

**SWANA RECYCLING
TECHNICAL ASSISTANCE STUDY
FINAL REPORT
BOROUGH OF LEWISTOWN, PENNSYLVANIA
RECYCLING CENTER EVALUATION**



GANNETT FLEMING, INC.



HARRISBURG, PENNSYLVANIA

FEBRUARY 2011

**SWANA RECYCLING
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BOROUGH OF LEWISTOWN, PENNSYLVANIA
RECYCLING CENTER EVALUATION**

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SWANA RECYCLING TECHNICAL ASSISTANCE STUDY

EXECUTIVE SUMMARY

BOROUGH OF LEWISTOWN, PENNSYLVANIA RECYCLING CENTER EVALUATION

This study was conducted for the Borough of Lewistown (Borough) under the Solid Waste Association of North America (SWANA) Recycling Technical Assistance program. Gannett Fleming, Inc. (GF) provided technical guidance to the Borough of Lewistown (Borough) regarding recycling facility operations and site improvements as reflected in this Report. This Executive Summary is an overview of project findings and recommendations that are developed in more detail in the full Report.

ES 1.0 – Project Overview



The Borough Public Works Department successfully operates a comprehensive recycling program including: curbside collections for container recyclables and leaf wastes plus a public drop-off facility for container recyclables, various grades of paper, leaves and brush. The Borough collected and reported nearly **620 tons** of recyclables diverted from the waste stream in 2009.

This project identifies opportunities for the Borough to improve the efficiency of its recycling operations. The addition and new use of a 100' x 48' post-construction recycling building and the adjacent waste water treatment plant upgrade planned to begin in September 2011, each play a role in current and future operations.

GF prepared four (4) GIS maps to facilitate the planning process that show:

- Existing facility configuration
- Site preparation activities Public Works staff should complete by spring or early summer of 2011 to facilitate/anticipate WWTP construction activities
- Area of impact to the Borough Yard from WWTP construction/post-construction
- A post-construction/future Borough yard configuration to optimize space, organize and segregate material storage and handling, recycling building utilization and upgrades, and public drop-off reconfiguration and traffic flow.

ES 2.0 – Key Findings

- The current public drop-off facility operations and configuration can be modified to improve both efficiency and the safety for visitors and workers. Space limitations of the total yard area and in the public drop-off is a key factor.
- Mixing of certain Public Works activities and material storage areas (e.g. recyclables and cinders or cold patch) with recycling-specific activities contributes to operations inefficiency.
- Although space limitations are currently manageable, the WWTP upgrade will reduce the yard area by 1.10 acres (about ½ the total yard area) for up to two years during construction and by 1/3 after WWTP construction is complete. The yard area lost is significant in the context of optimizing overall operations.
- The yard contains approximately 56 tons of scrap metal, equipment, and other similar material, but the Borough has planned to recycle this material offsite by spring, 2011.
- It does not appear feasible to make substantive changes to the public recyclables drop-off operation at this time due to the planned WWTP construction.

ES – 3.0 Conclusions and Recommendations

As provided in more detail in the full Report, GF's conclusions and recommendations are as follows:

Conclusions

- The Lewistown Borough Recycling Building and overall recycling operation are fully functional, but opportunities exist to streamline the operation to enhance the short and long-term performance of the facility while improving worker and visitor safety.
- The WWTP upgrade planned to begin in September, 2011 on the adjacent property will be an important factor before, during and after construction in terms of executing a smooth transition from the current Borough yard and recycling operation to an optimized operation within the reduced yard area.

Recommendations

- Reference this Report and GIS site configurations (**Figures 1-4**) to confirm implementation tasks, schedules, and budget priorities. Work closely with Public Works staff to confirm and execute prioritized tasks.

- **Confirm the proposed location of proposed construction gate** with the WWTP manager, assuring fencing and gate placement is accurately included in WWTP bid documents and is mutually agreed.
- Complete the pre-construction activities outlined in Section 4.2 and shown in **Figure 2** by the end of spring of 2011.
- During WWTP construction (2-year period), prioritize and complete the following:
 - Add rain gutters to the recycling building
 - Utilize a professional contractor to place a minimum **6" concrete floor** inside the recycling building using 3500 PSI concrete (**Appendix A**). Estimated costs include:
 - Concrete: **\$8,500** (3,500 PSI; plasticizer and retarder admixes)
 - Installation (assumes all grading & materials supplied): **\$6,000**
 - Build/install **elevated storage racks** recycling building.
 - **Electrify building/Engine block heaters** (110V; dedicated GFIC)
 - Coordinate with WWTP manager on **security camera procurement/installation; place one camera at northeast corner of recycling building.**
- Items that are recommended for completion following WWTP construction activities include (See Section 5.0 and Figure 4):
 - **Relocate curbside recyclables jersey barriers** across the yard to the area along the new WWTP fence (see **Figure 4**).
 - **Reconfigure the public recyclables drop-off area** including:
 - **Relocate brush and leaf drop-off areas. Add adjacent mulch and woodchip pickup areas** to the north area shown in **Figure 4**.
 - **Loop flow traffic:** Reroute public traffic to enter through new north gate and exit the gate near the recycling building.
- GF recommends the Borough develop specs for, and procure the following equipment as confirmed within an implementation plan, schedule and budget:
 - **High-lift forklift** - required for loading and unloading elevated storage racks in the recycling building.
 - **12" dia. wood-chipper** (*mid-sized towable*; **Appendix A**). GF recommends a new or used chipper with 12" diameter capacity. Bandit has the following new and used chippers, with a used option a more realistic budget item:

- New – Model 150Xp; accepts max 12” dia.: **\$28,000 - \$38,000**
- Used - Model 150Xp: **\$10,000 - \$15,000**
- GF recommends a stackable **waste oil heater** (preferred over boiler) installed inside the building with a chimney system to enhance heat conveyance. The delivered cost of a Lanair Waste Oil Heater (MX 300) is about \$6,000 (Appendix A).
- Due to space limitations, it is recommended the Borough utilize the proposed parking area locate on the existing WWTP property at the entrance to the WWTP (Figure 4). Considerations include:
 - Secure the area with fencing, reusing any salvageable fencing that will be removed between the WWTP and Borough boundary.
 - Consider limiting this parking space use to cars only since trucks and equipment would require concrete or other similar high-cost surface alternative with adequate weight-bearing capacity.
 - For car-only parking, consider using pervious pavers, which have a similar installed cost as impervious bituminous paving of \$4.00 - \$6.00 per square foot but reduce runoff and can have longer full life-cycle value.

**SWANA RECYCLING
TECHNICAL ASSISTANCE STUDY
FINAL REPORT
BOROUGH OF LEWISTOWN, PENNSYLVANIA
RECYCLING CENTER EVALUATION & WWTP IMPACTS**

1.0 INTRODUCTION

The Borough of Lewistown (Borough) completed the construction of a recycling building in 2009 to improve its overall recycling program. With the addition of a new building in the Public Works yard, and with a pending upgrades to the adjoining waste water treatment plant (WWTP), changes will be needed to optimize the recycling operations. The Borough requested Gannett Fleming, Inc. (GF) to conduct an independent evaluation of the Borough recycling building and drop-off area. GF is also the engineer for the WWTP retrofit. The evaluation is fully funded through the Solid Waste Association of North America (SWANA) Recycling Technical Assistance program.

2.0 RECYCLING PROGRAM BACKGROUND

2.1 Curbside Trash and Recycling

The Borough is home to approximately **9,000 residents** who reside in over **4,200 households**. The Borough's Public Works department collects trash and recyclables at the curbside. The waste management program is a "Pay-As-You-throw" program, where residents purchase a quantity of trash bags that correlates to the amount of waste that will be thrown away. The Borough source-separates (at the curb) the curbside recyclables shown:

CURBSIDE RECYCLABLES

- Steel cans
- Brown glass
- Clear glass
- Plastic # 1 or 2 containers
- Newspaper

2.2 Public Drop-off Recycling

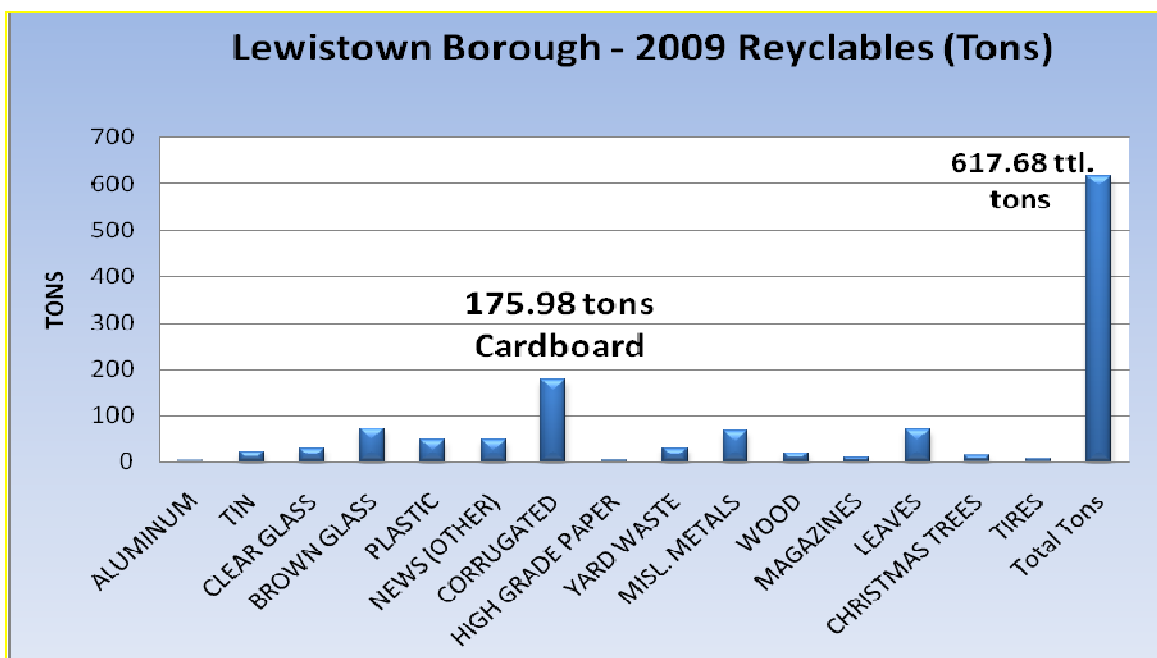
During normal business hours (6:30 a.m. to 2:30 p.m.) the Borough accepts container recyclables, leaves and brush at the Borough's Public Works yard located at 2 East 3rd Street in Lewistown.

DROP-OFF RECYCLABLES

- Steel cans
- Aluminum cans
- Brown glass
- Clear glass
- Plastic # 1 or 2 containers
- Newspaper
- Cardboard
- Magazines
- Chip Board
- Electronics

2.3 Year 2009 Recycling Totals

As summarized below, in 2009, the Borough recovered and reported nearly 618 tons of recyclables. Almost 176 tons, or nearly 30 percent of the total material recovered for recycling was cardboard.



2.4 Recycling Building

A 100' x 48' (4,800sf) post-frame recycling building runs north-south on the Borough property (shown to the right). It is 18' away from the main Public Works building (to meet fire code) and about 50' from the public recycling area entrance and fence. The inside of the recycling building is used for drop-off and consolidation of cardboard and other fibers (e.g. shredded, mixed, newspaper) and electronics - items that must be kept dry.



Recycling Facility: Existing Configuration (See Figure 1)

The Borough is evaluating its options regarding small scale processing, limited to baling of cardboard, within the building. It is not known if the Borough's used baler will be refurbished or if a new or new-used baler will be utilized to process material inside the building. Options like taking loose cardboard to the Mifflin County Solid Waste Authority are under consideration and could eliminate the need for on-site baling.



Additional building features are planned and needed in order to optimize the building's benefit to recycling and public works activities. Building improvements planned or under consideration include:

- Heating system install (e.g. waste oil boiler).
- Designated storage including a second tier for overhead storage along the southeast end of the building.
- Recycling building office area.
- Connect power to the building to support engine block heater charging.
- Overhang on the southwest facing side of the building to protect parked trucks.
- Add concrete, in phases, inside the recycling building.
- Add rain gutters to the building.
- Pave the drop-off recycling area.

3.0 RECYCLING CENTER SITE INVESTIGATIONS

GF conducted a site visit on **October 13, 2010** in order to document and photograph existing site features, conditions and operations. **Figure 1** at end of this Report illustrates the existing configuration and primary features of the recycling facility and Public Works yard. Based on our observations and discussions with Borough Public Works staff, the primary findings include:

General

- The recycling facility and drop-off area is fully functional, but opportunities exist to streamline the operation to enhance the short and long-term performance of the facility, while improving worker and visitor safety.
- The public access/traffic pattern for recyclables drop-off is confined within a 5,000 SF area at the front of the recycling center. This arrangement magnifies safety hazards from vehicles that enter, turn and back up in the area while dropping off materials.
- Certain recycling activities and materials are mixed with public work activities and material storage areas. For example, although most recyclables consolidation and storage occurs on the northeast and northwest sides of the recycling facility, clear and brown glass is consolidated on the west side of the yard adjacent to antiskid and cold patch. There is an opportunity to re-organize and segregate public works activities and materials from recycling in a way that improves operations.
- Reorganization of the yard to assure sufficient space is available for equipment and material storage is a priority considering the WWTP upgrade will reduce the area of the yard:
 - By half during construction as delineated by the outer most extent of the NPDES boundary.
 - By 1/3 at WWTP build out as defined by the fenced Borough yard.

Materials

- Most paper/fiber items and electronics are collected inside the recycling building so they remain dry. Electronics are staged on skids on gaylords inside the recycling facility on the floor.
- Brush is dropped directly onto the ground by visitors between jersey barriers just across from the recycling building and near other recyclables drop-off containers. When the jersey barriers are full, brush is collected by staff and loaded into a roll-off container and transported to Miller's Recycling, a 4-mile round trip (no tip fee). The very limited area for brush storage and roll-off capacity, combined with no size reduction (chipping/shredding) prior to transport, increases the frequency and associated costs (e.g. time, labor, fuel and maintenance) associated with this recycling process.

Security

- The Borough has concerns about the public accessing the rear of the recycling facility to dump unwanted materials, etc.

- The WWTP upgrade will include fencing to secure the WWTP.
- There are no cameras that currently oversee the Borough Yard.

Concrete & Paving

- The area designated for the public drop-off of container recyclables is 16,200 SF or 0.37 acres and is a combination of poor quality asphalt, stone cinders and dirt surface. During rain events, rain sheds off the roof top and collects in puddles along the long northeast side of the building. Water ponding in this area limits its use for several days.
- The recycling building does not have a concrete floor, but installing a concrete floor would significantly improve the functionality of the recycling building. For example, elevated storage would be valuable for keeping recycling containers, electronics, and other skidded items out of the way - but this is not practical until a concrete floor is installed.

4.0 WASTEWATER TREATMENT PLANT UPGRADE IMPACTS

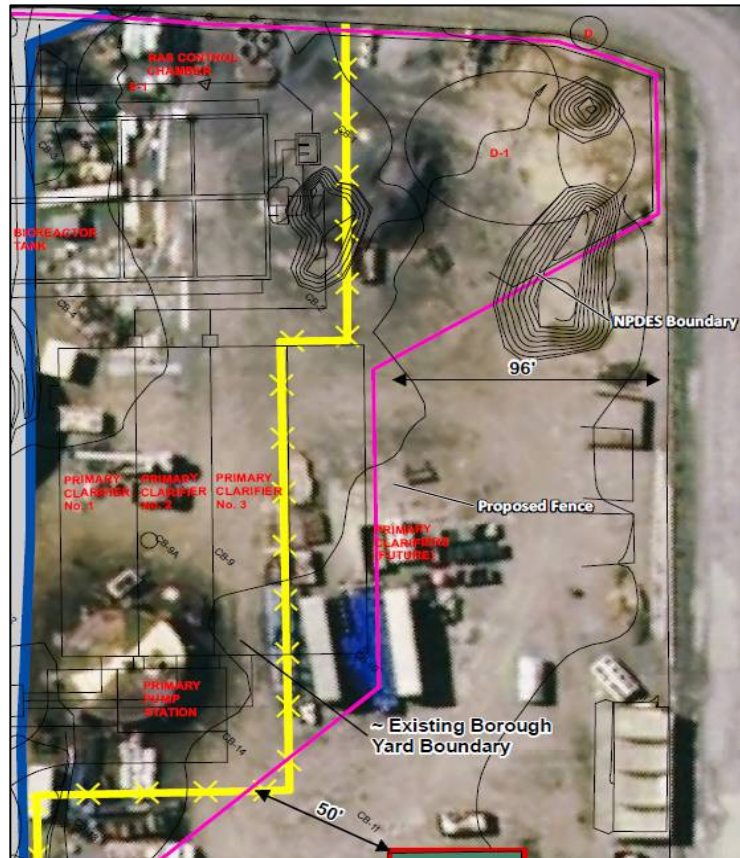
The Borough's wastewater treatment plant (WWTP) is located on the property directly adjacent to the Borough's Public Works yard (**Figures 1 - 4**). The WWTP will be upgraded over the next two years to achieve nutrient limits in accordance with PADEP's Chesapeake Bay Tributary Strategy. The Borough is required to limit the discharge of Total Nitrogen (TN) and Total Phosphorus (TP) to 51,470 and 6,863 pounds per year. To meet the permit requirements for substantial completion of nutrient reduction improvements and nutrient cap limits in 2013, the construction start date has been targeted for September 2011 including the following features (some additional features not listed):

- Facility-wide systems (e.g. new operations building, site paving, security, etc.)
- Headworks
- Pumping clarifiers (9,400 SF)
- Bioreactors (existing tank modifications and new tank construction)
- Blower building (modify existing)
- Chemical building (1,800 SF)
- Final clarifiers (on new one at 60 foot diameter)

4.1 Construction Phase – Area of Impact

As shown in **Figure 2** at the end of the Report and in the reduced image to the right, the Borough Yard will be substantially impacted during construction. The NPDES boundary shown in pink delineates the area impacted for the 2-year construction period. WWTP construction will reduce the available yard area by 1.10 acres, nearly half of the entire yard (excluding the square footage of the buildings).

During construction, the Borough Yard will be utilized to allow construction vehicles access to the northern part of the yard and for NPDES features/requirements (e.g. erosion and sedimentation controls).



4.2 Pre-Construction Activities by the Borough Public Works Department

The areas that will be occupied by WWTP construction activities and resultant facilities are primarily used for storage of miscellaneous Public Works items, equipment and materials. Simply relocating these items in other areas of the yard is not feasible due to the amount of material and space limitations. With construction activities for the WWTP planned to commence in September 2011, there is **less than one year for planning and implementation of the yard reconfiguration** to facilitate the WWTP upgrade. Prior to construction, priority should be given to getting various materials out of the WWTP construction area, but in a manner that is organized so the facility can continue to operate effectively. Minimizing any double-handling of jersey barriers, equipment, etc. by moving them only once to a final location that meets future needs is preferred.

Figure 2 illustrates construction phase activities and identifies the construction vehicle route into a new gate at the north end of the facility. The figure also depicts GF's recommended approach to preparing the existing yard for construction activities including the initial reconfiguration of the yard. Preconstruction activities will include:

- Relocation and reconfiguration of concrete barriers used for Public Works materials including:
 - **Cold patch**
 - **Soil stockpile**
 - **Fine aggregate**
 - **Large aggregate**
 - **River gravel**
 - **Mulch/compost**
 - **Construction debris**
- Removal/recycling of approximately 56 tons of scrap metals, old equipment and other “tired iron”.
 - These items may raise questions from PADEP and the Mifflin County Conservation District who will periodically visit or inspect the site as part of the ongoing WWTP planning, permitting and construction process.
- Relocating recycling trailers outside of NPDES construction boundary.
- Temporary relocation and storage of recycling bins between the recycling building and Public Works building.
- Temporary storage of some or all recycling carts inside the recycling building.
- Create access to a fenced, alternate parking area and/or vehicle storage area proposed along Washington Avenue adjacent to the WWTP entrance. The proposed parking area is approximately 16,200 SF or 0.37 acres and shown with a pervious pavers surface in Figure 4. The area may serve as a vehicle overflow area initially without resurfacing or significant capital investment, depending on the existing surface strength. The Borough would need to make a determination on what types of vehicles and equipment will be stored in this area to determine the type, cost and design of any pervious or impervious parking surface.

4.3 Post-Construction Phase – Area of Impact

At WWTP build out, an aeration tank, clarifiers, pump station and splitter box will permanently occupy space in the former Borough Yard. A permanent fence will separate these facilities from the remaining Yard as shown in **Figures 3 and 4**. As shown below, the permanent area lost will be .69 acres or 1/3 of the existing yard area.

BOROUGH PUBLIC WORKS YARD - ESTIMATED AREA LOST	
Total Yard Area (excludes building square footage)	100,200 square feet (2.3 acres)
Temporary Loss (during construction)	47, 930 square feet (1.10 acres)
Permanent Loss (remaining yard, post construction)	29,920 square feet (.69 acres)

Following construction, the following permanent operations issues are noted:

- The yard will become long and narrow in the northern area, limiting storage and vehicle operation and maneuverability.
- A pinch-point of less than 50 feet will be created between the new fence and northwest corner of the recycling building.

5.0 FUTURE SITE CONFIGURATION AND FEATURES

Figure 3 and **Figure 4** illustrate the WWTP upgrade impact in terms of area occupied during and after construction. Working in conjunction with the Borough, GF developed **Figure 4** as a conceptual layout to represent the site configuration, features and operation in 3 to 5 years. Some of these final site features and reconfiguration will be implemented before WWTP construction begins, some tasks can be completed during WWTP construction, and some features/activities should be implemented after WWTP construction activities cease to affect the Borough yard.

Some notable site features that are most feasible to be implemented following WWTP construction include (see **Figure 4**):

- Relocation of curbside recyclables jersey barriers and consolidation area (placement along new WWTP fence).
- Relocation of public brush and leaf drop-off area and mulch and woodchip pickup areas.
- Reconfiguration of public drop-off area for container recyclables and various fiber/paper materials.
 - Implement loop-flow traffic pattern utilizing new north gate as the entrance, and exiting the gate near the recycling building.



6.0 CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusions

The Lewistown Borough Recycling Building and overall recycling operation are fully functional, but opportunities exist to streamline the operation to enhance the short and long-term performance of the facility while improving worker and visitor safety. A WWTP upgrade is planned to begin in September, 2011 on the adjacent property. This WWTP project will reduce the Borough yard by 1.3 acres (nearly half the total yard

area) during at least a portion of the two-year construction phase. After construction is completed and a new fence is constructed along the WWTP and Borough yard boundary, the Borough yard will be reduced by 1/3. It will be important for the Borough to confirm its plans to reconfigure its site over the next three months to effectively integrate and prioritize a number of activities with other Public Works projects and responsibilities.

6.2 Recommendations

General

- Reference this Report and GIS site configurations (**Figures 1-4**) to confirm implementation tasks, schedules, and budget priorities with Public Works staff. Begin work immediately on removing, recycling and relocating materials and reconfiguring the yard in preparation for WWTP construction-phase activities.
- Confirm the location of proposed construction gate with the WWTP manager, so fencing and gate placement is accurately included in WWTP bid documents. GF recommends the gate is located directly across from the future secondary WWTP exit, for eventual use as a public entrance to the recycling area in a looped traffic flow configuration (**Figures 3 and 4**).
- The public recyclables drop-off area can remain configured “as is” during the WWTP construction phase. However, traffic safety measures (e.g. cones or other devices or signage) are recommended during WWTP construction since construction vehicles and public vehicles accessing the recycling area will share the same access road.

Pre-construction

- GF recommends the Public Works staff complete the pre-construction activities outlined in Section 4.2 and shown in **Figure 2** in the spring of 2011.

Construction Phase

- During WWTP construction (2-year period) , GF recommends the Public Works staff prioritize and complete the following:
 - Add rain gutters to the recycling building
 - Utilize a professional contractor to place a **concrete floor** inside the recycling building as follows:
 - Pour of the entire slab in one day in the spring or fall when the temperatures are between 45 and 85 degrees. A retarder and super plasticizer are recommended admixers to expedite a one day pour.

- The slab should be 6”s thick; thus requiring 90 cubic yards of concrete to complete the recycling building floor (100’ x 48’).
 - A 3,500 psi mix is recommended and consistent with PaDOT specification for similar concrete applications.
 - As of February, 2011; 90 cubic yards of 3,500 PSI concrete with retarder and super plasticizer admixes from Juniata Concrete will cost about **\$8,500 (Appendix A)**. The cost of installation will vary depending on the contractor selected, fiber mesh versus wire mesh, the extent of prep work completed by the Borough, etc. The estimated cost of installation assuming labor only (no materials or grading) is **\$6,000 (Appendix A)**.
- Build/install **elevated storage racks** recycling building
 - recycling bin and miscellaneous storage (along southern wall)
 - elevated electronics staging on skids (along east wall)
 - **Electrify building/Engine block heaters** (110V; dedicated GFIC)
 - Coordinate with WWTP manager on **security camera procurement/ installation**. The WWTP will take the lead on procurement and connecting the security system to the police department. GF provided a quote to our WWTP engineers for a 3-camera system (**Appendix A**: \$1,100 to \$1,600 total) including remote viewing software that could be used by the Borough Police Department. GF recommends a camera is placed at the north end of the recycling building to oversee recycling operations and the secondary entrance to the WWTP.



Derry Township Facility
Photo by: Gannett Fleming

Post-Construction Public Works & Recycling Operations

As reviewed in Section 5 and illustrated in **Figure 4**, items that are recommended for completion following WWTP construction activities would include:

- **Relocation of curbside recyclables jersey barriers** across the yard to the area along the new WWTP fence (see **Figure 4**).
- **Reconfiguration of the public recyclables drop-off area** including:
 - Reconfigure container recyclables/fiber drop-off bins to promote drive-through access and fork-lift accessibility.

- **Relocation of brush and leaf drop-off area and mulch and woodchip pickup areas** to the north, allowing adequate cuing distance between this area and the container and fiber drop-off area.
- **Loop flow traffic:** Reroute public traffic to enter through new north gate and exit the gate near the recycling building.
 - **Improve signage and traffic devices** to assure traffic flow is controlled and prevents access to the back of the Borough yard and WWTP. Display information about desired traffic patterns, public recycling procedures, and penalties for certain activities (e.g. fines for illegal dumping). Add signage to inform visitors that security cameras are active.

Equipment

GF recommends the Borough develop specs for, and purchase the following equipment as confirmed within an implementation plan, schedule and budget:

- **High-lift forklift** - required for loading and unloading elevated storage racks in the recycling building.
- **Wood-chipper** (*mid-sized towable*). GF did not have sufficient information to conduct a simple payback analysis. However, it appears that the double-handling of loose brush and frequent deliveries of loose brush to Miller's Recycling is cost-prohibitive when compared to on-site chipping that would:
 - Reduce fuel consumption, maintenance, and labor costs associated with loose brush transport; and
 - Produce woodchips that could be utilized on public works projects and made available to residents, further reducing material transport.
 - Additional benefits include offsite municipal chipping.

Specifications are provided for several Bandit chippers are provided in **Appendix A**. Costs vary based on "new or used" condition and final specifications, but as provided from Bandit include:

- New – Model 65XP; max 6" dia.: \$14,500 - \$20,000
- New – Model 90XP; max 9" dia: \$20,00 - \$24,000
- New – Model 150XP; max 12" dia": \$28,000 - \$38,000
- Used - Model 150XP; max 12" dia": \$10,000 - \$15,000
 - Used 12" diameter capacity is recommended because of affordability and because 12" capacity is durable for municipal brush applications where most brush is under 12" diameter.

- **Recycling Building Heating:** As coordinated with the completion of other recycling building enhancements and budget priorities, procure either a waste oil boiler or waste oil heater. Boilers can be \$4,000 to \$8,000 more than a used oil heater, but would allow for in-floor heating conveyance systems that would require installation before pouring the concrete floor. Due to the higher costs of boilers and because workers will likely not be on the floor (e.g. like mechanics), Gannett Fleming recommends the more affordable waste oil heater. Oil heaters are stacked systems so they will only occupy about a 4' x 4' floor area. The delivered cost of a Lanair Waste Oil Heater (MX 300) with a 215 gal tank and roof chimney package (to allow enhanced heat conveyance) is about \$6,000 as quoted by Industrial (**Appendix A**).

Impervious Bituminous Paving of Recyclable Drop-off Area:

Due to the high costs for paving with consideration of other site priorities and budget restrictions, GF recommends that paving the recyclables drop-off area be a lower priority than many other site/facility improvements outlined in this Report unless surface conditions create safety issues or otherwise create operating problems.

- If the recyclables drop-off area is paved, consideration should be given to placing concrete, at a minimum for pads in areas where roll-offs and other metal containers will be staged.

Additional Parking

Due to space limitations, it is recommended the Borough utilize the area on the existing WWTP property at the entrance to the WWTP for car-only parking and/or truck and equipment staging. This area could be developed in phases as time and money allows and should consider the following:


- Fence the area and reuse some of the existing fencing that should be removed between the WWTP and Borough boundary at the southern part of the property.
- It may be preferential to limit this parking use to cars only due to increased surface impact by recycling trucks and other vehicles that would require installation of concrete, bituminous paving or other similar high-cost surface alternative with adequate weight-bearing capacity.
- If the area is utilized for car-only parking consider using pervious pavers, which have a similar installed cost as impervious bituminous concrete of \$4.00 - \$5.00 per square foot; however, pervious material reduce runoff and arguably have better full life cycle value. Either option requires maintenance, but salt should not be applied to concrete pavers.

FIGURES 1 – 4




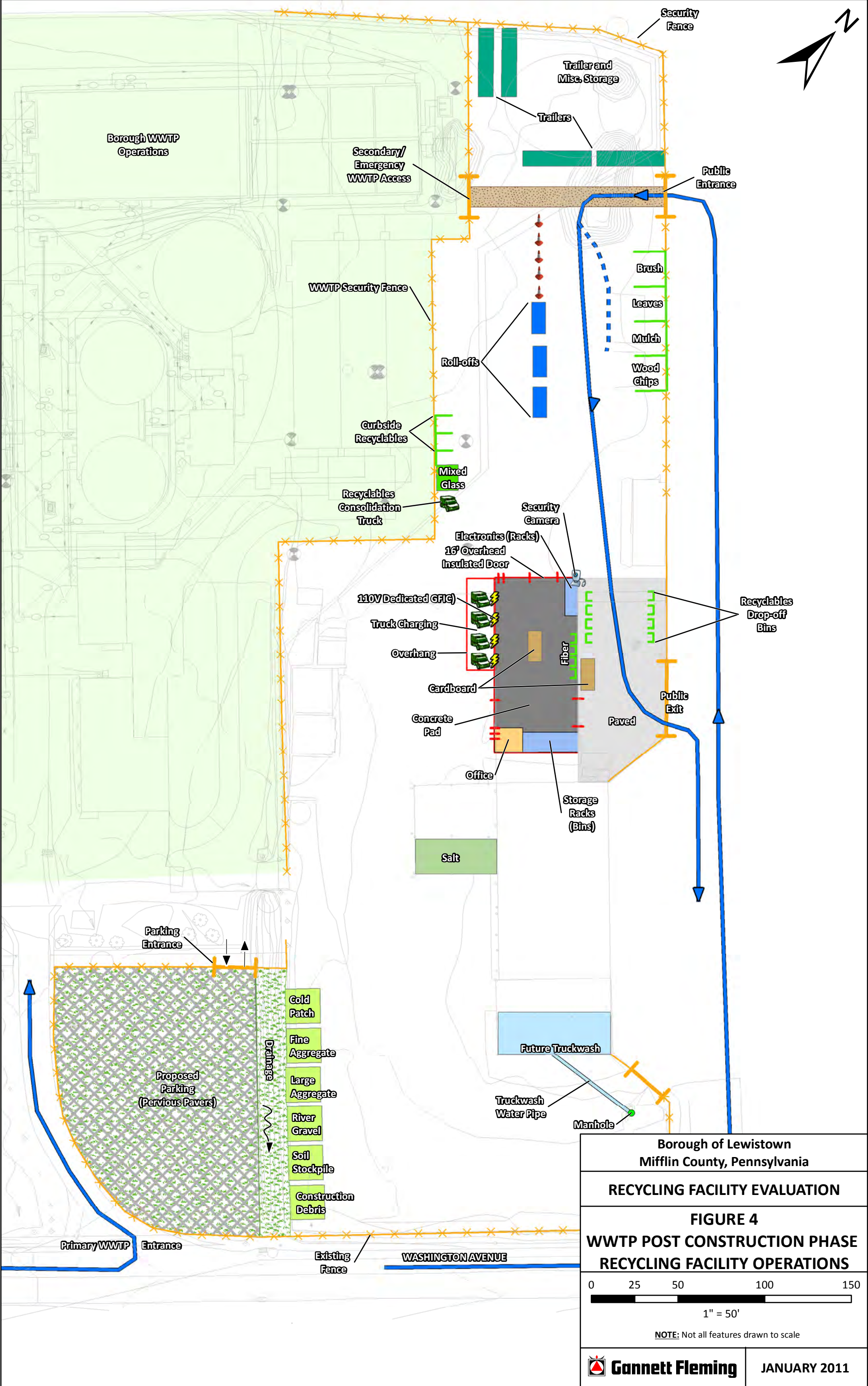
Borough of Lewistown Mifflin County, Pennsylvania	
RECYCLING FACILITY EVALUATION	
FIGURE 1 EXISTING RECYCLING FACILITY CONFIGURATION	
0 25 50 100 150 1" = 50'	
NOTE: Not all features drawn to scale	
Gannett Fleming	JANUARY 2011



Borough of Lewistown Mifflin County, Pennsylvania	
RECYCLING FACILITY EVALUATION	
FIGURE 2 WASTEWATER TREATMENT PLANT UPGRADE IMPACT	
0 25 50 100 150	
1" = 50'	
NOTE: Not all features drawn to scale	
 Gannett Fleming	JANUARY 2011



Borough of Lewistown Mifflin County, Pennsylvania	
RECYCLING FACILITY EVALUATION	
FIGURE 3 WWTP CONSTRUCTION PHASE RECYCLING FACILITY IMPACT	
0 25 50 100 150	
1" = 50'	
NOTE: Not all features drawn to scale	
 Gannett Fleming	JANUARY 2011



Borough of Lewistown
Mifflin County, Pennsylvania

RECYCLING FACILITY EVALUATION

FIGURE 4
WWTP POST CONSTRUCTION PHASE
RECYCLING FACILITY OPERATIONS

02550100150

1" = 50'

NOTE: Not all features drawn to scale

Gannett Fleming

JANUARY 2011

APPENDIX A
Specifications and Price Quotations (for estimation only)

JUNIATA CONCRETE COMPANY

Silversand Ave.
Lewistown, PA 17044
Phone: 717-248-9677

2320 Keystone Way
Newport, PA 17074

721 Smith Road
Mifflintown, PA 17059

DATE: January 28, 2011

Quote Valid for 90 Days From This Date

BID FOR: Gannet Flemming
ATTN: Steve

PHONE:
FAX: (717) 303-0346

JOB NAME: Lewistown Recycle Bin
Spring 2011

<u>YEAR</u>	<u>CLASS</u>	<u>PRICE PER CY</u>
2011	2500 PSI	\$84.50
	3000 PSI	\$85.50
	3500 PSI	\$86.50
	4000 PSI	\$88.50

****Add \$2.00 per Cubic Yard for Strt. Cement Mixes****

****Pricing Does Not Include 6% Pennsylvania Sales Tax****

EXTRAS PER CY:

Heated Water	\$4.00
Non-Chloride Accel.	\$4.00 per %
Retarder	\$3.50
Fiber - 1 lb. bag	\$7.00
Super Plasticizer	\$4.00
Ice	\$20.00

****Short Load Charge - Add \$24.50 per yard for orders less than 3 CY.**

****Cylinders broken at a rate of \$15.00 for a set of two.**

****Deliveries starting after 3:00 p.m. & all day Saturday \$6.00 per yard additional.**

****Conveyor trucks \$10.00 per yard additional (minimum \$60.00).**

SIGNED: Joel Auker
General Manager

ACCEPTED: 
Signature

These mix designs are based on using Type I Portland Cement, GGBF Slag and/or Fly Ash, and PA DOT 2B (#57) Coarse Aggregate. Any special additives or admixtures will be quoted accordingly.

407 North Michigan
Davenport, IA 52804
877-283-7635

Date	Estimate #
2/18/2011	2352

Bill To
Steve Deasy 207 Senate Ave Camp Hill PA17011

Ship To		
P	717-763-7212	F

P.O. No.	Terms	Rep
	DUE ON ORDER	PG

Item	Description	Qty	Rate	Total
MX 300 w/ 215 T...	MX 300 Lanair Waste Oil Heater w/ 215 Gal Tank w/ stand and 8" Roof chimney Pkg		5,999.00	5,999.00
MXD300	MXD 300 Ductable Lanair Waste Oil Heater w/ 215 Gal Tank w/ stand and 8" Roof Chimney Pkg -\$6199		0.00	0.00
60F-9	Envirofan 56" Downblowing	3	86.00	258.00
105F	Envirofan Control	1	20.00	20.00
	INCLUDES: PRIMARY AIR REGULATOR W/ GAUGE, CLEAN OUT TOOL *PLUS FREE SHIPPING			
Discount	FEBRUARY SALE		-500.00	-500.00
Industrial Solutio...	Industrial Solutions Recommends the following items to make your owning of a waste oil heater easier. Please circle the items you would like added... Tank Gauge - \$50.00 Filter Pan w/ Lid w/ 100 mc Mesh Screen - \$150		0.00	0.00T

			Subtotal <div></div> \$5,777.00
Phone #	Fax #	E-mail	Sales Tax (0.0%) <div></div> \$0.00
877-283-7635	563-823-0571	sales@industrialsolutions.us	Total <div></div> \$5,777.00
www.industrialsolutions.us			

Signature _____

ATTENTION: STEVE

Peachey's Poured Walls, INC.
100 Plane View Drive
Belleville, PA. 17004
717-363-0606

Feb. 7 '11

ESTIMATE:

Labor to pour & finish 100'x48' pad
6" thick. All grading & materials to be
supplied by others.

\$ 6,000.00

This estimate is valid for 30 days.

TERMS: 50% due day of concrete being poured.
Remaining balance due in 30 days.

TOTAL **\$ 6,000.00**