauled by Chicago Iron to Chicago Iron & Supplies, Inc. in Ashland. The Town self-hauls demolition and construction debris, mattresses, and any furniture to the Ashland Transfer Station. Special wastes such as household hazardous wastes including paints, pesticides, cleaning chemicals are occasionally accepted at the MRF/TS. These items are transported to Bayfield, Wisconsin twice a year to be picked up by the Northwest Regional Planning Commission. Fryer grease is hauled by the Town to Sanimax in Bayfield, Wisconsin. Electronics are hauled by the Town or by Green Lights Recycling to their facility in Duluth, Minnesota. Used oil and used oil filters are collected by Como Oil for off-site disposal or reuse.

The Town last held a Clean Sweep Event in 2015 to collect hazardous materials and other special wastes using grant money from the WDNR. During the Clean Sweep Event, waste materials collected included paints, flammable liquids, pesticides, batteries, and oil filters. The total cost to hold the Event was \$21,684.18. Without grant money, the Town is unable to provide this type of service for the Island.

Materials brought to the MRF/TS are separated and stockpiled until there is sufficient quantity to be manually processed and then hauled off-site. It was noted from discussions that recycled materials are often stored at the MRF/TS until the Town can obtain a favorable price to sell recyclables.

One of the buildings at the MRF/TS is used as an "exchange" area where gently used items (clothing, furniture, household items, etc.) are stored. The exchange area is currently not accepting additional items as it appears full.

Site photographs of the current MRF/TS operations from the site visit on May 15, 2019, are included in Attachment 2. The photographs show a site that handles and stores various types of materials both inside buildings and outside. The overall appearance of the MRF/TS indicates that there is difficulty in processing bulky materials in a timely manner such as furniture, white goods, mattresses and tires.

Applicable Regulations

The MRF/TS recycling operations are subject to NR 544 – Effective Recycling Programs and the solid waste transfer operations are subject to NR 502.07 – Transfer Facilities, as well as other local, state, and federal regulations.

A license is not required for the recycling operations; however, the Town must submit an annual Self-Certification renewal form and program report to the WDNR to demonstrate compliance with NR 544. Furthermore, the MRF operations must meet the annual total tonnage Standard for Collection of Recyclables, recycle or transport at least 75% of the volume of recyclables from the facility within 12 months of receipt, operate the facility in a nuisance-free and environmentally sound manner, and conform with all other record keeping, storage, and public involvement requirements of NR 544.

The transfer operations meet the exemption of NR 502.07 and do not require a license because solid wastes are hand-unloaded from vehicles by individual users at the transfer facility and the individual quantities are less than one ton. However, the transfer facility and operations must conform with general requirements specified in NR502.07 which includes maintaining a clean and nuisance-free site, removing or emptying containers on a minimum of a weekly basis, and providing adequate and appropriate labeled containers as well as reasonable access to the site.

Finances

The Town provided various financial data related to recycling, WDNR Responsible Unit Grant (RUG) monies, hauling, and solid waste disposal. The evaluation in this report is based on data from the years 2016 through 2017. Data from 2018 was incomplete and not used in this report. It is expected that if 2018 data was used for this report the price received for recyclables would be less as the global market for recyclables has dropped due to changes implemented in China banning certain materials from being imported.

Recyclables

Based on provided information from 2016 and 2017, the Town collects an average of 123 tons of recyclables per year and is spending \$2,063 per ton to recycle, process, and manage the collected materials. This per ton rate is based on the total tons of waste actually recycled and not received. From the data provided, it appears that over 50% of the recyclables collected are not processed and assumed to be disposed of or stockpiled on the MRF/TS site for further processing. Residents are not charged for dropping off recyclables and this appears to result in the high percentage of recyclables not actually being recovered. Commercial businesses are charged for dropping off plastic, glass, and other recyclables. Scrap metal charges are based on quantity estimated by the operator. Below is a summary of costs and revenue related to recycling efforts at the MRF.

	Recyclables Collected (tons)	Recyclables Sold (tons)	Cost to Process and Manage Recyclables	Revenue from Recyclables Sales/Fees	RUG Grant Money	Net	Net/Ton Recycled and Sold	Net/Ton Processed
2016	126	65	(\$129,376)	\$5,777	\$8,354	(\$115,245)	(\$1,773)	(\$913)
2017	120	42	(\$113,825)	\$6,957	\$8,801	(\$98,067)	(\$2,353)	(\$817)
Avg.	123	54	(\$121,601)	\$6,367	\$8,578	(\$106,656)	(\$2,063)	(\$865)

A breakdown of costs and revenues associated with recycling is included in the attached Table 1.

Solid Waste

The Town requires a fee for the disposal of solid waste at the MRF/TS and offers punch cards for solid waste disposal at discounted rates for frequent users; approximately 90% of residents and businesses use the punch cards. The MRF/TS operator is typically onsite during business hours and punches the cards based on number and size of bags of solid waste placed in the compactors. Businesses leave their punch cards at the facility and report the number and size of bags of solid waste to the operator. Demolition and construction debris charges are based on quantity estimated by the operator. Based on provided information from 2016 and 2017, the Town collects an average of 374 tons of solid waste per year. Taking into account the income and operating costs, the Town is losing \$218 per ton to handle and dispose of the solid waste materials collected. Below is a summary of costs and revenue related to solid waste disposal at the TS. Equipment sales include the sale of various highway equipment property (mower, tanker, pickup truck/plow, etc.) and sale of trash bags. Note that costs in 2016 include the purchase of the 1997 truck and associated 40-yard boxes.

	Solid Waste Processed (tons)*	Costs for Hauling/Disposal/ Operating	Revenue from Fees & Equip Sales	Net	Net/ton
2016	351	(\$183,576)	\$82,775	(\$100,801)	(\$287)
2017	397	(\$147,258)	\$88,444	(\$58,814)	(\$148)
Average	374	(\$65,417)	\$85,609	(\$79,808)	(\$218)

*Tonnage includes MSW and construction and demolition debris

A breakdown of costs and revenues associated with disposal is included in the attached Table 2.

Madeline Island Ferry Line (MIFL) Transportation

With the exception of recyclables, hazardous materials, and the occasional load of items picked up by a private hauler, the Town typically hauls all other items and waste brought to the MRF/TS. Each load must first travel via ferry to Bayfield before it can be transported to its respective location. The ferry has scheduled trips and charges per vehicle based on length and weight. The Town estimated that it takes 4 hours round trip to dispose of solid waste and other materials in Ashland, Wisconsin. The Town-owned 1997 truck is used to transport waste in the 40 cubic yard compactor boxes and the 40 cubic yard roll-off containers. The return trips consist of the truck and the empty compactor box or roll-off container box; the empty compactor box weighs 8,400 pounds (4.2 tons) and the tare weight of the roll-off container is approximately 6,000 pounds (3 tons). Below is a summary of the costs associated with MIFL transportation. Transportation of solid waste materials on average is \$250 per round trip ferry ride.

Container Type (Year)	Tipping (tons)	Box Weight (tons)	Total Weight (tons)	Number of Trips	Fees to Ferry Waste	Fees to Ferry Box & Truck	Total Fees	Box & Truck Fees %
Compactor (2016)	245	97	342	23	(\$3,859)	(\$1,521)	(\$5,380)	39%
Compactor (2017)	248	92	340	22	(\$4,778)	(\$1,783)	(\$6,561)	37%
Roll-Off (2016)	105	51	156	17	(\$2,669)	(\$1,311)	(\$4,010)	49%
Roll-Off (2017)	149	54	203	18	(\$3,355)	(\$1,213)	(\$4,568)	36%

Evaluation and Recommendations

The Town is looking for solutions to operate the MRF/TS in an efficient and cost-effective manner. Ultimately, the Town would like to have a facility open for inspections and tours of the MRF/TS by the public, including children and tourists, to display the recycling efforts and resource reuse practices of the community. Analysis of the current practices identified that the Town, the community, and visitors to La Pointe care about the environment and are diligent in efforts to protect it; however, due to the recycling market change and transportation costs, alternative practices should be explored to capitalize on these efforts. Furthermore, to maintain their current status as an exempt hand-unloaded waste transfer station and as an MRF receiving WDNR RUG monies, the facility must operate in accordance with rules and regulations identified above.

Recyclables

The majority of Town labor and other expenses are associated with processing and managing recyclables. The Town is meeting the requirement standard for collection of recyclables at the MRF; however, less than half of what is collected for recycling is actually recovered for sale. This could be due to solid waste materials being comingled with recyclables, or recent downturns in recycling markets. Income from recycling cardboard accounts for 50% of recycling revenue the Town collects, followed by aluminum (27%) and paper (15%). Magazines, books, steel cans, and plastic recyclables each account for less than 5% of revenue. This is also reflected globally. Within the past few years, China, who was once importing the largest quantity of recyclables worldwide, set stringent standards for recyclables. As of January 1, 2019, China is limiting the quantity and types of recyclables imported. Other foreign markets are following suit in setting more stringent standards for recyclables, banning plastic imports, and have even started returning recyclables that are contaminated with waste back to Western nations. Recyclers and waste processing companies that were previously making profit on recyclables are now paying to get rid of these materials. Additionally, more stringent standards for recyclables more time and labor spent sorting out materials that cannot be recycled.

Current practices in other cities and regions for processing recyclables often include automated single stream materials recovery facility (MRF) equipment that includes human labor and automated separation of materials. This type of a system is not considered practical for the Town of La Pointe to own due to the high cost and relatively small quantity of recyclables processed. However, based on conversations with a local waste processor and recycler (Eagle Disposal) the Town may be able to save on the costs of processing recyclables and actually have a higher recovery rate by outsourcing to a single stream recycling service. By outsourcing this service residents and businesses would drop comingled recyclables in a compactor box that would eventually be transported to an off-island materials recovery facility. This option should be further evaluated by requesting proposals for drop off box recycling services.

Other efforts that can be implemented would be educating residents and tourists of Madeline Island about the change in the recycling market and what materials can and actually are recycled. This will inform the public about which materials can be recycled and are most valued, and which materials cannot be recycled and should be disposed as solid waste. The Town should continue to apply for exemptions for glass and other items and focus their recycling efforts on collection of the most valued materials (cardboard, aluminum, and paper).

Solid Waste and Transportation

Nearly half of the costs of solid waste operations incurred in 2016 were due to the purchase and repairs of the 1997 truck, with wages coming in around 30% of costs followed by self-hauling (14%). Data from 2017 is anticipated to be more representative of typical costs with wages accounting for almost 50%. The costs related to hauling material off the Island and bringing back the empty compactor boxes and roll-off containers due to MIFL fees account for 30% in 2017. It is anticipated that 2018 data would be similar to 2017.

The possibility of reducing the cost of transporting solid waste materials and reducing overall disposal costs was evaluated. There is the potential to reduce transportation costs by reducing or eliminating the need to transport waste in a compactor box. It was noted that a relatively small baler is owned and operated by the Town for aluminum and tin can recyclables. Tetra Tech has identified a larger baler and bagger that could be purchased and utilized to bale recyclables and bale/bag solid waste in lieu of the current compacting processes. This would still allow for easy transport of the solid waste, while reducing the ferry fee due to the decreased weight of the hauling vehicle (no compactor box or roll-off container weight). In addition, this would provide the opportunity for a local hauler to take the solid waste off the Island and bring back any materials they need for their own business operations, as the post baling bagging operation would preclude contamination of their imported materials. The solid waste hauling fees could then be split between the Town and local hauler. This option does require a relatively large capital investment in a new compactor and would require a different truck or contract with a local business to haul baled and bagged waste. The approximate cost of the bagger and baler is \$485,000. The baler has the capacity to process 10,381 cubic feet of material per hour of operation, which roughly equates to 53 tons

of MSW per hour or 21 tons of recyclables per hour. This compares to a maximum daily rate received by the Town of approximately 10 tons per day. The Town generates on average 374 tons of MSW and 123 tons of recyclables per year. Baler information is included in Attachment 3.

Construction and demolition (C&D) waste accounts for 30% of waste disposal. Permitting and development of a WI NR503 regulated construction and demolition landfill or recycling center on the Island is potentially viable from a technical and regulatory process. This option could help reduce overall costs of managing C&D waste materials but requires the Town to commit to owning and operating a C&D landfill or recycling center. This option can be further looked into if requested.

Another potential solution to decrease hauling costs and make baling easier is to separate organics (e.g. food waste) from the solid waste. The Town is currently producing an average of 4 pounds of organics per person per day. Diverted and collected organics could potentially be dropped off at the local wastewater treatment plant to be treated, or for use in an anaerobic digester to create biogas for sale or reuse by the Town. Organics would need to be separated and transported to a processing facility which could include aerobic or anerobic digestion.

Alternatively, a compost pile could be implemented to reduce organics; concerns were voiced over this option due to wildlife interference, compost sales, and size and location of the compost at the MRF/TS. Due to the relatively small size of the population on the Island it is thought that individual residential composting bins would be a simple and effective way to promote diverting organics from the MSW.

Recommendations for Next Steps

Tetra Tech recommends the following next steps for the Town of La Pointe MRF/TS:

- A Financial Analysis is recommended to compare the current finances of the site with alternative collection, transportation, and operational methods to determine the most effective way to manage the materials and to create a self-sustaining facility. The analysis may include, but is not limited to, changing to single-stream recycling; outsourcing transportation of materials through a private hauler; the Town using the 1997 truck to haul single-sorted recyclables; the purchase of a baler and bagger; diversion of organics to the Madeline Sanitary District for processing; and/or determining the permitting and construction costs and revenue for a NR503.09 C&D Waste Landfill or developing a C&D waste recycling center to be developed on the Island.
- Facility Layout and Current Operations
 - A simplified redesign of the site would allow for the MRF/TS to become a drop-off facility. Examples of modern drop-off facility layouts are included in Attachment 4. The drop-off facility would consist of several clearly labeled containers for MSW, single-stream recyclables, scrap metal, appliances, and other accepted materials. Residents would drop off their own materials into the appropriate containers or areas so that materials are no longer processed at the site.
 - Single-stream recyclables could be hauled to a sorting facility or transfer station by the Town using the 1997 truck. Alternatively, the Town could request bids for private hauling to a sorting facility or transfer station (to be included in a financial analysis, if requested).
 - The elimination of processing materials at the site would allow for a reduction in labor and therefore staff, as well as reduced hours of operation. One operator would likely be sufficient to manage the site on a daily basis.
 - Eliminate tire disposal or charge higher fees for tire disposal. It is noted that there are no vehicle tire sales on Madeline Island. Discarded /used tires should be processed and disposed of at the location where new tires are purchased.
 - Acceptance of bulky items such as furniture, mattresses, and appliances should be limited to residential drop-off only. Commercial operations should be required to dispose of their bulky items off the Island. Increasing the acceptance fees for bulky items could provide an incentive for residents to haul their own items off-site, and/or justify the costs associated with the continuation of hauling and disposing of these items by the Town.

- All accepted materials should be stored on a concrete pad or dumpster. No materials should be stored on the ground. Materials must be disposed of in a timely manner to meet code requirements related to storage and holding times.
- A revised fee schedule with increased fees (especially for bulky items and special items such as batteries, used oil, etc.) is recommended to help offset costs.
- Construction and Demolition Landfill A "small size construction and demolition waste landfill" could be sited on the Island in accordance with locational criteria identified in NR 503. Siting of the landfill includes an initial site inspection by the WDNR. This type of landfill would consist of an approximately 1.5 to 2-acre area with a design capacity of less than 50,000 CY of material. Specific requirements related to the development and operation of the site including routine groundwater monitoring requirements are specified in NR 503.09. The landfill must be operated by a certified individual meeting the requirements of NR 524. Operational hours for the landfill are recommended to be by appointment only.
- A public education campaign is recommended to inform the residents and tourists about the logistical and financial requirements to recycle and dispose of waste generated on Madeline Island.

Tetra Tech appreciates the opportunity to assist with this analysis and looks forward to discussing options with the Town. Please contact our office with any questions or comments.

Sincerely,

Cornerstone Environmental Group, LLC

Elica Lamon

Erica Lawson Project Manager

Andrew C Khelly Andrew Schellberg

Operations Director

Mark J. Torreson

Mark Torresani Vice President

Enclosures: Attachment 1 – Site Layout

Attachment 2 – Site Photos Attachment 3 – Badger Two Ram Baler Brochure & Specifications Attachment 4 – Modern Drop-Off Facility Layouts Table 1 – Recycling Costs and Revenues Table 2 – Solid Waste Costs and Revenues

Attachment 1-Site Layout

Town of La Pointe MRF & Transfer Station

Tower Compound

Scrap Metal

Used Oil Drop-Off

Work Shop/Cardboard Storage

Compactors

White Goods Q

The Storage

Closed Landfill (1993)

Main Drop-Off & Recycling Center

Crushed Glass Storage

Baled Aluminum & Tin

200 ft

н

Google Earth

© 2018 Google





View of drop-off area facing east.



View of mattress/furniture storage facing north.







View of white goods storage facing southwest.



View of tires facing northeast.





View of crushed glass and baled metal facing northwest.



View of scrap metal and used oil drop-off.





View of baled plastic.



View of drums and folding chairs facing southeast.

















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*All products and features are subject to change. Photos not necessarily representative of new equipment Harris © 2014 - Harris Badger14-



TWO RAM BALER

The Harris Badger is a narrow box, multi-purpose baler providing quality, efficiency and reliability at an economical price. The Badger produces high density bales with one of the highest baling forces in its class. Processes Newspaper (ONP), Cardboard (OCC), High Grade Paper, Solid Waste (MSW), Plastics (PET, HDPE, Film), Cans (Steel/Aluminum), Electronic Scrap, White Goods, and Non-Ferrous Metals.

Harris Badger Two Ram Baler



Standard Features:

- Laser positioning system for all ram and bale exit door movements
- 3500 PSI (241 bars) operating system pressure
- 10 in. (254mm) bore main cylinder, 137 tons (124.2 tonnes) of force, 239 PSI (15.7 kg/cm2) ram face pressure
- 8 in (203 mm) bore eject cylinder, 88 tons (79.8 tonnes) of force, 111 PSI (6.0 kg/cm2) ram face pressure
- Harris Smartknife[™] System shimless knife adjustment
- Rake angle knife beam
- Choice of serrated or straight shear knife
- Abrasion resistant plug welded liners including a tongue and groove floor
- Trapped key hopper access door interlocks and category 3 safety monitoring system

- Operator's platform over bale chamber
- Heavy-duty cylinders
- Heavy-duty uni-body frame construction
- 60% penetration into the bale chamber providing heavier, more uniform bales. Also allows partial bales (Badger L Series)
- Plug bale compatible
- Accent or L & P auto tier 11 or 12 gauge high tensile wire
- Soft start main motor starting
- 3 phase, 60 Hz, 460 V electrical.
- · Harris standard warranty
- Multi-Material controller with:
 - Phone modem
 - 10" touch screen English/Spanish display
 - Built in diagnostics
 - Full automatic operation on the majority of materials

Category 3 Safety Monitoring System

Operator Interface

Display (English/Spanish)

3

Options:

- Harris Combo Door[™]
- 11 in. (279mm) bore main cylinder, 166 tons (150 tonnes) of force, 288 PSI (18.9 kg/cm2) ram face pressure
- · Hopper extension up to 92 in. (2438mm) high.
- Bale discharge table
- Elevated operator's platform
- · Climate controlled operator's cab
- Video camera system

Badger with Lid (Optional):

- Ideal for quicker processing of plastics such as PET and HDPE
- Pre-compression lid
- Fast dry cycle time, 15 seconds (including lid)
- 11" (279mm) bore main cylinder, 166 tons (150 tonnes) of force, 288 (18.9 ks/cm2) ram face psi
- Extra penetrating ram produces high density bales

- Feed conveyor(s)
- CE rating
- Alternative power unit locations
- Other languages, electrical voltages, & options on request
- · Lower main ram wiper
- 50 hp (37.5 kw), 75 hp (55.9 kw), 100 hp (75.6 kw or 93 kw)
- Bale wrapping system



60% Penetration

into the bale chamber providing heavier, more uniform bales. Also allows partial bales. (Badger L series)

Trapped Key Hopper Access Door Interlocks

Clevis & Pin Mounting allows for main ram to compensate for floor wear

Larger Charges

The large 42" x 85" (1067 mm x 2159 mm) charge box opening (Badger L Series) allows more material per stroke increasing throughputs & lower liner wear.



AFFORDABLE RELIABILITY

The popular Harris Badger is a narrow-box two ram baler with a reputation for value and reliability as well as flexibility.

Reliable Power

The Badger gnaws at materials with our reliable S-2 and S-4 power units designed with simplicity in mind.

Improved Structure Design

The Badger is designed with a solid uni-body construction – a solid one-piece body design. The uni-body construction design gives the Badger two ram baler added strength and rigidity to handle difficult materials in difficult applications. Additionally, Harris widened the stance of the Badger to minimize flexing during the baling cycle.

Total Precision Control

All Within Arms Reach

https://harrisequip.com/products/two-ram-balers/badger/

The Badger, and all other Harris two ram balers feature total control user interface terminals which include a multi-function touch screen Baxley display with up to the second diagnostic and production information. Couple that with a custom production system built by Harris and you will have the most efficient and productive facility are

Easier Maintenance, Decrea

Adjustable Knives

The smart knife system Harris utilizes on all our two ram balers allows for less down time and since shims are not used we save you money two ways.

Wear Parts

Harris utilizes thicker wear liners throughout our two ram line giving our customers longer run time between scheduled maintenance and replacement. We use AR500 wear liners, exceeding our competition.

Badger Video



- UBC's
- Aluminum Cans
- Steel Cans
- Plastics
- Light-Med Gauge Nonferrous Metals

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White Goods

229-273-2500 Cordele | 912-367-4661 Baxley



Designed for these Facilities

- Solid Waste Facilities
- Material Recovery Facilities (MRF's)
- Recycling Centers
- Scrap Metal Yards



229-273-2500 Cordele | 912-367-4661 Baxley



MACHINE SPECIFICATIONS										
LONG BOX										
MODEL		L50S- 2-10/7	L50S- 2-10/8	L50S- 2-11/8	L75S- 2-10/7	L75S- 2-10/8	L75S- 2-11/8	L100S- 2-10/7	L100S- 2-10/8	L100S- 2-11/8
BALE SIZE	Width Height Length	46" 31" 61"								
BALE VOLUME	cu.ft.	50	50	50	50	50	50	50	50	50
CAPACITY	cu ft./hour	10,381	10,381	8,580	12,139	12,139	10,032	14,316	14,316	11,831
CHARGE BOX OPENING	inches	42" x 85"								
HOPPER OPENING	inches	65" x 94"								

https://harrisequip.com/products/two-ram-balers/badger/

MACHINE SPECIFICATIONS						229)-273-2500 Co	rdele 912	-367-4661 Bax	dey
MAIN PUMP	gpm	12	F)	97	۲.J	4	145	171	171	171
SYSTEM PRESSURE	PSI	350		3500	3500	3500	3500	3500	3500	3500
MAIN RAM FACE PRESSURE	PSI	239	239	288	239	239	288	239	239	288
EJECTOR RAM FACE PRESSURE	PSI	85	111	111	85	111	111	85	111	111
SHIPPING WEIGHT	tons	26	26	26	25.5	25.5	26	26	26	26
BALING MATERIAL	Bulk OCC Solid Waste Newsprint Aluminum Cans Steel Cans Plastic Non- Ferrous HDPE	Up to 1250 Up to 1500 Up to 1400 Up to 1500 Up to 1500 Up to 1200 Up to 1200 Up to 1200	1200- 1500lbs 1850- 2200lbs 1250- 1550lbs 950- 1150lbs 1450- 2000lbs 1100- 1350lbs 1000- 2500lbs	1250- 1550lbs 1900- 2400lbs 1300- 1600lbs 1000- 1200lbs 1500- 2400lbs 1150- 1450lbs 1050- 2700lbs	1200- 1500lbs 1850- 2200lbs 1250- 1550lbs 950- 1100lbs 1450- 2000lbs 1100- 1350lbs 1000- 2500lbs	1200- 1500lbs 1850- 2200lbs 1250- 1550lbs 950- 1100lbs 1450- 2000lbs 1100- 1350lbs 1000- 2500lbs	1250- 1550lbs 1900- 2400lbs 1300- 1600lbs 1000- 1200lbs 1500- 2400lbs 1150- 1450lbs 1050- 2700lbs	1200- 1500lbs 1850- 2200lbs 1250- 1500lbs 950- 1150lbs 1450- 2000lbs 1100- 1350lbs 1000- 2500lbs	1200- 1500lbs 1850- 2200lbs 1250- 1500lbs 950- 1150lbs 1450- 2000lbs 1100- 1350lbs 1000- 2500lbs	1250- 1550lbs 1900- 2400lbs 1300- 1600lbs 1000- 1200lbs 1500- 2400lbs 1150- 1450lbs 1050- 2700lbs





View of a modern drop-off facility.





View of a modern drop-off facility.

Recycling Costs and Revenues								
Recycling Category	2016	2017	Average					
Salaries/Wages	(\$97,316)	(\$83,548)	(\$90,432)					
Utility Services	(\$2,124)	(\$2,459)	(\$2,292)					
Purchased Services (contractual)	(\$8,987)	(\$7,292)	(\$8,139)					
General Internal Expenses	(\$4,200)	(\$3,501)	(\$3,851)					
Self-Hauling Expenses	(\$4,044)	-	-					
Vehicle Expenses	(\$893)	(\$3,364)	(\$2,129)					
Equipment & Equipment Maintenance	(\$689)	(\$1,074)	(\$882)					
Training	\$0	(\$304)	(\$152)					
Depreciation	(\$11,122)	(\$12,284)	(\$11,703)					
Total Costs	(\$129,376)	(\$113,825)	(\$121,601)					
Revenue From Selling Recyclables	\$5,777	\$6,957	\$6,367					
RUG Grant Money	\$8,354	\$8,801	\$8,578					
Recycling Total	(\$115,245)	(\$98,067)	(\$106,656)					
Total Tons Recycled	65	42	54					
Price per Ton - Recycled	(\$1,773)	(\$2,353)	(\$2,063)					
Total Tons Processed	126	120	123					
Price per Ton - Processed	(\$913)	(\$817)	(\$865)					

Solid Waste Costs and Revenues								
Solid Waste Category	2016	2017	Average					
Salaries/Wages	(\$52,638)	(\$65,833)	(\$59,236)					
Utility Services	(\$3,117)	(\$3,614)	(\$3,365)					
Purchased Services (contractual)	(\$60,400)*	-	-					
General Internal Expenses	(\$8,224)	(\$5,651)	(\$6,938)					
Self-Hauling Expenses	(\$24,926)	(\$50,661)	(\$37,794)					
Vehicle Expenses	(\$884)	(\$3,342)	(\$2,113)					
Equipment & Equipment Maintenance	(\$25,606)**	(\$9,333)	(\$17,469)					
Training	(\$281)	(\$16)	(\$149)					
Depreciation	(\$7,499)	(\$8,808)	(\$8,154)					
Total Costs	(\$183,576)	(\$147,258)	(\$165,417)					
Revenue From Fees & Equip. Sales	\$82,775	\$88,444	\$85,609					
Solid Waste Total	(\$100,801)	(\$58,814)	(\$79,808)					
Total Tons Disposed	351	397	374					
Disposal Price per ton	(\$287)	(\$148)	(\$218)					

*Includes purchase of the 1997 truck and associated boxes

**Includes repairs to the 1997 truck