

**SWANA RECYCLING  
TECHNICAL ASSISTANCE STUDY**

**FINAL REPORT**

**INCREASING WASTE DIVERSION FROM LANDFILL  
THROUGH IMPROVED CURBSIDE COLLECTION  
AND RECYCLING EDUCATION**

Prepared for:

**VALLEY TOWNSHIP  
CHESTER COUNTY, PENNSYLVANIA**



Prepared by:

**GANNETT FLEMING, INC.**



**HARRISBURG, PENNSYLVANIA**

**JUNE 2007**

**SWANA RECYCLING  
TECHNICAL ASSISTANCE STUDY**

**Table of Contents**

	<i>Page</i>
EXECUTIVE SUMMARY .....	1
1.0 INTRODUCTION.....	1
1.1 Scope of Work .....	1
2.0 BACKGROUND.....	2
3.0 EXISTING WASTE COLLECTION SERVICES.....	2
4.0 EXISTING RESIDENTIAL RECYCLABLES COLLECTION SYSTEM .....	2
4.1 Existing Recyclables Collection Equipment.....	3
4.1.1 Equipment Evaluation .....	5
4.2 Existing Leaf Waste Collection Program .....	6
4.3 Existing Recycling Education Methods.....	6
4.4 Existing Recycling Program Enforcement Program.....	6
4.5 Current Commercial, Municipal, and Institutional Recycling.....	6
5.0 RECYCLABLES MARKETS .....	6
5.1 Local and Regional Recyclables Markets.....	7
5.2 Valley Township’s Recyclables Marketing.....	8
6.0 THE CHESTER COUNTY PROCESSING AND MARKETING AGREEMENT .....	8
6.1 Recyclable Revenue from the Chester County Processing and Marketing Agreement	9
6.2 Feasibility of Joining the Chester County Processing and Marketing Agreement .....	10
7.0 REDUCING WASTE TO THE LANDFILL THROUGH INCREASED RECYCLING .....	12
7.1 Changes to the Township Waste and Recyclables Collection System .....	12
7.2 Residential Curbside Recycling Convenience and Participation.....	13
7.3 Effective Recycling Education .....	15
7.4 Recycling Enforcement.....	15
7.5 Increasing Commercial, Institutional and Municipal Recycling .....	16
8.0 PAY-AS-YOU-THROW WASTE COLLECTION SYSTEM ALTERNATIVE .....	18
9.0 CONCLUSIONS AND RECOMMENDATIONS.....	18
9.1 Recommendations.....	21

**APPENDICES**

**Appendix A** – Recyclable Collection Vehicle Specification

**Appendix B** – Inter-Municipal Agreement for Recyclables Processing and Marketing Services  
– 2005 Processing and Marketing Report and Pricing Memo

**Appendix C** – Commercial Sector Recyclables Report Form

## SWANA TECHNICAL ASSISTANCE STUDY

### - EXECUTIVE SUMMARY -

#### INCREASING WASTE DIVERSION FROM LANDFILL THROUGH IMPROVED CURBSIDE COLLECTION AND RECYCLING EDUCATION

Valley Township (Township) is located in Chester County Pennsylvania and is in the process of evaluating and implementing an improved curbside recycling program. Gannett Fleming, Inc. (GF) provided recycling technical assistance to the Township and reported findings in this study and Final Report. Based on GF's waste and recycling program evaluation, the Township has an opportunity to improve the current waste collection and recycling system. Ultimately, it will be the Board of Supervisors that will determine how, and if, the recommended changes are implemented. Some key conclusions are:

- The Township recycling program is inconvenient for residents and will not maximize the recovery of recyclables unless changes are made to the collection methods. Inconvenience is primarily caused by the use of three undersized (5-gallon) containers for separated collection of aluminum, glass and mixed paper.
- The current program accepts a limited list of recyclable material types.
- Residential recycling program participation is currently between six and ten percent, and could be increased by at least **10 to 20 percent**.
- The Township has experienced ongoing problems with recyclables data collection and recyclables revenue accountability while participating in the CCCRA for recyclables consolidation and marketing.
- By not maximizing the diversion of waste to recycling, the Township is missing several opportunities for the program to be more financially sound:
  - Every ton of waste disposed costs the Township \$55 in tip fees plus the cost associated with waste collection. Additional tons recycled decreases Township disposal costs.
  - Recyclables can be sold for revenue and prices under the Chester County Processing and Marketing Agreement have ranged from approximately \$20 - \$50 per ton for commingled materials and \$20 to \$40 per ton for mixed paper.
  - Act 101 recyclables are eligible for Section 904 Recycling Performance Grants that typical range from \$15 to \$30 per ton.
- PAYT programs are incentive-based waste management systems that have proven to be effective in increasing waste diversion to recycling.

Recommendations and guidance have been provided throughout the body of this report. Some of the key recommendations by GF are:

- **Begin “dual-stream” curbside collection of the following list of recyclables:**

#### **Commingled materials**

- Clear, brown and green glass
- Aluminum cans
- Steel and bi-metallic cans
- PET and HDPE plastic bottles and jugs

**Residential Mixed paper**

- #6 Newsprint
  - Magazines
  - Telephone books
  - Mail
  - Paper bags
  - Cardboard
  - Home, office, and school paper
- **Procure new, larger curbside recycling containers to improve convenience, and to improve recycling program participation and performance:**
    - A minimum size of 22- to 32-gallon curbside recycling containers for commingled materials (at least 32-gallon containers are preferable for bi-weekly collection).
    - A separate 14-gallon container for mixed paper items.
  - **Execute an inter-municipal agreement with Chester County to enter the Chester County Processing and Marketing Agreement:** Valley Township should work directly with Chester County and begin marketing recyclables through the County program and the marketing arrangement with the BFI Recyclery.
  - **Evaluate and procure a high-capacity recyclables collection vehicle,** which is eligible for up to 90 percent funding through Section 902 Recycling Grants (refer to Section 4.4.1, Equipment Evaluation and vehicle specifications included in **Appendix A**).
  - **Continue to utilize the local Recyclables Transfer Facility located in South Coatesville because of economic advantages created by consolidation/reduced transportation costs.** Regardless of whether or not the Township continues to participate as a member of the CCCRA, the Township should:
    - Maintain a positive relationship with the CCCRA to facilitate ongoing use (as is feasible) of the CCCRA-operated recyclables transfer facility.
    - Determine if the recommended dual-stream collection program can be implemented and integrated into the CCCRA-operated recyclables consolidation and transfer area.
  - **Independently track recycling efforts:** Even if recycling data is available from Chester County and/or BFI, the Township should track the number of loads of recyclables that are collected and unloaded and record the total weight of recyclables collected.
  - **Limit the amount of trash set out at the curb:** Because allowing unlimited trash service negatively impacts recycling rates it is recommended the Township prohibit “unlimited” or excessive residential trash set-outs. If support can be gathered by the Township, it is recommended this limit be established indirectly through a Pay-As-You-Throw (PAYT) waste collection system. Since residents in a PAYT system pay for each bag (or container) of trash set out at the curb, residents are encouraged to limit the amount of trash to lower their trash bill. Trash bag/container set out limits can also be established via Township ordinance, but it is not recommended the Township set the bag or container limit at less than two or three bags or containers per week due to health, safety, welfare and compliance and enforcement issues.
  - **Implement effective recycling education strategies** (described in Section 7.3).

**SWANA TECHNICAL ASSISTANCE STUDY**  
**VALLEY TOWNSHIP**  
**FINAL REPORT**  
**INCREASING WASTE DIVERSION FROM LANDFILL**  
**THROUGH IMPROVED CURBSIDE COLLECTION**  
**AND RECYCLING EDUCATION**

## 1.0 INTRODUCTION

This Report summarizes a recycling program evaluation that was conducted for Valley Township (Township) in the fall of 2006 and winter of 2007. This study was conducted to identify methods that the Township could employ to increase the amount of material diverted from the landfill to recycling. This technical assistance was performed as part of the Recycling Technical Assistance Program sponsored through a partnership with the Solid Waste Authority of North America (SWANA), the Pennsylvania State Association of Township Supervisors, and the Pennsylvania Department of Environmental Protection (PADEP). The Township was awarded \$7,500 in technical assistance to be provided by Gannett Fleming, Inc. (GF) for the completion of a municipal recycling study.

### 1.1 Scope of Work

GF worked with the Township to confirm the following tasks for this recycling technical assistance project.

- Task #1** GF will gather pertinent background information from the Township to evaluate the existing collection program and identify areas where the Township can improve compliance with Act 101. This task will include review of the existing waste and recyclables ordinance(s), and review of public waste collection system structure and costs.
- Task #2** GF will provide a summary of Act 101 requirements that are applicable to the Township's waste and recycling program. GF will provide guidance that discusses any areas of non-compliance and/or recommendations/alternatives that may be implemented by the Township to improve the Township's ability to implement and maintain an Act 101 compliant program. Guidance will be provided on how the program could be changed to improve residential participation. Task 2 will review the feasibility of Valley Township joining the Chester County Solid Waste Authority Processing and Marketing (P&M) contract.
- Task #3** GF will prepare and provide the Township with a summary report of findings and recommendations. This task includes a review of the report by the Pennsylvania Department of Environmental Protection (PADEP) and response to PADEP comments. Additionally, an electronic file of the final report will be submitted to PADEP of the project conclusions and findings. An electronic and hardcopy version of the report will be provided to the Township.

## 2.0 BACKGROUND

Valley Township is located in Chester County, Pennsylvania and is home to 5,116 residents based on year 2000 US Census Bureau data. The Township is six square miles and housing is relatively dense, with approximately 330 households per square mile. The Township has identified a number of deficiencies with the current recycling program and is in the process of evaluating recycling and waste collection system changes that may improve the recycling program to the benefit of the Township, residents, local economy and the environment. As part of evaluating the recycling program, the Township is interested in improving the current recyclables marketing arrangement so the Township can maximize revenues generated from recyclables generated and collected in the Township.

## 3.0 EXISTING WASTE COLLECTION SERVICES

The Township Public Works Department provides weekly trash collection services to residential households. Trash is collected five days a week, with each service day covering a different designated service area. Curbside trash service is conducted using two packer trucks. One of the packers was recently purchased and the other is older and has experienced a number of mechanical problems. After municipal waste is picked up from residences, it is hauled to the Lanchester Landfill. The landfill tip fee for disposal of municipal waste is **\$55 per ton**.

## 4.0 EXISTING RESIDENTIAL RECYCLABLES COLLECTION SYSTEM

The Township is mandated by the Municipal Waste Planning, Recycling, and Waste Reduction Act of 1988 (Act 101) to provide curbside recycling services to residential establishments. The Township has approximately **2,300 residential households**. The Township provides bi-weekly recycling services (along with weekly curbside trash collection) to all residential establishments. Residents are required to separate the following recyclables and place them at the curb in five-gallon recycling pails:

- **Glass** (clear, green, and brown)
- **Aluminum cans**
- **Mixed paper** (cardboard, newspaper)

Glass, aluminum cans, and mixed paper are collected separately in five-gallon curbside recycling pails. Residents pay a trash bill, but do not pay a separate fee for recycling. **Table 1** shows a recycling total of 169.5 tons for Valley Township as reported to Chester County in 2005 and 123.7 tons in 2006. This recyclables tonnage appears low for a municipality with 2,300 households and there is a substantial decrease in mixed paper recovery from 2005 to 2006. The recycling diversion rate is low when compared on a per capita or per household basis with South Coatesville Borough (375 households and 84 tons of aluminum, clear and colored glass, and mixed paper reported in 2005 ) and with Modena Borough (200 households and 17.5 tons of aluminum, clear and colored glass, and mixed paper reported in 2005).

**Table 1:** Valley Township Recycling (2005 & 2006)

Recyclable Material	Tons (2005)	Tons (2006)
Aluminum	4.7	5.7
Clear glass	9.4	12.4
Green glass	4.8	6.8
Brown/other glass	5.2	6
Mixed paper	145.4	92.8
<b>TOTALS</b>	<b>169.5</b>	<b>123.7</b>

**Recycling Participation:** Although the program is mandatory, there is poor participation and lack of recycling compliance by residential households. A one-time windshield survey was completed by the Township in October of 2006. During the day of the field survey, only 132 out of an estimated 2,147 residential dwelling units placed segregated recyclables at curb for collection. Based on this one-day drive through of the municipality, only 6 percent of households participated in the recycling.

As the Township has considered the existing problems with the recycling program, the Township has established the following goals:

- ✓ Reduce the quantity of waste going to the landfill
- ✓ Increase the quantity of materials recycled
- ✓ Increase the level of recycling participation
- ✓ Increase the types of materials that can be recycled (plastic, steel cans, etc.)
- ✓ Create a convenient recycling program
- ✓ Offer incentives for recycling participation
- ✓ Eliminate recyclables within the trash stream
- ✓ Educate the residents on the benefits of recycling
- ✓ Improve methods and timing of community notification and education

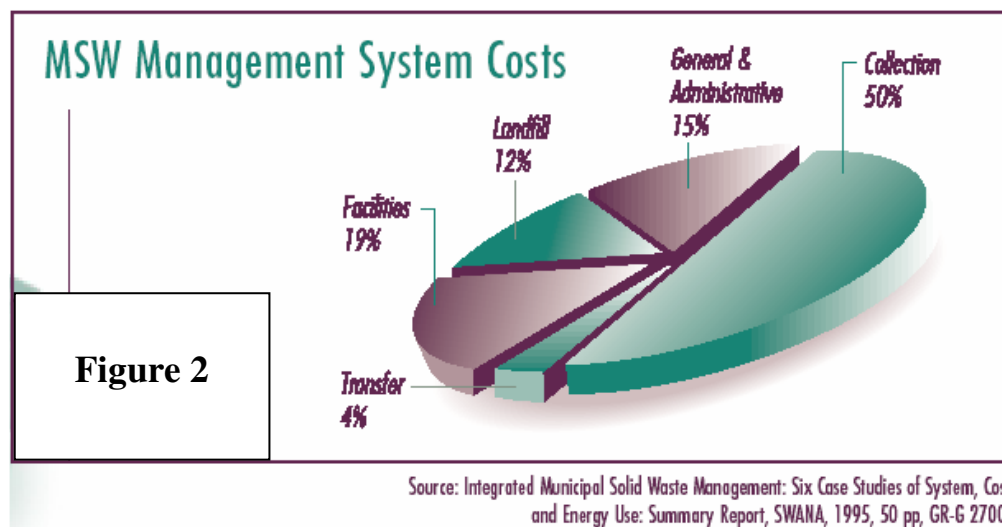
#### 4.1 Existing Recyclables Collection Equipment

The Public Works Department collects recyclables bi-weekly using a compartmentalized flatbed recycling vehicle. Although GF did not complete a recyclables collection equipment analysis, collection equipment is a critical factor in the successful implementation of any recycling program. The type of collection equipment used by the Township impacts many aspects of the waste collection system including some of the following:

- Collection efficiency
- Staff utilization
- Ability/flexibility of the Township to adjust to recyclable market changes
- Total collection system costs and program implementability

The Township should evaluate the current recyclables collection equipment and consider procuring newer, high-capacity recyclables collection equipment that can dramatically improve collection efficiency, improve worker safety, and reduce operational costs associated with the collection of recyclables. Due to the small size of surrounding municipalities that also provide public recyclables collection services, it may be feasible to share the utilization of and cost of collection equipment with Valley Township and one or more other willing municipal participants.

To further illustrate the importance of efficient collection, the proportion of collection costs compared with the remaining waste collection system costs is presented in **Figure 2** (EPA study, “Getting More for Less” 1999). As can be seen in the Figure, collection costs make up 50 percent of the costs associated with over waste collection system costs.



With collection costs in mind, as the Township evaluates the feasibility of any new marketing arrangement to increase the revenues received from recyclables, it should closely evaluate collection equipment, collection methods, transport of recyclables and program implementation to maximize efficiency and minimize costs. As an example, if the Township increases the per-ton revenue received for recyclables under a new marketing arrangement, but does not efficiently operate a collection system utilizing one or more high-capacity collection vehicles for recyclables, the value or return on recyclables can be diminished by the high costs associated with inefficient collection service. Additionally, if residents are not maximizing the amount of recyclables set out at each household, the collection efficiency decreases while the operating cost per household increases. Revenues from recyclable materials will not fully offset collection system costs; therefore, the marketing of recyclable materials is only one aspect of properly implementing an economically feasible and sustainable recycling program.

The consolidation and transfer facility that is managed by the Central Chester County Refuse Authority (CCCRA) is located less than three miles from the Township in South Coatesville Borough. Due to the minimal amount of transportation time and the ability to maximize staff time for collection, the use of **this recyclables transfer facility offers significant economic advantages** that can enable the Township to manage and reduce its total recyclables collection system costs.



### 4.1.1 Equipment Evaluation

Based on GF’s review of the Township’s current collect equipment, there are several important factors that have been noted about the existing equipment and program:

- The current collection equipment is only used to collect glass (clear, green, and brown), aluminum cans, and mixed paper (cardboard, office paper, magazines). The efficiency or adequacy of the current equipment is not comparable to equipment that will be needed to collect and transport higher volumes of material that will result from adding new materials and enhancing the recycling program.
- The current compartmentalized recyclables collection vehicles are inefficient, primarily due to limited load capacity, and require excessive amounts of time in the handling and transporting of recyclables. Even if the program is operable now, this equipment will not be a cost-effective way to meet the Township’s future collection needs for an enhanced waste collection program.
- Small capacity compartmentalized collection vehicles without compaction capability and other needed options will result in higher operational costs when compared to other available equipment.
- Less than optimal equipment could increase the difficulty in implementing a new recycling program and lead to increased costs (primarily due to increased labor expense related to the collection service).
- New collection vehicles and technology have dramatically increased collection efficiency. **Appendix A** contains a spec sheet for a recyclables collection vehicle that has high capacity, separate compartments, and compaction capability.

As an alternative to the Township procuring and operating new collection vehicles, recyclables collection services can be secured via a municipal bid. Qualified hauling companies can be secured through the competitive bid process. These companies typically operate high-capacity collection vehicles, plus they have the expertise for developing efficient collection routes and schedules. Efficient collection systems reduce operating costs, which can result in a reduced cost per household for curbside collection services. Based on GF’s experience in Pennsylvania, the lowest cost per household for curbside recyclables collection services is often achieved through a competitive municipal bid process where curbside waste and recycling services are bundled together. If the Township analyzes its current collection system costs fully and it is determined the current and projected costs for the Township to provide curbside recycling service appears higher than desirable, the Township should consider bidding for waste and recyclables collection services as means to offer comprehensive recycling services (and trash service) at a competitive price to all households in the Township.

If the Township negotiates directly with the landfill to pay the landfill tip fee, which is currently \$55 per ton, the Township and residents can realize a financial incentive for reducing the amount of waste that is taken to the landfill. This is commonly referred to as the “avoided cost of disposal.” This can be done by bidding for collection services only and excluding the disposal component from the bid.

## 4.2 Existing Leaf Waste Collection Program

The Township does not provide a residential curbside collection program for leaf waste. The Township does not currently operate a public leaf waste drop-off site.

## 4.3 Existing Recycling Education Methods

Effective recycling education has been a challenge for the Township. The Township encourages residents to recycle by offering recycling services at no charge to households. Recycling education takes time to coordinate and develop and current recycling education methods do not produce high residential recycling participation rates. Recycling education is provided to residents in newsletters and via the Township website.

## 4.4 Existing Recycling Program Enforcement Program

The Township does not have an active Code Enforcement Officer or other staff actively responsible for monitoring and following up on solid waste and recycling problems and complaints.

## 4.5 Current Commercial, Municipal, and Institutional Recycling

Some commercial establishments, including industrial and institutional establishments, privately contract with one or more private haulers to provide collection of segregated recyclables. The extent of commercial recycling in the Township is unknown; however, it is common for many businesses and industries in Pennsylvania to contract with a hauler to collect segregated cardboard (and possibly office paper and other materials) for recycling.

Act 101 requires the Township's commercial, institutional and municipal establishments to recycle the following materials (as a minimum):

- **High-grade office paper**
- **Corrugated paper**
- **Aluminum**
- **Leaf waste**

## 5.0 RECYCLABLES MARKETS

When implementing any curbside waste collection program, it can be economically beneficial to identify and use favorable local recyclables outlets and to be aware of recycling market trends. Favorable recycling markets are those that offer the greatest return (or overall economic feasibility) when considering all relevant collection/operational costs and any revenues that may be generated through the sale of materials. Having access to local markets is critical to the economic feasibility and longevity of the recycling program, because the costs associated with transporting materials over long distances degrades the revenue return (if any) for the recyclables.

In eastern Pennsylvania, in the areas surrounding Valley Township, two recyclables processing facility types or markets have emerged as the primary markets: **single-stream processors** and

**dual-stream processors.** In a **dual-stream system:** commingled recyclables (e.g. aluminum and steel cans, bottles, plastic bottles, etc.) are collected and processed as a separate “stream” from other acceptable fiber/paper materials (e.g. newspaper and mixed paper such as envelopes, junk mail, etc). Often, dual-stream collection vehicles have two compartments to keep the recyclable streams separated (a cost effective alternate to using separate vehicles for collection).

In a **single-stream system:** recyclables are collected and processed mixed or combined together (e.g. cans, bottles, plastics, paper and other designated materials). Processing at a single-stream recyclables facility uses a combination of conveyors, manual sorting, mechanical sorting, optical sorting and various types of processing equipment.

Some recyclables processing facilities have the capability to process both single-stream and dual-stream material.

## 5.1 Local and Regional Recyclables Markets

GF located some of the larger recyclables processing facilities within 50 miles of Valley Township and listed them below. Unfortunately there are no large recyclables processors located near (say within ten miles) of the Township. Because the distance to many of these markets is over 30 miles (one-way), it will require the Township to carefully plan, collect, manage and market recyclables to maximize efficiency while minimizing costs. Without easy access to markets, it will also increase the recycling programs susceptibility to being negatively impacted by collection cost variables, particularly increases in fuel costs.

### **Blue Mountain Locations** (Distance: ~ 40 to 45 miles one way for all Blue Mtn. locations)

#### **Montgomeryville Facility**

Blue Mountain Recycling  
1350 Bethlehem Pike  
Montgomeryville, PA 18936

#### **Philadelphia Facility**

Blue Mountain Recycling  
2904 Ellsworth Street  
Philadelphia, PA 19146

#### **Upper Dublin Township Facility**

Blue Mountain Recycling  
1030 Fitzwatertown Road  
Willow Grove, PA 19090

The Blue Mountain facility located off the Schuylkill Expressway in Philadelphia, accepts dual-stream recyclables and single-stream (i.e. fiber is separate from commingled materials) and single-stream recyclables. Based on conversations with this recycling facility in November 2006, the price paid to municipalities per ton for single-stream recyclables is currently **\$4.00 per ton**. The single stream price paid for recyclables over the last 2 years has had an average range of \$2.00 - \$8.00 per ton. The price paid to municipalities is based on the average commodity revenue that is paid to Blue Mountain for recyclables.

**Other Recycling Markets:**

**Waste Management** (Distance: ~ 34 miles one way)  
408 South Oak Ave.  
Primos, PA 19018

**McCusker and Ogborn** (Distance: ~ 34 miles one way)  
10 Reany Street  
Chester, PA 19013

**BFI Recyclery (~30 miles)**  
372 S. Henderson Road  
King of Prussia, PA, 19406.

*\* The BFI Recyclery is under contract with Chester County for processing and marketing of recyclables until the end of September of 2007. This arrangement establishes set pricing (per ton) for recyclables generated by Chester County municipalities that participate in the program by executing an intermunicipal agreement with the County to deliver recyclables to BFI Recyclery.*

**5.2 Valley Township’s Recyclables Marketing**

For a time, Valley Township has been a member of the Central Chester County Refuse Authority (CCCRA). The CCCRA consists of five municipalities and administers the consolidation and marketing of recyclables on behalf of the CCCRA municipalities. As a participating municipality of the CCCRA, Valley Township takes recyclables to a consolidation and transfer point in South Coatesville Borough. The CCCRA has historically distributed and marketed materials on behalf of Valley Township and the other participating municipalities. Markets have varied and have included larger recyclables processors and even local scrap dealers. Under this arrangement, the Township does not feel it has been provided with accurate recyclables data that reflects the total recyclables recovered by the Township. The Township has had difficulty determining market pricing/revenue for recyclables under the arrangement with the CCCRA.

**6.0 THE CHESTER COUNTY PROCESSING AND MARKETING AGREEMENT**

Based on conversations with the Chester County Recycling Coordinator held at the end of January (2007), the Vice Chairman of the CCCRA signed an intermunicipal agreement with Chester County to participate in the **Chester County Processing and Marketing Agreement (CCPMA)**. Valley Township can participate under this new Processing and Marketing Agreement as a member of the CCCRA or as an individual municipality. If the Township elects to work directly with Chester County to implement the County recyclables processing arrangement, it will need to execute an intermunicipal agreement with Chester County. The CCPMA should be beneficial to Valley Township in terms of securing a favorable recyclables revenue (price per ton) for an extended period. An example of this recyclables marketing contract is attached in **Appendix B**, and it is available upon request from the Chester County Recycling Coordinator.

As part of the CCPMA, recyclable material is delivered to the BFI Recyclery located on 372 S. Henderson Rd., King of Prussia, PA. The current contract with BFI Recyclery is a 3-year contract, which began on September 27, 2004. The contract includes two optional one-year renewal periods, and Chester County has indicated it will renew the contract. Under this program, the BFI accepts and processes the following materials:

- **Residential Mixed paper**
  - #6 Newsprint
  - Magazines
  - Telephone books
  - Mail
  - Paper bags
  - Cardboard
  - Home, office, and school paper
- **Clear, brown and green glass**
- **Aluminum cans**
- **Steel and bi-metallic cans**
- **PET and HDPE plastic bottles**
- **Commingled materials**
- **Commingled cans** (aluminum and steel/bi-metallic)
- **Corrugated cardboard**

**6.1 Recyclable Revenue from the Chester County Processing and Marketing Agreement**

The pricing for recyclable materials under the current CCPMA is calculated using a formula created by the BFI Recyclery. Depending on the materials and market conditions, municipalities are either charged or paid for materials taken to the BFI Recyclery.

According to the 2005 Processing and Marketing Report, which is also included in **Appendix B**, the municipalities that currently participate in the County Processing and Marketing Agreement received a range of \$1,000 to \$51,000 in recyclables revenues for materials they delivered to the BFI Recyclery. The “avoided cost of disposal”, which is based on the tipping fee of **\$47.00 per ton**, ranges from \$185.00 to \$50,600.00. The average revenue for material for the twelve participating municipalities was approximately \$50.00 per ton for all recyclable materials collected. **Table 3** below shows actual pricing for recyclables delivered to BFI from Phoenixville Borough, a municipality that participates in the CCPMA.

**Table 3: Borough of Phoenixville Pricing for Recyclables Delivered to BFI Recyclery (2006)**

Pricing Period	Commingled Recyclables (Price Per Ton)	Mixed Paper or “News #6” (Price Per Ton)
July-September (2006)	\$14.09/ton	\$40.00/ton
October – December (2006)	\$19.12/ton	\$32.50/ton
January – March (2007)	\$50.13/ton	\$22.50/ton

## 6.2 Feasibility of Joining the Chester County Processing and Marketing Agreement

The feasibility of joining the CCPMA, or any similar recyclables market arrangement can be influenced by a variety of factors; some of those include:

- Commitment of the Township to revise/improve the structure of the current waste collection system, and to implement and enforce the new program.
- Ability of the Township to manage collection system costs. For example:
  - Minimizing excessive staff and equipment utilization
  - “Managing” costs should include consideration for outsourcing waste collection and recycling services to a hauling company via the competitive bid process, which can achieve a lower collection system cost.
- Distance to the processor/recyclables market or consolidation point.
  - Currently the recyclables processor under the CCPMA is the BFI Recyclery. Valley Township consolidates recyclables locally for transport to the BFI Recyclery. When the marketing contract is re-bid by Chester County, the distance to the recyclables processor may change. If the Township elected not to use the consolidation and transfer facility and/or the location of end market changed, operational costs and staffing demand could increase.
- Revenues paid to the Township from sale of recyclables.

It is probable that Chester County will extend the CCPMA for the two, one-year extension periods under the contract with BFI. Compared to other large recyclables processors in the region, the BFI Recyclery in King of Prussia is one of the closest recyclables processors available to Valley Township.

Industry professionals indicate, as a general rule, that one hour of travel time (one-way) to a recycling facility is the maximum allowable time for economically feasible transport of recyclables (or waste). Beyond this one hour baseline, economics dictate:

- Consolidation of recyclables
  - Drop-off centers and transfer systems for consolidating and transporting bulk loads
- Processing of material (to increase revenue per ton)
  - Baling of materials (commingled or separated)
- Pre-sorting or separation of recyclables by individual material type

Although there are uncertainties when looking beyond the two years remaining under the CPMA, there are clear advantages to joining this arrangement:

- Assistance provided by Chester County to the CCCRA and Township in administrating the recyclables marketing arrangement.
- Recycling data is provided by the BFI Recyclery and data is summarized by Chester County and provided monthly.

- The contractual arrangement creates a more stable outlet and price commitment for recyclables and the contract negotiations facilitated by the County for a number of municipalities can result in a better price per ton than if Valley Township negotiated recyclables pricing independently.
- Improved revenue per ton for recyclables can create an economic incentive for the Township to divert recyclables from the landfill to recycling.
- In the current CCPMA, a payment is provided each month for recyclables that have been received.

Due to problems with data collection and revenue accountability that have occurred by working through the CCCRA, it may be beneficial for the Township to execute an intermunicipal agreement directly with Chester County. This could mean the Township would no longer participate as a member of the CCCRA, or at least not participate with the CCCRA for recyclables marketing activities. Under the direct arrangement with Chester County and the BFI Recyclery, the Township should be able to increase the amount of revenue generated for its recyclables. The Township will also be paid on a consistent, monthly schedule for recyclables. Preferably, Valley Township can continue to utilize the transfer facility located in nearby South Coatesville along Route 82 that is operated by the CCCRA. GF believes, when compared to hauling directly to the BFI Recyclery or another recyclable market, it is economically and operationally feasible for Valley Township to utilize this nearby recyclables transfer facility.

Since the CCCRA has already executed an intermunicipal agreement with Chester County to take recyclables to the BFI Recyclery, it should be feasible for the CCCRA to make the necessary adjustments to the transfer facility to consolidate and transfer dual-stream recyclables, including those from Valley Township, for delivery to the BFI Recyclery. Assuming that the Township will work directly with Chester County to market recyclables, the Township should:

- Work closely with the CCCRA to ensure that Valley Township's recyclables can be consolidated as needed at the local transfer facility.
- Develop an effective system of tracking recyclables generated from the Township. If the CCCRA delivers consolidated recyclables from Valley Township to the BFI Recyclery, the totals must be accurately documented. It may be necessary to consolidate Valley Township's recyclables at the transfer facility separate from other municipal recyclables and then transport complete loads of Valley Township's recyclables (without mixing with recyclables from other municipalities).
- Independently track recycling efforts and material totals on the collection end. Implement the use of a tracking log that tallies the number of loads of recyclables that are collected and brought to the consolidation and transfer facility (or directly to market). The Township should be able to determine an average weight per load (or per cubic yard) for recyclables that should be used to estimate the quantity of recyclables that are being recovered by the Township.

In the future, if a new contract is secured with a new recyclables processor in a different location, the Township will need to closely evaluate the economic feasibility of the new marketing scenario.

## 7.0 REDUCING WASTE TO THE LANDFILL THROUGH INCREASED RECYCLING

GF provides recycling program guidance in this section for increasing the quantity of material diverted from the landfill and for improving the efficiency and convenience of the Township's curbside recyclables collection program. This guidance is based on the following premise:

Valley Township needs to make a number of fundamental structural changes to its waste collection system in order to maximize the amount of material that is diverted from the landfill to recycling. In making these revisions to the collection system, waste and recycling should be viewed as integrated services, not as separate programs. To achieve optimal results in terms of diversion, participation, economic return and program sustainability, the Township will need to establish a **convenient waste collection and recycling program that creates an incentive for residents (and the Township) to limit the amount of waste set out at the curb for disposal.**

### 7.1 Changes to the Township Waste and Recyclables Collection System

To increase the quantity of material diverted from the waste stream to recycling, GF recommends the Township improve and/or implement the following:

- **Increase the size of recyclables containers:** Residential recyclables make up over 50 percent of the material (by volume) that will be set out at the curbside and therefore, recyclables containers should be sized accordingly. The inconvenience caused by using 5-gallon buckets for separated recyclables is a leading factor in very low residential recycling participation. A minimum 22-gallon to 32-gallon recyclable container should be provided to all households for commingled recyclables (e.g. mixed glass, plastics, steel/bi-metal and aluminum cans) and a separate 14-gallon container should be used for mixed paper items. Containers should be labeled with the list of acceptable recyclables.
- **Limit the amount of trash set out at the curb:** Do not permit “unlimited” or excessive residential trash set-outs. This can be done indirectly through a financial incentive program where residents pay for each bag (or container) set out at the curb, which is commonly referred to as Pay-As-You-Throw (PAYT). This can be done directly by the Township by establishing bag limits via an ordinance and/or through a collection contract, including limits on both the allowable number of bags and limits on the allowable weight per bag/container. It is not suggested the Township limit the number of allowable bags for trash to be less than two bags per household due to health, safety and welfare issues.
- **Expand the list of recyclable materials:** Materials collected should reflect the recyclable components of the waste stream and the local markets. If you travel and incur the operational expense of a recyclables collection route, it can be economically feasible



to collect all the marketable recyclables, and not a select few. The economics of this are most favorable when you are paid for the recyclables collected and if the collection scenario avoids the cost of disposal. Many local markets accept the following materials, which are recommended for curbside collection by the Township:

### **Commingled materials**

- Clear, brown and green glass
- Aluminum cans
- Steel and bi-metallic cans
- PET and HDPE plastic bottles

### **Residential Mixed paper**

- #6 Newsprint
- Magazines
- Telephone books
- Mail
- Paper bags
- Cardboard
- Home, office, and school paper

**\*Note:** Always verify with the recycling market as to which materials are accepted and the handling procedures for each material.

- **Recyclables collection service and equipment:** Based on the understanding that the Township wishes to provide curbside collection services to its residents, it is recommended the Township procure a high-capacity, more efficient collection vehicle (**Appendix A**). The Township could consider other options such as bidding for and securing a single hauler to implement the desired waste collection and recycling program or working with another municipality that may provide the collection service.
- **Recycling ordinance:** Revise the current recycling ordinance and consider adding program details in a concise Policies and Procedures (P&P) document that is attached to the ordinance so that details of the recycling program can be revised without going through the standard and time consuming ordinance revision process.

The level of convenience directly impacts residential recycling participation, and will be a driving factor in the success achieved by the Township's enhanced recycling program. The Township's recycling rates can increase substantially (e.g. 5 to 15 percent) if a more comprehensive and convenient recyclables collection system is implemented, and then reinforced by education and enforcement.

## **7.2 Residential Curbside Recycling Convenience and Participation**

It is clear that the current methods employed for recycling education (e.g. newsletters, website, etc.) will continue to be only marginally effective until the waste collection system and recycling program structure is changed. Until the Township recycling program makes recycling convenient for residents, some residents will not participate regardless of how much recycling education is provided. Some of current program features that negatively impact participation and the Township's ability to educate residents include:

- **Limited number of materials accepted:** Because the Township only collects glass, aluminum, and mixed paper and not other commonly recycled materials, like plastic bottles and steel cans, residents are accustomed to disposing materials that could be recycled. Inadvertently, this can “train” or educate residents to be careless with separating recyclable materials and often, residents will elect to dispose of acceptable and unacceptable recyclables because they feel the program is confusing or inconvenient.
- **Undersized and inconvenient recyclables containers:** Township residents are provided several 5-gallon pails for use in separating: glass, aluminum cans and mixed paper (i.e. newspaper and cardboard). This collection format is poor and a high level of residential participation will not be achieved until these containers are replaced using larger recycling containers. 5-gallon containers create three forms of inconvenience: 1) residents must separate multiple material types 2) the container capacity is not adequate to handle the amount of recyclables that can be generated from a typical household between scheduled pick-ups 3) residents have to carry three different containers to the curbside, which may require two or more trips.

The Township can increase “participation” and waste diversion in two basic ways: 1) increase the number of households that set out materials 2) increase the amount of material that is set out per household. Looking at Pennsylvania case studies for reference, it is realistic that Valley Township could increase the amount of residential curbside recyclables by **10 to 20 percent** by implementing a more aggressive residential curbside recycling program.

GF encourages the Township to improve recycling participation from the **residential sector** as follows:

- **Convenience:** Make changes to the waste and recyclables collection program that ensures participation in the recycling program by making it convenient for residents/households. Some of the key components of a convenient curbside residential recycling program include:
  - Consistent curbside collection schedule for all households in the municipality
  - Curbside recyclables collection frequency is not less than bi-weekly
  - Collection of a comprehensive list of recyclables is offered to all households by the municipality and/or other collectors active in the municipality
- **Curbside recycling containers should be properly sized:** Provide all residents with adequately sized recyclables containers that do not overflow between scheduled collection days. 22- to 32-gallon containers are recommended for collection of commingled recyclables and containers over 32 gallons may be feasible if the program changes to bi-weekly collection of a comprehensive list of commingled materials. Paper items such as junk mail, magazines, etc. can be collected effectively in separate 14-gallon recyclables containers. Single-stream collection using only one container for both commingled containers and paper items will require the greatest container capacity.
- **Provide and require use of curbside recycling containers for all households.** Do not assume residents will take the initiative to request a curbside recycling container for their household. Provide containers, including an additional container or a replacement container if one is needed (a fee may be assessed to residents for containers). The

Township is encouraged to take an active role in determining what households need recycling containers.

### 7.3 Effective Recycling Education

Recycling information should be distributed to households at least every six months in accordance with Act 101 to all residential establishments. Although websites can contain useful recycling information, many residents do not rely on municipal websites for guidance on trash disposal or recycling. Based on experience and success stories from a number of municipal recycling programs throughout Pennsylvania, some of the most effective residential recycling education methods include:

- **Curbside Program Feedback** – The Township Public Works Staff that provide curbside waste and recyclables collection service should participate in a waste and recycling curbside program feedback program. Public Works Staff can place stickers or notices on trash cans, on recycling containers or directly on recyclable items to provide immediate feedback at the curbside to residents. These notices can be used to inform and educate residents who are not following Township and Act 101 procedures for trash and recyclables preparation. Because residents are relayed information that relates directly to their actions/handling procedures, these programs are effective in changing behavior and improving disposal/recycling practices.
- **Distribution of refrigerator recycling magnets** to households that lists the acceptable and unacceptable recyclables and includes the recycling schedule (if the schedule will fit on the magnet). Refrigerator magnets are effective because they can be placed in the house in a visible location and referenced by household members throughout the year. Magnets are not usually discarded as quickly as newsletters or flyers.
- **Website:** Although the Township’s website may not be the first place for residents to look for waste and recycling information, the website should still be kept up-to-date. The website should clearly explain the waste and recycling program and procedures. Additionally, the website should provide information on the importance of recycling as it relates to the community, lowering disposal costs, saving energy, and preserving resources and the environment.

### 7.4 Recycling Enforcement

An excellent way to minimize the amount of enforcement required in a waste collection system is to ensure the structure of the waste and recycling program is fundamentally sound by including comprehensive and convenient services and incentives that encourage participation. However, having some level of an active waste and recycling enforcement program is needed to address residents that will repeatedly fail to comply with the established program requirements. Most municipalities that achieve high residential recycling rates have a structurally sound program design plus an effective waste and recycling enforcement program. The Township has established waste and recycling goals to:

- ✓ Greatly reduce the amount and tonnage of trash going to the landfill

- ✓ Overhaul the program to get a greater level of participation by increasing the types of materials that can be recycled (plastic, steel cans, etc.)
- ✓ Educate the residents on the benefits and make it easy and rewarding to participate
- ✓ Increase the quantity of materials recycled
- ✓ Eliminate recyclables within the trash stream
- ✓ Improve methods and timing of community notification and education

For the Township to achieve these goals and high participation rates, it is highly recommended that the Township implement an active waste and recycling enforcement program. Some components of this program could include:

- A Code Enforcement Officer who performs waste and recycling enforcement as part of his/her regular work tasks.
- The ordinance should be updated to reflect an improved enforcement program. The ordinance(s) should enable an enforceable process by which the Code Enforcement Officer(s) or other designees have the ability to issue warnings and citations or penalties/fines.
- Periodic inspections should be conducted of waste and recyclables set-outs and feedback, warnings, and citations (for frequent offenders) should be issued to households.
- The Township should solicit support from the local police and the local district justice to take waste and recycling violations seriously. Implementation of a quick penalty process for violators should be promoted.
- The Township staff, collection crews, or enforcement officer can conduct windshield surveys on recyclables set-out days to identify non-participating residencies. Non-participating households should be notified of the waste and recycling requirements.

## **7.5 Increasing Commercial, Institutional and Municipal Recycling**

Commercial sector establishments include commercial businesses, industries, institutions, and municipal establishments. Those that are located in the Township are mandated to recycle by Act 101. Large offices typically generate recoverable quantities of paper and cardboard. Depending on the size of the company and quantity of recyclable material generated, business may lower their waste disposal costs by separating recyclables from the waste stream and then reducing the level of service that is required for waste disposal. Unfortunately, many businesses in mandated communities within the Township and throughout Pennsylvania do not recycle some or all of the materials as required by Act 101. There are several common barriers or why Township businesses may not implement comprehensive recycling programs:

- The company and upper level management have not established recycling as a priority.
- The commercial establishment is unaware or unclear of its recycling requirements established by Act 101 and the Township ordinance.
- The Township may not have a strategy or the time and resources to educate and assist businesses with recycling programs.

- Management and staff are unaware of how to implement a recycling program.
- Supplemental programs, such as local drop-off sites, are not available.
- Management/staff perceive recycling as a hassle and extra cost to the company.
- There is very little active enforcement by the Township that results in consequences or penalties for commercial sector establishments that do not comply with Act 101. PADEP will direct enforcement to municipalities, not commercial sector establishments.
- Many municipalities do not wish to interfere with the activities of private businesses.

The following methods are recommended to the Township to increase commercial sector (commercial, institutional, and municipal) recycling participation:

- Provide commercial sector recycling education/information at least once every six months (as required by Act 101). It is recommended commercial recycling information include the following:
  - **The recycling requirements** of commercial sector establishments located within the Township as specified by Act 101 and the Township's ordinance(s).
  - **A Commercial Sector Recycling Report Form.** A commercial reporting form that has been developed by PADEP is presented in **Appendix C**. This form can be used for: 1) documenting commercial recycling efforts for reporting to Counties for the Annual Recycling Report; 2) for collecting data for Act 101, Section 904 Recycling Performance Grants.
- The Township is required to report municipal recycling data to the County for the prior calendar year, including information from commercial sector establishments, by **February 15<sup>th</sup>** of each year. Recycling data for Act 101, Section 904 Performance Grants is due to PADEP at the end of September. Consequently, the Township may wish to require commercial establishments to report to the Township by January 15<sup>th</sup> or no later than January 31<sup>st</sup>. Annual report data can include recycling estimates, but data for Act 101, Section 904 Performance Grants must include weight receipts and/or signatures from the collector or processor verifying the recycling amounts.
- **Guidance and contact information for securing collection services for segregated recyclable materials.** As a starting point, to target high-volume recyclable generators, larger offices and business should be encouraged to contract for segregated collection of office paper and cardboard. Cardboard dumpsters can be provided for segregated collection of cardboard, which usually results in a cost savings when compared with the cost for disposal of the same material. For example, waste disposal may cost \$120 - \$160 for each dumpster pull for an 8-cubic-yard dumpster. However, cardboard that is segregated into cardboard dumpsters for recycling may cost \$25 - \$65 for each service or pull. For some businesses, cardboard can make up more than 20 percent of the total waste generated and thus results in a appreciable savings or avoid cost. In some cases, the collector will permit office paper and/or mixed paper that is in clear plastic bags to be placed in the dumpster along with cardboard, which can further increase cost savings. Importantly, a key to the company realizing savings from recycling is to reduce the level

of waste service that is provided by the waste hauler either by requesting smaller waste dumpsters or by reducing the frequency waste is collected from the business.

- **Business verification of a recyclables collector:** Establish a program that requires new and existing businesses to provide written documentation that demonstrates each business has secured recyclable collection services with a hauling company or other acceptable method (e.g. company collects and delivers recyclables to a processor). In some municipalities, businesses are issued a business permit before they are allowed to conduct business in the municipality. The City of Allentown has implemented a program that requires businesses to provide the City with documentation that they have secured a provider for recycling service. If the business does not identify their recyclables collector, the business permit can be withheld.
- **Small business “Opt-in”:** The Township should offer an “Opt-in” program for small businesses to receive trash and recycling services provided by the Public Works Department. The collection services and rates provided by the Public Works Department may be the same as those provided to residential establishments. Businesses benefit from this service because it is typically less expensive than dumpster services that may be provided by another private hauling company.

## 8.0 PAY-AS-YOU-THROW WASTE COLLECTION SYSTEM ALTERNATIVE

Implementing a Pay-As-You-Throw (PAYT) waste collection system has proven to be one of the most effective incentive-based strategies for municipalities to increase waste diversion to recycling. In PAYT programs, residents pay a fee based on the number or capacity of trash bags/containers that are used for curbside set-out of waste. 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 by the household for trash disposal. Based on GF’s research and conclusions, 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 **\$55 per ton** for the waste tip fee, the Township can benefit from the financial incentive in the avoided disposal costs associated with reduced disposal plus receive revenue from sale of the recyclables. PAYT program implementation in the Township was not evaluated in detail as part of this study, but properly implemented PAYT programs successfully increase waste diversion and recycling participation in Pennsylvania municipalities and in other states.

## 9.0 CONCLUSIONS AND RECOMMENDATIONS

With support from the Valley Township Board of Supervisors, the Township and the Public Works Department that provides waste and recycling services to its residents, has an opportunity to improve the current waste collection and recycling system. Ultimately, it will be the Board of Supervisors and their votes that will determine how, and if, the recommended changes are implemented. While making changes to the recycling program, GF encourages the Township to view waste and recycling as integrated services, not as separate programs. Based on evaluating the existing waste and recyclables collection system, some key conclusions are:

- The Township recycling program is inconvenient for residents and will not maximize the recovery of recyclables unless some changes are made. Inconvenience is primarily caused by the use of three undersized (5-gallon) containers for separated collection of aluminum, glass and mixed paper. The program is also inconvenient and confusing because it accepts a limited list of recyclable material types.
- Considering residential recycling program participation is currently between six and ten percent, the Township could increase the amount of residential curbside recyclables by at least **10 to 20 percent** by implementing a more convenient and more comprehensive residential curbside recycling program.
- The current bi-weekly collection schedule for recyclables is economically favorable because it typically costs 20-35 percent less than weekly recyclables collection.
- The Township has experienced ongoing problems with recyclables data collection and recyclables revenue accountability while participating in the CCCRA for recyclables consolidation and marketing.
- The primary local and regional recyclables markets or processors accept “dual-stream” recyclables, which includes commingled or mixed recyclables containers (i.e. glass, plastics, aluminum and steel/bi-metallic cans) and paper that must be kept separated from the commingled materials (usually through collection using a separate container).
- By not maximizing the diversion of waste to recycling, the Township is not managing its program in a financially responsible manner in the following ways:
  - Every ton of waste disposed costs the Township \$55 in tip fees plus the cost associated with waste collection and transportation to the landfill. Fewer tons disposed increases cost savings.
  - Each ton of recyclables marketed results in revenue (plus savings from avoided tip fees). Recyclables revenues under the Chester County Processing and Marketing Agreement have ranged from approximately \$20 - \$50 per ton for commingled materials and \$20 to \$40 per ton for mixed paper.
  - Each ton of documented Act 101 recyclables is eligible for Section 904 Recycling Performance Grants, which typically range from \$15 to \$30 per ton depending on the Township’s recycling rate.
- The current waste and recyclables collection system structure does not include disincentives to minimize trash disposal and/or incentives to increase recycling. PAYT programs offer this type of incentive-based waste management system and have proven to be effective in increasing waste diversion to recycling.
- The Township lacks an active waste and recycling enforcement program, which can be beneficial for achieving high recycling participation rates.

## 9.1 Recommendations

The recommendations included in this section are based on the following objective or goals established by Valley Township at the outset of this evaluation:

- ✓ Greatly reduce the amount and tonnage of trash going to the landfill
- ✓ Overhaul the program to get a greater level of participation by increasing the types of materials that can be recycled (plastic, steel cans, etc.)
- ✓ Educate the residents on the benefits and make it easy and rewarding to participate
- ✓ Increase the quantity of materials recycled
- ✓ Eliminate recyclables within the trash stream
- ✓ Improve methods and timing of community notification and education

Recommendations and guidance have been provided throughout the body of this report. Some of the key recommendations by GF are:

- **Begin “dual-stream” curbside collection of a comprehensive list of recyclables:** It is recommended that the Township modify the recyclables collection program from a program that currently requires residents to segregate each material by type (i.e. glass, aluminum, and mixed paper) to a “dual stream” collection system. In the modified dual-stream curbside recycling program, aluminum cans, steel/bi-metallic cans, plastic bottles and jugs, and glass bottles can be mixed (“commingled”) but be kept separate from mixed paper using a separate container for each recyclable stream. Consistent with the local recycling markets, the materials collected should include:
  - **Residential Mixed paper**
    - #6 Newsprint
    - Magazines
    - Telephone books
    - Mail
    - Paper bags
    - Cardboard
    - Home, office, and school paper
  - **Commingled materials**
    - Clear, brown and green glass
    - Aluminum cans
    - Steel and bi-metallic cans
    - PET and HDPE plastic bottles and jugs
- **Procure new, larger curbside recycling containers to improve convenience and recycling program participation and performance:** It is recommended the Township procure (for all households):
  - A minimum size of 22- to 32-gallon curbside recycling containers for commingled materials. At least 32-gallon containers are preferable in a bi-weekly recyclables collection program.
  - A separate 14-gallon container for mixed paper items.



- **Evaluate the procurement of high-capacity recyclables collection vehicle:** GF recommends optimizing collection efficiency and minimizing total recyclables collection cost through procurement and utilization of a high-capacity recyclables collection vehicle with compaction capability (Refer to **Appendix A**). Up to 90 percent of recyclables collection equipment costs may be eligible for reimbursement under an Act 101, Section 902 Recycling Grant.
- **Execute an inter-municipal agreement with Chester County to enter the Chester County Processing and Marketing Agreement:** Valley Township should work directly with Chester County to begin marketing recyclables through the County program and with the established marketing arrangement with the BFI Recyclery.
- **Continue to utilize the local Recyclables Transfer Facility located in South Coatesville:** It is unknown at this time if the Township will continue to operate, even at a limited capacity, under the Central Chester County Refuse Authority (CCCRA) which has administered recyclables consolidation and marketing for the Township and several other municipalities for a number of years. Regardless of whether or not the Township continues to participate as a member of the CCCRA, the Township should:
  - Maintain a positive relationship with the CCCRA to facilitate ongoing use (as is feasible) of the CCCRA-operated recyclables transfer facility.
  - Determine if the recommended dual-stream collection program can be implemented and integrated into the CCCRA-operated recyclables consolidation and transfer area. This transfer area can benefit the Township by maximizing the economic advantage through utilization of the local recyclables transfer facility operated by the CCCRA in nearby South Coatesville. Transportation of recyclables over long distance can substantially degrade the value of the material because of increased operational costs.
- **Independently track recycling efforts:** Regardless of the availability of other sources of data for recycling efforts, the Township should track the number of loads of recyclables that are collected and unloaded and estimate the total weight of material based on the volume of the collection vehicles.
- **Limit the amount of trash set out at the curb:** Because allowing unlimited trash service negatively impacts recycling rates it is recommended the Township prohibit “unlimited” or excessive residential trash set-outs. If support can be gathered by the Township, it is recommended this limit be established indirectly through a Pay-As-You-Throw (PAYT) waste collection system. Since residents in a PAYT system pay for each bag (or container) of trash set out at the curb, residents are encouraged to limit the amount of trash to lower their trash bill. Trash bag/container set out limits can also be established via Township ordinance, but it is not recommended the Township set the bag or container limit at less than two or three bags or containers per week due to health, safety, welfare and compliance and enforcement issues.
- **Implement effective recycling education strategies** as described in Section 7.3.
- **Reinforce an enhanced/modified recycling program via changes to the ordinance.** Some changes, as verified by a Solicitor, could include:

- Adding provisions that require commercial, institutional and municipal establishments to report annual recycling data to the Township.
- Adding provisions that establish a clear waste and recycling enforcement mechanism that permits a Code Enforcement Officer or other designee the ability to issue citations, fines, or penalties for specified waste and recycling violations.

## FUNDING

Recycling grant funding is not a guaranteed source of funding. The Township should not rely on grant funding as the support mechanism for its public recycling programs. To reduce the need for supplemental funding, the Township should continually evaluate its waste and recyclables collection system and look for ways to decrease operational costs while increasing revenue generation. The Township can increase the economic sustainability of its waste and recycling program by analyzing costs and making changes to collection schedules, staff utilization (labor), and equipment utilization. Revenue can be recovered from sale of recyclables, but these revenues will only partially offset collection costs.

### ACT 101 SECTION 902 RECYCLING PROGRAM GRANT

- The Township should apply for Section 902 grant funding for up to 90 percent reimbursement for costs associated with purchasing recycling equipment and recycling containers, and for educational outreach. It is recommended the Township submit a grant application for new curbside recycling containers for all residential establishments, for a new high-capacity recyclables collection vehicle, and for other eligible costs as needed.

### ACT 101 SECTION 904 PERFORMANCE GRANT

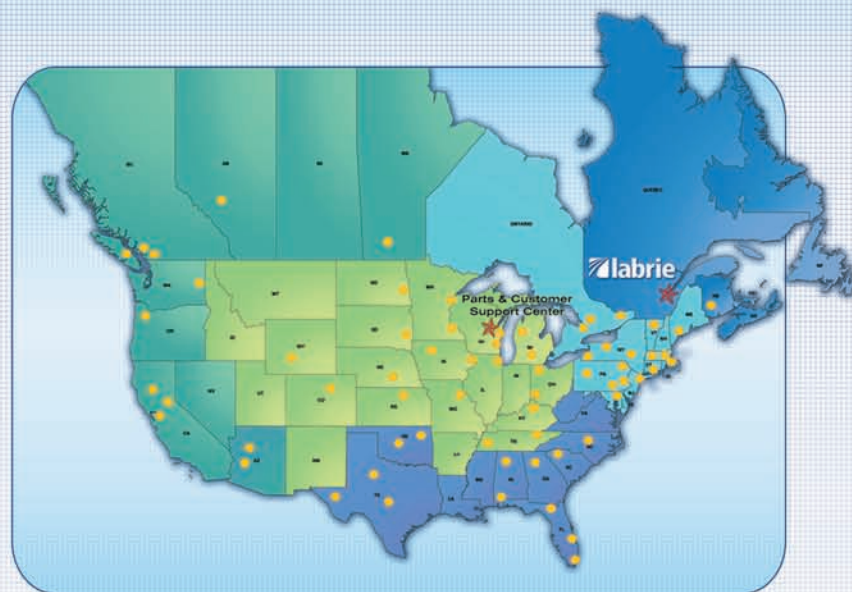
- It is recommended the Township apply annually for the Act 101, Section 904 Performance Grant award. The Section 904 grant program provides funding based on the amount of eligible Act 101 recyclable materials that are collected and documented (documentation must meet PADEP requirements) for a given year. Information on recycling Performance Grants is available on the PADEP website ([www.dep.state.pa.us](http://www.dep.state.pa.us)). Providing accurate documentation of recycling efforts by residential and commercial establishments can increase the Township's Act 101, Section 904 Performance Grants.

**APPENDIX A**

**Recyclable Collection Vehicle Specification**





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](http://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.

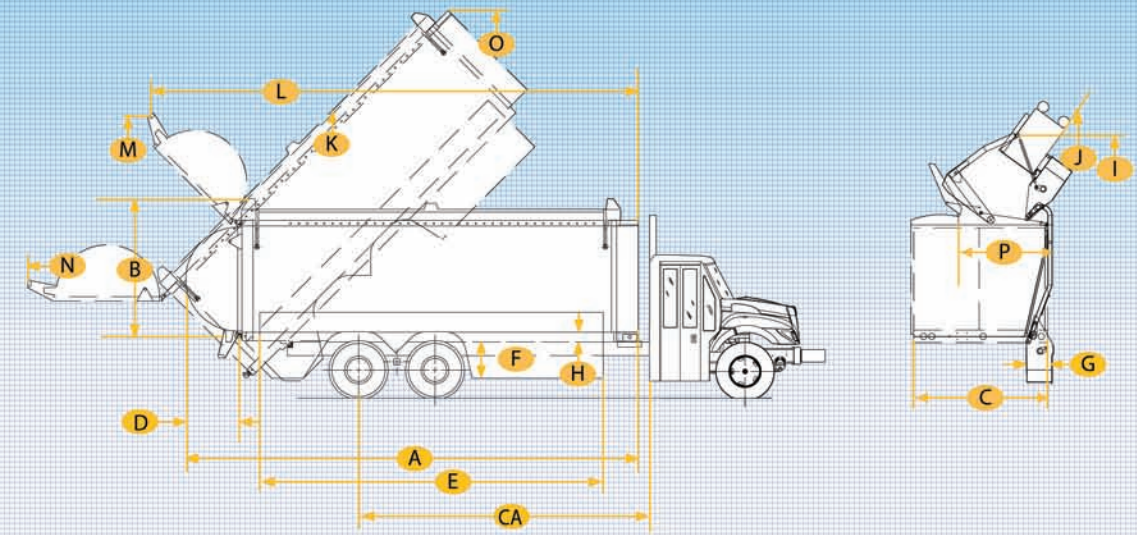


4. The Top Select™ can accommodate up to seven adjustable compartments.



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 <sup>3</sup>	Imperial 48 cu.yd.	Metric 37 m <sup>3</sup>
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

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

## 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

**APPENDIX B**

**Inter-Municipal Agreement For Recyclables Processing and Marketing Services  
– 2005 Processing and Marketing Report & Pricing Memo**

**INTERMUNICIPAL AGREEMENT BETWEEN THE COUNTY  
OF CHESTER AND PARTICIPATING MUNICIPALITIES TO  
PROVIDE PROCESSING AND MARKETING SERVICES FOR  
RECYCLABLE MATERIALS GENERATED BY MUNICIPAL  
RECYCLING PROGRAMS**

**WHEREAS**, Act 180 of July 12, 1972, 53 P.S. § 481 et seq., authorizes municipalities including counties to enter into joint cooperation agreements with other municipalities in the exercise or performance of their respective governmental functions, powers or responsibilities; and,

**WHEREAS**, in carrying out their powers and duties under Act 101 of July 28, 1988, known as the Municipal Waste Planning, Recycling and Waste Reduction Act, counties are to utilize to the fullest extent practicable all available facilities and expertise within the scrap processing and recycling industries for processing and marketing of recyclable materials from municipal waste; and,

**WHEREAS**, it is the intent of the County pursuant to receipt of qualified responses to County's Request for Bids and subsequent Bid Award to enter into an agreement with an individual ("Contractor") of a privately owned and/or operated processing facility ("Designated Facility") to process and market recyclable material generated by municipalities participating in this agreement; and,

**WHEREAS**, it is understood by the parties hereto that should implementation of the provisions of this agreement not be forthcoming, the participating municipalities shall have

responsibility for the processing and marketing of recyclable materials generated in each participating municipality,

**NOW, THEREFORE,** in consideration of the promises and mutual covenants and agreement herein set forth and of the undertakings of each party to the other and intending to be legally bound, the parties, County of Chester, hereinafter "County" and \_\_\_\_\_, hereinafter "Participating Municipality", do hereby promise and agree as follows:

1. The County of Chester shall provide processing and marketing services for all recyclable materials generated by residential recycling collection programs within the Participating Municipality. Nothing to the contrary withstanding, however, said services provided by County shall be pursuant to and contingent upon the forthcoming contract between County and Contractor<sup>1</sup> for a Designated Facility to process and market recyclable materials generated by the municipalities participating in this Agreement.
2. The Participating Municipality agrees therefore, to deliver or to contract to have delivered all source separated recyclable materials generated by residential recycling collection programs to said Designated Facility, and to no other facility, during the entire term of this Agreement. The type and condition of the materials, including the option for commingling of the materials, must conform to the terms of the County/Contractor Agreement.
3. The Participating Municipality will be paid or invoiced directly by the contractor for any and all such materials accepted at the Designated Facility pursuant to the terms of the County/Contractor Agreement. Said payment or invoice shall be based on fixed per ton prices for each material accepted at the Designated Facility pursuant to the terms of the County/Contractor Agreement.

---

<sup>1</sup> County/Contractor Agreement, a copy of which shall be supplied to each participating municipality upon execution of same.



4. The Participating Municipality shall be paid or invoiced by Contractor for recyclable materials delivered to the Designated Facility by the end of the next month and will be provided monthly itemized receipts for any and all materials.
5. Each participating Municipality agrees to annually report, as required by Act 101, § 304(f), to the Chester County Recycling Coordinator the quantity of any and all recyclable materials delivered to the Designated Facility under this agreement as verified by weight receipts received from the Contractor.
6. The Participating Municipality and the County represent and warrant to one another that:
  - a. Each has all requisite power and authority to enter into this Agreement, to engage in the transactions contemplated herein and to perform its obligations hereunder in accordance of the terms of this Agreement.
  - b. The execution, deliver and performance of this Agreement has been duly authorized by all necessary action and that the undersigned officers of County and each Participating Municipality have been empowered by all necessary action to execute and deliver this Agreement on the party's behalf.
  - c. This Agreement constitutes a valid obligation legally binding upon County and each Participating Municipality and enforceable against them in accordance with the Agreement's terms in the matter in which valid contractual obligations are enforced generally.

#### **7. TERM OF AGREEMENT**

The term of this Agreement shall commence upon the date upon which the County of Chester and Contractor, Owner or Operator of the Designated Facility execute their Agreement ("effective date") and unless terminated for cause shall be up to three (3) years from said effective date to be renewed annually.

#### **8. RENEWAL**

Upon the expiration of the original term of this contract, this contract shall automatically be renewed for a similar term up to three (3) years from said effective date to be renewed annually unless terminated by either party according to the termination provisions contained herein.

#### **9. TERMINATION**

Nothing to the contrary withstanding, either party may terminate this Agreement for the following causes:

- a. the Designated Facility ceases to be operational;
- b. the Designated Facility becomes unable to accept recyclable materials for a period of 1 year;
- c. the Contractor, as identified in the County/Contractor Agreement, for whatsoever reason, does not perform his duties under said Agreement for a period in excess of three months.

Nothing to the contrary withstanding, however, after the expiration of the initial contract term up to three (3) years from said effective date to be renewed annually, either party may terminate said subsequent contract by giving at least ninety (90) days written notice, return receipt requested to the other party, prior to said expiration date. In such case, the contract will terminate on said expiration date.

#### **10. INSURANCE**

Each Participating Municipality who is a Collector under this Agreement hereby agrees to carry motor vehicle, Workers Compensation and general liability insurance coverage in sufficient amounts to hold the County of Chester harmless from any and all activity hereunder by the Participating Municipality.

#### **11. INDEMNIFICATION**

The Participating Municipality shall protect, indemnify and hold harmless the County of Chester, its agents and employees, from and against any and all liabilities, actions, damages, claims, demands, judgments, losses, expenses, and/or suits, including payments of attorneys fees, arising from and/or as a result of the action, and/or as a result of a failure to act, of the Participating Municipality, its agents and employees in connection with this Agreement.

#### **12. NOTICES**

All notices required herein to either party shall be in writing by registered mail with return receipt requested, addressed as follows:

COUNTY OF CHESTER:

County Recycling Coordinator  
Chester County Health Department  
601 Westtown Road, Suite 295  
West Chester, PA 19382-4543

PARTICIPATING MUNICIPALITY:

---

---

---

---

**13. AMENDMENTS**

This writing represents the entire Agreement of the parties and any modifications or amendments hereto shall be in writing and duly executed by said parties.

Attest:

---

Title

---

Date

---

Chester County Commissioners:

---

---

---

Attest:

---

Title

---

Date

---

Participating Municipality:

---

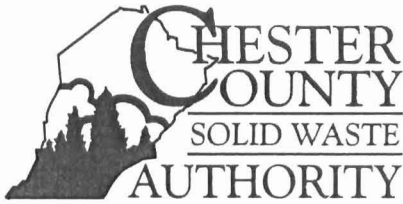
Title

---

**PROCESSING MARKETING REPORT  
2005 MUNICIPAL TOTALS**

1/13/2006


Mun/ Agency	Alum. Cans Tons	Alum.BiM Cans Tons	BiM Cans Tons	Glass Brown Tons	Glass Clear Tons	Glass Green Tons	ONP News Tons	Plastics Tons	OCC Tons	Total Tons	Total Payment	Avoid Tipping Fee \$47/Ton	Total rev/ton
CCSWA	0	0	0		0	0	2.2	1.74	0	3.94	\$1,055.91	\$185.18	\$315.00
Caln	0.00	0.00	0.00	0.00	0.00	0.00	419.52	0.00	0.00	419.52	\$20,578.30	\$19,717.44	\$96.05
Downingtown	0.00	0.00	0.00	0.00	0.00	0.00	320.30	0.00	0.00	320.30	\$15,782.82	\$15,054.10	\$96.28
East Caln	0.00	0.00	0.00	0.00	0.00	0.00	266.12	0.00	0.00	266.12	\$12,963.06	\$12,507.64	\$95.71
East Goshen	2.28	0.00	2.04	8.41	0.00	11.28	584.12	0.00	0.12	608.25	\$31,476.87	\$28,587.75	\$98.75
Upper Uwchlan	0.00	0.00	0.00	0.00	0.00	0.00	464.18	0.00	0.00	464.18	\$22,459.06	\$21,816.46	\$95.38
Uwchlan	0.00	0.00	0.00	0.00	0.00	0.00	1,076.93	0.00	0.00	1,076.93	\$50,960.78	\$50,615.71	\$94.32
W. Bradford	0.00	0.00	0.00	2.78	0.00	3.37	612.81	0.00	0.00	618.96	\$30,339.20	\$29,091.12	\$96.02
W. Brandywine	0.00	0.00	0.00	0.00	0.00	0.00	115.42	0.00	0.00	115.42	\$7,651.87	\$5,424.74	\$113.30
B. Of Phoenix.	0.00	0.00	0.00	0.00	0.00	0.00	714.78	0.00	0.00	714.78	\$34,675.54	\$33,594.66	\$95.51
West Chester	0.00	0.00	0.00	0.00	0.00	0.00	593.59	0.00	0.00	593.59	\$30,736.99	\$27,898.73	\$98.78
West Goshen	0.00	0.00	0.00	0.00	0.00	0.00	674.74	0.00	0.00	674.74	\$32,346.20	\$31,712.78	\$94.94
<b>Total</b>	<b>2.28</b>	<b>0.00</b>	<b>2.04</b>	<b>11.19</b>	<b>0.00</b>	<b>14.65</b>	<b>5,844.71</b>	<b>1.74</b>	<b>0.12</b>	<b>5,876.73</b>	<b>\$291,026.60</b>	<b>\$276,206.31</b>	<b>\$1,390.04</b>



# MEMORANDUM

P.O. BOX 476 • HONEY BROOK, PA 19344 • 610-273-3771 • FAX 610-273-9870  
7224 DIVISION HIGHWAY • NARVON, PA 17555 • 717-354-4351

To: P&M Contract Participants  
Gregory Prowant – Caln  
Judith Walters – Downingtown  
Mark Miller – East Goshen  
Kit Troiler – Upper Uwchlan  
Jack Hines – West Bradford  
Bob Wilpizeski – West Chester  
Bob Watts – CCSWA  
Barb Kelly – East Caln  
Brian Watson – Phoenixville  
Lynda Phiel – Uwchlan  
Linda Formica – West Brandywine  
Ray Halvorsen – West Goshen

From: Nancy Fromnick   
Chester County Recycling Coordinator  
(610) 273-3771 ext. 226

Date: July 13, 2006

RE: P&M Contract

The following per ton prices are in effect for July, August and September 2006. I would like to remind you that we are entering our third year of the contract. Next year we will meet to discuss our option to renew the contract for two additional one-year periods. Call me at 610-273-3771 ext. 226 with questions or concerns.

Commodity	Oct.-Dec.	Jan.-March	April-June	July-August
Corrugated	\$ 54.50	\$ 34.50	\$ 34.50	\$ 52.00
Newspaper/Res. Mixed Paper	\$ 32.50	\$ 22.50	\$ 22.50	\$ 20.00
Clear Glass	\$ 16.50	\$ 16.50	\$ 16.50	same
Brown Glass	\$ 9.00	\$ 10.00	\$ 10.00	same
Green Glass	\$ 7.50	\$ 17.50	\$ 17.50	same
Aluminum Cans	\$860.00	\$1130.00	\$1290.00	\$1450.00
Steel & Bi-metal Cans	\$ 20.50	\$ 48.00	\$ 43.00	\$ 68.00
PET & HDPE Plastics	\$310.00	\$ 413.00	\$ 334.00	\$ 163.00
Commingled Materials	\$ 19.12	\$ 50.13	\$ 42.09	\$ 30.43
Commingled Cans	\$ 57.60	\$ 60.80	\$ 79.12	\$ 89.37

cc: C. Bracken  
M. Rivello

**APPENDIX C**

**Commercial Report Form**

ANNUAL COMMERCIAL RECYCLING REPORT
CALENDAR YEAR \_\_\_\_\_

Businesses, schools, colleges, universities and other commercial and institutional establishments in Valley Township are required by State law and the Township ordinance to recycle. This form has been provided by the Township to obtain recycling totals from your establishment so that recycling information can be reported to Chester County. Please complete this form and return to \_\_\_\_\_ (Attn: \_\_\_\_\_) on or before \_\_\_\_\_.

NAME OF BUSINESS/ESTABLISHMENT \_\_\_\_\_ CONTACT PERSON \_\_\_\_\_ PHONE # \_\_\_\_\_

ADDRESS \_\_\_\_\_

MUNICIPALITY \_\_\_\_\_ COUNTY \_\_\_\_\_

- 1. What type of business do you operate?
[ ] Manufacturing
[ ] Wholesale/Retail
[ ] Other: \_\_\_\_\_

- 2. Where was the material you recycled generated? (Check all that apply)
[ ] Food service [ ] Maintenance [ ] Retail Operations
[ ] Lunchroom [ ] Offices [ ] Shipping/Receiving
[ ] Mail Room [ ] Print Shop [ ] Warehouse
[ ] Other: \_\_\_\_\_

- 3. Who collects/markets your recyclables?
Name of Business \_\_\_\_\_
Contact: \_\_\_\_\_ Phone # \_\_\_\_\_

On the reverse side of this report, please record by category the amount(s) of Post Consumer Materials that your business separated for recycling. Please list the amount in TONS. These weights should be available to you from your recyclable collector or market. Attach to this form any weight receipts or collection report(s) you received as verification of the amount of material you recycled OR have your recycling collector/market sign this form to verify its accuracy. Submit this form to your local municipality's recycling office. I hereby certify that the amount(s) of recyclable materials listed in this report are to the best of my knowledge complete and accurate.

Signature of Recycling Collector \_\_\_\_\_ Date \_\_\_\_\_

Please list the amount of Post-Consumer recyclable materials generated from your business for the calendar year which has just passed.

	Tons		Tons
1. Old Newsprint	_____	15. Food Wastes	_____
2. High Grade Office Paper	_____	16. Other Glass	_____
3. Corrugated	_____	17. Major Appliances	_____
4. Other Marketable Grades of Paper:		18. Other Ferrous	_____
Magazines	_____	19. Other Non-Ferrous	_____
Telephone Directories	_____	20. Textiles	_____
Other: _____	_____	21. Mattresses	_____
Other: _____	_____	22. Tires	_____
5. Aluminum Cans	_____	21. Wood	
6. Steel/Bimetal Cans	_____	Wood Packaging	_____
7. Amber Glass	_____	Other: _____	_____
8. Clear Glass	_____	23. Yard Trimmings	
9. Green Glass	_____	Brush & Branches	_____
10. PET Plastics	_____	Grass	_____
11. HDPE Plastics	_____	Leaves	_____
12. Other Plastics:		Tree Stumps	_____
LDPE	_____	24. Automotive	_____
PVC	_____	Antifreeze	_____
PP	_____	Lead Acid Batteries	_____
PS	_____	Oil Filters	_____
Other: _____	_____	Tires	_____
13. Commingled (Any of the above)	_____	Used Motor Oil	_____
14. Single Stream	_____	25. Electronics	_____
		Circuit Boards	_____
		Computer Monitors & TVs	_____
		Consumer Electronics	_____
		Flourescent Tubes	_____
		26. Household Hazardous Waste	_____
		27. Other Recyclables:	_____
		_____	_____
		_____	_____

Pre-Consumer Materials refer to materials generated in manufacturing and converting processes such as manufacturing process scrap and trimmings/cuttings. Also, print overruns, overissue publications, and obsolete inventories that did not leave the generating facility would be classified as pre-consumer materials. These materials should not be included in the above totals.

Post-Consumer Materials refer to recovered materials that have been used as a consumer item and are diverted from municipal solid waste for the purpose of collection and recycling. The term excludes materials from industrial processes that have not reached the consumer, such as overissues of newspapers or magazines and industrial process scrap.

Comments: