

**SWANA RECYCLING
TECHNICAL ASSISTANCE STUDY**

FINAL REPORT

**PERMIT-BY-RULE COMPOST SITE APPLICATION REVIEW
&
PREPAREDNESS, PREVENTION, & CONTIGENCY
PLAN ASSISTANCE**

Prepared for:

**UPPER PROVIDENCE TOWNSHIP
MONTGOMERY COUNTY, PENNSYLVANIA**

Prepared by

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HARRISBURG, PENNSYLVANIA

June 2006

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SWANA RECYCLING TECHNICAL ASSISTANCE STUDY

- EXECUTIVE SUMMARY -

**PERMIT-BY-RULE COMPOST SITE APPLICATION REVIEW
&
PREPAREDNESS, PREVENTION, & CONTIGENCY PLAN ASSISTANCE**

Upper Providence Township is making good progress in completing the PADEP permitting process for “permit-by-rule” compost facilities. The proposed site will be located at 1094 Longford Road, Montgomery County Pennsylvania. It is anticipated the permit application, including the PPC Plan, will be submitted to PADEP in July 2006. The Township is hopeful to have the compost facility permitted and in operation by November 2006. Conclusions and key findings provided by Gannett Fleming are presented below.

- The Township should continue to move forward with the permit process for a permit-by-rule compost facility. In the future as needed, the Township can pursue a PADEP permit to operate as a compost facility that exceeds the 5-acre size limit for permit-by-rule compost facilities.
- The Township should educate residents on the development of the yard waste compost site and continue ongoing education efforts to encourage participation and proper use of this public resource.
- GF recommends the Township prohibit the acceptance of plastic bags for delivery of materials at the compost site. Compostable Kraft paper bags would be acceptable.
- The Township should consider prohibiting grass from being accepted at the site. Educate residents on the methods and benefits of “grasscycling”. Accepting grass may increase the level of compost management required to minimize odors, ensure timely and proper mixing, and could create the need for additional equipment (e.g. windrow turner).
- The Township should review the comments offered by GF related to their compost Site Plan and incorporate this guidance as feasible (detailed comments related to the Townships Site Plan are in Sections 4.1 and 8.0)
- It is suggested the Township contact PADEP to request a preliminary review of the draft PPC plan that was developed as part of this Study. A preliminary review may minimize any unnecessary delays in the actual permit-by-rule application review.
- The Township intends to develop the compost site and procure equipment without the use of Act 101 Recycling Grant funding. GF recommends the Township evaluate the use of grant funding on a periodic basis to ensure the Township can adequately meet the public need related to this compost facility.
- It is strongly recommended the Township charge a fair fee for loads of finished compost material, especially if mechanical equipment is used for loading.
- It is recommended the Township implement a comprehensive tracking and record keeping program as a tool to properly manage the compost operation.

**SWANA RECYCLING
TECHNICAL ASSISTANCE STUDY**

FINAL REPORT

**PERMIT-BY-RULE COMPOST SITE APPLICATION REVIEW
&
PREPAREDNESS, PREVENTION AND
CONTINGENCY (PPC) PLAN ASSISTANCE**

1.0 INTRODUCTION

Through the partnership with the Solid Waste Authority of North America (SWANA), the Pennsylvania State Association of Township Supervisors, and the Pennsylvania Department of Environmental Protection (PADEP), Upper Providence Township (Township) was awarded \$7,500 in technical assistance that was provided by Gannett Fleming, Inc. (GF). The technical assistance includes assistance with the Townships proposed compost site and the development of a draft Preparedness, Prevention, and Contingency (PPC) Plan.

1.1 Scope of Work

GF worked with the Township to develop the following tasks for this project.

- Task #1** GF will gather and review background information from the Township including permit documents, recycling program information, correspondence, site specific information, drawings, aerial photos, etc.
- Task #2** GF will complete a cursory review of the permit application and prepare recommendations related to the preparation of the PPC Plan required for Permit-by Rule compost facilities (less than five acres). In order to ensure the PPC is consistent with previously PADEP approved compost facilities, GF will contact PADEP and one or more municipalities in the region to gather and review PPC Plans for similar Permit-by-Rule compost facilities.
- Task #3** GF will review the general approach to the development of the compost site including the conceptual layout drawings of the proposed compost site that have been prepared by the Township. GF will identify any areas of concern related to the proper development of the proposed compost site.
- Task #4** GF will prepare and provide the Township with a letter report of findings and recommendations. This task includes a review of the report by the Pennsylvania Department of Environmental Protection (PADEP) and response to PADEP comments. Additionally, an electronic file of the final report will be submitted to PADEP and SWANA. Both an electronic and hardcopy version of the report will be provided to the Township.

2.0 BACKGROUND

Upper Providence Township is a growing community. Based on the 2000 U.S. Census, Upper Providence Township has 15,398 residents. Since that time the Township has grown and there are currently about 17,000 residents living within the Township boundary. The Township is mandated to recycle under the municipal waste planning, recycling, and waste reduction Act (Act 101). Act 101 mandates curbside recycling in communities with a population over 10,000 and in communities over 5,000 with a density of 300 persons per square mile.

The Township does not currently have a comprehensive program for residents to compost (recycle) leaves, grass clippings, tree trimmings and other vegetative material commonly generated by residential establishments. The Township is interested in establishing a small compost site (less than 5 acres) on an existing 14-acre site located in Oaks, Pennsylvania. The Township is requesting technical assistance from Gannett Fleming to review the draft permit application for the proposed site and to assist in the preparation PPC Plan that will be included with the Township's permit-by-rule application submittal.

The existing waste and recycling collection services are presented in the sections below.

3.0 EXISTING WASTE COLLECTION AND RECYCLING ACTIVITIES

3.1 Waste Collection

The Township has a private subscription waste (and recyclables) collection system. Residents contract with one of several local private haulers. A few of the commonly used haulers include:

- **Allied Waste Services**
- **J.P. Mascaro**
- **Waste Management**

3.2 Recycling

Recycling by Township residents is required by law. Recycling bins are available at the Township office. Private trash haulers collect recyclables as part of the trash fee. Residents are required to recycle the following materials:

- **Aluminum cans**
- **Steel & bi-metal cans**
- **Plastic bottles**
- **Newspaper**

3.3 Leaf Waste Collection

The Township Public Works department provides a fall leaf clean-up service, but does not currently have a regular curbside leaf waste/yard waste collection program. The proposed Township compost facility will give residents more opportunity to recycle yard waste material.

3.3.1 Act 101 and PADEP Requirements for Leaf Waste

Mandated municipalities are required to provide for the collection of “leaf waste” for residents as described by Chapter 271 of the PA Code. “Leaf waste” is defined in Chapter 271 as **leaves, garden residues, shrubbery and tree trimmings, and similar material**; leaf waste does not include grass clippings. Collection of other yard waste materials (such as grass clippings) is not required by the Act 101 recycling mandate. It is noted that a drop-off location by itself is not an option for replacing curbside collection of “separated” materials in mandated communities, which includes “leaf waste” as defined in Act 101.

As required by Act 101 and PADEP policies and guidelines, Upper Providence Township is required, at a minimum, to implement a recycling ordinance and program that:

1. **Prohibits the burning of recycled materials collected within the Township, including leaf waste**
2. **Requires curbside collection of leaves and garden residue, shrubbery, tree trimmings, and similar material (i.e. brush)**
 - a. At a minimum, leaves must be collected seasonally, at least twice per year
 - b. Garden residue, shrubbery, tree trimmings (or “brush”), and similar material must be collected separately at least twice per year (spring/fall).

Importantly, meeting these minimum Act 101 requirements does not typically meet the actual disposal needs of residential households for yard waste material. Significant quantities of residential yard waste material end up in the waste stream, especially in the spring and fall. Therefore, many Pennsylvania recycling communities offer curbside collections programs for leaf waste that exceed the Act 101 minimum requirements.

3.3.2 Grass Clippings

Grass clippings are sometimes accepted by mandated curbside recycling programs, while others discourage the collection of grass because it may produce nuisance odors. Compost site odors and their impact to the local community is commonly the most serious operational/political problem that faces compost sites.

Grass can be the biggest yard waste component in the waste stream by weight, but it can also easily be kept out of the waste stream by composting back into the lawn. The state regulations require additional measures to be taken when accepting grass clippings at a yard waste composting site (regarding receipt, handling, and mixing of grass into yard waste piles). When incorporated into a compost pile, grass clippings may compact the pile, fill pore space, and restrict air flow throughout the pile. Due to high moisture content and density, grass clippings can sometimes turn anaerobic, generate malodors, and slow the composting process. Composting of grass clippings requires careful handling and management measures at yard waste composting sites.

3.3.3 Leaves

Leaves are usually the biggest yard waste component by volume. Yard waste generation rates vary dramatically based on yard size, percentage of the population in single-family housing, and various other related factors including weather (especially rainfall). Yard waste can be the largest component of municipal solid waste (MSW) during the summer and fall, with grass predominant in the summer and leaves predominant in the fall. In general, yard waste can be one of the larger components of landfilled MSW by volume or weight. Diverting yard wastes to compost sites can significantly reduce tipping fee charges at disposal sites.

4.0 PROPOSED COMPOST SITE

The proposed compost site is located just north of the Schuylkill River at 1094 Longford Road (refer to the **Location Map** attached at the end of this report). The proposed compost site will be less than 5 acres.

4.1 Compost Site Layout Review

As background information to this study, GF was provided a Compost Site Plan and Existing Features Plan developed by the Township’s engineer. The proposed Longford Road Compost Site has approximately 14 acres available, with the compost facility located in an area slightly less than 5 acres. Although it was not in the scope of this study, GF has provided some comments related to the Compost Site Plan. GF felt some of our insights may relate to the PPC plan and proper development of the compost site operation.

In our review of the Compost Site Plan, GF considered that adequate sizing and arrangement of windrows is important to the site and will serve not only the immediate needs of the community, but also future needs. GF also considered efficient use of space and the PADEP Guidelines, which require **no more than 3,000 cubic yards** of leaf waste to be composted, stored, or cured on one acre of a compost site. Based on GF’s basic understanding of how the Township is

proposing to operate the compost site, it is not anticipated that space limitations will be a problem in the initial years of operation. However, it is still recommended the Township further evaluate space utilization and related operational issues to ensure an efficient, organized, and safe compost site operation.

The following comments are based on GF's cursory review of the Township's existing Compost Site Plan:

- The Compost Site Plan does not have topographical information to show grading. Grading will be critical to proper stormwater/runoff management. It is important to minimize water ponding to the greatest extent feasible.
- The windrows are running parallel to the existing contours, which is incorrect when considering runoff and ponding conditions that can negatively impact the working surface and/or groundwater. Windrows should run perpendicular, not parallel, to contours and thus the orientation of the windrows should be changed. The actual grading of the site should be used to determine the final orientation of the windrows.
- It appears the slope is roughly 2-3 percent, which is adequate for a compost site.
- The spacing of 40 feet between windrows is excessive and does not maximize the use of the active composting area. Consider paring windrows side by side, which still allows for access to the windrows by a loader from one side.
- The location of the drop-off areas is not provided on the layout. The orientation of the drop-offs should be well thought out and it is suggested brush is segregated (at least somewhat) from the leaf waste/grass drop-off so that brush can be chipped and chip piles can be stored as/if needed.
- Windrows should not be near any residential drop-off areas as a safety measure.
- The access road appears to be 15 feet wide. An access road this narrow will restrict traffic and will increase risk of vehicle incidents as well as slow down traffic flow. It is suggested the access road be a minimum of 24 feet or wider if space is available and it is economically feasible.
- The Compost Site Plan shows a Curing and Storage area in the northern corner of the active compost site area. This area should be located where loaders have access from all sides, since large piles will accumulate and may need to be moved or turned. It appears two sides may not be accessible.
- It is not clear if a gate is proposed at the access road or if a fence will surround the site. Both of these items are important measures to reduce liability and to minimize illegal dumping, vandalism, etc.
- Although it can be cost prohibitive, the Township should consider paving at least some areas of the active compost area. Paving is typically the most favorable and recommended working surface at compost sites, especially in regions that may receive significant rainfall.

4.2 Future Expansion of the Longford Road Compost Site

If Upper Providence Township elects to expand the site (to over five acres) in the future, the Township will need to pursue additional permitting through PADEP. Compost facilities that are between five and fifteen acres in size can be permitted to operate under an existing PADEP General Permit (GP) for composting facilities, provided the proposed activities are consistent with the existing GP and approved by PADEP. PADEP is currently working on a single and comprehensive compost GP that will incorporate a large number of feedstocks and be suitable for most compost operations.

For the 5 to 15-acre compost sites that pursue a GP, PADEP requires the submittal of Form 27, “Acceptance of General Permit Conditions”, as part of this process. PADEP then makes a “Determination of Applicability” based on the information provided by the applicant requesting approval to operate under the GP.

5.0 YARD WASTE SITING CRITERIA AND PERMIT-BY-RULE GUIDELINES

The PADEP Guidelines for Yard Waste Composting Facilities (effective date September 1, 1997) apply to yard waste composting facilities of less than five acres that adhere to certain siting, design, and operational requirements in the Guidelines. The Municipal Waste Management Regulations (Title 25 Pa Code, Section 271.103(h)) allow such yard waste composting facilities to operate under a “permit-by-rule” if they comply with the Guidelines. Sizing the facility to be under 5 acres and the operation of a turned windrow system in accordance with PADEP’s Guidelines for Yard Waste Composting Facilities allows this project to operate under the permit-by-rule provisions of the Guidelines, which minimize regulatory requirements.

5.1 Permit-by-Rule Guidelines

The Guidelines (that apply to composting sites of less than 5 acres, and which will apply to this project, specify areas where yard waste composting facilities are restricted. The siting restrictions listed below, and noted with a “GUIDELINES” qualifier, indicate areas where yard waste composting is prohibited under the Guidelines, unless the operator takes special precautions and receives written authorization from the Pennsylvania Department of Environmental Protection (PADEP). Additional siting criteria are also listed below, and should be considered during the evaluation and selection of a yard waste composting site.

Yard Waste Siting Restrictions and Criteria

- Remote from residential areas (GUIDELINE – at least 300 feet from an occupied dwelling, unless a written consent waiver is obtained to be closer). Greater isolation distances and buffer zones desirable.
- Proximity to source of yard waste material. Minimize hauling distances.
- Sufficient size.
 - Approximately 3 to 5-acre site is recommended for 5,000-7,500 cy/yr of yard waste. GUIDELINE – maximum 3,000 cy/acre site loading, and limit composting (composting, curing and storage activities) to 5 acres maximum, or else Guidelines and permit-by-rule exemptions don't apply. Buffer areas and non-composting areas not considered part of the 5-acre maximum.
 - Additional space for expansion or alternate uses (e.g. recycling drop-off).
 - Windrow Layout: In order to minimize equipment maneuvering (e.g. number of passes), windrows are often designed to maximize their length across the available site area (which reduces total number of rows).
 - GUIDELINE – no composting or storage (other than curing) within 50 feet of a property line
- Ownership/ control of the site.
- Land – open/ vacant
 - Nearly level to moderate slopes. 2-4% slopes are considered ideal
 - Favorable soils – deep, well-drained, that perform well in wet seasons
- Drainage
 - GUIDELINE - No regional groundwater table within 3.3 feet of surface
 - GUIDELINE – Not within a 100-year flood plain
 - GUIDELINE – Not within 100 feet of a perennial stream
- Sensitive areas
 - GUIDELINE – Not in or within 300 feet of an exceptional value wetland, or in or within 100 feet of other wetlands
 - No historic sites
 - No rare/endangered species
 - No restricted lands
 - No sensitive “receptors” nearby (schools, nursing homes, etc.)
 - GUIDELINE – Not within 100 feet of a sinkhole or area draining into a sinkhole.
 - GUIDELINE - Not within 300 feet of a water source
 - Consider prevailing wind direction and potential downwind receptors
- Access
 - Easy access for vehicles and equipment into and throughout site
 - If public site access is desired for drop off of yard waste and pickup of finished compost, ease of access and area for same
 - Control of access to unauthorized persons and to unauthorized refuse dropoff
- Utilities
 - Water supply is the most critical utility service and should be readily available
 - Power supply is desirable
 - Stormwater management and discharge point may be required

6.0 SIZING CONSIDERATION FOR YARD WASTE COMPOST SITES

6.1 Yard Waste Generation Quantities

Participation from residents (and perhaps other generators) will significantly impact the total quantity of material that will require processing/composting by the Township each year. In addition, the amount of material to be composted may vary based on the types of yard waste materials accepted at the site (e.g. grass clippings, tree waste, etc.).

Generation of yard waste varies depending on the type of community (i.e. urban, suburban or rural) and also the “maturity” of the leaf collection program. A mature compost program is one that is well-known and well-utilized by the surrounding community. Often mature compost sites expand both in size and in the types of yard waste materials that are accepted. Therefore, it is very important to plan for growth in the material quantities processed in the program as the system matures.

Typically, leaf waste generation rates per capita range from 100 to over 250 pounds per capita per year. The amount (tonnage) of yard waste received at a compost site can also vary significantly based on the weather. Very dry years typical result in a significant reduction in total yard waste quantities received and processed at municipal compost facilities.

7.0 REVIEW OF APPROVED PPC PLANS

GF reviewed PADEP approved PPC Plans from three municipalities that have permitted compost facilities. These compost facilities are all located in relative close proximity to Upper Providence Township and are briefly described below. Information from review of the permit applications and PPC Plans from these compost facilities was used to develop a Draft PPC Plan for Upper Providence Township’s proposed compost facility. The Draft PPC Plan for Upper Providence Township is included in **Appendix A**.

PPC Plans and relevant information from the following municipalities was reviewed:

Schuylkill Township: Schuylkill Township operates a small yard waste recycling center. The center is open every Monday from 7:30 am to 3:00 pm. The center accepts leaves and tree limbs (6" in diameter or less) from Township residents only. The Township shares a tub grinder with East Pikeland Township that was secured in a joint-municipal grant through PADEP and an Act 101, Section 902 Recycling Grant. As required by PADEP and Act 101, the Township prohibits burning via municipal ordinance.

East Pikeland Township: East Pikeland Township operates a permit-by-rule compost facility. The compost site is for residential drop-off only and serves approximately 6,500 Township residents. The site is now fenced due to frequent illegal dumping problems, which included night dumping from private contractors. The Township compost site accepts yard waste, grass, and Christmas trees. The Township educates residents regularly on the compost site operating hours and accepted materials.

Borough of Phoenixville: The Borough of Phoenixville operates a permit-by-rule yard waste compost facility in an area slightly less than 5 acres. The total site area is approximately 14 acres and the compost area is fenced. The Borough elected not to pave the site to avoid some of the stormwater management requirements. The prepared base and working surface consists of 2-A aggregate (3-400 tons) that was rolled. Yard waste including leaves, brush, grass and Christmas trees (during the holiday season) are collected weekly year round at the curbside by municipal crews and delivered in trucks to the compost site. The Borough rents a tub grinder periodically as needed for brushy waste. The Borough indicates there is an extensive staff effort required to maintain the curbside yard waste collection program.

8.0 CONCLUSIONS AND RECOMMENDATIONS

Upper Providence Township is making good progress in completing the PADEP permitting process for “permit-by-rule” compost facilities. As required under the PADEP guidelines, the permit-by-rule compost site will be less than five acres. The proposed site will be located at 1094 Longford Road, Montgomery County Pennsylvania. It is anticipated the permit application, including the PPC Plan, will be submitted to PADEP in July 2006. The Township is hopeful to have the compost facility permitted and in operation by November 2006.

Based on GF’s review of background information and several PPC Plans for permitted compost sites in the local region, GF has provided the following conclusions, recommendations and comments:

GENERAL

- The Township should continue to move forward with the permit process for a permit-by-rule compost facility.
- The Township compost site is less than 5 acres, and therefore should be operated as a permit-by-rule facility under the PADEP Guidelines for Yard Waste Composting Facilities. In the future as needed, the Township can pursue a PADEP permit to operate as a compost facility that exceeds the 5-acre size limit for permit-by-rule compost facilities.
- Grass can become a nuisance at compost sites, primarily due to odors. The Township should consider prohibiting grass from being accepted at the site. It is recommended educating residents on the benefits and methods of grasscycling (composting grass back into lawns) is part of this program. Accepting grass may increase the level of

compost management required to minimize odors, ensure timely and proper mixing, and could create the need for additional equipment (e.g. windrow turner).

PPC PLAN

- It is recommended the Township review the Draft PPC Plan that has been developed in this study with PADEP. It is suggested this is done prior to submitting the permit-by-rule application to PADEP so that the Township may gather some initial feedback related to the PPC. Preliminary comments from PADEP may help to minimize any unnecessary delays in the application review process.

YARD WASTE COMPOSTING SITE SIZING AND LAYOUT

GF completed a cursory review of the compost site layout completed by the Township's engineer. A complete list of comments related to our Compost Site Plan review is included in Section 4.1 of this report. Below are a few key comments related to the proposed compost site and layout:

- The Compost Site Plan does not have topographical information to show grading. Site grading will be critical to proper stormwater/runoff management.
- The windrows shown are running parallel to the existing contours, which is incorrect when considering water runoff/ponding. Windrows should run perpendicular, NOT PARALLEL, to contours and thus the orientation of the windrows should be changed. The actual grading of the site should be used to determine the proper orientation of the windrows.
- The spacing of 40 feet between windrows is excessive and does not maximize the use of the active composting area. Consider pairing windrows side by side, which still allows for access to the windrows by a loader from one side.
- The access road appears to be 15 feet wide, which may restrict traffic and may increase risk of vehicle incidents and/or slow traffic flow. It is suggested the access road be a minimum of 24 feet if it is economically feasible.
- A gate and fence are important measures to minimize illegal dumping, vandalism, etc.
- Paving is typically the most favorable and recommended preparation surface for windrow composting, particularly in areas/regions with substantial rainfall.

EDUCATION

- As the Township moves forward with the development of the yard waste compost site, residents (and perhaps businesses) should be informed well in advance of its opening. Ongoing education using a variety of media types and various public notices are recommended to increase participation. Operating hours, accepted materials, and handling procedures must be explained clearly to residents. Educational sources may include newsletters, brochures, website, the local newspapers, radio, on site signage, and other sources of media.
- GF recommends the Township discourage residents from bringing grass clippings to the Township facility through education on the benefits of “grasscycling”. Grasscycling is simply allowing grass cuttings to naturally compost back into the lawn. GF also recommends the Township recommend/require residents use compostable Kraft bags, and prohibit the use of plastic bags for use in delivering any material to the compost sites. The use of plastic bags can be problematic for yard waste processing equipment and can degrade the value of the finished compost material. PADEP has indicated that the municipal waste regulations will be updated in the next two years to prohibit plastic bags (other than specified biodegradable bags) from permitted compost facilities.

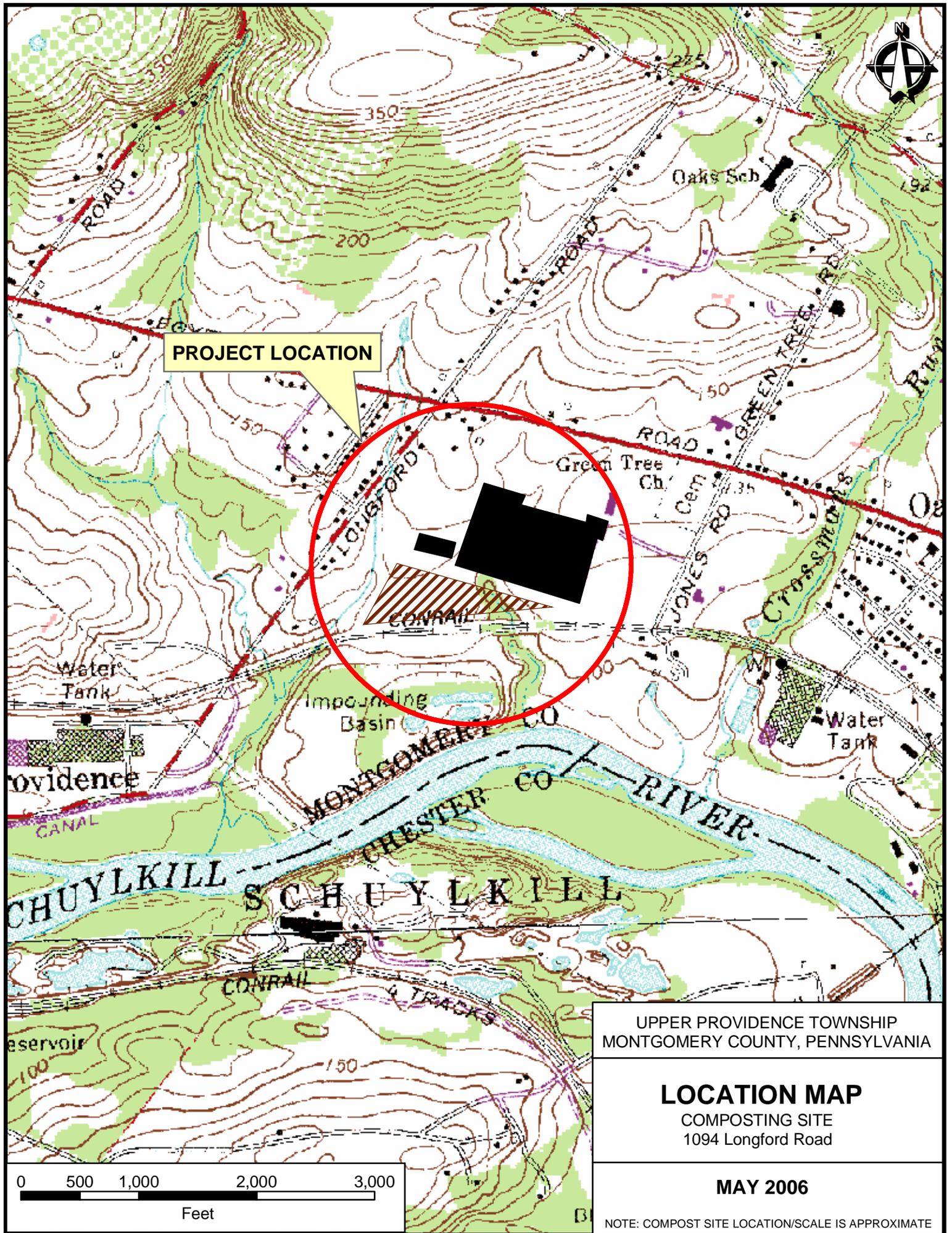
FUNDING

- The Township indicates it will develop the compost site and procure equipment without the use of Act 101 Recycling Grant funding. GF recommends the Township evaluate the use of grant funding on a periodic basis to ensure the Township can adequately meet the public need related to this compost facility. Act 101, Section 902 Grant funding is available for up to 90 percent reimbursement for eligible costs associated with developing compost sites, purchasing equipment, and for educational outreach.
- It is strongly recommended the Township charge a fair fee for loads of finished compost material, especially if this material is loaded using mechanical equipment. If the Township starts the program giving away “free” compost, it may be very difficult to begin charging for the material at a later date. Interestingly, it has been found that residents are actually more likely to see the value in the material once a cost is associated with the product – which actually has been found to increase participation. It costs money to produce finished compost, a valuable and desired product. Therefore GF encourages the Township recover some of these costs and improve the sustainability of the program.

DATA TRACKING AND FULL-COST ACCOUNTING

- It is recommended the Township implement a comprehensive tracking program that is kept up to date via accurate records. Establishing these record keeping procedures early in the program and maintaining this policy is critical to the ongoing ability to evaluate how the program is doing. Tracking the quantities of incoming materials by type, as well as outgoing finished material, should be part of this tracking program. Other things that can be tracked are water usage, fuel, staffing hours and all related costs plus all other operational and capital costs.
- Importantly, tracking this information will become increasingly more valuable as the participation increases and the compost facility expands. The need and benefit in the ability to access and understand “the numbers” will be more apparent and valuable as the facility handles increased volume or tonnage. Always know the bottom line.

FIGURE 1
Location Map



PROJECT LOCATION

UPPER PROVIDENCE TOWNSHIP
MONTGOMERY COUNTY, PENNSYLVANIA

LOCATION MAP
COMPOSTING SITE
1094 Longford Road

MAY 2006

NOTE: COMPOST SITE LOCATION/SCALE IS APPROXIMATE

APPENDIX A
Draft PPC Plan

(Not included in on-line version of report)