



December 23, 2008

Mr. Robert Grimm  
Township Manager  
North Fayette Township  
400 North Branch Road  
Oakdale, PA 15701

**Subject: North Fayette Township Technical Assistance (SWANA Project # 438)**

Dear Mr. Grimm,

The purpose of this letter report is to present the results of the Pay-as-You-Throw (“PAYT”) program implementation research and financial evaluation of potential PAYT rates conducted for North Fayette Township (“the Township”) by R. W. Beck, Inc. (“R. W. Beck”).

This project has been completed through a technical assistance program sponsored by PA DEP and SWANA.

## Executive Summary

### Problem Description

The Township is currently collecting commercial refuse, residential refuse and recyclables throughout the Township. Residential refuse is collected once weekly, while recyclables are collected once every two weeks. The Township retained R. W. Beck to evaluate the option of converting to a PAYT collection system, specifically to gain an understanding of potential sustainable rate structures.

North Fayette Township reports that historically, cost recovery of its operational expenses through customer collection rates have been less successful than desired. By implementing a PAYT collection system, the Township aims to render its operations financially sustainable, while simplifying its fee collection mechanism.

### Approach

R. W. Beck reviewed existing research and conducted benchmarking interviews with other communities in Pennsylvania that are currently using a PAYT system, or who have previously employed this design, in an effort to provide valuable sharing of best practices and experiences. The benchmarking was not limited in scope by the outcome of the financial analysis of potential methods, which was performed in parallel with the benchmarking in order to ensure that the proposed rate structure under various waste generation cases was sustainable. A complete summary of the overarching strengths and weaknesses of various PAYT options, as well as community profiles derived from the benchmarking interviews, are presented in this report.

R. W. Beck also performed an evaluation of the current collection system and prepared a financial pro forma for the years 2009-2018 assuming the Township does not implement a PAYT system (the “Base Case”). Scenarios for the same study period under expected, high and low waste generation projections<sup>1</sup> within a PAYT program (the “Alternative Cases”) were then developed to determine an estimated range of pay-per-bag fees sufficient to allow the collection system to pay for itself (i.e., such that anticipated net income is equal to zero in each year of the study period) given the uncertainty in the amount of waste generation.

Key input assumptions and data, along with the rate structure and implementation outline, were developed in concert with Township officials to ensure that program design would be aligned with the Township’s concerns regarding financial sustainability.

R. W. Beck considered and presented various program options to the Township throughout the report development process, including consideration of key advantages and disadvantages to the different options, so that in-depth analysis would focus on scenarios that were relevant to the Township. The details and assumptions of this analysis and the resulting range of bag prices and underlying rate structure are detailed in this report. Appendix A provides summary tables of each financial case, as well as detailed tables in support of the waste generation projections employed in the analysis.

## Observations and Recommendations

Based on our research and financial analysis of the Township’s estimated operating results, R. W. Beck presents the following observations and recommendations:

- With regard to PAYT program implementation, evidence exists to support a hybrid PAYT system over a strict PAYT system for the Township, but it has been determined in concert with the Township that both methods have the potential to be successful.
- While it is assumed herein that the Township is more likely to implement a strict system, R. W. Beck recommends that the Township consider a hybrid option for potential future implementation, which would recover a primary portion of the revenue requirements of the collection system through a customer charge, and recover additional revenue through a unit pricing structure for bags generated over the allowed limit per the base customer charge.
- Should the Township wish to pursue a hybrid system in the future, revenue shortfall risk must be properly addressed. In an effort to protect Township interests and avoid large financial shortfalls resulting from consumer behavior intended to avoid the additional per-bag charge, R. W. Beck recommends that 75 percent of the Township’s projected revenue requirements for the collection system be recovered with a base customer charge and associated set-out limit.

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<sup>1</sup> The future path of waste generation is uncertain, and is subject to deviations from historical trends due to various factors. The main purpose of the high and low waste generation cases is to provide the Township with a range of possible futures such that bag price ranges under various conditions can be estimated.

- The Township should recurrently review its financial operating results and cross reference projections of customers, refuse and recycling tonnage and revenues earned from the PAYT system, and adjust rates accordingly.
- Based on the financial analysis conducted for the strict system, the range of bag costs estimated to be required was calculated to be \$1.90 per bag to \$2.30 per bag in 2009, increasing to \$2.20 per bag to \$2.70 per bag in 2013 and \$2.30 per bag to \$3.20 per bag in 2018.
- Based on the financial analysis of the hybrid system, the range of bag costs estimated to be required assuming the 75/25 split and a baseline level of service of four bags per customer per month was calculated to be \$0.90 per bag to \$1.60 per bag in 2009, increasing to \$1.00 per bag to \$1.90 per bag in 2013 and \$1.00 per bag to \$3.60 per bag in 2018. These rates would be supported by a quarterly customer charge ranging from \$30.10 to \$32.60 in 2009, increasing to \$35.10 to \$38.20 in 2013 and \$34.90 to \$39.60 in 2018.
- Based on studies conducted by the EPA, it is estimated that a 32-gallon bag full of MSW weighs approximately 32 pounds subsequent to the implementation of a PAYT program. This is a key underlying assumption in the estimation of the amount of bags generated in the Township moving forward (i.e. roughly 1 pound per gallon of bag volume), and it can be expected that some uncertainty surrounding the weight of incoming bags exists (primarily due to “stuffing” of bags to avoid generating additional bags).
- In order to simplify the implementation of the PAYT process, the Township should consider a sticker system for bulk item collection.
- In order for the first year of the PAYT program to be successful and for the program to be viable in general, the Township must place a strong short-term emphasis on education and enforcement.

Complete details of the benchmarking and financial analysis are contained in the full report.

## Introduction

This report summarizes the data collection methods, underlying assumptions and research results related to the financial evaluation of the Township’s current collection system as well as the research related to the implementation of a PAYT system in benchmark communities.

## Data Collection

Data collection consisted of several concurrent processes, including:

- Review of existing research and additional benchmarking interviews with communities that have implemented PAYT programs;
- Review of financial and operations data provided by the Township related to all aspects of the current collection system;

- Extraction of socioeconomic and demographic data developed by Woods and Poole Economics, Inc. for Allegheny County to be used as explanatory variables in support of the projection of waste generation and recyclables in the Township; and
- Gathering and sharing/refinement (with the Township) of certain key financial assumptions, such as inflation rates, discount rates related to amortization of vehicle replacement expenses, salaries of key collection staff, and other assumptions, as warranted.

## Underlying Assumptions

The results presented herein have been summarized in the context of the following assumptions:

- R. W. Beck's review of the Township's financial operations, and associated projections of customers and population, among other assumptions, are assumed to be representative of Township views and opinions, and are furthermore assumed to be appropriate inputs for purposes of this analysis. With the exception of the projections of waste disposal and associated recyclables, R. W. Beck has not performed an independent review of inputs/views regarding future growth.
- No direct (or primary) research regarding Township public opinion of the potential implementation of a PAYT program has been conducted. However, in some cases, benchmark data is available and has been included in this report. In preparation of the financial model, R. W. Beck has assumed that Township customers will react reasonably to this change, and that the cost (if any) of accounting for behavior intended to avoid the per-bag charges (such as illegal dumping) will be manageable. Per-bag rates have been rounded up (slightly) in the financial analysis to account for a portion of this type of risk.

## Research Results

### Pay-As-You-Throw – Overview and Community Profiles

North Fayette Township has indicated a desire to improve the financial sustainability of its collection system by transitioning into a PAYT rate structure. The Township wishes to identify the rate structure that makes the most sense for its situation. In order to provide a broad overview of available systems, thereby facilitating a selection and rate design that provided the most sustainable outcome, benchmarking research and interviews were conducted in addition to a planning-level overview of key PAYT system advantages and disadvantages.

An overview of PAYT program types is provided below, along with additional implementation considerations. R. W. Beck also interviewed representatives of communities in Pennsylvania known to be providing PAYT programs (either currently or in the past), and summaries of key findings and information collected are also provided in this section.

## Pay-As-You-Throw (PAYT) Overview

PAYT, sometimes known as variable rates, volume-based fees, or unit-based pricing, is an approach whereby the generator of the waste generally pays in proportion to the amount of waste set out for collection. Put in simplest terms: the more waste you produce, the more you pay and vice versa. It is generally accepted as a best management practice that residents should be charged more for disposed waste setouts, but not for additional recyclables.

The goals of a typical PAYT system include:

- Raise sufficient revenues to pay for the cost of collection, delivery, and disposal of all residential (typically) municipal solid waste (“MSW”) at the disposal facility, as well as associated administrative costs and recyclables collection and processing net costs;
- Encourage increased recycling (e.g., a reduction in MSW disposed) through price incentives;
- Convey a better understanding of the solid waste management costs to citizens and increase their awareness of the related issues; and
- Keep the program simple to use and run.

## Potential Benefits of PAYT

Well over 200 municipalities in Pennsylvania have implemented some form of a PAYT program. In fact, the City of Wilkes-Barre has operated a per-bag system for a number of years and reports a significant reduction in the cost of their waste management services. A City representative reported cost reductions of approximately 50 percent due to the per-bag program.

PAYT programs can (and should) also yield an increase in recycling. Perkasio Borough reported experiencing a 59 percent reduction in the amount of solid waste collected for disposal after implementing a PAYT program, and boosting their recycling rate to about 43 percent. Additional benefits may include:

- Increased waste minimization;
- More equitable waste management fee structure; and
- Increased understanding of environmental issues in general.

A properly designed PAYT program with an equitable rate structure will ideally encourage residents to generate less refuse by charging them for the amount they place out for disposal. Residents therefore become more cognizant of their disposal habits and look for opportunities to generate less or recover a greater portion of the waste stream through alternative management practices such as recycling and composting in addition to waste minimization methods (such as consuming less, reading newspapers online, etc.). As they become more conscientious, citizens develop a greater understanding of environmental issues and the impact of their behavior on the environment.

## Potential Drawbacks to PAYT

While there are clearly benefits associated with the PAYT programs, there are also potential drawbacks that must be overcome to successfully implement this system. These potential drawbacks include:

- A perception of increased costs to residents for the same level of service;
- Challenges associated with changing a service;
- Increased need for education and enforcement with the new system, especially initially;
- A potential increase in administrative costs (for example, increased efforts in billing, customer inquiries, and bag/sticker sales); and,
- A potential increase in illegal dumping.

## PAYT Approaches

PAYT systems can take many forms. Rate structures and the type and size of containers are often related, and combinations of techniques are often used. For example:

**Bag (“strict”) System** – Residents purchase official, specially marked bags at whatever the cost of service per bag is determined to be. They must use those bags to set out their waste on collection day. The resident’s annual cost is directly proportional to the number of bags purchased and used throughout the year. If recyclables are collected this way, they typically use clear or translucent colored bags to differentiate them from the waste. Bulky items typically require an official purchased tag or sticker that is affixed to the item. Mechanicsburg Borough, Cumberland County, requires residents with optional PAYT service to affix a PAYT bag to bulk items requiring collection.

**Tag/Sticker System** – Similar to the bag system, residents must purchase tags or stickers or tags at an established price. For the items to be collected, a tag or sticker must be affixed to each can, bag, bundle, or other bulky item to be collected.

**Wheeled Carts** – This approach utilizes standardized two-wheeled trash carts that are lifted mechanically. The carts have hinged lids and are typically sized in the range of 65- to 96-gallons. However, they are also available in other sizes, such as 35 or 112 gallons. Prices for collection services are established based on the size of the cart that is used and the frequency of collection, typically once per week for trash. The use of different colored carts for recyclables collection is also growing, although this may change as some communities move to every-other week collection of recyclables. Typically, any out-of-cart set-outs require a pre-paid tag or sticker.

The use of wheeled carts requires some degree of automation in the collection vehicles. The two types of automated collection vehicles include:

- **Semi-automated:** This approach, which is utilized in Abington Township, Montgomery County, uses a hydraulic lifting device which is usually attached to the rear of the collection

vehicle, typically a rear-loading garbage truck. The collector wheels the cart from the curbside to the rear of the truck and positions it to be lifted mechanically and emptied into the vehicle's hopper. The worker then returns the cart to the curbside. These lifts can also be used on certain side-loading collection vehicles.

- **Fully-automated:** Fully-automated collection, which is utilized in Cranberry Township, Butler County, involves the use of a specialized collection vehicle designed for operation by only one person. The vehicle is equipped with a mechanical articulated arm that is used to empty the cart into the collection vehicle. The driver pulls the vehicle to the curb where the resident has placed the cart. Using controls in the cab, the driver moves the vehicle's collection arm to grasp the cart and empty it into the truck, then replace it on the curbside.

Collection performed by one-person fully automated trucks can significantly reduce the cost of collection, although it requires a significant investment in new collection vehicles. It is especially suited for less densely populated areas and areas that have adequate room in the public right-of-way for the collection process.

- **Hybrid System** – This is an approach to PAYT that typically blends rate structures, which is utilized in East Bradford Township, Chester County. Some communities charge a fixed base rate to cover the costs associated with the overall provision of collection services (getting the collection vehicles onto the routes and supporting the operations and administration of the services, and the net cost of collecting and processing recyclables), and establish a per-unit charge (per bag, per can, etc.) that varies according to the volume of material set out for collection.

Some communities charge an extra fee for recycling, however including recycling into the base level of service provides a financial incentive (and avoids a financial disincentive) to the generator to reduce waste by recycling, as well as through source reduction efforts.

## Advantages and Disadvantages of Each Program Type

No two communities are exactly alike, and therefore numerous variables will impact the process of designing the best program for North Fayette Township. However, within each of the five types of programs, advantages and disadvantages exist. These are summarized in Tables 1 through 5.

**Table 1**  
**Advantages and Disadvantages of Pre-Paid Bag PAYT Programs**

Advantages	Disadvantages
<ul style="list-style-type: none"> <li>■ Residents find bag systems easy to understand</li> <li>■ Bag systems might offer a stronger waste reduction incentive than subscription systems because fees typically are based on smaller increments of waste</li> <li>■ Accounting costs are lower than with subscription systems, since no billing system is needed</li> <li>■ Bag systems have lower distribution, storage, and inventory costs than subscription systems when bags are sold at local retail establishments and municipal offices</li> <li>■ Bag collection tends to be faster and more efficient than non-automated subscription collections</li> <li>■ Bags can be used to indicate that the proper fees have been paid for bulky items or white goods, because communities often assess fees for pick up of these items. Communities can ask residents to attach a certain number of bags to the items according to the cost of disposal (for example, two bags for a couch and three-bags for a washing machine)</li> <li>■ Opportunity to offset costs by selling advertising on "official" bags</li> </ul>	<ul style="list-style-type: none"> <li>■ There is a greater revenue uncertainty with a bag system than with subscription or hybrid system, because the number of bags residents purchase can fluctuate significantly</li> <li>■ If bags are sold in municipal offices, extra staff time will be required</li> <li>■ Residents might view a requirement to buy and store bags as an inconvenience</li> <li>■ Bags are more expensive to produce than tags or stickers</li> <li>■ Bags often are incompatible with automated and semi-automated collection equipment</li> <li>■ Animals can tear bags and scatter trash, or bags can tear during lifting</li> <li>■ Unlike cans, bags are not reused, adding to the amount of solid waste entering the waste stream</li> <li>■ Residents currently using containers may object to having to switch to bags</li> <li>■ Weight of bags due to "stuffing" might be a problem unless weight restrictions are instituted and enforced</li> </ul>



**Table 2**  
**Advantages and Disadvantages of Tag and Sticker PAYT Programs**

Advantages	Disadvantages
<ul style="list-style-type: none"> <li>■ Tags and stickers are easier and less expensive to implement than subscription systems</li> <li>■ Residents often find tag or sticker systems easier to understand than subscription systems</li> <li>■ These systems offer a stronger waste reduction incentive than subscription systems because fees are based on smaller increments of waste</li> <li>■ Accounting costs are lower than with subscription systems, since no billing system is needed</li> <li>■ Selling tags or stickers at local retail establishments and municipal offices offers lower distribution, storage, and inventory costs than subscription systems</li> <li>■ The cost of producing tags or stickers for sale to residents is lower than for bags</li> <li>■ Stickers can be used to indicate payment for bulky items or white goods, because communities often assess fees for pickup of these items</li> <li>■ Residents can choose between bags or cans</li> </ul>	<ul style="list-style-type: none"> <li>■ There is greater revenue uncertainty than with subscription systems, because the number of tags or stickers residents purchase can fluctuate significantly</li> <li>■ To avoid confusion among residents, the municipality must establish and clearly communicate the size limits allowable for each sticker/tag</li> <li>■ If tags or stickers are sold in municipal offices, extra staff time will be required</li> <li>■ Residents might view a requirement to buy and store stickers or tags as an inconvenience</li> <li>■ Tags and stickers often do not adhere well in rainy or cold weather</li> <li>■ Extra time might be needed at the curb for collectors to enforce size limits. In addition, there may be no incentive for strict enforcement if haulers are paid based on the amount of waste collected</li> <li>■ Tags left on trash at curbside could be removed by vandals or by other residents hoping to avoid paying for waste services</li> <li>■ Tags and stickers are not as noticeable as bags or other prepaid indicators and may slow down collections</li> </ul>

**Table 3**  
**Advantages and Disadvantages of Subscription/Container PAYT Programs**

Advantages	Disadvantages
<ul style="list-style-type: none"><li>■ Revenues are fairly stable and easier to forecast.</li><li>■ Unlike bags, containers work well with semi-automated or automated collection equipment</li><li>■ In a manual collection system, residents already own containers of roughly uniform volume, new containers might not be required</li><li>■ Containers may be labeled with addresses or unique indicators to assist in enforcement</li></ul>	<ul style="list-style-type: none"><li>■ Subscription systems often have higher implementation costs, including the purchase and distribution of containers</li><li>■ Customers have a limited incentive to reduce waste. Because residents are usually charged on a subscription basis, there is no incentive not to fill containers already purchased. In addition, no savings are possible below the smallest size trash container</li><li>■ Relatively complex billing systems are needed to track resident's selected subscription level and bill accordingly</li><li>■ Complex storage, inventory, and distribution systems are required to provide new containers to households that change their subscription level</li><li>■ A method of collecting and charging for waste beyond subscription levels and for bulk waste collections needs to be established</li><li>■ At the outset, residents may find it difficult or confusing to select a subscription level</li><li>■ There may be disputes with residents on the number of containers set out</li><li>■ Manual collection with containers usually requires greater time and effort on routes than collecting waste in bags</li><li>■ A cash flow problem may exist due to lag time between paying waste contractors and collecting fees for service based on use</li></ul>

**Table 4**  
**Advantages and Disadvantages of Weight-Based PAYT Programs**

Advantages	Disadvantages
<ul style="list-style-type: none"> <li>■ Weight-based systems measure more precise increments of waste generation than volume-based systems, which offer better recycling incentives</li> <li>■ Encourages waste reduction at all waste-generation levels</li> <li>■ Fair and easily understood. Favorable customer survey reaction</li> </ul>	<ul style="list-style-type: none"> <li>■ At present, weight-based residential systems exist only in pilot program form in the U.S.</li> <li>■ Requires more complicated billing system</li> <li>■ Special trucks, labeling of cans require extra expense</li> <li>■ Compatibility between onboard scales and computers and other operational systems can be challenging</li> </ul>

**Table 5**  
**Advantages and Disadvantages of Hybrid PAYT Programs**

Advantages	Disadvantages
<ul style="list-style-type: none"> <li>■ Offers communities a transition from the traditional financing system to a variable rate option</li> <li>■ Mitigates revenue risk by recovering some costs through traditional financing method</li> <li>■ Allows time for customers and officials to develop system familiarity</li> <li>■ Doesn't "lock-in" a community to a specific type of system</li> <li>■ Can be implemented quickly, inexpensively, and easily, and can be later replaced or modified into a full subscription, bag, or tag system, under a hand dump, semi-automated, or fully automated system</li> <li>■ Allows time for further planning</li> <li>■ Allows time for data collection</li> <li>■ No new billing system may be needed</li> <li>■ Generates a more predictable revenue stream than a strict PAYT program, and may encourage more haulers to bid on the program, as they will tend to have less risk/more certainty of revenue</li> </ul>	<ul style="list-style-type: none"> <li>■ Customer incentives to reduce waste are truncated at the lowest service level</li> <li>■ Customers may not understand why they have to pay two fees for disposal of solid waste</li> <li>■ If automated collection is used, having the driver exit the vehicle to collect additional bags reduces the cost efficiency and safety advantages of automated collection.</li> </ul>

## Implementation Considerations

When deciding to implement a PAYT program, a community must make several decisions, such as:

- 1) Which type of PAYT system will be used, and is the specific system chosen conducive to a financially sustainable collection system?
- 2) If carts are to be used, who will pay for them, and how? Who will be responsible for cart maintenance, and who will own the carts?
- 3) If bags, tags, and/or stickers are to be used, where will they be made available, and what will the cost be?
- 4) How will bulky waste be handled? Will it be part of the PAYT program, or managed via a separate program?
- 5) Is the PAYT program's set of options congruent with public opinion regarding which services are needed in the community? What will the reaction of the public be to the particular program?
- 6) How does the program account for small waste generating customers? Are they provided certain specialized program features?

## Community Profiles – PAYT Program Implementation

R. W. Beck conducted several benchmarking interviews of communities that currently use a PAYT system or were known to have used such a system in the past. In order to provide the Township with a broader perspective on PAYT initiatives than was supported by the budgetary constraints of this project, additional PAYT profiles from prior R. W. Beck studies have also been included in this section for reference.

The profiles below provide a description of each program. A summary of the programs is provided in Appendix A. In the discussions below, "strict PAYT" means a system in which residents pay a fee for each bag of trash generated. A "hybrid program" refers to a system in which residents receive a certain level of service for a fee, and must pay an additional fee (usually a per-bag fee) beyond the base level generated. Collection of recyclables is generally included in all PAYT programs, as described above.

Since the Township has not conducted any primary survey research regarding public opinion, particular attention should be paid to the anecdotal evidence provided herein on implementation challenges, where available.

### Kingston Borough

Kingston Borough, Luzerne County, has a population of approximately 13,855 people in 6,065 households. The Borough reports having a mandatory hybrid PAYT program with a flat quarterly rate of \$46.25 per customer, or \$185 per customer per year.

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Collection is governed by a set-out limit under the quarterly fee of two 30-gallon bags per week, with an additional charge of \$1.95 per bag. Bulk items are handled with an additional fixed rate of \$16 per bulk item.

### **City of Hermitage**

The City of Hermitage, Mercer County, has a population of approximately 16,157 people in 6,809 households. The City currently operates a mandatory PAYT program and reports a 100 percent participation rate.

The current structure, which has been in place in some form or another for about 15 years, allows for homeowners to choose from either renting a wheeled cart from the hauler and being able to generate an unlimited amount of waste (up to the cart capacity), or a PAYT system where residents can buy bags from grocery stores or government buildings at a fixed rate per bag. The cart rental cost is \$12.60 per month, and the per-bag charge is \$3.90. Under this program households that have the cart option have unlimited setout. Both collection methods render the customer eligible for collection of recyclables at no extra charge, as well as occasional bulk waste collection. Implementation, billing, and customer service costs are all handled by the City's incumbent hauler, and collection is weekly for both the refuse and recycling waste streams. Customers also receive semi-annual collection of holiday items (such as trees)As of August 2009, however, the City will be moving to a system where they can select either a 35- or 95-gallon trash cart, and purchase tags for additional setouts. Bi-weekly collection of yard waste and recyclables will be included. This new service, which will be provided by Waste Management, is expected to encourage greater participation in recycling. .

Public opinion regarding the program is reported to be strongly positive. The program has resulted in savings for senior citizens, who are more likely to choose the per-bag structure given that many small-waste generators indicate that it takes about 2-3 weeks for them to fill one bag. The main advantage of the program as reported by the City is that elderly and single individual homeowners are able to take advantage of savings as a result of their below average waste generation rates.

The City also notes that implementing a bag program with cooperation from local grocery stores has been successful. The grocery stores coordinate with the incumbent hauler to ensure that a sufficient number of bags are made available for residents. There is generally a 2-3 day turnaround time for the stores to obtain additional bags. The City reports that grocery stores are very cooperative with the process and do not engage in "mark-up" of bag prices, because they view the program as an incentive for customers to frequent their stores.

### **Indiana Borough**

Indiana Borough, Indiana County, has a population of approximately 14,895 people in 4,804 households. The Borough used to operate a PAYT rate structure that charged residents \$3.00 per bag through their contracted hauler.

The Borough reports that they discontinued their PAYT system. In the latest iteration of their collection contract, the Borough decided to go back to an unlimited system. The primary reason

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for this decision related to the demographics of the Borough. The Borough has a relatively large number of university students who engaged in activities such as illegal dumping to avoid the per-bag fee. Reports of widespread illegal dumping and/or storing trash resulted in a decision to end the PAYT program.

### **East Bradford Township**

East Bradford Township, Chester County, has a population of approximately 9,045 people in 3,076 households. East Bradford has a mandatory hybrid PAYT program with collection service provided by a private hauler. Township officials cite ease of record keeping, and the fact that they are an Act 101-mandated recycling community as the reasons for instituting a mandatory program.

The collection program costs residents a flat rate of \$16.69 per month for three 32-gallon bags per week. Any additional bags to be disposed of must have a sticker affixed to them, at a cost of \$1.85 per sticker which can be affixed to a 32-gallon bag (hence the hybrid PAYT). Stickers are sold in sheets of 10 for \$18.50, and are available through the hauler. The hauler also handles billing and customer service. Ancillary program costs, such as educational information distributed via the Township website and newsletter, tire recycling, leaf collection, and holiday tree disposal have been funded via the 904 recycling grant.

Bulk waste collection provided by the hauler is limited to one item per residential unit per month, at no additional charge (unless the bulk item in question contains Freon). Seasonal yard waste collection is unlimited, and is provided at no additional charge by the hauler.

According to a municipal representative, the PAYT program in East Bradford was met with some initial skepticism from residents, but resistance has gradually declined since the inception of the program in 1992. Negative comments are reportedly rare. The only source of complaints relates to residents wanting more frequent collection. Currently, the Township has once-per-week collection through their private hauler, and officials state that the volume of garbage is not significant enough to make twice-per-week collection cost-effective. Small waste generators appear to be satisfied with the program. Officials attribute this to the fact that their PAYT sticker sales (estimated to be about 2,400 stickers per year) are low relative to the number of households in the Township (e.g., an average of 0.78 stickers per household per year). Therefore, the base charge and allotment of three 32-gallon bags appears to be sufficient for most residents.

East Bradford Township reports that this hybrid program is unlikely to change without some unforeseen change in state requirements. The hauler contract is renewed annually, at which point a survey is conducted by the Township to measure performance. Overall, Township officials report a positive experience with the hybrid program, and are of the opinion that a hybrid system is less likely to result in undesired program outcomes such as illegal dumping than a strict PAYT system (e.g., where the resident pays for each bag) would. This is because in

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a strict PAYT system, residents might be more inclined to avoid all per-bag fees by illegally disposing of all of their waste.

### **Elverson Borough**

Elverson Borough, Chester County, has a population of approximately 959 people residing in 412 households. Currently Elverson has a mandatory strict PAYT program with weekly trash and recyclables collection provided under contract with a private hauler. Borough officials state that the only way for a strict PAYT program to be effective is for it to be mandatory (e.g., require that all residents participate).

The Borough charges residents \$2.50 per 30-gallon bag and provides once-per-week collection. Bags can be purchased in either quantities of five or as single bags, and are sold at local businesses throughout the community. The Borough handles customer service for the program. Ancillary program costs such as the Borough newsletter are recovered through means other than the charges to residents for bags (presumably through grants). Borough officials report that the program is well received by residents, and that they have had minimal negative comments. Residents indicate that they appreciate the cost savings offered by a strict PAYT program. It is also believed that small waste generators are observing significant savings over a traditional flat rate.

Bulk and yard waste collection provided by the hauler is unlimited, and provided at no additional charge on scheduled days. Bulk waste does not require an official bag, nor does yard waste.

Elverson Borough reports that this program is expected to continue indefinitely, regardless of any changes to their collection contract terms (which are renewed yearly). Borough officials cite no disadvantages to this system in their view, from which the inference can be made that the impact of illegal dumping is viewed to be negligible. The program “pays for itself” and the mess of empty trash cans all over the Borough roads after a pick-up is also avoided.

### **West Bradford Township**

West Bradford Township, Chester County, has a population of approximately 10,775 people residing in 3,419 households. West Bradford has a mandatory hybrid PAYT program, and collection of trash and recyclables is provided by Township crews. Residents are charged \$81.00 for six months, which allows them to fill of one 90-gallon cart per week of trash. Disposed waste beyond that must have a sticker affixed to it. Each sticker costs \$2.00, and can be affixed to a 30-gallon bag. Stickers are available at the West Bradford Township Building. The Township also handles all billing and customer service.

Bulk item collection is limited to one item per residential unit per month at no additional charge. Yard waste is not collected in the Township. Township officials recommend that yard waste be composted, and/or self-hauled a nearby landfill.

During program inception a private hauler provided collection under contract. After receiving a large number of complaints about the hauler, however, West Bradford decided to pursue

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collection themselves, and have been doing so since early October 2006. Since this transition is so recent, Township officials report that it is too early to tell whether the problems encountered with the private hauler have been eliminated as a result of municipalization. With regard to small waste generators, officials report that they may eventually alter some of the program offerings to cater to small waste generators, who see no extra savings (and have no real financial incentive to recycle) with the current rate structure.

A West Bradford representative reports that this program is expected to continue indefinitely. In general, officials cite that the main advantage of a hybrid PAYT program is that every resident does not have to share the cost burden for those residents who generate significantly more amounts of waste. This arrangement is viewed as a more equitable way of charging residents based on the amount of waste they actually generate than a flat-fee system, providing an economic incentive for residents to decrease their waste generation, at least to the base level.

### **West Whiteland Township**

West Whiteland Township has a population of approximately 16,499 in 6,618 households. The Township has a strict PAYT program. Charges under the current program are \$2.00 per 30-gallon bag, with once-per-week collection of trash and recyclables. West Whiteland handles all of the billing and customer service for the program, with a private hauler providing weekly collection of trash and recyclables. Officials report that all of the program costs are covered by the per-bag charge.

Bulk item collection provided by the hauler is limited to four items per residential unit per month at no additional charge. The Township provides its own yard waste collection. Yard waste (leaf and brush) collection is also provided. Leaves are collected on six days (once per week per customer for a period of six weeks) during the months of November and December. Leaves must be placed in special biodegradable paper bags. Branches are collected once per year by the Township, and can be at most four feet long and four inches in diameter.

The PAYT program has been operational in West Whiteland since 1991. As such, Township officials do not have recollection regarding residents' attitudes about program implementation. They do note, however, that small waste generators are saving a good deal under the system.

West Whiteland reports that this program will continue indefinitely, unless there is some change to the current Township ordinance. Officials note that the advantage of this system is that it encourages habitual recycling on the part of residents who want to minimize their disposal costs.

Appendix A contains a summary of the key information regarding each respondent community's PAYT program.

### **Cranberry Township**

Cranberry Township, Butler County, has a PAYT program based on three different-sized trash containers. Their program, Collection Connection,<sup>TM</sup> allows residents to select the cart size they wish to use for their disposed trash. Residents can choose to have one or more 35-gallon, 65-



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gallon, or 96-gallon trash carts. Yard waste carts are 96-gallons and recycling carts are 96-gallons. Residents are billed quarterly, in advance, based on their disposed cart size, as follows:

- 96-gallon – \$46.08;
- 64-gallon – \$44.16; and
- 35-gallon – \$42.63.

These quarterly fees include yard waste collection (April through October plus Christmas trees) and recycling collection.

If residents consistently generate additional trash, they can select an additional trash cart at the following quarterly cost:

- 96-gallon cart for \$8.45;
- 65-gallon cart for \$6.75; and
- 35-gallon cart for \$4.65.

In addition, four different-priced tags are available for extra setouts. The tag price structure is as follows:

- \$0.65 for one bag or one small item;
- \$4.00 for a bulky or large item (other than major appliances);
- \$10.00 per major appliance; and
- \$15.00 for multiple items set outside of carts.

Residents are asked to schedule collection of large items.

Collection of all items (recyclables, trash, bulk items and yard waste) occurs on the same day, to maximize customer convenience. Automated collection vehicles are used to collect trash, recyclables, and yard waste. Green-topped carts are used for yard waste, grey-topped carts are used for trash, and blue-topped carts are used for recyclables. Residents can exchange their trash cart size if their initial selection turns out to be too large or too small.

The contracted hauler, Vogel Disposal Services, Inc., has the contract with the Township through October 31, 2009.

## **Financial Analysis – PAYT Rates**

Based on research and interviews gathered as part of the benchmarking task, and based on a review of the Township's overarching goals and their desire to maintain a financially sustainable collection system, it was determined in concert with the Township that a strict PAYT system that provides adequate revenue coverage for running the program is the most appropriate option for implementation consideration. Concurrent with financial analysis to this end, detailed analyses of the alternative hybrid system were also developed.

In order to construct a financial estimate of the proposed system's revenue requirements and operations, and thereby estimate the range of per-bag fees required in the Township, R. W. Beck developed Base Case and Alternative Case financial pro forma analyses of the Township's collection system for the period 2009 – 2018. The Base Case analysis was constructed as a first step to estimate, to the greatest extent possible, the true operating cost of the Township's current collection program and the program's resulting revenue requirements. This Base Case was then adjusted to construct Alternative Cases that reflect the estimated impact of implementing a PAYT program, including added expenses, and use certain key assumptions regarding revenue sources (i.e., the split between customer charges and per-bag charges), to compute a projected quarterly customer charge and associated per-bag charge, as applicable. Charges have been calculated throughout the study period under the Expected, High, and Low cases of waste generation projections. This section describes the assumptions and methods used to arrive at the estimated quarterly and per-bag charges for both the strict and hybrid alternatives. Appendix A provides complete summary tables for the Base and Alternative Cases.

The financial analysis consisted of multiple phases, namely:

1. Review and development of financial inputs and assumptions combined with a review of Township growth projections. Examples of key assumptions included inflation rates, discount rates (or the interest rate) for vehicle replacement, employee salaries and benefits multipliers, current quarterly collection rates, customer counts by class, vehicle vintage data and replacement priorities, current and future route counts, revenue rates for recyclables, and current and future tipping fees for solid waste and yard waste, among other assumptions. R. W. Beck has also relied upon the Township's own projection of population, which has been used to project the number of households on the basis of the historical average number of persons per household. These system parameters were used to construct the financial pro forma.
2. Statistical analysis to project the total amount of refuse expected to be generated in the Township over the study period. This analysis was performed as follows:
  - Economic and demographic data for Allegheny County as developed by Woods and Poole Economics, Inc. was subjected to an analysis to determine the variable or variables that performed best in explaining historical refuse tonnage in the Township. Projections of future values of these variables, coupled with the underlying uncertainty in the statistical model, were used to construct expected (or 50/50), "High", and "Low" refuse cases. The 50/50 point estimate implies that there is a 50 percent chance actual refuse generated will be above or below this value. For example, if the projected amount of waste in 2009 for the 50/50 case is 10,000 tons, then one can expect it to be equally likely that the actual tons generated in 2009 will be above 10,000 or below 10,000 tons. The High/Low bounds around the 50/50 case are uncertainty bounds around the refuse projection that represent 90 percent of potential future outcomes as projected by the model. Consequently, the bounds can be interpreted as there being a 5 percent chance of being above/below the upper/lower bounds in each year. For example, if the High

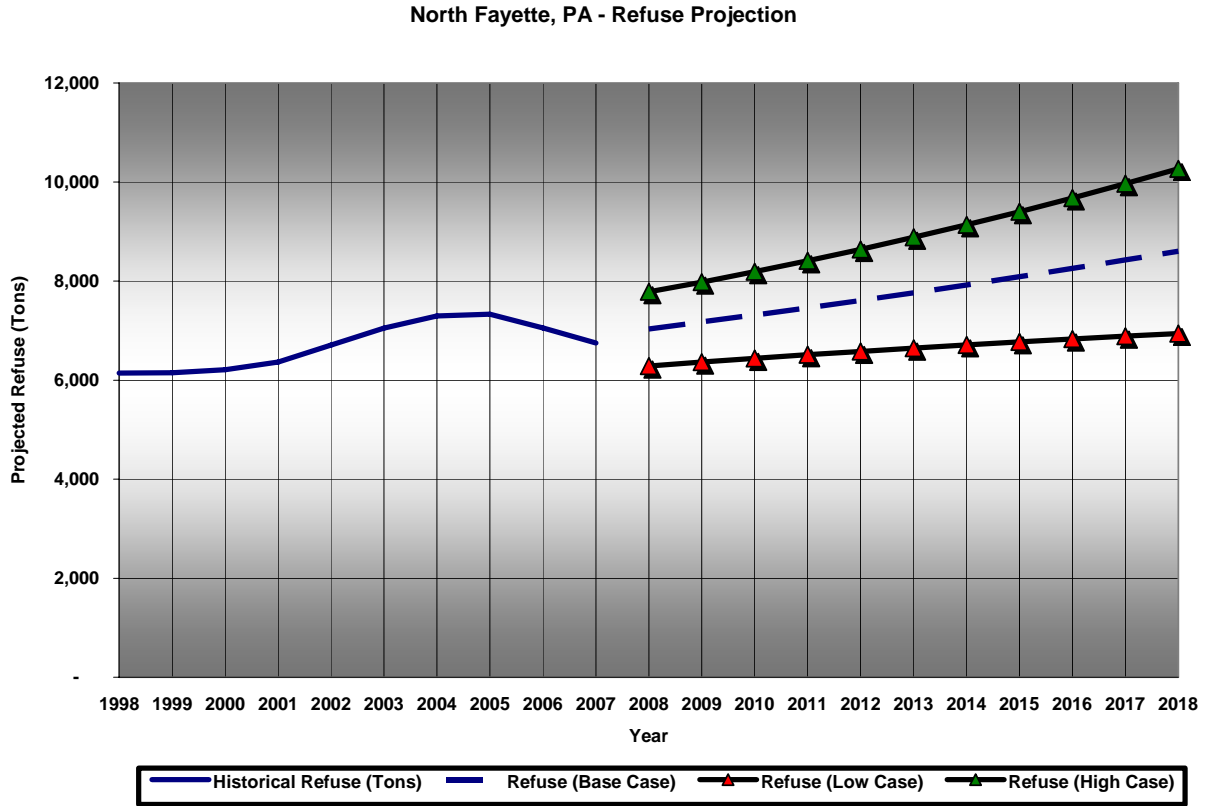
and Low Bounds for refuse in 2010 were 1,000 tons and 300 tons, respectively, there would be a 5 percent chance actual tonnage would be greater than 1,000 tons or less than 300 tons. Since the uncertainty in the model relationships increases over time, the distance between the 50/50 case and the High/Low Bounds also increases over time. This increased uncertainty is driven by the fact that future values of economic indicators, such as employment, personal income, or population, become more difficult to predict as one gets further and further away from the present. This increased uncertainty as one moves further away from the present also impacts revenue requirements and associated rates charged for bags in the High and Low cases as summarized in Appendix A.

- The resulting quantity disposed forecast driven directly from the statistical analysis was adjusted downward based on feedback from the Township related to the decline in total refuse in the most recent historical period, which the Township attributes to the following key factors:
  - Improved compliance on the part of Township residents with respect to bulk item set-out guidelines;
  - Better separation of yard waste from regular refuse over time;
  - A more restrictive Township policy regarding what items are collected as part of regular refuse service;
  - The loss of several commercial accounts; and
  - The proliferation of recyclable packaging, which is supported by the historical growth of recycling tonnage as a percent of total waste.

The Township's revised discrete forecast adjustment accounts for increased yard waste separation through the utilization of average yard waste density to apportion a fraction of the decrease in refuse to yard waste tonnage and a fraction to recycling. The Township reports that the loss of commercial customers has reached equilibrium, and that they do not expect to lose any additional customers. Consequently, the discrete adjustment of the forecast is expected to be adequate to cover the recent operational and behavioral changes in the Township's collection system.

- Model growth rates were compared to historical growth rates to assess the reasonableness of the resulting projections. Refuse is projected to grow at an average annual rate of 2.0 percent per year, driven primarily by projected growth in personal income in the surrounding County of 1.6 percent per year. Historically, refuse has grown at approximately 1.1 percent per year, inclusive of 2007, but has grown at 1.7 percent per year from 1998-2006. The growth rates projected by the model are in general alignment with historical patterns. The projections of refuse resulted in a range of tons of refuse per capita of 0.34 (Low Case) to 0.52 tons per capita (High Case), which compares favorably to the approximately 0.47 tons per

capita generated historically. The figure below summarizes the disposed refuse projections for the Township through 2018:



3. Projections of recycling and yard waste tonnage were constructed. Due to the unavailability of a sufficient historical period for yard waste data, yard waste has been projected to grow at its historical growth rate (approximately 1.9 percent per year). However, the recycling tonnage was tied directly to the respective refuse projections, and was assumed to grow in relative proportion to refuse, both as a result of increased emphasis on recycling as a sustainable behavior and to account for the historical ratio of refuse to recyclables, which has been growing slightly in favor of recyclables over the period 2003 – 2007.
4. The Base Case pro forma was constructed using a combination of refuse, recycling, and yard waste tonnage projections and an accounting of system revenues and recyclables revenue. The costs to operate the system under the Base Case were estimated using general inflationary escalation, and benefits and staffing were increased based on the anticipated period in which the Township will require an additional refuse route. Tip fees for solid waste and yard waste were also escalated at the rate of inflation. The difference between total system revenues and total system costs is shown as the net income (or loss if the difference is negative) in the study period. The Township reported that they did not want to increase their quarterly collection charge every year, although they have the authority to do

so. Their goal is to stagger any potential rate increases such that no two service offerings' rates are increased in the same year. Since the Base Case was constructed as a reference point for the PAYT rate design, the quarterly customer charge was kept flat throughout the study period. The resulting financial estimates rendered the Township in a "break-even" state for the near future, assuming they did not implement a PAYT program, which was in alignment with Township expectations for their financial condition assuming they did not implement a PAYT system (i.e. the Base Case).

5. Finally, the Alternative Case pro forma was developed. This analysis accounts for the impact of instituting either a strict or hybrid PAYT program using the following key inputs and assumptions:
  - Based on the immediate impact of such a system, and based on a conservative approach to waste generation adjustments, total refuse was assumed to decrease by 5 percent relative to the growth projections. A range of reduction in refuse between 1 percent and 10 percent is a conservative estimate of the impact of a newly implemented PAYT program. While EPA estimates of reduction in trash by weight are somewhat higher, they are generally longer-term estimates, and assume a very aggressive recycling program initiation period.
  - The weight of a 32-gallon bag was assumed to be 32 pounds. This one-pound-per-gallon assumption is based on EPA information, and is consistent with the notion that consumers will attempt to stuff bags more fully so as to avoid either paying for extra bags or reaching the pay-per-bag threshold. For example, a family that would generate two 27-pound 30-gallon bags and an additional 6-pound bag setout under unlimited collection may instead attempt to stuff the first two bags such that they weigh 10 percent more (i.e., 30 pounds each) to avoid paying a per-bag charge for the third bag, assuming they were allowed two bags under the base charge. The same behavior can be expected in the strict system to avoid expenditures on the next (incremental) bag.
  - The percentage of total system costs to be recovered by the per-bag charge was specified. Typically a hybrid system is the best choice for a lower risk of financial under-recovery, as the customer base charge can be thought of as the revenue floor that hedges against behavior intended to avoid a strictly per-bag rate structure. It has been assumed that 75 percent of projected system costs will be recovered from the customer base charge, with 25 percent to be recovered for bags above the bag threshold for this system, with 100 percent of revenue recovered by per-bag fees in the strict system.
  - The total number of bags expected to be generated was computed based on the total tons of waste converted to an estimate of the total number of 32-gallon bags per customer per year. The strict per-bag fee that would ensure revenue neutrality in each year of the study period was then computed. For the hybrid alternative, the number of bags over the four bags per-month threshold was then determined, and

the price per bag and associated quarterly charge that would render the system sustainable (i.e., that would render net revenues to be zero given system costs) was derived from the relationships in the financial model.

6. The forecasts of waste generation were altered from the “50/50” case to the “High” and “Low” cases, and these estimates were used to determine the range of fees summarized in this report. Note again the relationship between higher per-bag fees as well as base charges and lower waste generation, as the system bags (and associated incremental revenues) estimated to be generated for collection are directly a result of the tonnage forecast. R. W. Beck recommends that in order to minimize the risks of financial shortfall in the short-term, the “low” case of waste generation and its associated rates be used as an initial implementation target.

Appendix A contains tables of the Base Case, as well as the Alternative Cases under the 50/50, High, and Low waste generation forecasts for both the strict system and the hybrid alternative. As previously noted, the Township has the ability to generate numerous other sensitivity cases via the use of the Excel© model developed as part of this financial analysis.

## Observations and Recommendations

Based on our research and financial analysis of the Township’s estimated operating results, R. W. Beck presents the following observations and recommendations:

- With regard to PAYT program implementation, evidence exists to support a hybrid PAYT system over a strict PAYT system for the Township, but it has been determined in concert with the Township that both methods have the potential to be successful . While R. W. Beck has constructed a detailed financial analysis for both alternatives, several key concerns regarding challenges of the hybrid system were ultimately deciding factors in support of the development of a financial analysis for the strict system and the emphasis of results under this system in this report, including but not limited to:
  - Increased workload and complexity of billing under the hybrid system;
  - More complex educational needs for residents under the hybrid system;
  - Increased complication of field crew ascertaining whether bags have been properly marked and/or whether bags are part of the baseline service or are subject to the additional per-bag fee; and
  - Relative convenience of colored bags coupled with stickers for bulk items under the strict system.
- While it is assumed herein that the Township is more likely to implement a strict system, R. W. Beck recommends that the Township consider a hybrid option for potential future implementation, which would recover a primary portion of the revenue requirements of the collection system through a customer charge, and recover additional revenue through a unit pricing structure for bags generated over the allowed limit per the base customer charge.

Despite the noted challenges with this system, such an approach is less risky with respect to potential revenue shortfalls. A hybrid system is also more compatible with automated collection systems.

- Should the Township wish to pursue a hybrid system in the future, revenue shortfall risk must be properly addressed. In an effort to protect Township interests and avoid large financial shortfalls resulting from consumer behavior intended to avoid the additional per-bag charge, R. W. Beck recommends that 75 percent of the Township's projected revenue requirements for the collection system be recovered with a base customer charge and associated set-out limit. R. W. Beck has prepared a financial model for the Township that enables the user to, among other key assumptions, alter the percentage of revenue recovery desired to be fulfilled by the base customer charge (including 0 percent, which amounts to a strict system). The range of PAYT bag rates presented in Appendix A for the hybrid system is indicative of the 75/25 split assumption. Alternative cases and resulting rates can be constructed via alterations to the Excel© Financial Model prepared for the Township. It should be noted that even under a strict system, the Township may wish to consider recovery of some amount of base revenue (small customer charge) to help fund the recycling program and/or other solid waste administrative costs in addition to the bag fees. The Township has expressed a desire to greatly simplify the billing process, and as such the 0 percent assumption has been used in the strict system analysis.
- The Township should recurrently review its financial operating results and cross reference projections of customers, refuse and recycling tonnage and revenues earned from the PAYT system, and adjust rates accordingly. Particular attention should be paid to the period leading up to the year 2013, as R. W. Beck estimates that the Township will need to add an additional collection route in this timeframe based on expected customer growth. The Excel© Financial Model developed for the Township contains some key dynamic decision variables that allow the user to alter future assumptions in each year of the study period. The Township should consider running Alternative Cases by adjusting these variables as part of their recurrent review. These variables include:
  - The amount of refuse reduction expected/experienced under a PAYT program (which has been conservatively estimated to be 5 percent initially);
  - The weight of a 32-gallon bag (see below);
  - The proportion of total revenue requirements that are to be recovered by the per-bag fees; and
  - The number of 32-gallon bags per month that are to be collected as part of the baseline level of service (i.e. as part of the quarterly customer charge) if and when a hybrid system is again considered subsequent to the implementation of the strict system.
- Based on the financial analysis conducted for the strict system, the range of bag costs estimated to be required was calculated to be \$1.90 per bag to \$2.30 per bag in 2009, increasing to \$2.20 per bag to \$2.70 per bag in 2013 and \$2.30 per bag to \$3.20 per bag in

2018. Delinquency is a significant consideration, and these findings assume no delinquencies. A case with 10 percent delinquency has also been prepared and is detailed in appendix A. Even a small delinquency rate will result in higher estimated per bag charges required to maintain revenue neutrality. Delinquency assumes that system costs will have to be spread across a smaller customer base, and as such the total revenue requirements are split amongst 90 percent of the customers. Revenue requirements are still driven from the total system costs (drivers, tipping fees, admin, education, etc.). This is why the per-bag charges are slightly higher in these cases. These cases assume that waste by delinquents will still be generated, but that such delinquents will engage in behavior designed to avoid the fees, such as illegal dumping or stealing bags, etc. The increased per-bag fee is a risk-adjusted cost designed to cover the expenses related to enforcement for delinquents and to hedge against potential under recovery of revenue related to such activities.

- Based on the financial analysis of the hybrid system, the range of bag costs estimated to be required assuming the 75/25 split and a baseline level of service of four bags per customer per month was calculated to be \$0.90 per bag to \$1.60 per bag in 2009, increasing to \$1.00 per bag to \$1.90 per bag in 2013 and \$1.00 per bag to \$3.60 per bag in 2018. These rates would be supported by a quarterly customer charge ranging from \$30.10 to \$32.60 in 2009, increasing to \$35.10 to \$38.20 in 2013 and \$34.90 to \$39.60 in 2018. The tables presented in Appendix A provide the backup detail in support of these estimates. It is important to note that there is an inverse relationship between the amount of generation assumed and the per-bag charge, as a larger number of bags generated (in excess of the baseline service level) implies that revenue requirements can be split across a greater complement of bags (i.e., the marginal cost associated with collection and disposal of the extra bags decreases as the number of bags increases given current staffing levels, administrative costs, and tip fees). The same is true for the strict case, and the Township should carefully review the analyses in Appendix A to gain comfort with these relationships.
- Based on studies conducted by the EPA, it is estimated that a 32-gallon bag full of MSW weighs approximately 32 pounds subsequent to the implementation of a PAYT program. This is a key underlying assumption in the estimation of the amount of bags generated in the Township moving forward (i.e. roughly 1 pound per gallon of bag volume), and it can be expected that some uncertainty surrounding the weight of incoming bags exists (primarily due to “stuffing” of bags to avoid generating additional bags). This potential for changes to the number of bags per customer is one reason to potentially consider a hybrid system that renders the majority of cost recovery responsibility on the customer charge, while still providing an economic incentive for customers to limit their waste generation. R. W. Beck has rounded up the per-bag charge slightly in both the strict and hybrid analyses to account in part for this uncertainty and to further hedge against revenue shortfall risk.
- In order to simplify the implementation of the PAYT process, the Township should consider a sticker system for bulk item collection. Other options such as seasonal collection or restrictions on bulk item placement were deemed infeasible by the Township given the



specific dynamics of the community. Options recommended for implementation of payment stickers include:

- Utilizing the existing bulk item stickers distributed at the town hall for bulk waste collection; or
  - Having stickers available at the town hall as well as collocating stickers next to bags at grocery stores. Typically, grocery stores are willing to participate in such a placement as it generates customer traffic.
- In order for the first year of the PAYT program to be successful and for the program to be viable in general, the Township must place a strong short-term emphasis on education and enforcement. The tactics below have been grouped into a “PAYT Program Costs” line item in the Alternative Case pro forma summaries included in Appendix A. Specific education and outreach activities recommended are:
- Distributing educational flyers regarding the structure and benefits of the new program;
  - Updating the Township website to include a description of the program rules, details on sticker locations, and a feedback/comments forum for customer complaints or questions regarding program logistics;
  - Budgeting for some added part-time labor to coordinate PAYT efforts, take in potential customer complaints, and coordinate with collection staff; and
  - Supporting collection staff in the enforcement of PAYT sticker rules for bulk items and use of the appropriate colored bags during all phases of program implementation; in isolated benchmark cases, enforcement has been a problem due to collectors not wanting to receive complaints from customers and collecting non-marked additional bags of waste, and this is to be expected in the Township in the early stages of program implementation. The Township also reports that their collection staff has been conditioned over time to value customer service and “collect everything,” and that this ethic will be difficult to change. Consequently, the proper internal education of collection staff coupled with the right reinforcement and incentives should also be in place immediately prior to and during implementation. For example, the Township could consider printing and distributing various levels of tags to place on residents’ doors when materials are not properly set out (e.g., with each additional improper setout the tone of the tag becomes slightly more serious).

Should you have any questions or concerns regarding the data, research methods, or recommendations presented in this report, please do not hesitate to contact us at your convenience.

Sincerely,

Mr. Robert Grimm  
North Fayette Township  
December 23, 2008  
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R. W. BECK, INC.

A handwritten signature in black ink, appearing to read "Navid Nowakhtar". The signature is fluid and cursive, with a prominent loop at the end.

Navid Nowakhtar  
Economist/Senior Associate

NN:ls

North Fayette Township Technical Assistance  
Pro Forma of System Operations - Strict PAYT Case

Line No.	50/50 Case - Waste Generation	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
1	System Parameters										
2	Township Population	[1] 15,350	15,775	16,200	16,625	17,050	17,725	18,400	19,075	19,750	20,425
3	Residential Customers	[2] 4,294	4,413	4,532	4,650	4,769	4,958	5,147	5,336	5,525	5,713
4	Trailers	696	700	703	707	710	714	718	721	725	728
5	Annual Tonnage - Refuse	[3] 6,813	6,948	7,087	7,229	7,376	7,527	7,682	7,841	8,005	8,174
6	Annual Tonnage - Recycling	[3] 701	732	764	798	835	874	915	959	1,005	1,055
7	Annual Cubic Yardage - Yard Waste	[4] 1,310	1,335	1,360	1,386	1,412	1,439	1,466	1,494	1,522	1,551
8	Annual Tonnage - Yard Waste	[4] 246	250	255	260	265	270	275	280	285	291
9	Total Tons Generated	7,760	7,930	8,106	8,287	8,476	8,670	8,871	9,080	9,296	9,519
10	Estimated Total Bags (32 gallon) Generated	[5] 484,986	495,619	506,607	517,962	529,721	541,882	554,457	567,488	580,990	594,962
11	Estimated Bags per Customer Per Month	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
12	Tons of Refuse per Capita per Year	0.44	0.44	0.44	0.43	0.43	0.42	0.42	0.41	0.41	0.40
13	Total Routes Required - Refuse	[6] 3	3	3	3	4	4	4	4	4	4
14	Total Routes Required - Recycling	1	1	1	1	1	1	1	1	1	1
15	System Revenue										
16	Estimated Quarterly Customer Charge	[7] \$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
17	Estimated Per-Bag Charge	[7] \$ 2.10	\$ 2.10	\$ 2.10	\$ 2.10	\$ 2.40	\$ 2.40	\$ 2.40	\$ 2.40	\$ 2.40	\$ 2.40
18	PAYT Cost Recovery Rate (%)	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
19	Revenue Requirements - Refuse Collection	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
20	Revenue Requirements - PAYT Charges	\$ 841,070	\$ 867,824	\$ 895,585	\$ 922,442	\$ 1,079,458	\$ 1,110,939	\$ 1,148,265	\$ 1,181,872	\$ 1,216,597	\$ 1,291,369
21	Revenue - Recyclables	\$ 16,297	\$ 17,414	\$ 18,620	\$ 19,924	\$ 21,334	\$ 22,861	\$ 24,513	\$ 26,305	\$ 28,247	\$ 30,354
22	<b>Total Revenue</b>	<b>\$ 857,367</b>	<b>\$ 885,238</b>	<b>\$ 914,205</b>	<b>\$ 942,365</b>	<b>\$ 1,100,792</b>	<b>\$ 1,133,800</b>	<b>\$ 1,172,779</b>	<b>\$ 1,208,177</b>	<b>\$ 1,244,845</b>	<b>\$ 1,321,723</b>
23	System Costs	[8]									
24	Foreman - Salary	\$ 51,974	\$ 53,222	\$ 54,499	\$ 55,807	\$ 57,146	\$ 58,518	\$ 59,922	\$ 61,360	\$ 62,833	\$ 64,341
25	Driver 1 - Salary	\$ 47,699	\$ 48,844	\$ 50,016	\$ 51,217	\$ 52,446	\$ 53,705	\$ 54,994	\$ 56,313	\$ 57,665	\$ 59,049
26	Driver 2 - Salary	\$ 45,802	\$ 46,901	\$ 48,027	\$ 49,179	\$ 50,360	\$ 51,568	\$ 52,806	\$ 54,073	\$ 55,371	\$ 56,700
27	Driver 3 - Salary	\$ 45,802	\$ 46,901	\$ 48,027	\$ 49,179	\$ 50,360	\$ 51,568	\$ 52,806	\$ 54,073	\$ 55,371	\$ 56,700
28	Driver 4 - Salary	\$ 45,584	\$ 46,678	\$ 47,798	\$ 48,945	\$ 50,120	\$ 51,323	\$ 52,554	\$ 53,816	\$ 55,107	\$ 56,430
29	Driver 5 - Salary	\$ 45,366	\$ 46,454	\$ 47,569	\$ 48,711	\$ 49,880	\$ 51,077	\$ 52,303	\$ 53,558	\$ 54,844	\$ 56,160
30	Driver 6 - Salary	\$ 45,366	\$ 46,454	\$ 47,569	\$ 48,711	\$ 49,880	\$ 51,077	\$ 52,303	\$ 53,558	\$ 54,844	\$ 56,160
31	Driver - Additions	\$ -	\$ -	\$ -	\$ -	\$ 50,507	\$ 51,720	\$ 52,961	\$ 54,232	\$ 55,534	\$ 56,866
32	Admin - Salary	\$ 16,358	\$ 16,750	\$ 17,152	\$ 17,564	\$ 17,986	\$ 18,417	\$ 18,859	\$ 19,312	\$ 19,775	\$ 20,250
33	Employee Benefits	\$ 117,545	\$ 120,366	\$ 123,255	\$ 126,213	\$ 145,137	\$ 148,620	\$ 152,187	\$ 155,839	\$ 159,579	\$ 163,409
34	<b>Subtotal - Salary and Benefits</b>	<b>\$ 461,495</b>	<b>\$ 472,571</b>	<b>\$ 483,913</b>	<b>\$ 495,527</b>	<b>\$ 573,821</b>	<b>\$ 587,593</b>	<b>\$ 601,695</b>	<b>\$ 616,135</b>	<b>\$ 630,923</b>	<b>\$ 646,065</b>
35	Vehicle Maintenance	\$ 29,385	\$ 30,091	\$ 30,813	\$ 31,552	\$ 38,771	\$ 39,702	\$ 40,655	\$ 41,630	\$ 42,630	\$ 43,653
36	Vehicle Fuel	[9] \$ 29,885	\$ 32,276	\$ 34,858	\$ 35,695	\$ 43,862	\$ 44,914	\$ 45,992	\$ 47,096	\$ 48,226	\$ 49,384
37	Vehicle - Fluids and Oil	\$ 3,317	\$ 3,396	\$ 3,478	\$ 3,561	\$ 4,376	\$ 4,481	\$ 4,589	\$ 4,699	\$ 4,811	\$ 4,927
38	Vehicle - Replacement - Priority 1	\$ 31,425	\$ 31,425	\$ 31,425	\$ 31,425	\$ 31,425	\$ 31,425	\$ -	\$ -	\$ -	\$ -
39	Vehicle - Replacement - Priority 2	\$ -	\$ -	\$ -	\$ -	\$ 12,973	\$ 12,973	\$ 12,973	\$ 12,973	\$ 12,973	\$ 12,973
40	Vehicle - Replacement - Priority 3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 36,230	\$ 36,230	\$ 36,230	\$ 36,230
41	Vehicle - Replacement - Priority 4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 38,902
42	Vehicle - Additions	\$ -	\$ -	\$ -	\$ -	\$ 35,381	\$ 35,381	\$ 35,381	\$ 35,381	\$ 35,381	\$ 35,381
43	<b>Subtotal - Vehicles</b>	<b>\$ 94,012</b>	<b>\$ 97,188</b>	<b>\$ 100,573</b>	<b>\$ 102,233</b>	<b>\$ 166,788</b>	<b>\$ 168,876</b>	<b>\$ 175,820</b>	<b>\$ 178,010</b>	<b>\$ 180,252</b>	<b>\$ 221,450</b>
44	Landfill Tip Fees - Solid Waste	\$ 235,104	\$ 245,516	\$ 256,428	\$ 267,862	\$ 279,859	\$ 292,434	\$ 305,616	\$ 319,446	\$ 333,957	\$ 349,169
45	Landfill Tip Fees - Yard Waste	\$ 12,362	\$ 12,899	\$ 13,458	\$ 14,042	\$ 14,651	\$ 15,286	\$ 15,950	\$ 16,641	\$ 17,363	\$ 18,116
46	<b>Subtotal - Tip Fees</b>	<b>[10] \$ 247,466</b>	<b>\$ 258,414</b>	<b>\$ 269,886</b>	<b>\$ 281,904</b>	<b>\$ 294,510</b>	<b>\$ 307,721</b>	<b>\$ 321,565</b>	<b>\$ 336,088</b>	<b>\$ 351,320</b>	<b>\$ 367,286</b>
47	Addl. Sticker Cost	\$ 41,918	\$ 43,977	\$ 46,110	\$ 48,321	\$ 50,611	\$ 53,045	\$ 56,795	\$ 60,067	\$ 63,462	\$ 66,986
48	Educational Materials	\$ 12,476	\$ 13,088	\$ 13,723	\$ 14,381	\$ 15,063	\$ 15,966	\$ 16,903	\$ 17,877	\$ 18,888	\$ 19,936
49	<b>Subtotal - PAYT Program Costs</b>	<b>[11] \$ 54,394</b>	<b>\$ 57,065</b>	<b>\$ 59,833</b>	<b>\$ 62,702</b>	<b>\$ 65,674</b>	<b>\$ 69,611</b>	<b>\$ 73,699</b>	<b>\$ 77,944</b>	<b>\$ 82,350</b>	<b>\$ 86,923</b>
50	<b>Total Costs</b>	<b>\$ 857,367</b>	<b>\$ 885,238</b>	<b>\$ 914,205</b>	<b>\$ 942,365</b>	<b>\$ 1,100,792</b>	<b>\$ 1,133,800</b>	<b>\$ 1,172,779</b>	<b>\$ 1,208,177</b>	<b>\$ 1,244,845</b>	<b>\$ 1,321,723</b>
51	<b>Net Income (Loss) (Line 22 - Line 50)</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>

North Fayette Township Technical Assistance  
Pro Forma of System Operations - Strict PAYT Case

Footnotes:

- 
- [1] Population growth projected based on expected additions per year in the short and long term as provided by the Township. The average of the high/low expected additions has been used in each case, with 2014 shown as the first "long-term" year.
- [2] Calculated based on historical persons per household ratio of 3.3 for the Township.
- [3] Projected econometrically using total personal income in Allegheny County as the primary explanatory variable. Refer to the Projections Summary Table for growth rates for the base, high, and low growth cases. Alternative case assumes a refuse reduction due to PAYT implementation as a dynamic decision variable.
- [4] Yard Waste assumed to grow based on historical average annual growth rate. Volumetric conversion of yard waste to tons is based on average density factor of 350 lbs/CY.
- [5] Assumes an average weight of 32 lbs per 32-gallon bag based on data compiled by the EPA.
- [6] Refuse route increase estimated based on current ratio of refuse trucks to households. It is anticipated that an additional truck will initially have a smaller route, and then increase in size to meet the expanding Township household count.
- [7] Customer charge reflects estimated quarterly rate required to cover the user input recovery rate for baseline collection services, or 100% minus the user input PAYT cost recovery rate. Note that per bag prices are directly related to the number of bags the user inputs as being included as part of the customer charge, and that bag prices have been rounded up to help mitigate revenue risk.
- [8] Salaries and vehicle cost information provided by the Township and escalated for inflation, with the exception of fuel costs (see Footnote #9).
- [9] Fuel costs for vehicles through 2011 have been escalated based on recent year increases in Diesel Fuel as reported by the Energy Information Administration (EIA). Longer term fuel cost has been escalated at inflation.
- [10] Tip fees have been assumed to increase with inflation.
- [11] Program costs exclude additional administrative labor related to customer service and educational facilitation, which has been estimated and added to the Salary and Benefits sub-section of costs (as a part-time/temporary employee with no benefits).

North Fayette Township Technical Assistance  
Pro Forma of System Operations - Strict PAYT Case

Line No.	High Case - Waste Generation	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
1	<b>System Parameters</b>										
2	Township Population	[1] 15,350	15,775	16,200	16,625	17,050	17,725	18,400	19,075	19,750	20,425
3	Residential Customers	[2] 4,294	4,413	4,532	4,650	4,769	4,958	5,147	5,336	5,525	5,713
4	Trailers	696	700	703	707	710	714	718	721	725	728
5	Annual Tonnage - Refuse	[3] 7,581	7,779	7,988	8,208	8,438	8,680	8,931	9,194	9,468	9,753
6	Annual Tonnage - Recycling	[3] 762	800	840	883	930	980	1,034	1,092	1,155	1,222
7	Annual Cubic Yardage - Yard Waste	[4] 1,310	1,335	1,360	1,386	1,412	1,439	1,466	1,494	1,522	1,551
8	Annual Tonnage - Yard Waste	[4] 246	250	255	260	265	270	275	280	285	291
9	Total Tons Generated	8,589	8,829	9,083	9,351	9,633	9,930	10,240	10,566	10,908	11,265
10	Estimated Total Bags (32 gallon) Generated	[5] 536,786	551,796	567,676	584,420	602,066	620,599	640,024	660,401	681,748	704,065
11	Estimated Bags per Customer Per Month	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0
12	Tons of Refuse per Capita per Year	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.48	0.48	0.48
13	Total Routes Required - Refuse	[6] 3	3	3	3	4	4	4	4	4	4
14	Total Routes Required - Recycling	1	1	1	1	1	1	1	1	1	1
15	<b>System Revenue</b>										
16	Estimated Quarterly Customer Charge	[7] \$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
17	Estimated Per-Bag Charge	[7] \$ 1.90	\$ 1.90	\$ 1.90	\$ 1.90	\$ 2.20	\$ 2.20	\$ 2.20	\$ 2.20	\$ 2.20	\$ 2.30
18	PAYT Cost Recovery Rate (%)	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
19	Revenue Requirements - Refuse Collection	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
20	Revenue Requirements - PAYT Charges	\$ 872,145	\$ 901,857	\$ 932,937	\$ 963,481	\$ 1,124,570	\$ 1,160,612	\$ 1,202,910	\$ 1,241,924	\$ 1,282,511	\$ 1,363,614
21	Revenue - Recyclables	\$ 17,711	\$ 19,028	\$ 20,468	\$ 22,042	\$ 23,764	\$ 25,648	\$ 27,708	\$ 29,964	\$ 32,436	\$ 35,142
22	<b>Total Revenue</b>	<b>\$ 889,856</b>	<b>\$ 920,885</b>	<b>\$ 953,405</b>	<b>\$ 985,523</b>	<b>\$ 1,148,334</b>	<b>\$ 1,186,260</b>	<b>\$ 1,230,618</b>	<b>\$ 1,271,888</b>	<b>\$ 1,314,947</b>	<b>\$ 1,398,756</b>
23	<b>System Costs</b>										
24	Foreman - Salary	\$ 51,974	\$ 53,222	\$ 54,499	\$ 55,807	\$ 57,146	\$ 58,518	\$ 59,922	\$ 61,360	\$ 62,833	\$ 64,341
25	Driver 1 - Salary	\$ 47,699	\$ 48,844	\$ 50,016	\$ 51,217	\$ 52,446	\$ 53,705	\$ 54,994	\$ 56,313	\$ 57,665	\$ 59,049
26	Driver 2 - Salary	\$ 45,802	\$ 46,901	\$ 48,027	\$ 49,179	\$ 50,360	\$ 51,568	\$ 52,806	\$ 54,073	\$ 55,371	\$ 56,700
27	Driver 3 - Salary	\$ 45,802	\$ 46,901	\$ 48,027	\$ 49,179	\$ 50,360	\$ 51,568	\$ 52,806	\$ 54,073	\$ 55,371	\$ 56,700
28	Driver 4 - Salary	\$ 45,584	\$ 46,678	\$ 47,798	\$ 48,945	\$ 50,120	\$ 51,323	\$ 52,554	\$ 53,816	\$ 55,107	\$ 56,430
29	Driver 5 - Salary	\$ 45,366	\$ 46,454	\$ 47,569	\$ 48,711	\$ 49,880	\$ 51,077	\$ 52,303	\$ 53,558	\$ 54,844	\$ 56,160
30	Driver 6 - Salary	\$ 45,366	\$ 46,454	\$ 47,569	\$ 48,711	\$ 49,880	\$ 51,077	\$ 52,303	\$ 53,558	\$ 54,844	\$ 56,160
31	Driver - Additions	\$ -	\$ -	\$ -	\$ -	\$ 50,507	\$ 51,720	\$ 52,961	\$ 54,232	\$ 55,534	\$ 56,866
32	Admin - Salary	\$ 16,358	\$ 16,750	\$ 17,152	\$ 17,564	\$ 17,986	\$ 18,417	\$ 18,859	\$ 19,312	\$ 19,775	\$ 20,250
33	Employee Benefits	\$ 117,545	\$ 120,366	\$ 123,255	\$ 126,213	\$ 145,137	\$ 148,620	\$ 152,187	\$ 155,839	\$ 159,579	\$ 163,409
34	<b>Subtotal - Salary and Benefits</b>	<b>\$ 461,495</b>	<b>\$ 472,571</b>	<b>\$ 483,913</b>	<b>\$ 495,527</b>	<b>\$ 573,821</b>	<b>\$ 587,593</b>	<b>\$ 601,695</b>	<b>\$ 616,135</b>	<b>\$ 630,923</b>	<b>\$ 646,065</b>
35	Vehicle Maintenance	\$ 29,385	\$ 30,091	\$ 30,813	\$ 31,552	\$ 38,771	\$ 39,702	\$ 40,655	\$ 41,630	\$ 42,630	\$ 43,653
36	Vehicle Fuel	[9] \$ 29,885	\$ 32,276	\$ 34,858	\$ 35,695	\$ 43,862	\$ 44,914	\$ 45,992	\$ 47,096	\$ 48,226	\$ 49,384
37	Vehicle - Fluids and Oil	\$ 3,317	\$ 3,396	\$ 3,478	\$ 3,561	\$ 4,376	\$ 4,481	\$ 4,589	\$ 4,699	\$ 4,811	\$ 4,927
38	Vehicle - Replacement - Priority 1	\$ 31,425	\$ 31,425	\$ 31,425	\$ 31,425	\$ 31,425	\$ 31,425	\$ -	\$ -	\$ -	\$ -
39	Vehicle - Replacement - Priority 2	\$ -	\$ -	\$ -	\$ -	\$ 12,973	\$ 12,973	\$ 12,973	\$ 12,973	\$ 12,973	\$ 12,973
40	Vehicle - Replacement - Priority 3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 36,230	\$ 36,230	\$ 36,230	\$ 36,230
41	Vehicle - Replacement - Priority 4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 38,902
42	Vehicle - Additions	\$ -	\$ -	\$ -	\$ -	\$ 35,381	\$ 35,381	\$ 35,381	\$ 35,381	\$ 35,381	\$ 35,381
43	<b>Subtotal - Vehicles</b>	<b>\$ 94,012</b>	<b>\$ 97,188</b>	<b>\$ 100,573</b>	<b>\$ 102,233</b>	<b>\$ 166,788</b>	<b>\$ 168,876</b>	<b>\$ 175,820</b>	<b>\$ 178,010</b>	<b>\$ 180,252</b>	<b>\$ 221,450</b>
44	Landfill Tip Fees - Solid Waste	\$ 261,605	\$ 274,881	\$ 289,041	\$ 304,117	\$ 320,170	\$ 337,230	\$ 355,341	\$ 374,577	\$ 394,993	\$ 416,633
45	Landfill Tip Fees - Yard Waste	\$ 12,362	\$ 12,899	\$ 13,458	\$ 14,042	\$ 14,651	\$ 15,286	\$ 15,950	\$ 16,641	\$ 17,363	\$ 18,116
46	<b>Subtotal - Tip Fees</b>	<b>[10] \$ 273,967</b>	<b>\$ 287,779</b>	<b>\$ 302,499</b>	<b>\$ 318,159</b>	<b>\$ 334,821</b>	<b>\$ 352,517</b>	<b>\$ 371,290</b>	<b>\$ 391,218</b>	<b>\$ 412,357</b>	<b>\$ 434,749</b>
47	Addl. Sticker Cost	\$ 47,906	\$ 50,259	\$ 52,697	\$ 55,223	\$ 57,841	\$ 61,308	\$ 64,909	\$ 68,648	\$ 72,528	\$ 76,556
48	Educational Materials	\$ 12,476	\$ 13,088	\$ 13,723	\$ 14,381	\$ 15,063	\$ 15,966	\$ 16,903	\$ 17,877	\$ 18,888	\$ 19,936
49	<b>Subtotal - PAYT Program Costs</b>	<b>[11] \$ 60,382</b>	<b>\$ 63,347</b>	<b>\$ 66,420</b>	<b>\$ 69,605</b>	<b>\$ 72,904</b>	<b>\$ 77,274</b>	<b>\$ 81,812</b>	<b>\$ 86,524</b>	<b>\$ 91,416</b>	<b>\$ 96,492</b>
50	<b>Total Costs</b>	<b>\$ 889,856</b>	<b>\$ 920,885</b>	<b>\$ 953,405</b>	<b>\$ 985,523</b>	<b>\$ 1,148,334</b>	<b>\$ 1,186,260</b>	<b>\$ 1,230,618</b>	<b>\$ 1,271,888</b>	<b>\$ 1,314,947</b>	<b>\$ 1,398,756</b>
51	<b>Net Income (Loss) (Line 22 - Line 50)</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>

North Fayette Township Technical Assistance  
Pro Forma of System Operations - Strict PAYT Case

Footnotes:

- 
- [1] Population growth projected based on expected additions per year in the short and long term as provided by the Township. The average of the high/low expected additions has been used in each case, with 2014 shown as the first "long-term" year.
- [2] Calculated based on historical persons per household ratio of 3.3 for the Township.
- [3] Projected econometrically using total personal income in Allegheny County as the primary explanatory variable. Refer to the Projections Summary Table for growth rates for the base, high, and low growth cases. Alternative case assumes a refuse reduction due to PAYT implementation as a dynamic decision variable.
- [4] Yard Waste assumed to grow based on historical average annual growth rate. Volumetric conversion of yard waste to tons is based on average density factor of 350 lbs/CY.
- [5] Assumes an average weight of 32 lbs per 32-gallon bag based on data compiled by the EPA.
- [6] Refuse route increase estimated based on current ratio of refuse trucks to households. It is anticipated that an additional truck will initially have a smaller route, and then increase in size to meet the expanding Township household count.
- [7] Customer charge reflects estimated quarterly rate required to cover the user input recovery rate for baseline collection services, or 100% minus the user input PAYT cost recovery rate. Note that per bag prices are directly related to the number of bags the user inputs as being included as part of the customer charge, and that bag prices have been rounded up to help mitigate revenue risk.
- [8] Salaries and vehicle cost information provided by the Township and escalated for inflation, with the exception of fuel costs (see Footnote #9).
- [9] Fuel costs for vehicles through 2011 have been escalated based on recent year increases in Diesel Fuel as reported by the Energy Information Administration (EIA). Longer term fuel cost has been escalated at inflation.
- [10] Tip fees have been assumed to increase with inflation.
- [11] Program costs exclude additional administrative labor related to customer service and educational facilitation, which has been estimated and added to the Salary and Benefits sub-section of costs (as a part-time/temporary employee with no benefits).

North Fayette Township Technical Assistance  
Pro Forma of System Operations - Strict PAYT Case

<b>Low Case - Waste Generation</b>		<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>
<u>Line No.</u>											
1	System Parameters										
2	Township Population	[1] 15,350	15,775	16,200	16,625	17,050	17,725	18,400	19,075	19,750	20,425
3	Residential Customers	[2] 4,294	4,413	4,532	4,650	4,769	4,958	5,147	5,336	5,525	5,713
4	Trailers	696	700	703	707	710	714	718	721	725	728
5	Annual Tonnage - Refuse	[3] 6,045	6,117	6,185	6,251	6,313	6,374	6,432	6,488	6,542	6,594
6	Annual Tonnage - Recycling	[3] 640	664	688	714	740	767	796	825	856	889
7	Annual Cubic Yardage - Yard Waste	[4] 1,310	1,335	1,360	1,386	1,412	1,439	1,466	1,494	1,522	1,551
8	Annual Tonnage - Yard Waste	[4] 246	250	255	260	265	270	275	280	285	291
9	Total Tons Generated	6,931	7,031	7,129	7,224	7,318	7,411	7,502	7,593	7,684	7,774
10	Estimated Total Bags (32 gallon) Generated	[5] 433,186	439,441	445,538	451,504	457,375	463,165	468,891	474,576	480,231	485,859
11	Estimated Bags per Customer Per Month	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	6.0	6.0
12	Tons of Refuse per Capita per Year	0.39	0.39	0.38	0.38	0.37	0.36	0.35	0.34	0.33	0.32
13	Total Routes Required - Refuse	[6] 3	3	3	3	4	4	4	4	4	4
14	Total Routes Required - Recycling	1	1	1	1	1	1	1	1	1	1
15	System Revenue										
16	Estimated Quarterly Customer Charge	[7] \$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
17	Estimated Per-Bag Charge	[7] \$ 2.30	\$ 2.30	\$ 2.30	\$ 2.30	\$ 2.70	\$ 2.60	\$ 2.60	\$ 2.60	\$ 3.10	\$ 3.20
18	PAYT Cost Recovery Rate (%)	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
19	Revenue Requirements - Refuse Collection	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
20	Revenue Requirements - PAYT Charges	\$ 809,995	\$ 833,790	\$ 858,232	\$ 881,402	\$ 1,034,345	\$ 1,061,266	\$ 1,093,621	\$ 1,121,820	\$ 1,141,617	\$ 1,209,555
21	Revenue - Recyclables	\$ 14,883	\$ 15,800	\$ 16,773	\$ 17,806	\$ 18,905	\$ 20,074	\$ 21,319	\$ 22,645	\$ 24,059	\$ 25,566
22	<b>Total Revenue</b>	<b>\$ 824,877</b>	<b>\$ 849,590</b>	<b>\$ 875,005</b>	<b>\$ 899,208</b>	<b>\$ 1,053,250</b>	<b>\$ 1,081,340</b>	<b>\$ 1,114,940</b>	<b>\$ 1,144,465</b>	<b>\$ 1,165,676</b>	<b>\$ 1,235,121</b>
23	System Costs	[8]									
24	Foreman - Salary	\$ 51,974	\$ 53,222	\$ 54,499	\$ 55,807	\$ 57,146	\$ 58,518	\$ 59,922	\$ 61,360	\$ 62,833	\$ 64,341
25	Driver 1 - Salary	\$ 47,699	\$ 48,844	\$ 50,016	\$ 51,217	\$ 52,446	\$ 53,705	\$ 54,994	\$ 56,313	\$ 57,665	\$ 59,049
26	Driver 2 - Salary	\$ 45,802	\$ 46,901	\$ 48,027	\$ 49,179	\$ 50,360	\$ 51,568	\$ 52,806	\$ 54,073	\$ 55,371	\$ 56,700
27	Driver 3 - Salary	\$ 45,802	\$ 46,901	\$ 48,027	\$ 49,179	\$ 50,360	\$ 51,568	\$ 52,806	\$ 54,073	\$ 55,371	\$ 56,700
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31	Driver - Additions	\$ -	\$ -	\$ -	\$ -	\$ 50,507	\$ 51,720	\$ 52,961	\$ 54,232	\$ 55,534	\$ 56,866
32	Admin - Salary	\$ 16,358	\$ 16,750	\$ 17,152	\$ 17,564	\$ 17,986	\$ 18,417	\$ 18,859	\$ 19,312	\$ 19,775	\$ 20,250
33	Employee Benefits	\$ 117,545	\$ 120,366	\$ 123,255	\$ 126,213	\$ 145,137	\$ 148,620	\$ 152,187	\$ 155,839	\$ 159,579	\$ 163,409
34	<b>Subtotal - Salary and Benefits</b>	<b>\$ 461,495</b>	<b>\$ 472,571</b>	<b>\$ 483,913</b>	<b>\$ 495,527</b>	<b>\$ 573,821</b>	<b>\$ 587,593</b>	<b>\$ 601,695</b>	<b>\$ 616,135</b>	<b>\$ 630,923</b>	<b>\$ 646,065</b>
35	Vehicle Maintenance	\$ 29,385	\$ 30,091	\$ 30,813	\$ 31,552	\$ 38,771	\$ 39,702	\$ 40,655	\$ 41,630	\$ 42,630	\$ 43,653
36	Vehicle Fuel	[9] \$ 29,885	\$ 32,276	\$ 34,858	\$ 35,695	\$ 43,862	\$ 44,914	\$ 45,992	\$ 47,096	\$ 48,226	\$ 49,384
37	Vehicle - Fluids and Oil	\$ 3,317	\$ 3,396	\$ 3,478	\$ 3,561	\$ 4,376	\$ 4,481	\$ 4,589	\$ 4,699	\$ 4,811	\$ 4,927
38	Vehicle - Replacement - Priority 1	\$ 31,425	\$ 31,425	\$ 31,425	\$ 31,425	\$ 31,425	\$ 31,425	\$ -	\$ -	\$ -	\$ -
39	Vehicle - Replacement - Priority 2	\$ -	\$ -	\$ -	\$ -	\$ 12,973	\$ 12,973	\$ 12,973	\$ 12,973	\$ 12,973	\$ 12,973
40	Vehicle - Replacement - Priority 3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 36,230	\$ 36,230	\$ 36,230	\$ 36,230
41	Vehicle - Replacement - Priority 4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 38,902
42	Vehicle - Additions	\$ -	\$ -	\$ -	\$ -	\$ 35,381	\$ 35,381	\$ 35,381	\$ 35,381	\$ 35,381	\$ 35,381
43	<b>Subtotal - Vehicles</b>	<b>\$ 94,012</b>	<b>\$ 97,188</b>	<b>\$ 100,573</b>	<b>\$ 102,233</b>	<b>\$ 166,788</b>	<b>\$ 168,876</b>	<b>\$ 175,820</b>	<b>\$ 178,010</b>	<b>\$ 180,252</b>	<b>\$ 221,450</b>
44	Landfill Tip Fees - Solid Waste	\$ 208,603	\$ 216,150	\$ 223,815	\$ 231,608	\$ 239,547	\$ 247,638	\$ 255,890	\$ 264,316	\$ 272,921	\$ 281,706
45	Landfill Tip Fees - Yard Waste	\$ 12,362	\$ 12,899	\$ 13,458	\$ 14,042	\$ 14,651	\$ 15,286	\$ 15,950	\$ 16,641	\$ 17,363	\$ 18,116
46	<b>Subtotal - Tip Fees</b>	<b>[10] \$ 220,965</b>	<b>\$ 229,049</b>	<b>\$ 237,273</b>	<b>\$ 245,650</b>	<b>\$ 254,198</b>	<b>\$ 262,924</b>	<b>\$ 271,840</b>	<b>\$ 280,957</b>	<b>\$ 290,284</b>	<b>\$ 299,822</b>
47	Addl. Sticker Cost	\$ 35,930	\$ 37,694	\$ 39,523	\$ 41,418	\$ 43,381	\$ 45,981	\$ 48,682	\$ 51,486	\$ 54,330	\$ 57,847
48	Educational Materials	\$ 12,476	\$ 13,088	\$ 13,723	\$ 14,381	\$ 15,063	\$ 15,966	\$ 16,903	\$ 17,877	\$ 18,888	\$ 19,936
49	<b>Subtotal - PAYT Program Costs</b>	<b>[11] \$ 48,405</b>	<b>\$ 50,782</b>	<b>\$ 53,246</b>	<b>\$ 55,799</b>	<b>\$ 58,443</b>	<b>\$ 61,947</b>	<b>\$ 65,585</b>	<b>\$ 69,363</b>	<b>\$ 73,218</b>	<b>\$ 77,784</b>
50	<b>Total Costs</b>	<b>\$ 824,877</b>	<b>\$ 849,590</b>	<b>\$ 875,005</b>	<b>\$ 899,208</b>	<b>\$ 1,053,250</b>	<b>\$ 1,081,340</b>	<b>\$ 1,114,940</b>	<b>\$ 1,144,465</b>	<b>\$ 1,165,676</b>	<b>\$ 1,235,121</b>
51	<b>Net Income (Loss) (Line 22 - Line 50)</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>

North Fayette Township Technical Assistance  
Pro Forma of System Operations - Strict PAYT Case

Footnotes:

- 
- [1] Population growth projected based on expected additions per year in the short and long term as provided by the Township. The average of the high/low expected additions has been used in each case, with 2014 shown as the first "long-term" year.
- [2] Calculated based on historical persons per household ratio of 3.3 for the Township.
- [3] Projected econometrically using total personal income in Allegheny County as the primary explanatory variable. Refer to the Projections Summary Table for growth rates for the base, high, and low growth cases. Alternative case assumes a refuse reduction due to PAYT implementation as a dynamic decision variable.
- [4] Yard Waste assumed to grow based on historical average annual growth rate. Volumetric conversion of yard waste to tons is based on average density factor of 350 lbs/CY.
- [5] Assumes an average weight of 32 lbs per 32-gallon bag based on data compiled by the EPA.
- [6] Refuse route increase estimated based on current ratio of refuse trucks to households. It is anticipated that an additional truck will initially have a smaller route, and then increase in size to meet the expanding Township household count.
- [7] Customer charge reflects estimated quarterly rate required to cover the user input recovery rate for baseline collection services, or 100% minus the user input PAYT cost recovery rate. Note that per bag prices are directly related to the number of bags the user inputs as being included as part of the customer charge, and that bag prices have been rounded up to help mitigate revenue risk.
- [8] Salaries and vehicle cost information provided by the Township and escalated for inflation, with the exception of fuel costs (see Footnote #9).
- [9] Fuel costs for vehicles through 2011 have been escalated based on recent year increases in Diesel Fuel as reported by the Energy Information Administration (EIA). Longer term fuel cost has been escalated at inflation.
- [10] Tip fees have been assumed to increase with inflation.
- [11] Program costs exclude additional administrative labor related to customer service and educational facilitation, which has been estimated and added to the Salary and Benefits sub-section of costs (as a part-time/temporary employee with no benefits).



North Fayette Township Technical Assistance  
Pro Forma of System Operations - Strict PAYT Case

50/50 Case - Waste Generation		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Line No.											
1	System Parameters										
2	Township Population	[1] 15,350	15,775	16,200	16,625	17,050	17,725	18,400	19,075	19,750	20,425
3	Residential Customers	[2] 4,294	4,413	4,532	4,650	4,769	4,958	5,147	5,336	5,525	5,713
4	Trailers	696	700	703	707	710	714	718	721	725	728
5	Annual Tonnage - Refuse	[3] 6,813	6,948	7,087	7,229	7,376	7,527	7,682	7,841	8,005	8,174
6	Annual Tonnage - Recycling	[3] 701	732	764	798	835	874	915	959	1,005	1,055
7	Annual Cubic Yardage - Yard Waste	[4] 1,310	1,335	1,360	1,386	1,412	1,439	1,466	1,494	1,522	1,551
8	Annual Tonnage - Yard Waste	[4] 246	250	255	260	265	270	275	280	285	291
9	Total Tons Generated	7,760	7,930	8,106	8,287	8,476	8,670	8,871	9,080	9,296	9,519
10	Estimated Total Bags (32 gallon) Generated	[5] 484,986	495,619	506,607	517,962	529,721	541,882	554,457	567,488	580,990	594,962
11	Estimated Bags per Customer Per Month	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
12	Tons of Refuse per Capita per Year	0.44	0.44	0.44	0.43	0.43	0.42	0.42	0.41	0.41	0.40
13	Total Routes Required - Refuse	[6] 3	3	3	3	4	4	4	4	4	4
14	Total Routes Required - Recycling	1	1	1	1	1	1	1	1	1	1
15	System Revenue										
16	Estimated Quarterly Customer Charge	[7] \$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
17	Estimated Per-Bag Charge	[7] \$ 2.30	\$ 2.30	\$ 2.30	\$ 2.30	\$ 2.70	\$ 2.60	\$ 2.60	\$ 2.60	\$ 2.60	\$ 2.70
18	PAYT Cost Recovery Rate (%)	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
19	Revenue Requirements - Refuse Collection	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
20	Revenue Requirements - PAYT Charges	\$ 841,070	\$ 867,824	\$ 895,585	\$ 922,442	\$ 1,079,458	\$ 1,110,939	\$ 1,148,265	\$ 1,181,872	\$ 1,216,597	\$ 1,291,369
21	Revenue - Recyclables	\$ 16,297	\$ 17,414	\$ 18,620	\$ 19,924	\$ 21,334	\$ 22,861	\$ 24,513	\$ 26,305	\$ 28,247	\$ 30,354
22	<b>Total Revenue</b>	<b>\$ 857,367</b>	<b>\$ 885,238</b>	<b>\$ 914,205</b>	<b>\$ 942,365</b>	<b>\$ 1,100,792</b>	<b>\$ 1,133,800</b>	<b>\$ 1,172,779</b>	<b>\$ 1,208,177</b>	<b>\$ 1,244,845</b>	<b>\$ 1,321,723</b>
23	System Costs	[8]									
24	Foreman - Salary	\$ 51,974	\$ 53,222	\$ 54,499	\$ 55,807	\$ 57,146	\$ 58,518	\$ 59,922	\$ 61,360	\$ 62,833	\$ 64,341
25	Driver 1 - Salary	\$ 47,699	\$ 48,844	\$ 50,016	\$ 51,217	\$ 52,446	\$ 53,705	\$ 54,994	\$ 56,313	\$ 57,665	\$ 59,049
26	Driver 2 - Salary	\$ 45,802	\$ 46,901	\$ 48,027	\$ 49,179	\$ 50,360	\$ 51,568	\$ 52,806	\$ 54,073	\$ 55,371	\$ 56,700
27	Driver 3 - Salary	\$ 45,802	\$ 46,901	\$ 48,027	\$ 49,179	\$ 50,360	\$ 51,568	\$ 52,806	\$ 54,073	\$ 55,371	\$ 56,700
28	Driver 4 - Salary	\$ 45,584	\$ 46,678	\$ 47,798	\$ 48,945	\$ 50,120	\$ 51,323	\$ 52,554	\$ 53,816	\$ 55,107	\$ 56,430
29	Driver 5 - Salary	\$ 45,366	\$ 46,454	\$ 47,569	\$ 48,711	\$ 49,880	\$ 51,077	\$ 52,303	\$ 53,558	\$ 54,844	\$ 56,160
30	Driver 6 - Salary	\$ 45,366	\$ 46,454	\$ 47,569	\$ 48,711	\$ 49,880	\$ 51,077	\$ 52,303	\$ 53,558	\$ 54,844	\$ 56,160
31	Driver - Additions	\$ -	\$ -	\$ -	\$ -	\$ 50,507	\$ 51,720	\$ 52,961	\$ 54,232	\$ 55,534	\$ 56,866
32	Admin - Salary	\$ 16,358	\$ 16,750	\$ 17,152	\$ 17,564	\$ 17,986	\$ 18,417	\$ 18,859	\$ 19,312	\$ 19,775	\$ 20,250
33	Employee Benefits	\$ 117,545	\$ 120,366	\$ 123,255	\$ 126,213	\$ 145,137	\$ 148,620	\$ 152,187	\$ 155,839	\$ 159,579	\$ 163,409
34	<b>Subtotal - Salary and Benefits</b>	<b>\$ 461,495</b>	<b>\$ 472,571</b>	<b>\$ 483,913</b>	<b>\$ 495,527</b>	<b>\$ 573,821</b>	<b>\$ 587,593</b>	<b>\$ 601,695</b>	<b>\$ 616,135</b>	<b>\$ 630,923</b>	<b>\$ 646,065</b>
35	Vehicle Maintenance	\$ 29,385	\$ 30,091	\$ 30,813	\$ 31,552	\$ 38,771	\$ 39,702	\$ 40,655	\$ 41,630	\$ 42,630	\$ 43,653
36	Vehicle Fuel	[9] \$ 29,885	\$ 32,276	\$ 34,858	\$ 35,695	\$ 43,862	\$ 44,914	\$ 45,992	\$ 47,096	\$ 48,226	\$ 49,384
37	Vehicle - Fluids and Oil	\$ 3,317	\$ 3,396	\$ 3,478	\$ 3,561	\$ 4,376	\$ 4,481	\$ 4,589	\$ 4,699	\$ 4,811	\$ 4,927
38	Vehicle - Replacement - Priority 1	\$ 31,425	\$ 31,425	\$ 31,425	\$ 31,425	\$ 31,425	\$ 31,425	\$ -	\$ -	\$ -	\$ -
39	Vehicle - Replacement - Priority 2	\$ -	\$ -	\$ -	\$ -	\$ 12,973	\$ 12,973	\$ 12,973	\$ 12,973	\$ 12,973	\$ 12,973
40	Vehicle - Replacement - Priority 3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 36,230	\$ 36,230	\$ 36,230	\$ 36,230
41	Vehicle - Replacement - Priority 4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 38,902
42	Vehicle - Additions	\$ -	\$ -	\$ -	\$ -	\$ 35,381	\$ 35,381	\$ 35,381	\$ 35,381	\$ 35,381	\$ 35,381
43	<b>Subtotal - Vehicles</b>	<b>\$ 94,012</b>	<b>\$ 97,188</b>	<b>\$ 100,573</b>	<b>\$ 102,233</b>	<b>\$ 166,788</b>	<b>\$ 168,876</b>	<b>\$ 175,820</b>	<b>\$ 178,010</b>	<b>\$ 180,252</b>	<b>\$ 221,450</b>
44	Landfill Tip Fees - Solid Waste	\$ 235,104	\$ 245,516	\$ 256,428	\$ 267,862	\$ 279,859	\$ 292,434	\$ 305,616	\$ 319,446	\$ 333,957	\$ 349,169
45	Landfill Tip Fees - Yard Waste	\$ 12,362	\$ 12,899	\$ 13,458	\$ 14,042	\$ 14,651	\$ 15,286	\$ 15,950	\$ 16,641	\$ 17,363	\$ 18,116
46	<b>Subtotal - Tip Fees</b>	<b>[10] \$ 247,466</b>	<b>\$ 258,414</b>	<b>\$ 269,886</b>	<b>\$ 281,904</b>	<b>\$ 294,510</b>	<b>\$ 307,721</b>	<b>\$ 321,565</b>	<b>\$ 336,088</b>	<b>\$ 351,320</b>	<b>\$ 367,286</b>
47	Add. Sticker Cost	\$ 41,918	\$ 43,977	\$ 46,110	\$ 48,321	\$ 50,611	\$ 53,045	\$ 56,795	\$ 60,067	\$ 63,462	\$ 66,986
48	Educational Materials	\$ 12,476	\$ 13,088	\$ 13,723	\$ 14,381	\$ 15,063	\$ 15,966	\$ 16,903	\$ 17,877	\$ 18,888	\$ 19,936
49	<b>Subtotal - PAYT Program Costs</b>	<b>[11] \$ 54,394</b>	<b>\$ 57,065</b>	<b>\$ 59,833</b>	<b>\$ 62,702</b>	<b>\$ 65,674</b>	<b>\$ 69,611</b>	<b>\$ 73,699</b>	<b>\$ 77,944</b>	<b>\$ 82,350</b>	<b>\$ 86,923</b>
50	<b>Total Costs</b>	<b>\$ 857,367</b>	<b>\$ 885,238</b>	<b>\$ 914,205</b>	<b>\$ 942,365</b>	<b>\$ 1,100,792</b>	<b>\$ 1,133,800</b>	<b>\$ 1,172,779</b>	<b>\$ 1,208,177</b>	<b>\$ 1,244,845</b>	<b>\$ 1,321,723</b>
51	<b>Net Income (Loss) (Line 22 - Line 50)</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>

North Fayette Township Technical Assistance  
Pro Forma of System Operations - Strict PAYT Case

Footnotes:

- 
- [1] Population growth projected based on expected additions per year in the short and long term as provided by the Township. The average of the high/low expected additions has been used in each case, with 2014 shown as the first "long-term" year.
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- [4] Yard Waste assumed to grow based on historical average annual growth rate. Volumetric conversion of yard waste to tons is based on average density factor of 350 lbs/CY.
- [5] Assumes an average weight of 32 lbs per 32-gallon bag based on data compiled by the EPA.
- [6] Refuse route increase estimated based on current ratio of refuse trucks to households. It is anticipated that an additional truck will initially have a smaller route, and then increase in size to meet the expanding Township household count.
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- [8] Salaries and vehicle cost information provided by the Township and escalated for inflation, with the exception of fuel costs (see Footnote #9).
- [9] Fuel costs for vehicles through 2011 have been escalated based on recent year increases in Diesel Fuel as reported by the Energy Information Administration (EIA). Longer term fuel cost has been escalated at inflation.
- [10] Tip fees have been assumed to increase with inflation.
- [11] Program costs exclude additional administrative labor related to customer service and educational facilitation, which has been estimated and added to the Salary and Benefits sub-section of costs (as a part-time/temporary employee with no benefits).

North Fayette Township Technical Assistance  
Pro Forma of System Operations - Strict PAYT Case

High Case - Waste Generation		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Line No.											
1	System Parameters										
2	Township Population	[1] 15,350	15,775	16,200	16,625	17,050	17,725	18,400	19,075	19,750	20,425
3	Residential Customers	[2] 4,294	4,413	4,532	4,650	4,769	4,958	5,147	5,336	5,525	5,713
4	Trailers	696	700	703	707	710	714	718	721	725	728
5	Annual Tonnage - Refuse	[3] 7,581	7,779	7,988	8,208	8,438	8,680	8,931	9,194	9,468	9,753
6	Annual Tonnage - Recycling	[3] 762	800	840	883	930	980	1,034	1,092	1,155	1,222
7	Annual Cubic Yardage - Yard Waste	[4] 1,310	1,335	1,360	1,386	1,412	1,439	1,466	1,494	1,522	1,551
8	Annual Tonnage - Yard Waste	[4] 246	250	255	260	265	270	275	280	285	291
9	Total Tons Generated	8,589	8,829	9,083	9,351	9,633	9,930	10,240	10,566	10,908	11,265
10	Estimated Total Bags (32 gallon) Generated	[5] 536,786	551,796	567,676	584,420	602,066	620,599	640,024	660,401	681,748	704,065
11	Estimated Bags per Customer Per Month	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0
12	Tons of Refuse per Capita per Year	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.48	0.48	0.48
13	Total Routes Required - Refuse	[6] 3	3	3	3	4	4	4	4	4	4
14	Total Routes Required - Recycling	1	1	1	1	1	1	1	1	1	1
15	System Revenue										
16	Estimated Quarterly Customer Charge	[7] \$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
17	Estimated Per-Bag Charge	[7] \$ 2.10	\$ 2.10	\$ 2.10	\$ 2.10	\$ 2.40	\$ 2.40	\$ 2.40	\$ 2.40	\$ 2.40	\$ 2.50
18	PAYT Cost Recovery Rate (%)	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
19	Revenue Requirements - Refuse Collection	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
20	Revenue Requirements - PAYT Charges	\$ 872,145	\$ 901,857	\$ 932,937	\$ 963,481	\$ 1,124,570	\$ 1,160,612	\$ 1,202,910	\$ 1,241,924	\$ 1,282,511	\$ 1,363,614
21	Revenue - Recyclables	\$ 17,711	\$ 19,028	\$ 20,468	\$ 22,042	\$ 23,764	\$ 25,648	\$ 27,708	\$ 29,964	\$ 32,436	\$ 35,142
22	<b>Total Revenue</b>	<b>\$ 889,856</b>	<b>\$ 920,885</b>	<b>\$ 953,405</b>	<b>\$ 985,523</b>	<b>\$ 1,148,334</b>	<b>\$ 1,186,260</b>	<b>\$ 1,230,618</b>	<b>\$ 1,271,888</b>	<b>\$ 1,314,947</b>	<b>\$ 1,398,756</b>
23	System Costs	[8]									
24	Foreman - Salary	\$ 51,974	\$ 53,222	\$ 54,499	\$ 55,807	\$ 57,146	\$ 58,518	\$ 59,922	\$ 61,360	\$ 62,833	\$ 64,341
25	Driver 1 - Salary	\$ 47,699	\$ 48,844	\$ 50,016	\$ 51,217	\$ 52,446	\$ 53,705	\$ 54,994	\$ 56,313	\$ 57,665	\$ 59,049
26	Driver 2 - Salary	\$ 45,802	\$ 46,901	\$ 48,027	\$ 49,179	\$ 50,360	\$ 51,568	\$ 52,806	\$ 54,073	\$ 55,371	\$ 56,700
27	Driver 3 - Salary	\$ 45,802	\$ 46,901	\$ 48,027	\$ 49,179	\$ 50,360	\$ 51,568	\$ 52,806	\$ 54,073	\$ 55,371	\$ 56,700
28	Driver 4 - Salary	\$ 45,584	\$ 46,678	\$ 47,798	\$ 48,945	\$ 50,120	\$ 51,323	\$ 52,554	\$ 53,816	\$ 55,107	\$ 56,430
29	Driver 5 - Salary	\$ 45,366	\$ 46,454	\$ 47,569	\$ 48,711	\$ 49,880	\$ 51,077	\$ 52,303	\$ 53,558	\$ 54,844	\$ 56,160
30	Driver 6 - Salary	\$ 45,366	\$ 46,454	\$ 47,569	\$ 48,711	\$ 49,880	\$ 51,077	\$ 52,303	\$ 53,558	\$ 54,844	\$ 56,160
31	Driver - Additions	\$ -	\$ -	\$ -	\$ -	\$ 50,507	\$ 51,720	\$ 52,961	\$ 54,232	\$ 55,534	\$ 56,866
32	Admin - Salary	\$ 16,358	\$ 16,750	\$ 17,152	\$ 17,564	\$ 17,986	\$ 18,417	\$ 18,859	\$ 19,312	\$ 19,775	\$ 20,250
33	Employee Benefits	\$ 117,545	\$ 120,366	\$ 123,255	\$ 126,213	\$ 145,137	\$ 148,620	\$ 152,187	\$ 155,839	\$ 159,579	\$ 163,409
34	<b>Subtotal - Salary and Benefits</b>	<b>\$ 461,495</b>	<b>\$ 472,571</b>	<b>\$ 483,913</b>	<b>\$ 495,527</b>	<b>\$ 573,821</b>	<b>\$ 587,593</b>	<b>\$ 601,695</b>	<b>\$ 616,135</b>	<b>\$ 630,923</b>	<b>\$ 646,065</b>
35	Vehicle Maintenance	\$ 29,385	\$ 30,091	\$ 30,813	\$ 31,552	\$ 38,771	\$ 39,702	\$ 40,655	\$ 41,630	\$ 42,630	\$ 43,653
36	Vehicle Fuel	\$ 29,885	\$ 32,276	\$ 34,858	\$ 35,695	\$ 43,862	\$ 44,914	\$ 45,992	\$ 47,096	\$ 48,226	\$ 49,384
37	Vehicle - Fluids and Oil	\$ 3,317	\$ 3,396	\$ 3,478	\$ 3,561	\$ 4,376	\$ 4,481	\$ 4,589	\$ 4,699	\$ 4,811	\$ 4,927
38	Vehicle - Replacement - Priority 1	\$ 31,425	\$ 31,425	\$ 31,425	\$ 31,425	\$ 31,425	\$ 31,425	\$ -	\$ -	\$ -	\$ -
39	Vehicle - Replacement - Priority 2	\$ -	\$ -	\$ -	\$ -	\$ 12,973	\$ 12,973	\$ 12,973	\$ 12,973	\$ 12,973	\$ 12,973
40	Vehicle - Replacement - Priority 3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 36,230	\$ 36,230	\$ 36,230	\$ 36,230
41	Vehicle - Replacement - Priority 4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 38,902
42	Vehicle - Additions	\$ -	\$ -	\$ -	\$ -	\$ 35,381	\$ 35,381	\$ 35,381	\$ 35,381	\$ 35,381	\$ 35,381
43	<b>Subtotal - Vehicles</b>	<b>\$ 94,012</b>	<b>\$ 97,188</b>	<b>\$ 100,573</b>	<b>\$ 102,233</b>	<b>\$ 166,788</b>	<b>\$ 168,876</b>	<b>\$ 175,820</b>	<b>\$ 178,010</b>	<b>\$ 180,252</b>	<b>\$ 221,450</b>
44	Landfill Tip Fees - Solid Waste	\$ 261,605	\$ 274,881	\$ 289,041	\$ 304,117	\$ 320,170	\$ 337,230	\$ 355,341	\$ 374,577	\$ 394,993	\$ 416,633
45	Landfill Tip Fees - Yard Waste	\$ 12,362	\$ 12,899	\$ 13,458	\$ 14,042	\$ 14,651	\$ 15,286	\$ 15,950	\$ 16,641	\$ 17,363	\$ 18,116
46	<b>Subtotal - Tip Fees</b>	<b>[10] \$ 273,967</b>	<b>\$ 287,779</b>	<b>\$ 302,499</b>	<b>\$ 318,159</b>	<b>\$ 334,821</b>	<b>\$ 352,517</b>	<b>\$ 371,290</b>	<b>\$ 391,218</b>	<b>\$ 412,357</b>	<b>\$ 434,749</b>
47	Addl. Sticker Cost	\$ 47,906	\$ 50,259	\$ 52,697	\$ 55,223	\$ 57,841	\$ 61,308	\$ 64,909	\$ 68,648	\$ 72,528	\$ 76,556
48	Educational Materials	\$ 12,476	\$ 13,088	\$ 13,723	\$ 14,381	\$ 15,063	\$ 15,966	\$ 16,903	\$ 17,877	\$ 18,888	\$ 19,936
49	<b>Subtotal - PAYT Program Costs</b>	<b>[11] \$ 60,382</b>	<b>\$ 63,347</b>	<b>\$ 66,420</b>	<b>\$ 69,605</b>	<b>\$ 72,904</b>	<b>\$ 77,274</b>	<b>\$ 81,812</b>	<b>\$ 86,524</b>	<b>\$ 91,416</b>	<b>\$ 96,492</b>
50	<b>Total Costs</b>	<b>\$ 889,856</b>	<b>\$ 920,885</b>	<b>\$ 953,405</b>	<b>\$ 985,523</b>	<b>\$ 1,148,334</b>	<b>\$ 1,186,260</b>	<b>\$ 1,230,618</b>	<b>\$ 1,271,888</b>	<b>\$ 1,314,947</b>	<b>\$ 1,398,756</b>
51	<b>Net Income (Loss) (Line 22 - Line 50)</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>

North Fayette Township Technical Assistance  
Pro Forma of System Operations - Strict PAYT Case

Footnotes:

- 
- [1] Population growth projected based on expected additions per year in the short and long term as provided by the Township. The average of the high/low expected additions has been used in each case, with 2014 shown as the first "long-term" year.
- [2] Calculated based on historical persons per household ratio of 3.3 for the Township.
- [3] Projected econometrically using total personal income in Allegheny County as the primary explanatory variable. Refer to the Projections Summary Table for growth rates for the base, high, and low growth cases. Alternative case assumes a refuse reduction due to PAYT implementation as a dynamic decision variable.
- [4] Yard Waste assumed to grow based on historical average annual growth rate. Volumetric conversion of yard waste to tons is based on average density factor of 350 lbs/CY.
- [5] Assumes an average weight of 32 lbs per 32-gallon bag based on data compiled by the EPA.
- [6] Refuse route increase estimated based on current ratio of refuse trucks to households. It is anticipated that an additional truck will initially have a smaller route, and then increase in size to meet the expanding Township household count.
- [7] Customer charge reflects estimated quarterly rate required to cover the user input recovery rate for baseline collection services, or 100% minus the user input PAYT cost recovery rate. Note that per bag prices are directly related to the number of bags the user inputs as being included as part of the customer charge, and that bag prices have been rounded up to help mitigate revenue risk.
- [8] Salaries and vehicle cost information provided by the Township and escalated for inflation, with the exception of fuel costs (see Footnote #9).
- [9] Fuel costs for vehicles through 2011 have been escalated based on recent year increases in Diesel Fuel as reported by the Energy Information Administration (EIA). Longer term fuel cost has been escalated at inflation.
- [10] Tip fees have been assumed to increase with inflation.
- [11] Program costs exclude additional administrative labor related to customer service and educational facilitation, which has been estimated and added to the Salary and Benefits sub-section of costs (as a part-time/temporary employee with no benefits).

North Fayette Township Technical Assistance  
Pro Forma of System Operations - Strict PAYT Case

<b>Low Case - Waste Generation</b>		<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>
Line No.											
1	System Parameters										
2	Township Population	[1] 15,350	15,775	16,200	16,625	17,050	17,725	18,400	19,075	19,750	20,425
3	Residential Customers	[2] 4,294	4,413	4,532	4,650	4,769	4,958	5,147	5,336	5,525	5,713
4	Trailers	696	700	703	707	710	714	718	721	725	728
5	Annual Tonnage - Refuse	[3] 6,045	6,117	6,185	6,251	6,313	6,374	6,432	6,488	6,542	6,594
6	Annual Tonnage - Recycling	[3] 640	664	688	714	740	767	796	825	856	889
7	Annual Cubic Yardage - Yard Waste	[4] 1,310	1,335	1,360	1,386	1,412	1,439	1,466	1,494	1,522	1,551
8	Annual Tonnage - Yard Waste	[4] 246	250	255	260	265	270	275	280	285	291
9	Total Tons Generated	6,931	7,031	7,129	7,224	7,318	7,411	7,502	7,593	7,684	7,774
10	Estimated Total Bags (32 gallon) Generated	[5] 433,186	439,441	445,538	451,504	457,375	463,165	468,891	474,576	480,231	485,859
11	Estimated Bags per Customer Per Month	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	6.0	6.0
12	Tons of Refuse per Capita per Year	0.39	0.39	0.38	0.38	0.37	0.36	0.35	0.34	0.33	0.32
13	Total Routes Required - Refuse	[6] 3	3	3	3	4	4	4	4	4	4
14	Total Routes Required - Recycling	1	1	1	1	1	1	1	1	1	1
15	System Revenue										
16	Estimated Quarterly Customer Charge	[7] \$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
17	Estimated Per-Bag Charge	[7] \$ 2.60	\$ 2.60	\$ 2.60	\$ 2.60	\$ 3.00	\$ 2.90	\$ 2.90	\$ 2.90	\$ 3.40	\$ 3.50
18	PAYT Cost Recovery Rate (%)	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
19	Revenue Requirements - Refuse Collection	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
20	Revenue Requirements - PAYT Charges	\$ 809,995	\$ 833,790	\$ 858,232	\$ 881,402	\$ 1,034,345	\$ 1,061,266	\$ 1,093,621	\$ 1,121,820	\$ 1,141,617	\$ 1,209,555
21	Revenue - Recyclables	\$ 14,883	\$ 15,800	\$ 16,773	\$ 17,806	\$ 18,905	\$ 20,074	\$ 21,319	\$ 22,645	\$ 24,059	\$ 25,566
22	<b>Total Revenue</b>	<b>\$ 824,877</b>	<b>\$ 849,590</b>	<b>\$ 875,005</b>	<b>\$ 899,208</b>	<b>\$ 1,053,250</b>	<b>\$ 1,081,340</b>	<b>\$ 1,114,940</b>	<b>\$ 1,144,465</b>	<b>\$ 1,165,676</b>	<b>\$ 1,235,121</b>
23	System Costs	[8]									
24	Foreman - Salary	\$ 51,974	\$ 53,222	\$ 54,499	\$ 55,807	\$ 57,146	\$ 58,518	\$ 59,922	\$ 61,360	\$ 62,833	\$ 64,341
25	Driver 1 - Salary	\$ 47,699	\$ 48,844	\$ 50,016	\$ 51,217	\$ 52,446	\$ 53,705	\$ 54,994	\$ 56,313	\$ 57,665	\$ 59,049
26	Driver 2 - Salary	\$ 45,802	\$ 46,901	\$ 48,027	\$ 49,179	\$ 50,360	\$ 51,568	\$ 52,806	\$ 54,073	\$ 55,371	\$ 56,700
27	Driver 3 - Salary	\$ 45,802	\$ 46,901	\$ 48,027	\$ 49,179	\$ 50,360	\$ 51,568	\$ 52,806	\$ 54,073	\$ 55,371	\$ 56,700
28	Driver 4 - Salary	\$ 45,584	\$ 46,678	\$ 47,798	\$ 48,945	\$ 50,120	\$ 51,323	\$ 52,554	\$ 53,816	\$ 55,107	\$ 56,430
29	Driver 5 - Salary	\$ 45,366	\$ 46,454	\$ 47,569	\$ 48,711	\$ 49,880	\$ 51,077	\$ 52,303	\$ 53,558	\$ 54,844	\$ 56,160
30	Driver 6 - Salary	\$ 45,366	\$ 46,454	\$ 47,569	\$ 48,711	\$ 49,880	\$ 51,077	\$ 52,303	\$ 53,558	\$ 54,844	\$ 56,160
31	Driver - Additions	\$ -	\$ -	\$ -	\$ -	\$ 50,507	\$ 51,720	\$ 52,961	\$ 54,232	\$ 55,534	\$ 56,866
32	Admin - Salary	\$ 16,358	\$ 16,750	\$ 17,152	\$ 17,564	\$ 17,986	\$ 18,417	\$ 18,859	\$ 19,312	\$ 19,775	\$ 20,250
33	Employee Benefits	\$ 117,545	\$ 120,366	\$ 123,255	\$ 126,213	\$ 145,137	\$ 148,620	\$ 152,187	\$ 155,839	\$ 159,579	\$ 163,409
34	<b>Subtotal - Salary and Benefits</b>	<b>\$ 461,495</b>	<b>\$ 472,571</b>	<b>\$ 483,913</b>	<b>\$ 495,527</b>	<b>\$ 573,821</b>	<b>\$ 587,593</b>	<b>\$ 601,695</b>	<b>\$ 616,135</b>	<b>\$ 630,923</b>	<b>\$ 646,065</b>
35	Vehicle Maintenance	\$ 29,385	\$ 30,091	\$ 30,813	\$ 31,552	\$ 38,771	\$ 39,702	\$ 40,655	\$ 41,630	\$ 42,630	\$ 43,653
36	Vehicle Fuel	[9] \$ 29,885	\$ 32,276	\$ 34,858	\$ 35,695	\$ 43,862	\$ 44,914	\$ 45,992	\$ 47,096	\$ 48,226	\$ 49,384
37	Vehicle - Fluids and Oil	\$ 3,317	\$ 3,396	\$ 3,478	\$ 3,561	\$ 4,376	\$ 4,481	\$ 4,589	\$ 4,699	\$ 4,811	\$ 4,927
38	Vehicle - Replacement - Priority 1	\$ 31,425	\$ 31,425	\$ 31,425	\$ 31,425	\$ 31,425	\$ 31,425	\$ -	\$ -	\$ -	\$ -
39	Vehicle - Replacement - Priority 2	\$ -	\$ -	\$ -	\$ -	\$ 12,973	\$ 12,973	\$ 12,973	\$ 12,973	\$ 12,973	\$ 12,973
40	Vehicle - Replacement - Priority 3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 36,230	\$ 36,230	\$ 36,230	\$ 36,230
41	Vehicle - Replacement - Priority 4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 38,902
42	Vehicle - Additions	\$ -	\$ -	\$ -	\$ -	\$ 35,381	\$ 35,381	\$ 35,381	\$ 35,381	\$ 35,381	\$ 35,381
43	<b>Subtotal - Vehicles</b>	<b>\$ 94,012</b>	<b>\$ 97,188</b>	<b>\$ 100,573</b>	<b>\$ 102,233</b>	<b>\$ 166,788</b>	<b>\$ 168,876</b>	<b>\$ 175,820</b>	<b>\$ 178,010</b>	<b>\$ 180,252</b>	<b>\$ 221,450</b>
44	Landfill Tip Fees - Solid Waste	\$ 208,603	\$ 216,150	\$ 223,815	\$ 231,608	\$ 239,547	\$ 247,638	\$ 255,890	\$ 264,316	\$ 272,921	\$ 281,706
45	Landfill Tip Fees - Yard Waste	\$ 12,362	\$ 12,899	\$ 13,458	\$ 14,042	\$ 14,651	\$ 15,286	\$ 15,950	\$ 16,641	\$ 17,363	\$ 18,116
46	<b>Subtotal - Tip Fees</b>	<b>[10] \$ 220,965</b>	<b>\$ 229,049</b>	<b>\$ 237,273</b>	<b>\$ 245,650</b>	<b>\$ 254,198</b>	<b>\$ 262,924</b>	<b>\$ 271,840</b>	<b>\$ 280,957</b>	<b>\$ 290,284</b>	<b>\$ 299,822</b>
47	Addl. Sticker Cost	\$ 35,930	\$ 37,694	\$ 39,523	\$ 41,418	\$ 43,381	\$ 45,981	\$ 48,682	\$ 51,486	\$ 55,330	\$ 57,847
48	Educational Materials	\$ 12,476	\$ 13,088	\$ 13,723	\$ 14,381	\$ 15,063	\$ 15,966	\$ 16,903	\$ 17,877	\$ 18,888	\$ 19,936
49	<b>Subtotal - PAYT Program Costs</b>	<b>[11] \$ 48,405</b>	<b>\$ 50,782</b>	<b>\$ 53,246</b>	<b>\$ 55,799</b>	<b>\$ 58,443</b>	<b>\$ 61,947</b>	<b>\$ 65,585</b>	<b>\$ 69,363</b>	<b>\$ 73,218</b>	<b>\$ 77,784</b>
50	<b>Total Costs</b>	<b>\$ 824,877</b>	<b>\$ 849,590</b>	<b>\$ 875,005</b>	<b>\$ 899,208</b>	<b>\$ 1,053,250</b>	<b>\$ 1,081,340</b>	<b>\$ 1,114,940</b>	<b>\$ 1,144,465</b>	<b>\$ 1,165,676</b>	<b>\$ 1,235,121</b>
51	<b>Net Income (Loss) (Line 22 - Line 50)</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>

North Fayette Township Technical Assistance  
Pro Forma of System Operations - Strict PAYT Case

Footnotes:

- 
- [1] Population growth projected based on expected additions per year in the short and long term as provided by the Township. The average of the high/low expected additions has been used in each case, with 2014 shown as the first "long-term" year.
- [2] Calculated based on historical persons per household ratio of 3.3 for the Township.
- [3] Projected econometrically using total personal income in Allegheny County as the primary explanatory variable. Refer to the Projections Summary Table for growth rates for the base, high, and low growth cases. Alternative case assumes a refuse reduction due to PAYT implementation as a dynamic decision variable.
- [4] Yard Waste assumed to grow based on historical average annual growth rate. Volumetric conversion of yard waste to tons is based on average density factor of 350 lbs/CY.
- [5] Assumes an average weight of 32 lbs per 32-gallon bag based on data compiled by the EPA.
- [6] Refuse route increase estimated based on current ratio of refuse trucks to households. It is anticipated that an additional truck will initially have a smaller route, and then increase in size to meet the expanding Township household count.
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- [8] Salaries and vehicle cost information provided by the Township and escalated for inflation, with the exception of fuel costs (see Footnote #9).
- [9] Fuel costs for vehicles through 2011 have been escalated based on recent year increases in Diesel Fuel as reported by the Energy Information Administration (EIA). Longer term fuel cost has been escalated at inflation.
- [10] Tip fees have been assumed to increase with inflation.
- [11] Program costs exclude additional administrative labor related to customer service and educational facilitation, which has been estimated and added to the Salary and Benefits sub-section of costs (as a part-time/temporary employee with no benefits).

North Fayette Township Technical Assistance  
Pro Forma of System Operations - Base Case

50/50 Case - Waste Generation		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Line No.											
1	System Parameters										
2	Township Population	[1] 15,350	15,775	16,200	16,625	17,050	17,725	18,400	19,075	19,750	20,425
3	Residential Customers	[2] 4,294	4,413	4,532	4,650	4,769	4,958	5,147	5,336	5,525	5,713
4	Trailers	696	700	703	707	710	714	718	721	725	728
5	Annual Tonnage - Refuse	[3] 7,171	7,314	7,460	7,610	7,764	7,923	8,086	8,254	8,426	8,604
6	Annual Tonnage - Recycling	[3] 522	549	578	608	641	676	713	752	795	840
7	Annual Cubic Yardage - Yard Waste	[4] 1,310	1,335	1,360	1,386	1,412	1,439	1,466	1,494	1,522	1,551
8	Tons of Refuse per Capita per Year	0.47	0.46	0.46	0.46	0.46	0.45	0.44	0.43	0.43	0.42
9	Total Routes Required - Refuse	[5] 3	3	3	3	4	4	4	4	4	4
10	Total Routes Required - Recycling	1	1	1	1	1	1	1	1	1	1
11	System Revenue										
12	Quarterly Collection Rate	\$ 40.00	\$ 40.00	\$ 40.00	\$ 40.00	\$ 40.00	\$ 40.00	\$ 40.00	\$ 40.00	\$ 40.00	\$ 40.00
13	Revenue - Refuse Collection	\$ 798,437	\$ 818,015	\$ 837,596	\$ 857,180	\$ 876,767	\$ 907,546	\$ 938,327	\$ 969,112	\$ 999,899	\$ 1,030,689
14	Revenue - Recyclables	\$ 12,130	\$ 13,063	\$ 14,076	\$ 15,177	\$ 16,375	\$ 17,678	\$ 19,097	\$ 20,643	\$ 22,329	\$ 24,166
15	<b>Total Revenue</b>	<b>\$ 810,567</b>	<b>\$ 831,078</b>	<b>\$ 851,672</b>	<b>\$ 872,357</b>	<b>\$ 893,142</b>	<b>\$ 925,224</b>	<b>\$ 957,425</b>	<b>\$ 989,755</b>	<b>\$ 1,022,228</b>	<b>\$ 1,054,855</b>
16	System Costs										
17	Foreman - Salary	\$ 51,974	\$ 53,222	\$ 54,499	\$ 55,807	\$ 57,146	\$ 58,518	\$ 59,922	\$ 61,360	\$ 62,833	\$ 64,341
18	Driver 1 - Salary	\$ 47,699	\$ 48,844	\$ 50,016	\$ 51,217	\$ 52,446	\$ 53,705	\$ 54,994	\$ 56,313	\$ 57,665	\$ 59,049
19	Driver 2 - Salary	\$ 45,802	\$ 46,901	\$ 48,027	\$ 49,179	\$ 50,360	\$ 51,568	\$ 52,806	\$ 54,073	\$ 55,371	\$ 56,700
20	Driver 3 - Salary	\$ 45,802	\$ 46,901	\$ 48,027	\$ 49,179	\$ 50,360	\$ 51,568	\$ 52,806	\$ 54,073	\$ 55,371	\$ 56,700
21	Driver 4 - Salary	\$ 45,584	\$ 46,678	\$ 47,798	\$ 48,945	\$ 50,120	\$ 51,323	\$ 52,554	\$ 53,816	\$ 55,107	\$ 56,430
22	Driver 5 - Salary	\$ 45,366	\$ 46,454	\$ 47,569	\$ 48,711	\$ 49,880	\$ 51,077	\$ 52,303	\$ 53,558	\$ 54,844	\$ 56,160
23	Driver 6 - Salary	\$ 45,366	\$ 46,454	\$ 47,569	\$ 48,711	\$ 49,880	\$ 51,077	\$ 52,303	\$ 53,558	\$ 54,844	\$ 56,160
24	Driver - Additions	\$ -	\$ -	\$ -	\$ -	\$ 50,507	\$ 51,720	\$ 52,961	\$ 54,232	\$ 55,534	\$ 56,866
25	Admin - Salary	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
26	Employee Benefits	\$ 117,545	\$ 120,366	\$ 123,255	\$ 126,213	\$ 145,137	\$ 148,620	\$ 152,187	\$ 155,839	\$ 159,579	\$ 163,409
27	<b>Subtotal - Salary and Benefits</b>	<b>\$ 445,137</b>	<b>\$ 455,821</b>	<b>\$ 466,760</b>	<b>\$ 477,963</b>	<b>\$ 555,835</b>	<b>\$ 569,175</b>	<b>\$ 582,836</b>	<b>\$ 596,824</b>	<b>\$ 611,147</b>	<b>\$ 625,815</b>
28	Vehicle Maintenance	\$ 29,385	\$ 30,091	\$ 30,813	\$ 31,552	\$ 38,771	\$ 39,702	\$ 40,655	\$ 41,630	\$ 42,630	\$ 43,653
29	Vehicle Fuel	[7] \$ 29,885	\$ 32,276	\$ 34,858	\$ 35,695	\$ 43,862	\$ 44,914	\$ 45,992	\$ 47,096	\$ 48,226	\$ 49,384
30	Vehicle - Fluids and Oil	\$ 3,317	\$ 3,396	\$ 3,478	\$ 3,561	\$ 4,376	\$ 4,481	\$ 4,589	\$ 4,699	\$ 4,811	\$ 4,927
31	Vehicle - Replacement - Priority 1	\$ 31,425	\$ 31,425	\$ 31,425	\$ 31,425	\$ 31,425	\$ 31,425	\$ -	\$ -	\$ -	\$ -
32	Vehicle - Replacement - Priority 2	\$ -	\$ -	\$ -	\$ -	\$ 12,973	\$ 12,973	\$ 12,973	\$ 12,973	\$ 12,973	\$ 12,973
33	Vehicle - Replacement - Priority 3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 36,230	\$ 36,230	\$ 36,230	\$ 36,230
34	Vehicle - Replacement - Priority 4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 38,902
35	Vehicle - Additions	\$ -	\$ -	\$ -	\$ -	\$ 35,381	\$ 35,381	\$ 35,381	\$ 35,381	\$ 35,381	\$ 35,381
36	<b>Subtotal - Vehicles</b>	<b>\$ 94,012</b>	<b>\$ 97,188</b>	<b>\$ 100,573</b>	<b>\$ 102,233</b>	<b>\$ 166,788</b>	<b>\$ 168,876</b>	<b>\$ 175,820</b>	<b>\$ 178,010</b>	<b>\$ 180,252</b>	<b>\$ 221,450</b>
37	Landfill Tip Fees - Solid Waste	\$ 247,478	\$ 258,438	\$ 269,924	\$ 281,960	\$ 294,588	\$ 307,825	\$ 321,701	\$ 336,259	\$ 351,534	\$ 367,547
38	Landfill Tip Fees - Yard Waste	\$ 12,362	\$ 12,899	\$ 13,458	\$ 14,042	\$ 14,651	\$ 15,286	\$ 15,950	\$ 16,641	\$ 17,363	\$ 18,116
39	<b>Subtotal - Tip Fees</b>	<b>[8] \$ 259,840</b>	<b>\$ 271,336</b>	<b>\$ 283,382</b>	<b>\$ 296,002</b>	<b>\$ 309,239</b>	<b>\$ 323,112</b>	<b>\$ 337,650</b>	<b>\$ 352,901</b>	<b>\$ 368,897</b>	<b>\$ 385,663</b>
40	<b>Total Costs</b>	<b>\$ 798,989</b>	<b>\$ 824,344</b>	<b>\$ 850,716</b>	<b>\$ 876,198</b>	<b>\$ 1,031,862</b>	<b>\$ 1,061,163</b>	<b>\$ 1,096,306</b>	<b>\$ 1,127,734</b>	<b>\$ 1,160,296</b>	<b>\$ 1,232,928</b>
41	<b>Net Income (Loss) (Line 15 - Line 40)</b>	<b>\$ 11,578</b>	<b>\$ 6,734</b>	<b>\$ 957</b>	<b>\$ (3,840)</b>	<b>\$ (138,720)</b>	<b>\$ (135,939)</b>	<b>\$ (138,881)</b>	<b>\$ (137,979)</b>	<b>\$ (138,068)</b>	<b>\$ (178,073)</b>

North Fayette Township Technical Assistance  
Pro Forma of System Operations - Base Case

Footnotes:

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- [1] Population growth projected based on expected additions per year in the short and long term as provided by the Township. The average of the high/low expected additions has been used in each case, with 2014 shown as the first "long-term" year.
- [2] Calculated based on historical persons per household ratio of 3.3 for the Township.
- [3] Projected econometrically using total personal income in Allegheny County as the primary explanatory variable. Refer to the Projections Summary Table for growth rates for the base, high, and low growth cases.
- [4] Yard Waste assumed to grow based on historical average annual growth rate.
- [5] Refuse route increase estimated based on current ratio of refuse trucks to households. It is anticipated that an additional truck will initially have a smaller route, and then increase in size to meet the expanding Township household count.
- [6] Salaries and vehicle cost information provided by the Township and escalated for inflation, with the exception of fuel costs (see Footnote #7).
- [7] Fuel costs for vehicles through 2011 have been escalated based on recent year increases in Diesel Fuel as reported by the Energy Information Administration (EIA). Longer term fuel cost has been escalated at inflation.
- [8] Tip fees have been assumed to increase with inflation.



North Fayette Township Technical Assistance  
 Pro Forma of System Operations - Alternative Hybrid PAYT Case

Line No.	50/50 Case - Waste Generation	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
1	<b>System Parameters</b>										
2	Township Population [1]	15,350	15,775	16,200	16,625	17,050	17,725	18,400	19,075	19,750	20,425
3	Residential Customers [2]	4,294	4,413	4,532	4,650	4,769	4,958	5,147	5,336	5,525	5,713
4	Trailers	696	700	703	707	710	714	718	721	725	728
5	Annual Tonnage - Refuse [3]	6,813	6,948	7,087	7,229	7,376	7,527	7,682	7,841	8,005	8,174
6	Annual Tonnage - Recycling [3]	701	732	764	798	835	874	915	959	1,005	1,055
7	Annual Cubic Yardage - Yard Waste [4]	1,310	1,335	1,360	1,386	1,412	1,439	1,466	1,494	1,522	1,551
8	Annual Tonnage - Yard Waste [4]	246	250	255	260	265	270	275	280	285	291
9	Total Tons Generated	7,760	7,930	8,106	8,287	8,476	8,670	8,871	9,080	9,296	9,519
10	Estimated Total Bags (32 gallon) Generated [5]	484,986	495,619	506,607	517,962	529,721	541,882	554,457	567,488	580,990	594,962
11	Estimated Bags per Customer Per Month	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
12	Tons of Refuse per Capita per Year	0.44	0.44	0.44	0.43	0.43	0.42	0.42	0.41	0.41	0.40
13	Total Routes Required - Refuse [6]	3	3	3	3	4	4	4	4	4	4
14	Total Routes Required - Recycling	1	1	1	1	1	1	1	1	1	1
15	<b>System Revenue</b>										
16	Estimated Quarterly Customer Charge [7]	\$ 31.40	\$ 31.60	\$ 31.90	\$ 32.10	\$ 36.70	\$ 36.50	\$ 36.50	\$ 36.40	\$ 36.30	\$ 37.40
17	Estimated Per-Bag Charge [7]	\$ 1.10	\$ 1.10	\$ 1.10	\$ 1.10	\$ 1.30	\$ 1.30	\$ 1.30	\$ 1.30	\$ 1.30	\$ 1.30
18	PAYT Cost Recovery Rate (%)	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%
19	Revenue Requirements - Refuse Collection	\$ 625,060	\$ 645,081	\$ 665,892	\$ 686,065	\$ 803,904	\$ 827,359	\$ 855,243	\$ 880,390	\$ 906,435	\$ 962,584
20	Revenue Requirements - PAYT Charges	\$ 192,057	\$ 197,613	\$ 203,344	\$ 208,765	\$ 246,633	\$ 252,926	\$ 267,159	\$ 273,898	\$ 280,570	\$ 290,507
21	Revenue - Recyclables	\$ 16,297	\$ 17,414	\$ 18,620	\$ 19,924	\$ 21,334	\$ 22,861	\$ 24,513	\$ 26,305	\$ 28,247	\$ 30,354
22	<b>Total Revenue</b>	<b>\$ 833,414</b>	<b>\$ 860,108</b>	<b>\$ 887,856</b>	<b>\$ 914,754</b>	<b>\$ 1,071,872</b>	<b>\$ 1,103,146</b>	<b>\$ 1,140,324</b>	<b>\$ 1,173,853</b>	<b>\$ 1,208,580</b>	<b>\$ 1,283,445</b>
23	<b>System Costs</b>										
24	Foreman - Salary	\$ 51,974	\$ 53,222	\$ 54,499	\$ 55,807	\$ 57,146	\$ 58,518	\$ 59,922	\$ 61,360	\$ 62,833	\$ 64,341
25	Driver 1 - Salary	\$ 47,699	\$ 48,844	\$ 50,016	\$ 51,217	\$ 52,446	\$ 53,705	\$ 54,994	\$ 56,313	\$ 57,665	\$ 59,049
26	Driver 2 - Salary	\$ 45,802	\$ 46,901	\$ 48,027	\$ 49,179	\$ 50,360	\$ 51,568	\$ 52,806	\$ 54,073	\$ 55,371	\$ 56,700
27	Driver 3 - Salary	\$ 45,802	\$ 46,901	\$ 48,027	\$ 49,179	\$ 50,360	\$ 51,568	\$ 52,806	\$ 54,073	\$ 55,371	\$ 56,700
28	Driver 4 - Salary	\$ 45,584	\$ 46,678	\$ 47,798	\$ 48,945	\$ 50,120	\$ 51,323	\$ 52,554	\$ 53,816	\$ 55,107	\$ 56,430
29	Driver 5 - Salary	\$ 45,366	\$ 46,454	\$ 47,569	\$ 48,711	\$ 49,880	\$ 51,077	\$ 52,303	\$ 53,558	\$ 54,844	\$ 56,160
30	Driver 6 - Salary	\$ 45,366	\$ 46,454	\$ 47,569	\$ 48,711	\$ 49,880	\$ 51,077	\$ 52,303	\$ 53,558	\$ 54,844	\$ 56,160
31	Driver - Additions	\$ -	\$ -	\$ -	\$ -	\$ 50,507	\$ 51,720	\$ 52,961	\$ 54,232	\$ 55,534	\$ 56,866
32	Admin - Salary	\$ 16,358	\$ 16,750	\$ 17,152	\$ 17,564	\$ 17,986	\$ 18,417	\$ 18,859	\$ 19,312	\$ 19,775	\$ 20,250
33	Employee Benefits	\$ 117,545	\$ 120,366	\$ 123,255	\$ 126,213	\$ 145,137	\$ 148,620	\$ 152,187	\$ 155,839	\$ 159,579	\$ 163,409
34	<b>Subtotal - Salary and Benefits</b>	<b>\$ 461,495</b>	<b>\$ 472,571</b>	<b>\$ 483,913</b>	<b>\$ 495,527</b>	<b>\$ 573,821</b>	<b>\$ 587,593</b>	<b>\$ 601,695</b>	<b>\$ 616,135</b>	<b>\$ 630,923</b>	<b>\$ 646,065</b>
35	Vehicle Maintenance	\$ 29,385	\$ 30,091	\$ 30,813	\$ 31,552	\$ 38,771	\$ 39,702	\$ 40,655	\$ 41,630	\$ 42,630	\$ 43,653
36	Vehicle Fuel [9]	\$ 29,885	\$ 32,276	\$ 34,858	\$ 35,695	\$ 43,862	\$ 44,914	\$ 45,992	\$ 47,096	\$ 48,226	\$ 49,384
37	Vehicle - Fluids and Oil	\$ 3,317	\$ 3,396	\$ 3,478	\$ 3,561	\$ 4,376	\$ 4,481	\$ 4,589	\$ 4,699	\$ 4,811	\$ 4,927
38	Vehicle - Replacement - Priority 1	\$ 31,425	\$ 31,425	\$ 31,425	\$ 31,425	\$ 31,425	\$ 31,425	\$ -	\$ -	\$ -	\$ -
39	Vehicle - Replacement - Priority 2	\$ -	\$ -	\$ -	\$ -	\$ 12,973	\$ 12,973	\$ 12,973	\$ 12,973	\$ 12,973	\$ 12,973
40	Vehicle - Replacement - Priority 3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 36,230	\$ 36,230	\$ 36,230	\$ 36,230
41	Vehicle - Replacement - Priority 4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 38,902
42	Vehicle - Additions	\$ -	\$ -	\$ -	\$ -	\$ 35,381	\$ 35,381	\$ 35,381	\$ 35,381	\$ 35,381	\$ 35,381
43	<b>Subtotal - Vehicles</b>	<b>\$ 94,012</b>	<b>\$ 97,188</b>	<b>\$ 100,573</b>	<b>\$ 102,233</b>	<b>\$ 166,788</b>	<b>\$ 168,876</b>	<b>\$ 175,820</b>	<b>\$ 178,010</b>	<b>\$ 180,252</b>	<b>\$ 221,450</b>
44	Landfill Tip Fees - Solid Waste	\$ 235,104	\$ 245,516	\$ 256,428	\$ 267,862	\$ 279,859	\$ 292,434	\$ 305,616	\$ 319,446	\$ 333,957	\$ 349,169
45	Landfill Tip Fees - Yard Waste	\$ 12,362	\$ 12,899	\$ 13,458	\$ 14,042	\$ 14,651	\$ 15,286	\$ 15,950	\$ 16,641	\$ 17,363	\$ 18,116
46	<b>Subtotal - Tip Fees</b>	<b>\$ 247,466</b>	<b>\$ 258,414</b>	<b>\$ 269,886</b>	<b>\$ 281,904</b>	<b>\$ 294,510</b>	<b>\$ 307,721</b>	<b>\$ 321,565</b>	<b>\$ 336,088</b>	<b>\$ 351,320</b>	<b>\$ 367,286</b>
47	Add. Sticker Cost	\$ 17,965	\$ 18,847	\$ 19,761	\$ 20,709	\$ 21,690	\$ 22,991	\$ 24,341	\$ 25,743	\$ 27,198	\$ 28,708
48	Educational Materials	\$ 12,476	\$ 13,088	\$ 13,723	\$ 14,381	\$ 15,063	\$ 15,966	\$ 16,903	\$ 17,877	\$ 18,888	\$ 19,936
49	<b>Subtotal - PAYT Program Costs</b>	<b>\$ 30,441</b>	<b>\$ 31,935</b>	<b>\$ 33,485</b>	<b>\$ 35,090</b>	<b>\$ 36,753</b>	<b>\$ 38,956</b>	<b>\$ 41,244</b>	<b>\$ 43,620</b>	<b>\$ 46,086</b>	<b>\$ 48,645</b>
50	<b>Total Costs</b>	<b>\$ 833,414</b>	<b>\$ 860,108</b>	<b>\$ 887,856</b>	<b>\$ 914,754</b>	<b>\$ 1,071,872</b>	<b>\$ 1,103,146</b>	<b>\$ 1,140,324</b>	<b>\$ 1,173,853</b>	<b>\$ 1,208,580</b>	<b>\$ 1,283,445</b>
51	<b>Net Income (Loss) (Line 22 - Line 50)</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>

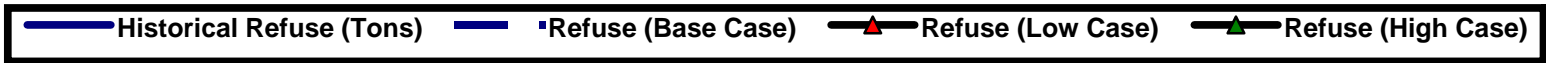
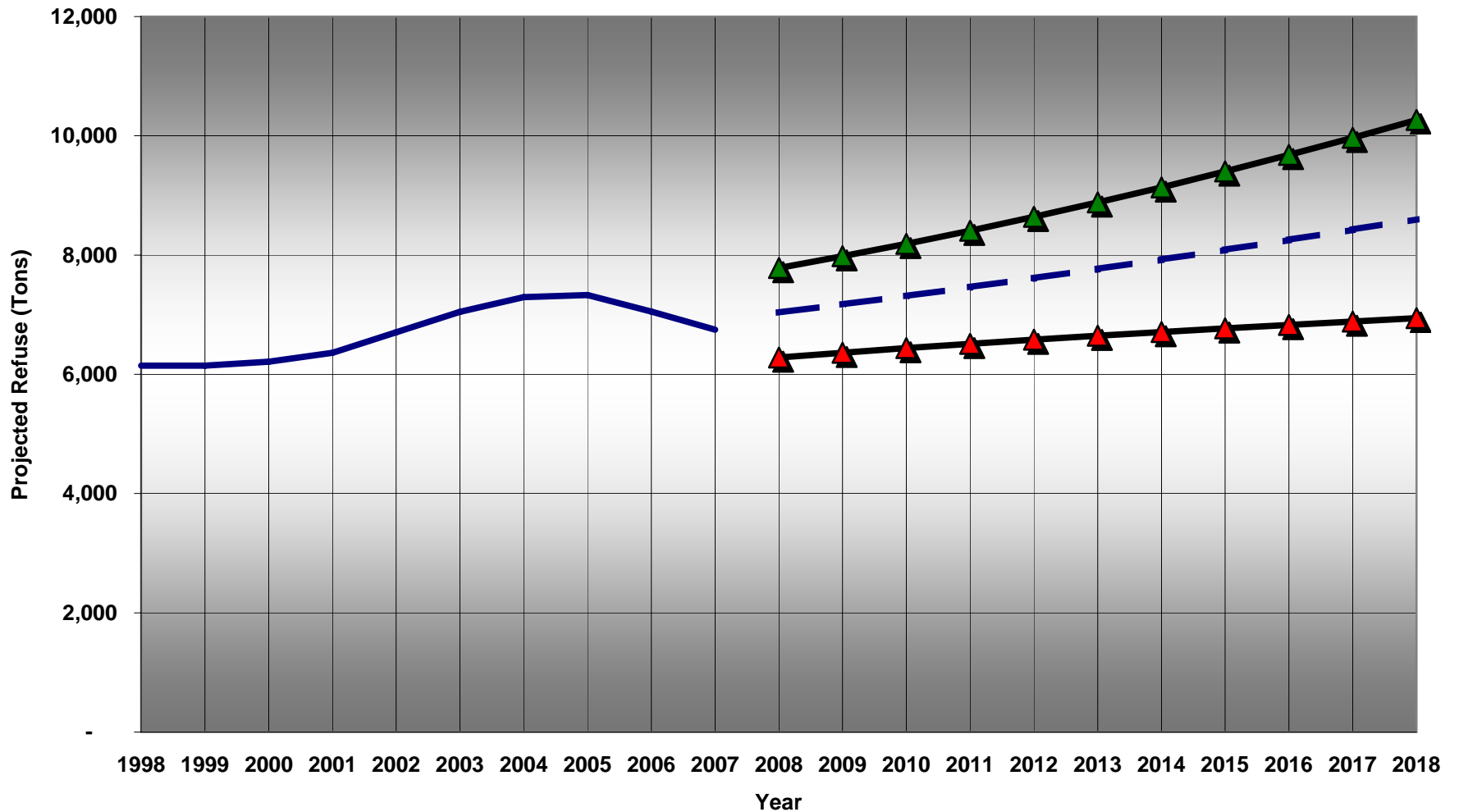
North Fayette Township Technical Assistance  
Pro Forma of System Operations - Alternative Hybrid PAYT Case

Footnotes:

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- [1] Population growth projected based on expected additions per year in the short and long term as provided by the Township. The average of the high/low expected additions has been used in each case, with 2014 shown as the first "long-term" year.
- [2] Calculated based on historical persons per household ratio of 3.3 for the Township.
- [3] Projected econometrically using total personal income in Allegheny County as the primary explanatory variable. Refer to the Projections Summary Table for growth rates for the base, high, and low growth cases. Alternative case assumes a refuse reduction due to PAYT implementation as a dynamic decision variable.
- [4] Yard Waste assumed to grow based on historical average annual growth rate. Volumetric conversion of yard waste to tons is based on average density factor of 350 lbs/CY.
- [5] Assumes an average weight of 32 lbs per 32-gallon bag based on data compiled by the EPA.
- [6] Refuse route increase estimated based on current ratio of refuse trucks to households. It is anticipated that an additional truck will initially have a smaller route, and then increase in size to meet the expanding Township household count.
- [7] Customer charge reflects estimated quarterly rate required to cover the user input recovery rate for baseline collection services, or 100% minus the user input PAYT cost recovery rate. Note that per bag prices are directly related to the number of bags the user inputs as being included as part of the customer charge, and that bag prices have been rounded up to help mitigate revenue risk.
- [8] Salaries and vehicle cost information provided by the Township and escalated for inflation, with the exception of fuel costs (see Footnote #9).
- [9] Fuel costs for vehicles through 2011 have been escalated based on recent year increases in Diesel Fuel as reported by the Energy Information Administration (EIA). Longer term fuel cost has been escalated at inflation.
- [10] Tip fees have been assumed to increase with inflation.
- [11] Program costs exclude additional administrative labor related to customer service and educational facilitation, which has been estimated and added to the Salary and Benefits sub-section of costs (as a part-time/temporary employee with no benefits).

### North Fayette, PA - Refuse Projection



North Fayette, PA Technical Assistance  
Projections Summary

Year	Historical Refuse (Tons)	Fcst St. Error	Refuse (Base Case)	Refuse (Low Case)	Refuse (High Case)	Recycle(Tons) (Base Case)	Recycle(Tons) (Low Case)	Recycle(Tons) (High Case)	YW (CY)	% of Total (Organic Fcst.)	
										Refuse (Tons)	Recycle(Tons)
1998	6,144					-			-		
1999	6,146					-			-		
2000	6,210					-			-		
2001	6,361					-			-		
2002	6,706					-			-		
2003	7,048					272			-	96.3%	3.7%
2004	7,296					267			605	96.5%	3.5%
2005	7,330					298			831	96.1%	3.9%
2006	7,054					330			1,016	95.5%	4.5%
2007	6,750					311			640	95.6%	4.4%
2008		456	7,033	6,283	7,783	497	461	533	1,286	95.4%	4.6%
2009		491	7,171	6,363	7,980	522	481	563	1,310	95.2%	4.8%
2010		532	7,314	6,439	8,188	549	503	595	1,335	95.0%	5.0%
2011		577	7,460	6,511	8,408	578	526	630	1,360	94.8%	5.2%
2012		626	7,610	6,580	8,640	608	549	667	1,386	94.6%	5.4%
2013		680	7,764	6,646	8,882	641	574	708	1,412	94.3%	5.7%
2014		738	7,923	6,709	9,136	676	599	752	1,439	94.1%	5.9%
2015		800	8,086	6,770	9,401	713	626	799	1,466	93.8%	6.2%
2016		866	8,254	6,829	9,678	752	655	850	1,494	93.6%	6.4%
2017		936	8,426	6,886	9,966	795	684	905	1,522	93.3%	6.7%
2018		1,011	8,604	6,941	10,266	840	715	965	1,551	93.0%	7.0%
CAGR (Hist.)	1.1%					3.4%			1.9%	-0.2%	4.3%
CAGR (Proj.)		8.3%	2.0%	1.0%	2.8%	5.4%	4.5%	6.1%	1.9%	-0.3%	4.3%

Summary of Benchmark PAYT Programs

PAYT Program Information	East Bradford	Elverson	West Bradford	West Whiteland	Hermitage	Kingston	Indiana
Hybrid/Strict?	Hybrid	Strict	Hybrid	Strict	Hybrid	Hybrid	Strict
Mandatory/Optional?	Mandatory	Mandatory	Mandatory	Mandatory	Mandatory	Mandatory	Mandatory
Why Mandatory/Optional?	Ease of record keeping; ACT 101	"The only way it would work"	Has been mandatory since inception	Ordinance	Due to tenure of program (15 yrs)	n/a	
Public Opinion on PAYT	Initial skepticism; now want 2x/wk collection	Minimal negative comments; people like savings	Indeterminate; lots of complaints against hauler collection	Public currently pleased with program; program in place since 1991	Extremely well, eliminated a lot of problems they had previously, Their old system was antiquated a tag system.	n/a	Poor response; behavior to avoid fees due to demographics
Response/Savings for Small Waste Generators	Not noticeable due to low PAYT sticker sales	Small waste generators see savings	Currently no savings; program may change for small waste generators	Small waste generators see savings	Elderly and single person homes are experiencing savings	n/a	None
Advantages/Disadvantages	Hybrid results in more participation; less illegal dumping; easier to collect charges	No disadvantages; program pays for itself and trash cans are avoided	Larger generators of waste are financially responsible for themselves	Enables habitual recycling	Advantages - elderly and single homeowners are finding savings Disadvantages - they have all been ironed out since implementation	n/a	College area - illegal dumping and storing waste was widespread
Current Rates/Charges	\$16.69/month additional bags cost \$1.85 each	\$2.50 per bag	\$81.00 for 6 months additional bags cost \$2.00 each	\$2.00 per bag	\$38.70 quarterly for unlimited collection or \$3.90 per bag	\$185 per customer for 2 30-gallon bags, and \$1.95 per additional bag	Program Eliminated
Service Level	three 32-gallon bag/wk	30-gallon bags	90-gallon toter or 30-gallon bags	30-gallon bags	30-gallon bags or toter	30-gallon bags	Currently back to Unlimited Service
Billing	Hauler	Elverson	West Bradford	West Whiteland	Hauler	n/a	n/a
Customer Service	Hauler	Elverson	West Bradford	West Whiteland		n/a	n/a
Frequency of Collection	1x/wk	1x/wk	1x/wk	1x/wk	1x/wk	1x/wk	n/a
Collection Responsibility	Hauler	Hauler	West Bradford	Hauler	Hauler	Hauler	n/a