



Yard Waste Program Evaluation Project # 608

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1 STATEMENT OF PROBLEM

The Borough of Geistown (Borough) operates a number of programs for the collection and management of yard waste. The Borough endeavors to divert yard waste from landfill disposal. Although the Borough is not required to divert yard waste by state or local regulations, their website states that “Certain items are not permitted to be dumped at local landfills, such as grass, leaves, branches, trees, batteries, etc., and as a result will not be collected.”¹

The Borough sought assistance from the Pennsylvania Department of Environmental Protection’s (DEP) Recycling Technical Assistance Program to help assess the current yard waste management programs and provide recommendations for how the programs can better serve residents while managing costs. Several yard waste programs exist in the Borough that may result in the over servicing of residents and consequently increase costs for the Borough. The Borough seeks to continue to divert yard waste from landfill disposal, provide residents with adequate yard waste collection service, and control their yard waste program costs.

¹ <http://www.geistownborough.com/information/garbage>

2 SUMMARY OF WORK PERFORMED

This section summarizes the work performed for the Borough of Geistown:

Task 1 – Site Visit

SCS conducted a site visit to the Borough of Geistown to meet with Borough representatives and discuss their current yard waste collection operations. SCS used this time to request material tonnage data as well as the number of residents that use each program each year. Borough staff provided SCS with a tour of their yard waste drop-off convenience center located at the Borough's municipal office building as well as the Highland Regional Park Yard Waste Composting Site.

Task 2 – Program Analysis

SCS evaluated the success of each yard waste program based on the details that were available. Little information was available on program aspects such as tonnage of yard waste diverted, program costs, and resident participation. In some cases, these program characteristics were estimated in order to state the per ton cost to the Borough for collecting and managing yard waste. This was not possible for all yard waste collection program options.

Task 3 – Program Recommendations

Based on discussions with Borough staff, information available, and our understanding of the services provided, SCS made recommendations for the Borough to consider in order to further benchmark each program so that informed decisions can be made on what programs need to be discontinued, modified, or maintained in their current form. In order to make the Borough's yard waste collection program more efficient, they must balance the need to operate cost-effective programs with providing convenient services to residents without over servicing them.

Task 4 – Final Report

The results of this study and our recommendations for further evaluating yard waste collection programs are provided in this report.

3 RESULTS AND FINDINGS

PROGRAM OVERVIEW

The Borough of Geistown is located in Cambria County, Pennsylvania. It was incorporated in 1930. The Borough encompasses about one square mile in area, and according to the 2010 Census, has a population of 2,467 people living in 1,225 households. The population has been declining recently. The Borough is not required by the Pennsylvania Municipal Waste, Planning, Recycling and Waste Reduction Act (Act 101) to implement recycling and leaf waste diversion programs.

Trash and Recycling

The Borough's existing recycling and yard waste programs are voluntary. The Borough has executed a contract with Advanced Disposal for the weekly curbside collection of solid waste. The Borough has two "zones" for solid waste collection with Scalp Avenue being the dividing line. Waste is collected on either Tuesday or Thursday depending on location. Residents are allowed to place up to four bags or four 30-gallon cans of solid waste for collection each week. Waste collected in the Borough is disposed of at the Mostoller Landfill.

Cambria County provides recycling services to the residents of the Borough. Residents transport recyclables to the convenience center behind the Geistown Fire Hall. This site is open seven days a week. The following materials are collected as part of the recycling program:

- #1 and #2 coded plastic jugs or bottles;
- Clear glass bottles and jars;
- Newspapers;
- Aluminum, steel, bi-metal food and beverage containers;
- Magazines and catalogs.

The Borough does not charge a fee to residents for solid waste services nor does the Borough receive revenue from the sale of recyclable material or compost.

Yard Waste

SCS met with Mr. Mike Grandinetti, the Public Works Director, at the Borough office to discuss the yard waste collection and composting programs. During the visit, SCS toured the drop off convenience center site adjacent to the Borough municipal office and Highland Regional Park Yard Waste Composting Site.

The Borough provides a comprehensive yard waste management program to its residents. Different types of collection programs are available for use. The Borough composts the materials and uses the finished product in community landscaping projects as well as makes it available to residents. Yard waste management programs in the Borough include:

- 1) **Seasonal Curbside Collection of Grass Clippings and Leaves** - Weekly curbside service occurs on Mondays; grass clippings are collected May through September; leaves are collected October through November);
- 2) **Annual Brush Collection Event** – Annual collection of brush that occurs every spring and usually lasts for about two days;
- 3) **On-Demand Brush Collection Service** – This service allows residents to call borough offices at any time of the year and request curbside collection of brush;
- 4) **Drop-off Yard Waste Collection Site** – The drop-off site is located next to the Borough’s municipal office and residents drop-off yard waste year-round, Monday through Friday from 6:30 a.m. to 4:00 p.m. Brush materials dropped-off at this site are chipped before being transported off site for composting.

Highland Regional Park Yard Waste Composting Facility

The yard waste is composted at the Highland Regional Park Yard Waste Composting Facility that is shared with Richland and Stonycreek Townships. The three municipalities take turns processing the materials at the site each week. Windrows of leaves are turned once per week and windrows of grass clippings are turned every 24 hours. An excavator is used to turn the compost. The municipalities have not found a reliable market for the finished compost.

Residents are allowed to collect compost from the finished piles to use in home landscaping

projects. Compost is used by some residents, but a few year’s worth of materials are stockpiled at the site. To manage this stockpiled material, the oldest compost is spread over a field.



Highland Regional Park Yard Waste Composting Facility

EXISTING YARD WASTE COLLECTION PROGRAMS

Seasonal Curbside Collection of Grass and Leaves

Beginning in May and running through November, Borough staff collect grass clippings and leaves that are placed curbside each Monday. Grass clippings are collected from May 1 to October 1. Beginning October 1 and through the end of November leaves are collected.

Collection crews use a Borough pick-up truck with attached trailer to collect the yard waste manually. Residents are instructed to bag yard waste. There are no limits as to how many bags of yard waste can be placed curbside for collection. Bags must weigh less than 50 pounds in order for the collection crew to collect the bags in a safe manner. Residents that do not comply with the Borough's requirements for grass and leaf collection receive a notification at the curb and the materials will not be collected. Yard



Bags of grass clippings and leaves from one weekly curbside collection event

waste is transported to the Borough's drop-off yard waste collection site where the bags of grass and leaves are manually opened and prepared for transport to the Highland Regional Park Yard Waste Composting Site located in neighboring Stonycreek Township. During peak collection periods, it is not uncommon for the collection crew to have to make 10 trips to the drop-off yard waste collection site each day.

Estimated Collection Cost

SCS estimated the costs incurred by the Borough to conduct the curbside grass and leaf collection program. Labor costs represent the most significant costs of this program, which were estimated based on labor rates provided by Borough staff. Additional equipment costs for fuel and maintenance are also incurred and should be accounted for in estimating the actual costs of this program. SCS expects these costs to be relatively minimal compared to labor costs and are conservatively estimated. SCS recommends the Borough analyze and allocate equipment costs incurred for each yard waste collection program. This will provide an understanding of what the costs are for each collection program in order to calculate the per ton cost of managing yard waste through each program.

Based on the cost estimates made for this study, it is estimated that the curbside collection of grass clippings and leaves from May through November costs the Borough about \$19,000 annually. Note these costs do not include program administration costs and the costs of processing the materials that are delivered to the drop-off yard waste collection site.

Table 1. Estimated Costs of Seasonal Curbside Grass and Leaf Collection Annually

Service	Days Operated ¹	Labor Costs ²	Fuel Cost ³	Equipment Costs ⁴	Total Cost
Weekly Curbside Grass Collection (May - September)	21	\$10,600	\$1,050	\$2,100	\$13,750
Weekly Curbside Leaf Collection (October - November)	9	\$3,800	\$450	\$900	\$5,150
TOTAL	30	\$14,400	\$1,500	\$3,000	\$18,900

¹ Assumes curbside collection one day per week from May through September for grass clippings and one day per week for October and November for leaves.

² Assumes two staff for one day per week at eight hours a day plus an additional staff to assist for three months during peak grass clippings collection season; labor rates provided by the Borough and multiplied by 1.37 to account for the Borough's cost of employee benefits².

³ Assumes fuel cost of \$50 for each day collection occurs.

⁴ Estimated at \$100 for each day collection occurs.

Estimated Tonnage

The Borough does not track the quantities of grass clippings and leaves collected in their curbside program. A study conducted by the Borough for three weeks in August 2014 aimed to quantify the number of bags of grass collected. Results from that three-week study showed that about 280 bags of grass were collected each week. It is estimated that each bag contains 30 pounds of grass clippings. Although the Borough's 2014 study did not include leaf waste, SCS assumes that about 280 bags of leaves are collected each week during October and November and the weight of each of those bags is estimated to be 20 pounds. **Table 2** summarizes the estimated quantities of grass and leaves collected as part of the curbside collection program.

Based on this analysis, it is estimated that over 88 tons of grass clippings are collected by the Borough each year from May through September. An additional 25 tons of leaves are collected in October and November. A total of 113.4 tons of materials are collected curbside through this program each year. The Borough spends an estimated \$156 per ton to collect grass clippings and \$204 per ton to collect leaves. The costs associated with curbside collection of leaves and grass clippings are significant. The recommendations section of this report provides some ideas for tracking costs and material quantities over the course of an entire season of grass and leaf waste collection to further refine the estimates provided in this report.

² Bureau of Labor Statistics

Table 2. Estimated Quantities of Seasonal Curbside Grass and Leaf Collection Annually

Service	Days Operated ¹	Number of Bags ²	Estimated Weight (Tons) ³	Cost Per Ton	Total Cost
Weekly Curbside Grass Collection	21	5,880	88.2	\$156	\$13,750
Weekly Curbside Leaf Collection	9	2,520	25.2	\$204	\$5,150
TOTAL	30	8,400	113.4		\$18,900

¹ Assumes curbside collection one day per week from May through September for grass clippings and one day per week from October through November for leaves.

² Based on August 2014 study that estimated 280 bags of grass clippings are collected each week.

³ Based on 30 pound bags of grass clippings and 20 pound bags for leaves.

Estimated Participation

The Borough does not track resident participation in the curbside grass and leaf waste collection program. However, the same study referenced above in August 2014 tracked the number of residents placing grass clipping at the curb for a three-week period. For that three-week period in August, borough collection crews made an average of 115 stops each week to collect curbside grass clippings. The Borough's service area includes about 1,200 households. Assuming all these households may participate in the curbside collection program at least once each season, it is estimated that about 10 percent of households participate in the curbside collection program each week.

Annual Brush Collection Event

The Borough designates one week each spring when brush (branches, stumps, shrubs) is collected curbside from residents. Residents are asked to cut the woody material into segments of no more than four feet in length and tie the materials together with rope or string. This facilitates collection by the Borough's staff. According to interviews with the Borough's Public Works Director, the brush collection event takes about two days to complete. Borough officials have noted that the establishment of the drop-off yard waste collection site has reduced demand for this event. **Table 3** provides the estimated costs incurred to provide this service to residents. Note these costs do not include program administration costs and the costs of operating and processing the materials that are delivered to the drop-off yard waste collection site.

Table 3. Estimated Costs for Annual Brush Collection Event

Service	Days Operated ¹	Labor Costs ²	Fuel Cost ³	Equipment Costs ⁴	Total Cost
Annual Brush Collection	2	\$1,200	\$100	\$200	\$1,500

¹ Assumes two days per year for curbside collection.

² Assumes two staff for two days per year at eight hours a day; labor rates provided by the Borough and multiplied by 1.37 to account for the Borough's cost of employee benefits³.

³ Assumes fuel cost of \$50 for each day collection occurs.

⁴ Estimated at \$100 for each day collection occurs.

The Borough does not quantify the amount of brush collected during this annual event so it is not possible to estimate the per ton cost to provide this service to residents. Based on conversations with Borough staff, the amount of material collected as part of this program is relatively minimal. For example, if the Borough were to collect five tons of materials through this program, the per ton cost to collect the material is estimated to be \$300, significantly higher than the cost of the annual grass clippings and leaf collection program. In addition to tracking quantities of yard waste collected as part of this program, borough staff should also tally the number of residents that participate in this program to understand how many residents this program serves.

On-Demand Brush Collection Service

The Borough also offers residents an on-demand curbside brush collection service. Residents are required to prepare brush in the same way as for their annual brush collection event each spring. Borough staff indicate that the truck used for this on-demand service is dispatched only two days per year. Based on this information, the annual cost is estimated to be similar to the costs incurred by the annual brush collection event or about \$1,500. The cost may actually be higher if the truck is dispatched more than two days per year even if the crew is only collecting brush for a portion of the day. Similar to other yard waste programs, the Borough does not quantify the amount of brush collected annually or the number of residents utilizing the on-demand service.

Drop-off Yard Waste Collection Site

The Borough has also established a drop-off yard waste collection site adjacent to the Borough municipal office. The drop off site is open year round, Monday through Friday, from 6:30 a.m. to 4:00 p.m. The site is unmanned and gated. Borough staff open and close the gate at the start and end of each workday. Residents that bring yard waste to the site are required to sign-in at the Borough office prior to drop-off of yard waste. Materials must not be bagged and need to be separated by type (i.e. grass clippings, leaves, brush, etc.) in designated areas. Grass clippings and leaves are transported to the Highland Regional Park Yard Waste Composting Facility for composting. Each month the Borough uses a wood chipper to process the brush at the drop-off site. Borough staff indicate that chipping the brush takes three or four days depending on the size of the pile. Brush that is collected curbside by the Borough staff as part of the annual brush collection event and on-demand service are brought to the drop-off site for chipping. Each spring, wood chips from the drop-off site are transported back to the Highland Regional Park

³ Bureau of Labor Statistics

Yard Waste Composting Facility for incorporation into the leaf waste composting operation. **Table 4** provides a summary of the labor costs associated with chipping the brush processed at the drop-off site.

Table 4. Estimated Labor Costs for Chipping Brush at Drop-off Site

Service	Days Operated ¹	Labor Costs ²
Brush Chipping	48	\$16,000

¹ Assumes four days per month.

² Assumes one staff for 48 days per year (4 days per month) at eight hours a day; labor rates provided by the Borough and multiplied by 1.37 to account for the Borough’s cost of employee benefits⁴.

Note that the cost estimated in **Table 4** provides for the processing and chipping of all brush collected by the Borough, not just the brush that residents bring to the site. Cost information on use of the wood chipper and transporting materials to the Highland Regional Park Yard Waste Composting Facility are not estimated.



Piles of segregated grass, leaves, and brush at the drop-off yard waste site



Site entrance to the drop-off yard waste site

⁴ Bureau of Labor Statistics

4 RECOMMENDATIONS

REDUCE YARD WASTE COLLECTION SERVICES

The Borough has established a number of yard waste collection and management programs to serve residents. While each program is unique in its frequency and the materials collected, the residents of the Borough appear to be over-serviced, resulting in programs that have a high cost per ton of material collected. This puts a strain on Borough staff who are also responsible for providing other services while expending more financial resources than may be necessary.

SCS recognizes that diverting yard waste from disposal has important impacts on human health and environmental protection. Furthermore, since the Borough is not obligated by Act 101 or other regulation to provide this service, it speaks volumes to the Borough's commitment to sustainability. The Borough should be commended for seeking help in order to use their resources wisely and providing yard waste services that are not redundant and duplicative while adequately serving its residents.

The Borough should make decisions to reduce or eliminate select programs for yard waste collection. This will not be an easy decision to make since the perceived loss of service by some residents may be controversial. There are ways that the Borough can minimize the impacts of changing services, some of which are discussed further in this section.

QUANTIFY IMPACT OF EACH YARD WASTE PROGRAM

To understand which yard waste collection programs should be discontinued, modified, or continued in their current form, SCS recommends the Borough take the time to quantify some important aspects of each program over the course of an entire collection season. This is important for identifying seasonal variation in collection and better understanding the effectiveness of the program at diverting yard waste from disposal.

The Borough should collect and track the following information for each yard waste collection program for a period of at least one year:

- Quantity of yard waste collected by material type (i.e. brush, grass clippings, leaves);
- Number of households participating;
- Incurred labor costs for operating and administering each program;
- Equipment and supply costs incurred to operate the programs;
- Other program related costs.

This would require identifying a place where the Borough can weigh the grass, leaves, and brush collected curbside prior to their placement at the drop-off yard waste collection site. Alternatively, the Borough could record approximate volumes of materials and estimate the weight collected. Tracking this information will help the Borough identify what programs are

being used at what frequency and their effectiveness at diverting yard waste from the landfill. The Borough should calculate a per ton cost for managing yard waste by dividing the number of tons collected by a sum of the costs the Borough incurs for each program. The programs with the highest cost per ton should be considered for elimination or modification, although other factors (i.e. number of households participating) may affect which programs are actually cut.

MODIFY EXISTING PROGRAMS

The Borough should consider modifying existing programs to balance their need to reduce costs and provide an acceptable level of service to residents. For example, Borough staff indicate the time required to collect grass clippings weekly in the spring and summer is problematic, as staff cannot complete other important tasks such as road maintenance. If the Borough concludes that programs should be eliminated due to labor costs, but residents demand the service, there may be opportunities to modify the existing service to the satisfaction of both the Borough and residents. It could mean that the Borough changes the program to bi-weekly (every other week) collection of grass clippings. The Borough could also require residents to place all grass clippings in compostable brown paper bags to eliminate the time and expense incurred to tear open and empty plastic bags of grass clippings.

CONSIDER CHARGING USER FEES

This recommendation is likely to be met with significant resistance from residents. Historically, the yard waste services provided by the Borough have been funded through taxes, appearing “free” to residents. In order to help offset the cost of certain programs, the Borough should consider implementing a user fee schedule so that residents who use the service pay for it. Curbside collection programs are usually more expensive to operate than a drop-off program. The Borough could design a curbside collection program that includes the regular collection of grass clippings, leaves, and brush while maintaining the Borough’s drop-off site. Residents who require curbside collection of yard waste could be assessed a fee for this personal level of service or they could use the drop-off yard waste collection site for free. This provides residents options to select the program that best fits their needs.

Although user fees can help offset the costs of operating a yard waste collection program, it will take some time and expense for the Borough to set up a billing system. The Borough could also implement a pay as you throw program to minimize the need of setting-up a billing system to track user fees. Such a system could require residents to purchase compostable paper bags for the placement and collection of yard waste curbside. Yard waste in the designated bags would be collected by the Borough at established intervals. Yard waste not contained in compostable paper bags would not be collected. Residents that have yard waste too big or heavy to fit in the compostable paper bags would be required to transport the materials to the Borough’s drop-off site. If such a program were to be implemented, careful consideration must be given to the placement of bags in retail stores or other merchants to make them readily available to residents.

PUBLICIZE THE AVAILABILITY OF COMPOST

One of the challenges of managing the Borough's yard waste program is that markets for the mature compost produced are limited. Thus, compost is stockpiled at the Highland Regional Park Yard Waste Composting Site and not put to beneficial use. The Borough uses the material in their landscaping projects whenever possible, but the Borough produces more than it can use.

The Borough makes the compost product available to residents at no charge. However, little communication or advertisement exists to promote the availability of free compost. Simple steps could be taken to advertise the availability of compost to residents and even business owners for lawn and landscaping purposes. Opportunities to advertise compost availability include:

- Provide information on the Borough's website;
- Post notices at the municipal office building drop-off site;
- Place an advertisement in a newspaper of general circulation in the Borough such as the Tribune Democrat;
- Mail a postcard to each household in the Borough advertising the availability of compost;
- Coordinate an advertising campaign with the Richland and Stoneybrook municipalities to promote the use of compost at homes.

ENGAGE RESIDENTS

As with any program change, one of the keys to success is to engage residents and ask for their feedback prior to making decisions on how to revamp the Borough's yard waste collection program. Resident feedback is important and should be a significant factor in deciding what programs to expand, modify, or cut. There are a number of ways borough staff can solicit feedback from residents. This includes encouraging staff to talk to residents they encounter as they are collecting yard waste curbside or maintaining the drop-off yard waste collection site. Quick conversations on their satisfaction of the program or their frequency of use can provide a general feel for how residents perceive the value of the services provided. Residents using the drop off yard waste collection site are asked to sign-in at the Borough office when they use the facility. Borough staff should monitor who is using the facility and engage them on the program and if they use the curbside programs as well. If the personal contact at the drop-off yard waste collection site is too time consuming, perhaps the sign-in sheet for residents in the municipal office could include a couple of questions that could be answered quickly when the resident signs-in to drop-off materials. Questions could include:

- Do you participate in the Borough's curbside yard waste collection program?
- How many times each year do you place yard waste at the curb for collection?
- How many times a year do you bring yard waste to the drop-off site?

The Borough could take a more formal approach to engaging residents such as with the development of a survey that could be distributed and the results compiled. Another approach is to establish a small committee comprising residents, borough staff, and elected officials to make recommendations on how the yard waste program can become more efficient while still serving residents.

5 CONCLUSION

The residents of the Borough of Geistown are over serviced with yard waste collection programs. This has led to programs that are costly, possibly duplicative, and limit borough staff in carrying out other important services. The Borough needs to assess the impact of the current programs in terms of cost, service level, and participation and balance that with providing service that residents' desire. The recommendations in the previous section can help the Borough make the decisions on what changes need to be made.