

# Recommendations for a Cardboard Drop-Off Recycling Program

Cameron County



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## **Background**

The Pennsylvania Department of Environmental Protection (PA DEP), the Governor's Center for Local Government Services, the Pennsylvania State Association of Township Supervisors (PSATS) and the Solid Waste Association of North America (SWANA) formed a training partnership for Pennsylvania local governments interested in achieving higher recycling rates. Through this partnership, Cameron County was awarded a \$5,000 grant to receive recycling technical assistance from Gannett Fleming, Inc.

## **Executive Summary**

Retail stores, grocers, and restaurants generate the largest quantity of cardboard waste. In Cameron County, most of these establishments are located in Emporium. It is recommended that Cameron County purchase eight 15 cubic yard recycling bins and fifty 95-gallon recycling containers for the collection of cardboard. Five of these bins would be placed along 4<sup>th</sup> Street, one at the Cameron County High School on Woodland Avenue, and one at Furniture for Less on Sizerville Road. The extra bin would be purchased as a backup and replacement bin on hauling days. Bins and containers are eligible, under section 902 grant funds from the Pennsylvania Department of Environmental Protection, for 90% reimbursement of the total capital costs involved in implementing a recycling program. Capital costs are estimated to be 25,000, which equates to a County cost share of 2,500. The purchase of a baler and the addition of newspaper to the recycling program were considered. For several reasons, including economics and logistics, these recycling program components are not recommended at this time.

## **Introduction**

According to the 1999 United States Census estimate, the population of Cameron County is 5,571. Of these residents, 85% live in Shippen Township and Emporium Borough within the town of Emporium. Census data from 1997 shows 70 commercial establishments in Cameron

County. Approximately 80% of these establishments are in Emporium. For these reasons, the County recycling efforts will focus on the town of Emporium.

Cameron County collects aluminum, bimetallic cans, clear glass, and corrugated cardboard at a drop-off center located on Plank Road in Emporium. The drop-off center is a fenced area with several collection bins and a hauling trailer. The bins are for metal and glass cans, and the trailer stores cardboard. Aluminum, bimetallic cans, and clear glass are collected in a compartmentalized roll-off bin that is located outside of the fenced area, and available to the public at all times. The total 1999 tonnage for glass, metal cans, and cardboard for Cameron County was 17 tons. Of the 17 tons collected, the County received credit for 3 tons of cardboard.

The County owns a roll-off truck, which can haul one 15 cubic yard bin at a time. As part of a working agreement with Emporium Borough, the Borough operates and maintains the truck. When hauling County recyclables during normal working hours, the Borough does not bill the County for the labor and transport cost. The Borough bills at \$20.63 per hour for hauling that requires overtime.

## **Purpose**

Cameron County would like to determine the economic feasibility of collecting corrugated cardboard and newspaper with a drop-off program.

## **Scope of Work**

- Task 1 Identify producers of corrugated cardboard waste in Cameron County.
- Task 2 Locate regional buyers for corrugated cardboard and newspaper.
- Task 3 Develop a concept plan for cardboard recycling.
- Task 3A Identify locations for recycling bins.
- Task 3B Identify bin types for cardboard recycling.
- Task 3C Estimate capital and annual operation and maintenance costs.
- Task 4 Discuss the need for a Recycling Ordinance.

## **Task 1 Identify producers of corrugated cardboard waste in Cameron County**

A fairly inclusive list of commercial establishments in Emporium is presented in Appendix A. The list was generated from listings in the Bell Atlantic Yellow Pages and phone interviews. Commercial establishment types that appear on the list include offices, restaurants, grocery stores, retail shops, and service shops. Other non-residential establishments, such as schools, also can generate a significant amount of cardboard waste. Churches, apartments, nursing homes, offices, banks, and motels, on the other hand, do not contribute much tonnage.

The commercial establishments listed in Table 1 are considered for the purpose of this report large quantity generators of cardboard waste in Emporium. A large quantity generator is defined here as any establishment that has a wastestream that is at least one-third to one-half cardboard. Table 1 was compiled from phone interviews with the owner or manager of the establishment using their estimates for the amount of cardboard waste generated. A summary of the phone interviews that were conducted can be found in Appendix B.

Olivett's Market and Furniture for Less are the only two establishments on the list that have recycling programs for cardboard. Furniture for Less recycled between 2 and 2 ½ tons of cardboard in 1999. Rick Olivett, the owner of Olivett's Market, stated that his store recycles almost 1 ton a week of cardboard (about 50 tons per year).

GKN Sinter Metals does not currently have a recycling program for cardboard. The 3 GKN facilities in Emporium generate nearly 250 tons of cardboard waste per year. Most of the GKN cardboard is fiber rather than corrugated. A separate recycling program may be necessary for GKN.

**Table 1: List of Ten Large Quantity Generators of Cardboard Waste in Emporium**

◆ PennDOT	◆ Furniture for Less
◆ Olivett's Market	◆ Moore's Sporting Goods
◆ Dollar General	◆ Puff's Discount Cigarettes
◆ GKN Sinter Metals (fiber cardboard)	◆ Burger King and Uni-Mart
◆ Sheetz Convenience Store	◆ most all of the restaurants

**Task 2      Locate local buyers for corrugated cardboard and newspaper**

The recycling centers listed in Table 2 accept cardboard and newspaper. All of the listed recycling centers are within an hour of Emporium. Table 2 also shows the location of the recycling center, contact person, the phone number, and the traveling distance and driving time.

**Table 2: Three Local Buyers of Corrugated Cardboard**

<b>Central Pennsylvania Recycling</b>	<b>Materials accepted</b>
Industrial Park Road Clearfield, PA 16830  <u>Contact:</u> Paul Killion <u>Phone:</u> 814-765-3733 <u>Hours:</u> Mon-Fri 8:00 to 4:00, Sat 8:00 to 11:30 <u>Distance:</u> 60 miles <u>Travel time:</u> 1 hour 10 minutes	✓ Corrugated and Fiber Cardboard ✓ Newspaper ✓ Office paper ✓ Aluminum ✓ Steel cans ✓ Clear, brown, and green glass
<b>McKean County Solid Waste Authority</b>	<b>Materials accepted</b>
Hutchins Road Mount Jewett, PA 16740  <u>Contact:</u> Lowell Aires <u>Phone:</u> 814-778-9931 <u>Hours:</u> Mon-Fri 8:00 to 4:00, Sat 8:00 to 11:30 <u>Distance:</u> 34 miles <u>Travel time:</u> 57 minutes	✓ Corrugated Cardboard ✓ Newspaper ✓ Office paper ✓ Magazines ✓ Aluminum ✓ Tin cans ✓ Clear glass ✓ Type 1 and 2 plastics
<b>Superior Inc.</b>	<b>Materials accepted</b>
Route 219 near Route 28 Brockway, PA 15824  <u>Contact:</u> Rick Stewart <u>Phone:</u> 814-265-1975 <u>Hours:</u> Mon-Fri 8:00 to 4:00, Sat 8:00 to 11:30 <u>Distance:</u> 48 miles <u>Travel time:</u> 1 hour	✓ Corrugated and Fiber Cardboard ✓ Newspaper ✓ Office paper ✓ Magazines ✓ Aluminum ✓ Bimetallic cans ✓ Type 1 and 2 plastics ✓ Clear, brown, and green glass

### **Task 3      Develop concept plan for cardboard recycling**

The important factors in developing a concept plan for cardboard recycling are to:

1. Identify the best locations for drop-off recycling bins
2. Identify the best type of bin to use for cardboard storage
3. Estimate the costs for purchasing and maintaining the bins as well as potential cost savings for diverting waste from the landfill.

#### **Task 3A      Identify locations for recycling bins**

The most important factor in identifying an ideal location for a recycling bin is convenience. Commercial establishments will not recycle if it is too time consuming or troublesome. So, the initial approach is to place bins near the large quantity generators of cardboard waste, and recycling containers near the smaller quantity generators.

The proposed locations for cardboard recycling in Table 3 were selected on the basis of accessibility to the large quantity generators and available space. In phone interviews, company representatives for these proposed lots indicated a willingness to accept a bin. Table 3 also lists the commercial establishments that could be served by a nearby bin.

**Table 3: Proposed Locations for Cardboard Recycling Bins**

<b>#</b>	<b>Location</b>	<b>Service for</b>
1	Cameron County High School lot on Woodland Avenue	High School, Elementary School, and some of the nearby residences
2	Uni-Mart lot at 401 West 4 <sup>th</sup> Street	Uni-Mart and Burger King
3	Quality Compacted Metals lot on South Broad Street	Quality Compacted Metals and Moore's Sporting Goods
4	Behind the Midtowne Sports Grill at 36 East 4 <sup>th</sup> Street	Midtowne Sports Grill, Emporium Wine & Spirits, Pizza Palace Plus, Cabin Kitchen, The Coffee Shop, and Fox's Pizza Den
5	Lot between Dollar General and Olivett's Market at 105 East 4 <sup>th</sup> Street (two bins)	Dollar General, Olivett Market, and the VFW

6	Furniture for Less lot on Sizerville Road	Furniture for Less, Department of Conservation & Natural Resources, and several motels
7	Recycling Center on Plank Road	Anyone willing to haul. The bin will also serve as a replacement on collections days

Seven drop-off locations would serve most of the large quantity generators of cardboard waste in Emporium. Four of the recommended locations for drop-off bins are located on 4<sup>th</sup> Street. The one at 36 East 4<sup>th</sup> Street could serve several nearby restaurants. In some cases, two or more large quantity generators are located on the same property. For example, Uni-Mart and Burger King share a lot. Two 15 cubic yard bins are recommended for the lot between Olivett’s Market and Dollar General due to the large quantity of cardboard waste generated by both of these stores. The bin for the Recycling Center could be made available for public use and, on collection days, could also serve as a replacement bin. In other words, a replacement bin would allow an empty one to replace a full one without a return trip.

For a site to be acceptable, a straight path distance of 80 feet is required for loading and unloading a roll-off truck. Since proposed sites were not field verified, some of the proposed locations in Table 2 may be unacceptable due to spatial limitations. For sites with spatial limitations, the County might consider providing recycling cans. Cans could be wheeled to the roadside on collection days.

**Task 3B Identify bin types for cardboard recycling**

Several factors should be considered before purchasing a recycling bin. A cardboard recycling bin should have a cover because a water-damaged cardboard does not have a market value. Slotted recycling bins are available, and have several advantages over ones with a hinged top. The top of a slotted recycling bin cannot be opened. Therefore, the potential for a damaged product is less. In other words, the top cannot be left open accidentally during a rainstorm. Second, a slotted bin forces people to break down the cardboard before placing it in the bin, which increases the number of boxes that can be placed inside.

Other important recycling bin specifications are labels and color. The bins should have a large sticker on the front that spells out, “Cardboard Only.” The color of the bin should be different than that of the refuse dumpsters. For recycling, the colors red or orange are often used.

Drop-off bins range in volume from 15 to 40 cubic yards. Since the County roll-off truck can haul bins up to a volume of 15 to 20 cubic yards, only this size has been considered for purchasing. Bins of this size typically have a footprint of 80 square feet.

### **Task 3C      Capital and annual operation and maintenance cost estimate**

The costs that are associated with a cardboard recycling drop-off program are the capital costs of the container and its delivery, and the hauling costs. Section 902 grant money is available through the DEP for the capital costs. The responsibility for collecting and periodically hauling bins to a regional buyer can be assumed by the Borough, or contracted with a private hauler, or a combination of the two.

To reduce transportation costs, the most economical collection strategy involves baling the cardboard before hauling to a regional buyer. A bailer requires a storage building for protection from the weather. If purchased with 902 grant money, the DEP prefers a publicly-owned storage location. Rick Olivett, the owner of Olivett’s Market, has considered purchasing a baler for corrugated cardboard. If he does purchase a baler, he is willing to rent it to the County for a fee. The purchase of a baler for the County will also require a forklift, a loading dock, and a larger hauling truck. With the current hauling truck, the cost benefit of baling is negligible. Therefore, the purchase of a baler should be considered in the future, at a time when the County recycling program is better established.

#### Capital Cost for Purchase of Drop-off Recycling Bins and Recycling Containers:

Eight 15 cubic yard bins are recommended to serve seven locations in Emporium. Two bins would be placed in the lot between Olivett’s Market and Dollar General. Several vendors were contacted for cost estimates. Aquilla Steltzfus of Valley Enterprise Container in Mill Hall, PA

(570-726-6894) provided a cost estimate of \$20,000 for eight 20 cubic yard bins with covers and slots. The Valley Enterprise bins can be pulled onto a roll-off truck with either a hook or a pulley. Cost estimates for Winter Equipment in York, PA, Jefferson Machine Co, in Punxsutawney, PA, and Edwin Rissler Shop in New Enterprise, PA will be provided to the County separately.

Mark O'Neil of Winter Equipment (800-472-4250) in York, PA provided a list cost of \$65 a piece for 95-gallon recycling containers with covers.

#### Operating Costs for the Corrugated Cardboard Drop-off Recycling Program:

There are two transportation-related costs involved in the proposed program. Collection costs refer to the transportation of materials from various locations in Emporium to the recycling center for long-term storage. Hauling costs involve transporting the material from the recycling center to a local buyer.

The level of effort required for a recycling program that collects 200 tons of cardboard is estimated at 600 hours a year (10 to 12 hours per week). Hauling constitutes half of the time requirement assuming that a roll-off truck would be used. At three hours per round trip, 100 trips per year to a regional buyer would be required for hauling. Since hauling materials to a regional buyer with a roll-off truck would be extremely time consuming, it is recommended that the hauling be contracted with a private hauler. With a larger truck, a private hauler may only be needed for 25 trips per year. However, it may be possible to use a Borough dump truck for hauling materials to a regional buyer. Dump trucks have a hauling capacity of 8 to 10 tons, which is considerably greater than the hauling capacity of a roll-off truck.

If the Borough cannot commit the time and labor for collection, then this transportation-related cost should also be included in a bid package. A collection strategy will be reviewed with the Emporium Borough Director of Public Works to establish more realistic time estimates. From preliminary calculations, it is estimated that transporting the bins to the recycling center and emptying them will require 6 to 8 hours per week.

#### Potential Cost Savings and Return on the Investment :

Cost savings will result from the diversion of material from the landfill. The tipping fee is currently \$35 per ton. A reasonable goal for the first year of the cardboard recycling program is 200 tons, assuming that Olivett's Market chooses to recycle through the County rather than privately. Since the commercial establishments will realize these cost savings, the County may want to consider either a rental fee or a surcharge on the tipping fee through the Solid Waste Authority to cover the operational costs of maintaining the recycling program. The rental fee could be either handled on a prorated or flat fee basis.

A rental fee for the bins cannot be based on the market value of cardboard due to the market's constant fluctuation. Rather, the rental fee should be based on no return. Local buyers will always accept corrugated cardboard, but will not always offer compensation for it. When the market value for cardboard increases, the County may choose to return the money to the commercial establishments or establish an account for future recycling initiatives. Some of the hauling costs can also be covered with performance grant money from the DEP.

Applications are due to the DEP regional office by October 6<sup>th</sup>. As a part of a new policy for 902 grants, the DEP requires a pre-application meeting between the applicant and the Regional Coordinator. This meeting took place on September 11, 2000 between Ron Sommers and Ray Regan of Gannett Fleming, who acted on the behalf of the County at the request of Dolores Navarra, the County Coordinator.

Section 902 recycling grants provide 90% reimbursement for the capital costs involved in implementing a recycling program. If the County chooses to purchase eight 15 cubic yard recycling bins for cardboard and fifty 95-gallon recycling containers, the out-of-pocket cost is estimated at \$2,500.

#### **Task 4      Discuss the need for a Recycling Ordinance**

Mandated recycling is not required for any town in Cameron County under Act 101. An Ordinance, however, can be initiated at the County level to mandate commercial recycling so

long as it has the support of the affected municipalities. Standard Ordinances for recycling have been presented separately. The DEP recommends that this Ordinance should be in draft form by the 902-grant deadline of October 6.

Once the Ordinance is enacted with the support of the Municipalities, it will be imperative to communicate the recycling program goals with the commercial establishments. The DEP has found the following items are common in an effective recycling program:

1. Tell owners and managers of local establishments about your recycling policies, procedures and goals.
2. Encourage participation.
3. Stress that recyclables must be kept free of contaminants that can diminish their market value
4. Publicize program successes to maintain ongoing participation. Usual channels for conveying this information include newsletters, fliers, and posters.

## **Summary**

The following order of operations are recommended in order to meet the October 6 deadline for 902 grant applications:

1. Introduce the draft Ordinance with provisions for corrugated cardboard recycling. This Ordinance should have the support of all the affected Municipalities.
2. Meet with the Emporium Borough Public Works Director to discuss the collection strategy. From preliminary calculations, it was estimated that 6 to 8 hours of Borough time per week (300 to 400 hours per year) is required for collection. If the Director feels that the Borough can provide the service, then review collection points, and the time estimates, and develop cost estimates. If the Borough cannot provide the service, then these items will be added to the bid package to private haulers.

3. Contact private haulers for bids on hauling the corrugated cardboard from the recycling center to a local buyer. It is estimated that 200 tons of recyclable corrugated cardboard will be generated per year. A line item for recycling containers should be included, as well. If the Borough cannot provide the collection service, the bids should also include this service.
4. Submit the 902-grant application to Ron Sommers at the DEP regional office in Williamsport.
5. Develop educational materials, such as flyers and newspaper articles, to inform the public of the County's recycling intentions.

If the County decides not to purchase recycling equipment, such as a bailer, public notifications are not required. Otherwise, the County's intent to purchase the recycling equipment must be published in the local newspaper for two consecutive weeks. Standard newspaper clips are included in the 902-grant application.