Onondaga County Resource Recovery Agency
Compost Program

2011 SWANA COMPOSTING SYSTEMS
EXCELLENCE AWARD APPLICATION
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Executive Summary
Onondaga County Resource Recovery Agency’s (OCRRA) award winning compost program has helped our agency achieve an impressive recycling rate of 60% for 2010. Diverting thousands of tons of organic material from the waste stream and turning it into compost and mulch has made that accomplishment possible.

OCRRA’s composting program is the only municipal food waste program in New York State that produces a compost product certified by the US Composting Council’s Seal of Testing Assurance. It is also the only non bio-solid certified product in New York State.

OCRRA’s program is seen as a model not only by the NYS Department of Environmental Conservation, but also by private and municipal entities from all over the world. Over 20 Wal-Mart locations and one of New York State’s largest private academic institutions, Syracuse University, is now bringing their food waste to OCRRA. Food waste composting alone has diverted over 1,200 tons of food from the trash. OCRRA comports food wastes together with yard wastes to create a premium compost product, which is available for sale and distribution to residents and business at two Compost Sites.

Background
OCRRA is a non-profit public benefit corporation created by the New York State Legislature to manage the solid waste, or large amounts of trash, produced in Onondaga County. The organization is responsible for providing options for the safe disposal of garbage and the recycling of items that were once sent to a landfill. It is not an arm of County Government, nor does it receive tax support for its programs. OCRRA oversees 33 municipalities consisting of over 450,000 residents.

OCRRA operates two yard waste compost sites. The Jamesville compost site, located in Jamesville, NY, services the east, south and central portion of Onondaga County, while the Amboy compost site, located in Camillus, services the north and western portions of Onondaga County. The compost sites were established after yard and garden waste was banned from being disposed of as municipal solid waste in New York State in 1992.
1. Design of Composting System

In March 2007, OCRRA began a pilot food waste composting project at the Amboy compost site to collect pre-consumer food wastes from commercial and institutional entities. OCRRA uses the conventional windrow method for yard waste composting, but to handle food waste, the agency pursued a more efficient system. In December 2008, OCRRA initiated extended aerated static pile (EASP) composting. Pre-consumer food waste is usually generated during meal preparation at large institutions or at grocery stores. After arrival, the food waste is mixed at a 3-to-1 ratio with a bulking agent (yard waste and wood chips) and is placed on top of pipes and blowers, which allow air to circulate through the piles and create optimal conditions for decomposition (See Figure 1). The food waste mix is then covered with already finished compost, to help maintain the optimal temperature. The blowers are set on cycle timers and run for 3-5 minutes every 15-20 minutes. After the food waste has decomposed and has met all of the temperature and monitoring requirements, the finished compost is screened for use as a soil amendment. The entire process, including 20-30 days for curing takes approximating 60 to 90 days. This composting process is considered a form of waste recycling.

OCRRA processed 280 tons of food waste in 2009 and over 1,000 tons of food and food process wastes in 2010 on a minimal foot print, with minimal staffing and investment, and without any regulatory violations. OCRRA’s EASP system enables the agency to process both pre- and post-consumer foods, including meats, and is a valuable resource for the region’s waste diversion efforts. Now, OCRRA’s goal is to develop the Amboy site into an innovative, 13-acre Yard and Food Waste Composting Facility to cost-effectively optimize the region’s recycling and reuse opportunities. OCRRA projects that over 9,600 tons of institutional and commercial food waste will be processed at the facility annually by the year 2015. The project will serve as an environmentally sound, cost-effective model for replication by municipalities across New York State; and ultimately generate some 36,000 cubic yards of compost annually. Additionally OCRRA seeks to collect over 40,000 cubic yards of yard waste per year by 2015.

EASP is innovative and unique in comparison to conventional composting systems. EASP does not require large amounts of physical space as the windrow method does. The process of turning food waste to compost using EASP takes as little as 60 days as compared an average 9 to 12 months in a windrow. The system uses less fuel and equipment because the rows do not have to be turned. The New York State Department of Environmental Conservation (NYS DEC) has used our system as an example for other counties interested in composting.
The diagrams below show the EASP system as it is currently set up at the Amboy Compost site.

**Figure 1.** Location of the EASP piles in relation to the maintenance building, as well as the direction of drainage

Covered EASP system
Figure 2. Cross section of a pile with two different aeration zones
Figure 3. Position of the pipes and blowers underneath each pile.

View of piping and house that was build to cover blower.
System Merits
The EASP system has numerous advantages over traditional composting systems. It produces nominal odors when utilizing a finished compost as a cover layer, creates a high-quality “Class A” Compost and enables a facility to process maximum volumes on minimal physical space. EASP uses a fraction of the space and produces compost in a fraction of the time of traditional windrows and static turned piles. Because OCRRA believes this system to be superior to many other methods of composting food waste, the organization has committed to investing over $1.2 million over the next 3 years, to expand and develop the Amboy site to be a large scale institutional and commercial food waste composting facility, servicing much of the Central New York region and beyond.

OCRRA found that the EASP System developed by O² Compost has had many benefits and allowed the Agency to start small and then develop the system in larger planned increments.

EASP System Benefits
- **Leachate Management**: The system minimized the composting footprint and prevented environmental impacts of leachate. This was done by reducing material exposure and the space needed for traditional windrows and using forced aeration to control moisture content, thus minimizing the risk of generating leachate. During the pilot project, leachate did not appear to be a management issue due to the nature of positive aeration.
- **Odors and Vector Management**: During the pilot process OCRRA did not encounter any odor or vector issues. This was easily accomplished through Best Management Practices at the compost site which included the following elements: proper initial mix of compost materials, 3-to-1; positive aeration of the compost pile to maintain aerobic conditions; biofiltration of positive air discharge gases to digest any odorous compounds through 12 inches of finished compost; immediate processing of all wastes and incorporation into the aerated system; continual good housekeeping practices that minimize any sources of odor or vector attraction.
- **Operating Costs**: The EASP allowed OCRRA to reduce its energy/fuel costs by 50%; this was due to the reduction in fuel usage (not turning a pile 5 times in 14 days). The system also reduced OCRRA’s labor and equipment maintenance costs through the reduction in handling.
- **GHGs**: Greenhouse gases are significantly reduced through both the reduction in energy input described above and also by the process change from primary diesel fueled pile turning to electric blowers utilizing an average of 560 kWh of electric per month.
- **Processing Capacity**: EASP composting has also more than quadrupled the site’s processing capacity by: 1) using considerably less space per cubic yard of material processed; and 2) reducing the composting and material retention time from 180+ days to less than 90 days.
State-of-the-Art Environmental Protection
The OCRRA EASP offers superb protection as compared to other means of composting. The compost uses much less space and therefore has a much smaller environmental footprint. The small area where food waste dumped, mixed and composted is contained on a concrete slab. The forced air system which can be adjusted for all incoming food waste conditions prevents leachate. As a precaution, a healthy bed of mulch is used to dump any wet food waste onto. This soaks up the liquids so that none escape the concrete pad.

Composting is compatible with the environment in that it utilizes food and yard waste that might have been previously disposed of as solid waste and creates an environmentally beneficial product. Not only are we reducing waste, but creating a natural fertilizer that can be used in place of environmentally damaging petroleum based ones.

Impact on Human Health, Environmental Quality and Resource Conservation
Compost use leads to healthier soils and plants, better nutrient cycling, greater soil fertility, and aids in erosion control, storm water management, and water quality protection. Compost generated at the facility is utilized on regional construction projects to reduce soil erosion, prevent pollution and control storm water runoff, and serves as a soil amendment for “Low Impact Development” projects aimed at promoting long-term, sustainable storm water management.
2. Regulatory Compliance

Environmental Compliance
The Amboy and Jamesville Compost Sites are NYS DEC Registered Facilities to receive 1,000 cubic yards of food waste and 10,000 cubic yards of yard waste annually. Neither the Jamesville nor the Amboy Compost Site has been in violation of their state or local requirements, nor have there been any citations received.

Each year compost samples are collected from each compost site. Neither site is required to meet Class I/A compost standards, as established by the NYS DEC. However, OCRRA, through the US Composting Council’s (USCC) Seal of Testing Assurance Program, analyzes the compost and compares the data to the same parameters that the NYS DEC has established for Class I compost. The 2010 laboratory results of the compost at both sites were well within the DEC parameters to be considered Class I/A compost and received the USCC’s Seal of Testing Assurance. OCRRA’s compost product will be tested quarterly. Data are available to the public at each site and at http://www.ocrra.org/about_annual_reports.asp#compost.

Awards
The US Composting Council, a non-profit organization dedicated to the development, expansion and promotion of the composting industry, recently decorated OCRRA’s compost program with the “2010 Composting Program of the Year” award.

The criteria was that the program be a small-scale composting facility or program, public or private, that has demonstrated organics diversion to composting or vermicomposting, and includes a component of education and public outreach. The nominated program must be in operation for a minimum of one year and be in regulatory compliance.

System Integration to Other Local Solid Waste Management Systems
Recovery of organics is a goal within the newest revision of the New York Solid Waste Management Plan, “Beyond Waste: A Sustainable Material Management Strategy”. This plan emphasizes the direction of organic materials to their “highest and best use”, i.e., composting for soil amendments. Therefore, OCRRA’s investment in expanding the state of the art EASP composting program is not only beneficial to the environment, but aligns with New York State’s solid waste goals.

Waste Screening Procedure
Wastes are screened for contaminates when delivered and are removed by hand at that time. The screening process captures all large contaminates and a vacuum collection removes all lighter contaminates. There are also magnetic head pulleys on the grinder and trommel screen to remove ferrous metals.
3. Planning

Design and Effectiveness of Planning Process
OCRRA has learned valuable lessons from the pilot project that will streamline operations for the future. Those lessons have made the planning and design process more efficient and effective.

Lessons Learned
- First and most important is the need to educate the generators and the haulers about the importance of source separation and the need to minimize contamination (plastics). Employees must be dedicated to the continual removal of contaminants at both the generating and processing sites.
- The second lesson is that composting is truly a “materials management” process. OCRRA must maintain sufficient stock piles of yard waste, finished compost, and screen-overs for blending, covering, and aeration plenums.
- The third lesson is to perfect a recipe. It is difficult to re-blend and add more carbon once the material is in the pile and on aeration. It is always better to initially have a higher carbon-to-nitrogen ratio of at least 30:1.
- The fourth lesson is to “Think Big but Start Small”. The pilot project enabled OCRRA to experiment with different mix recipes and refine the method for managing materials at each step of the composting process, raw wastes and bulking materials, in-process materials, and finished compost product. Piloting the process also allowed for variables such as ambient temperature, time, and aeration duration to be observed or varied while maintaining ideal core pile temperatures.

Project Future
Thanks to the success of the pilot project, OCRRA’s goal is to develop the Amboy Site into an innovative, 13-acre Yard and Food Waste Composting Facility to cost-effectively optimize the region’s recycling and reuse opportunities. OCRRA projects that over 10,000 tons of institutional and commercial food waste will be processed at the facility annually by the year 2015. The project will serve as an environmentally sound, cost-effective model for replication by municipalities across New York State; and ultimately generate some 36,000 cubic yards of compost annually. The total project cost (including storm water management controls) is estimated at $1.2 million.¹

Please refer to Section 1 for more detailed information on the Design and Effectiveness of OCRRA’s planning process.

¹ These costs were derived from an extensive project design and cost estimate that was recently completed by Stearns and Wheler, GHD Engineers.
Downtime
OCRRA’s compost sites are closed to the public from December to the end of March each year. During this time, residents are not able to drop off yard waste or take compost from the facilities; due to weather constraints, the demand during this time is low. However, the sites are minimally staffed during this time to continually process the previous season’s yard waste (grinding, etc.). In addition, the Amboy site receives food waste year-round.

4. Performance, Economics and Cost-Effectiveness

Efficiency and Success of the Operation
In 2010 there was a total of 21,612 residential site visits. 2010 also yielded more municipal activity and site usage with six local Towns and Villages utilizing the Jamesville or Amboy facilities to drop off their residents’ brush and yard waste. The practice of municipal curbside collection of yard waste continued in 2010 by most municipalities, but the number of individual residents dropping off material on their own at OCRRA’s sites remained high. This demonstrates that OCRRA’s customers truly value the services and quality product that is provided, and are willing to travel to the sites on their own accord, even if municipal pick-up is available to them.

For 2010, the Composting Operations achieved a significant milestone: capturing over $147,000 in revenues (beating the $100,000 budget projection) which is almost a 50% increase from 2009, and an over 80% increase from 2008. This revenue growth is due to the program’s increased marketing efforts, sales of quality products, and the region’s need for a large scale food waste processor.

Local compost sites are necessary due to an Onondaga County requirement that yard waste not be disposed of with municipal solid waste. OCRRA’s compost sites are successful in diverting waste, but have not previously been considered a source of revenue for the organization. Starting in the 2010 compost season, OCRRA adjusted the compost pass fee structure, for the first time in over 10 years. This change has helped create more revenue, but still offered the composting services at low prices for residents and created a more consistent supply of compost for everyone. Previously residents bought a compost pass for $10 (see right) and could take as much compost and mulch as they liked for that season. In 2010, the price remained the same with unlimited drop off of yard waste but with the restriction of only 6 cubic yards of compost or mulch could be taken. The new fee structure has been successful with residential users, as proven by this statement received in a recent survey, “I was happy to see a wide selection of all items readily and consistently available. I love the sod! I have VASTLY improved my property with VERY low-cost, high quality local recycled vegetation and am grateful for OCRRA.”
OCRRA worked with the largest university in Central New York, Syracuse University, to have nearly 7 tons per week of food waste brought into our system, from seven of their dining halls. This has been successful at helping them achieve their sustainability goals and reducing their solid waste expenses. In total, Syracuse University diverted over 137 tons of food waste from their waste stream while saving them over $4,500 in tip fee expenses.

All together OCRRA processed over 1,200 cubic yards of food waste and food waste processing wastes. By composting those food wastes, OCRRA diverted approximately 900 tons of solid waste to a new beneficial use.

OCRRA also processed approximately 22,000 cubic yards of yard waste, wood and brush at the two compost sites. The yard waste, consisting of leaves, grass clippings, flowers and garden waste becomes compost. Wood and brush become mulch. Yard and wood waste combined add up to nearly 5,000 tons of material diverted from landfills. Those incoming contributions to OCRRA’s composting system resulted in 11,200 cubic yards of outgoing compost and 11,000 cubic yards of mulch. These high quality products were sold to residents as well as landscapers and topsoil providers.

**Operational Performance**
The goal of OCRRA’s yard waste composting program is two-fold: 1) provide an environmentally sound system for managing the community’s yard waste; and 2) provide high quality compost and mulch to residents of Onondaga County.

Operational performance exceeds goals and financial expectations due to increased revenue and superb quality of product. The community has other local options for low cost or even free mulch, but the quality of OCRRA’s product is exceptional enough to be the preferred compost. OCRRA’s compost is the only product in Central New York that meets the US Composting Council Testing Assurance. The test assures customers that the compost product has passed all requirements for heavy metals, pathogens and seed kill.

**Customer Service**
OCRRA offers clear and concise information about the compost sites, such as hours of operation, fee structure, and any updates on the [OCRRA website](#) and through a system of email blasts, which are sent to over 17,000 people. Onsite, trained professionals assist customers and answer any questions. For a slightly higher fee, OCRRA personnel unload yard waste and/or load compost for residents, if necessary. OCRRA regularly surveys users of the compost sites to better understand how they view the operations and to help the organization identify areas of customer service that need improvement.
Operating Budget
The composting system operates within its budget and each year performs better than projected. The costs of services are low enough to be competitive and keep customers coming back year after year.

The economics of OCRRA’s composting system are not typical of many municipal operations; many composting programs are operating at a financial loss, and are operated to meet permit standards, such as yard waste bans. OCRRA has one of the few municipal programs that receive no tax support. In addition, high quality mulch and compost is created and sold at a more affordable rate than the competition. The system has been constructed and operated as budgeted and continues to exceed those expectations. The EASP system has quadrupled the Amboy Site’s processing capabilities while minimizing operational expenses and yielding savings in labor, time, equipment, and fuel usage. Equipment and staffing improvements are made every year to serve our customers better and increase the quality of our products and service.

### Income

<table>
<thead>
<tr>
<th>Revenue Type</th>
<th>Rate</th>
<th>Quantity</th>
<th>Total Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential Seasonal Stickers</td>
<td>$10</td>
<td>3,384</td>
<td>$33,840.00</td>
</tr>
<tr>
<td>Compost Revenue: Composed of Commercial and Municipal deliveries to both sites combined</td>
<td>Varies by vehicle size</td>
<td>Yard Waste</td>
<td>$39,000.00</td>
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<tr>
<td></td>
<td></td>
<td>Food Waste</td>
<td>$38,000.00</td>
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<tr>
<td></td>
<td></td>
<td>Compost / Mulch Sales</td>
<td>$28,782.00</td>
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<tr>
<td>Grinding service</td>
<td></td>
<td>8,000.00</td>
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<tr>
<td>TOTAL INCOME</td>
<td></td>
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<td>$147,622.00</td>
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### Operating Expenses

<table>
<thead>
<tr>
<th>Expense Type</th>
<th>Total Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Utilities for ASP Compost System / Electric</td>
<td>$1,027.00</td>
</tr>
<tr>
<td>Site Improvements</td>
<td>$6,727.00</td>
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<tr>
<td>Equipment Repairs &amp; Maintenance</td>
<td>$13,175.00</td>
</tr>
<tr>
<td>Equipment Rental</td>
<td>$18,800.00</td>
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<tr>
<td>Fuel</td>
<td>$17,805.00</td>
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<tr>
<td>Travel</td>
<td>$3,597.00</td>
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<tr>
<td>Temporary Employees</td>
<td>$53,515.00</td>
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<tr>
<td>Site Operator Salary</td>
<td>$36,560.00</td>
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<tr>
<td>Recycling Operations Manager (40% time)</td>
<td>$22,000.00</td>
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<tr>
<td>Misc. Expenses**</td>
<td>$4,767.00</td>
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<tr>
<td>TOTAL EXPENSES*</td>
<td>$174,973.00</td>
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<tr>
<td>NET INCOME</td>
<td>($27,351.00)</td>
</tr>
</tbody>
</table>

* Excludes capital equipment cost, depreciation and employee benefit expenses.
** Misc. Expenses include the rental of portable toilets at each site and the fuel for the heaters used in the gatekeeper’s sheds and laboratory fees.
5. Utilization of Equipment/Systems and Technologies

Equipment
OCRRA uses a variety of equipment to operate the compost sites. The equipment allows OCRRA to effectively process yard and food waste. The equipment currently utilized at the OCRRA compost sites are pictured below.

OCRRA utilizes two John Deere front-end loaders with 5 cubic yard capacity grapple buckets as the primary machines for material movement and pile construction. Both John Deere 624 loaders are equipped with JRB couplers that allow for attachment or bucket exchanges between standard general purpose buckets for loading, grapple buckets for material handling, and forks for moving pallets and equipment. OCRRA also owns 2 skid loaders that are utilized for site maintenance, handling debris, processing small loads, and for loading retail customers with mulch and compost. A Vermeer HG6000 horizontal grinder is used to prepare all incoming materials, brush, pallets, and yard waste, for composting or mulch. All soft wastes, primarily leaves and yard wastes are ground through a 6-inch screen for size and volume reduction before entering the EASP system; then two different grinds are done with brush, pallets, and wood wastes. The first grind is a 4-inch grind, which is utilized as a bulking agent and mix with the compost system; the second grind is a 2-inch grind that is marketed as a quality aged mulch product. OCRRA also rents additional screening equipment when needed. During the 2010 season, OCRRA rented a McCloskey 621 Trommel Screen for more than 3 months with to screen finished product to a ½ inch minus for sale and distribution. Other equipment includes two 20 yard roll-off containers for wastes, contaminants, and debris, and the EASP system consisting of four 1.5 hp blowers, doghouses, and over 1,300 linear feet of SDR7 HDPE piping.

Each of OCRRA’s loaders are in operation roughly 8 hours a day with the skid loaders being in operation roughly 4 hours per day. OCRRA’s Horizontal Grinder is in operation roughly 4 to 6 hours per day and is increasing as material volumes increase. The McCloskey Trommel was utilized 8 hours per day, 5 days per week, for over 3 months to screen all stock piled material, while the EASP blowers are set on cycle timers and run for 3-5 minutes every 15-20 minutes.
Compost site equipment is selected based on research of best practices and professional experience. This allows OCRRA to purchase the most efficient and effective machines for the necessary tasks. Equipment is maintained by professional crew of trained mechanics from transfer station and warranted by the manufacturer. Each piece of equipment has a maintenance schedule provided by the manufacturer and is adhered to. A checklist is used daily to inspect the equipment and document any problems. Problems or defects are reported immediately to the site supervisor.
6. Worker Health and Safety

Employee Training and Safety Procedures
Permanent OCRRA employees at the compost sites are given safety training by Occupational Safety & Environmental Assoc., Inc. Training classes include, but are not limited to: Heat & Cold Stress, Back Injury prevention, Material Handling, Walking Working Surfaces, Industrial Hygiene Basics, Lockout/Tagout, Fall Protection, PPE/Eye/Hearing, and Blood Borne Pathogens. Temporary employees that staff the compost sites receive onsite training and operational awareness info from agency staff before proceeding with duties.

OCCRA’s compost sites maintain an 8-year record of zero reportable injuries or accidents. OCRRA intends to continue this excellent record with regular safety training and easy access to preventative equipment.

7. Public Acceptance, Appearance and Aesthetics:

Appearance
Maintenance inspections are performed on each piece of equipment each day that the equipment is used. As a part of that inspection the appearance is checked and recorded, any and all problems are promptly corrected or the appropriate manager is notified. The yard and building are free from litter and any obstructions.

OCRRA places a high priority on customer feedback, which is captured during annual surveys. The most recent survey was conducted during in January, 2011. Over 350 people responded to an on-line survey that asked questions to determine the level of customer satisfaction with the operation and products. Results of the survey were very favorable. Results of the survey showed that over 96% of the respondents indicated the level of service to be “good” or “excellent”. Also, more than 96% of respondents rated the OCRRA pass and fee system as reasonable for use and value.
Please see the table below for a visual representation of the data.

<table>
<thead>
<tr>
<th>6. What is your overall impression of OCRRA’s compost sites?</th>
<th>Response Percent</th>
<th>Response Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor</td>
<td>0.0%</td>
<td>0</td>
</tr>
<tr>
<td>Fair</td>
<td>3.4%</td>
<td>12</td>
</tr>
<tr>
<td>Good</td>
<td>43.2%</td>
<td>153</td>
</tr>
<tr>
<td>Excellent</td>
<td>53.4%</td>
<td>189</td>
</tr>
</tbody>
</table>

Additional comments welcome  
53  
answered question  
354

The survey yielded also comments such as: “The compost site is a wonderful resource for those of us who can’t compost or don’t have room to do so. Thanks!” and “All of my experiences with the compost sites have been positive. The system and process is very organized and I typically leave feeling like "well, that was easy".”

The system works very well based on survey data which indicates that there are over 97% satisfied customers. The increasing requests for compost presentations and national award recognition indicate the public is accepting of the OCRRA compost sites’ appearance and aesthetics. One site user believed the sites are: “Well maintained sites with clean mulch & compost for a minimum cost. A good place to take yard waste for proper disposal.” Cleanliness of the site, including the vehicles, assists in maintaining a positive public image and increases safety conditions for the employees. All facilities are kept free of trash and litter.

Public Relations and Education
The public is informed of composting news through several outlets, brochures and handouts at events and at the sites. OCRRA’s quarterly newsletter, which includes highlights and updates of the composting program, is distributed to over 150,000 households. In addition, OCRRA’s email blasts, which are sent to over 17,000 people, often highlight compost information.

OCRRA also offers Master Composter Training Classes in conjunction with the Northern Onondaga County Library System; upon request, provides compost education and training to over 150 schools in the County; and helps home composters recycle their food waste with worms (also known as vermicomposting). Residents can also learn
about yard and food waste composting through the OCRRA website, as well as use the compost sites to recycle their own materials.

The facilities closest neighbor is over ¼ mile away. OCRRA uses Best Management practices to eliminate any negative effects of the compost operation. The EASP system creates no offensive odors at the site.

8. Conclusion
OCRRA’s composting system has been a stronghold in the community as a convenient, efficient means of recycling residential and municipal yard and wood waste for many years. The introduction of new, cost-effective technology (the EASP system) to compost commercial and institutional food waste is an exciting and promising venture; OCRRA looks forward to expanding and improving this system in the coming years. OCRRA’s composting program receives great feedback from customers, exceeds goals and requirements financially and environmentally, and serves as model for other municipal compost operations in New York State and beyond.