

RECYCLING TECHNICAL ASSISTANCE

Project #594

FINAL REPORT

BOROUGH OF CARLISLE

CUMBERLAND COUNTY, PENNSYLVANIA

ORGANICS COLLECTION & PROCESSING EVALUATION



MAY 2016

**Sponsored by the Pennsylvania Department of Environmental Protection through the
Pennsylvania State Association of Township Supervisors**

RECYCLING TECHNICAL ASSISTANCE
Project #594

BOUROUGH OF CARLISLE
CUMBERLAND COUNTY, PENNSYLVANIA

YARD WASTE COLLECTION & PROCESSING
EVALUATION

Project Completed By:



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1.0 STATEMENT OF PROBLEM

This study was conducted for the Borough of Carlisle (Borough), Cumberland County, Pennsylvania, under the Recycling Technical Assistance (RTA) program. The RTA program is sponsored by the Pennsylvania Department of Environmental Protection (PADEP) through the Pennsylvania State Association of Township Supervisors (PSATS). The Borough Public Works Department provides curbside collection of leaves, brush, and Christmas trees. The Borough also operates a compost facility that is open to the Public three days per week. In recent years, costs for collecting and processing yard wastes have increased. The Borough is interested in identifying opportunities to increase the types and volume of residential yard wastes while improving yard waste collection and processing efficiency. The Borough currently does not have a system in place to effectively track non-residential compost facility users (e.g. landscapers).

2.0 SUMMARY OF WORK

2.1 Residential Solid Waste Management Program Overview

According to the 2010 US Census Bureau there are 3,829 owner-occupied housing units and 3,842 renter-occupied housing units that house 18,680 Borough residents. In accordance with the Municipal Waste Planning, Recycling and Waste Reduction Act of July 1988 (Act 101), the Borough is required to offer curbside recycling, including the collection of leaf waste. Additionally, truckloads of leaf waste are prohibited from landfill disposal and must be composted at a permitted compost facility. To meet Act 101 requirements for residential establishments, the Borough contracts with a private hauler for solid waste collection, disposal and recycling services. The residential curbside solid waste system is a "Pay-As-You-Throw" (PAYT) program. Customers occupying residential properties, defined as establishments with two or fewer units, purchase bags from the Borough and/or retail locations within the Borough. The Borough purchases PAYT bags from WasteZero. As of December 2015, the price is \$3.50 for customers buying directly from the Borough and \$3.45 if purchased from retailers.

2.2 Borough Curbside Yard Waste Collection

The Solid Waste Department provides three separate yard waste curbside collection services. Christmas trees are collected for two (2) weeks in January, brush is collected for one (1) week in the spring and one (1) week in the fall, and bagged leaf collection is offered for seven (7) weeks in the fall. For each of these services, the Borough crews follow the garbage collection route and schedule (refer to **Appendix A - Garbage Pickup Routes**). Bagged leaves are collected using an eleven (11) cubic yard waste packer; an additional seven (7) cubic yard packer is used as needed. Brush and Christmas trees are collected using 3-yard dump trucks. Collected yard waste is transported to the Borough's Compost site located on Post Road. The 2016 annual budget for solid waste including yard waste collection service and compost facility operation is \$709,585, of which \$18,344 is allocated to operating expenses (e.g. fuel, supplies, etc.). The primary source of revenue is the PAYT bag fees which account for about \$697,000 of revenue budgeted in 2016.

2.3 Compost Facility

The Borough-operated yard waste compost facility is located on Post Road (refer to **Appendix B, Figure 1 - Aerial Map**). The 2016 operating schedule is from March 30 to November 26 (See **Appendix C**). Residents are required to present their driver's license to use the site to drop-off yard wastes and pick up mulch and compost. A Borough employee is on site during operating hours to verify customer residency, to handle incoming material, and to load residential vehicles with finished organic products. Residents are permitted to drop off leaves, garden residues, and small-diameter brush. Tree stumps and woody waste larger than 24" in diameter and grass clippings are prohibited. The Borough loads leaf compost and mulch into customer vehicles at no cost. The Borough has a Memorandum of Agreement (MOA) with the Carlisle Barracks to accept a limited volume of leaves, tree and shrubbery trimmings, and Christmas trees



generated on the Carlisle Barracks. Contractors including construction, tree service, and landscaping companies are not permitted to use the compost facility.

The Borough is interested in improving user accountability, possibly by improving the function of the existing electronic gate system. During normal compost operating hours, the facility gate is left open for public access. The gate (Liftmaster SL585) was originally installed in 2008 by Security Fence Co. It uses an electronic ID card system that time stamps card swipes and logs information connected to individual cards. If the gate is closed, the card will open the gate for authorized users. Several Borough staff and workers from the Carlisle Barracks are the only card holders.

2.3.1 Compost Facility Site Visit

Sustainable Resources Consulting (SRC) conducted a site visit of the Public Works Garage and compost facility on March 11, 2016. Site visit photos, including photos of the Borough's yard waste collection equipment, are included in **Appendix D- Site Visit Photos**. During the site visit, Borough staff were interviewed regarding yard waste collection methods, equipment, and compost facility operations.

3.0 FINDINGS

The following findings are based on site visits (Public Works Garage and Post Road Compost Site), review of Borough-provided data, discussions with Borough staff, and phone interviews and case study experience from other municipal yard waste collection programs in Pennsylvania.

3.1 General Findings

- Based on review of the curbside bid specifications for solid waste collection services, there are opportunities to improve these specifications to leverage competition and obtain favorable pricing from prospective bidders, including for certain yard waste services.
- The Borough has not evaluated the efficiency or design of collection routes for solid waste (including yard waste) since the routes were originally implemented many years ago.
- Approximately 95% of PAYT bags are purchased from retail locations in any given year. The Borough purchases approximately 200,000 PAYT bags annually from WasteZero at a total cost of about \$65,000 to \$70,000 annually. Based on SRC's discussions with bag manufacturers, the Borough can substantially reduce its bag costs. The bag contract with WasteZero (33.7 cents per bag) accounts for 11 percent of the Borough's total cost per bag.

3.2 Yard Waste Collection Findings

- The curbside municipal solid waste routes appear to be the basis for the collection routes and schedule used by the Borough to collect bagged leaf waste, brush, and Christmas trees - the same route schedule is generally used for all services. Household participation rates, volume of material collected, equipment use (capacity), and proximity to the disposal sites are drastically different among these services and are the standard criterion for the basis of route design.
- Bagged leaf waste is collected in 7-cubic yard or 11-cubic yard rear-load packer trucks that are both about 15 years old. Borough packer trucks are smaller than the industry standard that range from 20 to 32 cubic yards. The Borough-reported 3-year average for collected bagged leaf waste is 4.56 tons or about 24 cubic yards. This is about a dump truck load and inconsistent with the amount of windrowed leaves at the compost site.
- Curbside brush collection accounts for a minimal amount of the total brush processed and the collection method is inefficient, with an estimated average of 3 trips per collection day to unload.



3.3 Compost Facility Findings

There are opportunities to improve the compost operating performance, particularly in the areas of visitor accountability and tracking, and material processing. Key findings include:

- The public compost site schedule begins March 30th. This start date is later than many regional municipal compost sites that open in the beginning of March.
- The Borough does not currently accept grass clippings or food waste at the compost facility. According to the Statewide Waste Composition Study (R.W. Beck, 2003), food waste is the most prevalent material disposed in Pennsylvania, representing 12 percent of the disposed municipal solid waste stream. Grass represents 1.5 percent of the disposed waste stream.
- As seen in **Photo 10, Appendix D** some residual solid wastes (e.g. telephone poles) accumulate at the site. Non-compatible wood wastes present some risk of being inadvertently processed and/or, at minimum, require additional handling to sort, load, and deliver to an approved disposal facility. Chemically treated wood contains pentachlorophenol (penta), creosote, arsenicals (copper chromium arsenate, including dioxins) which are harmful to human health and the environment. These chemicals can kill plants when incorporated into compost or mulch products and applied.
- Processed mulch periodically accumulates on site because generation exceeds residential demand.
- All of the leaf compost produced is used in any given year.
- Using **Appendix B, Figure 1 - Aerial Map** to generate assumptions regarding leaf windrows, the on-site seasonal volume of leaves requiring processing is as follows:
 - Approximate Windrow Length = 290 feet and 6 leaf windrows seasonally.
 - Windrow Dimension: 6' (height) x 12' (wide)
 - Estimated Volume of Leaves: $2/3 (6' \times 12') \times 290' = 13,920\text{ft}^2/27 = 515$ cubic yards per windrow. 515 cubic yards x 6 windrows = 3,090 cubic yards
- The compost site has only one primary operator trained to run and maintain heavy composting equipment (e.g. grinder, trommel screen, and windrow turner). The lack of a second qualified operator negatively impacts operating efficiency. The primary operator is often taken off task to handle incoming visitors, etc. when rented composting equipment is running, adding cost. Additionally, the primary operator is periodically taken off site to handle other Public Works projects while rented composting equipment is on site for a scheduled period of time.
- Although compost site staff appear very well trained in equipment operation and maintenance, it does not appear compost equipment operators are sufficiently trained in best management practices for producing mulch and compost products. Examples include:
 - Mulch is "triple-ground". This is not the industry standard and is not recommended or required as noted by the equipment manufacturer, Mobark, in April 2016. Extra grinding adds costs, consumes fuel, and affects the quality of the mulch. The Borough logs more hours and cost grinding than any other municipality that rents grinding equipment from the County (<http://www.ccpa.net/3946/Yard-Waste-Equipment-Schedules>). Finished mulch is intended to be a coarse material that serves to suppress weeds and retain moisture. Overgrinding can create fines that readily break down into soil to promote plant growth or to require early reapplication.
 - Leaf windrows are turned with the SCAT 6 times on each side, or 12 times per row, requiring about 8 hours to complete the windrow set. Leaf windrows are turned without testing windrow temperature and moisture, which are the driving factors to determine if windrows should, or should not, be turned. High windrow temperatures of 160°F mean it is time to turn piles because there is limited oxygen available to the microorganisms that are critical to the composting process. Compost methods impact compost biology and affect the quality of finished compost.
- The Cumberland County Waste & Recycling Authority submitted an Act 101 Section 902 Grant for a Vermeer self-powered straddle windrow turner that will be available for rent by the Borough



if secured. Straddle-type windrow turners thoroughly turn leaf windrows in one pass at rates of 4,500 to 6,500 cubic yards per hour (i.e. process all windrows on site in less than one hour).

- The Borough does not currently charge visitors user fees, drop-off tip fees, or fees for compost products. PADEP encourages revenue generation at municipal compost sites to improve economic sustainability by offsetting the high operating costs with compost operations. Generally, PADEP encourages municipalities to charge fees to customers when mechanical equipment is used to load finished compost products.
- PADEP is in the process of updating its records to assure all municipally-operated compost sites are properly permitted. The Borough's facility would be covered under the PADEP Permit-By-Rule Guidelines for Yard Waste Composting Facilities (Doc # 254-5403-100, 2009). Neither the Borough nor PADEP have the Borough's permit on file. PADEP has indicated that municipalities operating compost sites without a permit may be at risk to forfeit eligibility for Act 101 grant funding.

3.3.1 Compost Facility Use and Electronic Gate Systems

As part of this study, the Borough requested SRC to investigate opportunities to improve the tracking and accountability of compost site visitors, particularly non-residential users. SRC contacted several municipalities that use automatic gate systems and updated information in **Appendix E - Municipal Compost Site Summary Table**. Findings related to the Borough gate system and other compost gate systems include:

- The Borough's compost facility is accessed over 10,000 times annually (estimated) by residents, commercial companies, and Public Works. In 2015, there were 8,806 visits (primarily residential) to the compost site as recorded by the facility attendant.
- The current Liftmaster SL585 gate system has the capability to track individual visitors, but this feature is not used to track residential or non-residential visitors (e.g. Carlisle Barracks, landscapers, contractors, etc.).
- The open and close time for the current gate is 20 to 25 seconds, which is too long to be practical for frequent vehicle access. However, the gate is compatible for modifications including updates to software and installation of a liftarm gate system.
- Without using the keycard access system to track both residential and non-residential users (even when the facility is closed to the public) the Borough has incomplete metrics and no basis for understanding the distribution of costs across residential and non-residential users. This point is highlighted since non-residential deliveries of material is significant. Compost site staff estimate Carlisle Barracks produces at least 40 percent of the total annual brush volume that is processed.
- Based on phone interviews with Mechanicsburg Borough's Waste Water Treatment Plant Supervisor regarding the Mechanicsburg-Silver Spring joint compost facility and keycard gate system:
 - 33 percent of compost site users (before keycard access system) were not authorized to use the facility.
 - Non-residential users average 44 deliveries per year, with some delivering over 120 loads of material per year (tracking using the keycard access system).
- Based on discussions with staff from several compost sites that use keycard access gate systems, these systems are very effective at tracking customers, managing user fees to partially offset operating costs, and managing the total incoming material volume. Unstaffed compost sites that use automatic gates in conjunction with video surveillance report there are very few issues with contamination or accumulation of unwanted materials.
- Compost site fees are highly variable among municipally-operated compost sites but annual keycards for residential users may range from \$10 to \$30 or more. Purchase costs per keycard are between \$3 to \$6. The annual charge for non-residential keycards may range from \$800 to \$1,000 or more. Some municipalities prohibit non-residential compost facility use, limit annual use, or charge according to the number of visits (e.g. \$100 per 10 visits).



4.0 SOLUTIONS

4.1 Recommended Solutions

The following recommendations are intended to guide the Borough's decisions to improve yard waste collection and compost facility operating efficiency.

4.1.1 General Recommendations

Revise the curbside solid waste and recycling bid specifications to bundle the services listed below within the "base bid" to leverage competition among prospective bidders and encourage lower costs (refer to details included in **Appendix F - BOC Contract 4-13_SRC Review_03-01-16**).

- Annual spring and fall brush collection.
- Annual Christmas tree collection.
 - Note: Consideration should be given to require this material to be delivered to a site other than the Borough's compost site as a measure to manage the total incoming material requiring Borough processing.
- Collection and disposal Service for the twelve (12) Borough-owned establishments.

Allow prospective bidders to provide a revised residential collection route and schedule for the purpose of optimizing current collection routes aligned to each collector's equipment and staffing resources and disposal and recycling facility preference. Often, this allowance substantially lowers costs.

Due to the substantial annual cost of plastic PAYT bags, it is recommended the Borough send bag samples to three bag manufacturer's as part of the Borough's public bidding process to assure manufacturer prices are based on the same bag specifications. **Appendix G** includes a bag quote from All American Poly (2016) for similar PAYT bags.

4.1.2 Yard Waste Collection Recommendations

- Due to vehicle age and the small capacity of the existing leaf packer trucks, it is recommended the Borough add a higher capacity leaf packer, not less than 20 cubic yards and not older than 5 years, to its fleet replacement plan.
- If the Borough elects to keep brush and Christmas tree collection services in-house, the Borough should change the collection equipment to a higher-capacity packer truck and revise the route schedule to fewer collection days covering more route-miles per day. This will decrease non-collection time (e.g. time spent unloading materials) and increase collection efficiency.

4.1.3 Compost Facility Recommendations

- Weather permitting, the compost facility should be open to the public starting from the beginning of March. Opening in early March increases residential participation and organics recovery, extending the value and convenience of the facility to residents who start pruning and yard cleanup during the first warm days in late February and early March.
- To improve site security, improve user accountability, and to recover metrics to benefit future planning, operating, and budgeting the Borough should update its current gate system to include an automated liftarm. This includes issuing residential and non-residential users unique keycards. Preliminary costs and specifications for updating the gate system are provided in **Appendix H - Security Fence Co. Quote & Specifications**. A summary of costs is presented in the table below.



Automatic Gate System	
Feature	Quoted Cost
12' Mega Arm Liftgate (2.5 second open close)	\$3,945 ⁽¹⁾
Inspect system, Install HID Thin Line Prox Card Reader, train compost site staff on use	\$620
HID Prox II Cards (500)	\$1,760 ⁽²⁾
Total Installed Price	\$6,325

(1) Cost estimate does not include electrical work (refer to quote details)

(2) The unit price is \$3.52 and assumes 500 cards. The unit cost decreases at 1,000 cards.

The Borough should consider the following items as it evaluates or implements a liftarm-style gate and keycard access system:

- The liftarm would be installed near the center facility entrance for driver-side keycard use. The existing security gate would be open and the facility exit lane would remain open for vehicles to exit freely. Conceivably, traffic could flow through the exit lane without swiping, but this has not been an issue at other compost sites.
- The Borough should charge residents an annual fee of \$20 to \$40 per year for a keycard to offset administrative and other costs.
- The Borough should assess higher user fees to non-residential users since they often contribute large quantities of material that requires processing and increase costs (hourly equipment rental charges). Due to the variability of non-residential users, the Borough could develop a basis for user fee allocation that includes tracking the number of visits to the sites by non-residential users.
- Since keycard access verifies and records individual visitors automatically, staff would not need to verify each incoming visitor and the gatekeeper could be allocated to other tasks.
- Implement an annual training program to review compost site best management practices, safety, equipment, and operational and composting procedures. Focus areas could include:
 - Screening incoming loads including deliveries of residual solid waste and other non-compatible materials to the site.
 - Cross-training equipment operators. To improve operating efficiency and flexibility, the Borough should have more than one competent equipment operator for rented and Borough-owned compost equipment.
 - Compost and mulch processing and quality. Compost courses are provided by the Professional Recyclers of Pennsylvania (www.proprecycles.org/). The Cumberland County Waste & Recycling Authority offers training at no cost.
- At the beginning of this study, the Borough expressed an interest in expanding the types of material collected from residents and processed at the compost facility. At this time, it is not recommended the Borough accept additional organics at the compost site, specifically grass or food waste, for the following reasons:
 - Grass decomposition produces odors and grass must be incorporated into leaf windrows within 24-hours in accordance with PADEP Guidelines for Yard Waste Compost Facilities (Doc # 254-5403-100, 2009 update). There are occupied establishments near the compost facility that could be adversely impacted by odors. Operationally, it is difficult to maintain compliance with the above-noted grass handling requirements.
 - Food waste has very high moisture content, produces leachate and odors, and requires special handling and processing. Accepting food waste requires General Permit WMGR025. Due to the proximity to human receptors and sensitive environmental features, it would be very difficult and expensive to meet general permit requirements (e.g. impervious surfaces, leachate management infrastructure, etc.)
- The Borough should not triple-grind mulch. It should use the following screen configuration available from the Cumberland County Waste and Recycling Authority to double-grind brush:
 - 5-inch hex (top, middle), 2-inch round bottom screen (first grind).
 - 2-inch round all screens, (second grind).



- Compost operators should periodically test leaf windrow temperature and moisture content to determine turning frequency. Due to known inefficiencies of SCAT windrow turners (SCATs have been discontinued) the Borough should moderate its use of the SCAT windrow turner and begin using the self-propelled windrow turner from the Cumberland County Waste & Recycling Authority as soon as it becomes available (grant award pending).
- As needed, the Borough should apply for Act 101 Section 902 Recycling grants to offset eligible capital costs related to yard waste collection/compost facility operation (e.g. gate improvements).
- It is recommended the Borough add larger, highly visible signage to instruct visitors on operating procedures, traffic flow, and material handling.
- If the Borough has staffing resources available and wants to increase incoming material while improving convenience to residents, it should increase weekday evening hours of operation.
- The Borough should establish relationships with several bulk outlets for mulch (primarily) and compost. Bulk outlets for processed organics can improve operating conditions by efficiently managing and controlling the amount of mulch and compost on-site at one time. Bulk mulch can be sold by the Borough to generate revenue. Although not required, a load ramp streamlines the loading of open top trailers. Generally, that rate of processing, curing, and outgoing organics should align so material does not remain on-site over 14 months from the original time of receipt. The Borough should identify more applications for use of mulch (and compost) on local municipal and community projects (e.g. park and ball field landscaping, stormwater, construction, etc.). The following companies are potential outlets for bulk loads of mulch and compost:
 - Zeager Brothers, Inc. (<http://www.zeager.com/>)
 - Elite Lawn & Landscaping, LLC (<http://elitelawnandlandscapingllc.com/>)
 - H&H Excavating (717)225-4669
- The Borough should work to secure the necessary permits for the site.

5.0 CONCLUSION

Improving the Borough's yard waste collection and compost operating efficiency requires an integrated approach that starts with improving residential curbside bid specifications, and includes moderate changes to yard waste collection methods, organics processing, and compost site access. Based on case study experience with numerous communities across Pennsylvania, the changes recommended in this Report will result in appreciable cost savings that can benefit the Borough's delivery of comprehensive solid waste management and other services to the community in future years. Additionally, experience from similar municipalities that have modified curbside collection schedules, implemented keycard access systems and made similar changes to actively manage municipal and taxpayer costs, are well received by the public when these improvements are effectively communicated via timely and varied public education efforts.

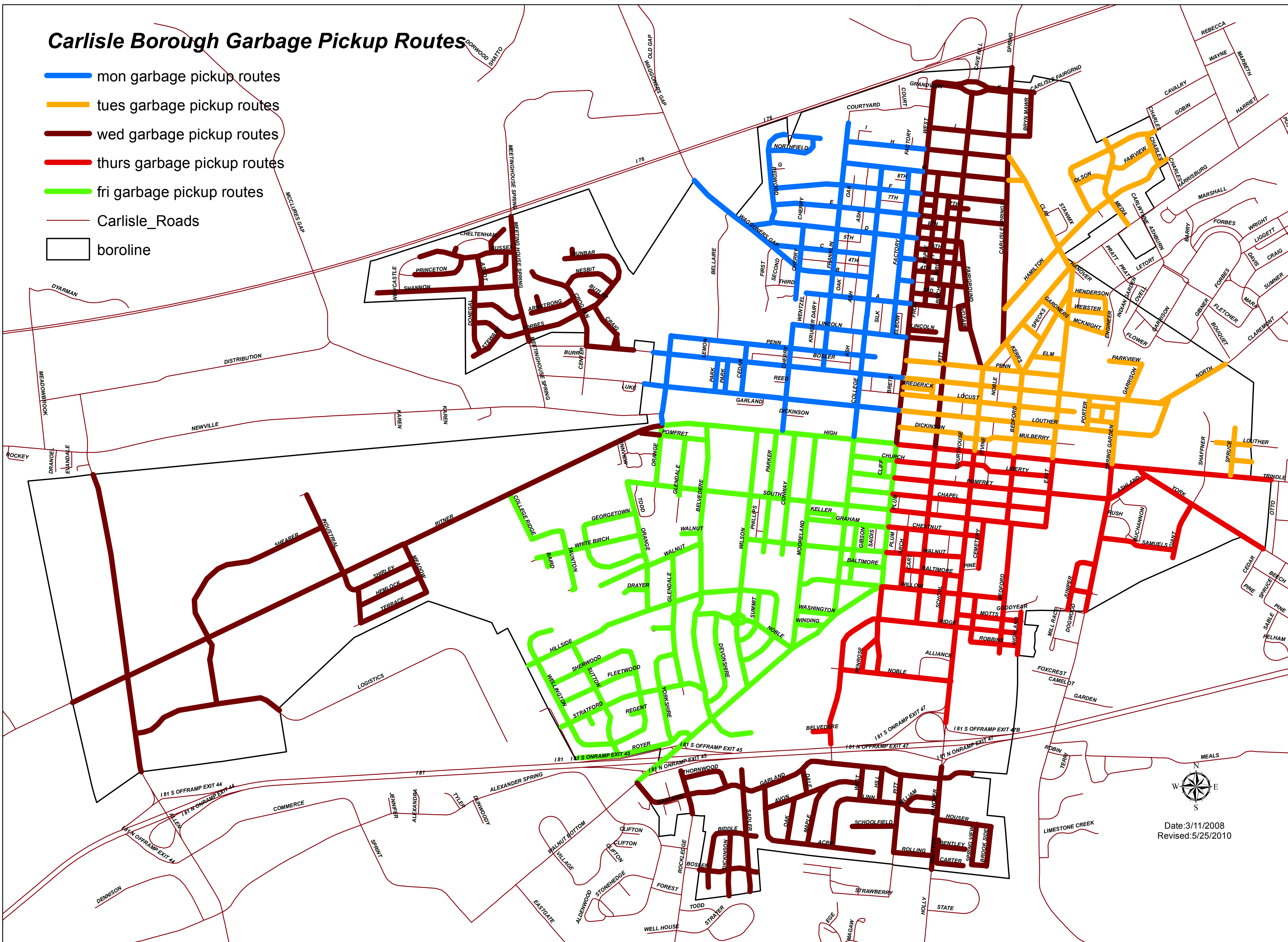



APPENDIX

- Appendix A - Carlisle Borough Garbage Pickup Routes
- Appendix B - Figure 1 - Compost Facility Aerial Map
- Appendix C - Compost Site Schedule (2016)
- Appendix D - Site Visit Photos
- Appendix E - Municipal Compost Site Summary Table (2015-2016)
- Appendix F - BOC Contract 4-13_SRC Review_03-01-16
- Appendix G - BAG Quote - All American Poly (2016)
- Appendix H - Security Fence Co. Quote & Specifications

Carlisle Borough Garbage Pickup Routes

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 Date: 3/11/2008
 Revised: 5/25/2010



SUSTAINABLE RESOURCES
CONSULTING (SRC)

Date Created: 2016



SCALE: FEET

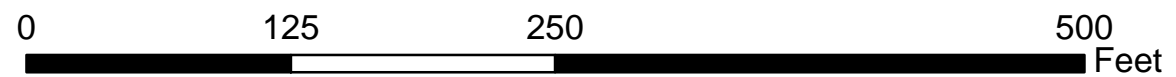


FIGURE 1

Aerial Map

Borough of Carlisle Compost Facility

Compost Site Schedule (2016)
Borough of Carlisle - Post Road Compost Facility

Compost Site to open Wednesday, March 30, 2016 and close November 26, 2016

Wednesday- noon- 8pm

Thursday-7am-3:30pm

Saturday- 7am-3:30pm

Closed on Monday, Tuesday, Friday and Sunday

Fall hours @Compost Site begin September 7, 2016

Wednesday- 9:30am- 5:30pm

Thursday-7am-3:30pm

Saturday- 7am-3:30pm

Closed on Monday, Tuesday, Friday and Sunday

Public Works/Park Maintainer hours

Schedule when Compost Site is (CLOSED)

Monday- 7am-3:30pm (Parks and Recreation)

Tuesday-7am-3:30pm (Parks and Recreation)

Wednesday-7am -3:30pm (Parks and Recreation)

Thursday-7am-3:30pm (Public Works)

Friday-7am-3:30pm (Public Works)

Schedule when Compost Site is (OPEN)

Wednesday-9:30am-noon (Parks and Recreation) & noon-8pm (Compost Site)

Fall hours-7am-9:30am (Parks & Recreation) 9:30am-5:30pm (Compost Site)

Thursday-7am-3:30pm (Compost Site) & 3:30pm-5:30pm (Parks and Recreation)

Friday-7am-5:30pm (Parks and Recreation)

Saturday-7am-3:30pm (Compost Site) & 3:30pm-5:30pm (Parks and Recreation)

BOROUGH OF CARLISLE – SITE VISIT PHOTOS
Yard Waste Collection Equipment (03-11-16)



Photo 1: 03-11-16. Public Works Garage
11-yard rear-load packer truck.



Photo 2: 03-11-16. Public Works Garage
7-yard rear-load packer truck



Photo 3: 03-11-16. Public Works Garage
7-yard rear-load packer truck.



Photo 4: 03-11-16. Public Works Garage
3-yard dump truck.



Photo 5: 03-11-16.
Large Dump Truck. Periodically transports residual
waste from compost site to landfill.



Photo 6: 03-11-16. Public Works Garage
Front End Loader. Occasional spare use at compost
facility.

BOROUGH OF CARLISLE - SITE VISIT PHOTOS
Post Road Compost Facility (03-11-16)



Photo 7: 03-11-16. Borough Compost Site Visitor signage near entrance of compost facility.



Photo 8: 03-11-16. Borough Compost Site Windrowed leaves (from fall 2015)



Photo 9: 03-11-16. Borough Compost Site Brush receiving area.



Photo 10: 03-11-16. Borough Compost Site Woody waste receiving, stockpile area.



Photo 11: 03-11-16. Borough Compost Site Finished Triple-Ground Mulch



Photo 12: 03-11-16. Borough Compost Site Finished leaf compost.

**Pennsylvania Municipal Yard Waste Compost Site Summary
(2015 – 2016)**

Municipal Compost Site	ID	Resident Cost	Commercial/ Institutional	Commercial Cost	Attendant On Site	Hours of Operation	Compost	Compost Cost	Mulch	Mulch Cost
Shippensburg Borough (Southampton Franklin Twp., Southampton Cumberland Twp., Shippensburg Twp., South Newton Twp., Newburg Borough, Hopewell Twp., North Newton Twp.)	Yes	None \$22 non-resident (annual)	Yes	\$105 for 10 visits	Yes	Dec. - T & Th noon - 3 Dec. Jan. & Feb. - Sat. noon - 3 March & Nov. - T & Th. noon - 4 March & Nov. - Sat. 9 - 3 April & Oct. - T & Th. noon - 5 April & Oct. - Sat. 9 - 3 May through Sept. - T & Th. noon - 7 May through Sept. - Sat. 9 - 3	Yes	\$10 CY with pass \$15 CY without	Yes	\$4 CY with pass \$7 CY without
Hampden Township	Yes	None	Yes	\$750 annually	Yes	Monday - Friday 7 - 3 April - Jan. - 7 - 3 the 1st & 3rd Saturday of the month Closed holidays & inclement weather	Yes	none - resident must load \$100 delivered up to 8 CY	Yes	none - resident must load \$100 delivered up to 8 CY
Middlesex & North Middleton Township	Drivers License	No	No	NA	Yes	March - Mid October Mondays: 8 - noon Wednesdays: 2 pm - 7 pm Saturdays: 8 am - noon Mid October - Mid December Saturdays: 8 am - noon Closed all holidays & inclement weather	Yes	none - resident must load	Yes	none - resident must load
Silver Spring Township & Mechanicsburg Borough ~2,000 residential Keycards issued annually. Approximately 100 contractor keycards issued annually	Drivers License	\$10/resident keycard (annual)	Yes	Contractor Keycards: \$800 res. landscaping \$1,000 non-res. landscaping	No	Year round - 24/7 Gate card system (\$10 for card)	Yes	none - residential self-load	Yes	none - resident must load
South Middleton Township	Drivers License	None	No	NA	Yes	January - T & Th 2 - 5; S 8 - 1 Feb. - Saturday 8 - 1 March - T, W, Th 2 - 5; S 8 - 1 April - T, W, Th 2 - 6; S 8 - 1 May - T, W, Th 2 - 6; S 8 - 1 June - T,W,Th 2 - 6; S 8 - 3 July - T,W,Th 2 - 6; S 8 - 3 Aug. - T,W,Th 2 - 6; S 8 - 3 Sept. - T,W,Th 2 - 6; S 8 - 3 Oct. - T, W, Th 2 - 6; S 8 - 1 Nov. - M, T, W, Th, F 2 - 5; S 8 - 1 Dec. - T, W, Th 2 - 5; S 8 - 1	Yes	none - resident must load	Yes	none - resident must load

Municipal Compost Site	ID	Resident Cost	Commercial/ Institutional	Commercial Cost	Attendant On Site	Hours of Operation	Compost	Compost Cost	Mulch	Mulch Cost
Lower Allen Township	Driver's License	4 loads free - \$25 annual fee for more	Yes	\$1,000 annually	Yes	Monday - Friday 7 - 2:30 2nd Saturday April - November: 8 - 1	Yes	\$35 - 3CY delivered \$50 - 8CY delivered \$20 - 3CY self-loaded \$40 - 8CY self-loaded \$1 - 5 gallon bucket	Yes	\$15 - 3CY delivered \$25 - 8CY delivered free self loaded
North Cornwall Township Partners include Cleona Borough and South Lebanon Township ~450 keycards issued annually, with 250 of these are N. Cornwall.	Driver's License	\$5.00 one-time deposit. \$30.00/yr. Keycard (annual) Or \$4.00 per bag or container (35 gallon)	No	NA	Adjacent building oversees drop-off 7-3:30; and uses a remote to let pay customers in gate	April 1 – Sept 30 (keycard): Mon-Sat; 7am – 7pm; Sunday 10:00am – 7:00pm April 1 – Sept 30 (PayAsYouGo): 7am-3:30pm Oct 1 – March 31 (Keycard): Mon-Sat 7am-5pm; Sunday 10am-5pm Oct 1 – March 31 (PayAsYouGo): 7:00am – 3:30pm	No (no on-site processing)	Public Works delivers to Zimmerman's Mulch for no cost.	No (no on-site processing)	Public Works delivers to Zimmerman's Mulch for no cost.
North Londonderry Township (Township residents only). ~ 50 percent of the operational costs are covered by revenue generated by the sale of the key cards and compost products.	Driver's License	\$30 Residential Keycard (annual)	No	NA	No	APRIL - OCTOBER Monday – Saturday 7:00 a.m. - 8:00 p.m. Sunday 12:00 noon - 8:00 p.m. NOVEMBER – MARCH Monday – Saturday 7:00 a.m. - 5:00 p.m. Sunday 12:00 noon - 5:00 p.m.	Yes	\$12/scoop (2 cy)	Yes	\$12/scoop (2 cy) Some bulk loads of woodchips sold to private landscapers.
West Lebanon Township Keycard gate access	Driver's License	\$20 Residential Keycard (annual) \$100 business keycard (annual)	Yes	\$100 business keycard (annual)	Sometimes	Monday through Sunday from 7:00 a.m. to 9:00 p.m.	Yes	NA	Yes	NA

CARLISLE BOROUGH RTA

BOC CONTRACT 4-13 REVIEW

CONSIDERATIONS AND RECOMMENDATIONS

Based on a review of the Borough of Carlisle current Solid Waste and Recycling Collection Service Bid and Contract (BOC Contract – 4-13 dated Jan 1, 2014 – December 31, 2016) the following is noted and recommended for consideration. Generally, there are opportunities to restructure bid language to improve the Borough’s ability to leverage competition among collectors (i.e. bidders). The purpose is to obtain competitive lump sum pricing in the form of a competitive price per bag for an increased level of solid waste services. Primarily, this includes bundling services within a “Base Bid” and minimizing or eliminating separate solicitations and/or service alternates. This does not mean there cannot be Base Bid Options. However, options must be structured around the Base Bid to maintain leverage and to allow the Borough to accurately compare the Option cost against the Base Bid. Under the BOC Contract 4-13, the “first solicitation” represents the Base Bid and includes residential solid waste (PAYT), recycling, one bulk item per week, and 40 street cans. The alternates and second solicitation include:

- Annual spring and fall brush collection
- Annual Christmas tree collection.
- Solid Waste Collection and disposal Service to twelve (12) Borough-owned commercial facilities.

Bundling Borough solid waste collection and disposal services including MSW, recycling, brush, Christmas tree, Borough-buildings collection, and street can effectively leverage competition - collectors will compete aggressively for the 1.5 to 2M contract and the alternates and the separate solicitation represent a relatively small portion of the contract service and value. It is very common in Pennsylvania municipal solid waste contracts that the collection and service to municipal buildings (and other services) are within the Base Bid. Because the alternates are presented as additional service this can add risk to prospective bidders or otherwise limit a collector’s flexibility to provide these services in a manner that optimizes their labor and equipment utilization. Also, as alternates the brush and Christmas tree service show up as an additional cost in the Borough budget. It is unlikely the Borough can provide cost-competitive curbside service when compared to the private sector, and through outsourcing, the Borough can reallocate staff accordingly.

- Is pricing available for the second solicitation and the alternates from the collectors from the prior bid solicitation? It would be interesting to see the cost and level of interest collectors had for these services, as well as the Borough’s price threshold for entering (not entering) an agreement for these services.

Other opportunities for cost reduction and improving the solid waste contract and improving solid waste program performance include:

- Allowing the prospective collectors (i.e. bidders) the opportunity to design new routes and corresponding collection schedule. The bid would state the Borough's intent for route revisions is to promote efficiency and competitive pricing.
 - Who designed the current residential collection routes and schedule and when was the last time they were optimized?

Route revisions allow each prospective bidder to maximize collection efficiency based on their unique circumstances (e.g. availability of trucks and labor, disposal and recycling facility locations, maximizing equipment capacity, etc.). This could result in fewer truck operating days within Borough limits. The perceived issue of confusing customers with a new schedule can be effectively addressed within the bid specification requirements regarding the timing and education delivery by the collector associated with the new schedule and roll-out; as supported by Borough information distribution. It is not difficult to convey that the new collection day is Tuesday, beginning February 1, for example.

- Increasing the level of service for spring and fall brush collection to align with seasonal (spring and fall) generation rates and customer needs (i.e. convenient disposal during spring and fall periods when yard waste accumulates). This addresses the Borough goals to efficiently increase the level of service and diversion rates for yard wastes with consideration of efficient labor allocation. This includes offering four (4) to six (6) brush collections in the spring and four (4) to six (6) brush collections in the fall as a Bid Option but bundled with the Base Bid. Bidders could be required to respond to the Base Bid and Base Bid (Option A). By cost competitively outsourcing spring and fall brush collections, the Borough can reallocate labor, say to assist the compost facility to receive and process incoming deliveries by the contracted collector.
 - A possible variation to consider, is to request a price for chipping the brush either on route and/or on site at the compost facility, for comparative fee analysis with the Cumberland County Waste & Recycling Authority.
- In addition to bundling service to Borough-owned facilities within the Base Bid, it is necessary to clarify these service details and reduce bidder risks. Add an Exhibit providing the following information regarding the twelve (12) Borough-owned facility:
 - Building name/type (e.g. library)
 - Address
 - Solid Waste container type and capacity (e.g. 8 cubic yard front load dumpster)
 - Indicate if rented (i.e. provided by current collector) or owned
 - Recyclables container type and capacity (e.g. 2, 96 gallon wheeled totes)
 - Indicate if rented (i.e. provided by current collector) or owned

- Require the collector to complete a participation assessment in the first quarter to confirm the active customer list. This list should be provided and the Borough should meet any customer confidentiality requirements noted by the collector. This assumes it is important for the Borough to understand the number of residential customers in the Borough who participate (buy and set out bags), and do not participate, in the Borough PAYT program. This relates to compliance, revenue, and impacts to subsequent bids (e.g. annual bags sold).



ALL AMERICAN POLY

40 TURNER PL.
PISCATAWAY, NJ. 08854
732-752-3200 x 1124
800-526-3551 x 1124
Fax 732-752-2305
zeke@allampoly.com

Memorandum

From: Zeke Rosenwasser
To: Sustainable resources consulting
Carlisle Borough Bag Quote
Re: Plastic Bags

March 10, 2016

Price Quote

<u>Size</u>	<u>Gauge</u>	<u>Color</u>	<u>Bags Per Case</u>	<u>Price Per Case</u>	<u>Number of Cases</u>	
30x36"	1.5	blue	100	11.34	2000	Full Mil
30x36"	2.0	blue	100	15.12	2000	Full Mil
30x36"	2.5	blue	100	18.90	2000	Full Mil
30x36"	1.5	white	100	10.91	2000	Full Mil
30x36"	2.0	white	100	14.54	2000	Full Mil
30x36"	2.5	white	100	18.18	2000	Full Mil

The above price is for printed bags full mil including delivery

For the equivalent of the full mil (Carlisle is probably getting) the price decreases by 10%

Please send a sample bag and we will test it

Proposal



710 Wise Avenue
 P.O. Box 395
 Red Lion, PA 17356
 E-Mail: access@securityfence.com

SECURITY FENCE CO.
Access Control Division

Phone: (717) 244-7653
 Toll-Free: (800) 344-2132
 Fax: (717) 246-6669
 Web Site: www.securityfence.com

PA #005392 COSTARS #008-148 E-MAIL: steve@sustainableresourcesconsulting.com

ATTN STEVE DEASY	FAX	CELL
PROPOSAL SUBMITTED TO CARLISLE BORO	PHONE 717-329-4133	DATE APRIL 19, 2016
STREET 53 WEST SOUTH STREET	JOB NAME PM GATE/TRAINING	
CITY, STATE, AND ZIP CODE CARLISLE, PA 17013	JOB LOCATION COMPOST SITE	

We hereby submit specifications and estimates for:

BASE BID:

FURNISH NECESSARY MATERIAL, LABOR, TOOLS AND EQUIPMENT TO PERFORM THE FOLLOWING:

(NEW LIFT UP GATE)

- A. 1 - LIFTMASTER MAT-DC LIFT UP GATE
- B. 1 - HEATER
- C. 1 - 12' ALUMINUM ARM
- D. 1 - VEHICLE DETECTOR - WIRED AND INSTALLED
- E. 1 - CLOSE/RESET LOOP - CUT, WIRED AND SEALED
- F. 1 - 24" X 24" X 24" CONCRETE PAD

(INSTALLATION, SERVICE AND TRAINING)

- A. PERFORM PREVENTIVE MAINTENANCE AND INSPECTION ON EXISTING GATE AND GATE OPERATOR
- B. PERFORM OVERVIEW/TRAINING ON EXISTING LINEAR CARD ACCESS SYSTEM
- C. REPLACE EXISTING LINEAR AM-PC PROX READER WITH HID THIN LINE PROX READER
(EXISTING CARDS CURRENTLY PROGRAMMED INTO SYSTEM WILL NOT WORK ONCE NEW READER IS INSTALLED)

(CARDS)

FURNISH ONLY 500 HID PROX II CARDS

TOTAL INSTALLED PRICE - \$6325.00

BID BREAKDOWN:

NEW LIFT UP GATE - \$3945.00
 INSTALLATION, SERVICE AND TRAINING - \$620.00
 CARDS - \$1760.00

We propose hereby to furnish material and labor - complete in accordance with above specifications, for the sum of:

dollars (\$

Payment to be made as follows:

All material is guaranteed to be as specified. All work is to be completed in a workmanlike manner according to standard practices. Any alteration or deviation from above specifications involving extra costs will be executed only upon written orders, and will become an extra charge over and above the estimate. All agreements contingent upon strikes, accidents or delays beyond our control. Owner to carry fire, tornado and other necessary insurance. Our workers are fully covered by Workmen's Compensation Insurance.

Authorized Signature _____

Note: This proposal may be withdrawn by us if not accepted within _____ days

Acceptance of proposal - The Above prices, specifications and conditions are satisfactory and are hereby accepted. You are authorized to do the work as specified. Payment will be made as outlined above.

Signature _____

Date of Acceptance _____

Signature _____

Proposal



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 P.O. Box 395
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CITY, STATE AND ZIP CODE CARLISLE, PA 17013	JOB LOCATION COMPOST SITE	

We hereby submit specifications and estimates for:

QUALIFICATIONS AND NOTES

- A) ALL ELECTRICAL WORK INCLUDING ALL TRENCH WORK, PATCHWORK, BACKFILL, ETC. TO BE DONE BY OTHERS.
- B) ALL CONDUITS, JUNCTION BOXES, DISCONNECTS, GROUND RODS, ETC. TO BE FURNISHED AND INSTALLED BY OTHERS, INCLUDING TERMINATION OF ALL CONDUITS AT ALL EQUIPMENT.
- C) ALL POWER WIRES AND CONTROL WIRES TO BE FURNISHED AND INSTALLED BY OTHERS. TERMINATION OF ALL WIRES IN OUR EQUIPMENT AND INITIAL OPERATION OF GATE SYSTEM TO BE PERFORMED BY SECURITY FENCE COMPANY.

WARRANTY

ONE (1) YEAR WARRANTY AGAINST MATERIAL DEFECT AND NINETY (90) DAY WARRANTY AGAINST WORKMANSHIP DEFECT UNLESS OTHERWISE SPECIFIED.

SERVICE RATES: (AFTER THE 90 DAY WORKMANSHIP AND LABOR WARRANTY EXPIRES) OUR LABOR RATE IS \$80.00 PER HOUR PORT TO PORT. WE HAVE A 2 HOUR MINIMUM. OUR SERVICEMEN ARE AVAILABLE MONDAY – FRIDAY (NO HOLIDAYS OR WEEKENDS)

*YEARLY PREVENTIVE MAINTENANCE CONTRACTS ARE AVAILABLE – CALL FOR DETAILS.

We Propose hereby to furnish material and labor - complete in accordance with above specifications, for the sum of:

AS STATED ABOVE dollars (\$) **\$0.00**

Payment to be made as follows:

NET TEN DAYS

All material is guaranteed to be as specified. All work is to be completed in a workmanlike manner according to standard practices. Any alteration or deviation from above specifications involving extra costs will be executed only upon written orders, and will become an extra charge over and above the estimate. All agreements contingent upon strikes, accidents or delays beyond our control. Owner to carry fire, tornado and other necessary insurance. Our workers are fully covered by Workmen's Compensation Insurance.

Authorized Signature Mark E. Miller

Note: This proposal may be withdrawn by us if not accepted within 30 days

Acceptance of proposal - The Above prices, specifications and conditions are satisfactory and are hereby accepted. You are authorized to do the work as specified. Payment will be made as outlined above.

Signature _____

Date of Acceptance _____

Signature _____

BARRIER GATE OPERATOR

GATE OPERATORS AND ACCESS CONTROL SYSTEMS

Mega Arm/Mega Arm Tower DC Barrier Gate Operator

HIGH-PERFORMANCE, DC POWERED BARRIER GATE OPERATORS WITH BUILT-IN BATTERY BACKUP. The Mega Arm (MADCBB3) and Mega Arm Tower (MATDCBB3) are designed with a 24VDC (1/2 HP equivalent) motor and provide exceptional starting torque and continuous operation, making them ideal for most barrier applications. The heavy-duty motor supports 6,000 cycles per day with a speed of 2.5 seconds to open or close.



PERFORMANCE

- Built-In **Battery Backup** provides seamless operation of the barrier gate operator and all DC control and sensing devices in the event of a power loss
- Continuous-duty DC motor
- Soft start/stop operation
- Aluminum alloy chassis
- Dual gate operation
- Dynamic braking
- Universal controller with 8 inputs
- Timer-to-Close (0–16 seconds)
- Magnetic limit switch sensors
- LED indicators
- Right- or left-handed operation



Security+ 2.0™

SAFETY

- **Security+ 2.0™ Technology** virtually eliminates interference and offers up to 2X the range of standard remote controls so you can access your facility quickly and safely
 - 3-channel receiver—OPEN/CLOSE/STOP
 - Built-in 850LM Security+ 2.0™ receiver
 - Receiver stores up to (90) remote controls
- Inherent obstruction sensing
- Safety Stop Tailgate feature stops closing of gate when tailgating is sensed at close input, does not continue until close input is removed or gate reopens
- Tailgate Alarm fires K1 relay (MA200) to trigger warning device when tailgating is sensed
- Ability to open automatically when power fails
- MOVs for additional surge protection
- Breakaway arm
- UL 325 and UL 991 compliant for Classes I, II, III and IV

TECHNICAL INFORMATION



SPECIFICATIONS

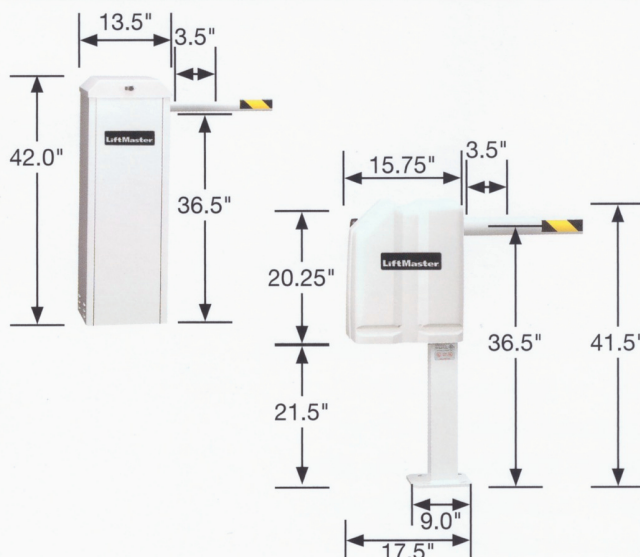
- **Power:** 110V/220V Single Phase
- **Accessory Power:** 24VDC
- **Gate Travel Speed:** 2.5 seconds to open or close
- **Shipping Weight:**
 - Mega Arm (MA): 98 lbs.
 - Mega Arm Tower (MAT): 130 lbs.
- **Warranty:**
 - 2 Years: Electronics and Mechanism
 - 10 Years: Chassis and Cover

RECOMMENDED CAPACITIES

HP	MAX ARM LENGTH (ft.)	RECOMMENDED CYCLES/DAY
1/2*	12 ft. and 15 ft. aluminum arm 14 ft. soft-padded arm	6,000

*equivalent 24VDC Duty Cycle: Continuous

DIMENSIONS



OPERATOR AMP RATING (RUNNING)

VOLTAGE PHASE 60 Hz	VAC	1/2 HP equivalent
	110/120	6.5

BATTERY BACKUP OPERATIONS

Battery	Cycles
(2) 7Ah	900 (with 12 ft. barrier arm)

GATE OPERATORS AND ACCESS CONTROL SYSTEMS