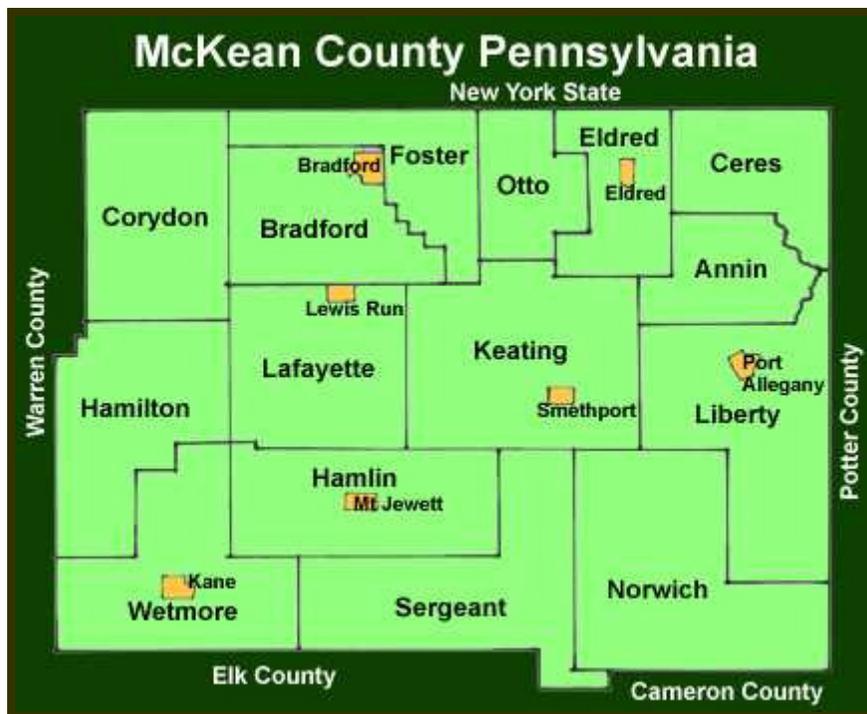


SWANA RECYCLING TECHNICAL ASSISTANCE STUDY

FINAL REPORT

McKEAN COUNTY, PENNSYLVANIA

STRATEGIES FOR IMPROVING RECYCLING IN McKEAN COUNTY



GANNETT FLEMING, INC.



HARRISBURG, PENNSYLVANIA

FEBRUARY 2007

**SWANA RECYCLING
TECHNICAL ASSISTANCE STUDY
FINAL REPORT
STRATEGIES FOR IMPROVING RECYCLING IN McKEAN COUNTY
Table of Contents**

	<u>Page</u>
EXECUTIVE SUMMARY	1
1.0 INTRODUCTION	4
1.1....Scope of Work	4
2.0 BACKGROUND	4
3.0 EXISTING COUNTY WASTE COLLECTION AND RECYCLING SYSTEM	5
3.1....County Municipal Waste collection.....	5
3.2....County Recycling Program.....	5
4.0 COUNTY RECYCLING STRATEGIES	7
4.1....Barriers for County Recycling Strategies.....	8
5.0 RECOMMENDED RECYCLING INITIATIVES MANAGEMENT PLAN (RIMP)....	12
6.0 BRADFORD TOWNSHIP RECYCLABLE COLLECTION EVALUATION.....	13
6.1....Background Information.....	13
6.2....Bradford Township Waste and Recyclable Generation Projections	14
6.3....Bradford Township Recyclable Markets	15
6.4....Estimated Curbside Program Economics.....	16
6.5....Recommendations for the Proposed Bradford Township Recycling Program	20
7.0 FINDINGS AND RECOMMENDATIONS.....	25
7.1....McKean County	25

APPENDICES

- Appendix A** – Drop-Off Recycling Brochure/Listing
- Appendix B** – Curbside Truck Specifications

**SWANA RECYCLING
TECHNICAL ASSISTANCE STUDY
EXECUTIVE SUMMARY
STRATEGIES FOR IMPROVING RECYCLING IN McKEAN COUNTY**

McKean County and most of its municipalities, currently lacks the infrastructure to conduct successful, efficient, and economically viable recycling programs. This study was conducted to recommend strategies for implementing recycling infrastructure on a County-wide basis, as well as to evaluate a proposed curbside recycling program in Bradford Township.

On the County level, many barriers to efficient and sustainable recycling programs were identified. Most notably, there is a lack of coordination and standardization among existing municipal waste and recyclables collection programs, and the market potential for recyclables is unknown and/or unavailable locally. Additionally, there is a low residential and commercial density in this rural region, which can limit the opportunities for economically feasible recycling systems. Recycling economics have not been explored in detail and existing recycling data is incomplete and potentially inaccurate. Gannett Fleming, Inc. (GF) recommends the following strategies to improve McKean County's recycling efforts:

- **Determine and formalize the County's role in recycling.** To offer the greatest potential benefit to County-wide recycling efforts, GF recommends the County take an active role in market/processing arrangements and supporting willing municipalities in enhancing and standardizing integrated waste and recycling programs in a manner that maximizes efficiency, minimizes costs and fosters sound waste and recyclables market arrangements. This increased role envisions the County taking a lead in investigating and formalizing.
- **Develop and share “tools” with willing municipalities** to support well-designed and cost-effective participation in standardized waste and recycling programs. Some of these tools could include:
 - Template waste and recycling contracts
 - Standardized waste and recycling ordinances
 - Standard education materials
 - Standard data tracking and reporting methods.

It would be beneficial if these tools could be downloaded as needed by local municipalities via the Internet from a County-hosted website.

- **Confirm and improve public, local municipal and regional commitment to recycling.**
- **Research and improve the economics of various waste and recycling scenarios.**
- **Establish a County Waste and Recycling Committee** to support recycling initiatives.
- **Develop a Recycling Initiatives Management Plan (RIMP).**

Bradford Township is a non-mandated community in McKean County that is considering a curbside recycling program. Based on GF's preliminary evaluation, the following conclusions and recommendations are provided:

Bradford Township Findings

- The Township currently operates a “hybrid” Pay-As-You-Throw (PAYT) waste collection system (without curbside recycling service), where there is a \$15.50 fee per month for weekly disposal of up to three bags of trash and a separate fee of \$1.29 per bag for additional bags.
- Bradford Township could recover approximately 990 tons (say 1,000 tons) of materials by recycling 25 percent of their waste stream and higher diversion rates are achievable. At a cost of \$38.50 per ton for disposal, avoided disposal costs for 990 recycled tons would be approximately **\$38,000 per year**.
- There are four recyclables markets regionally, with Rustick LLC being favorable for returning the highest market proceeds for materials collected. A new single-stream recycling system, being developed north of Bradford Township in New York State by SDS of Olean, may become a viable recyclables market.
- Based on an average 10-ton truckload, diverting nearly 1,000 tons of recyclable material from the landfill could eliminate nearly 100 trips to the landfill.
- Labor costs related to proposed recycling efforts are unknown and cannot be estimated accurately since a specific recycling program has not yet been selected by the Township.
- Recycling equipment (trucks and containers) are estimated to be the largest startup cost.
- If Bradford Township applies and is approved for an Act 101, Section 902 Recycling Grant for a recyclables collection vehicle, curbside recycling containers and education materials as shown in this study, the 10 percent match paid by the Township is estimated at **\$35,000 (Section 6.4)**. The availability of grant funding is dependant on a number of factors including availability of monies in the Act 101 Recycling Fund and Pennsylvania Department of Environmental Protection (PADEP) funding priorities. The cost of educational materials may only be eligible for the required 10 percent grant match.
- Annual costs for conducting a residential curbside recycling program for Bradford Township should range from **\$2.00 - \$3.00 per household per month**, which can be paid by the residents.
- Revenue from Act 101, Section 904 Recycling Grants could exceed **\$30,000 per year** based on 990 tons of Act 101 recyclables that could be collected and reported.
- Market revenues for recyclables could not be determined because pricing will be determined after negotiation and agreement with Rustick LLC and/or other markets.

Bradford Township Recommendations

- Implement a curbside recyclables collection program that collects the following materials curbside on a bi-weekly collection schedule from all households and small businesses in the Township:
 - Aluminum cans

- Steel/bi-metallic cans
 - Plastic bottles and jugs (#1 and #2)
 - Paper (e.g. newspaper, envelopes, junk mail and possibly bundled cardboard)
- Because it offers a financial incentive and offers the greatest potential in terms of recyclables diversion, it is recommended that Bradford Township implement a true Pay-As-You-Throw (PAYT) waste collection program, where the fee structure is set so residents pay a set fee for EVERY bag/container of trash placed at the curb. Political and public support of this type of system should be confirmed. Bags typically range from \$2.00 to \$3.00 per bag in Pennsylvania PAYT programs. Reports of bag prices as high as \$4.75 have been noted in these programs. True PAYT has proven to divert a higher percentage of waste to recycling than other traditional curbside recycling programs. If this PAYT waste management is selected, it is recommended the Township consider using **Phoenix Recycling** to implement the program (www.payasyouthrow.com). Increased enforcement to deter illegal dumping in the initial phase of PAYT is recommended. Ordinances that address burning of wastes are also beneficial when implementing a PAYT program.
 - Implement an ordinance that reflects the waste collection and recycling program.
 - Consider single-stream recycling processing options available from SDS of Olean.
 - Consider a multi-municipal recycling effort, especially with other municipalities in the northwest portion of the County. This will maximize efficiencies of collection, transportation, marketing, processing and education.
 - A supplemental drop-off program for glass bottles should be considered.
 - Track and document curbside recycling efforts.
 - Evaluate and secure potential markets regularly (secure markets/prices via contracts if possible).
 - Use a high-capacity collection vehicle with semi-automated capabilities. GF does not recommend dual collection of waste and recyclables in a split collection vehicle.
 - Procure curbside recycling collection bins for all households, possibly using the Pennsylvania Department of General Services' COSTARS Program. The contract covering recycling containers is COSTARS-17. If two recyclables streams are collected, one 14-gallon bin could be for paper and one 32-gallon is recommended for commingled cans and bottles.
 - The recycling program should be initiated with an educational campaign and ongoing education should be provided.

TECHNICAL ASSISTANCE STUDY
FINAL REPORT
STRATEGIES FOR IMPROVING RECYCLING
IN McKEAN COUNTY

1.0 INTRODUCTION

McKean County Pennsylvania (County) is in the process of evaluating County-wide recycling strategies. Through the partnership with the Solid Waste Association of North America (SWANA), the Pennsylvania State Association of Township Supervisors, and the Pennsylvania Department of Environmental Protection (PADEP), the County was awarded \$7,500 in technical assistance that was provided by Gannett Fleming, Inc. (GF).

1.1 Scope of Work

Under this project, GF worked with the County Recycling Coordinator to develop and complete the following tasks:

Task #1 GF staff will gather information from the County and from Bradford Township concerning the existing waste collection and recycling programs. GF will rely on the County Recycling Coordinator to assist throughout the project in obtaining background information.

Task #2 GF will develop preliminary guidance on County-wide recycling strategies. GF will assess strategies for assuring long-term County-wide recycling services. GF will review existing waste and recycling practices in Bradford Township and provide recommendations for related to the feasibility to adding a curbside recycling program. If deemed necessary and within budget, this task may include a site visit to Bradford Township.

Task #3 GF will prepare a project report including findings and recommendations. This task includes review of the draft report by PADEP and response to PADEP comments. An electronic file of the Final Report will be submitted to PADEP. An electronic and hardcopy of the report will be provided to the County.

2.0 BACKGROUND

Similar to many rural counties in Pennsylvania, McKean County and many of its local municipalities struggle to keep effective recycling programs running. Building sustainable recycling programs in a rural setting has particular challenges, the most significant challenge usually being economics. In 2005, the Kness Landfill (now referred to as the “McKean Landfill”) and a public materials recovery facility operated by the McKean County Solid Waste Authority (MCSWA), were purchased by Rustick LLC (Rustick), a private company. With the operation of the landfill under a private company, the County is concerned about the long-term operation and management of an aging public recyclables drop-off system in the County. As one piece of an improved County-wide recycling program, the County is also working with Bradford Township to implement a voluntary curbside recyclables collection system.

3.0 EXISTING COUNTY WASTE COLLECTION AND RECYCLING SYSTEM

The following Sections briefly describe the County's waste collection and recycling program.

3.1 County Municipal Waste collection

McKean County's varied waste collection system is typical of the predominantly rural area of northern Pennsylvania. There are 22 municipalities in the County and a variety of waste collection methods. According to the 2005 update of the McKean County Solid Waste Plan (Solid Waste Plan): ten of the municipalities allow individual subscription to local waste haulers; three have municipal collection of wastes; one municipality did not report the waste collection process; and the remainders have private hauler contracts. An average of 29,559 tons of municipal waste was generated annually in McKean County from 1991 to 2003 (Table 1-1, Solid Waste Plan).

Municipalities reported private waste collection arrangements with the following haulers:

- **Burdick Disposal**
- **SDS of Olean, NY**
- **Troutman Sanitation**

After municipal waste is collected in the County, the waste is transported to one of seven disposal facilities named in the Solid Waste Plan. According to the PADEP Municipal Waste Destination Reports, the landfill owned by Rustick LLC accepted the majority of McKean County generated municipal waste in 2005. The municipal waste tipping fee for the Rustick Landfill, located near Kane, Pennsylvania, is currently **\$48.50 per ton**. At the time of this report, the County had proposed to dissolve the McKean County Solid Waste Authority. Solid waste planning, implementation, and recycling functions, previously carried out by the McKean County Solid Waste Authority, are now handled through the County and the County Recycling Coordinator.

3.2 County Recycling Program

McKean County has 22 municipalities, and only one municipality, Bradford City, is mandated to implement a curbside recycling program by the Municipal Waste Planning, Recycling and Waste Reduction Act of 1988 (Act 101). According to the Plan, in the year 2000, 32 percent of the waste stream in the County was potentially recyclable. This accounts for 10,596 tons of recyclables available for recovery from the County waste stream. The quantity of County recyclables reported to PADEP is decreasing with most recent reports in 2003 showing 808.3 tons recycled. Investigation of figures reported to PADEP for Annual Recycling Progress Reports indicated that tonnages for entities other than City of Bradford may have not been reported in recent years. Reporting was a function of the inactive McKean County Solid Waste Authority.

3.2.1 County Recycling Education Program

There has been little County-wide, cohesive recycling educational promotions in recent years. At the time of this study, a brochure promoting the County drop-off system was being finalized by the newly appointed County Recycling Coordinator (see **Appendix A**).

3.2.2 RusticK LLC Drop-off and Processing Center

The McKean County Solid Waste Authority originally constructed a recyclable processing facility at the Landfill site in 1993, and a subsequent expansion in 2000 yielded a 9,000 square foot facility, which at one time processed 1,500 to 2,000 tons per year. Under the direction of Rustick, the facility accepts and markets primarily source-separated materials including corrugated cardboard, a variety of paper, plastic bottles and cans.

This recyclable processing facility was originally funded through Act 101, Section 902 Recycling Grant(s). Aside from the structure itself, other equipment funded or partially funded and in operation at the facility includes a horizontal baler, Bobcat loader and three hook-lift trucks with containers. With the sale of the landfill, Rustick worked out a purchase agreement for this equipment with PADEP. This former municipal operation is now privately owned. It appears that there is no formal agreement between Rustick and McKean County to continue the existing drop-off system. Rustick continues to make the drop-off program and processing of recyclables available to the public as a public service part of their operation.

Rustick collects recyclables from two other counties in addition to McKean County. Elk County delivers materials to the site from at least one mandated curbside community. Other recyclables are tipped at the site from Coudersport, Potter County. Reports for these materials are provided to the County Recycling Coordinator.

3.2.3 Public Recyclable Drop-off Sites

Aside from the processing facility, Rustick conducts collection of recyclables from drop-off locations. The County has 13 public recyclables drop-off sites, with a total of 32 containers. See **Appendix B** for a brochure listing these drop-offs and materials accepted. In 2005, the sites recovered approximately 485 tons of recyclables. Materials from the drop-offs are transported, processed and marketed from the processing center owned by Rustick. Rustick reports only the source of material and tonnages processed and marketed.

3.2.4 Commercial, Industrial and Institutional Recycling

According to the Solid Waste Plan, McKean County intends to rely on the private sector to perform municipal waste and recycling collection services in the County for commercial establishments and institutions. A list of commercial establishments according to Standard Industrial Code (SIC) and a recommended strategy for increasing commercial recycling and data collection is included in the Solid Waste Plan.

Rustick has provided the County a listing of commercial establishments that utilize Rustick recycling facilities. Reported recyclables quantities from these establishments totaled 158 tons in 2005. The County Recycling Coordinator is currently researching and documenting other commercial entities that recycle in the County.

3.2.5 Recyclable Markets

The following are listed in the County Plan as the primary recyclables markets:

<u>MARKET</u>	<u>LOCATION</u>
Rambler/Owls Recycling Corporation	Bradford, PA (Discontinued operations)
Goodman Services, Inc	Bradford, PA
STS	Port Allegany, PA
RecycAll	Port Allegany, PA
Bednar Metals	Kane, PA
Connor's Auto Parts	Smethport, PA

Other recycling services identified in this study include:

City of Bradford	Bradford, PA
BV Mobile Shredding, Inc.	Bradford, PA
Benny's Wrecking Yard	Kane, PA
Saint-Gobain Containers	Port Allegany, PA
SDS of Olean	Olean, NY

3.2.6 Compost Operations

There are two municipal composting operations in the County; one in Kane Borough and the other in the City of Bradford. These programs primarily manage yard waste and are conducted on municipal property. There are no County-wide composting efforts.

4.0 COUNTY RECYCLING STRATEGIES

At this time, there is little coordination of recycling efforts on a County-wide basis. Individual municipalities have varied programs and varied success for their efforts. Bradford City is mandated for curbside collection and all other programs operate voluntarily.

It is important for McKean County to develop County-wide Recycling Strategies for a number of reasons. First, many Pennsylvania recycling programs are at risk. These programs, many subsidized by Act 101 funding, are competing for limited grant funds through a grant program that is scheduled to sunset in 2012. Also, the economic viability of both waste and recycling programs hang in a precarious balance where a change, such as a spike in fuel prices, can cause considerable negative impacts to the economic feasibility of the program. The benefits of moving to a planned, consistent and effective recycling system that is integrated with waste collection and disposal on a County-wide or regional level are enormous, and can and should be implemented based on a sound economic structure. Integrated and cooperative waste and recycling efforts can stabilize recycling markets, reduce fuel consumption, reduce total operation costs, improve waste and recycling education, increase the quantity of material diverted, create jobs, conserve energy and natural resources, reduce pollution and offers other short and long term benefits.

4.1 Barriers for County Recycling Strategies

Before developing County-wide recycling strategies, it is important to understand the recycling barriers that face McKean County, its municipalities and many municipalities across Pennsylvania.

4.1.1. Lack of standardization and regional coordination of recycling efforts to maximize program performance

- Waste and recycling implementation is at the municipal level; cooperation and program consistency among municipalities is lacking.
- Developing feasible programs takes time and experience and most municipalities are not staffed and/or knowledgeable in waste and recycling program implementation.
- There is only a fledgling recycling education program, impeded by the lack of consistency among programs and the lack of cooperation between local municipalities and the County and local municipalities.
- There is a lack of regional or multi-county cooperative efforts, which could maximize tonnages collected and recyclables revenues.

4.1.2. Unknown market and processing potential for materials collected

- Rustick LLC will accept additional recyclables at their MRF, however, additional capacity is unknown and no formal agreements have been arranged.
- Uncertainty of services that can be provided by SDS of Olean, which is a privately-owned operation out-of-county and out-of-state. The economics of delivering materials to their facility is unknown; however a representative has indicated a desire to accept more materials from McKean County. A new single-stream collection project is planned through this facility, which is located in New York State.
- Uncertainty of County role in recycling. With the potential dissolution of the MCSWA, it is unknown if the County would take a role in recycling if there is not private sector potential or ability to work in a public-private partnership.
- Unknown ability to use brokers and/or end-users directly in collecting and marketing materials (e.g. using a broker or a paper mill to set up a collection system for newspapers).
- In-County end-users may not be known or are being underutilized. (for example, RecycAll is an intermediate glass processor in the County that is not used for glass recycling).
- Limited recycling infrastructure limits the ability of programs to efficiently collect materials locally and regionally.
- Lack of recycling options for commercial establishments (e.g. drop-offs or “opt-in” recycling for small business to be treated like residential establishments with curbside recycling).

- Lack of multi-municipal/regional composting programs creates a barrier for municipalities that would be willing to participate.
- Glass has been recently dropped as an acceptable material at drop-off sites.

4.1.3. Atmosphere for recycling is negative

- Recycling may not be a priority, especially at local County government level. There is a perception that recycling is uneconomical.
- Recyclable markets may not be easily accessible or economically viable for the varied recyclable collections in the County.
- Disposal options may be less expensive than recycling (i.e. low landfill tipping fees, use of burning barrels as an acceptable practice, etc).
- Private subscription waste services may not offer recycling, are inconsistent from one hauler to the next, and rarely offer recycling incentives. There are few Pay-As-You-Throw (PAYT) programs, which create a financial incentive to recycle because residents pay for waste disposal based on the quantity they throw away.
- Recycling may not be convenient for residents, especially due to limited curbside program opportunities.
- Residents may not understand the importance of recycling and its relevance to our natural resources, energy savings, cost savings, and future of our environment.

4.1.4. Recycling economic issues have not been explored

- With the proposed dissolution of the McKean County Solid Waste Authority, the solid waste planning and implementation responsibilities fall back to the County. There is no operational budget to conduct such responsibilities. The Solid Waste Plan, updated in 2005, has become outdated, requiring changes to reflect the sale of the landfill, dissolution of the SWA, appointment of a County Recycling Coordinator, etc. The County role in recycling could be more defined.
- Rural area and low housing and business density creates a lack of economies of scale to develop sustainable programs on a micro level (individual municipalities).
- Transportation issues need to be explored to identify the most efficient collection methods, efficient routes, and associated costs.
- Lack of an existing mechanism for generating operational revenue beyond fluctuating market proceeds and grant funding.
- Actual costs for conducting existing programs may be unknown.

4.1.5. Existing Data collection is inefficient and potentially inaccurate

- Records provided from Rustick LLC provide limited information that can not be used effectively to evaluate the program and/or report to state entities.
- MCSWA records, especially past recycling data, were not readily accessible to the County Recycling Coordinator at the time of this report. Key factions involved in recycling in the County have changed and the historical perspective and data is unclear.
- While not intended by the New York Bottle Bill, there are potentially many residents who return bottles purchased near the border to New York for deposits. The quantity of this material is not documented.

4.2 Strategies for Overcoming Recycling Barriers in the County

It is important for McKean County to develop a plan to implement a cohesive, financially sustainable recycling program. This plan should include strategies to overcome barriers to recycling and realistic goals for increasing recycling efforts in and around the County. This section includes suggested strategies for McKean County and the next section proposes the contents of an implementation plan.

The County will realize royalties from the sale of the landfill, and in the few years, royalties should increase to a level that could allow for some capital to be applied to recycling efforts in the County. It is suggested that the County consider the following list of recommendations and actions prior to choosing a course for this recycling program. Once a course has been determined and these strategies are considered, it may be beneficial for the County to further study the actual infrastructure to be put in place to determine the most beneficial use of capital.

4.2.1. Determine and Formalize the County's Role in Recycling Program Assistance, Recyclables Processing and Marketing.

- Determine the County role in recycling assistance, collection, processing, marketing and education. **It is important that the County take a lead role in the development and implementation of standardized tools, infrastructure and standard education materials to benefit municipalities and County-wide waste and recycling efforts so that regional efforts can be economically and logistically efficient.**
- Formalizing the County role should include recycling initiatives that are updated at least annually. A standing waste and recycling advisory committee should be created and meet at least quarterly to address County-wide waste and recycling initiatives and issues. This committee could create infrastructure for continual evaluation of the County program and support the County Recycling Coordinator. Initiatives of the committee might include:
 - Developing and providing template ordinances for local municipalities to develop consistent and effective collection systems
 - Promotions of collections that have consistent materials, frequency, and methods.
 - Assessment of County progress and evaluation of techniques
 - Promotion of new markets and improvement to existing ones
 - Assistance with an ongoing, effective educational program

4.2.2. Assess Market Potential and Formalize Processing Arrangements

- Determine the potential that the existing in-County MRF can be used, or the extent to which Rustick is willing to operate it. Work with Rustick to increase the amount and type of materials processed at the facility.
- Explore other market and processing options to determine the feasibility of using existing resources like SDS of Olean, RecycAll, and/or other brokers/end-users. Use the Request for Proposal process to search for recycling markets and/or processing capability.
- Formalize market and processing agreements using a Request for Proposal, contract, or other written documentation. Agreements should require accurate documentation and reporting for materials collected, including verification that the materials were recycled. Determine income and expense costs for each recycling option.

4.2.3. Determine Public, Municipality and Regional Desire and Commitment for Recycling

- Conduct a Stakeholder Summit to discuss County and regional recycling issues and solutions for this rural area. Include other County recycling contacts, municipal officials, private sector factions, civic organizations, County-elected officials and other decision makers.
- Assess desire/efficiencies of the private sector in collecting recyclables versus municipal collection programs.
- Look for regional, multi-county and multi-municipal approaches to building infrastructure for markets.
- Assess public sentiment for recycling in general and ‘paying’ for recyclables collection services.

4.2.4. Research the Economics of Various Recycling Scenarios for McKean County

- There are arrangements that can increase efficiencies of recycling transportation, processing and marketing. Many municipalities that desire to implement recycling programs lack resources, staff, expertise and capital. McKean County should further explore these options to reduce municipal burden and promote a cohesive County infrastructure:
 - County-owned and operated consolidation center – This option would provide consolidation of materials from entities in the County and transport to processing centers or directly to end users.
 - Council of Governments (COG) – Promote a council of governments made of municipalities in and around McKean County which could contract cooperatively for processing and/or marketing of commodities on a larger scale with increased revenue sources. Entities could share costs, equipment and other resources. Centre County, Pennsylvania has such a COG for many programs including waste/recycling.

- County Contract Services – This option would create a contract by the County for recyclable collection, processing and/or marketing services. Municipalities would be able to piggyback onto the County managed contract for services. Such contract services reduce burden on the individual municipalities to set up piece-meal programs. Chester County uses a similar contract system.
- Cost and Resource Sharing – These systems would allow for cost, equipment and resource sharing between the County and municipalities. When possible, coordinate effective waste and recycling programs with shared local municipal and County-level interests.

4.2.5. Miscellaneous Strategies

- Improve data collection processes and research unreported data.
- Address organic waste streams on a regional scale such as regionalized leaf waste collection systems and compost site(s).
- Set realistic, sustainable goals that are tied to available resources (staff, capital, etc).

5.0 RECOMMENDED RECYCLING INITIATIVES MANAGEMENT PLAN (RIMP).

McKean County should develop and implement a plan to further promote recycling in the County and region. Steps for development of a Recycling Initiatives Management Plan (RIMP) should include:

- Formation of a Committee (as few as two or three members).
- Conduct a Recycling Stakeholders Summit(s) as a fact finding technique to assess and record existing efforts and identify potential recycling partners.
- Research and consider the various options for County-wide infrastructure including the economics of each option.
- Formalize County participation structure (this could be minimally documented in the Solid Waste Plan).

Once the County participation structure is identified, a very concise (2-3 pages) goals and strategy document or “RIMP” could be developed to promote and support County and local municipal level programs. This plan should include the following initiatives:

- Formalization of market arrangements and application of recycling strategies
- County-lead role in development and sharing (e.g. via website) of tools and education to promote, facilitate and support the standardization of local municipal-level waste and recycling programs:
 - Template ordinances
 - Template waste and recycling service contracts
 - Standard educational materials (residential and commercial)
 - Standard data collection methods

- Setting benchmarks or realistic goals for increasing recycling efforts/tonnages.
- Encouraging partnerships and municipal sharing of equipment, resources, and costs.
- Development of full-cost accounting and accurate data collection.
- Ongoing standardization among the recycling programs for materials collected, collection methods, education, markets, ordinances, contracts, etc.
- Research and information dissemination of cutting edge equipment or collection techniques like hybrid fuel collection vehicles, automated collections, markets, etc.
- Continued investigations of funding mechanisms for long-term sustainable programs.

6.0 BRADFORD TOWNSHIP RECYCLABLE COLLECTION EVALUATION

Bradford Township is not mandated to recycle by Act 101 of 1988 since its number of residents (4,816) does not meet the population threshold of 5,000 and population density criteria of 300 persons per square mile. The Township would like to add a curbside recycling program. This study will provide recommendations with regards to the feasibility of adding a curbside recycling program.

6.1 Background Information

In order to provide recommendations for establishing a curbside recycling program, it was necessary to evaluate the existing conditions in the Township. Bradford Township provided detailed budgetary details regarding the municipal waste collection program. It should be noted that the Township has very detailed cost accounting for their existing program. Full-cost accounting for waste and recycling programs is necessary to evaluate the economics and efficiencies of the program. Bradford Township should be commended for these efforts.

Bradford Township operates a weekly trash collection program for wastes that charges \$15.50 per month per household. There is a three bag limit. Residents are assessed a \$1.29 per bag fee for disposal over the 3 bag per week limit. While there are some limitations to the quantity of wastes that may be disposed. The existing program structure does not create an effective financial incentive to recycle more and throw away less. This type of waste collection is referred to as a “hybrid” Pay-As-You-Throw (PAYT) program.

6.1.1 Relevant Municipal Recycling Studies in McKean County

GF reviewed two public recycling reports prepared by Alternative Resources Inc, of Stroudsburg, PA, conducted for two other municipalities in McKean County. The recommendations from these reports should also be considered by Bradford Township.

Findings of the Foster Township report for developing a curbside recycling program included recommendations to:

- pursue a cooperative program with nearby municipalities;

- adopt an ordinance for a mandatory program in maximize participation (draft ordinance developed and produced for Foster Township);
- mandate commercial recycling to increase material collected and eligibility for Act 101, Section 904 Performance Grant funding;
- and/or issue an RFP for curbside service through the private sector.

Findings in the Kane Borough report for reducing MSW collection costs and initiating curbside collection included recommendations to:

- issue an RFP for collection of MSW and recyclables (a model RFP was provided);
- develop and implement of a comprehensive education campaign;
- consider mandatory recycling requirements (a model ordinance provided);
- and apply for Act 101, Section 902 Grant funds to develop RFP and recycling ordinance

6.2 Bradford Township Waste and Recyclable Generation Projections

According to the 2000 census, Bradford Township has **4,816 residents** and **1,745 occupied housing units**. Almost 90 percent of the housing units are owner-occupied, and the remaining 10 percent are renter-occupied.

In 2006, Bradford Township reported that **3,073 tons** of municipal waste from residential and commercial establishments was landfilled. For this study, total municipal waste generation was calculated using **0.8194 tons per person per year**, which is the generation rate from the Solid Waste Plan. Using this figure, the Township’s total estimated municipal waste generation is **3,946 tons** annually.

The amount of recyclables recovered from the municipal waste stream can vary by the type of collection, local markets, ease of separation, economics of recovery, etc. It is probable that Bradford Township could recover 25 percent of the residential waste stream with a comprehensive curbside recyclables collection program. The Pennsylvania recycling goal is 35 percent.

Table 1: Bradford Township: Projected Recycling Tonnages

Waste Generated	% Recycled	Recyclable Tons Recovered
3,946 tons	25%	987
3,946 tons	35%	1,380

The amount of recyclables diverted will be significantly influenced by the type of recycling program implemented. For example, typical Pennsylvania curbside programs achieve around 20 percent diversion rates, but properly implemented Pay-As-You-Throw (PAYT) programs have consistently achieved 35 percent or higher diversion rates.

6.3 Bradford Township Recyclable Markets

GF reviewed four potential markets for materials recovered by a curbside recycling program in Bradford Township.

Rustick LLC: This facility is located at the same site as the McKean County Landfill and is operated by the private firm of Rustick LLC. It is an estimated 28 miles from the City of Bradford to the MRF in Kane. In a telephone interview with Dick Tyger, General Manager, he indicated that they would be interested in receiving materials from Bradford Township if delivered from a curbside program. The materials would need to be separated according to the same criteria as their existing drop-off collection program. These categories are as follows:

<u>Paper</u>	Newspaper, magazines, mixed paper and junk mail
<u>Cardboard</u>	Corrugated
<u>Cans</u>	Aluminum and Steel cans
<u>Plastic</u>	#1 - #5 bottles

Revenue – Mr. Tyger indicated that the Township would receive revenue for their materials through an agreement with Rustick. Revenue would be based on a percentage of the actual market price gained by Rustick through the sale of materials. A truck scale is available at the site and documentation for materials delivered is possible.

SDS of Olean New York (SDS): This facility is located across the nearby New York State Border in Olean, New York. It is approximately 24 miles from the City of Bradford to this facility. Through a telephone interview with the General Manager of SDS, information about a new single-stream market for materials was obtained. SDS is a subsidiary of Casella Waste Systems, which is constructing a new \$11 million recycling facility in Geneva, New York. This system will work in conjunction with RecycleBank, which is an incentive based, automated recycling system that rewards individual customers based on the weight of recyclables collected from their home. Materials collected in Olean will be transported to the single-stream facility in Geneva once the system is finished. SDS indicated that this could be as soon as May 1st, 2007. SDS indicated the facility in Olean would be interested in accepting materials from Bradford Township. SDS may be able to provide curbside recycling services to Bradford Township based on the RecycleBank system. The cost was unknown at this time. If this market is feasible through further investigation by the Township, the Township could go through the competitive bid process to secure this collection service arrangement.

Revenue – It is unknown at this time what revenue could be gained through this alternative. Bradford Township should explore this option.

RecycAll Inc.: RecycAll Inc. is located in Port Allegany, McKean County. This facility is an intermediate processor of glass materials and accepts glass bottles and jars from many sources throughout Pennsylvania. This facility actively seeks glass bottles and jars for their process and is interested in improving collection of glass from factions in McKean County because of proximity to their facility.

Revenue - Luke Healy, Vice-President of Business Development, quoted the following prices for properly prepared glass bottles and jars delivered to their facility:

Clear (flint)	\$38.00 per ton
Brown	\$22.00 per ton
Green	\$14.00 per ton

Because revenues from sale of recyclables will not fully offset collection system costs, all markets and transportation costs must be compared and analyzed carefully prior to implementation.

Goodman's - This facility is located in Bradford City, close to the Bradford Township Building. A discussion with Chris Manning – Non-Ferrous Manager, indicated that this facility was primarily a scrap metal dealer that would accept aluminum and tin cans. Their processing capabilities are not efficient for dumping large quantities of either material, but they are willing to attempt acceptance of loose cans from Bradford Township. This facility has taken paper materials from Bradford City, but has recently dropped paper from materials accepted and would only be interested in baled fiber materials delivered to the facility.

Revenue – It is likely that this venue would reap the highest revenue for aluminum cans; however other materials are not accepted on a revenue return basis. The amount paid for aluminum would vary with market pricing at the time of delivery. This facility does not pay for loose tin/steel cans at this time, however, they might consider an arrangement depending on the volume delivered and handling necessary to process the material.

6.4 Estimated Curbside Program Economics

The economics of a curbside program would be influenced by three major expenses; avoided costs, system startup costs, and ongoing operational costs. Additionally, examination of revenues from the program is important to developing a sustainable and efficient collection.

Avoided Costs

With the implementation of an integrated solid waste system that includes a curbside recycling program, Bradford Township could create an “avoided cost of disposal” from materials diverted from the waste stream to recycling. Assuming 25 percent diversion, avoided disposal costs would be estimated at approximately \$38,000 per year. This is calculated using the \$38.50 Rustic LLC Landfill disposal tip fee per ton multiplied by 986.5 tons totaling **\$37,980.25**.

According to Bradford Township data, there were 312 trips to the landfill in 2006, totaling 3,073 tons of municipal waste. This averages out to 9.9 tons (or 10 tons) per trip. Recovery of 25 percent of the waste stream through a curbside recycling program would reduce waste tonnages by about 990 tons and 100 trips to the landfill. Assuming two laborers at a minimum of 2 hours at Bradford Township hourly rates for laborers (\$15.70 per hour), there would be a potential for labor savings from reduced landfill runs of roughly **\$6,300**. Employee benefits, which increase the cost by 25-30 percent, are not included in this calculation. Additional labor savings from reduced waste collected per stop can not be calculated from data provided for this study. Reducing the number of trips to the landfill would also reduce fuel, maintenance and other trucking costs for the program. These figures could not be calculated with the limited scope of this study.

System Startup Costs

Costs for starting a curbside recycling program may be partially fundable through the Pennsylvania Act 101, Section 902 Grant program. This program is currently a competitive program, with funding dependent on monies available from the Pennsylvania Recycling Fund. Typically, eligible materials are reimbursed to municipalities at a rate of 90 percent with a 10 percent required match. Full details and expected grant application windows should be discussed with the PADEP Regional Planning and Recycling Coordinator of the Northwest Region, Guy McUmber. Contact information is 814-332-6848 or gmcumber@state.pa.us.

Equipment would be the largest cost for startup of a curbside recycling program. The two largest expenditures would be for a collection truck and containers. The Labrie Top Select Model (42 cubic yard capacity), has recently undergone changes to make it compliant with current emissions standards and would be approximately a **\$170,000** investment. (See Appendix B for vehicle specification information). Assuming Bradford Township (1745 households) provided two bins for collection service, a smaller 14-gallon bin for cans and a 35-gallon tote for plastics, an estimated cost for bins would be **\$155,000**. This pricing is based on the Pennsylvania Department of General Services' COSTARS-17 Contract.

Another cost that should be figured into the startup for a curbside recycling collection would be education. Aside from production of a flyer or brochure that would be distributed to residents, there should be also several other notices and avenues for education considered. Decals for each bin would be important daily reminders to participants. Educational resources for commercial establishments must also be factored into the program. A startup educational budget of **\$20,000** should be considered.

Table 2: Act 101, Section 902 Grant Funding Scenario

Expenditure	Total Cost	PADEP Reimbursement Up to 90%	Township Match - 10%
Collection Vehicle	\$170,000	\$153,000	\$17,000
Collection Bins	\$155,000	\$139,500	\$15,500
Educational Costs	\$20,000	\$18,000	\$2,000
Totals	\$345,000	\$310,500	\$34,500

Using this scenario, the Township out-of-pocket costs would be approximately \$35,000. Grant funding is not guaranteed. Act 101, Section 902 Grants are a reimbursement, hence Bradford Township would need to outlay initial capital costs and be reimbursed according to the grant contract. Other costs for implementing a program may also be fundable through an Act 101, Section 902 grant.

Ongoing Operational Costs

The operational cost for operating the Township's proposed curbside recycling program will vary based on the recycling scheme that is ultimately implemented by the Township. From GF's experience with other municipal recycling programs, it is anticipated that the annual cost of conducting a residential curbside recycling program for Bradford Township could range from approximately \$2.00 - \$3.00 per household per month. Using 1,745 households, the total annual cost to operate the program could range from \$42,000 - \$63,000 per year. The Township can and should minimize and offset (at least partially) annual recycling program operating costs through efficient staff and equipment utilization, cost sharing, recyclables revenues/proceeds, Recycling Grants, residential fees and other methods as identified by Bradford Township as unique to the Township.

6.4.1 Estimated Revenues

There are several sources of revenue for a curbside recycling program. First and foremost, it is most desirable to conduct a system in which the Township would receive proceeds from marketing of its recyclable materials. Pennsylvania municipalities also are eligible to receive Act 101, Section 904 Performance Grants, based on the actual amount recycled in a given calendar year. Bradford Township may also want to consider a direct recycling fee to residents for curbside collection services.

Market Proceeds

Determining detailed revenue projections for this program can not be accomplished in this report due to its limited scope. Most notably, revenue from the sale of recyclables can not be determined without a negotiation and agreement with Rustick. The system proposed by Rustick is a profit-sharing arrangement in which Bradford Township would receive a percentage of the actual market proceeds from the sale of materials. Understandably, Rustick desires that their costs for processing and marketing be covered. Bradford Township should be aware that market prices can fluctuate dramatically for any particular commodity for a variety of reasons. It is the experience of GF that it would be difficult to depend solely on market proceeds to cover the costs of operating the program.

Act 101, Section 904 Performance Grants

As another source of revenue, Bradford Township could benefit from funding through the Act 101, Section 904 Grant Program. Each year, the Township would submit approvable documentation to the PADEP regarding the amount of residential and commercial wastes recycled in the Township. Act 101 recyclables eligible for this grant program include: clear glass, colored glass, aluminum cans, steel and bi-metallic cans, high-grade office paper, newsprint, corrugated paper, other marketable grades of paper and plastics.

The Act 101, Section 904 Grant formula provides a base award of \$5.00 per ton of recyclables marketed plus a bonus award of \$1.00 per ton for every percentage of the waste stream diverted. Commercial tonnages over the same quantity of residential recyclables are eligible for a \$10.00 per ton bonus award also.

Assuming the Township recycled 25% of the residential waste stream (986.5 tons) and 100 tons of commercial cardboard, grant funding would be as follows:

Base Award		Bonus Award		Commercial Incentive		Projected Grant
\$5.00/ ton	+	\$1.00/ton*25%	+	\$10.00/ comm. Ton	=	
\$5,432.50		\$27,162.50		\$0.00*	=	\$32,595.00

* Scenario qualification – Commercial tonnages above 986.5 would also be eligible for the Commercial Bonus Award.

The estimated revenue from Act 101, Section 904 grants could exceed **\$30,000** per year. The Township should be aware of several grant funding issues. Documentation is typically submitted by September 30th for materials of the previous calendar year, and awards are awarded based on availability of monies in the Recycling Fund. This makes for a significant delay of monies, with no guarantees of long-term funding.

Residential Fee

Since market proceeds from recyclables generated by the Township will not fully finance the operation of the recyclables collection program, Bradford Township is encouraged to implement a per-household fee for curbside recycling service. The Township has a municipal waste collection system in place with the capability to bill each household. The fee for curbside waste collection service for each household is \$15.50 per month. The Township could incorporate some or all of the annual curbside recycling collection program cost into the monthly waste bill. This fee should be introduced at the outset of the program and not be an “add-on” later, which could lead to a more negative public response. The fee to cover recycling can be added to the bill in several ways, including:

- Show the recycling fee as a separate line item on the bill and leave the line item for waste collection service the same as it is currently.
- Revise the current line item on the bill that refers to waste collection only to include a reference to the added recycling service (e.g. waste “and recycling”).
- Leave the bill line item as it is currently and only make the adjustment to cost (i.e. do not reference recycling service in the bill).

It will be up to the Township to decide on how the fee is shown on the bill. Some municipalities favor showing waste and recycling together as one line item in order to minimize the negative association with recycling being an “extra” cost. Educating residents that recycling does have a cost should be part of the Township’s recycling program, regardless of how the fee appears on the bill. For public acceptability during any significant change to a waste collection program, particularly when it increases residential cost, requires an educational campaign. As part of the Township’s education campaign, it should be clear to residents that the additional recycling service will cost the Township and residents a little more money, but that the short and long-term benefits out-weigh the costs.

Importantly, with full cost accounting that considers waste and recycling as integrated services, and with proper program design and implementation, recycling can be an economically viable program and even less expensive per ton to manage than waste disposal.

6.5 Recommendations for the Proposed Bradford Township Recycling Program

Bradford Township indicated it would like to operate a municipal collection program for recyclables. This report will make recommendations for the municipal collection system, but it is also recommended the Township evaluate two other recycling program alternatives.

First, the Township should investigate implementation of a single-stream recycling collection program using the services of SDS. This new and innovative automated collection technique could remove collection responsibility (and costs) from the Township and may still provide a monetary return to the Township and/or its residents. Through a collection contract, the Township could realize a financial incentive from the avoided costs of disposal (and minimize in-house labor and cost) through utilizing SDS for this collection service. The Township should evaluate the opportunity to receive revenues through sale of materials delivered to and/or processed by SDS. The Township should evaluate the risk and revenue sharing potential of this option. Even if the Township did not contract for these collection services, delivery of materials to SDS of Olean should be evaluated and pursued if economically feasible.

Secondly, Bradford Township should also review and consider recommendations from previous studies for curbside recyclables collection programs in the County (as previously mentioned). These studies recommended strategies for considering private collection systems, provided draft ordinances and offered some funding recommendations. Although several municipalities have investigated voluntary curbside recyclables collection, these programs have not been implemented. The limited County-wide and regional efforts, poor collection economics, political climate, market access and availability and other deterrents may have hampered implementation of these municipal recyclable collection programs. To potentially improve the economics and implementability of its own waste and recycling program, Bradford Township should explore multi-municipal efforts, which would in turn support County-wide or more regionalized recycling efforts and standardization among programs. As the northwestern part of McKean County has the largest portion and density of the population, recycling efforts in this area offer benefit to a greater populous, which could provide more opportunity for economical waste and recycling solutions.

6.5.1 Pay-As-You-Throw Waste Collection System

Bradford Township has charged \$15.50 per month for curbside trash collection for an extended period of time. If a resident sets out more than three bags, they are charged \$1.29 per bag for additional bags of waste. This is a “hybrid” PAYT program. In GF’s experience, these hybrid programs do not work effectively in terms of significantly reducing the amount of waste that is diverted to recycling. Because the rate is only \$1.29 per-bag, it is not a true financial incentive to increase recycling; it is just a nominal additional cost to put more waste at the curb. In addition, the amount for monthly service and the per-bag charge is considerably lower than many comparable Pennsylvania public and private waste collection systems. Therefore, Bradford

Township should further explore the pricing structure for an integrated solid waste and recycling collection.

GF believes that a properly implemented Pay-As-You-Throw (PAYT) waste collection system offers the greatest potential, in terms of total material diverted from disposal to recycling, for Bradford Township. This is because a true PAYT creates a financial incentive structure that can benefit the resident and Township. In a true PAYT program, residents pay a fee for every bag or container of trash that is placed at the curb. Because residents are charged based on the quantity of waste disposed, PAYT creates a financial incentive for residents to divert materials to recycling. In other words, more recycling means less paid per household for trash disposal. True PAYT waste collection systems are favorable in terms of increasing residential recycling participation, which in turn maximizes the quantity of waste that is diverted from the landfill to recycling. Since the Township pays \$38.50 per ton for the waste tip fee, the Township can benefit from the financial incentive in the avoided disposal costs.

PAYT program implementation in the Township was not evaluated in detail as part of this study, but countless case studies reveal properly structured PAYT programs achieve 35 to 50 percent recyclable diversion rates. It is noted that PAYT programs require significant restructuring of the waste and recycling program, and therefore it is important to educate the public and the Township thoroughly in order to achieve successful implementation. **Phoenix Recycling** offers a complete PAYT turn-key program including manufacturing of municipal trash bags, store door delivery to local grocery stores (and others), invoicing at stores, management of inventory and accounting administration (www.payasyouthrow.com).

6.5.2 Initial Recyclable Materials and Marketing for Bradford Township

Considering the current snapshot of the available markets in McKean County, it appears that delivery of materials to the Rustick processing facility is an alternative that could offer the Township the most revenue per ton for recyclables. Calculating revenues was not possible at the time of this report and this arrangement should be negotiated with Rustick. It is recommended that a formal agreement be arranged which details market pricing.

Rustick accepts the following materials and the Township program should collect, at a minimum, these materials as long as Rustic is a primary market:

- Corrugated cardboard
- Mixed paper (newspaper, magazines, mixed paper, junk mail)
- Plastic bottles and jugs
- Bimetal cans/Aluminum Cans (mixed or separated)

Bradford Township should evaluate the collection of glass bottles and jars since there is a market for them only miles from the Township. The Rustick processing facility does not accept glass, hence, it would likely be most efficient to collect source separated glass through a drop-off location. Glass marketing should be pursued directly with RecycAll, Inc. The volume and weight of glass can contribute to Act 101, Section 904 grant funding and reduce cost for waste disposal. A drop-off collection of glass can cut down on mixing of the colors of glass, breakage in the curbside trucks, and potential contamination of other commodities. RecycAll Inc. is interested in increasing glass collection efforts in the County and will pay for properly prepared glass bottles.

6.5.3 Collection Vehicles

There is an extensive array of collection vehicles that may be used to provide curbside collection service. Identifying and selecting the appropriate truck size and type will be a critical component for successful implementation of an enhanced program. The recycling industry has been moving toward large capacity, split compartment vehicles with compaction capability. These newer recyclables collection vehicle designs reduce the cost per load for collecting and transporting recyclables to local markets.

The type of recyclable collection vehicle used by the Township can impact many recycling program factors, including collection efficiency, staff utilization, ability/flexibility of the Township to adjust to market changes and total collection systems costs and implementation.

GF has provided information on collection vehicles from the companies listed below:

- Labrie Environmental Group - Top Select Model
- Heil Environmental Industries, LTD. – Heil Dual Chamber Compaction Recycling Unit

There are a variety of others recycling vehicle manufacturers and GF encourages the Township to consider specific needs closely and to see an equipment demo prior to procuring equipment. Specifications for the two curbside collection vehicles are included in **Appendix B**.

Both vehicles offer split (dual-stream collection), which is more efficient than using separate vehicles or containers for collecting different recyclable streams. The Labrie Top Select Model offers collection for a range of two to seven streams and can accommodate manual and semi-automated collection of recyclables. Fully automated collection of recyclables may not efficiently implementable in a rural/suburban application like Bradford Township. Should the Township consider delivery of materials to the single-stream facility operated by SDS of Olean, the division of the truck into two or more separate compartments is not necessary.

While reviewing background information related to the proposed collection system for Bradford Township there were discussions related to implementing the Township's waste and recycling program using one or more collection vehicles that would be split for collection of waste on one side and recyclables on the other. GF does not recommend collection of waste and recyclables in a single, split truck for the following reasons:

- Split collection of waste and recyclables in one vehicle would be extremely inefficient unless the end markets for Township-generated waste and recyclables was nearby (say within 10 miles, one-way) and at the same location. The collection vehicle should collect and deliver materials to the final destination all on the same day. There should be no transfer of materials from a one collection vehicle to another or to temporary storage containers. Less handling means less contamination and fewer operational costs.
- Even if the end unloading location was the same for waste and recyclables, there is a dramatic difference in density when comparing mixed municipal waste and recyclables. The different material volumes for these two streams will mean that one side of the collection vehicle can fill up faster than the other, requiring emptying of one side before

the other side of the vehicle is filled to maximum capacity. This practice is inefficient, difficult to manage and cost prohibitive.

- Collection of waste represents the largest fraction of the material that is generated and requires handling. Negatively impacting the efficiency of the waste collection system by paired handling of recyclables could be economically detrimental to the entire waste collection system.
- If the split waste and recycling vehicle was operated to collect one type of recyclable material every week, it would require residents to store recyclables in their home for long periods and to follow recycling schedule that would be difficult to remember. This type of inconvenience has consistently proven to produce poor recycling participation rates.
- A combination waste/recycling truck presents issues for Act 101, Section 902 Recycling Grant funding. Funding may or may not be available for the truck and most likely would need to be prorated according to use or tonnages of recyclable versus waste collected. Additional recordkeeping may be required.
- Public perception of placing waste and recyclables in the same truck could be negative.

6.5.4 Collection Containers

As a general rule, the Township should provide every household with one or more recyclables containers that can adequately collect ALL the potential recyclables generated from a typical household between recyclables collection days. Except in rare cases (i.e. very high recyclables-generating households), residents should NOT need to request extra containers or use their own make-shift containers or bags to collect recyclables. Inconvenience that is caused by undersized recycling containers has been a common factor in negatively impacting recycling participation in communities with curbside recycling programs.

The type and size of recyclables collection containers that will be used by the Township will primarily depend on:

- The selected recycling program (e.g. the number of recyclable streams collected)
- The collection method and type of truck used for collection
- The frequency of collection (e.g. bi-weekly or weekly)

There are a variety of containers available on the market, and it is recommended the Township err on the side of larger containers to ensure adequate capacity is provided for recyclables storage. Large containers also send a message to residents on how much of the waste stream can and should be recycled. It may be beneficial for the Township to utilize the Pennsylvania Department of General Services' COSTARS-17 contract, provided large bins are available through this program. Using this State contract provides a fixed price, but without requiring a formal bidding process, which can reduce time and cost expended by the Township. When selecting containers, the Township should also take into consideration factors such as general durability, ability to withstand varied weather conditions, wheel stability, maintenance and replacement parts.

If Bradford Township conducts a bi-weekly collection program where materials are directed to the Rustick facility, there may need to be two or three bins for each household to manage the recycling streams accepted by Rustick. A suggested combination might be a 14-gallon or better bin for cans (aluminum and steel) and a 35-gallon tote for plastics. Depending on the requirements for paper, a resident-provided paper bag might be used to collect the mixed paper stream and this could be placed in or on another 14-gallon bin. Corrugated cardboard should be flattened by the resident and placed on or near the other bins. For convenience in collection for the Township and for residents, the Township is encouraged to see if a “dual-stream” collection program could be integrated with Rustick. In this scenario, the Township would collect commingled steel cans, aluminum cans, and plastics in one curbside recycling container and mixed paper in a separate container. The dual-stream method has a number of advantages when compared to segregating recyclables including convenience, ease of implementation, and reduced operational costs.

Should the Township consider a collection through the single-stream facility operated by SDS of Olean, only one container would be needed for all the grades or recyclable streams. Under this arrangement, the containers could be provided by SDS and the cost of containers could be amortized over the contract term, which would show up as a minimal increase in the per-household cost paid by residents.

6.5.5 Collection Frequency

It is recommended that the Township collect recyclables every other week or twice per month. Bi-weekly collection will reduce operational costs when compared to weekly collection and can result in favorable participation rates provided the program is accompanied by a good education program and properly sized curbside containers. Although GF did not complete a route analysis, it does not appear reasonable that the Township could collect recyclables from all households in one day. As needed, the Township can create zones or wards where recyclables (and waste) can be collected on a specific day. It is recommended that collection of waste and recyclables be scheduled on the same day, unless staffing, added operational costs or other variables makes this unfeasible.

6.5.6 Education

Bradford Township should promote curbside recycling through a number of media resources. Residents should be made aware of the new program through a direct mailing piece that could accompany other mailings such as a tax notice, garbage bill, or Township newsletter. Details of the program should also be delivered with the collection bins. Another effective educational strategy is to clearly mark each bin with a decal noting the items that can and can not be placed in that bin. As the program develops, residents should be kept informed of the results of their participation through a website or other printed material distributed with other Township mailings. Noting the number of tons recycled, monetary savings and/or other environmental benefits is a powerful educational and motivational tool. Importantly, education works most effectively in a program that is properly designed and convenient for residents.

7.0 FINDINGS AND RECOMMENDATIONS

This evaluation is based on information provided by McKean County and Bradford Township, GF's site visit conducted in February 2007, interviews with local recycling markets, and is based on GF's experience with municipal recycling programs throughout Pennsylvania. There are many findings and recommendations contained in the body of this Report. From this analysis GF offers many recommendations. A common perspective holds true: McKean County is a rural county that does not currently have a formalized recycling infrastructure. With this in mind, the County has an opportunity to carefully plan and integrate a waste and recycling approach that can and should be an economically sustainable system that emphasizes a regional approach to waste management/recycling. This County-wide program should offer guidance to local municipalities that are typically responsible for implementing waste and recycling programs within their municipal boundaries. Planning, economic feasibility analysis, full cost accounting and sound contractual arrangements for all waste and recycling alternatives should be the cornerstone of the successful long-term implementation of County and local municipal programs.

A recap of the key conclusions is presented in the following.

7.1 McKean County

Findings

- There are fractured municipal and private recycling efforts in the County and the role of County Government in recycling and waste initiatives is unclear.
- There is an unknown and underutilized market potential for recyclables.
- Recycling efforts are inconsistent, not effectively integrated with waste management, and collection infrastructure is limited.
- The general atmosphere and perception of recycling is that recycling is inconvenient, unnecessary, and more expensive than waste disposal.
- The ramifications and economics of various recycling infrastructures have not been explored.
- Existing data is lacking and data collection is inefficient and potentially inaccurate.

Recommendations

McKean County should:

- Identify and define the County's role in waste and recycling initiatives. As part of this principle strategy GF recommends the County:
 - Take a leading role in developing tools (e.g. template ordinances, standard waste and recycling guidance and education, template waste and recycling contracts, etc.) that are shared among willing municipalities in order to promote improved standardization of waste and recycling practices.

- Carefully investigate and plan for the economically feasible development and formalization of integrated waste and recycling programs and County infrastructure that can be implemented to support long-term economic, social and environmental benefits on a multi-municipal and regional scale.
- Form a Waste and Recycling Committee.
- Be involved in sponsorship of a Recycling Summit(s).
- Create a Recycling Initiatives Management Plan (RIMP): a concise document showing annual goals and waste and recycling initiatives.
- Due to the increasing importance of improving the economic sustainability of County-wide waste and recycling systems that impact the health, safety, and welfare of County residents, it is recommended the County conduct further research and/or detailed analysis of recyclables market options and municipal and County waste and recycling program implementation. Up to 80 percent of eligible costs for planning and feasibility studies can be reimbursed under the Act 101, Section 901 Planning Grant Program.. It appears favorable that the County could secure funding for needed investigations through the 901 Grant Program.

7.2 Bradford Township

It is noted that GF was not provided sufficient budget in this Technical Assistance Study to do a detailed analysis of the Bradford Township waste and recycling program. The findings and recommendation provided represent our thoughts based on a preliminary analysis.

Findings

- As noted in this Report, case studies of other McKean County municipalities show that local municipalities have struggled to implement efficient and sustainable waste and recycling programs for a number of reasons. The Township should take these issues into consideration.
- Recovery of 25 percent of the Township's waste stream could yield approximately 990 tons of recyclables, which is equivalent to approximately \$38,000 in avoided disposal costs.
- There are currently four existing recycling markets to utilize, with Rustick being the option to provide the most return of revenue. This recyclable market scenario is changing with the development of a single-stream recycling system in nearby New York State.
- Avoided costs from disposal plus labor savings could exceed \$44,000 per year. Additional waste diversion and corresponding avoided costs are anticipated through proper implementation of a PAYT waste collection or other comprehensive recycling program, but this avoided cost could not be calculated.

- Township grant match costs for program startup is projected to be approximately \$35,000 if the Township is successful with securing an Act 101, Section 902 Grant.
- Based on case studies from other municipalities with curbside recyclables collection programs, operational costs could be estimated at \$2.00 to \$3.00 per household per month.
- Revenues from a curbside program could be realized through proceeds from marketing recyclable materials, Act 101, Section 904 Recycling Performance Grants, and potentially a fee for recycling services.
- Bradford Township conducts a hybrid PAYT program, with a limit of 3 bags per week per household. This bag limit is above what the typical household produces and makes it more convenient for residents to set out trash than to recycle.

Recommendations

It is not recommended the Township “add” a recycling program to the existing waste collection system, but instead, plan for and carefully integrate recycling with a comprehensive and feasible waste collection system. Prior to implementing a new recycling program and waste collection system, consideration should be given to working with SDS of Olean (New York) as primary market for recyclables.

It is recommended Bradford Township:

- Implement a municipal curbside recyclables collection program that collects the following materials curbside on a bi-weekly collection schedule from all households and small businesses in the Township:
 - Aluminum cans
 - Steel/bi-metallic cans
 - Plastic bottles and jugs (#1 and #2)
 - Paper (e.g. newspaper, envelopes, junk mail and possibly bundled cardboard)

Bi-weekly collection is recommended to minimize collection costs (compared to weekly collection) while maintaining a consistent and convenient residential program.

- Assuming the Township provides the curbside collection service; procure and utilize a collection vehicle that would provide maximum capacity, flexibility for market changes, and semi-automated capabilities (refer to Section 6.5.3). Gannett Fleming is recommending collection of waste and recyclables in different collection vehicles to maximize efficiency and does not recommend dual collection of waste and recyclables in one collection vehicle with split compartments.
- Purchase recyclable collection containers. Curbside recycling containers are available for procurement through the Pennsylvania Department of General Services’ COSTARS-17 contract. Procurement using the state contract does not require bidding and the costs for containers is usually competitive.

1. If two recyclables streams are collected:
 - one 14-gallon bin could be used for paper and;
 - one 32-gallon is recommended for commingled cans and bottles.
 2. If a single-stream is collected:
 - One large container (at least 32-gallons) is recommended.
- Because it offers a financial incentive and offers the greatest potential in terms of recyclables diversion, implement a true Pay-As-You-Throw (PAYT) waste collection program, where the fee structure is set so residents pay a set fee for EVERY bag/container of trash placed at the curb. Bag charges typically range from \$2.00 to \$3.00 per bag in Pennsylvania PAYT programs. There are reports that some programs charge as much as \$4.75 per bag. True PAYT has proven to divert a higher percentage of waste to recycling than other traditional curbside recycling programs. If this PAYT waste management is selected, it is recommended the Township consider using Phoenix Recycling to implement this program (www.payasyouthrow.com). Increased enforcement to deter illegal dumping is also recommended, especially in the program's infancy.
 - Consider collecting glass through a drop-off system to supplement the curbside collection program. Based on our preliminary analysis, it is not recommended that glass be collected at the curbside due to contamination and market limitations. A market for glass containers is located in Port Allegany, McKean County.
 - In the early stages of implementing a revised waste and recycling program, the Township could revise the solid waste and recycling ordinance to reflect the changes in the new program.
 - Implement an ongoing educational program that includes a start-up campaign to introduce and promote the program. Information should describe the benefits of recycling and the collection methods and requirements that residents will follow. As the program evolves, information can be provided to residents that shows the success of the collection program and how much material has been diverted.
 - The northwestern portion of McKean County is the most densely populated, and therefore, it is recommended the Township work with other municipalities to implement a multi-municipal approach to waste collection and recycling. Coordinating efforts among multiple municipalities can reduce the per household cost for waste and recycling services, improve collection efficiency and consistency among recycling programs, improve recycling markets, etc.
 - Accurately track and document curbside waste collection and recycling efforts.
 - Evaluate and secure potential markets regularly and secure market arrangement and pricing for recyclable commodities via contracts if possible.

APPENDICES

Appendix A
Drop-off Recycling Brochure/Listing

CITY OF BRADFORD

The City of Bradford up of welcomes residents of the city and surrounding areas to use the city drop-offs at the following locations:

NEWSPAPERS, MAGAZINES,
MIXED PAPER AND
CORRUGATED CARDBOARD

Must be loose, dry. Cardboard to be flattened and NOT bagged.



LOCATION:

112 Holley Avenue, Bradford
(DPW Facility)



ALUMINUM CANS, STEEL
CANS & BI-METAL CANS

Rinse out.
DO NOT bag.



CLEAR, GREEN &
BROWN GLASS



Rinse Out, NO lids, NO
broken glass, do NOT bag.

Separate colors.

LOCATION: 303 High Street,
Bradford (Bradford City Recycling
Center)

RECYCLE



RECYCLING RESOURCES

**MCKEAN COUNTY
RECYCLING COORDINATOR**
814-887-4004
mjwilliams@mckeancountypa.org

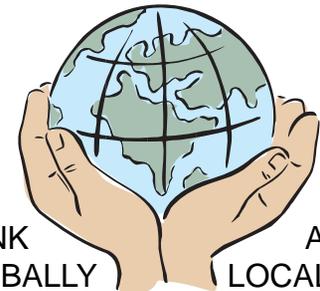
**RUSTIC LLC/MCKEAN COUNTY
LANDFILL AND COUNTY
DROP-OFF CENTERS
GENERAL MANAGER**
814-778-9931
info@mckeanlandfill.com

BRADFORD CITY ONLY

**FOR BRADFORD CITY
DROP-OFFS CALL**
PUBLIC WORKS DEPARTMENT
814-362-3884
EXTENSION 21



MCKEAN COUNTY RECYCLING DROP-OFFS



THINK
GLOBALLY

ACT
LOCALLY



MCKEAN LANDFILL, RUSTICK LLC DROP-OFF RECYCLING SITES



Rustic LLC, owners of the McKean County Landfill, provides County Wide Recycling Drop-Off Containers throughout the communities as a public service in support of the McKean County Recycling Program.

MCKEAN LANDFILL, LOCATED ON HUTCHINS ROAD, MT. JEWETT
MONDAY THRU FRIDAY.....8 a.m. - 4 p.m., SATURDAY.....8 a.m. - 11:00 a.m.

ALL OF THE FOLLOWING LOCATIONS ARE OPEN 24-HRS.

ANNIN TOWNSHIP
Annin Township Building, Turtlepoint

BRADFORD TOWNSHIP
Bradford Township Building,
by Clayte's Auto Body

CORYDON TOWNSHIP
Corydon Township Building / Fire Hall

CORYDON TOWNSHIP
At The Willows, West Washington St.,
Bradford

ELDRED TOWNSHIP
Eldred Township Sheds/West Eldred Rd.,

HAMILTON TOWNSHIP
Hamilton Township Building, Ludlow,

HAMLIN TOWNSHIP
Hamlin Township VFD,
Hazlehurst



LEWIS RUN BOROUGH
Lewis Run Borough Building,
beside the ball park

KANE BOROUGH
Fraleigh Street

MT. JEWETT BOROUGH
Mt. Jewett Borough Building

OTTO TOWNSHIP
Otto Township Sheds

SMETHPORT BOROUGH
U. S. Route 6, Smethport,
near 911 Center

LAFAYETTE TOWNSHIP
Tack's Inn Parking Lot,
corner of Rt. 219 & 59

LAFAYETTE TOWNSHIP
Westline

WETMORE TOWNSHIP
Wetmore Township Building, Kane,
East Kane on Rt. 321

WHAT TO RECYCLE

NEWSPAPERS, MAGAZINES MIXED PAPER AND JUNK MAIL



DO... Keep dry and loose.

YES... Glossy inserts, telephone

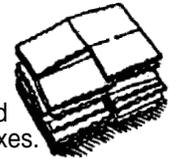
books and brown paper bags are OK!

NO... Shredded, dirty, wet, waxed, paper
towels or tissues. NO PLASTIC BAGS.

CARDBOARD

DO... Keep dry and flatten

YES... Corrugated cardboard,
fiber egg cartons, pizza, soda, beer and
cereal boxes.



NO... Waxed, plastic coated or food contaminated.
NO PLASTIC BAGS.

ALUMINUM, STEEL AND BI-METAL CANS



DO... Empty, rinse, lids OK if attached.
Labels are OK.

YES... Food, beverage & coffee cans.

NO... Foil trays, aluminum foil, aerosol,
paint, scrap metal, windshield wipers, propane tanks,
etc. NO PLASTIC BAGS.

PLASTIC

DO... Rinse and throw away lids.

YES... Recycling symbols #'s 1 PET,

2 HDPE, 3 PVC, 4 LDPE & 5 PP (#'s found on under-
side of container). Milk, soda, laundry bottles, yogurt,
margarine, salad dressing OK.

NO... Children's toys, flower pots, 5 gallon
buckets, garden hoses, insecticide containers, six pack
holders, garbage cans. NO PLASTIC BAGS.

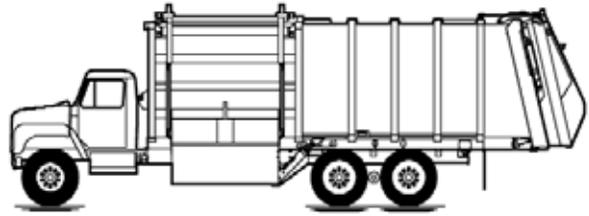
CALL 814-778-9931 WHEN CONTAINERS ARE FULL

Appendix B
Recyclables Collection Vehicle Specifications

S P E C I F I C A T I O N S

Recycle 2000

Dual Chamber *Compacting* Recycle Unit



PERFORMANCE SPECIFICATIONS

Bin Lift Capacity.....1,000 Lbs.
 Bin Volumes.....4/10 Yd³ each
 Bucket Lift Cycle Time.....12 Seconds
 Working RPM.....750
 (operate-in-gear-at-idle)
 Homes Per Day (estimate).....up to 800
 Compaction.....750 Lbs. per Yd³

HYDRAULIC SPECIFICATIONS	
PUMP	
PTO driven	Single cast iron, roller bearing
Maximum operating pressure	2500 psi (17,237 kpa)
Working RPM	1200 approximate
GPM at working RPM	23 GPM (87 liters/min.) approx.
OIL RESERVOIR	
Gross capacity	26 gallons (97 liters) – fill level
Sight gauge	Standard
Filters / Strainers	Return line 6 micron, 100 Mesh suction strainer
VALVES	
Suction Shut-off	Standard.
Control	Air actuated, 7 section hydraulic
Hoist and Tailgates	In-cab, air actuated.

BODY SPECIFICATIONS																
MODEL	BODY CAPACITY		SPLIT BODY CAPACITIES				HOPPER CAPACITIES				OVERALL LENGTH		OVERALL LENGTH TAILGATE/BODY RAISED		OVERALL WIDTH	
	y ³	m ³	TOP (CO-MIX)		BOTTOM (NEWS)		TOP (CO-MIX)		BOTTOM (NEWS)		inches	mm	inches	mm	inches	mm
2000-33	33	25.3	15	11.4	18	13.7	2	1.5	5	3.8	304	7721	415	10,541	96	2438
2000-38	38	29	18	13.7	20	15.2	2	1.5	5	3.8	336	8534	447	11,353	96	2438

MODEL	OVERALL HEIGHT ABOVE FRAME				BODY WEIGHT		DUMP ANGLE	CYCLE TIMES		BIN SPECIFICATIONS			
	BODY DOWN		BODY RAISED		BIN RAISED			BIN LIFT	PACK CYCLE	CAPACITY	DUMP ANGLE		
	inches	mm	inches	mm	inches	mm	lbs.	kg.					
2000-33	104	2641	218	5537	151	3835	15,800	7182	40 Degrees	12 Seconds	18 Seconds	0.40 Yd. Per	45 Degrees
2000-38	104	2641	220	5588	151	3835	16,300	7409	39 Degrees	(Approx.)	(Approx.)	Compartment	

CYLINDERS																								
MODEL	LOWER TAILGATE RAISE (2)				UPPER TAILGATE RAISE (1)				UPPER TAILGATE LOCK (2)				PACKING (2)		BODY HOIST (2)		TOP DOOR / BIN LIFT							
	BORE		STROKE		BORE		STROKE		BORE		STROKE		BORE		STROKE		BORE		STROKE					
	inches	mm	inches	mm	inches	mm	inches	mm	inches	mm	inches	mm	inches	mm	inches	mm	inches	mm	inches	mm				
2000-33	3	76.2	25.25	641.4	3	76.2	18.44	468.4	3	76.2	3.63	92.9	4	101.6	37	940	4	101.6	56	1422	3	76.2	22	559
2000-38	3	76.2	25.25	641.4	3	76.2	18.44	468.4	3	76.2	3.63	92.9	4	101.6	37	940	5	127	67	1702	3	76.2	22	559

CHASSIS REQUIREMENTS								
MODEL	CAB TYPE	GVWR	GAWR		USEABLE CA*	USEABLE CT*	WHEELBASE*	MINIMUM AF*
			Front	Rear	Recommended	Recommended	Recommended	Required
2000-33	C.O.E.	38,000	12,000	26,000	186"	N/A	209"	60"
2000-33	C.O.E.	46,000	12,000	34,000	N/A	177"	197"	75"
2000-33	Conventional	38,000	12,000	26,000	186"	N/A	254"	60"
2000-33	Conventional	46,000	12,000	34,000	N/A	177"	245"	75"
2000-38	C.O.E.	46,000	14,000	34,000	N/A	190"	210"	75"
2000-38	Conventional	46,000	12,000	34,000	N/A	190"	254"	75"

* Useable CA is for Single Rear Axle Units. Useable CT is for Tandem Rear Axle Units.

- Specify chassis, engine and transmission upon entering order
- Any truck requiring special alterations, moving battery boxes, air tanks, etc., will not be altered until a letter authorizing changes is received by The Heil Company.



All designs, specifications and components are subject to change at the manufacturer's sole discretion at any time without notice. Data published herein is for information purposes only and shall not be construed to warrant suitability of the unit for any particular purpose, as performance may vary with the conditions encountered. The only warranty is our standard written warranty for this product at time of shipment.



The Labrie Environmental Group distributes and supports its products via a 50-strong distributor network that spans the United States and Canada, and operates a U.S.-based Parts and Customer Support Center that offers maintenance, training, after-sales and parts services.



For further information about our products, contact a Distributor near you or call one of our offices at the numbers listed below. Our complete Distributor network is listed on our website at www.labriegrup.com

Labrie Environmental Group

 175, route du Pont,
Saint-Nicolas (Québec)
G7A 2T3 CANADA
☎1-800-463-6638
☎(418) 831-8250
☎(418) 831-5255
✉sales@labriegrup.com

 *Customer Support Center*
3630 Stearns Drive,
OshKosh, WI 54903 U.S.A.
☎1-800-231-2771
✉sales@labriegrup.com



TOP SELECT™

Curbside recycling. Pioneered by Labrie.

The Top Select™ is a recycling unit built for manual and semi-automated collection of residential recyclable material. It is the most sold unit in-its-class in North America with over 3,000 vehicles in operation today.

Highly flexible. Maximized operations.

The Top Select™ optimizes collection operations by offering 2 to 7 compartments for pick up of different streams at curbside, for precise on-site sorting. The body-mounted partitions are put on rollers for 'no-tools-required', easy adjustability every 6 inches.

Easy and safe one-man operation. Maximum efficiency.

The Top Select™ offers a low-entry cab conversion with curbside driving station for optimal one-man operation.

Smooth operation. Maximum productivity.

The Top Select™ ensures smooth operation of the loading bucket through fully-adjustable hydraulic cushioning found at each end of the dump and return cycles. This generates high productivity levels (500+ households per route), and up to 10,000 lb payloads with the Maximizer configuration.

Enhanced options. Maximum versatility.

The Top Select™ can be configured through a variety of options such as wider loading buckets, auto-lock attachments for carts with/out commercial applications. They are all designed to ensure performing and reliable recycling collection operations.



Top Select™



1. Lightweight separators are made of recycled plastic and designed for no-tool-adjustment.

2. Multi-feature controls can be accessed from left or right-hand side of vehicle on all Labrie cab conversions.

3. Impressive 84" stroke-travel, hydraulic, Maximizer™, "adjustable on-the-route" compartment; offering Maximum compaction.

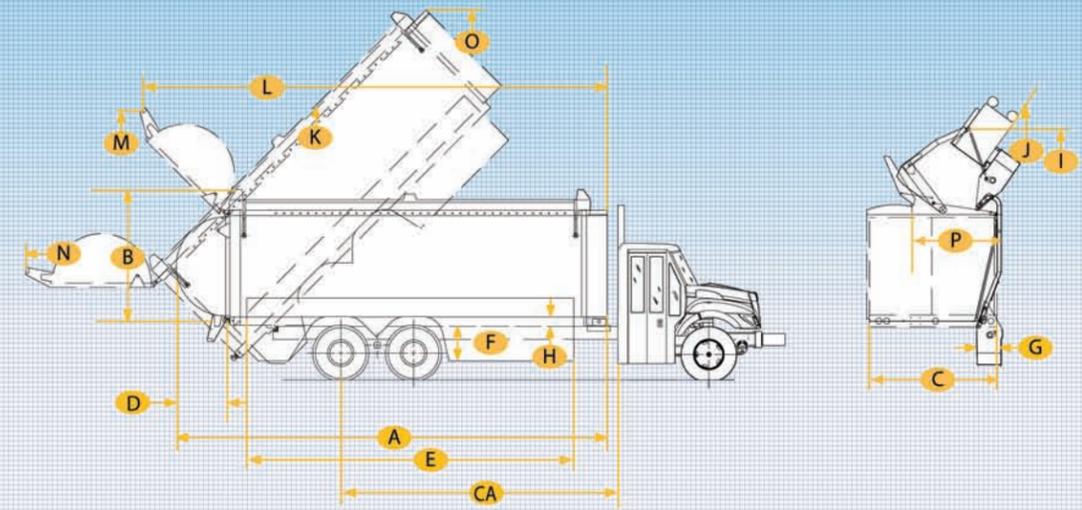


4. The Top Select™ can accommodate up to seven adjustable compartments.



5. The Top Select is designed with a unique over-the-top-system.

6. Steel mesh along top of body offers visual check on material level for easy on-the-route adjustability, and can be used to monitor the position of the Maximizer™ panel. Both interior panels and loading bucket separators adjustable at 6" (152 mm) intervals.



ISO
9001
CERTIFIED
(2000)

Dimensions	Standard Body (2-axle)		Long Body (3-axle)	
	Imperial 42 cu.yd.	Metric 32 m ³	Imperial 48 cu.yd.	Metric 37 m ³
A O.A. length	287"	7290 mm	323"	8204 mm
B O.A. height above frame	102"	2591 mm	102"	2591 mm
C O.A. width	102"	2591 mm	102"	2591 mm
D Tailgate length	40"	1016 mm	40"	1016 mm
E Loading bucket length	208.5"	5296 mm	244.5"	6210 mm
F Loading bucket depth*	33" / 25"	838 / 635 mm	33" / 25"	838 / 635 mm
G Loading bucket width	16" / 18"	406 / 457 mm	16" / 18"	406 / 457 mm
H Loading height above frame*	7" / -1"	178 / -25 mm	7" / -1"	178 / -25 mm
I O.A. height over frame of lifting mechanism/roof	152"	3861 mm	152"	3861 mm
J Dumping angle, loading bucket	58 degrees	58 degrees	58 degrees	58 degrees
K Dumping angle, body	45 degrees	45 degrees	45 degrees	45 degrees
L O.A. height over frame, tailgate raised, body down	313"	7950 mm	349"	8865 mm
M O.A. length, tailgate raised, body down	163"	4140 mm	163"	4140 mm
N O.A. length, dumping position	398"	10109 mm	434"	11023 mm
O O.A. height above frame, dumping position	212"	5385 mm	237"	6020 mm
P Fixed roof to wall	68"	1727 mm	68"	1727 mm
CA Cab to axle	168"	4267 mm	180"	4572 mm

*varies with loading bucket size

Body Specifications

Body Floor	3/16" ASTM A569
Body Side Walls	.12 ga ASTM A569
Body Roof, Fixed	.16 ga ASTM A569
Body Roof, Mobile	.13 ga ASTM A569
Body Front	.13 ga ASTM A569

Body Capacities

TOP-SELECT 1000™		
2-axle chassis	.35 and 42 cu.yd.	(27 and 32 m ³)
3-axle chassis	.44 and 48 cu.yd.	(34 and 37 m ³)
TOP-SELECT 2000™		
2-axle chassis	.31 and 38 cu.yd.	(24 and 29 m ³)
3-axle chassis	.39, 42 and 46 cu.yd.	(30, 32 and 35 m ³)

Loading Bucket Specifications

Lifting Capacity	1000 lbs (454 kg)
Dumping cycle time	15 seconds @ idle
Walls	.13 ga ASTM A569

Tailgate Specifications

Side and Rear Walls	.12 ga ASTM A569
---------------------	------------------

Maximizer™

Packing Cylinder	.5" Bore x 3" Rod x 84" Stroke (127 mm x 76 mm x 2134 mm)
Packing Force on Recyclables	40 000 lbf (9 kN)
Packing Force on Paper	18 000 lbf (4 kN)

Hydraulics

Pump	Commercial Intertech, gear type
Pump Flow	18.5 gpm @ 1200 RPM
Hydraulic Reservoir	35 gallons
Hydraulic System Pressure	2000 psi

Cylinders

Body Lifting	4 stages, telescopic
	.5" Bore x 152.5" Stroke (2-axle)
	.6" Bore x 185" Stroke (3-axle)
Loading Bucket(s)	.3 1/4" Bore x 1 1/2" Rod x 15 1/2" Stroke, nitrided
Tailgate	.2 1/2" Bore x 1 1/2" Rod x 28" Stroke, nitrided

