

SWANA RECYCLING TECHNICAL ASSISTANCE
FINAL REPORT
BOROUGH OF MANSFIELD
TIOGA COUNTY, PENNSYLVANIA
IMPROVING YARD WASTE MANAGEMENT



Source: Gannett Fleming, Inc.



Gannett Fleming

HARRISBURG, PENNSYLVANIA

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SWANA RECYCLING TECHNICAL ASSISTANCE MANSFIELD BOROUGH, TIOGA COUNTY

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**SWANA RECYCLING TECHNICAL ASSISTANCE
IMPROVING YARDWASTE MANAGEMENT
MANSFIELD BOROUGH, TIOGA COUNTY**

EXECUTIVE SUMMARY

Mansfield Borough's (Borough) curbside leaf collection, brush processing, public drop-off and organics distribution programs are integrated with, and are impacted by the Borough Waste Water Treatment Plant (WWTP) activities and the new vermicompost facility. Over the next two years, Borough staff will need to make operational adjustments to meet the demands of the new WWTP upgrades and to successfully implement the new vermicompost facility. The ability to manage the WWTP in conjunction with leaf waste collection and organics composting programs will be challenging, particularly due to the space limitations of the WWTP property. The fenced WWTP has historically served as the public drop-off and pick up area for organics. It is a good time to think outside of the compost bin to implement a sustainable organics operation that will benefit the Borough, participating municipalities and other parties in the region who either require processing or need access to valued organic products. As summarized, key primary conclusions and recommendation from this study include:

Conclusions

- The curbside leaf waste vacuum (borrowed from the NTSWA) has mechanical failures that contribute to poor labor utilization and an inability to collect leaves on schedule.
- Space limitations of the existing footprint of the WWTP restrict the efficient flow and processing of materials and may increase the potential for cross-contamination by biosolids of organics feedstocks and finished products.
- Brush grinding is not done on a schedule, but occurs frequently as a measure to size-reduce piles of brush that restrict operations.
- Unrestricted access to the WWTP to drop off brush and to pick up organics products is a security and safety hazard and increases liability for Borough assets.
- The Borough does not effectively utilize offsite locations to accept leaves, leaf compost and mulch products. This hampers operational flexibility by limiting the ability to distribute material off site quickly when necessary.
- Mansfield University (MU) currently purchases mulch for landscaping activities and appears to be an untapped resource that could be vital to the long-term sustainability of the Borough's organics management program.
- The Borough has access to a .15 acre area located along the access road within sight of the WWTP facility that is a feasible location for non-biosolids organics management. This area currently contains debris and unused equipment, but site preparation is feasible to convert this area to an organics management area.
- The proposed organics management area is near the entrance of the public "Hike and Bike Trail", which is owned by the Army Corp of Engineers. The Hike and Bike Trail and parking for the trail must remain available to the public, which complicates the ability to limit access to the proposed organics management area.

Recommendations

- **Procure Leaf Collection Equipment.** If a driver with a Class A CDL is available, GF recommends the Borough procure a 25-cubic-yard self-contained unit from ODB (Model SCL800TM25). The cost is approximately \$27,000 delivered. If the Borough does not have a person certified with a Class A CDL license, the tow-behind unit, model # LCT 650 (~\$18,700 delivered), is the recommended alternate because of its belt drive system, left and right vacuum capability, and dust filtration system. A 20-cubic-yard box is recommended with this configuration provided a suitable sized dump bed is available.
- **Develop the Proposed Organics Management Area.** Complete the site development needed to develop the proposed organics management area along the access road to the WWTP (see the conceptual layout and architectural simulations at the end of this Report). The area should be used for:
 - Yard waste and brush stockpiling
 - Scheduled brush processing
 - Yard waste stockpiling
 - Temporary leaf waste stockpiling
 - Distribution of a portion of non-biosolids leaf compost.
- **Manage site access.** Add a chain and ballard system or gate along the WWTP access road used in conjunction with orange cones as needed to manage access by vehicles and people to the WWTP and proposed organics area. Because public access must remain open to the Army Corp of Engineers Hike and Bike Trail, the chain system will primarily be used to restrict unsafe drop-off and pick-up of organics by visitors, particularly when heavy equipment is in use. Orange plastic cones should be used to temporarily close the proposed organics area when it is not open to the public.
 - **Public education signage.** Educational signage about composting should be placed at the western edge of the site near the entrance of the Hike and Bike trail. Investigate DCNR matching funds or funding assistance from the Army Corp of Engineers as applicable for improving the entrance to the Hike and Bike Trail.
 - **Develop an Hours of Operations Schedule** for the organics management area and notify the public through signage and other forms of media.
- **Diversify outlets for organics** to increase material management and operational flexibility and to foster market opportunities, which eventually could include revenues for sale of some finished organic products. Potential outlets include:
 - Richmond, Putman, and Covington Townships.
 - PSU Cooperative Extension (Tioga County).
 - Mansfield University.
 - Local farms – land application of leaves (**Appendix A**).
 - Site remediation (e.g. Marcellus Shale gas well drilling)
- **Engage Mansfield University to develop a shared and sustainable planning vision for organics management** in the region (Refer to section 5.0 for details).

SWANA RECYCLING TECHNICAL ASSISTANCE**FINAL REPORT****IMPROVING YARDWASTE MANAGEMENT
MANSFIELD BOROUGH, TIOGA COUNTY****1.0 INTRODUCTION**

The Borough of Mansfield (Borough) and the Borough Water and Sewer Department work cooperatively to divert organic residuals from the landfill. Borough crews collect leaves at the curbside and transport them to the WWTP to be composted in non-aerated static piles. In 2010, an enclosed vermicomposting facility will be on-line at the wastewater treatment plant (WWTP) and will be used as the final stage of processing for biosolids and organics into a valuable finished compost product. In addition to Borough-generated organics, the WWTP yard waste site accepts yard wastes (primarily brush) delivered by residents from several neighboring municipalities that are allowed to participate in the yard waste drop-off program.

The Borough is interested in evaluating its curbside leaf waste collection system and yard waste drop-off area to determine if these programs can be operated more effectively. The Borough wishes to improve the efficiency of the curbside leaf program to reduce costs and if possible, to allow municipal crews more time to allocate staff to yard waste processing, composting and other municipal activities. Due to space limitations on the WWTP property footprint, it is necessary to reconfigure or relocate the yard waste site and identify operational strategies to improve the management of unprocessed yard wastes, mulch and compost.

Through a partnership with the Pennsylvania Department of Environmental Protection (PADEP), the Governor's Center for Local Government Services, the Pennsylvania State Association of Township Supervisors (PSATS) and the Solid Waste Association of North America (SWANA), the Borough was awarded \$7,500 in technical assistance to be provided by Gannett Fleming, Inc. (GF) to evaluate the curbside leaf collection program and yard waste drop-off program. It is necessary to improve the overall performance of the yard-waste drop-off and processing area and leaf handling area. The Borough wishes to continue to accept additional quantities of yard wastes for recycling as a benefit to the Borough, local residents, participating municipalities (Richmond, Putnam and Covington Townships) and other end users of these valued organics.

1.1 Scope of Services

GF worked with the Borough to develop and perform the following tasks for this project.

- Task #1** Gather and review background information provided by the Borough related to existing curbside, drop-off and processing activities for organics.
- Task #2** GF will make recommendations related to the operation and equipment utilized to conduct curbside leaf collection. GF will identify outlets for organic materials and make recommendations to improve operational flexibility of the yard waste handling and processing methods. This task will include one (1) meeting/site visit.
- Task #3** GF will prepare and provide the Borough with a summary report of findings and recommendations. This task includes a review of the Report by the PADEP and response to PADEP comments. An electronic file of the final report will be submitted to PADEP. Both an electronic and hardcopy version of the Final Report will be provided to the Borough.

2.0 CURBSIDE LEAF WASTE COLLECTION

Starting each year in November, the Borough's municipal crew of three people collects leaves five days a week for about four weeks. The cost for leaf waste collection services is paid out of the Borough's general fund. Assuming three (3) people work 6.75 hours per day for 20 days at an average hourly rate of \$15 (salaries and benefits); the approximate labor cost for leaf collection is \$6,075 per year.

The Borough leaf collection equipment includes a dump truck fitted with a 14-cubic-yard leaf box. This set up is connected to a leaf blower vacuum that is borrowed from the Northern Tier Solid Waste Authority (NTSWA) at no cost. The NTSWA received Act 101, Section 902 Grant Funding for this equipment when it was originally purchased.

The Borough estimates that 25 tons of leaves are collected and processed annually. Space permitting, all of the leaves are partially composted in static piles at the north end of the WWTP property over winter. In the spring, the Borough grinds the partially composted leaves using a Sundance grinder to get a finer-finished product. The leaf mulch product is then made available for residents for free pick up. Locally, the leaf mulch is commonly used as mulch cover and as a soil amendment for clayey soils.

3.0 CURBSIDE LEAF WASTE COLLECTION ALTERNATIVES

Over the next two years, the Borough WWTP operation will be impacted by the recently completed WWTP upgrade and the start up of the vermicompost facility. The WWTP upgrade will require operators to learn new equipment and technologies. The vermicompost operation will be demanding on labor resources as the handling of feedstocks and the quantities of feedstocks needed for composting will be affected. For example, leaves could be used as a feedstock for vermicomposting operations to bring carbon levels to an optimal balance. Based on discussion with the NTSWA, they are willing to continue to share and maintain leaf vacuum equipment, but have no intent on procuring any new leaf equipment. The NTSWA was told by PADEP that no additional Recycling Grant funding for leaf equipment would be available in the foreseeable future.

In considering changes that affect labor resources, operations and possibly the manageable quantities of material, GF reviewed several curbside leaf waste collection options in the following sections.

3.1 Self-Contained Leaf Vacuum Equipment

Since the Borough did not originally pay out of pocket for a leaf vacuum, capital expenses for leaf waste equipment are minimal. The bulk of the costs for leaf collection are typically not capital expenditures; it is the labor and fuel costs incurred during collections. Since three Borough staff members are fully dedicated to leaf collection for at least one month each year, optimizing labor utilization during curbside collections will improve staff flexibility. Having adequate time for other municipal tasks, including assistance with the vermicompost and other compost operations is increasingly necessary. Equipment options may reduce labor hours and benefit long-term program sustainability. Leaf waste equipment technology has improved dramatically over the last ten years, with collection efficiency being a primary improvement area. In the following sections, GF reviews equipment from:

ODB Company www.odbc.com
Northeast Sales Division
41 Brookside Drive
Saratoga Springs, NY 12866
Phone: (800) 632-7989
Fax: (518) 581-8267
Rick Timmerman (rickt@odbc.com)

ODB leaf waste equipment is included in the Department of General Services (DGS) procurement program, sometimes called COSTARS. Under the DGS program, ODB equipment is sold at a 10 percent discount and the cost includes delivery. By using the DGS procurement program, the Borough is not required to complete a bid advertisement to procure the equipment.

3.1.1 Truck Mounted Self-Contained Leaf Waste Vacuum Equipment

Based on GF's recent work with several municipalities regarding curbside leaf waste collection, it has been verified through case studies that truck-mounted self-contained vacuum trucks are much more efficient than tow-behind configurations (currently used by the Borough). The truck-mounted self-contained unit is driven and operated by one person, a huge staff reduction compared to 3 and 4 man crews used for typical curbside collection equipment. GF has investigated the ODB SCL800SM25 on several projects, and case study evidence from municipalities reveals substantial cost reductions and other benefits:



- 25% increase in collection efficiency.
- 35 - 45% reduction in labor costs.
- Early route completion, cutting days and weeks off collection time.
- Avoided delays and labor time associated with configuring dump trucks for snow events or other uses.
- Effectively use staff on other municipal projects.
- The ODB SCL800SM25 can be specified to include a contained wood chipper, giving dual functionality to this equipment.

Although the initial capital cost of \$135,000 may appear high, it is similar in price to the price of all the components required for a tow-behind leaf waste set up. The Borough should carefully evaluate its leaf collection labor costs in conjunction with current and future staff obligations to determine if this type of vehicle is feasible. Possibly, this option could be made more feasible through shared use and cost arrangements with other municipalities. Because the leaf waste program costs are less than \$10,000 annually, this procurement may not be feasible unless other factors are considered including: 1) Recycling Grant availability; 2) shared use and cost sharing with another municipality; 3) the need for a chipper; 4) and future need to increase the quantity of leaf waste material for use as bulking agent or to serve other market needs or uses.

3.1.2 Self-Contained Leaf Waste Vacuum Equipment

ODB Inc. offers another self-contained leaf collection system as illustrated in the photograph to the right (model SCL800TM25). The basic specifications and options are included in the pricing document located in **Appendix B** (*Pricing shown includes delivery and a 10 percent discount*). The most commonly purchased size is 25 cubic yards, which increases efficiency over the lifetime of utilization by reducing the frequency of dumping.



The cost of the 25-cubic-yard unit is approximately \$27,000 (including the 10% discount). Operators of this dual-axle system must have a Class A CDL license. Currently, Borough staff only have Class B licenses.

Advantages of this system include:

- Improved collection efficiency. Servicing more households prior to dumping with significant reduction of overall unloads required during the season.
- Eliminates time and labor associated with assembly at leaf season start up and tear down of tow-behind configurations.
- Dumping is simple and immediate.
- Cleaner leaf collection because all leaves get directed into the box unlike tow-behind units where leaves are often blown about because the seal is not complete.

3.2 Tow-Behind Leaf Collector

If the Borough elects to replace the existing leaf blower with similar equipment, it could consider a tow-behind configuration, similar to the existing system - but more modern. This option will require less capital cost initially, but careful consideration must be given to the “value” of the equipment. Will a tow behind unit be cost-effective over the life of the equipment (say 10 years)? The capacity of the leaf box would remain at 14 cubic yards and still require frequent dumping, which consumes needed labor resources. The Borough must weigh the long term pros and cons and determine if increased efficiency over the long term justifies the higher cost of self-contained units. Understanding the future direction of the organics programs should be factored into the procurement decision, even if the Borough’s limited budget is restrictive.

3.3 Leaf Unload Time

Even with the unloading or dumping point nearby; it is important to reduce the amount of time spent unloading leaves. This can be accomplished by increasing vehicle capacity. The table below gives a simple comparison of the number of trips to unload materials assuming the Borough collects 25 tons of leaves annually.

Leaf Waste Equipment Comparison			
Equipment	Cubic Yard Capacity	Annual Cubic Yards of Leaves ⁽¹⁾	Total Deliveries Required
Tow-behind Vacuum and Leaf Boxes	14.0	143	10
ODB SCL800SM25	25	143	5

⁽¹⁾ The Township average of 400 tons converted using EPA's conversion of 350 lbs/cy for vacuumed leaves.

3.4 Bagged Organics

The Borough could supplement its leaf collection program or replace its leaf program using a curbside bag program. Many municipalities collect leaves and other yard wastes some or all of the time using paper bags. These programs can offer several benefits including:

- Enables collection of organics using a waste packer truck with large carrying capacity (20-25 cubic yards) and compaction capability.
- Facilitates collection of a manageable volume of spring yard wastes (trimmings, garden residues, etc.).
- May be set up as a "Pay-As-You-Throw (PAYT) program, which will assure that only those residents who need and use the service will pay for the service.

If the Borough replaced its leaf vacuum service with a leaf bag service, it would likely see a reduction in tons collected because this service is less convenient for residents.

4.0 ORGANICS MANAGEMENT AREAS

The next sections review and illustrate the existing and proposed organics management areas, including receiving, processing and residential pick up areas.

4.1 Existing Yard Waste Drop-off and Leaf Mulch Pick Up Area

The existing brush drop-off area (shown below) is located just inside the gated entrance to the WWTP. The area is roughly 20' wide by 40' long. Accumulated piles of brush require frequent processing using a grinder to assure space is available for trucks and routine operations. If processing does not occur, unprocessed brush can creep onto the paved road surface that serves as the only entrance and egress to the WWTP and composting operations.



All Photos by Gannett Fleming, Inc.

This area adjacent to the brush processing area is used for residential leaf mulch pick up and for biosolids compost pick up. This requires residents to pass into the gated area of the WWTP to pick up finished mulch and compost products. By allowing on-site access to the WWTP, GF believes it increases risk of the following:

- Accidental injury. There are open tanks, many filled with water that may be a threat to falling or drowning.

- Persons inside the WWTP could be injured by other vehicles or equipment operating within the WWTP property.
- It poses security risks for intentional sabotage or unintentional damage of equipment. Many guidelines related to national security include warnings related to WWTP operations due to access to chlorine and for facility sabotage.



With the addition of the vermicomposting facility (shown in the background of the photo), the available operating footprint of the WWTP and compost processing area is reduced. With operating space at a premium, it is imperative to move non-biosolids organics management areas outside of the fenced area of the WWTP.

Source: Gannett Fleming, Inc.

4.2 Proposed Organics Management Area

As shown in the GIS aerial map included at the end of this Report (*Existing and Proposed Organics Management Areas and Compost Facility*), the existing brush receiving and processing area (green) is only a short distance to the proposed location (yellow hatched). The proposed area is roughly 127' long and 65' wide at its widest point, and is larger than the former area used to manage leaves.

The tiled photos below show the proposed location for the organics management area, which is located outside the fenced footprint of the WWTP along the access road. As can be seen in the photos, a small portion of the site is currently utilized to stockpile fine aggregate for road maintenance and the remaining area is unused. The proposed area contains unused piping, abandoned equipment, concrete debris and other unused items and trash. The proposed area is unsightly, which is magnified because it is also located at the entrance of the public Hike and Bike Trail.

The processed area is suitable for the following non-biosolids organic materials and handling:

- Brush stockpile and processing (grinding)
- Leaf mulch distribution
- Leaf compost distribution



The proposed area appears feasible for organics management for the following reasons:

- The original leaf staging and composting areas has been lost to the building and operations. Storing and processing leaves and brush inside the WWTP area negatively impacts operations, making the proposed area necessary for leaf and brush stockpiling. Additional staging areas will optimize material management and flexibility.
- Through use of this area (even for a portion of organic materials), residents will remain outside of gated area of WWTP. Limiting residential access within the WWTP is necessary to reduce liability, improve security, and to optimize material management.
- The proposed area will increase temporary material storage capacity, which will facilitate scheduled processing as opposed to processing to make room to operate.

- The existing rock outcroppings and concrete wall in the proposed area serve as an excellent push wall for managing brush and other materials with a front end loader or similar equipment.
- The location can be visually observed from the WWTP, improving oversight.
- This area can easily and cost-effectively be modified to restrict traffic flow when processing is occurring by a chain and ballard system (see Architectural Renderings attached at the end of this Report).
- It is anticipated that new impervious composting pads will be developed inside the WWTP area and be connected to a leachate drainage system to stage finished biosolids compost and other finished composts. In the future, if it is deemed feasible, desirable, and within the operating procedures accepted by the Borough, the proposed area outside the WWTP could facilitate pick-up and distribution of selected finished compost products to residents and possibly commercial users (e.g. local landscaping companies). Distribution of finished compost in the proposed area outside the WWTP may be limited to leaf compost only, so that it has no interaction with biosolids.
- The proposed area could facilitate brush management in a way that reduces the potential for cross-contamination of feedstocks and finished products by biosolids.

4.2.1 Illegal Dumping Concerns

Any “drop-off” area that is developed can become just that – a drop-off area for all sorts of materials, including a host of unwanted materials, trash, refrigerators, etc. Although dumping is a legitimate concern, this problem can be managed for the proposed area as follows:

- **Restrict access.** Use either a chain and ballard system or a gate along the access road to regulate access for organics, particularly to prohibit after hours (night) organics dumping at the facility. Because the Army Corp of Engineers owns the Hike and Bike Trail and their parking area is located near the WWTP, it may not be feasible to entirely limit public access to the proposed drop-off area. However, orange cones placed at the border of the proposed drop-off and access road could be used as temporary barricades to limit access after regular operating hours. Currently, residents and commercial vendors can walk or drive right up to the WWTP.
- **Establish a Public drop-off/pick-up schedule.** Customers should not have an open schedule (24 hours a day, 7 days a week) to drop-off or pick up organics. The Borough should implement a public access schedule that takes into

consideration the operations of the WWTP. For example, the Borough could start by having the organics drop-off and pick-up open only during the times when the WWTP staff are working to facilitate oversight. The schedule could prohibit all drop-off for at least one day of the week so that day can be used to grind stockpiles of brush while ensuring the safety of visitors. If feasible, and if staff are available, the schedule should consider allowing drop-off at least one day during the week with evening hours and perhaps a short time (4 hours) on a weekend day so that the program is convenient for people to participate.

- **Signage and cameras.** A clean area in conjunction with clear signage and video surveillance are excellent deterrents for illegal dumping. Posting of potential fines along with the list of accepted materials and operating hours is recommended.

4.2.2 Architectural Rendering of the Proposed Area

GF developed architectural renderings attached at the end of this Report under Figures, for the proposed organics management area. The renderings reinforce a vision that this area can be cleaned up, secured, include proper signage and compliment the adjacent hike and bike trail and compost operations. One rendering shows the area used for brush stockpiling and the other shows the area used for brush stockpiling and for finished leaf compost. These renderings capture a future vision for the area that considers the following:

- Lighting, cameras, and restricting access are necessary for security and to deter dumping.
- The area is located at the entrance of a public Hike and Bike Trail, but is currently unsightly due to trash and other debris and unused equipment.
- The area needs to be developed and utilized because there is insufficient space on the WWTP property footprint.
- The WWTP, vermicomposting operation and other composting operations will be toured, perhaps more frequently in future years, by Mansfield University students and faculty, the PSU Cooperative Extension, PADEP and other interested parties. The area near the entrance of the Hike and Bike Trail is favorable for adding low-cost educational signage to inform visitors about composting facts, etc.

5.0 SATELLITE SITES FOR ORGANIC PRODUCTS

This section reviews several locations that may be utilized as satellite locations for distribution of leaf compost, mulch, wood chips and other compost products that may be generated by the Borough's organics management program.

5.1 Organic Products Definitions

The organic products that may be stockpiled or generated at the WWTP yard waste drop-off and composting facility may include the following:

Mulch - A protective covering, usually of organic matter such as leaves, straw, or peat, placed around plants to prevent the evaporation of moisture, the freezing of roots, and the growth of weeds.

Compost - A mixture of decaying organic matter, as from leaves and manure, used to improve soil structure and provide nutrients to soil.

Woodchips - Typically produced by a wood chipper or woody waste grinding equipment, woodchips or grindings are commonly used as a protective covering or mulch. Woodchips serve as a "bulking agent" in composting processes to increase porosity or air space and/or to add carbon content to the compost mixture.

Leaves - Defined here to clarify that mechanically ground leaves that have not undergone biological decomposition retain mulch-like properties. The high carbon content of leaves binds their nutrients until composting occurs over time and may not be optimal for agronomic use because supplemental nitrogen is required when leaves are land applied. Decomposed leaves, typically after 6 to 12 months of decomposition become leaf compost, which is valuable as a soil amendment.

Vermicast or worm castings - Worm humus or worm manure produced by worms, containing water-soluble nutrients and bacteria, serves as a nutrient-rich organic fertilizer and soil conditioner.

5.2 Organic Product Satellite Sites and Potential Outlets

On an ongoing basis, the program flexibility will be critical to effectively collect and manage incoming and outgoing materials for the curbside leaf program, yard waste drop-off and vermicomposting operation. As part of program flexibility, it will be important to maintain operating space on this undersized site. GF identified several "satellite sites" and organizational contacts that the Borough should explore as outlets for using and distributing organic materials. Based on GF's investigations, some satellite sites and contacts for distributing organic products may include:

Mansfield University (MU) - MU is willing to accept materials for landscaping projects and currently purchases extensive amounts of mulch from a private supplier. MU uses top dressing now, but there are no vegetable or other gardening applications present on campus. Mansfield Borough has applied some Borough leaves on a University property along Newtown Hill near their soil spoil pile as an emergency outlet for material. MU has the greatest demand for mulch material from March through mid-May prior to commencement in May. MU would accept mulch and leaf compost provided it was free of debris. MU could benefit from mulch and possibly other organics products if the products meet MU needs. A competitive price structure for material could save MU money, while generating income for the Borough. MU indicated they will provide mulch quantities to the Borough if suitable mulch is available.

PSU Cooperative Extension in Tioga County & Master Gardner's program -

Jeff Himes is willing to be a point of contact with the Borough to assist in the distribution of organic products including mulch and compost. Jeff is involved or associated with several area programs that may be benefited by products generated by the WWTP yard waste processing and composting operation. Two local programs include:

Jeffrey J. Himes
Community Development &
Rural Leadership Educator
PSU Cooperative Extension
in Tioga County
118 Main Street
Wellsboro, PA 16901

- **Colegrove Park** -Master Gardeners take care of landscaping and a very small garden. Quantities needed are very limited.
- **Wellsboro Gardening Club** - various gardening projects including the Tioga County Fairgrounds which requires mulch for site preparation each year.

Richmond Township Municipal Building - Located within two miles of the compost operation, the Township municipal yard appears to have an area suitable to stockpile small quantities of mulch and compost for pickup by residents. The other municipalities participating in the drop-off programs (including Richmond, Putnam and Covington Townships) are logical follow-ups. Municipalities likely have one or more areas where small quantities of compost and mulch products could be made available to residents periodically.

Land Application Sites for Leaves - The Borough is located in a rural area where farms are present. In the past, local farms have been used for biosolids management. Local farms can also be a valuable outlet for leaves by providing a solution for a leaf disposal problem. This may be particularly valuable to the Borough since the area available to manage curbside collected leaves is small and will be reduced or eliminated by vermicompost operations. Land application of municipally collected leaves increases soil organic matter content, and improves soil tilth and water holding capacity. Chemical analysis of municipal leaves shows that leaves contain a variety of valuable crop nutrients including nitrogen, phosphorus, potassium and other nutrients. Because

of the high carbon content relative to nitrogen content, the nitrogen in leaves is not immediately available to crops and typically fertilizer is added to meet the deficiency.

Land application of yard waste to farmland requires completion and approval of a very simple PADEP Land Application Yard Waste Form (see **Appendix A**). The Form is included under the Permit-By-Rule Guidelines for Municipal Yard Waste Compost Facilities. The Borough should establish good relationships with one or more local farms, including: education on the benefits and best practices for leaf utilization; support in completing the Land Application Form; ongoing assurance that incoming material is free of unwanted material; and possible payment to the farmer for processing as further incentive to participate. When approving farms for land application, the source (e.g. generating municipality) of the leaf waste must be identified. The Township will need to follow up with local farms to investigate this option further.

Gas Well Drilling and other Site Remediation Applications – Located in a region prominent with Marcellus Shale formations, Tioga County’s natural gas drilling is increasing. If overflow material volumes warrant, the Borough could explore the use of compost products for site remediation needs for companies engaged in natural gas well drilling or other activities that scar the landscape.

6.0 COOPERATIVE EFFORT BETWEEN MANSFIELD UNIVERSITY, PSU COOPERATIVE EXTENSION, AND THE BOROUGH

Based on GF’s research, it was determined that there is an opportunity to develop a cooperative arrangement with Mansfield University, the PSU Cooperative Extension of Tioga County, and the Borough of Mansfield. It initially appears that there are needs and benefits that could be shared among all three parties, ultimately contributing to the long term success and economic sustainability of the Borough’s organics program. Some components of this cooperative concept could include:

Mansfield University

- Development and management of organic gardens on University Property including utilization of Borough-generated organic products and fertilizer (e.g. vermicast). Produce grown in these gardens could be utilized by the University’s food services, the student-run soup kitchen, or be made available to the local community food banks.
- Curriculum integrating hands-on gardening, lab testing, and pilot studies to investigate plant growth, organic soils, compost techniques, etc.
- Student internships at the Borough WWTP and Vermicompost facility.

PSU Cooperative Extension (Tioga)

- Conduct site visits to the University and/Borough WWTP for children, groups, and participants in the Master Gardener's program.
- As available, access to compost products for local programs.

Mansfield Borough WWTP and Organics Program

- Supply MU organic products that could include mulch, compost and vermicompost for use by MU on gardens for free or at a cost-competitive rate.
- Offer products to MU for lab testing and integration into other curriculum and internships.
- Utilize MU to complete periodic testing of feedstocks and finished compost products.
- Provide intern opportunities to MU students. This would be mutually beneficial by having a local internship with valued hands on learning while at the same time giving the Borough access to low-cost labor to meet operational needs of its facility.
- Utilize this cooperative arrangement as part of a comprehensive marketing strategy. This positive arrangement between MU and the Borough would be made public, and the visibility could improve the marketing of finished compost products by the Borough as well as market the university as having hands-on "green" opportunities. As the program evolves, students may even be able to assist with other product development and marketing tasks, including development of marketing materials (educational brochures, labels, etc.) and arrangements with end users for bagged vermicompost.

7.0 CONCLUSIONS AND RECOMMENDATIONS

7.1 Conclusions

Although the focus of this evaluation was curbside leaf collection, brush processing and non-biosolids organics management, these programs are integrated with and impacted by WWTP activities and the new vermicompost facility. Over the next two years, the Borough staff will need to make operational adjustments in a variety of areas to meet the demands of the new WWTP upgrades and to successfully implement the new vermicompost facility. The ability to manage the WWTP in conjunction with leaf waste collection and organics composting programs will be challenging, particularly due to the space limitations of the WWTP property. It is a good time to think outside of the

compost bin and utilize a variety of approaches and resources to assure a sustainable operation. For example, Mansfield University (MU) appears to be an untapped resource that could be vital to the long-term sustainability of the Borough's organics management program. Based on site observations and other information obtained during this evaluation, some primary conclusions include:

- The curbside leaf waste vacuum that is currently borrowed from the NTSWA is old, and frequent mechanical failures lead to an inability to collect leaves on schedule. The impact on labor utilization for other necessary tasks caused by these mechanical failures will be magnified in upcoming years due to additional staff responsibilities. New leaf waste equipment technologies have emerged that will improve collection efficiency and reliability. Notably, a Class A CDL license is required for some "self-contained" units that offer some collection advantages but Borough staff have only have Class B CDL licenses.
- The space limitations of the existing footprint of the WWTP restrict the efficient flow and processing of materials and may increase the potential for cross-contamination by biosolids of organics feedstocks and finished products. Brush grinding occurs frequently in order to limit accumulation that impacts operations. With operating space at a premium, it is imperative to move some non-biosolids organics management outside of the fenced area of the WWTP. The area historically used for static pile leaf composting has been lost to the vermicompost building and associated activities.
- The current procedure to allow residents to pass through the gated entrance of the WWTP to drop off brush and to pick up mulch and compost is a security and safety hazard. Although the WWTP area will be used to distribute some compost products, the proposed area outside the WWTP should be used to manage organics to the extent feasible.
- The Borough currently lacks a variety of offsite locations to accept leaves, leaf compost and mulch products, which hampers operational flexibility that could benefit from the ability to distribute material off site quickly when necessary. Several offsite "satellite locations" including several participating municipalities are available to distribute finished compost products and could benefit from free or low cost organic material. Residents will continue to use organic materials made available for pick up at the WWTP.
- Mansfield University (MU) currently purchases mulch for landscaping activities. A mutually-beneficial relationship and opportunity exists that has not been pursued thoroughly between MU and the Borough. This relationship requires planning and a vision, but could become vitally important for improved marketing, access to cost-effective labor, enhanced school curriculum and internships, plus a host of other shared benefits.

- The Borough has access to a .15 acre area located along the access road within sight of the WWTP facility that is a feasible location for non-biosolids organics management. This area currently contains debris and unused equipment, but site preparation as an area to manage some organics is feasible. The proposed organics management area is near the entrance of the public “Hike and Bike Trail”, which is owned by the Army Corp of Engineers. The Hike and Bike Trail and parking for the trail must remain available to the public, which does complicate the ability to limit access to the proposed organics management area.

7.2 Recommendations

The following recommendations take into account that WWTP upgrades and the new vermicompost operation will require additional labor hours from Borough staff. Consequently, operational methods that minimize double handling of materials, increase processing rates and capacity, improve material flow and optimize labor utilization are necessary to balance these new demands. As summarized, GF recommends the Borough:

Leaf Collection Equipment

- With the understanding that tow-behind leaf equipment provided by the NTSWA requires frequent repairs and stops collection, it is recommended the Borough procure new leaf waste collection equipment. This equipment should be owned and operated by the Borough and will improve leaf collection and overall labor utilization. The Borough should recognize over the life and utilization of leaf equipment (say 10 years), the capacity of the leaf box makes a substantial difference in labor utilization due to the frequency of unloading. The 14-cubic-yard leaf boxes like those currently utilized require much more time, labor and cost than larger (e.g. 20 or 25 cubic yard) leaf boxes. Of the equipment reviewed, GF recommends the 25-cubic-yard self-contained unit from ODB (Model SCL800TM25). The cost is approximately \$27,000 delivered. Operating the self contained units requires a Class A CDL license.

If the Borough does not have a person certified with a Class A CDL license, the tow-behind unit, model # LCT 650 (~\$18,700 delivered), is the recommended alternate because of its belt drive system, left and right vacuum capability, and dust filtration system. A 20-cubic-yard box is recommended with this configuration provided a suitable sized dump bed is available. The Borough should submit for Act 101, Section 902 Grant funding to offset the cost of leaf collection equipment. It is noted that Act 101 Grant Funding at this time is very limited and PADEP can and may limit funding for leaf waste collection equipment based on funding ability.

Proposed Organics Management Area

- **Site Preparation.** Complete the site development needed to develop the proposed organics management area along the access road to the WWTP. As illustrated in the Architectural Renderings at the end of this Report, site preparation should include:
 - Removal of all excess dirt, rock, debris and equipment.
 - Removal of the existing millings pile.
 - Addition of signage to notify the public of the drop-off and pick up area procedures, operating hours, dumping penalties, etc.
 - **Manage site access.** Chain and ballard system or gate along the WWTP access road to manage access by vehicles to the site. The chain or gate is recommended to:
 - Control access when heavy equipment, including the grinder is being utilized to promote safe operating procedures.
 - Restrict access to the proposed drop-off area and WWTP when these areas are closed to the public in accordance with an operating schedule. Restricting vehicle access will deter illegal dumping and to improve the overall public safety and protection of the WWTP facility and assets.
 - Because public access is must remain open to the Army Corp of Engineers Hike and Bike Trail, the chain system will primarily be used to restrict unsafe drop-off and pick-up of organics by visitors, particularly when heavy equipment is in use. Orange plastic cones should be used to temporarily close the proposed organics area when it is not open to the public.
 - **Public education signage.** In line with the future vision that this facility should evolve to be an education resource and be visited by the public, educational signage about composting should be placed at the western edge of the site near the entrance of the Hike and Bike Trail as a final step in the site preparation.
 - **Investigate DCNR matching funds.** The Borough should investigate the Department of Conservation and Natural Resources (DCNR) community conservation partnership program (C2P2) that provides matching grant funds for land acquisition and site development for parks, recreational facilities and trails. Army Corp of Engineers could have financial assistance as part of maintaining its Hike and Bike Trail.

- **Confirm Organics Area Function.** Once completed, begin using the proposed area to:
 - Stockpile brush
 - Stockpile leaves
 - Process/grind brush (during times when visitor access is restricted using the proposed chain system and operating schedule)
 - If feasible, distribution of some of the leaf compost that has not been in contact with biosolids.
- **Develop an Hours of Operations Schedule for the organics management area.** It is recommended a schedule be developed and posted and followed to improve visitor oversight to prevent open access to the proposed drop-off area or to the WWTP area. Limit access to the site when brush grinding occurs and/or during times when the WWTP and/or composting operations are very active and would be interrupted by an inflow of customers. Prohibit drop-off and pick up of materials on at least one day during the WWTP operating days to allow staff to safely process (e.g brush grinding) and manage material using heavy equipment (piling, relocation, organizing, etc). A visitor schedule will improve the staff's ability to anticipate and handle residents on days when access is permitted. It will assure periodic operating days without fewer visitor interruptions and safety concerns. The public should be notified of the schedule through on site signage plus other forms of notification and media.
- At this time, it is not recommended that finished biosolids compost (for distribution or pick up) be moved to the proposed organics management area. It is understood a pad and leachate drainage system will be developed in the WWTP area for biosolids compost. Leachate management requirements for biosolids compost require collection, storage and disposal or treatment, which would require the development of an impervious surface and/or a cover system plus a leachate management conveyance system that may be cost prohibitive for the proposed area. Biosolids compost placed near other non-biosolids organics material and/or processes may create a risk of cross-contamination.

A New Vision: Diversify Organic Outlets and Marketing Opportunities

- **Diversify outlets for organics** to increase material management and operational flexibility and to foster market opportunities, which eventually could include revenues for sale of some finished organic products. Contact the following entities to develop satellite sites to serve as outlets for organic products:
 - Richmond, Putman, and Covington Townships
 - PSU Cooperative Extension (Tioga County)

- Mansfield University
- Local farms – land application sites for leaves (See Land Application Form in **Appendix A**)
- Site remediation (e.g. Marcellus Shale activities).
- **Engage Mansfield University.** By the second quarter of 2010, initiate dialogue with MU and the PSU Cooperative Extension (Tioga County) to develop a future planning vision for organics management in the region (Refer to section 5.0 for details). Some core concepts of this vision include:
 - Distribution (possible sale) of mulch and possibly other organic products to MU.
 - Development of hands-on educational activities (e.g. organic gardening), curriculum, and internships for students through cooperative arrangements with the Borough and MU.
 - WWTP, and compost facility and University tours and similar activities coordinated with the PSU Cooperative Extension and Master Gardeners Program and others.
- **Program Sustainability:** Develop a mutually-beneficial arrangement to engage and educate students with practical/working knowledge while serving as a valued labor and technical resource. Students can help a local public operation to cost-effectively manage operations and market finished compost products while obtaining invaluable hands-on experience and school credits. The heightened visibility of this arrangement may yield many economic benefits, including finished product marketing options and possibly create access to grant subsidies.

FIGURES
Existing & Proposed Organics Management Areas
Architectural Renderings (proposed organics management area)



Existing Condition - Proposed Organics Management Area



Rendering of Proposed Brush Stockpile Area



**NO
DUMPING**

This area is monitored
by cameras.

Violators subject to a
\$300 fine.

Home Depot's Yard
Waste Recycling
Program

Rendering of Proposed Yard Waste / Compost Area

APPENDIX A
Land Application Yard Waste Form

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF LAND RECYCLING AND WASTE MANAGEMENT

LAND APPLICATION OF YARD WASTE FORM

Please familiarize yourself with the Pennsylvania Department of Environmental Protection GUIDELINES FOR LAND APPLICATION OF YARD WASTE prior to filling out this form.

1. Sponsoring Municipality or County (Name and Mailing Address) Telephone Number

- 2 Name of Farm _____ Contact Telephone Number _____

Contact Person at Farm _____

Property Owner's Name _____

Address of Farm _____

(Include Access Road Name and Legislative Number)

State _____ Zip Code _____

City-Borough-Township _____

County _____

Attach a U.S.G.S. 7.5 map identifying the yard waste site boundaries outlined on it.

3. Total acres of farm land application area. _____

4. Volume of yard waste to be received annually in cubic yards. _____

5. Prepare and include in this application a general site plan* for the facility which illustrates the location of the following items: access roads in relation to the nearest public road

tipping area

surface water controls (tipping area only)

fields proposed for land application.

** Please note that a hand drawn sketch which includes site dimensions is acceptable. An engineer's drawing is not required.*

6. Please address the following items:

- A complete list source(s) of yard waste to be received.
- Describe the method for inspecting incoming yard waste.
- Describe the plan for rejecting or disposing of unacceptable materials and residuals.

- Provide the name and location of the disposal or processing site for unacceptable materials and residuals.
- Attach the farm soil conservation plan and nutrient management plan.
- Describe the volume of yard waste processed during the previous year or expected to be processed during the first year of operation.
- Please provide an operational narrative which includes a description of each of the following:
 - Operational hours for receiving yard waste
 - Land application and incorporation frequency
 - Plan for removal of yard waste from bags
 - Spreading and incorporation methods and frequency
 - Source of leaves and grass clippings.

APPENDIX B
Equipment Specifications/Pricing



Municipal Products Since 1910



MODEL LCT60C

One (1) ODB Vacuum Leaf collector model LCT60C (left or right side pickup)

- Quality tab and slot construction technique used throughout the manufacturing process
- Quality nylon nuts & bolts and stainless steel rivets used throughout
- Rear inlet suction housing is constructed out of 10-gauge steel
- Replaceable slip-in 1/4" thick abrasion resistant steel liners
- Clean-out door with engine safety switch
- 16" diameter x 48" long rubber discharge hose capable of telescoping up to 24"
- 32" diameter suction impeller with six 3/8" thick T-1 steel blades
- Suction impeller is driven directly from the engine PTO
- Suction hose: 16" diameter x 10' long stored toward the front of the unit
- 90° reversible inlet elbow for left/right pickup and has an engine safety switch
- Hydraulic overhead boom with dual sockets powered by an electric/hydraulic pump
- John Deere 4045T Tier 3; turbo charged 4.5 liter diesel engine 84 HP (two year warranty)
- 13" clutch with side load PTO equipped with a hydraulic safety engagement system
- Fully enclosed custom engine compartment with louvered doors
- 12-volt battery and a remote oil drain
- 40-gallon cross-link polyethylene fuel tank with sight gauge
- Trash style engine radiator
- Hinged secondary radiator screen constructed from 1" expanded metal & 1/8" hardware cloth
- Illuminated controls; tachometer, hour meter, ammeter, temperature & oil pressure gauge
- High temperature / low oil pressure engine safety shutdown system
- LED indicator lights to show what function caused the engine to shutdown
- State of the art circuit board technology for all electrical functions
- Trailer is formed 1/4" thick steel with channel members on the ends for additional support
- Single rubber Torflex axle with EZ lubes hubs and a rating of 6,000 pounds
- Two (2) ST225-75R15 radial tires mounted on white spoke wheels with steel fenders
- Electric trailer brakes on all wheels and a breakaway actuator
- 4" x 5" Telescopic trailer tongue that slides into a full-length receiver tube
- H.D. height adjustable pintle eye with three quick release pins requiring no tools
- Parking jack with 5" swivel castor wheel
- Rake and tool rack
- DOT trailer lights (LED) and an amber LED flasher light in rear
- All components pre-painted with Sikken paint – main unit: Customer choice of color

Price per unit: \$17,600.00

Options:

1. Hydraulic front parking jack in lieu of manual jack, \$1,275.00
2. Remote electric throttle for engine, \$675.00
3. Fluid drive coupler in lieu of clutch and PTO, \$3,350.00
4. Urethane suction hose in lieu of rubber, DEDUCT (\$300.00)
5. John Deere 4045T 99 HP diesel engine, \$2,600.00
6. LCB500 Leaf box 8' long, \$3,950.00 (add \$175 for each additional foot)





Municipal Products Since 1910



MODEL LCT600

One (1) **ODB** Vacuum Leaf loader model LCT600

- Quality tab and slot construction technique used throughout the manufacturing process
- Quality nylon nuts & bolts and stainless steel rivets used throughout
- 40° rotated housing is constructed out of 10-gauge steel
- Replaceable slip-in ¼" thick abrasion resistant steel liners
- Clean-out door with engine safety switch
- 16" diameter x 48" long rubber discharge hose capable of telescoping up to 24"
- 32" diameter suction fan with six 3/8" thick T-1 steel blades
- Impeller supported by a 2.25" dia. shaft and two 2-1/4" diameter 4 bolt roller flange bearings
- 4B grip-notched Kevlar power band belt drive for suction fan
- Suction hose: 16" diameter x 10' long stored toward the front or rear of the unit
- Suction hose has quick disconnect with engine safety switch
- Bearing mounted hydraulic overhead boom powered by an electric/hydraulic pump
- John Deere 4045T Tier 3; turbo charged 4.5 liter diesel engine 84 HP (two year warranty)
- 13" clutch with side load PTO equipped with a hydraulic safety engagement system
- 12-volt battery mounted in trailer bed
- 40-gallon cross-link polyethylene fuel tank with sight gauge
- Hinged secondary radiator screen constructed from 1" expanded metal & 1/8" hardware cloth
- Illuminated tachometer, hour meter, ammeter, temperature & oil pressure gauge
- High temperature / low oil pressure engine safety shutdown system
- LED indicator lights to show what function caused the engine to shutdown
- State of the art circuit board technology for all electrical functions
- Trailer is formed 1/4" thick steel with channel members on the ends for additional support
- Single rubber Torflex axle with EZ lube hubs and a rating of 6,000 pounds
- ST225-75R15 radial tires mounted on white spoke wheels with steel fenders
- Electric brakes with a breakaway actuator
- 4" x 5" Telescopic trailer tongue that slides into a full-length receiver tube
- H.D. height adjustable pintle eye with three quick release pins requiring no tools
- Parking jack with 5" swivel castor wheel
- DOT trailer lights LED and an amber LED flasher light in rear
- Rake and tool rack
- All components pre-painted with Sikken paint – main unit: Customer choice of color

Price per unit: \$18,700.00

Options:

1. 2 axis (up/dn & left/right) hose boom with central hydraulic system, \$6,325.00
2. 3 axis (up/dn; left/right & in/out hose boom) w/central hydraulic system, \$9,100
3. Hydraulic front parking jack in lieu of manual jack, \$1,275.00
4. Urethane suction hose in lieu of rubber, DEDUCT (\$300.00)
5. Remote electric throttle for engine, \$675.00
6. Fluid drive coupler in lieu of clutch and PTO, \$3,350.00
7. John Deere 4045T 99 HP diesel engine, \$2,600.00
8. Driver's side pick up, 1,825.00
9. LCB500 Leaf box 8' long, \$3,950.00 (add \$175 for each additional foot)





Municipal Products Since 1910

MODEL LCT600CN



One (1) **ODB** Vacuum Leaf loader model LCT600CN

- Quality tab and slot construction technique used throughout the manufacturing process
- Quality nylon nuts & bolts and stainless steel rivets used throughout
- 40° rotated housing is constructed out of 10-gauge steel
- Replaceable slip-in ¼" thick abrasion resistant steel liners
- Clean-out door with engine safety switch
- 16" diameter x 48" long rubber discharge hose capable of telescoping up to 24"
- 32" diameter suction fan with six 3/8" thick T-1 steel blades
- Impeller supported by a 2.25" dia. shaft and two 2-1/4" diameter 4 bolt roller flange bearings
- 4B grip-notched Kevlar power band belt drive for suction fan
- 34" wide curb nozzle for passenger side pick up
- Curb nozzle raise and lowers hydraulically
- John Deere 4045T Tier 3; turbo charged 4.5 liter diesel engine 84 HP (two year warranty)
- 13" clutch with side load PTO equipped with a hydraulic safety engagement system
- 12-volt battery mounted in trailer bed
- 40-gallon cross-link polyethylene fuel tank with sight gauge
- Hinged secondary radiator screen constructed from 1" expanded metal & 1/8" hardware cloth
- Illuminated tachometer, hour meter, ammeter, temperature & oil pressure gauge
- High temperature / low oil pressure engine safety shutdown system
- LED indicator lights to show what function caused the engine to shutdown
- State of the art circuit board technology for all electrical functions
- Trailer is formed 1/4" thick steel with channel members on the ends for additional support
- Single rubber Torflex axle with EZ lube hubs and a rating of 6,000 pounds
- ST225-75R15 radial tires mounted on white spoke wheels with steel fenders
- Electric brakes with a breakaway actuator
- 4" x 5" Telescopic trailer tongue that slides into a full-length receiver tube
- H.D. height adjustable pintle eye with three quick release pins requiring no tools
- Parking jack with 5" swivel castor wheel
- DOT trailer lights LED and an amber LED flasher light in rear
- Rake and tool rack
- All components pre-painted with Sikken paint – main unit: Customer choice of color

Price per unit: \$19,900.00

Options:

1. John Deere 4045T 99 HP diesel engine, \$2,500.00
2. Hydraulic front parking jack in lieu of manual jack, \$1,275.00
3. Remote electric throttle for engine, \$675.00
4. Fluid drive coupler in lieu of clutch and PTO, \$3,350.00
5. Hydraulic agitator for curb nozzle, \$1,825.00
6. Driver's side pick up, 1,825.00
7. Rotary self-cleaning radiator screen, \$1,525.00
8. LCB500 Leaf box 8' long, \$3,950.00 (add \$175 for each additional foot)





Municipal Products Since 1910



MODEL LCT650

One (1) ODB Vacuum Leaf collector model LCT650 (left or right side pickup)

- Quality tab and slot construction technique used throughout the manufacturing process
- Quality nylon nuts & bolts and stainless steel rivets used throughout
- Rear inlet suction housing is constructed out of 10-gauge steel
- Replaceable slip-in 1/4" thick abrasion resistant steel liners
- Clean-out door with engine safety switch
- 16" diameter x 48" long rubber discharge hose capable of telescoping up to 24"
- 32" diameter suction impeller with six 3/8" thick T-1 steel blades
- Impeller supported by a 2.25" dia. shaft & two 2-1/4" dia. 4 bolt roller flange bearings
- 4B grip-notched Kevlar power band belt drive for suction fan (1:1 drive ratio)
- Suction hose: 16" diameter x 10' long stored toward the front of the unit
- 90° reversible inlet elbow for left/right pickup and has an engine safety switch
- Hydraulic overhead boom with dual sockets powered by an electric/hydraulic pump
- John Deere 4045T Tier 3; turbo charged 4.5 liter diesel engine 84 HP (two year warranty)
- 13" clutch with side load PTO equipped with a hydraulic safety engagement system
- Fully enclosed custom engine compartment with sliding hinged louvered doors
- 12-volt battery and a remote oil drain
- 40-gallon cross-link polyethylene fuel tank with sight gauge
- Trash style engine radiator with a bottom hinged secondary radiator screen
- Illuminated controls; tachometer, hour meter, ammeter, temperature & oil pressure gauge
- High temperature / low oil pressure engine safety shutdown system
- LED indicator lights to show what function caused the engine to shutdown
- State of the art circuit board technology for all electrical functions
- Emergency engine kill buttons on both sides of the unit
- Trailer is formed 1/4" thick steel with channel members on the ends for additional support
- Tandem rubber Torflex axles with EZ lube hubs and a combined rating of 9,000 pounds
- Four (4) ST225-75R15, radial tires mounted on white spoke wheels with steel fenders
- Electric trailer brakes on all wheels and a breakaway actuator
- 4" x 5" Telescopic trailer tongue that slides into a full-length receiver tube
- H.D. height adjustable pintle eye with three quick release pins requiring no tools
- Parking jack with 5" swivel castor wheel
- DOT trailer lights LED and an amber LED flasher light in rear
- All components pre-painted with Sikken paint – main unit: Customer choice of color

Price per unit: \$20,725.00

Options:

1. Hydraulic front parking jack in lieu of manual jack, \$1,275.00
2. Remote electric throttle for engine, \$675.00
3. Fluid drive coupler in lieu of clutch and PTO, \$3,350.00
4. John Deere 4045T 99 HP diesel engine, \$2,600.00
5. Rotary self-cleaning radiator screen, \$1,525.00
6. LCB500 Leaf box 8' long, \$3,950.00 (add \$175 for each additional foot)





Municipal Products Since 1910



MODEL LCT6000

One (1) ODB Vacuum Leaf loader model LCT6000

- Quality tab and slot construction technique used throughout the manufacturing process
- Quality nylon nuts & bolts and stainless steel rivets used throughout
- 40° rotated housing is constructed out of 10-gauge steel
- Replaceable slip-in 1/4" thick abrasion resistant steel liners
- Clean-out door with engine safety switch
- 18" diameter x 60" long rubber discharge hose capable of telescoping up to 24"
- 38" diameter suction fan with six 3/8" thick T-1 steel blades
- Impeller supported by a 2-15/16" dia. shaft and two 2-15/16" diameter 4 bolt roller flange bearings
- 5 groove grip-notched Kevlar power band belt drive for suction fan
- Suction hose: 18" diameter x 10' long stored toward the front of the unit
- Suction hose has quick disconnect with engine safety switch
- Bearing mounted hydraulic overhead boom powered by an electric/hydraulic pump
- John Deere 4045T Tier 3; turbo charged 4.5 liter diesel engine 99 HP (two year warranty)
- 13" clutch with side load PTO equipped with a hydraulic safety engagement system
- 12-volt battery mounted in trailer bed
- 40-gallon cross-link polyethylene fuel tank with sight gauge
- Hinged secondary radiator screen constructed from 1" expanded metal & 1/8" hardware cloth
- Illuminated tachometer, hour meter, ammeter, temperature & oil pressure gauge
- High temperature / low oil pressure engine safety shutdown system
- LED indicator lights to show what function caused the engine to shutdown
- State of the art circuit board technology for all electrical functions
- Trailer is formed 1/4" thick steel with channel members on the ends for additional support
- Single rubber Torflex axle with EZ lube hubs and a rating of 6,000 pounds
- ST235-80-R16 radial tires mounted on steel wheels with steel fenders
- Electric brakes with a breakaway actuator
- 4" x 6" Telescopic trailer tongue that slides into a full-length receiver tube
- H.D. height adjustable pintle eye with three quick release pins requiring no tools
- Parking jack with 5" swivel castor wheel
- DOT trailer lights LED and an amber LED flasher light in rear
- Rake and tool rack
- All components pre-painted with Sikken paint – main unit: Customer choice of color

Price per unit: \$27,200.00

Options:

1. 2 axis (up/dn & left/right) hose boom with central hydraulic system, \$6,325.00
2. 3 axis (up/dn; left/right & in/out hose boom)w/central hydraulic system, \$9,100
3. Hydraulic front parking jack in lieu of manual jack, \$1,275.00
4. Curb nozzle attachment with hydraulic raise & lower, \$1,500.00
5. Hydraulic agitator for curb nozzle, \$1,825.00
6. Remote electric throttle for engine, \$675.00
7. Rotary self-cleaning radiator screen, \$1,525.00
8. Fluid drive coupler in lieu of clutch and PTO, \$3,350.00
9. Driver's side pick up, 1,825.00
10. LCB500 Leaf box 8' long, \$3,950.00 (add \$175 for each additional foot)





Municipal Products Since 1910

MODEL SCL800TM14



One (1) ODB Self-contained Vacuum Leaf loader model SCL800TM14

- Quality tab and slot construction technique used throughout the manufacturing process
- Quality nylon nuts & bolts and stainless steel rivets used throughout
- Blower housing is constructed out of 10-gauge steel
- Replaceable slip-in ¼" thick abrasion resistant steel liners
- Clean-out door with engine safety switch
- Adjustable transition from blower housing to receiver box
- 32" diameter suction fan with six 3/8" thick T-1 steel blades
- Suction fan is driven directly from the engine PTO
- Suction hose: 16" dia. x 100" long stored toward the front of the unit
- Suction hose is connected to a barrel style inlet that incorporates two flange bearings
- Bearing supported hydraulic overhead boom powered by an electric/hydraulic pump
- John Deere 4045T Tier 3; turbo charged 4.5 liter diesel engine 84 HP (two year warranty)
- 13" clutch assembly with a 2-1/4" diameter PTO with safety engagement PTO system
- Hinged secondary radiator screen constructed from 1" expanded metal & 1/8" hardware cloth
- 40-gallon polyethylene fuel tank
- Illuminated tachometer, hour meter, ammeter, temperature & oil pressure gauge
- High temperature / low oil pressure engine safety shutdown system
- LED indicator lights to show what function caused the engine to shutdown
- State of the art circuit board technology for all electrical functions
- Fully enclosed custom engine compartment with removable front & rear louvered doors
- Trailer mainframe is constructed from 3" x 8" structural tubing
- Hopper is constructed out of 12-gauge steel with channel cross members connecting the sides
- Hopper capacity is 14 cubic yards
- Top of the hopper is equipped with replaceable exhaust screens
- Rear doors are side hinged for easy access into the hopper
- Hopper has a 15.2 ton capacity double acting hydraulic dumping hoist that tips to 52°
- A hydraulic pump coupled to the auxiliary drive of the engine powers hydraulic hoist
- Single tired rubber Torflex tandem axles rated for 16,000 pounds support trailer
- Four (4) ST235-80-R16 radial tires mounted on steel wheels
- Electric brakes on all wheels with a breakaway actuator
- 6" x 6" square tubing trailer that slides into a receiver tube
- H.D. height adjustable pintle eye with three quick release pins requiring no tools
- Manual parking jack with drop footpad
- DOT trailer lights LED and an amber LED flasher light in rear
- Manuals on cd-rom and hard copy along with training video
- All components pre-painted with Sikken paint – main unit: Customer choice of color
- Trailer frame, tongue and underside of hopper painted: Gloss Black

Price per unit: \$28,400.00

Options:

1. Belt drive for suction impeller, \$2,775.00
2. BE Series (bottom exhaust) redirects exhausted air to ground, \$6,100.00
3. Air scoop for top of hopper to redirect exhausted air towards rear, 2,600.00
4. 3 axis (up/dn; left/right & in/out hose boom) w/central hydraulic system, \$13,500.00
5. Hydraulic front parking jack in lieu of manual jack, \$1,275.00
6. Remote electric throttle for engine, \$675.00
7. John Deere 4045T 99 HP diesel engine, \$2,600.00
8. Fluid drive coupler in lieu of clutch and PTO, \$3,350.00
9. Rotary self-cleaning radiator screen, \$1,525.00





Municipal Products Since 1910

MODEL SCL800TM20



One (1) ODB Self-contained Vacuum Leaf loader model SCL800TM20

- Quality tab and slot construction technique used throughout the manufacturing process
- Quality nylon nuts & bolts and stainless steel rivets used throughout
- Blower housing is constructed out of 10-gauge steel
- Replaceable slip-in ¼" thick abrasion resistant steel liners
- Clean-out door with engine safety switch
- Adjustable transition from blower housing to receiver box
- 32" diameter suction fan with six 3/8" thick T-1 steel blades
- Suction fan is driven directly from the engine PTO
- Suction hose: 16" dia. x 100" long stored toward the front of the unit
- Suction hose is connected to a barrel style inlet that incorporates two flange bearings
- Bearing supported hydraulic overhead boom powered by an electric/hydraulic pump
- John Deere 4045T Tier 3; turbo charged 4.5 liter diesel engine 84 HP (two year warranty)
- 13" clutch assembly with a 2-1/4" diameter PTO with safety engagement PTO system
- Hinged secondary radiator screen constructed from 1" expanded metal & 1/8" hardware cloth
- 40-gallon polyethylene fuel tank
- Illuminated tachometer, hour meter, ammeter, temperature & oil pressure gauge
- High temperature / low oil pressure engine safety shutdown system
- LED indicator lights to show what function caused the engine to shutdown
- State of the art circuit board technology for all electrical functions
- Fully enclosed custom engine compartment with removable front & rear louvered doors
- Trailer mainframe is constructed from 3" x 8" structural tubing
- Hopper is constructed out of 12-gauge steel with channel cross members connecting the sides
- Hopper capacity is 20 cubic yards
- Top of the hopper is equipped with replaceable exhaust screens
- Rear doors are side hinged for easy access into the hopper
- Hopper has a 21.5 ton capacity double acting hydraulic dumping hoist that tips to 52°
- A hydraulic pump coupled to the auxiliary drive of the engine powers hydraulic hoist
- Dual tired tandem axles rated for 20,000 pounds support trailer
- Eight (8) 9.50 x 16.5 tires mounted on steel wheels
- Electric brakes on all wheels with a breakaway actuator
- 6" x 6" square tubing trailer that slides into a receiver tube
- H.D. height adjustable pintle eye with three quick release pins requiring no tools
- Manual parking jack with drop footpad
- DOT trailer lights LED and an amber LED flasher light in rear
- Manuals on cd-rom and hard copy along with training video
- All components pre-painted with Sikken paint – main unit: Customer choice of color
- Trailer frame, tongue and underside of hopper painted: Gloss Black

Price per unit: \$29,725.00

Options:

1. Belt drive for suction impeller, \$2,775.00
2. BE Series (bottom exhaust) redirects exhausted air to ground, \$6,100.00
3. Air scoop for top of hopper to redirect exhausted air towards rear, 2,600.00
4. 3 axis (up/dn; left/right & in/out hose boom) w/central hydraulic system, \$13,500.00
5. Hydraulic front parking jack in lieu of manual jack, \$1,275.00
6. Remote electric throttle for engine, \$675.00
7. John Deere 4045T 99 HP diesel engine, \$2,600.00
8. Fluid drive coupler in lieu of clutch and PTO, \$3,350.00
9. Rotary self-cleaning radiator screen, \$1,525.00





Municipal Products Since 1910

MODEL SCL800TM25



One (1) ODB Self-contained Vacuum Leaf loader model SCL800TM25

- Quality tab and slot construction technique used throughout the manufacturing process
- Quality nylon nuts & bolts and stainless steel rivets used throughout
- Blower housing is constructed out of 10-gauge steel
- Replaceable slip-in ¼" thick abrasion resistant steel liners
- Clean-out door with engine safety switch
- Adjustable transition from blower housing to receiver box
- 32" diameter suction fan with six 3/8" thick T-1 steel blades
- Suction fan is driven directly from the engine PTO
- Suction hose: 16" dia. x 100" long stored toward the front of the unit
- Suction hose is connected to a barrel style inlet that incorporates two flange bearings
- Bearing supported hydraulic overhead boom powered by an electric/hydraulic pump
- John Deere 4045T Tier 3; turbo charged 4.5 liter diesel engine 84 HP (two year warranty)
- 13" clutch assembly with a 2-1/4" diameter PTO with safety engagement PTO system
- Hinged secondary radiator screen constructed from 1" expanded metal & 1/8" hardware cloth
- 40-gallon polyethylene fuel tank
- Illuminated tachometer, hour meter, ammeter, temperature & oil pressure gauge
- High temperature / low oil pressure engine safety shutdown system
- LED indicator lights to show what function caused the engine to shutdown
- State of the art circuit board technology for all electrical functions
- Fully enclosed custom engine compartment with removable front & rear louvered doors
- Trailer mainframe is constructed from 3" x 8" structural tubing
- Hopper is constructed out of 12-gauge steel with channel cross members connecting the sides
- Hopper capacity is 25 cubic yards
- Top of the hopper is equipped with replaceable exhaust screens
- Rear doors are side hinged for easy access into the hopper
- Hopper has a 26.6 ton capacity twin cylinder double acting hydraulic dumping hoist that tips to 52°
- A hydraulic pump coupled to the auxiliary drive of the engine powers hydraulic hoist
- Dual tired tandem axles rated for 24,000 pounds support trailer
- Eight (8) 9.50 x 16.5 tires mounted on steel wheels
- Electric brakes on all wheels with a breakaway actuator
- 6" x 6" square tubing trailer that slides into a receiver tube
- H.D. height adjustable pintle eye with three quick release pins requiring no tools
- Manual parking jack with drop footpad
- DOT trailer lights LED and an amber LED flasher light in rear
- Manuals on cd-rom and hard copy along with training video
- All components pre-painted with Sikken paint – main unit: Customer choice of color
- Trailer frame, tongue and underside of hopper painted: Gloss Black

Price per unit: \$31,150.00

Options:

1. Belt drive for suction impeller, \$2,775.00
2. BE Series (bottom exhaust) redirects exhausted air to ground, \$7,200.00
3. Air scoop for top of hopper to redirect exhausted air towards rear, 2,600.00
4. 3 axis (up/dn; left/right & in/out hose boom) w/central hydraulic system, \$13,500.00
5. Hydraulic front parking jack in lieu of manual jack, \$1,275.00
6. Remote electric throttle for engine, \$675.00
7. John Deere 4045T 99 HP diesel engine, \$2,600.00
8. Fluid drive coupler in lieu of clutch and PTO, \$3,350.00
9. Rotary self-cleaning radiator screen, \$1,525.00





Municipal Products Since 1910

MODEL SCL800TM30



One (1) ODB Self-contained Vacuum Leaf loader model SCL800TM30

- Quality tab and slot construction technique used throughout the manufacturing process
- Quality nylon nuts & bolts and stainless steel rivets used throughout
- Blower housing is constructed out of 10-gauge steel
- Replaceable slip-in ¼" thick abrasion resistant steel liners
- Clean-out door with engine safety switch
- Adjustable transition from blower housing to receiver box
- 32" diameter suction fan with six 3/8" thick T-1 steel blades
- Suction fan is driven directly from the engine PTO
- Suction hose: 16" dia. x 100" long stored toward the front of the unit
- Suction hose is connected to a barrel style inlet that incorporates two flange bearings
- Bearing supported hydraulic overhead boom powered by an electric/hydraulic pump
- John Deere 4045T Tier 3; turbo charged 4.5 liter diesel engine 84 HP (two year warranty)
- 13" clutch assembly with a 2-1/4" diameter PTO with safety engagement PTO system
- Hinged secondary radiator screen constructed from 1" expanded metal & 1/8" hardware cloth
- 40-gallon polyethylene fuel tank
- Illuminated tachometer, hour meter, ammeter, temperature & oil pressure gauge
- High temperature / low oil pressure engine safety shutdown system
- LED indicator lights to show what function caused the engine to shutdown
- State of the art circuit board technology for all electrical functions
- Fully enclosed custom engine compartment with removable front & rear louvered doors
- Trailer mainframe is constructed from 3" x 8" structural tubing
- Hopper is constructed out of 12-gauge steel with channel cross members connecting the sides
- Hopper capacity is 30 cubic yards
- Top of the hopper is equipped with replaceable exhaust screens
- Rear doors are side hinged for easy access into the hopper
- Hopper has a 26.6 ton capacity twin cylinder double acting hydraulic dumping hoist that tips to 52°
- A hydraulic pump coupled to the auxiliary drive of the engine powers hydraulic hoist
- Dual tired tandem axles rated for 24,000 pounds support trailer
- Eight (8) 9.50 x 16.5 tires mounted on steel wheels
- Electric brakes on all wheels with a breakaway actuator
- 6" x 6" square tubing trailer that slides into a receiver tube
- H.D. height adjustable pintle eye with three quick release pins requiring no tools
- Manual parking jack with drop footpad
- DOT trailer lights LED and an amber LED flasher light in rear
- Manuals on cd-rom and hard copy along with training video
- All components pre-painted with Sikken paint – main unit: Customer choice of color
- Trailer frame, tongue and underside of hopper painted: Gloss Black

Price per unit: \$33,200.00

Options:

1. Belt drive for suction impeller, \$2,775.00
2. BE Series (bottom exhaust) redirects exhausted air to ground, \$7,200.00
3. Air scoop for top of hopper to redirect exhausted air towards rear, 2,600.00
4. 3 axis (up/dn; left/right & in/out hose boom) w/central hydraulic system, \$13,500.00
5. Hydraulic front parking jack in lieu of manual jack, \$1,275.00
6. Remote electric throttle for engine, \$675.00
7. John Deere 4045T 99 HP diesel engine, \$2,600.00
8. Fluid drive coupler in lieu of clutch and PTO, \$3,350.00
9. Rotary self-cleaning radiator screen, \$1,525.00

