

**EVALUATING PAY-AS-YOU-THROW
WASTE COLLECTION AND RECYCLING
IN PHOENIXVILLE BOROUGH**

FINAL REPORT

Prepared for:
**PHOENIXVILLE BOROUGH
CHESTER COUNTY, PENNSYLVANIA**



**SWANA RECYCLING
TECHNICAL ASSISTANCE STUDY**



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**SWANA RECYCLING
TECHNICAL ASSISTANCE STUDY
EXECUTIVE SUMMARY
EVALUATING PAY-AS-YOU-THROW WASTE COLLECTION
AND RECYCLING IN PHOENIXVILLE BOROUGH**

The Borough of Phoenixville (Borough) currently provides comprehensive waste collection and recycling services to residential establishments using the Public Works Department. The Borough is in a better position than many municipalities to implement pay-as-you-throw (PAYT) because they have the infrastructure and experience needed to implement expanded curbside waste and recycling services. Additionally, the Borough has a cooperative Code Enforcement Department and is supportive of encouraging increased waste diversion through improved recycling participation.

A properly implemented PAYT program will increase residential recycling in the Borough and can help the Borough continue a cost-effective program for both the Borough and for residents in the years ahead. Realistically, the PAYT alternatives recommended in this report will achieve a 5-10 percent increase in residential recycling in the Borough. This is lower than the Borough's 25 percent *additional* diversion goal, but it will have a material impact on the program. This impact will be seen in the avoided cost of disposal, increased revenues from sale of recyclables, increased Act 101, Recycling Performance Grants, and an increased awareness by the Borough and residents about recycling and the costs associated with waste management. Maximizing the percentage of additional waste diversion will only occur after the program stabilizes, and with ongoing enforcement and education.

It appears that the Borough's current residential fee for residential curbside waste and recyclables services (\$165 per household per year) is very economical, and considerably lower than the per-household fee paid by residents in other municipalities in the surrounding area.

GF provided useful information and recommendations for a Borough PAYT program throughout the body of this Recycling Technical Assistance Report. Key recommendations are summarized and include those listed below. It is recommended the Borough:

- Implement PAYT Alternative 1 (a True PAYT Bag program) because evidence and case studies support that this option has the potential to divert the greatest amount of material from the landfill. It is recommended the Borough follow the implementation steps provided in this report to implement a PAYT program.
- Complete a thorough analysis of current program costs so that a per-bag rate for the PAYT program can be accurately calculated. This rate will play an important role in ensuring the Borough will generate enough revenues to offset program costs.
- Invest in an educational campaign to encourage buy-in from residents on PAYT.
- If the Borough confirms that the \$165 per household per year is set too low, increase the current per household fee to a level that offset costs associated with administrating and operating a comprehensive public waste collection program.
- Follow up with other municipalities with PAYT programs to answer remaining PAYT questions.
- Ensure households have recycling containers with adequate capacity to conveniently collect and store recyclables between pick-ups, since PAYT will increase recycling.

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RECYCLING IN PHOENIXVILLE BOROUGH**

1.0 INTRODUCTION

Through the partnership with the Solid Waste Association of North America (SWANA), the Pennsylvania State Association of Township Supervisors, and the Pennsylvania Department of Environmental Protection (PADEP), The Borough of Phoenixville (Borough) was awarded \$7,500 in technical assistance to be provided by Gannett Fleming, Inc. (GF).

1.1 Scope of Work

GF worked with the Borough to identify and complete the following project tasks:

- Task #1** GF will work with Phoenixville Borough to gather pertinent background information needed to evaluate the existing recyclables collection program and Pay-As-You-Throw (PAYT) waste collection system alternatives. This task will require review of the existing recyclables collection requirements and related ordinances.
- Task #2** GF will develop findings and recommendations related to the feasibility of implementing a PAYT recycling program. This task will include describing various types of PAYT programs and will include a survey of several existing PAYT recycling programs in Pennsylvania to gain up-to-date case experience from real programs.
- Task #3** GF will prepare and provide the Borough with a summary report of findings and recommendations. This task includes a review of the report by PADEP and response to PADEP comments. Additionally, an electronic file of the Final Report will be submitted to PADEP. Both an electronic and hardcopy version of the report will be provided to the Borough.

2.0 BACKGROUND

Phoenixville is located in Chester County, Pennsylvania. The Borough is familiar with PAYT recycling. In 2003, a Recycling Technical Assistance project was completed for the Borough that provided some preliminary information on PAYT programs. The Borough requested this technical assistance from GF to further evaluate PAYT recycling alternatives that could be implemented in the Borough. PAYT has been considered because the Borough wishes to significantly increase the amount of recyclables recovered from the Borough-generated waste stream. The Borough hopes to reach a 50 percent recycling rate from the residential waste stream. This goal is about a 25-30 percent increase from the current residential curbside recycling rate. Properly structured PAYT programs have been proven to significantly increase recycling participation and have resulted in high waste diversion rates for some municipalities in the Commonwealth and in other states.

In PAYT programs, residents are charged for the collection of trash based on the quantity of waste discarded. Not only can it be a more equitable rate structure, PAYT programs create a direct economic incentive to recycle more and to generate less waste. Because the Borough provides the waste and recycling services to residents, a PAYT program that results in increased waste diversion (to recycling) can increase the “avoided cost of disposal.” The avoided cost results from reducing the tip fees paid to the disposal facility for every ton of waste that is diverted to recycling. Reducing tip fees puts the Borough in a better position to continue to provide comprehensive waste and recycling services at a competitive cost, which can be reflected in a lower monthly or quarterly residential bill for curbside trash and recycling services.

3.0 EXISTING WASTE COLLECTION SYSTEM

The Borough transitioned from a single-hauler contract waste collection system to a municipally operated (public) waste collection system in 2004. The Borough has successfully operated the municipal waste and recycling program for over two years. The Borough’s waste collection system offers comprehensive collection services, including curbside recycling service, at a very competitive price per household. The Borough charges a fee of **\$165 per household per year**. There are approximately **6,500 households** in the Borough. The current waste service fee is well below the average cost per household for comparable waste collection systems in Pennsylvania. The Borough’s fee for recycling service is included or “built in” to the trash fee.

Bulky-items are collected on a pay-per-item basis using stickers. Residents are required to dispose of bulky items using stickers that cost \$10. Stickers must be placed on the bulky items that are set out at the curb.

Municipal Waste is collected by Borough collection vehicles and transported to the Lanchester Landfill. The current tip fee is **\$55.00 per ton**. The Borough uses weigh tickets to track disposed municipal waste totals. As presented in **Table 1**, Borough manifest data indicates over 5,300 tons of municipal waste was disposed in 2005 and over 1,000 tons of commingled materials and mixed paper was recycled.

Table 1: Phoenixville Borough Municipal Waste and Residential Recyclables (2005)

Municipal Waste and Residential Recycling	
Municipal Waste	5,304 Tons
Commingled Recycled⁽¹⁾	432.4 Tons
Mixed paper or “News 6”	720.2 Tons

⁽¹⁾ Commingled materials include aluminum and bi-metallic (tin) cans, glass, and plastic containers.

4.0 EXISTING RECYCLING SERVICES

Phoenixville Borough is mandated to recycle by the Municipal Waste Planning, Recycling and Waste Reduction Act of 1988 (Act 101). The Borough’s current recycling rate for recyclables (excluding commercial sector recyclables reported by Chester County) averages around 22-24 percent. Commingled materials and mixed paper make up about 18 percent of the recycling total. The Borough is targeting a 50 percent residential recycling goal.

The following Act 101 container recyclables are collected at the curbside in a commingled container from residential households:

- Clear & colored glass
- Aluminum Cans
- Steel/ Bimetallic cans
- #1 & #2 Plastic Jugs & bottles

The following paper/fiber materials are collected in a separate container from residences:

- Newspaper
- Magazines
- Phonebooks
- Regular books
- Paperboard
- Cardboard (broken down)

All residential recyclables collected by the Borough are currently taken to BFI’s King of Prussia Recyclery located on 372 S. Henderson Road in King of Prussia, PA. The facility processes both commingled and source separated material.

As depicted in **Table 2** below, the Borough is paid (per ton) for recyclables collected from the residential sector that are delivered to the Recyclery.

Table 2: Borough Recyclables Pricing for Loose Recyclables Delivered to BFI’s Recyclery

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

4.1 Commercial Recycling

Commercial establishments in the Borough independently contract with local private waste haulers. The Borough monitors commercial sector recycling closely and estimates that only 7-10 businesses in the Borough have not yet implemented a recycling program that, at a minimum, includes recycling of office paper and cardboard. Act 101 requires commercial, institutional and municipal establishments located in Pennsylvania’s mandated municipalities to recycle the following materials (as a minimum):

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

4.2 Leaf Waste

The Borough’s Public Works Department provides weekly curbside collection of leaves and brush throughout the year. The material is taken directly to the Borough’s small compost site located at 18 South Second Avenue. The material is composted in windrows. The compost site has capacity to expand if needed. Resident’s may drop-off yard waste every third Saturday of the month.

“**Leaf waste**” is defined as **leaves, garden residue, shrubbery and tree trimmings**, and similar material, but not including grass clippings. The practice of a landfill or resource recovery facility (incinerator) accepting "truckloads composed primarily of leaf waste" is a violation of Act 101, Section 1502(a). As required by Act 101 and PADEP policies and guidelines, collection of leaf waste including brush must be conducted as follows:

- **A minimum of two curbside collections should be conducted annually for leaves, garden residue, shrubbery, tree trimmings, and similar material (i.e. brush).** To meet this requirement:
 - At least one fall collection is recommended by PADEP for leaves.
 - At least one spring collection is recommended by PADEP for leaf waste including garden residue, shrubbery, tree trimmings (or “brush”), and similar material.

* Importantly, these collection minimums may not meet the residential disposal needs for this material. Therefore, when feasible, municipalities are encouraged to offer residents a greater level of curbside collection services (and one or more supplemental drop-off sites) for leaf waste in order to minimize disposal of this material in local and regional waste disposal facilities.

5.0 PAYT PROGRAM TYPES

PAYT programs vary considerably from one program to the next. The Borough will need to consider these variations of PAYT programs and then customize a PAYT system that is suited for the Borough and its residents. For the purpose of this study and report, GF categorizes PAYT programs into the following two types:

- 1) “**True PAYT**” – In a “True PAYT” waste collection and recycling system, residents pay for EVERY bag (i.e. pay based on the quantity) of waste that is set-out at the curbside. If containers are used, they may be weighed by the collection vehicle to determine customer cost, or are priced based on the size/capacity or number of the containers used by the customer. The approximate capacity of typical curbside containers are 30 gallon, 60 gallon, and 90 gallons.
- 2) “**Hybrid PAYT**” - In a “Hybrid PAYT” program, there are two tiers. In the first tier, residents pay a monthly or quarterly fee for “base” or standard trash and recycling services. The base services can include up to three bags of trash per week (for example) plus other services including recycling, leaf waste pick up, and bulky item pickup. As a second tier, residents purchase additional bags, stickers, or additional

container capacity to dispose of waste that exceeds the service set-out limit included under the standard waste services (in this example, more than three bags).

The Environmental Protection Agency (EPA) categorizes PAYT pricing structures as follows:

Proportional: Residents are charged the same amount of money for each unit of waste they set out for collection. These are usually bag or tag systems.

Variable: Residents are charged different amounts per unit of garbage. Residents are billed based on their “level” of subscription service, which typically increases cost for households requiring disposal of higher quantities (i.e. additional containers or bags) of waste. Residents in a variable program may also be charged for each additional bag or container that is set out that exceeds their subscription service. The charge for the additional set-outs may be set at a higher rate than the subscription cost to place greater incentive on residents to reduce waste.

Two-Tiered or Multi-Tiered: Residents pay a flat fee for a base level of service, and then pay a “second tier” fee based on how much additional waste they set out. Second tier fees can be either proportional or variable rate.

6.0 PAYT MUNICIPAL CASE STUDIES (PENNSYLVANIA)

In July 2006, GF contacted a number of municipalities in Pennsylvania that have implemented PAYT programs. The case study write-ups are presented in **Appendix A** and provided valuable information concerning PAYT. One important observation made during these case studies is that a number of PA municipalities have implemented some type of “hybrid” PAYT program. Generally the hybrid PAYT programs reviewed were not any better at diverting recyclable materials than other types of curbside recycling programs in PA. In some cases, it was evident the hybrid program made trash disposal very convenient and there was little incentive in place to recycle. The information obtained from these municipalities was used by GF to develop the PAYT alternatives that are recommended to the Borough in Section 7.0.

7.0 PAYT ALTERNATIVES FOR THE BOROUGH OF PHOENIXVILLE

The PAYT program alternatives recommended below consider initial discussions held with the Borough and a preliminary PAYT concept that was already established. The PAYT concept for the Borough includes the following components:

- The Borough and Public Works Department will provide weekly waste and recyclables collection services and administer the PAYT program.
- The PAYT Program will use bags, not containers. Bags are preferred due to some collection constraints caused by tight or narrow alleys in the Borough.
- The program will continue bulky-item collection using a PAYT type structure, where residents pay for each bulky item by using stickers that are purchased from the Borough. Currently, residents pay \$10 for bulky item stickers.

If implemented properly, each of the following PAYT alternatives should:

- Increase recycling from residential households in the Borough and give households the ability to manage their trash disposal costs through increased recycling
- Increase the avoided disposal cost (i.e. save money). The current tip fee is \$55 per ton paid to Lanchester Landfill for every ton of waste disposed.
- Increase recyclables tonnage that have the potential to generate revenue (paid per ton).
- Increase recyclable tonnage that is eligible for Recycling Performance Grants. These grants award funding to the Borough based on total tons recycled and the Borough's recycling rate.

Because PAYT alternatives will increase recycling, residents must have recycling containers with adequate capacity to conveniently collect and store recyclables between pick-ups.

7.1 Alternative 1 – True PAYT Bag Program

It is feasible for the Borough and the Public Works Department to implement and administer a “True PAYT” Bag Program. As described in Section 6.0, in a “True PAYT” program, Borough residents will be required to purchase EVERY bag that is used for curbside set-out of residential waste. This type of PAYT program offers a direct financial incentive to residents to reduce their waste bill by decreasing the volume of waste disposed (via increased recycling).

Since residents are responsible for purchasing bags, this greatly reduces or eliminates billing administration (and associated costs) by the Borough. GF recommends that the Borough's program provide residents a convenient system to purchase bags. Residents should be able to buy bags at a number of local stores, and as well as the Borough office. The Borough should work with local stores prior to implementing the program so that the stores will carry a supply of bags at the outset of the program. The amount paid to the stores for each bag sold varies widely among the PAYT programs reviewed, but a \$.05 to \$.10 per bag payment to stores has been observed. A sample agreement between the municipality and the store that carries bags is provided in **Appendix B**. It is noted that a number of stores carry PAYT bags without executing a written agreement.

Although it is feasible for the Borough to implement a True PAYT Bag program, the Borough must be VERY careful in setting the per-bag rate (refer to Section 8.0 and **Appendix E**). In a True PAYT program, bag purchases may be the Borough's ONLY source of revenue generated by the waste collection program. Bag prices must be set to cover all program costs.

It is recommended the Borough bid for bags to ensure a competitive price. The Borough's cost per PAYT bags is expected to range from \$.10 - \$.15. **Appendix B** provides an example PAYT bag bid document and a list of PAYT bag and sticker manufacturers that are commonly used for bag/sticker procurement in Pennsylvania PAYT programs. If the Borough does not have sufficient storage space for bags, the bid specifications can require bags be shipped to the Borough and to stores periodically (e.g. quarterly), to minimize the amount of bag storage space

needed. It is recommended the Borough have the bag supplier print the waste and recyclables handling procedures directly on the bags.

Implementing a True PAYT program may increase illegal waste disposal activities in the Borough. This is because some residents may choose to illegally dump waste for free, rather than pay for the bags for disposal under the new program. Not only is illegal dumping unsightly, unsanitary and harmful to the environment, it means some residents are not paying for bags, which equates to lost revenues for the Borough. The Borough currently has an effective Codes Enforcement Department in place, which will help to minimize any new illegal dumping problems that develop. It is recommended the Codes Enforcement Department increase monitoring and enforcement of illegal disposal activities, especially in the initial year(s) of implementing the PAYT program. Additionally, it is recommended the Codes Enforcement personnel or other Borough staff, conduct periodic auditing of residential trash bags and recyclables containers and provide feedback, warnings, and/or issue penalties to households that fail to comply with proper waste and recycling handling procedures.

7.2 Alternative 2 – Hybrid PAYT Bag Program (one bag per week base trash service)

It is also feasible for the Borough to implement a “Hybrid” or “two-tiered” PAYT program. As explained in Section 5.0, in a Hybrid PAYT program, Borough residents will pay a monthly or quarterly fee for “base” or standard trash and recycling services. As a second tier, residents pay extra (per bag/container) if they require additional bags or containers to manage their waste. It is recommended the Borough continue the per-item charge for bulky items under the Hybrid program, but evaluate the fee-per item on an ongoing basis.

Billing residents directly for a portion of the program creates a guaranteed source of revenue for the Borough and helps to manage fixed costs. It is imperative that any Hybrid PAYT program implemented in the Borough be structured in a way that maintains a strong incentive for waste to be diverted to recycling. Case studies GF has reviewed demonstrate that some Hybrid PAYT programs create little incentive for residents to maximize waste diversion to recycling. The incentive to recycle is lost or greatly minimized in a Hybrid PAYT program when the base services (billed quarterly or monthly to residents) include two to three bags or containers for trash. Having two to three bags/containers included in the standard service makes it convenient to dispose of trash, but appears to do little to encourage recycling for the average waste-generating household. In contrast, a more effective Hybrid PAYT program will force the average resident/household to make a choice about waste; pay more or recycle more. This can be achieved by limiting the standard trash disposal service to one bag per week.

For the Borough’s Hybrid PAYT program, it is recommended that the first tier or basic services include trash service (one bag per week), weekly recycling, and weekly or seasonal leaf waste collection services. These first tier or basic services can be billed monthly or quarterly by the Borough. As part of this standard service, residents will be mailed, delivered or be able to pick-up (at the Borough office) a carton or box of PAYT trash bags each quarter containing 13 trash bags, which is equivalent to one bag per week. This quarterly bill for base services should be set to cover fixed costs incurred by the Borough. The base price should be set considering that residents will be paying for less trash service than they receive under the current collection

system, and will pay an additional per-bag fee for additional bags. The Borough can contract with a provider to administer the billing if necessary.

In the Borough's second tier of the program, residents will be required to purchase additional bags anytime the household exceeds the one-bag set-out limit. The Borough should ensure residents have convenient access to purchase bags at local stores and the Borough office. The Borough will need to carefully estimate and set a per-bag fee for the additional bags. The current pay-per-item program for bulky items could be continued under the Hybrid program.

A one-bag limit (as part of the first tier) is recommended because limiting "base" trash disposal service will encourage households to participate in the PAYT program. The benefit of using a Hybrid PAYT system and a one-bag limit for basic service is three-fold: 1) The Borough will receive at least a portion of secure revenue paid by residents in the form of a quarterly or monthly payment; 2) the residents and Borough will have a strong financial incentive to recycle, which reduces the tons disposed (recycling will save households money); and 3) residents automatically pay for base services and so are less inclined to illegally dump waste to avoid paying fees.

Setting a one-bag limit on basic trash service in the Hybrid PAYT program will require additional administration (bag distribution and ordering), when compared to hybrid programs that offer more bags or containers in the basic services. This is because the one-bag limit forces the majority of households to purchase additional bags (as needed) to supplement their trash disposal needs. Convenient access to bags will still be an important aspect of a Hybrid PAYT program. If the Borough does the monthly or quarterly billing, the Borough could allow residents to stop by the office, pay their bill, and pick up PAYT bags. The Borough office could also set up a program to mail or deliver packs of PAYT bags to households for a small fee that is added to the household's waste bill.

As with the True PAYT alternative, the Borough and Code Enforcement Department should be proactive in addressing illegal dumping activities that may increase with the implementation of the Hybrid PAYT program. Some households may try to avoid paying for additional bags in the second tier of the program.

Although a properly structured Hybrid PAYT program will create a notable increase in waste diversion to recycling in the Borough, the extent of additional diversion can not be accurately estimated. It is not expected the Hybrid PAYT Bag program (Alternative 2) will reach the diversion rate achievable from a properly implemented True PAYT program (Alternative 1). Elizabethtown Borough in Pennsylvania implemented a "Two-tiered" program with a minimum service fee for one-bag collection. Here, residents supply their own bags. The additional diversion achieved by Elizabethtown Borough through implementing this program was not investigated during this study.

7.3 PAYT Alternatives – Diversion Impact and Revenue

In the initial stages of this project, the Borough established a 50 percent targeted diversion rate for the Borough's residential recycling program. This goal is about a 25-30 percent increase from the current residential curbside recycling rate. Unfortunately, increasing the Borough's current

residential curbside recycling by 25-35 percent is not feasible. Based on case study evidence and the composition of the residential municipal waste stream, a True PAYT program may divert an additional 8-12 percent of the Borough's residential waste stream. A properly structured Hybrid PAYT program will divert even less material.

Although the waste diversion that results from a PAYT alternative may be less than the Borough's initial diversion goal, the increased residential recycling from a PAYT program can have a material impact. For example, 5,304 tons of municipal waste plus 1,152 tons of commingled and mixed paper is equivalent to 6,456 gross ton and about an 18 percent recycling rate (not including other recyclables). If the Borough can increase the curbside recycling rate for these materials by 10 percent (a 28 percent recycling rate), the Borough will divert an *additional* 656 tons of commingled material and mixed paper. Diverting 656 additional tons (over the status quo or current recycling) creates an additional \$36,000 in "avoided" disposal costs (per year) at the current tipping fee of \$55 per ton. Sale of the additional 656 tons of recyclables, using current market pricing (averaged) from the BFI Recyclery, will generate roughly \$20,000. The additional 656 tons would be eligible for Recycling Performance Grants as long as this program continues.

8.0 PAYT IMPLEMENTATION STEPS

Implementing any change to a waste collection system in Pennsylvania is challenging, and this holds true for implementing a PAYT program. Achieving 100 percent support from the public for any program change that impacts the public is not possible. In some ways, this forces the initial decision-making into the hands of Borough Council with support from Borough Staff.

In order to implement a successful PAYT recycling program, the Borough will need to review PAYT information in this report and from other sources, evaluate Borough and residential needs, and reach decisions on a number of issues that will shape the PAYT program structure. To facilitate this decision-making process, GF prepared a preliminary PAYT internal survey. The internal survey asks Borough Staff and Council a number of questions related to implementing a PAYT program (**Appendix C**). The answers to these questions and other PAYT questions that arise will help refine the preferred PAYT structure. The PAYT structure that is chosen will affect how the program will be implemented and this will impact annual costs.

This section recommends steps that may be followed to implement a PAYT program in the Borough. It has been assumed that any PAYT alternative chosen by the Borough will be implemented by the Borough and the Public Works Department because they currently provide residential curbside waste and recycling services. Using the Public Works department rather than an outside contractor creates an improved level of administrative oversight. This is helpful when fine-tuning the PAYT program.

Step 1 - Form a Permanent Waste and Recycling Committee

It is recommended the Borough assign a committee to inform and make recommendations to Borough Council concerning the PAYT programs and to evaluate and track waste and recycling efforts on an ongoing basis. The committee may be as few as two or three members and should guide Council to reach decisions concerning a preferred PAYT program and on PAYT

implementation. The committee can also take the lead on calculating the per-bag fee that will be established for the PAYT program. The committee should develop a 1-2 page plan that outlines the waste collection system structure, targeted materials, and goals for the PAYT program. After implementation, the committee should meet at least twice per year to evaluate waste collection system program performance.

Step 2 - Internal Education

Before educating the public, Borough staff and Borough Council should become knowledgeable of PAYT program pros and cons. A PAYT advantages and disadvantages table is presented in **Appendix D**. It is recommended Borough staff and Council review the information contained in this report and report appendices to become familiar with PAYT. Once a clear understanding of PAYT is established, then the Borough and Council will be in better position to address the public's concerns and questions.

Step 3 - Select a PAYT Alternative

GF recommends the Borough proceed with implementing a PAYT program, but the final decision to move ahead and final PAYT program structure must be decided by Borough Council. Although there are considerable variations among PAYT programs, GF recommends implementation of either of the PAYT alternatives presented in Sections 7.1 and 7.2. Both alternatives offer the potential to divert additional recyclables from the Borough's residential waste stream; however the True PAYT program (Alternative 1) appears to offer the greatest overall incentive to reduce waste disposal through recycling. Alternative 1 also may have less administration since the Borough will not be responsible for billing residents. The selected PAYT alternative should be sensitive to the community's existing waste disposal and recycling habits.

Step 4 – Calculate the per-bag fee

Once the Borough has selected a PAYT alternative, it will need to calculate an appropriate per-bag fee for residents. In the case of the Borough, residents are comfortable paying \$165 per year for curbside waste and recycling services, which is a comparatively low annual per household cost. This low cost will make per-bag rate setting more difficult, but not impossible for the Borough. Setting the per-bag fee too low will result in lost revenues for the Borough, which can threaten the sustainability of the program. Setting the per-bag fee too high will upset residents who feel the new program is expensive. GF has provided a PAYT Bag Fee Calculator sheet to assist in estimating the per-bag fee (**Appendix E**).

Before calculating the fee, it will be the Borough's responsibility to carefully analyze and confirm all administrative, operational, staff, collection and disposal costs. The per-bag fee will usually vary depending on the type of PAYT alternative that is selected. It is recommended the Borough allow some flexibility to adjust the household fee, with recognition that this may result in a negative public response, especially if prices are increased.

Step 5 - Public Education

After the Borough has internally selected a preferred PAYT structure, the Borough should begin a public education campaign. The Borough should not underestimate the importance of ongoing public education and should be willing to invest funds for this purpose to make the overall implementation of the PAYT well-received by the public. The content of this campaign could emphasize:

- The benefit and opportunity for residents to have direct control over their cost for curbside trash disposal costs.
- The benefit and opportunity to continue to offer trash and recycling services in the years to come at a fair cost.
- Proper trash and recyclables management in a way that promotes energy conservation and environmental sustainability.
- Describe the PAYT program concept (e.g. bag system) – do not offer program details too soon.
- Provide information that explains how recycling supports local recycling vendors, creates jobs and fosters good business relationships.
- Revenues from recycling and cost savings from reduced disposal allow the Borough to invest in other beneficial programs (e.g. expanded compost site, curbside yard waste collection, etc.).

The public education campaign could include the following:

- News Releases – Before starting public education, it is highly recommended the Borough meet with and establish a good relationship with local newspapers/publishers. Introduce them to the PAYT concept and emphasize what is at stake for the community, the benefits, and how important that the public campaign is to the success of the program.
- Residential Survey – Issuing a survey has pros and cons, so the Borough should consider this task carefully. Yes, it can provide valuable feedback but questions must be phrased carefully and in some cases the public response to the survey itself can be negative. GF recommends a residential survey only if Borough Council cannot reach a decision on the PAYT collection system without additional feedback from a survey.
- Public Meetings – After Borough Council has been educated on PAYT and has a clear vision of how the program should be implemented, the Borough should host a meeting in which the public is allowed to attend. Although public meetings are an important place for public opinions to be heard, it is commonly the place where implementation is stalled. It is critical that this meeting is NOT held before Borough Staff and Council are prepared to answer questions and listen to complaints. Public meetings should not be the place where the vocal minority decides the fate for most residents who will benefit from long-term improvements to the Borough's waste collection system.

The EPA website (<http://www.epa.gov/payt/>) is an excellent resource for information on PAYT and is a helpful tool in developing public educational materials.

Step 6 – Implementation

As long as public feedback has not resulted in any major changes to the intended PAYT program, the Borough should move forward with implementing the preferred PAYT alternative. Some critical components that should be in place at the outset of implementing the PAYT program include:

- Residents have been clearly informed on the start date of the new program.
- Borough calculates per-bag rate (and communicates this fee amount to residents)
- Borough bids and secures a supplier for bags and/or stickers (e.g. bulky-item stickers)
- Residential access to PAYT bags has been made convenient through arrangements with a number of local stores to carry and sell bags to customers. To initiate the PAYT program, it is recommended that each household is provided a box of PAYT bags before the first PAYT collection day. The Public Works Department can deliver the bags to households while servicing waste collection routes.
- Monitoring and enforcement approach of proper waste and recycling procedures including illegal dumping activities is established

9.0 CONCLUSIONS AND RECOMMENDATIONS

The Borough of Phoenixville is in a better position than many municipalities to implement PAYT because they already successfully operate a comprehensive curbside waste and recycling program using the Public Works Department. The Borough has accurate documentation of waste and recyclables, a cooperative Code Enforcement Department, and is supportive of increasing waste diversion. This study demonstrates there are two PAYT programs that may improve the Borough's collection program and help the Borough continue a cost effective program for both the Borough and for residents. Realistically, the PAYT alternatives recommended in this report will achieve a 5-10 percent increase in residential recycling in the Borough. This is lower than the 25 percent *additional* diversion goal of the Borough, but it will have a material impact on the program as seen in the avoided cost of disposal, increased revenues from sale of recyclables, increased Recycling Performance Grants, and increased Borough and residential awareness of recycling and the costs associated with waste management. Maximizing the percentage of additional diversion will only occur after the program stabilizes and with ongoing enforcement and education.

It appears that the Borough's current residential fee for residential curbside waste and recyclables services (\$165 per household per year) is considerably lower than the per-household fee paid by residents in other municipalities in the surrounding area.

9.1 Recommendations

GF has provided recommendations for the Borough's PAYT program throughout the body of this report. Some of the key recommendations are summarized and include those listed below.

It is recommended the Borough:

- Implement PAYT Alternative 1 (True PAYT Bag program) because evidence and case studies show that this option has the potential to divert the greatest amount of material from the landfill, which is a primary goal of the Borough. The Borough should follow or reference the implementation steps provided in this report as a guideline.

- Complete a thorough analysis of current program costs so that a per-bag rate for the PAYT program can be accurately calculated. This will play an important role in ensuring the Borough will generate enough revenues to offset waste collection system costs.
- Invest in an educational campaign to encourage buy-in from residents on PAYT.
- If the Borough validates the \$165 per household per year is set too low, increase the current per household fee to a level that offset costs associated with administrating and operating a comprehensive public waste collection program. In the PAYT program, this will be accomplished by establishing a bag rate that offsets costs.
- Follow up with other municipalities with PAYT programs to answer remaining PAYT implementation questions.
- Ensure households have adequate recyclable containers with capacity to conveniently recycle. Curbside recycling containers are eligible for Section 902 Recycling Grants.

APPENDIX A

Pennsylvania Municipal PAYT Program Case Studies

Pay-As-You-Throw Pennsylvania Municipal Case Studies

Case Study – East Bradford Township, Chester County

Tenley Adams (610)-436-5108

East Bradford Township is located in Chester County and has a population of 9,405 based on the 2000 US Census. The Township has a two-tiered Pay-As-You-Throw (PAYT) program. In this two-tiered PAYT program, residents pay a monthly fee of \$16.69 for “base” or standard trash and recycling services. The base services include three bags of trash per week, weekly recycling, leaf waste pick up in fall and spring, and one bulk item pickup per month. As a second tier, residents may purchase additional stickers that are placed on bags that exceed the three bag set-out limit included in the standard waste services.

East Bradford Township has been under contract with Allied Waste for curbside trash and recycling services since 2003. Allied Waste pays the Township 20 percent of the yearly PAYT sticker sales. Although East Bradford has a PAYT program, the Township felt that the two-tiered PAYT structure did not significantly contribute to a high performing recyclables diversion program. It was believed that since most services are included in the base program, the stickers that are purchased are not really an incentive to divert more recyclables. Rather, extra bags are viewed as a convenient option to dispose of more waste when needed.

The Townships recycling rates do not reflected a high diversion rate as with optimal PAYT programs that approach or exceed 50 percent diversion. Recycling actually dropped slightly in 2004 and 2005. In 2006, recycling is increasing slightly. As indicated by the Township, decreases in recycling tonnage may be attributed to manufacturer trends to replace glass with plastic and a general trend of manufacturers to reduce the weight of containers and other products primarily to reduce shipping costs.

Details about bags and bag procurement are provided below:

PAYT Bags

Procurement: Bid

Manufacturer: Allied Waste

Township cost per bag: Supplied by Allied (contracted waste hauler) at no cost

Residential cost per bag: \$1.85 each, sold in groups of ten

Tensile strength: not provided

Volume: Stickers used on 32 gallon bag

Distribution: Township building (must pay by check)

Pay-As-You-Throw Pennsylvania Municipal Case Studies

Case Study – West Whiteland Township, Chester County

Denise Serino (610)-363-9525

West Whiteland Township is located in Chester County and has a population of 16,499 based on the 2000 US Census. The Township implemented a proportional PAYT program in 1991.

Local stores receive five cents per bag sold. The Township does not have a formal written agreement with the stores. The Township orders 400,000 bags every two years. Township residents buy approximately 350,000 bags every two years, or about 175,000 bags per year.

The Township contracts with Charles Blosenski for weekly curbside trash collection. The Township provides curbside recycling services separately. Recyclables are also collected weekly. Bulk items are collected monthly. Yard waste is collected periodically with specific dates and times located in the newsletter. The Township has an ordinance that includes provisions for the PAYT program.

Since implementing the PAYT program, West Whiteland Township has experienced increased residential participation. The increased recyclables tonnages have resulted in increased Section 904 grants awarded to the Township. Residents have lowered their monthly cost for trash collection by increased recycling efforts. Decreasing the amount of recyclables that go to the landfill has proved to be an economic benefit for residents and for the Township. The Township has not experienced any major problems with the program. The Township attributes the lack of illegal dumping to the limited space available to dump garbage.

The Township educates the public on the PAYT program using quarterly newsletters and the Township's website. The Township also visits local elementary and middle schools to reinforce the importance of recycling. Recycling has increased since the implementation of the PAYT program.

Details about bag procurement are provided below:

PAYT Bags

Procurement: Bid

Manufacturer: EIP (Vero Beach, FL)

Township cost per bag: \$.09

Residential cost per bag: \$2.00

Tensile strength: 1.9 mil minimum

Volume: 33 gallon bag

Distribution: Local stores, Township building

Pay-As-You-Throw Pennsylvania Municipal Case Studies

Case Study – West Chester Borough, Chester County

Meghan Fogarty (610)-696-5282

West Chester Borough is located in Chester County and has a population of 17,861 based on the 2000 US Census. The Borough implements a two-tiered PAYT program. The Borough provides weekly curbside trash and recycling services. Bulk items are collected in the first week of each month. Yard waste is collected weekly. The Borough also has a drop off facility for residents to take yard waste year round. Residents are allowed to set out two cans of trash per week as part of their base or standard collection service. The cost for resident's base level of curbside waste and recyclables collection is included in their taxes. Residents who require disposal of waste beyond the two-can limit of the base program must buy additional bags (\$2.50 ea.) from the Borough.

The Borough pays \$30,390.00 for 100,000 bags per year. All American Poly ships 50,000 bags twice a year. The bags come in boxes of 100. The stores who provide the bags receive \$.05 per bag sold. WaWa is the only store with a formal written agreement. West Chester Borough used Carlisle Borough's PAYT program as a model. West Chester Borough has an ordinance in place that specifies PAYT program requirements.

The Borough's website contains information about the PAYT program. The Borough also educates the residents through newsletters, door-to-door flyers, summer events, newspapers, and the website. The Borough plans to work closely with West Chester University as part of their educational campaign.

At the time of this survey, the PAYT program had only been in place for three weeks. The Borough sold approximately 4,500 bags in this start up period. A major concern of multi-unit residents prior to the implementation of the program was deciding who gets to put trash in the trash cans and who has to purchase the extra bags. Since implementing the program, this has not been a concern.

PAYT Bags

Procurement: Bid

Manufacturer: All American Poly (New Jersey)

Borough cost per bag: \$.30

Residential cost per bag: \$2.50

Tensile strength: 2.7 mil minimum

Volume: 40 gallon bag

Distribution: Local stores, two municipal buildings

Pay-As-You-Throw Pennsylvania Municipal Case Studies

Case Study – Penn Township, Lancaster County

Gene Hejmanowski (717) 637-1561

Penn Township is located in Lancaster County and has a population of 15,600 based on the year 2000 US Census. The Township has experienced significant growth over the last 10 years. The Township has a PAYT program in which it contracts for collection only with Penn Waste for curbside municipal waste and recycling services. Because the Township elects to pay the disposal component (i.e. tip fee), the Township has a direct financial benefit or “avoided cost of disposal” for every pound or ton of waste that is diverted to recycling. The current contract with Penn Waste is for 3-5 years. Commercial establishments contract with any hauler for waste and/or segregated recycling services.

Penn Waste collects and takes ownership (and marketing responsibility) of commingled container recyclables collected at the curb. The Township operates an effective drop-off program to collect cardboard and other paper. The paper is marketed by Penn Township and all revenues from sale of this material go back to the Township.

The Penn Township PAYT program is a bag program and can be considered a “true” PAYT program since residents pay for each bag they use for disposal. In other words, the resident’s per bag cost pays for all collection and disposal. There is no base or standard services included under the contract and the resident is not billed other than when purchasing bags, which are \$2.40 each. All Penn Township PAYT bags are distinguishable and have the Township logo clearly printed on them. Twelve distributors (e.g. Giant, Weis, Wal-Mart) have PAYT trash bags for sale to residents. It is the Township’s experience that convenience is importance to the public acceptance of the program. Bags are delivered to the local distributors twice per month (on Thursdays). The Township usually has 5 manufacturers respond to the bid that is put out for bag procurement. If residents have a problem with any of the bags they can be replaced at one of the stores/distributors. Stores earn a commission of \$.05 per bag. The Township sells 250,000 to 275,000 bags per year. The Township estimates that \$.98 of every bag is for the collection component of the program.

Residents are required to put the PAYT bags in a can with a lid. No lid, no pick up. The hauler provides a daily report on non-pick ups. The Township ordinance includes provisions that address the PAYT aspects of the program. These strict requirements, plus enforcement that includes periodic inspections of bags placed at the curb (for weight less than 40 lbs and for contamination), create a successful waste diversion program. Penn Township has achieved nearly a 32-35 percent residential curbside recycling rate; 42 percent with commercial recycling added.

PAYT Bags

Procurement: Bid

Manufacturers: Central Poly (New Jersey), All American Poly (New Jersey), Clearview Bag (New York), West Lake Plastics (PA), Phoenix Bag Co. (New Jersey)

Township cost per bag: Avg. (~ \$.12 per bag.) 2006 was \$.21 cents per bag (cost includes logo printing).

Residential cost per bag: \$2.40 per bag (collection and disposal plus one bulky item per week at no additional cost).

Tensile strength: 2.75 mil; 100 bags per case

Volume: 40 gallon (23” x 13.5” x 44”) These bags have a 40 lb. weight limit.

Distribution: 12 Local stores



MUNICIPAL PAYT CASE STUDIES

MUNICIPAL CASE STUDY SUMMARY TABLE

Municipality	Occupied Households (Year 2000 US Census)	Type of PAYT Program ⁽¹⁾	Cost per unit	Additional Program Details
East Bradford Township	3,076	Two-Tiered	\$1.85 per sticker	<ul style="list-style-type: none"> Monthly trash and recyclables collection is \$16.69. Includes three-bag trash limit, commingled recycling, spring and fall leaf waste collection, and one bulk item per month. Stickers are purchased for extra bags (in addition to the standard bag limit). Stickers are placed on any 32 gallon trash bag. Allied Waste provides the stickers and pays the Township 20 percent of yearly sticker sales.
West Whiteland Township	6,618	Proportional	\$2.00 per bag	<ul style="list-style-type: none"> Current bag manufacturer: EIP (Vero Beach, Florida). The Township pays nine cents per bag. Currently under contract with Charles Blosenski for weekly trash collection. The Township collects commingled recyclables weekly, bulk items monthly, and yard waste periodically.
West Chester Borough	6,265	Two-Tiered	\$2.50 per bag	<ul style="list-style-type: none"> Weekly collection of two trash cans, recyclables, monthly bulk item collection, and weekly yard waste collection is included in the resident's taxes. Additional bags are purchased by residents as needed. Current bag manufacturer: All American Poly (New Jersey). The Borough pays \$.30 per bag for 100,000 bags per year.
Penn Township	2,606	Proportional	\$2.40	<ul style="list-style-type: none"> Contracts with Penn Waste for curbside municipal waste and recycling services. Weekly, seasonal yard waste included. Bag manufacturer: All American Poly and others Amount of bags sold per year: \$250,000 - \$275,000 Stores earn a 5 cents commission per bag sold

⁽¹⁾ **Two-Tiered:** Residents pay a flat fee for a base level of service, and then pay a “second tier” fee based on how much waste they set out. Second tier fees can be either proportional or variable rate.

Proportional (or “True”): Residents are charged the same amount of money for each unit of waste they set out for collection. (Usually bag or tag systems).

Appendix B

Sample Agreement between Municipality and Local Bag Distributor(not in on-line report)
Example PAYT Bag Bid Document (not in on-line report)
PAYT Bag and Sticker Manufacturers

PAYT program
BAG & STICKER MANUFACTURERS

All American Poly – Corporate Headquarters

www.allampoly.com

800-526-3551

40 Turner Place Piscataway, NJ 08854

Resourceful Bag & Tag, Inc. (Bags and Stickers)

www.bagandtag.com

Jim Alderden (President)

800-872-8241, ext. 110

6420 W. 127th St. Unit 212 Palos Heights, IL 60463

Central Poly

www.CentralPoly.com

18 Donaldson PI Linden NJ 07036

908-862-7570

Trinity Packaging Corporation

www.trinitypackaging.com

84 Business Park Drive Armonk NY 10504

800-999-3970

AEP Industries, Inc.

www.aepinc.com

125 Phillips Avenue South Hackensack, NJ 07606

800-999-2374

Aluf Plastics

www.alufplastics.com

2 Glenshaw Street Orangeburg, NY 10962

845-365-2200

Primepak Co.

www.primepakcompany.com

133 Cedar Lane Teaneck, NJ 07666

201-836-5060

Flexo Transparent, Inc.

www.flexotransparent.com

28 Wasson Street P.O. Box 128 Buffalo, NY 14240

716-825-7710

D C Plastics, Inc.

70 Hobart Ave. Bayonne, NJ 07002

201-339-0111

Plastic City Bags, Inc.

www.plasticcity.com

425 Marcy Avenue Brooklyn, NY 11206

800-234-2247

West Lake Plastics

P.O. Box 127 Lenni Rd.

Lenni, PA 19052

Clear View Bag 5

trentromer@clearviewbag.com

Burdick Drive Albany, NY 12211

800-458-7153

Fax 518 458 1401

Appendix C

PAYT Internal Questionnaire

The following internal survey for Phoenixville Borough Staff and Council can be used to facilitate discussion and agreement on the preferred structure of a PAYT program that will meet the needs of the Borough and its residents. It is important to consider these PAYT questions (and others) in the context of what the current community habits are for waste and recycling so that the implementation of a new PAYT can be satisfactory and beneficial to the majority of residents:

What type of PAYT program is desired?

- “True” PAYT Program (Residents pay for every bag or container)
- “Hybrid” PAYT Program (Residents pay a set fee for a base level of service such as 1 or more bags per week and additional bags/containers would be purchased at an additional cost at a price set by the Borough)?

Type of PAYT trash receptacle?

- Bag
- Single Container
- 2 Sizes/options of Containers (at different rates)
- 3 Sizes/options of Containers [at different rates (e.g. 32 gal., 60 gal, 96 gal.)]

Continue weekly recycling pickup on separate days in four designated areas of the Borough?

- Yes No (If no, Suggested variation_____)

Continue weekly trash collection on separate days in four designated areas in the Borough?

- Yes No (If no, Suggested variation_____)

Recycle any additional materials under the new PAYT program?

- Yes No (If yes, what new materials?_____)

Purchase new recycling containers as part of the PAYT recycling program?

- Yes No (If Yes, how many gallons_____)

GF recommends a minimum of 22 gallons for curbside recycling containers

Continue the current bulky item pick-up program that uses stickers?

- Yes No

Note: Some PAYT programs have weekly bulky item pick-up included in the per-bag fee

Is the Borough willing to increase trash and recycling compliance enforcement as needed? (e.g. to minimize illegal dumping by those who do not wish to pay for bags in a “true” PAYT program?)

- Yes No (If yes, what penalty and how is it administered_____)

Is the Borough willing to deal with public criticisms of the new program, especially from residents who’s experience an increase in annual disposal costs?

- Yes No

Appendix D

PAYT Advantages and Disadvantages Table

Collection Unit	Advantages ⁽¹⁾	Disadvantages ⁽¹⁾
Bag Programs	<ul style="list-style-type: none"> - Easy for residents to understand. - Lower distribution, storage, and inventory costs. - Inexpensive to implement. 	<ul style="list-style-type: none"> - Uncertain revenues as citizens purchase on an as-needed basis. - Potential for bag to rip or may be incompatible with automated collection systems. - Bags are not reused and, unless recycled, contribute to the waste stream. - Bags can be torn by animals.
Sticker/Tag Programs	<ul style="list-style-type: none"> - The cost of producing stickers/tags for sale to residents is cheaper than bags. - Easy for residents to understand. - Inexpensive to implement. 	<ul style="list-style-type: none"> - Potential for poor sticker adhesion in bad weather and possible counterfeiting. - Uncertain revenues.
Variable Can or toter System	<ul style="list-style-type: none"> - Constant revenue stream. 	<ul style="list-style-type: none"> - Little flexibility between container sizes. Citizen must lower needs to next can size or reduce collection frequency. - Need method to deal with waste beyond subscription level like bulky items or extra waste such as on holidays. - Higher start-up costs for can purchase. - May require specialized equipment. - Higher administrative costs for storage of cans, distribution, and billing.
Weight-Based Program	<ul style="list-style-type: none"> - Citizen realizes immediate savings from reduction. 	<ul style="list-style-type: none"> - High equipment demands for trucks outfitted with certified weighing devices and equipment to record weights and addresses. - At staffed drop-off centers, requires more staff time to weigh garbage. - Specialized curbside or drop-off equipment. - Higher start-up costs.
Pricing Systems	Advantages	Disadvantages
Variable Pricing (True PAYT)	<ul style="list-style-type: none"> - A substantial waste reduction incentive. - Minimal administration 	<ul style="list-style-type: none"> - More difficult to set rates. - Some risk associated with not recovering all program costs.
Hybrid or Two-Tiered or Multi-tiered Pricing	<ul style="list-style-type: none"> - Guaranteed recover or fixed costs. - Rates setting is not as complicated as fully-variable. - Can reduce incentive to dump illegally - Requires little or no financing changes to implement. 	<ul style="list-style-type: none"> - If the additional unit charge is low it may decrease the waste reduction incentive. - Billing may complicate administration and setting up convenient bag distribution will still be needed

(1) The advantages and disadvantages shown are often relative comparisons with the various types of PAYT programs that are presented in the table.

Appendix E

PAYT Bag Fee Calculator (not in online version of report)