

# **FOSTER TOWNSHIP**

## **FINAL REPORT**

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## **1.0 Background**

Foster Township (Township) is located in McKean County. The Township is located in a rural area and has a population of 4,566 people. The Township does not currently have a recycling program and is interested in exploring the options for residential curbside collection of recyclables. The Township is also interested in providing curbside collection services for MSW. Private and public operation of either or/both programs will be considered. The Township is facing financial challenges and is pursuing a least cost scenario.

## **2.0 Options For Collection Programs**

Municipal collection programs for recyclables include drop-off programs and curbside programs. These programs are described below; a comparative summary is provided in Attachment One. Drop-off programs are discussed for general information and comparative purposes.

### **2.1 Drop-off Programs**

Drop-off programs (staffed or unattended) have been implemented in many municipalities as the primary method of recovering residential recyclables. Drop-off programs are also frequently used to supplement curbside programs. The greatest advantage of drop-off programs is that the overall cost is usually substantially less than for curbside collection programs. Drop-off programs also offer the advantage of providing for collection of a greater variety of materials, particularly those that are not readily included in curbside programs (e.g., batteries, used oil, textbooks, clothing). Drop-off programs can also be set up to provide for separation of materials at the dropsite, reducing the need for (or improving the efficiency of) processing at MRF. A disadvantage of drop-off programs is the inconvenience imposed on homeowners. As a result, recovery rates for drop-off programs are typically lower than for curbside programs.

### **2.2 Curbside Programs**

Curbside programs originated with separate collection of waste and recyclables, with source-separation of recyclables at the curb and collection by multi-compartment recycling trucks. Curbside sorting allowed for a high level of visual inspection, providing for a high quality of recovered materials. However, curbside collection of source-separated recyclables was generally a high-cost, low-efficiency program.

Current curbside programs most often consist of separate collection of waste and commingled recyclables, or a variety of combined collection methods (e.g., mixed waste collection, blue-bag combined collection, and combined collection in a dual compartment truck). Co-collection methods are not feasible in Foster Township under the current waste management system, since the private sector provides curbside collection of waste while the County provides drop-off collection of commingled recyclables and there are no MRF's capable of this level of separation.

Working experience and technical innovation have resulted in advances in curbside collection programs. For example, the development of single-line MRFs with improved designs and a greater amount of automation have allowed for the emergence of collection programs that eliminate the need for homeowners to separate commingled containers from paper. In addition, automated, one-person collection vehicles are now being used in many communities, and are reported to improve efficiency, reduce costs and increase the safety of collection programs. The automated vehicles rely on the use of specialized carts which are lifted and emptied using a hydraulic arm that is controlled by the driver from inside the cab. The carts have typical capacities ranging from 32-96 gallons, and are equipped with a hinged cover that serves to keep the materials dry and prevent windblown litter. Many communities have also achieved efficiencies by reducing the frequency of collection service for recyclables. Larger containers would present a problem for collection in a rural area e.g.: long driveways would make transport of containers difficult.

Several common and innovative curbside collection methods for recyclables and MSW are summarized below.

### **2.3 Separate Collection of Waste and Commingled Recyclables**

The collection of commingled recyclables separately from MSW is the most common collection method for recyclables. Typical programs include collection of commingled recyclables (tin cans, aluminum cans, glass and plastic) and paper fiber (newspaper and/or cardboard and other mixed paper).

Separate collection requires homeowners to separate recyclables from waste, with paper typically segregated at the curb from commingled containers. Recyclables are commonly placed at the curb in a medium-sized recycling bin and collected in a dual-compartment recycling truck (e.g., separate compartments for commingled containers and paper). Depending on the materials included in the program, the type of collection vehicle used, and the capabilities of the MRF/market to process, alternatives to the recycling bin include the use of larger covered containers and see-through plastic bags.

This collection method generally achieves a balance between convenience for the homeowner and collection efficiency. When implemented with manual collection vehicles, visual inspection at the curb can assist in providing a high quality of recovered materials.

### **2.4 Combined (single-pass) Collection in a Dual-Compartment Truck**

Some communities are improving on the separate collection of waste and recyclables with the use of innovative dual-compartment trucks, thereby eliminating the need for a separate pickup for recyclables. Single-pass dual collection still requires the separation of waste and recyclables by homeowners. However, both are picked up at the same time and stored in separate compartments of a single truck.

Dual collection typically utilizes some form of automated collection technology. In one variation of the system, the carts used by residents are divided, with one side used for

waste and the other for recyclables. As the carts are lifted and dumped by the automated collection vehicles, the recyclables and waste are simultaneously dumped into separate compartments of the truck. In another variation, front-load collection vehicles are modified to have a customized split container on the front-load collection arms. The collection crew manually loads waste and recyclables into separate sides of the front container; as the front container is filled, the lifting mechanism is used to dump the materials into separate compartments of the truck.

Combined, single-pass collection can be an efficient and effective way to implement curbside recycling, but under somewhat specific conditions. For example, under this collection method recyclables are fully commingled. Therefore, the MRF must be capable of handling paper mixed with containers. If the MRF is not capable of processing fully commingled recyclables, or segregated collection of paper is required for a higher-quality recovered material, this collection method would not be appropriate. Another consideration and limiting factor in the suitability of this collection method is the proximity of the MRF/market to the waste disposal location, since each collection vehicle will have to unload at both locations. Cost for collection vehicles are high. Potentially 50% of the cost of the vehicle would be eligible for funding under Section 902 Grant (e.g., 90% of the 50% of the cost may be attributed to recycling).

## **2.5 Blue Bag Combined Collection**

A variation of the co-collection of waste and recyclables is a “blue bag” recycling program. Blue bag programs, currently in place in many communities, require homeowners to separate recyclables from waste and to place separated recyclables in blue bags. The blue bags are then co-collected with waste in a traditional waste collection vehicle (e.g., a packer truck). This collection method requires handling of the co-collected materials at a mixed waste processing facility to recover the blue bags and subsequently sort the recyclables. Alternately, the bags with recyclables can be recovered at a transfer station equipped to handle such a process, with the recovered bags then forwarded to a traditional MRF for processing. Blue bag collection programs also require a mechanism for distributing bags to residents. Some communities make the bags available through local retail outlets, and require homeowners to purchase the bags. Other communities provide the bags to residents at no cost.

Communities that have switched to a blue bag program have cited cost effectiveness and convenience for residents as two of the significant reasons for making the change. Proponents contend that blue bag programs achieve high recovery rates, and provide a reasonably-high quality of recovered materials. However, the overall success of blue bag programs is uncertain, due to the limited operating history of such programs. Disadvantages include bag breakage and other contamination, such as broken glass within the blue bags due to compaction in the collection truck and the placement of non-recyclables within the blue bags. Also, strong educational efforts are often required to counteract public perception about blue bag programs. Public misconceptions include the belief that separating is not necessary since the recyclables will be separated from waste at the processing facility, and that the materials will be disposed rather than recycled. These

public perceptions can result in low participation rates. Again, given the existing solid waste disposal system, this option will not receive further consideration.

## **2.6 Mixed Waste Collection**

Another collection method is mixed waste collection with no sorting of recyclables by homeowners. This collection alternative is the most convenient for homeowners, and provides for low-cost curbside collection of both waste and recyclables. However, recycling through mixed waste collection requires delivery of the waste to a mixed waste processing facility which is not available to the Township. In addition, material recovered from mixed waste collection programs is of lower quality than from source-separated collection programs.

## COMPARISON OF COLLECTION PROGRAMS

Collection Program	Description	Advantages	Disadvantages
Drop-off Program	<ul style="list-style-type: none"> <li>• Residents bring recyclables to designated collection areas, which can be staffed or unattended.</li> <li>• Can be the primary collection method or used to supplement curbside programs.</li> </ul>	<ul style="list-style-type: none"> <li>• Low overall cost.</li> <li>• Provides for recovery of a wide range of materials.</li> <li>• Easy to implement and operate.</li> <li>• Materials can be separated at site.</li> </ul>	<ul style="list-style-type: none"> <li>• Inconvenient for residents.</li> <li>• Low participation.</li> <li>• Security if not gated and manned.</li> </ul>
Curbside Collection of Recyclables Separate from Waste	<ul style="list-style-type: none"> <li>• Residents separate recyclables from waste and place commingled recyclables at the curb for pickup (fully commingled or with some separation).</li> <li>• Recyclables are picked up separately from waste, with manual or automated vehicles.</li> </ul>	<ul style="list-style-type: none"> <li>• Convenient for residents.</li> <li>• Greater participation than for drop-off programs.</li> <li>• Provides clean recyclables, due to segregation from waste and the ability to inspect at the curb.</li> </ul>	<ul style="list-style-type: none"> <li>• High collection cost.</li> <li>• Some limitations in the types of materials that can be collected.</li> <li>• Inefficient, labor-intensive collection process, unless automated vehicles are used.</li> </ul>
Combined Collection of Recyclables and Waste in Dual-Compartment Trucks	<ul style="list-style-type: none"> <li>• Residents separate recyclables from waste and place both at curb, typically in large carts.</li> <li>• Dual-compartment automated trucks pick up recyclables and waste in one collection stop.</li> <li>• Recyclables and waste are discharged separately at appropriate locations.</li> </ul>	<ul style="list-style-type: none"> <li>• Convenient for residents.</li> <li>• Greater participation than for drop-off programs.</li> <li>• Potential for increased recovery due to larger containers.</li> <li>• Provides clean recyclables, due to segregation from waste and the use of covered carts.</li> <li>• Cost savings due to collection efficiencies.</li> </ul>	<ul style="list-style-type: none"> <li>• Innovative collection technology that uses customized trucks.</li> <li>• Requires a MRF that can process fully commingled recyclables.</li> <li>• Not suitable for locations where MRF and disposal facility are not near to each other, since collection vehicles must discharge at both locations.</li> <li>• Expense of equipment.</li> </ul>
Blue Bag Combined Collection	<ul style="list-style-type: none"> <li>• Residents separate recyclables into heavy-weight, blue plastic bags.</li> <li>• Blue bags and waste are collected together, and brought to a transfer station or mixed waste processing facility for recovery of blue bags.</li> </ul>	<ul style="list-style-type: none"> <li>• Convenient for residents.</li> <li>• Greater participation than for drop-off programs.</li> <li>• No special collection vehicles are required.</li> <li>• Cost savings due to collection efficiencies.</li> </ul>	<ul style="list-style-type: none"> <li>• Bags subject to breakage.</li> <li>• Broken glass can contaminate other recyclables.</li> <li>• Requires a mechanism for distributing blue bags.</li> <li>• Processing to separate.</li> <li>• Public perception issues.</li> </ul>
Mixed Waste Collection	<ul style="list-style-type: none"> <li>• Waste and recyclables collected together with no separation, and delivered to a mixed waste processing facility.</li> </ul>	<ul style="list-style-type: none"> <li>• Most convenient for residents.</li> <li>• Most efficient collection method.</li> </ul>	<ul style="list-style-type: none"> <li>• Requires a high-cost mixed waste processing facility to recover recyclables.</li> <li>• Low quality of recovered materials.</li> </ul>

### **3.0 Public And Private Options For Collection**

Options for curbside collection practices (MSW and/or recyclables) used by municipalities are as individual and unique as each municipality. What works and is best suited for one municipality isn't necessarily well suited to others. The standard options are as follows:

- 1.) Municipal Collection
- 2.) Municipal Contracted Collection
- 3.) Private Contracts (resident/collector)

#### **3.1. Municipal Collection**

This system of residential curbside collection is provided entirely by the municipality or cooperating municipalities i.e.: equipment, maintenance of equipment, administration, education, marketing of materials and manpower. Traditionally, large municipalities and smaller densely populated ones have provided this type of collection services.

Municipal governments, at all levels, have recently (over the past few decades) faced ever increasing responsibility and the resulting rising cost to address infrastructure needs, planning and zoning issues and public demands for additional services. Given these increased responsibilities and the financial strain they place on a municipality, cost associated with municipal services are scrutinized closely to avoid adding financial burden to already stressed tax bases. This situation exists in Foster Township in that it is experiencing financial challenges and has adopted an austerity program to curtail expenditures.

As previously stated, some of the State's larger municipalities and smaller densely populated municipalities have traditionally provided collection services for MSW and recyclables. These programs are well established and have for the most part operated for numerous years. In recent years, a number of these municipalities have opted to privatize or procure contracted services for their collection programs for MSW and/or recyclables. The primary reason for this shift to private sector operation or contracted services is cost savings achieved primarily through economy of scale, enjoyed by large collection companies.

#### **3.2 Municipal Contracting for Collection Services**

In Pennsylvania in order for a municipality to enter into a contract for collection services for MSW and/or recyclables a competitive procurement process must be followed. This process entails preparation of a procurement document commonly known as a Request for Proposal (RFP). The document provides a detailed description of the services being requested, background information, requirements for responses, bid requirements and general contract terms. Upon review of the responses, the municipality will negotiate a contract with the lowest qualified bidder.

Contracting for collection services is favored by many municipalities who do not wish to be burdened with (or wish to be relieved from the burden of) providing collection services and the associated cost for collection i.e.: (equipment, maintenance, personnel, and

administration). A number of recent comparative analyses including those conducted by ARI in the Northeastern part of the State have generally shown that lower cost can be achieved under a contract system vs municipal collection or individual contract/private subscription. Contract terms can help ensure a consistent level of services and the municipality has a single responsible entity to deal with.

Many municipalities that have considered contracting for MSW and/or recyclables collection services, have experienced opposition and opted not to contract. Local residents often do not favor collection service provided under municipal contracts. Residents often prefer their local haulers who are apt to meet special needs or wants of the household e.g.: place of collection, types of materials collected or provision of special collection services. In many cases, municipalities (statewide) succumb to political pressure applied by residents in support of small haulers and open competition. Specifically, residents often oppose municipal contracting for collection services on the basis that the small haulers will be put out of business and a monopoly will be established with a major company thus eliminating future competition. Concerns regarding the quality and level of service under a municipal contract are also often voiced. And as previously mentioned, municipalities currently operating a program (particularly large ones) face political opposition from employees and sympathetic citizens and unions. Private communities within municipalities, also, may not wish to be included under a contract and often opt for an alternative system.

Distribution of a RFP for collection services can provide costs for a variety of collection options for waste and/or recyclables for the Township consideration and comparison.

### **3.3 Private Subscription**

This is a system where households contract directly with the hauler of their choice for MSW and/or recyclable collection services. This system of private subscription is used throughout Pennsylvania by all sizes and types of communities (including private communities).

Although it has been reported (in several analysis) to be more costly than municipal collection or contracted collection services, it is preferred in many areas. Services provided under individual contracts are performed predominantly by local haulers and/or mix of larger firms and local haulers. Often, (as previously noted) residents prefer this system based on special services provided by their selected hauler.

The system of individual contracts or private subscription is somewhat inefficient in that it requires duplication of efforts e.g.: often several trucks will travel essentially the same collection routes each collecting only a portion of the households along the way.

For mandatory program enforcement is, at times, a challenge with this system and may require some enforcement actions to assure compliance.

The system is preferred by many municipalities in that it is easily implemented. Through the adoption of an ordinance the Township can mandate residents and/or commercial/institutional establishments to separate designated materials for recycling. The system removes the burden of operation and cost associated with municipal operations i.e.:

equipment, operation, maintenance and administration from the municipality. This option does maintain the competitive private enterprise system, which many residents prefer as noted above.

#### **4.0 Estimate of Recyclable Materials**

Table 1 provides the estimate of the recyclables available in the Township Municipal Waste Stream. The estimates are based on County information, data from regional program and past studies.

**Table 1  
Estimated Recyclable Materials in Waste Stream**

<b>Material</b>	<b>Percent MSW</b>	<b>Tons in MSW</b>
Newsprint	10.0%	267
Corrugated Paper	9.5%	282
Office Paper	5.0%	184
Glass (Clear,Brown,Green)	8.5%	252
Plastic (PET, HDPE only)	4.0%	119
Steel & Bimetal Cans	2.0%	60
Aluminum Cans	1.0%	30
Yard Waste	11%	326
<b>TOTALS</b>	<b>51%</b>	<b>1,520</b>

Diversion rates will depend on the type of program mandatory/voluntary, types and numbers of materials included in the program and the level of participation. A mandatory program will provide higher participation rates. A comprehensive and sustained public information program will also increase participation.

#### **5.0 Markets**

Few markets for materials exist within the County. Table 2 list the primary markets.

**Table 2**  
**Material Markets**

1. Goodmans Recycling  
287 High Street  
Bradford, PA 16701  
Telephone (814) 362-6873  
Contact: Mr. Michael Coder  
Al. cans - \$35.00/lb (\$700.00 ton)  
Tin - \$ 0.00/ton  
Cardboard - \$ 0.00/ton  
Newsprint - \$ 0.00/ton
  
2. Recycle All  
RD#1 Box 621A  
Port Allegany, PA 16743  
Telephone (814) 642-5057  
Contact: Mr. Luke Healy  
Clear glass - \$40.00 to \$45.00/ton  
Green glass - \$22.00 to \$26.00/ton  
Brown glass - \$25.00 to \$29.00/ton  
NOTE: Price paid dependent on product quality

The County recycling center will accept materials at a \$0.00 cost and will pay for (5% to 15% of market value) cardboard. Aluminum cans can be marketed at local scrap dealers.

**6.0 Program Costs Estimates**

**6.1 Recycling**

It is obvious from the meetings with the Township that its preference would be to provide municipal curbside collection of recyclables and MSW for its residents. In order to provide these services the purchase of equipment would be required and additional personnel would be needed. A collection vehicle for recyclables range from \$40,000 (pick-up truck and specialized trailer) to \$60,000+, for a self-contained collection vehicle (price dependent on vehicle specifications). Containers for household collection are almost essential to curbside programs. An estimated cost for containers would be in the range of \$11.00 - \$12.00 (based on State piggy back purchase).

Public education and information is essential to program success. Estimated education costs are \$10,000.00. Administration costs are not included in this estimate.

Cost incurred for collection equipment, program development and education are grant eligible under Section 902 Grants.

## Estimated Costs For Curbside Collection

ITEM	TOTAL	TOWNSHIP SHARE	DEP SHARE
Collection Vehicle	\$40,000.00	\$4,000.00	\$36,000.00
Collection Containers (1)	\$18,700.00	\$1,870.00	\$16,830.00
Education/Information	\$10,000.00	\$1,000.00	\$9,000.00
Program Development (2)	\$10,000.00	\$1,000.00	\$9,000.00
<b>GRAND TOTAL</b>	<b>\$78,700.00</b>	<b>\$7,870.00</b>	<b>\$70,830.00</b>

(1) Assumes one (1) container per household at 1,700 households.

(2) Cost related to legal fees, consulting assistance in program development and establish collection routing.

(3) Estimate does not include possible in-kind matches the Township may provide in lieu of cash match.

### **6.2 Municipal Waste**

To develop a municipal pal operated curbside MSW collection program, at a minimum, the following cost can be anticipated. Cost for collection equipment for MSW, including one (1) packer truck (rear-end-loader) estimated at \$115,000.00 to \$125,000.00 (dependent on load capacity and specifications), cost for additional personnel and program administration. Cost incurred for project development, equipment and administration for MSW collection are not grant eligible under Act 101 or any other program ARI is aware of.

### **7.0 Cooperative Program Option**

The Townships meetings with Bradford to explore the potential for a cooperative program have indicated that cost for curbside collection would be similar to those incurred in development of its own program.

However, savings may be anticipated based on Bradford's years of operational experience, avoidance of duplicating efforts and economy of scale. An additional benefit for recycling would be that multi-municipal programs receive preference under Section 902 Grants.

### **8.0 Observations and Conclusion**

Although the Township desires to provide both recyclables and MSW collection services to its residents, its current financial challenges prohibit the development of these service programs without financial assistance. It is evident that the Township cannot afford the capitol expenditures required to establish a MSW collection program in that no known financial assistance or grants are available for this endeavor.

Curbside collection of recyclables is again Grant eligible under Section 902 of Act 101. The Township has the opportunity to apply under a current grant round. Twenty million dollars

is available to assist municipalities in program development and implementation. The Township will have until June 26, 2003 to apply.

Recent escalation of tipping fees at the County Landfill from \$46.00 per ton to \$86.00 per ton is an additional incentive for initiation of a recycling program. Saving in avoided disposal fees would be substantial. Even if conservatively, only 200 tons of the estimated 1,520.00 tons of the \$1,520.00 tons of materials available are recycled \$17,200.00 would be saved in avoided disposal fees (200 ton @ \$86.00/ton = \$17,200.00).

## **9.0 Recommendations**

- The Township should pursue the development of a curbside collection program for recyclables, preferably a cooperative program with Bradford and/or other nearby municipalities.
- An application for a 902 Grant should be submitted to the PADEP for curbside collection program development and implementation.
- The Township should maximize its efforts to provide in-kind match in lieu of cash match for its 10% of the project cost under Section 902.
- The Township should adopt an ordinance mandating residents' recycle to help insure maximum participation. A draft ordinance is included in Attachment A. A mandatory program will also receive preference under Section 902.
- Consideration should be also given to mandating recycling in the commercial /institutional sector. This effort will increase the amount of materials collected and increase the Township's 904 Grant for recycling. These monies can be applied to reduce program costs substantially.
- In the event the Township is financially unable or does not desire to initiate a municipal collection program for recyclables and/or MSW, it is recommended that the Township issue a Request For Proposal for curbside collection services for recyclables. The Township may wish to also request proposals for MSW collection. Procuring private sector services for collection of recyclables and MSW would most likely prove to be most economic for the Township. A Draft RFP is included in Attachment B for the Township's consideration.