SWANA RECYCLING
TECHNICAL ASSISTANCE STUDY

FINAL REPORT

SCHUYLKILL COUNTY, PENNSYLVANIA

STRATEGIES FOR IMPROVING THE SCHUYLKILL COUNTY DROP-OFF RECYCLING SYSTEM

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SWANA RECYCLING
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EXECUTIVE SUMMARY

STRATEGIES FOR IMPROVING THE SCHUYLKILL COUNTY DROP-OFF RECYCLING SYSTEM

Schuylkill County's residential drop-off recycling program has developed from the startup phase to a mature program that includes 27 sites located across the County. It is well documented that recovered recyclables tonnage and market revenues increase yearly. However, balancing the existing recycling labor force with program growth and financial resources of the Schuylkill County Solid Waste Department has become a challenge. Gannett Fleming (GF) has been selected to evaluate the County operated drop-off recycling system and to suggest options for improving the efficiencies of the program, especially with consideration of the existing limited labor resources.

To address the County's concerns, GF conducted a comparison of Schuylkill County's residential drop-off recycling program with other counties operating similar programs. Twenty-seven (27) individual collection sites were analyzed to identify collection trends in recyclable tonnage, material volume (cubic yards), and the number of overflowed containers. In addition, GF performed a cursory review of truck routing procedures and data management practices.

GF believes that the County has an opportunity to make a number of reasonable modifications to the drop-off recycling program that can improve: utilization of County collection staff; residential participation; collection efficiency; program administration; and overall performance. These improvements can reduce the bottom line cost per ton to manage the recycling program. GF notes that the recommendation to consolidate and/or reconfigure sites to operate more efficiently should not equate to a reduction in the total quantity of recyclables recovered annually. The County is encouraged to consider the following recommendations individually, as well as collectively, and weigh the impact on the general public and other affected parties.

- Expand collection capacity at sites experiencing repeated overflow of containers.
- Reconfigure/consolidate some of the 27 recyclable drop-off sites. Six areas of the County were identified for consideration for reconfiguration and potential consolidation (refer to shaded areas in **Figure 1**).
- Restructure the use and servicing of Hide-a-Bag containers.
- Consider alternative or supplemental roll-off containers/ recycling trailers for cardboard.
- Evaluate cost and efficiency of the glass collection process.
- Continually evaluate the use of the existing labor force for inefficiencies.
- Conduct an in-depth study of recyclable collection truck routing efficiency.
- Critically review recycling data management to streamline the process.
- Use a 'baseline' cost per ton (without Act 101 Grants shown as revenue) to compare revenues and expenses when analyzing costs for the purpose of improving the County's ability to make economically feasible decisions for implementing the drop-off system.
- Further assess driver risk and County liabilities associated with overweight containers.
- Develop education programs to target program inefficiencies and to increase participation from non-recyclers. Minimizing overflow at sites will indirectly help education efforts.

STRATEGIES FOR IMPROVING THE SCHUYLKILL COUNTY DROP-OFF RECYCLING SYSTEM

1.0 INTRODUCTION

Schuylkill County (County) currently operates a County-wide drop-off recycling program covering 27 locations throughout the County. There are a number of curbside and drop-off recycling programs that are not affiliated with the County operated drop-off system. Gannett Fleming (GF) has been selected to evaluate the County operated drop-off recycling system and to suggest options for improving the operation of the program. Recommendations should consider the current labor and equipment resources. As reviewed with Schuylkill County, GF will complete the following tasks for this project:

Scope

Task #1 GF staff will gather pertinent information from the County concerning the existing recycling program. GF will rely on the Office of Solid Waste to assist throughout the project for obtaining background information.

Task #2 GF will evaluate the existing County-wide drop-off collection system, which includes a site visit to the County to review equipment and drop-off program operation. After reviewing collection program operations and costs, GF will provide recommendations for improving the operation of the County-operated recyclables collection system.

Task #3 GF will prepare a project report that will include findings and recommendations. This task includes review of the draft report by the Pennsylvania Department of Environmental Protection (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

Schuylkill County operates a drop-off recycling program that has matured from a fledgling startup to a longstanding and growing operation. Mature recycling programs must balance and manage growth in infrastructure, increased tonnages, and financial stability. This County-wide program faces complex issues tied to labor and benefits, monetary resources, as well as expertise to operate a mature recycling program. County-operated recycling programs often compete with a vast number of other County programs for these resources. This Recycling Technical Assistance project examines a multifaceted residential drop-off recycling program, balancing the existing recycling labor force in Schuylkill County with program growth and financial resources of the Solid Waste Department.

3.0 EXISTING COUNTY RECYCLING SYSTEM DESCRIPTION

Schuylkill County is located in the east central portion of Pennsylvania and includes 783 square miles. The County has one third-class city, Pottsville, with a population of 15,549 per the 2000 U.S. Census Bureau Data (Census). There are 30 Boroughs and 36 Townships.

As of the 2000 Census, Schuylkill County's population was 150,336. According to the Penn State Data Center, the estimated population of Schuylkill County in 2005 was 147,447. This is a two percent decrease in population from 2000 to 2005. Also of note, the Schuylkill County Municipal Solid Waste Plan projects no increase in waste generation through the year 2012. According to PADEP, Schuylkill County disposed of 145,506 tons of municipal solid waste in 2005. Over 99 percent of County-generated municipal waste was deposited at the C.E.S. Landfill.

3.1 Drop-off Recycling Program

Since 1994, the County has operated a residential drop-off recycling program servicing approximately 40,000 households. Currently, there are 27 permanent drop-off sites that consist of 157 collection containers. Each collection container is six cubic yards and was manufactured by Haul-All, Inc. Glass and bi-metal cans are collected in split containers (three yards for each commodity). Sites are serviced by four customized collection trucks. These collection sites are open to all residents of the County and are not limited by municipality. The County maintains a recycling website, and a comprehensive listing of sites is available to the general public. As shown by the Tonnage Collection Trend chart in **Appendix A**, the drop-off program is recovering more material each year. County recyclables drop-off sites collect the following streams of materials:

Plastics	#1 PET and #2 HDPE Plastic Bottles and Jugs
Metals	Aluminum and Steel Food and Beverage Cans
Glass	Clear, Green and Brown Glass Bottles (Mixed)
Mixed Paper	Newsprint, Phone Books, Magazines, Catalogues, Office Paper, Junk Mail, Boxes and Paperboard (flattened)
Cardboard	Corrugated

A map showing the distribution of the residential drop-off recycling sites is attached as **Figure 1** in the Appendices section at the end of this Report

3.2 County Markets and Processors

The following are markets and/or processors utilized by the County for marketing recyclables.

Market	Location	Materials
St. Jude Polymer	Frackville, PA	HDPE and PET Plastics – bottles
Weiner Iron & Metal Corp	Pottsville, PA	paper, newspaper, cardboard, aluminum cans, and steel cans
Cougle's Recycling	Hamburg, PA	commingled glass bottles and jars

Schuylkill County personnel note that the current marketing system works well and produces revenue consistent with market prices paid to other Pennsylvania recycling programs. St. Jude Polymer and Weiner Iron & Metal are located in the County. Cougle's Recycling is located just south of Schuylkill County in Berks County.

3.3 Data Collection and Full Cost Accounting

The County has a comprehensive drop-off recycling data collection system. Data is carefully tabulated in MSExcel spreadsheets that detail the quantity of each material collected. Daily logs are recorded by drivers and are submitted to Schuylkill County administrative staff following each collection route. This tabulated data is used for grant reimbursement, routing and collection efficiencies, among other uses.

As part of data collection, the County carefully documents revenues and expenses. GF was provided with the 2005 Schuylkill County Revenue and Expense Comparison (**see Appendix B**). This extensive cost accounting document provides the following data: recyclables tonnages and cubic yards collected; labor costs; operation and maintenance costs; and other expenses. The document shows income over expenses for 2005 at nearly $181,000. This document also declares revenue of nearly $61.00 for every ton of recyclables collected. Grants, secured through Act 101 of 1988, Chapter 9 funding mechanisms, are included in this snapshot of the program. Schuylkill County has also prepared an accounting of the program that does not include Act 101, Section 902 Recycling Grants for capital expenses. This additional snapshot declares revenue over expenses of approximately $37.00 per ton collected.

4.0 EVALUATION OF EXISTING COUNTY DROP-OFF PROGRAM

Based on discussions with Schuylkill County Solid Waste Department personnel, several areas of concern were identified related to the current operation of the County's residential drop-off recycling program:

- The drop-off system needs to better fit existing manpower and equipment resources.
- Frequent overflow of containers creates operational inefficiencies. (Overflow occurs when recyclables can not be placed in the container(s) because they are full; hence material is often put on the ground or on top of containers by residents.)
- Labor issues include insufficient collection staff to empty containers as often as needed.
- Some sites are not equipped to handle the volume of recyclables dropped off.

- Safety is a concern with overloaded containers and equipment malfunctions occur periodically as a result of some heavy containers.
- Additional staff time is necessary to address complaints/phone calls from residents and site sponsors about trash accumulation and inconvenience caused by overfilled containers.
- Route efficiency may need improvement.
  - Cross-training of drivers is lacking and a new program to rotate drivers through various routes has been implemented.
  - The County has little flexibility to compensate for driver days off (sick, vacation, etc).
  - Current routing still leaves some sites with regular overflow of containers, which requires additional labor for cleanup.

4.1 Comparison of Schuylkill County Drop-off Program to Other similar programs

To assess the County's concerns related to its residential drop-off recycling program operation, GF conducted a comparison of Schuylkill County's program with two other similar counties (Refer to **Table 1**). In our analysis, only programs that were similar in population and that use collection systems manufactured by Haul-All Inc. were considered. As part of this comparison, GF interviewed Schuylkill County personnel as well as representatives from recycling programs in Cambria and Monroe Counties, Pennsylvania.

As shown in **Table 1**, the population of Schuylkill County (104,432) is reported as those households serviced by the program, as opposed to the total population of the County. This number was obtained through the Schuylkill County Recycling Website. Schuylkill County has other drop-off recycling programs, not operated by the County directly or studied in the scope of this project. GF determined that using the total population of Schuylkill County would not be an apples-to-apples comparison to the other two programs with regards to the residential Haul-All Inc. system operated by the Schuylkill County Solid Waste Department.

Monroe County's recyclable drop-off recycling program encompasses residential as well as commercial recycling. The number of sites (15 sites) included in this study were identified by Monroe County personnel as only sites collecting residential materials. Using data only from these collection sites allowed for a comparison between counties of the number of sites and the associated tonnages from programs accepting residential recycling only.

Cambria County is currently in the process of adding collection of corrugated cardboard to its recycling drop-off system. While Cambria's tonnages appear lower than the other two counties (1,971 tons), this is expected since cardboard was not collected during 2006. Determining an estimated tonnage that would be consistent with materials collected in Schuylkill County's program could not be accomplished in the limited scope of this report.

Table 1
Comparison of Residential Recyclable Drop-off Programs
Using Haul-All Inc. Collection Systems

County	Population Served	Residential Drop-off sites	Square Miles	2006 Tons Collected	Square mi/ Collection Site	Avg. Tons per Site	Avg. Population Served per Site
Schuylkill	104,432	27	779	3,209	29	119	3,868
Monroe	138,687	15	611	3,281	41	219	9,246
Cambria	152,598	19	692	1,971	36	104	8,031

An analysis of **Table 1** indicates several important differences between the Schuylkill County's Haul-All Inc. collection system and those of Monroe and Cambria Counties. First, **Schuylkill County has more residential drop-off sites** than the two other counties with similar populations and total areas. An average number of square miles serviced per drop-off site can be calculated by dividing the number of square miles in the County by the number of sites. **Schuylkill County's drop-off sites serve fewer average square miles** than the others in this comparison. A third analysis conducted was the average population served per site. When dividing the total population by the number of sites, **Schuylkill County exhibited the lowest average population served** per drop-off site.

The differences noted above can correlate to the efficiency of the drop-off collection programs. In a broad comparison with Cambria and Monroe Counties, it would appear that Schuylkill County has the opportunity to make the drop-off program more efficient with regards to the total number of sites. The cost of collection, efficiency of routing, labor use and a host of other factors are influenced by the number of sites, implementation of site collection, and their configuration within the County.

Other anecdotal information was collected during the comparison of Schuylkill County's drop-off recycling program with other Haul-All Inc. collection systems. These finding included:

Hide-a-Bag Container Use and Trash Issue

Schuylkill County: To deter visitors from leaving unwanted material on the ground, each Schuylkill County recyclable drop-off site has a Hide-a-Bag container for "trash" disposal. Trash, in this case, usually includes plastic bags or other materials used to transport recyclables to the site. The Hide-a-Bag containers are emptied by drivers while on a recyclables collection route and the contents are left bagged beside the Hide-a-Bag container to await pickup. When drivers become available, the County conducts a separate route, using a large collection vehicle, to collect the bagged trash. The County has also experienced illegal dumping of other unwanted materials at the drop-off sites from time to time.

Monroe County also uses the Hide-a-Bag containers; however, they only accept plastic bags. Recyclable drop-off collection vehicles have been retrofitted to collect a small amount of plastic bags on each visit to the site, in conjunction with the primary material stream targeted for that

route. There is no separate "trash" collection route in this system. It is estimated that 30 tons of plastic bags are consolidated and marketed at 12 to 13 cents per pound each year, amounting to approximately $7,000 per year in revenue.

Cambria County limits the use of Hide-a-Bag containers to plastic bags only. The County recently conducted an education campaign to reduce the amount of unwanted trash left by residents. Cambria sites are serviced separately from commodity collection routes two times per week. This service includes general site cleaning and collection of the plastic bags. Service is performed using a pickup truck, not a full-sized collection vehicle.

Corrugated Cardboard Collection

Schuylkill County solely uses Haul-All Inc. collection vehicles and containers to collect corrugated cardboard. Large volumes of cardboard appear to be causing overflowed containers and other collection issues (i.e. additional labor for cleanup and longer time spent at each site to tip multiple containers).

Monroe County currently collects cardboard at some larger generators using trailers or containers, as well as Haul-All Inc. containers at smaller generators for cardboard collection.

Cambria County is currently adding infrastructure to collect cardboard using the Haul-All Inc. system, however, it will be reducing or eliminating the collection of glass to accommodate labor and equipment resources.

Labor Force

Schuylkill County uses three full-time drivers that are unionized to service the 27 residential recyclables drop-off sites in the County.

Monroe County: Non-union, full-time and part-time labor is used to collect recyclables in Monroe County. At one time, Monroe County and Schuylkill County participated in an equipment and labor swap. Drivers from Monroe were sent for 27 days in 2006, in trade for the use of a truck or other equipment from Schuylkill County. This was discontinued recently by Schuylkill County.

Cambria County uses three full-time drivers that are employees of the Solid Waste Authority to collect from sites in the County as well as several sites in Somerset County.

Data Collection Logistics

Schuylkill County: All three counties have similar record keeping procedures and all require drivers to manually record the time spent and the amount of materials collected at each site on their route(s). In Schuylkill County, a simple driver activity log is kept and given to administrative staff for manual entry to computerized spreadsheets.

Monroe County, like Schuylkill County, uses a spreadsheet that tracks volume and frequency of container collection as a tool to assess performance of the recycling collection truck routes.

Cambria County has previously attempted a computerized data collection procedure in which drivers entered data on palm pilot computers and then downloaded the information to a central computer. This computerized recordkeeping has been discontinued because the equipment became obsolete and could not be maintained easily.

Glass Collection

Schuylkill County delivers mixed glass to Cougle's Recycling, which is in Berks County. Operational personnel in Schuylkill County have determined that collection of glass costs the County approximately $120 per ton. When totaling collection costs and the price paid to market the material, Schuylkill County reported an expense of approximately $35,000 annually to collect glass. Glass collection is conducted twice per week and once the next week for an average of 1.5 routes per week.

Monroe County also collects glass using the Haul-All Inc. collection system. No difficulties were noted during the interview process.

Cambria County is currently changing its Haul-All, Inc. collection system to collect cardboard. This process demands fewer glass collection sites. Many Cambria sites have limited space for containers and glass containers will be replaced with cardboard ones in many cases. A representative of Cambria County indicated that potential market and grant revenue lost by discontinuing glass collection would be offset with revenue from cardboard collection.

4.2 Desktop Analysis of Collection Sites

Utilizing detailed information provided by Schuylkill County Solid Waste Department, the 27 individual collection sites were analyzed to identify collection trends. GF examined three-year trends from 2004 through 2006 for drop-off recyclable tonnage, material volume (cubic yards), and the number of overflowed containers. Anecdotal information pertaining to each site was also collected from various Schuylkill County personnel. GF comments about each site were also recorded. A table summarizing information from the desktop analysis and comparison of these drop-off sites is located in **Appendix C.**

This desktop analysis of sites revealed several common themes among site characteristics and operation efficiency:

- **Cardboard Collection Overflows and Handling Inefficiencies**

  Over the three years examined, cardboard containers continued to have the highest occurrence of overflow. Overflowed containers cause inefficiencies in collection, especially when drivers must collect overflowed materials off the ground. Overflow and other trash at the site detract from the general cleanliness and can negatively affect the public perception of how well the program is functioning.

  In general, cardboard creates collection difficulties because it is bulky, relatively light weight, and fairly troublesome for residents to flatten. County cardboard collection

vehicles are retrofitted with an auger to reduce the volume of cardboard in the truck; however, residential preparation of the material is essential to maximizing the use of Haul-All Inc. container capacity. Effective education programs can improve material preparation, in this case, to instruct residents to flatten the cardboard.

- **Plastic Collection Issues**

  Even more notable than with cardboard, plastic bottles can have large volume but little weight. Schuylkill County continues to have overflows of plastic containers at a number of sites. Lightweight plastics can be difficult to manage since a light breeze can scatter bottles across the drop-off sites, detracting from the appearance of the site and creating more work for collection drivers and site sponsors. Plastic containers resulted in the second highest number of overflowed containers from 2004 through 2006.

- **Low Volume Sites with Little Tonnage Growth**

  Some of the existing recyclable drop-off sites experienced little tonnage growth over the three-year analysis period. These sites are typically ones that also have lower volumes when compared to many other County recyclable drop-off sites. The revenue generated from materials collected at these sites is likely small compared to the cost of labor and other resources to operate/service the site. (A full analysis of collection costs per site could not be accomplished within the scope of this study.) When examining sites that are smaller in tonnage and volume, in correlation to distance from other sites, there were six areas of the County that demonstrated a potential for drop-off reconfiguration (see shaded areas in **Figure 1**). This is discussed further in Section 5.2.

- **Outlying Sites Experience Overflow Issues**

  When placed on a map, the majority of the sites that experienced the most overflowed containers were the furthest from the center of the County and the truck depot (outlying sites). See map in **Figure 1**. Sites with twelve or more overflowed containers in 2006 were plotted as 'Trouble' sites. These sites also showed consistently overflowed containers in previous years.

  As demonstrated by the continued occurrence of overflowed containers, it would appear that at least some of the outlying sites are collected less frequently, or do not have adequate capacity corresponding to the frequency of collection. Sites located along the Route 209 corridor demonstrated fewer overflowed containers than those at the outer reaches of the County.

4.3 Review of Collection Routing

In order to gain perspective of the existing collection routes, GF interviewed County personnel and reviewed routing documents used by the drivers.

General Observations and Findings

- Routes are run in a circular pattern in targeted areas of the County. Routes are based on collection days, material/commodity collected, proximity to market and minimizing dead head loads.
- Auger Trucks have a maximum capacity of 17 cubic yards and can compress cardboard at 5:1 ratio and plastics at 7:1 ratio.
- Model RP235 trucks are used to collect glass, cans and residential mixed paper.
- The total Gross Vehicle Weight (GVW) of all collection trucks is 35,000 pounds.
- Tare weights for the auger truck versus the RP235 are 24,200 and 22,200 pounds respectively.
- January 2007 route sheets for **residential mixed paper** showed that:
  - **52 percent** of loads delivered to market had reached at least 80 percent of volume capacity, and
  - **55 percent** of loads reached market at least at 80 percent of the maximum weight capacity (figures were calculated from one month of collection for one commodity).
- Daily Activity Logs were used by the drivers to record the following information:
  - Site visited,
  - Time in and time out at the site,
  - Approximate number of yards collected at each site,
  - Total cubic yards of material, actual weight and ticket number received at the market location upon delivery, and
  - Notes about collection interruption or abnormalities.
- Drivers turn in manual activity logs for recording on MSExcel spreadsheets by administrative personnel on tonnage/yardage spreadsheets.
- Tonnage and yardage spreadsheets are then used to develop volume and frequency spreadsheets used to track the number of overflowed containers and containers that had reached maximum capacity.
- Volume and frequency spreadsheets are used to assess site performance based on average volume collected. Each month, each commodity is ranked excellent, good, fair, or poor. The comparative document is titled the "Volume and Frequency Chart".

Routing Investigation Concerns:

- Existing recyclable collection vehicles may have design inefficiencies for handling some recyclables collected in Schuylkill County. County personnel reported that recyclable collection trucks used for residential mixed paper reach GVW capacity before they reach volume capacity (i.e., a truck filled to volume capacity with mixed paper is often overweight). In another instance, trucks collecting cans and bottles reach volume capacity before meeting GVW limits. This is primarily a function of material densities and the manufacturer's design of the vehicles. Minimizing these design inefficiencies must be done through efficient routing practices.

GF reviewed the actual routing sheets for residential mixed paper during the month of January 2007 and found that **35 percent of trucks arrived at the market location overweight** (over 35,000 GVW). This information reflects only a single month of records. Notably, January can have a fair amount of rain and snow, which can increase the weight of paper and the total vehicle weights. Overweight trucks increase the amount of material transported per load but also increase a number of safety and transportation liabilities. A delicate balance exists between overweight loads and loads at maximum capacity. Further investigation of this issue is warranted.

- Collection personnel have experienced hazards or safety issues caused by overweight Haul-All Inc. containers. On occasion, when drivers have attempted to lift a heavy container (primarily residential mixed paper), 'pins' and 'legs' have broken and the containers have fallen into the truck while the driver is nearby. In addition, drivers may climb in, on, or around containers to manually remove materials prior to dumping with the automated system. These problems have caused additional, costly maintenance of the containers and trucks. These situations also pose risks to the collection personnel.

- Collection of three Haul-All Inc. containers for cardboard at a single site requires a significant amount of labor/time when compared to the limited capacity provided by Haul-All Inc. containers for cardboard.

4.4 Review of Public Participation

From the tonnages reported, it is evident that many Schuylkill County residents participate in the County-wide public recyclables drop-off program. GF was unable to determine the actual number of participants in the scope of this project. The County encourages participation through educational outreach such as radio and television ads that are or have been partially funded through Act 101, Section 902 Recycling Grants. Public participation is also encouraged by providing residents with relatively convenient access to efficient and attractive drop-off sites distributed throughout the County.

It is important for the County to understand the significance of public participation and how it relates to the performance (tons recovered) of the County drop-off program. Three factors need to be considered:

- Schuylkill County population has gradually decreased over the last 5 years (Section 3.0)

- Residential generation rates (per person) for municipal waste and recyclables are expected to remain relatively constant over the next five to ten years (industry trend).

- The composition of residential municipal waste will remain relatively constant over the next 5 to 10 years, although slight increases in residential cardboard and plastics may continue.

Taking these factors into account, the quantity of potentially recoverable recyclables will not increase in the near future. Since the potential amount of material will not increase, the County will need to attract new participants (those not participating now) as well as to increase the

amount of materials contributed per participant to continue increasing tonnage trends. Based on GF's evaluation, residential participation could be improved by:

- Reducing overflowed containers (adding capacity)
- Improving public perception
- Targeting non-recyclers.

Although overflowed containers will occur from time to time due to a variety of circumstances, the County's ability to improve the management of overflowed containers within the current system will improve the level of public participation and can result in improved drop-off recycling program performance

5.0 CONCLUSIONS AND RECOMMENDATIONS

The following Sections provide conclusions and recommendations for Gannett Fleming, Inc.'s (GF's) evaluation of the Schuylkill County residential recyclables drop-off program.

Schuylkill County's residential drop-off recycling program has developed from the startup phase to a mature program that currently includes 27 sites located across the County (see **Figure 1**). It is well documented that recovered recyclables tonnage and market revenues increase yearly. The population in Schuylkill County is not increasing; hence increasing the number participants in this voluntary drop-off recycling program will be essential to continue the trend of recovering more recyclables each year. At this point, the program's ability to expand is limited by labor resources, financial resources, and collection infrastructure.

As with many other recycling programs in Pennsylvania, continual evaluation is required to improve performance. The County's thorough tracking of drop-off recycling program data and costs, in addition to the initiation of this Recycling Technical Assistance Study, reflect the County's commitment to making ongoing improvements to the program. Generally, the network of residential recycling drop-off sites is managed well, with the primary problem being repeated overflow of Haul-All Inc. containers at some sites (primarily cardboard, and to a lesser extent plastics). Recurring overflowed containers creates a variety of inefficiencies within the program that impact the overall performance, administration, and cost for implementing this system. Overflow problems also negatively impact residential participation, reduce the effectiveness of recycling education, and is a leading cause of material being left on the ground at drop-off sites. Drop-off sites with recyclables and trash on the ground are unwelcome by site sponsors, create additional work for collection drivers, and may create an undesired public perception of the program.

GF believes the County has an opportunity to make a number of reasonable modifications to the residential drop-off recycling program that can improve utilization of County collection staff, residential participation, collection efficiency and overall program administration, implementability and performance. These improvements can reduce the bottom line cost per ton to manage the program. GF has identified a number of recommendations and notes that consolidating and/or reconfiguring sites to operate more efficiently should not equate to a reduction in the total quantity of recyclables recovered annually. The County is encouraged to consider these recommendations individually, as well as collectively, and weigh the impact on the

public and other affected parties. It is the County's responsibility to evaluate, select and implement preferred modifications. For some of the recommendations, it may be beneficial to conduct a pilot study or trial period (or perhaps trial service area) before fully implementing the change. GF offers the following recommendations:

- **Reconfigure/Consolidate Drop-off Sites**

  In order to maximize collection efficiency and potentially reduce operational costs, it is necessary to reconfigure existing recyclable drop-off sites. Reconfiguration does not solely mean deleting sites, but also includes adding capacity at "Trouble" Sites, relocating sites and/or consolidating sites.

  GF observed that some of the smaller, low volume drop-off sites have shown little growth and are also problematic sites. Six areas of the County were identified for consideration for reconfiguration and potential consolidation (refer to shaded areas on **Figure 1**). These six areas include the following drop-off sites:

  - **Eldred, Midway, Hegins, Porter**
  - **Pine Grove Twp. and Pine Grove Borough**
  - **Reilly and Branch**
  - **St. Clair, North Philly and Port Carbon**
  - **Walker, West Penn and E. Brunswick**
  - **Boyers (McAdoo), Rush and Ryan**

  Based on the data reviewed, these potential areas of reconfiguration present opportunities to streamline the collection system and routing efficiency, which can reduce costs. Efficient streamlining of this program through reconfiguring (i.e. deleting, consolidating or adding capacity) should <u>not</u> reduce the total quantity of recyclables recovered by the program. Tonnage increases should continue for sites, provided participation increases, and effective education and capacity is provided.

  Shaded consolidation areas in Figure 1 represent groupings of multiple sites that could be reconfigured or reduced/combined. Reconfiguring sites may include adding collection capacity by placing additional Haul-All Inc. containers and/or supplemental roll-off containers for mixed paper and/or cardboard. Reducing sites could mean deleting one or more sites within the noted consolidation area. In some consolidation areas it may be feasible to "combine" two or more sites to share equipment and create a larger site equipped and designed to accept the anticipated increase in volume that would result from the new drop-off arrangement.

  Schuylkill County should evaluate several factors when making adjustments to the existing drop-off locations. The County should identify and document sites that have had considerable Act 101, Section 902 Recycling Grant funds used for site paving or other modifications. Bins can be moved to other sites, however site improvements can not. Plans for reconfiguration of sites that have used Act 101, Section 902 Recycling Grant funds for site infrastructure should include discussions with the Pennsylvania Department of Environmental Protection (PADEP) Regional and/or Central Office.

Other factors to consider when reconfiguring and consolidating sites include:

- loss or gain of revenue;
- favorability to existing sites versus a new site location;
- location relative to markets;
- convenience for, and participation of residents;
- space availability or other site limitations;
- availability of containers and ability to place containers;
- political ramifications;
- routing; and
- public education related to modifications.

- **Expand Collection Capacity at Sites Experiencing Repeated Overflow**

The following "Trouble Sites" have demonstrated twelve or more overflowed containers of any commodity in 2006. Some drop-off sites had considerably more than twelve overflows in 2006 (Trouble Sites are denoted by a T in **Figure 1**).

- **Pine Grove Borough**
- **Wayne**
- **Boyer – Orwigsburg**
- **Ashland**
- **Ringtown**
- **Boyer-McAdoo**

To reduce the number of overflowed containers and the added difficulties they cause (e.g. additional labor/time used, problem phone calls, negative public perception from on-site material accumulation and turning away recyclers), it is necessary to provide sufficient container capacity at the trouble sites to manage the volume of material received between collections. Balancing capacity with the frequency of collection will be an ongoing and critical component in the proper routing and operation of the County's residential recycling drop-off system. Currently, insufficient container capacity at some of sites is a major cause of operational inefficiency. In order to alleviate overflowed container issues, particularly at "Troubled" Sites, deleting the site may not be a favorable solution; on the contrary, expanding these sites may alleviate the problems.

If the site has limitations that prevent physical expansion, the County might consider adding a site in a nearby location. A targeted educational program will be essential. Whenever feasible, the County should site public recyclables drop-off containers in locations that would routinely be frequented by County residents (e.g. store parking lots, plazas, etc). This siting strategy can increase the quantity of material collected per site. There can be space constraints and other limitations associated with "Megasites" that have a large number of containers. Two small sites may be an alternative solution.

- **Restructure the Use and Servicing of Hide-a-Bag Containers**

  It is recommended the County consider limiting the use of the Hide-a-Bag containers to the collection of plastic bags only and to pursue an arrangement to consolidate and market plastic film. This could mean retrofitting Hide-a-Bag containers with a smaller opening so only plastic bags can be inserted.

  It is also recommended the County consider eliminating the separate collection routes used for servicing Hide-a-Bag containers. This can be achieved by retrofitting collection trucks to handle small quantities of plastic bags, and collecting the plastic bags at each site while servicing the site for a recyclable commodity. The County could try this modified approach as a trial (3-6 months). Eliminating separate Hide-a-Bag service or "trash" routes would save staff time and reduce operational costs. It is also noted that Hide-a-Bag containers sometimes overfill using the current servicing method, which can contribute to litter accumulation at the drop-off sites. The alternative method suggested by GF would reduce or eliminate the problem of overfilled Hide-a-Bag containers because they would be emptied each time a driver was at the site. An intensive public education campaign should target the wanted behaviors (i.e. deposit of only plastic bags).

- **Alternative/Supplemental Cardboard Collection**

  For high-volume sites where cardboard capacity is needed, the County should consider collecting cardboard with another means like roll-off containers or recycling trailers. Based on the data reviewed, cardboard containers experience the highest number of overflows and some County drop-off sites use multiple 6-cubic-yard Haul-All Inc. containers for cardboard. Use of multiple Haul-All Inc. containers, which cost $6,000 to $7,000 each, for the collection of cardboard may be impractical when considering both operational efficiency (e.g. servicing three containers for one commodity) and all associated capital and operational costs. GF recommends that each drop-off site be evaluated to determine the feasibility of replacing (or possibly supplementing) Haul-All Inc. containers with traditional roll-off containers for cardboard. Staging of high capacity roll-off containers (minimally 40 cubic yards) could reduce the frequency of cardboard collection.

  Roll-off containers used in recycling applications typically range from 20-40 cubic yards and are serviced using specialized roll-off trucks. The cost for a roll-off container (as opposed to a smaller capacity Haul-All Inc. container) generally ranges from $3,000 to $7,500. Schuylkill County could purchase a roll-off truck and the roll-off containers or arrange these services with the private sector. As a trial operation, it may be beneficial for Schuylkill County to contract these services from the private sector. In any case, the cost per "pull" for this container could be partially offset by revenue from the cardboard. A trial program, utilizing private sector services if available, could explore the economics using higher capacity containers, prior to significant investment in new equipment and containers by the County.

  Benefits of using roll-off containers, even at a few sites, would include availability of additional Haul-All Inc. containers to add capacity at other sites. Roll-off containers

could reduce the use of County collection labor by eliminating the service of one or more Haul-All Inc. containers at sites and could eliminate stops at some locations. It is recommended the roll-off containers be customized to have a slotted opening for cardboard and be painted and labeled for consistency with the existing County recycling containers.

As another scenario, Schuylkill County may want to consider recycling trailers. Monroe County handles cardboard at some high volume sites using trailers. These trailers are pulled in tandem with existing collection vehicles, increasing the potential maximum payload per trip. Trailers, dedicated for cardboard, can also be painted and labeled for consistency with the existing County recycling containers.

- **Evaluate Cost and Efficiency of Glass Collection**

If the County wishes to reduce labor and increase profitability of the program, it should carefully consider modifications to the glass collection program. A cost analysis by the County has indicated that the cost to collect glass is over $35,000 annually, with an average of 1.5 truck routes per week. While elimination of all glass collection is likely not desirable, reducing the number of sites that accept glass could be a feasible option. Broken mixed glass is difficult to market and results in cost per ton, not revenue. Collection of glass, source separated by color, may increase profitability or create some revenue gains per ton, however, separation would require collection containers for each color and additional labor.

Recycling programs in Pennsylvania should critically review recyclables collection system operation, efficiency, and recyclables markets to address concerns about financial sustainability. Glass, because of its density, weight and limited market potential in many regions and in Schuylkill County has proven to be a costly commodity to collect with little return of revenue. Glass collection and marketing should be evaluated in detail by the County.

- **Improve Labor Efficiencies**

Labor needs may be reduced by eliminating or modifying inefficient collection locations/routes, reevaluating commodities collected (e.g. glass) and changing the type of collection container used for some commodities (e.g. roll-offs for cardboard). When compared with two other counties with the same Haul-All Inc. drop-off recycling system, Schuylkill County was the only County to use full-time union laborers. Other scenarios including part-time labor should be evaluated. In all cases, using driver knowledge of the sites and their conditions is crucial to operating an efficient system. Collection routes should be based on experience of the drivers and the County is encouraged to involve the drivers in meetings related to the planned implementation of County drop-off collection schedules, routes, etc. Driver noted site issues should be taken in to consideration on a daily basis and addressed in a timely manner.

- **General Routing Recommendations**

- Driver Daily Activity Logs are relatively simple and easy to use for drivers. This is important to keep recordkeeping to a minimum while on a collection route. The County driver activity logs could be simplified further to fit one side of an 8-1/2" x 11" sheet. This could also assist administrative personnel with recording the data.

- Volume and Frequency Charts – Schuylkill County generated MSExcel spreadsheets are geared to assess the performance of each site based on each commodity. The number of overflows and maximum capacity loads are tracked. GF recommends a new chart or changing the monthly chart that shows all commodities to a yearly chart that shows individual commodities and their total quantity (tonnage). For example, instead of tracking monthly performance of all commodities on one sheet, have one volume and frequency chart that tracks cardboard collection for all sites on a yearly basis. Monthly collection snapshots may not be the most efficient planning tool because variables such as weather, driver sickness, community events, fluctuations in residential participation, and other factors can change substantially over the short term. Tracking an entire year of data may be a more useful program assessment tool.

- A detailed routing analysis was not part of this project scope of work, but the County should consider one. The County could request to complete a routing analysis under the Act 101, Section 901 Planning Grant program. With a successful grant approval, up to 80 percent of eligible costs could be reimbursed to the County. The County is required to provide a 20 percent match, which can include "in-kind" services from County staff. It may be beneficial for the County to implement changes in the configuration of the 27 sites prior to conducting a collection route analysis.

- Collection costs for a drop-off recycling program represent the majority of total program costs and collection routes directly influence program efficiency. GF notes concerns with overweight trucks and safety issues posed by overweight containers. Therefore, it can be economically and operationally beneficial for the County to carefully evaluate and implement well-planned collection routes. There is truck routing computer software available, however the County would need to be careful in selecting software that is user friendly, cost effective and one that meets the County's program needs. Anytime the County implements changes to drop-off locations, it is recommended the County review the impacts on collection vehicle routing.

- **Recommendations for Managing Recycling Data**

  It is very favorable that the County collects, analyzes and clearly reports recycling data for the drop-off program. GF notes that, in some cases, the data collection process may not be efficient. For example, drivers turn in route sheets and the data is hand entered into an MSExcel spreadsheet that records volume and frequency of the collection. There is also a separate spreadsheet that documents each program and the tonnages and volumes collected for each commodity for each quarter. There appears to be some redundancy in recording collection numbers. It would be ideal for the numbers to be hand entered into the computer one time, resulting with a bank of data that could be easily manipulated to use for a variety of applications. The County could assess how

recycling data is currently collected and utilized in order to reduce the time required for manually entering data into spreadsheets.

GF could assist the County with developing a user friendly MSAccess database to facilitate efficient data management. This project may be eligible for Act 101, Section 901 Planning Grant Funding.

- **Recommended Use of a 'Baseline' Cost Per Ton When Reviewing Program Costs**

As discussed in Section 3.3, the County completes a cost analysis that shows the revenues and expenses for operations of the drop-off recycling program. It is recommended, for the purpose of accurately analyzing the operational costs and for making decisions related to improving the cost effective implementation and operation, that the County create a separate cost analysis that uses a 'baseline' cost per ton that excludes revenue from all Act 101 Grant funding. This is recommended for a number of reasons:

1. **Act 101, Section 902 Recycling Grants** – The major purpose of these grants is to build recycling infrastructure. They are not geared for ongoing operational costs. The cost analysis prepared by Schuylkill using these grants show funds actually received in a calendar year, which exceed the eligible expenditures for the same year. The Act 101, 902 Recycling Grant funding might better be reported as monies received towards eligible expenditures. While dependent on the individual grant contracts, the actual revenue received would be 90 percent of the costs. The County should be aware that Act 101, Section 902 Recycling Grant program, while based on eligibility, is also a highly competitive process which is dependent on availability of monies in the Pennsylvania Act 101 Recycling Fund.

2. **Act 101, Section 903 and 904 Grant Funding** – The Act 101 Grant program has authorization to generate revenue through a $2.00 per ton fee on waste until 2012. While Act 101, Section 903 Recycling Coordinator Grants and Act 101, Section 904 Performance Grant funds tend not to be highly competitive, i.e. based more on performance of certain tasks or actual recycling performance, they too are subject to availability of monies in the Act 101 Recycling Fund. Actual receipt of these monies can be delayed due to processing and may take up to two years. Delay of funding also makes using these figures in a decision making capacity difficult.

3. **Financial Self-Sufficiency** - Municipalities are encouraged to build recycling programs that are financially self-sufficient. Grant funding may not always be available. While receipt of grant funding undoubtedly makes the financial operation of a recycling program a reality for many municipalities in Pennsylvania, planning and implementing a program that can operate efficiently aside from grants is also a necessity for the future.

Including Recycling Grant funds as a source of revenue**,** Schuylkill County reported approximately **$61.00 per ton** of income above expenses in 2005 for drop-off program operation. Because the timing for receiving Recycling Grants may vary and because Recycling Grants are not guaranteed, it is important the County also measure program

costs using a 'baseline' cost per ton, which excludes the use of Recycling Grant funds as "income" in the financial analysis. The baseline figure for operating the drop-off program in 2005 is **an expense of approximately $130.00 per ton** for recyclables collected. By reviewing the 'baseline' cost per ton for financial analysis, the County should be able to more accurately fine-tune areas where the program can improve economic and operational performance and program sustainability. Relying on this baseline figure is not warranted in every instance, but the County should realize that grant funding is not entitled, nor guaranteed, and strive to reduce this 'baseline' cost per ton through ongoing operational improvements. Costs for sustaining the operations and infrastructure, ongoing educational efforts, and periodic upgrades should be factored into the baseline cost per ton.

Current Schuylkill County recycling income, including Act 101 Recycling Grant funding, shows revenue over expenses of approximately $120,000 for 2006. (Information provided by Schuylkill County). **Revenues attributed to recycling should be earmarked for recycling expenses in the County**. Earmarked funds might be invested or set aside for planned infrastructure upgrades, grant match, education programs or other recycling activities in the County. Earmarked recycling funds would also provide income in the event that Act 101 Recycling Grant funding expires or is not reauthorized by the legislature.

- **Further Study and Address Safety Concerns and Risk Potential**

A number of findings in this study touched on the risk to the County and collection personnel. The County should further study and address routing that results in overweight trucks. Overweight trucks pose a number of liabilities for the County including surpassing recommended manufacturer GVW, decreased performance of the trucks (i.e. braking capacity), and various regulatory issues. Overweight containers also pose risk to County-owned recycling equipment and personnel. It appears that personnel have difficulties tipping overweight containers and may need to climb in, on or around them to manually remove materials. This poses a number of ergonomic concerns and the potential for personal injury.

- **Education**

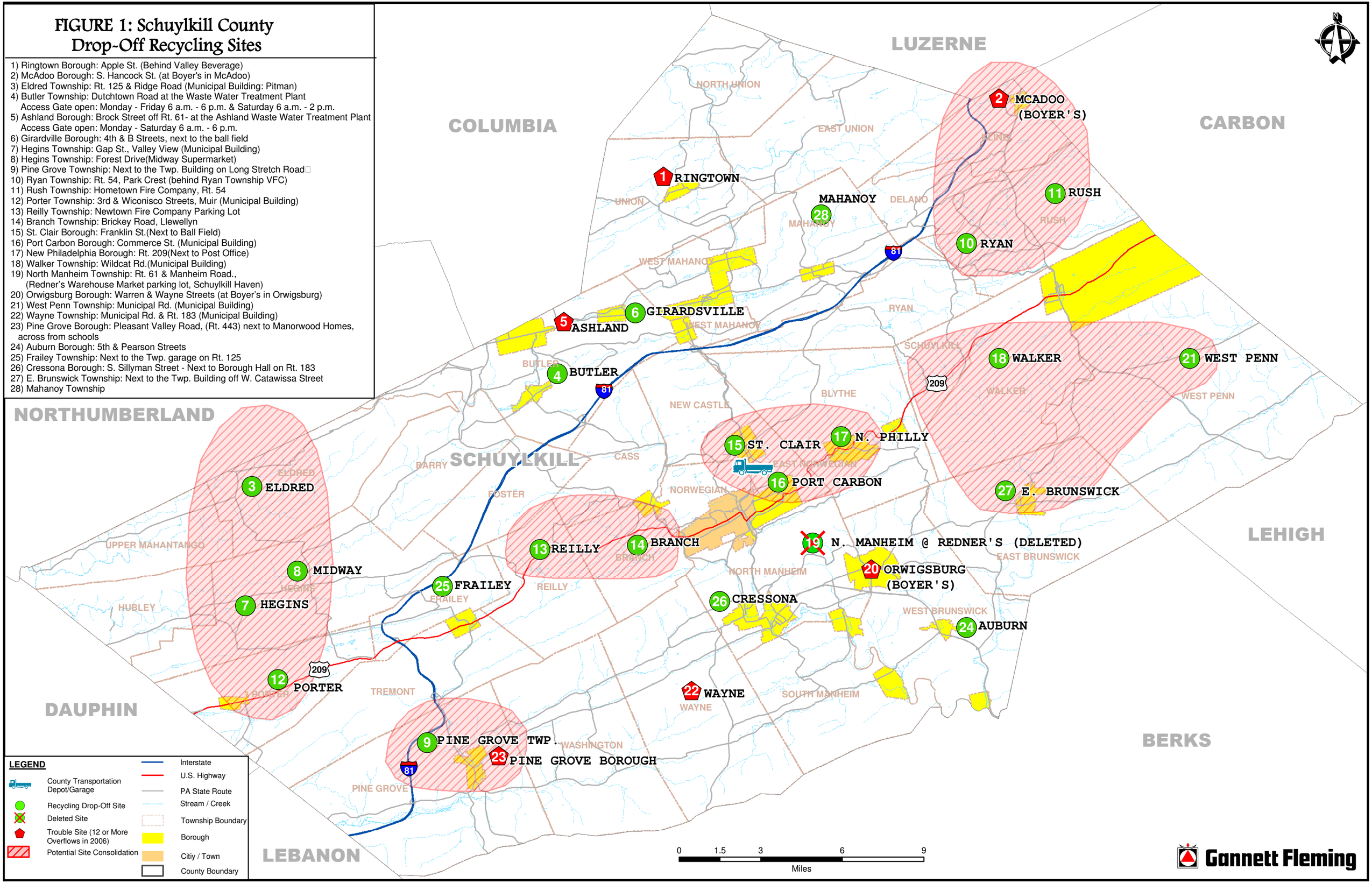
Any changes to the County recycling drop-off program must be conveyed in an education campaign. Ongoing education of staff, residents, and program decision makers is recommended. Generally, the educational methods currently used in the County appear to work well and most residents are aware of the residential drop-off recycling program. However, drop-off sites that repeatedly have overflowed containers and/or have an accumulation of trash and recyclables on the ground create both an inconvenience and negative perception of the program for residents. Consequently, the effectiveness of County education efforts is minimized because of problems at some of the existing sites. The effectiveness of the educational program will improve as the drop-off services offered to the public are made more reliable. In order to continue increased tonnage trends, the County should devise new education programs targeted at specific "non-recyclers".

APPENDICES

FIGURE 1
Schuylkill County Recyclables Drop-off Sites

FIGURE 1: Schuylkill County Drop-Off Recycling Sites

1) Ringtown Borough: Apple St. (Behind Valley Beverage)
2) McAdoo Borough: S. Hancock St. (at Boyer's in McAdoo)
3) Eldred Township: Rt. 125 & Ridge Road (Municipal Building: Pitman)
4) Butler Township: Dutchtown Road at the Waste Water Treatment Plant
   Access Gate open: Monday - Friday 6 a.m. - 6 p.m. & Saturday 6 a.m. - 2 p.m.
5) Ashland Borough: Brock Street off Rt. 61- at the Ashland Waste Water Treatment Plant
   Access Gate open: Monday - Saturday 6 a.m. - 6 p.m.
6) Girardville Borough: 4th & B Streets, next to the ball field
7) Hegins Township: Gap St., Valley View (Municipal Building)
8) Hegins Township: Forest Drive(Midway Supermarket)
9) Pine Grove Township: Next to the Twp. Building on Long Stretch Road
10) Ryan Township: Rt. 54, Park Crest (behind Ryan Township VFC)
11) Rush Township: Hometown Fire Company, Rt. 54
12) Porter Township: 3rd & Wiconisco Streets, Muir (Municipal Building)
13) Reilly Township: Newtown Fire Company Parking Lot
14) Branch Township: Brickey Road, Llewellyn
15) St. Clair Borough: Franklin St.(Next to Ball Field)
16) Port Carbon Borough: Commerce St. (Municipal Building)
17) New Philadelphia Borough: Rt. 209(Next to Post Office)
18) Walker Township: Wildcat Rd.(Municipal Building)
19) North Manheim Township: Rt. 61 & Manheim Road.,
    (Redner's Warehouse Market parking lot, Schuylkill Haven)
20) Orwigsburg Borough: Warren & Wayne Streets (at Boyer's in Orwigsburg)
21) West Penn Township: Municipal Rd. (Municipal Building)
22) Wayne Township: Municipal Rd. & Rt. 183 (Municipal Building)
23) Pine Grove Borough: Pleasant Valley Road, (Rt. 443) next to Manorwood Homes,
    across from schools
24) Auburn Borough: 5th & Pearson Streets
25) Frailey Township: Next to the Twp. garage on Rt. 125
26) Cressona Borough: S. Sillyman Street - Next to Borough Hall on Rt. 183
27) E. Brunswick Township: Next to the Twp. Building off W. Catawissa Street
28) Mahanoy Township

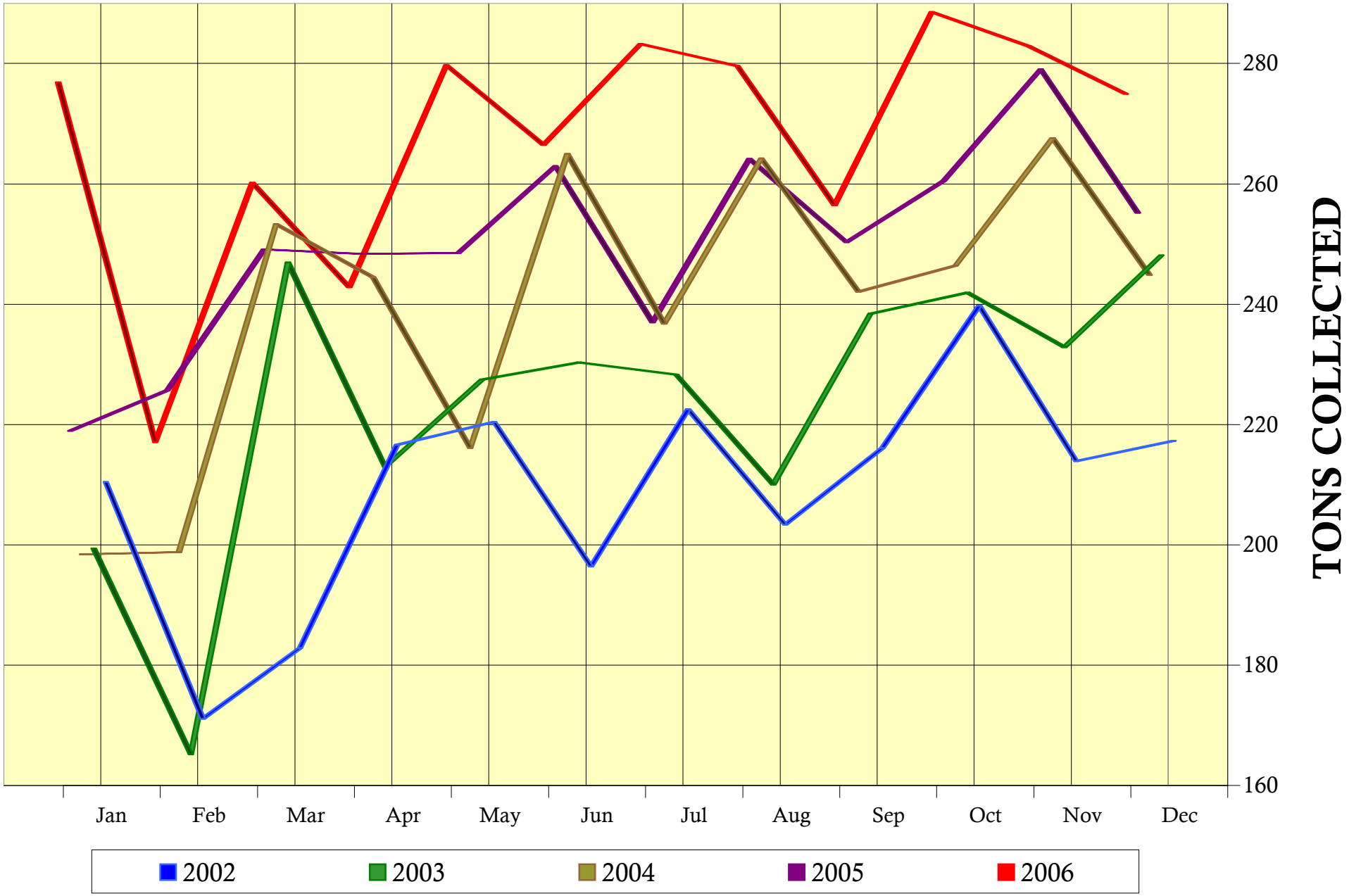


Gannett Fleming

Appendix A
Tonnage Collection Trend chart

SCHUYLKILL COUNTY DROP-OFF RECYCLING PROGRAM HISTORY

TONNAGE COLLECTION TRENDS



Appendix B
2005 Schuylkill County Revenue and Expense Report

Schuylkill County Drop-off Recycling Program (2005)

PROGRAM EXPENSES

Materials and Supplies	Subtotal	**$**	**16,381.70**
Cell Phones and Beepers	Subtotal	**$**	**1,655.20**
Gas, Oil, and Grease	Subtotal	**$**	**38,179.95**
Other Expenses	Subtotal	**$**	**23,720.37**
Contracted Services	Subtotal	**$**	**1,353.55**
Travel Expenses	Subtotal	**$**	**696.08**
Dues & Conferences	Subtotal	**$**	**2,656.12**
Advertising	Subtotal	**$**	**1,624.00**
Capital Data Processing Equipment	Subtotal	**$**	**1,320.75**
902 Grant Reimbursable Expenses	Subtotal		**$255,170.20**
Wages & Benefits			
Solid Waste & Recycling Coordinator & Specialist - Salaries		$	58,404.61
Collection Drivers - Wages		$	82,818.98
Collection Drivers, Coordinator, & Specialist - Benefits			$68,937.42
	Subtotal	**$**	**210,161.01**
Site Sponsor Refund of 904 Money			
	Subtotal	**$**	**11,435.91**
TOTAL PROGRAM DIRECT EXPENSES		**$**	**564,354.84**

PROGRAM REVENUES

PA DEP Act 101, Section 900 Grants			
Section 902, Municipal Recycling Program Grant (Total of Amounts Recd in 2005)		$	325,593.95
Section 903, Program Coordinator Grant (Actual 2004 Return - Received 8/3/2005)		$	25,748.69
Section 904, Recycling Performance Grant (Actual 2004 Return - Received 3/14/06)		$	219,507.00
	Subtotal	**$**	**570,849.64**
Revenues Received From the Sale of Materials Collected			
From Weiner Iron & Metal Corp. for Cardboard, Paper, & Aluminum/Steel		$	94,307.75
From St. Jude Polymer Corp. for Plastic		$	79,928.88
	Subtotal	**$**	**174,236.63**
TOTAL PROGRAM DIRECT REVENUE		**$**	**745,086.27**

PROGRAM MATERIALS COLLECTION INFORMATION

Tons Collected and Transported to Processing Facilities

Cardboard	473.7
Mixed Paper	1735.7
#1 & #2 Plastic Botles	245.2
Clear, Brown, & Green Glass	425.0
Aluminum & Steel Used Beverage Containers	120.0
Residue	20.1
Total Net Tons:	**2979.5**

PROGRAM RESULTS

EXPENSE vs. REVENUE

Direct Expenses	$	(564,354.84)
Direct Revenue	$	745,086.27
Net Revenue	$	180,731.43

REVENUE / COST per TON COLLECTED

Total Revenue/Ton	$	250.07
Total Cost/Ton	$	(189.41)
Total Net Revenue/Ton	$	60.66

Appendix C
Three-year Trend Analysis Spreadsheet

Three-year Desktop Analysis of Schuylkill County Drop-off Sites

Site	Commodity	3 Yr tonnage trend			3 Yr Yardage trend			# Overflow Cont			Trend Analysis - GF Comments	Schuylkill Co Anectdotal Comments
	YEAR:	2004	2005	2006	2004	2005	2006	2004	2005	2006		
Midway	CB	20.02	18.77	19.36	836	800	809			1	Little growth of program	Furthest from Operation Center
	RMP	75.67	76.15	76.2	417	406.5	386			1	Few Overflow Containers	Few Problems or Trouble Calls
	Plastic	9.89	11.33	11.36	522	581	559	2	4			Within 2 miles of Hegins Twp site
	Glass	13.5	12.89	11.99	65	59.5	57					Could not accommodate a "Megasite"
	Metal	6.46	6.61	6.54	125	133.5	131		1			Paved
Hegins Twp	CB	25.15	22.16	26.19	1056	944	1092	7	6	2	Little growth of program	Far from Operation Center
	RMP	70.67	70.42	73.9	389	373.5	374.5			1	3 yr # Overflowed Containers Decrease	Relatively close to Midway Site
	Plastic	11.02	11.19	12.52	582	524	616	6	6			Could not accommodate a "Megasite"
	Glass	15.48	14.59	16.22	74.5	67.5	77			2		Paved
	Metal	6.66	6.64	6.83	128	135	137		5	1		
Eldred Twp	CB	6.24	5.42	6.12	254	229	255	4	1		Decreased tons and yards of some items	Located in far extremity of County
	RMP	40.63	39.12	38.04	205	196	189.5				Close to Midway and Hegins	Consistent site with good hits
	Plastic	5.06	5.2	5.67	268	268	278	6	4	1	Fewer Overflows in 2006, but at max cap	
	Glass	11.79	11.38	11.02	57.5	51.5	53			2	Smaller site proportionally to others	
	Metal	4.4	3.85	3.86	82.5	76.5	76	2	2			
Porter Twp	CB	14.99	19.34	21.77	621	812.5	909.5	7	10	6	Significant increase in tonnages	Pretty Good Site
	RMP	51.32	57.93	70.46	257.5	292	357	2	3		Close to Rt 209	Recently Expanded
	Plastic	6.64	8.47	9.41	367	434	462	1	3	1	CB Overages continue to be a problem	Mountain range/topography of site is factor in
	Glass	7.07	8.29	14.7	35	37.5	70					both collection and resident participation
	Metal	3.28	3.6	3.74	60.5	72.5	76		1	2		
Butler Twp	CB	32.19	27.91	23.45	1342	1175	968	42	19	8	Significant decreases in tonages may be	Doing well
	RMP	92.16	77.35	64.93	520	447	380	3			result of recent gate/limited access	Some problems, but gated now
	Plastic	15.08	14	11.03	799	729	550	21	9		Significant number of overflow cont	
	Glass	29.47	28.38	21.34	142	130.5	101	4	4		drastically reduced over 3 yr	
	Metal	7.39	5.91	4.87	142	119	99	3	3		CB Overages continue to be a problem	
Ashland	CB	50.5	55.41	60.56	2112	2327	2497	30	14	24	Noticeable tonnage increases except Pl	Recent problems, but gated now
	RMP	137.25	133.75	131.34	792	795.5	779.5	10		2	Plastic experienced increase yards	Very Exceptional site
	Plastic	22.22	26.16	29.35	1183	1363	1466	5	3	9	CB Overages continue to be a problem	
	Glass	33	37.67	43.06	160.5	175.5	204		2			
	Metal	8.89	10.38	11.99	170	205.5	239					
Frailey Twp	CB	5.26	7.35	10.09	236	306	404.5	2	3	5	CB Overages continue to be a problem	Very small site
	RMP	15.85	22.08	24.09	100.5	124.5	126				Slow increase of tonnages	Could be eliminated
	Plastic	2.59	4.4	5.86	163	238	296.5	1			Smaller site proportionally to others	Gated and out of the way for residents
	Glass	3.8	4.42	5.87	19	20	29		1			Should be looked at for consolidation
	Metal	1.35	1.65	2.01	27	32.5	42					
Ringtown	CB	21.79	20.78	24.85	881	877	1031.5	14	6	13	CB Overages continue to be a problem	Far away from operations center
	RMP	86.9	90.89	87.25	451	446	446				Plastic overages growing problem	Great site, paved
	Plastic	10.26	11.89	13.2	550	601	650.5	7	10	14	All increasing yardages	
	Glass	21.99	23.25	24.05	108.5	107.5	114		2			
	Metal	6.72	6.85	7.16	128.5	139	142	3	2	1		
Boyers - McAdoo	CB	15.82	15.19	15.4	644	631	612.63	21	9	8	CB Overages continue to be a problem	Plastic Issue
	RMP	60.28	60.25	64.99	331.5	294.5	333.5				PL overages noticeable	Needs more service for PL
	Plastic	6.24	6.61	7.21	336.5	336	358.5	19	28	16	Outer extremity of County	Distance and available manpower factors in
	Glass	13.02	13.88	12.32	65	64.5	62	3			Little tonnage expansion	service
	Metal	2.56	2.42	2.92	51	47.5	56			1		
Rush Twp	CB	15.73	16.31	19.63	632	677	809	13	7	1	CB overages diminishing	Not a lot of problems
	RMP	69.35	77.29	66.93	402	399.5	342	1			Close to Boyer's and Ryan	Same route at Boyers because of location
	Plastic	7.23	8.24	8.18	388	417	406.5					
	Glass	16.85	13.8	13.48	83.5	64	68	4	1	2		
	Metal	3.35	3.64	3.59	66.5	71.5	69			2		
Ryan Twp	CB	7.44	8.29	9.65	300	345	396	9	5	1	CB overages diminishing	No problems
	RMP	39.53	40.19	39.18	204	196.5	200.5				Smaller site proportionally to others	Works well on Rt 309 collection
	Plastic	4.04	4.25	4.43	217.5	215	221					Easy to service
	Glass	15.1	4.82	6.3	74.5	22.75	34	4				
	Metal	2.11	1.81	1.62	40.5	35.5	32					
Walker Twp	CB	3.46	3.83	3.7	139	161	151	2	2		Smaller site proportionally to others	Small and remote site
	RMP	21.94	21.76	23.85	112	109.5	124.5	1			Continued overages on plastic	Way out of collection route way
	Plastic	3.8	4.6	5.09	204.5	232	253	13	2	5		
	Glass	9.73	10.67	10.41	47.5	50	52		1	1		
	Metal	2.66	2.59	2.68	53	51	52	1	1			
West Penn Twp	CB	14.12	12.94	13.72	574	535	564				Remote site, but good tonnages	New bins recently added
	RMP	59.83	62.96	64.53	326.5	310	329	1	2			Good site
	Plastic	6.94	8.04	8.88	371	408	439	4	2			Easy access from Rt 309
	Glass	16.36	16.63	17.49	80.5	76	87		2			Smaller site, could be eliminated
	Metal	5.01	4.99	6.05	99.5	98.25	117		3			
Pine Grove Boro	CB	18.48	19.7	27.17	777	826.5	1129	12	8	19	CB Overages continue to be a problem	Always overflowing
	RMP	76.06	82.62	82.43	411	431.5	412	3	2		PL overages noticeable	Close to Pine Grove Township - 4 miles
	Plastic	13.01	14.46	16.44	688	747	821.5	31	23	9	Good tonnages	Newly paved site
	Glass	20.08	20.16	25.22	97.5	94.5	121			1	Close to Pine Grove Twp	Twp assists w/ CB
	Metal	7.7	7.54	7.96	144	154	162	2				
Auburn	CB	14.8	14.28	16.4	615	604	675	10	3	1	Increasing tonnages	Pretty Good Site
	RMP	45.37	53.46	61.65	264	296.5	322				CB overages diminishing	Easy in/ easy out site
	Plastic	5.59	6.52	6.55	295	333	328			1		Covers SE of County
	Glass	11	12.29	14.97	55	54.5	71					
	Metal	2.52	2.67	2.59	52	56	52			2		

Pine Grove Twp	**CB**	6.53	8.13	11.61	271	339	478	3	4	2	Close to Pine Grove Borough	Could be combined logistically (politically?)
	RMP	42.54	46.64	50.97	216.5	231.5	253.5					
	Plastic	7.66	8.68	10.86	406.5	451.5	539	16	9			
	Glass	13.84	17.3	20.51	67	80	99					
	Metal	4.43	5.25	5.84	83.5	107	119					
Boyers - Orwig.	**CB**	38.82	39.59	42.48	1647.5	1661	1782	17	17	26	Drastically under capacity	Trouble/ overflow issues constantly
	RMP	129.73	131.88	142.26	745	709.5	729.5	1	1	2	Increasing tonnages	Trash issues
	Plastic	14.66	16.02	16.9	769.5	824	845	23	20	22	Immense volume of CB and RMP	Paved and fenced
	Glass	30.54	31.25	36.77	149.5	145.25	176	6	3		Service Issues need to be addressed	Fantastic volume
	Metal	6.78	6.24	6.6	136	128.5	132	1	2	15		
Redners	**CB**	19.65	22.6	25.06	830	937.5	1043.5	12	15	16	CB Overages continue to be a problem	Moving site to Mahanoy Twp
	RMP	82.65	93.84	107.03	465	503	539.5	8	2		PL overages noticeable	Some containers to other sites
	Plastic	8.8	10.83	12.2	472	552	602	14	4	12	Significant volume lost?	Trash issues - tried compliance
	Glass	20.32	26.94	32.23	99.5	125.5	155	1	1			
	Metal	5.1	5.14	5.74	102	106.5	116	1		14		
Wayne Twp	**CB**	46.05	45.94	49.57	1939	1928	2016	35	26	34	CB overages drastic	Largest site
	RMP	148.14	140.61	153.04	817	746	773.5			2	PL overages drastic	Considered "megasite"
	Plastic	22.12	24.27	26.55	1173	1251	1317	23	23	31	Other overages increasing/ increase in vol	Additional bins questionable -at site capacity
	Glass	43.99	48.09	53.86	214	223.5	259		1	1		
	Metal	12.99	12.85	13.23	259	266.5	268	2	2	5		
New Phil.	**CB**	11.26	11.79	13.27	462	494	530	1	4	2	CB and PL overages noticable	Recently identified tavern/commercial est using
	RMP	38.69	39.18	45.9	217	223	236					this site and halted this practice.
	Plastic	4.93	5.45	6.07	267	279	300	3		6		Good location
	Glass	8.12	8.69	13.83	40.5	39	64					
	Metal	1.64	1.98	1.88	34	40.5	40			2		
St. Clair	**CB**	7.78	8.45	9.11	321	352	374	12	15	10	Smaller site proportionally to others	Close to truck depot
	RMP	36.13	40.96	39.59	184.5	209	197.5				CB overages persist	
	Plastic	3.97	4.46	4.91	212.5	227	240			1		
	Glass	5.27	6.74	6.36	25.5	30.5	30					
	Metal	1.63	2.15	2.22	34	44	47					
Girardville	**CB**	20.36	22.68	24.5	869	962.5	1023	9	6	9	CB overages persist	Pretty Good Site
	RMP	53.12	52.44	52.72	268.5	262	262.5				Considerable number of CB collections/mo	Paved and gated
	Plastic	7.76	8.51	8.98	410	437	441	1	1	1		
	Glass	15.54	15.35	19.27	75.5	72.5	91					
	Metal	5.04	5.17	4.64	98	101.5	96					
Reilly Twp	**CB**	4.58	4.66	4.99	187.5	191	200				Smaller site proportionally to others	Small & possible to move or delete
	RMP	14.96	14.92	17.46	78.5	82.5	89				Along Route 209	Near Branch Twp
	Plastic	3.08	2.95	3.06	170.5	157.5	155.5	1				Could merge with Branch
	Glass	4.41	3.65	4.46	21.5	16	22					Site could accept more containers
	Metal	1.71	1.27	1.35	35	27	28					
Port Carbon	**CB**	7.4	8.05	8.86	297.5	335	369.5	6	15	9	CB overages persist	Close to truck depot
	RMP	29.69	32.18	35.06	172.5	191.5	184				Close to St Clair site	Close to St Clair site
	Plastic	3.86	4.23	4.46	208	216	220		1			Should not be change, except add CB cont
	Glass	6	7.73	6.07	29	34.5	29					
	Metal	1.51	1.85	1.66	30.5	38.5	35					
Branch Twp	**CB**	5.36	5.36	5.14	219	221	206	6	1		Small tonnages, small increases	Very near Reilly Twp
	RMP	14.54	16.09	18.45	77.5	88.5	93.5				Near Reilly and Cressona	Could merge with Reilly and move cont to E
	Plastic	3.07	3.08	3.15	168.5	164	160					Union Twp (no site)
	Glass	3.81	4.98	5.48	18.5	22.25	27					
	Metal	1.36	1.31	1.22	27	29	26					
East Brunswick	**CB**	4.01	4.17	4.46	166	175	180.5				Smaller site proportionally to others	Not a problem here
	RMP	18.63	19.68	23.03	109.5	112	124					Not out of the way for collection trucks
	Plastic	3.08	3.73	3.82	165	187	189	5	2	1		Could be moved because of small tons/vol
	Glass	8.14	8.91	8.28	39.5	39.5	39					
	Metal	1.76	1.96	2.03	36	41	41					
Cressona	**CB**	14.7	20.15	21.51	616	852	879.5	4	6	7	CB Overages continue to be a problem	Close to processor and on end of route
	RMP	48.19	51.25	50.48	248.5	263.5	251.5			1	Increasing tonnages and volume	Trucks that are full may not be able to collect
	Plastic	5.83	7.67	8.89	321	391	440	15	9	3		Easy access to markets
	Glass	9.97	12.25	15.72	48.5	56	76					Good site
	Metal	3.03	3.52	4.02	61	75	82					
Court House	**CB**	4.58	4.47	9.03	191	193	370				Commercial tonnages done for County	Also starting Prison
	RMP	86.54	90.04	98.84	645.5	713	698.5					
	Total	2888	3000	3193	44,442	46,301	49,223	562	415	400		
				lbs/yd=	130	130	130					