

Upstate Roundtables
Composting Challenges
and Solutions in
New York State

A Final Report

Conducted by
The Cornell Waste Management Institute

Sponsored by
The U.S. Environmental Protection Agency Region 2

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ACKNOWLEDGEMENTS

The success of these Upstate NY Composting Roundtables was largely due to the enthusiastic participation of the attendees who shared their knowledge and ideas on how to maximize the recovery of organic residuals.

The participation of the New York State Association for Reduction, Reuse and Recycling and its members as well as Cornell Cooperative Extension in organizing the regional Roundtables and attracting the participation of local composters is greatly appreciated. Without the assistance of EPA, Region 2, the Roundtables would not have been possible.

We are pleased that an NYSAR³ Organics Recycling and Composting Council has been formed in NYS and hope that our efforts may have contributed.

Many thanks to all involved – Jean Bonhotal and Ellen Harrison, CWMI

The Cornell Waste Management Institute (CWMI) was established in 1987. CWMI addresses the environmental and social issues associated with waste management by focusing University resources and capabilities on this pressing economic, environmental, and political issue. Through research, outreach, and teaching activities, CWMI staff and affiliated researchers and educators work to develop technical solutions to waste management problems and to address broader issues of waste generation and composition, waste reduction, risk management, environmental equity, and public decision-making. The focus for such work is on multi-disciplinary projects that integrate research and outreach. Working in collaboration with Cornell faculty and students from many departments and with cooperators in both the public and private sectors, issues ranging from management of sewage sludges to waste-prevention are the focus of on-going programs.

A copy of this report can be downloaded from the CWMI web site
www.cfe.cornell.edu/wmi/xxx.html or by contacting CWMI.

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BACKGROUND

In conjunction with the New York State Association of Reduction, Reuse & Recycling (NYSAR³) and Cornell Cooperative Extension, the Cornell Waste Management Institute (CWMI) convened four regional Roundtables on food scrap composting in upstate New York. (See appendix for agenda and list of attendees.) Support was provided by the United States Environmental Protection Agency (US EPA), Region 2 for these upstate Roundtables as well as a composting Roundtable in New York City convened to address organic diversion opportunities in NYC. (A separate report is available for the NYC component. "Reducing The NYC Waste Stream: The Potential Role For Composting" can be obtained through CWMI and is available on the CWMI web site at www.cfe.cornell.edu/wmi/). The locations and the dates of the Roundtables were:

Weedsport, New York	May 15, 1998
Newburgh, New York	June 10, 1998
Schenectady, New York	August 20, 1998
Lockport, New York	October 23, 1998

The solid waste hierarchy should be applied to food residuals: reduce, reuse, recycle/compost, dispose. Before diverting to composting, the source of the food scrap should be examined and steps taken to eliminate the creation of scrap considered. Thus, for example portion control may help to reduce plate wastes. Businesses and institutions should consider making appropriate use of slightly spoiled food (e.g., using dented apples for baking), donating food to pantries, selling discount food to employees or giving away spoiled fruits and vegetables for animal feed. Composting then becomes an option for recycling food scraps that cannot be reduced or reused.

There was discussion at several Roundtables about promoting home-scale composting. If home composting is encouraged, there is less to pick up and manage for the municipality. The homeowner also gets the benefit of the finished product.

COMPOST FACILITIES IN NEW YORK STATE

A survey was recently conducted by the Cornell Waste Management Institute to locate and characterize composting facilities throughout the State of New York. Funded in part by Empire State Development, Office of Recycling Market Development, the survey is designed to help identify potential matches between compost facilities and food scrap sources. In order to encourage the use of composting as a means of waste reduction, CWMI is working to expand existing composting facilities to include food scraps and to match them with food scrap sources. The more than 230 compost facility locations (see Figure 1) can be viewed on Geographic Information Systems (GIS) maps, and selected information about the sites is available through searches of the data base which can be made via the CWMI web site (www.cfe.cornell.edu/wmi/)

N Y S C o m p o s t F a c i l i t i e s

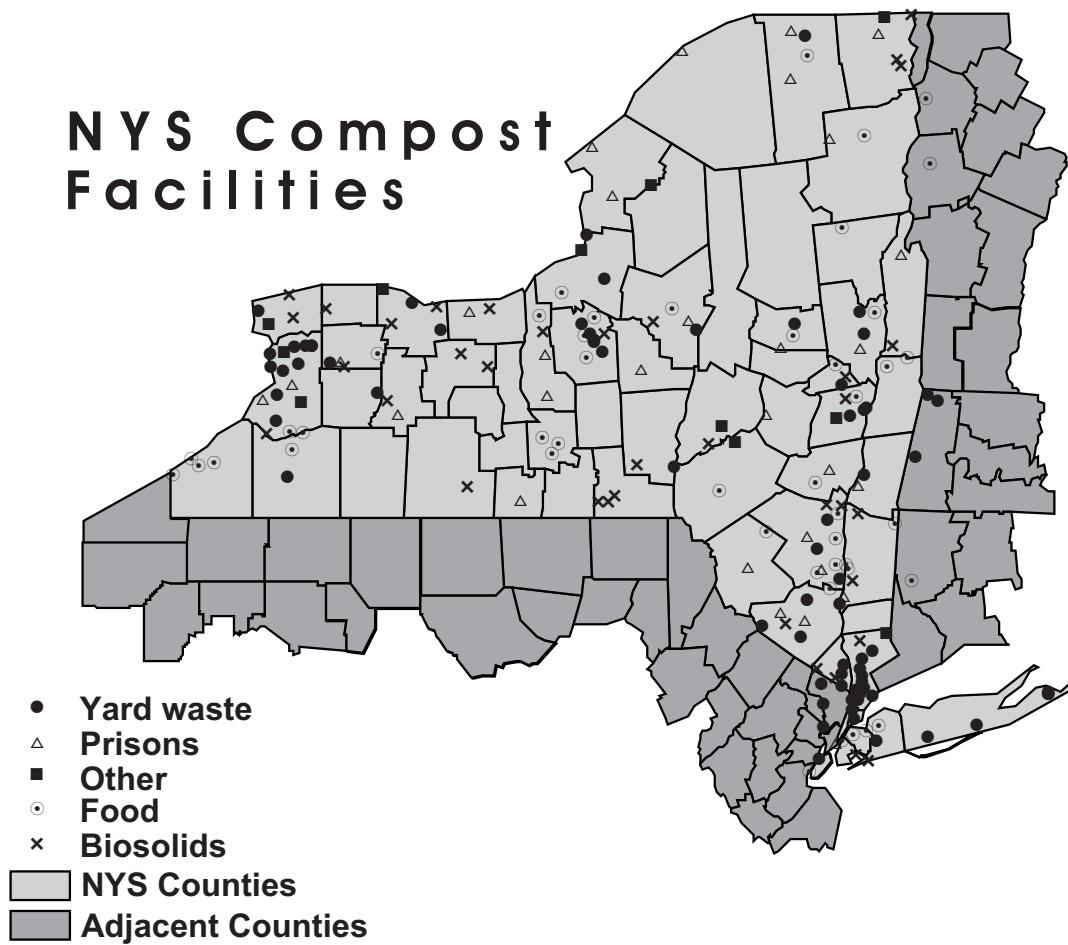


Figure 1. Composting Facilities in NYS Identified in 1998 CWMI Survey

COMPOSTING CHALLENGES AND SOLUTIONS IN NYS

Through significant experience in composting in NYS over the past decade, CWMI has found there are challenges to diverting and composting the portion of the waste stream comprised of food scraps. These include:

- Lack of available composting capacity.
- Lack of communication (finding out who the players are or might be).
- Lack of hauling services.
- Restrictive regulations.
- Low landfill tip fees for disposal.

While some businesses and institutions that generate food scraps are willing to compost on-site, many, especially supermarkets, hospitals, nursing homes and restaurants, would rather not get into the composting business. These generators need to be matched with composters and haulers. The various groups need to understand each other's needs, limitations, concerns and opportunities. To address this barrier a series of Roundtables were organized by CWMI to promote communications among:

- Businesses and institutions that generate food scraps.
- Composters.
- Farmers.
- Educators.
- Haulers.
- Municipalities.
- Vendors of related equipment.
- Others interested in encouraging food scrap composting.

Participants in the four upstate Roundtables represented composting facilities, organic generators, regulators, municipal departments, haulers, educators, farmers and nonprofit agencies. A list of participants in each Roundtable is appended to this report. The participants collectively identified some of the challenges to food scrap composting and possible solutions or ways to proceed past the problems.

Technical and Engineering Assistance

Technical and engineering assistance is a high priority when developing a food scrap composting facility and seeking a permit. Due to the technical requirements of the New York State Department of Environmental Conservation, a certified engineer is required to participate in the permitting process when food scraps are taken from off-site. However most operations that are getting started do not have the finances to secure engineering services. Thus, to reduce costs and facilitate the permitting process, a number of low-cost alternatives for obtaining needed technical assistance were suggested. (See appendix for more details and contact information for some of these.)

- Natural Resources Conservation Service (NRCS) may be able to provide assistance for farmers.
- Graduate students may be a source of enthusiastic and capable assistance.
- Cornell Cooperative Extension (CCE) may offer technical assistance for home scale composting through Master Composting programs.
- Municipal departments can share technical assistance. There may be an engineer in another county department that could swap or share expertise to reduce costs.

- Retired professionals can cost less money to hire and come with a wealth of experience. There are several organizations that help find work for retired professionals that wish to work. (See appendix)
- Written Resources and videos are available including :
“On-farm composting: Guide to basic engineering principles for composting”, available from NRAES, 152 Riley-Robb Hall, Ithaca, NY 14853.
“Compost... because a rind is a terrible thing to waste” (manual and two videos) available from the Cornell University. Resource Center, 7 Business and Technology Park, Ithaca, NY 14850.

Siting and Regulation

The status of compost related-regulations was identified as a concern. The current New York State Part 360 solid waste regulations have been under review since 1991. These regulations combine standards for direct land application as well as composting of two categories of waste. Yard waste is separated from other solid wastes including mixed solid waste, biosolids, and food scraps. In anticipation of changes in the current regulations that would likely ease regulations pertaining to food scrap composting, the New York State Department of Environmental Conservation (NYSDEC) has been granting variances for facilities proposing to compost less than 1,000 yards per year of food scraps. However, legal issues may curtail this approach. Since adoption of revisions to the Part 360 rules is not imminent this could further discourage food scrap composting since food scraps are lumped together with other solid wastes in the regulations.

Regulatory constraints have hampered the establishment of composting projects statewide. The permitting process takes place at the regional level within the NYSDEC. Concerns regarding regional variation in the permitting process were raised by numerous generators and processors. The level of knowledge about and support for composting varies widely and in some regions there is little guidance available to those seeking to establish or expand a composting site to take in food scraps.

Means of overcoming these regulatory hurdles were discussed at the Roundtables.

- Inform regional and state NYSDEC officials of concerns.
- In revising the NYS Part 360 rules, encourage NYSDEC to proceed immediately with revisions pertaining to food and yard scraps and to separate biosolids (sewage sludge) from food scraps/yard waste since biosolids are more controversial.
- Comment on NYSDEC DRAFT compost regulations when released.
- NYSAR³ Organics Recycling and Composting Council should consider coordinating letter writing campaign to encourage enactment of new regulations pertaining to food and yard scraps.

- Forge partnerships with Farm Bureau, NRCS, Cornell Cooperative Extension and other agriculture support agencies, affected businesses, NYSAR³ Organics Recycling and Composting Council, and others interested to continue to promote the growth of composting.
- Support reasonable permit variances - variances for food waste pilot projects less than 1000 tons/year and permits for facilities over that. If a facility starts with small amounts of food scraps they will master that or fail. Those that succeed can apply for a full permit having obtained experience and a track record.

Economics /Motivation

Food waste composting faces many challenges, among them are economic and motivational problems. Often, waste management decisions are based on short-term cost alone. Current economics with inexpensive landfill tip fees make it difficult for composting to compete if looking only at today's costs. When one considers the "true cost" of waste management, however, it involves not only the short-term financial costs and avoided tip fees, but also the long-term financial, social and environmental impacts. Composting can extend the operating life of a landfill by diverting valuable resources that would otherwise occupy landfill space. The full costs of using landfills are not always considered.

Institutions such as hospitals and elder care facilities generate tremendous amounts of organic waste. Although they may be aware of the avoided disposal costs associated with composting food scraps, they are often limited by current resources such as lack of an infrastructure for collection, few staff, and lack of space for storage and processing. Thus while the long-term benefits of composting may be significant, barriers in the short-term may prevent implementation.

Environmental stewardship is seen as an important issue for religious groups and some other organizations. The least cost solution is not always the best when the impact on the environment is considered. In some circumstances, composting is evaluated as a management option because citizens demand that it be considered.

Some solutions were discussed that can motivate communities to evaluate the "true costs" of waste disposal alternatives.

- Encourage waste reduction. Disposal bans and "Pay as you throw" gives strong incentive to recycling and composting.
- Employ the solid waste hierarchy when producing and disposing of all solid waste, including food.
- Consider "full cost accounting."

- Provide financial incentives to generators who divert organic material for composting such as reduced tip fees for food waste going to a compost facility vs. landfill tip fee.
- Provide financial incentives to farmers who compost, consider tax breaks.
- Develop community networks to get the message out that composting is beneficial.
- Organize religious groups, watershed groups, farmers and others (Religious/ Environmental group information: National Religious Partnership for the Environment, 1047 Amsterdam Ave., New York, N.Y. 10025 phone # 212-316-7441)
- Provide forums so those involved in some aspect of generating or composting can meet and exchange ideas.
- Develop a publicity campaign and access the media including:
 - * Public Service Announcements (PSA's).
 - * Publish composting success stories.
 - * Hold education session for the media (press packets for national and local media).
 - * Make use of articles from Agricultural Consumer News Service from Cornell Cooperative Extension (CCE) and give the news service story ideas.
 - * Generate press releases for composting events.
 - * Provide education at events (i.e. America Recycles Day, Grass Roots Festivals, County/State Fairs).
 - * Use “Compost Theater” (a project of Tompkins County Master Composters) to get the message across.

Management

Management extends from the generators to the processor. If the compost site receives contaminated material then the compost site and possibly compost quality suffers. Therefore, it is important that managers make the processing objectives clear. Educating employees at the source is critical to ensure uncontaminated feedstocks. In a business with high staff turnover, this strategy is particularly important. Generators must be informed of the entire process, from collections to composting, to appreciate the importance of their role.

Proper site management is essential to a successful composting operation. Some problems resulting from poor management include odors, poor incorporation of fresh scraps and leachate collecting in puddles on site. Proper management by an educated manager will

decrease the problems that occur. Presently there is no process to certify compost site operators. Many Roundtable participants were concerned that this contributes not only to operational problems, but also negatively affects the perception of composting by community members. Neighbors will be a lot more accepting of an operation if it is well run and they are kept informed of major changes. Holding open site days goes a long way toward educating people about composting.

Securing enough bulking agent to compost can be problematic depending upon where facilities are located. Since bulking material is essential for successful composting, a manager needs to secure reliable supplies. Prepared managers will take advantage of available woody material accumulated from road and power line maintenance and storms. Other suggestions for bulking materials include by-products from other industries: pallets, sawdust, cotton, peanut hulls, coconut shells, cardboard, paper towels, de-watered paper sludge, leaves, and any other clean by-product found in the area. Tire chips can be used for bulking material, but not as a carbon source to help balance the high nitrogen content of the food scraps. The moisture content, carbon content and resulting temperatures will depend on the bulking material.

Health and safety risks of *Aspergillus fumigatus* have been studied in Islip, NY. The study recommended siting composting facilities away from critical care facilities. It was recommended that employees with compromised immune systems not work in or around compost facilities.

Suggestions to ensure proper compost site management include:

- Educate employees at the source to ensure uncontaminated feedstock.
- Train operators through courses, tours and conferences (Operator training courses available at University of Maryland, University of Maine, Cornell University may provide short courses and educational materials).
- Consider safety for operators: provide breathing apparatus and eye protection during windrow turning.
- Offer facility tours to enhance public relations.
- Establish green barriers around facility and consider prevailing winds to minimize neighbor concerns.

Collection and Transportation

Numerous challenges were discussed related to food waste collection. Food scrap is a dense, wet material, therefore the collection methods and containers must be tailored to the application. Due to OSHA regulations, the containers must be designed to comply with the regulated weight limits, thus limiting the size of the container. Throughout the world there are examples of both institutional and residential food scrap collections. Through the study of successful programs, a generator or processor can assess the feasibility for its own community or institution.

Size and shape of containers takes a lot of consideration. One consideration is whether they should they be lined or unlined. Unlined plastic containers may be preferable in some cases. Using unlined containers reduces the amount of plastic contamination due to shredded plastic bags in the finished compost. Unlined containers can be washed after emptying if a water supply is available. Where water is not available, liners may be necessary. One of the NYS prisons that serves 3,500 inmates a day and accumulates approximately a ton and a half of food waste per day saved enough money by not using plastic bags for one year to purchase a \$7,500 sterilizing can washer. The cost of the piece of equipment was offset entirely by the money saved by not purchasing plastic bags and it eliminated the contamination problem of shredded plastic in the finished compost. There are also “degradable” plastic bags. Since their success records vary they should be tested prior to use.

Economical hauling routes are also a problem. If businesses and institutions want a hauler to collect separated organic material there must be enough generators in the area to make the cost feasible for both the businesses and hauler. Truck routes can be set up much like regular garbage and recycling routes if there is sufficient demand. Little standard equipment is available to handle food waste collection. Each hauler may design specific container or hauling equipment to meet their needs which can be costly and inefficient.

Several ideas were suggested to help communities with the collection of organic waste:

- Use collection schedules that alternate between garbage collection one day and organic collection the next.
- Contact funders listed at the end of this report for possible grant money to design collection equipment.
- Set up truck routes to service groceries, restaurants and institutions that could reduce hauling fees for all participating.
- Provide municipal-based mobile chipper program to reduce collection cost of yard waste and provide chip piles for each home owner.

Public Education for Community Acceptance

Many situations were brought up involving sites with neighbor complaints, both in urban and rural areas experiencing suburbanization. When a facility is sited, built and run well, it can be a good neighbor. When a facility fails because of odor problems, increase in traffic, or other problems, the community has a hard time forgetting it even when the situation is corrected. Facility planners and operators must take every precaution to keep the facility running well so that composting can succeed. Perceived health and safety risks were discussed as major components requiring public education.

Community acceptance can be enhanced by public education. Education campaigns may include community involvement, tours and general updates. Some communities are encouraging home composting as a way to better manage home organic material and to help people understand how composting works. Some communities use bin sales to promote home composting. However companion education is needed along with composting bins.

A wide range of suggestions for increasing community acceptance include:

- Provide training on composting for community members, planning and zoning boards, architectural firms, Association of Towns/Counties, legislative commissions.
- Provide school-based education. Introduce waste-oriented curricula to school children, shift waste disposal paradigm, exchange the term “waste” for “resource.”
- Work with schools, use composting as an educational tool and/or a management strategy for food and yard scraps.
- Use county fairs and other large event demonstrations to encourage home composting, involve community service groups, Scouts, 4-H.
- Promote educational resources available through sources including Cornell Composting web site (www.cfe.cornell.edu/wmi/); “BioCycle” and “Resource Recycling” magazines; NYS DEC; US EPA; local solid waste educators; NYS Association of Reduction Reuse and Recycling; local compost demonstration sites; Cornell Cooperative Extension and others.
- Distribute NYSDEC tip strip.
- Seek funding and support from public and private organizations (i.e. AD Council - “Leave it on the lawn” campaign).
- Expand home composting effort through bin sales (reduce need for large scale composting) and companion education such as classes, follow up calls to trouble shoot, or including a video with bin sale.
- Capitalize on environmental involvement, offer awards for excellence given by organizations such as: the National Recycling Council, the NYS Energy Research and Development Authority, NYSAR³ Organics Recycling and Composting Council, and other companies.

- Develop a statewide education program to mitigate unreasonable health concerns.

Marketing

When marketing the finished compost it is important to know what quality best suits the end user. Quality of compost can vary greatly depending on the length and type of processing. For example, when starting seedlings, good quality, stable compost is critical. If providing daily cover for closing a landfill is the goal, quality sights can be set much lower. Sufficient space is needed to accommodate the storage of compost during product curing.

Screening and bagging were cited as beneficial to marketing. Screening helps to keep particle size consistent. While screening can increase the value of the end product, it adds significantly to the cost. Bagging allows more opportunity for sale in many different locations, but requires a consistent, mature and stable end-product and is costly.

Marketing suggestions include:

- Begin with a goal in mind, know what the end use is before composting.
- Test for quality and maturity to ensure qualitative assessment of compost prior to use.
- Create different compost quality standards. Food scrap compost standards should be different than biosolids compost standards.
- Plan for growth. Ensure that site storage and processing capacity can accommodate changes in volume.
- Plan for the seasonality of the industry, both input materials and product sales may vary seasonally, requiring adequate storage area.

Organics Roundtable

**co-sponsored by NYSAR³ and the
Cornell Waste Management Institute**

1. Results of CWMI Survey of Composting Facilities - Jean Bonhotal, CWMI

2. Discussion of Food Waste Composting

- **Industry experience**
- **Stumbling blocks to increased practice**
- **Challenges**
- **Next steps**
- **Grant opportunities in NYS
(Empire State, ORMS, NYSERDA, DEC)**

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315 361-8408

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Appendix C - Potential Sources of Funding for Compost Projects

DEC Bond Act Funding

Municipal Waste Reduction & Recycling Program

What will this program pay for?

Purchases of dedicated recycling or composting facilities and equipment, as well as projects designed to promote waste reduction/prevention. This program will reimburse the grantee for up to 50% of the eligible costs of the project.

Applicants must incur all expenses and afterward request State reimbursement at a 50% rate.

Who is eligible to apply?

Counties, cities, towns, villages, local public authorities or local public benefit corporations (as established by State law), school districts, supervisory districts, Native American tribes or nations residing in New York State, or any combination of the above. Private sector companies, not-for-profit corporations or State agencies are not eligible for these grants.

What is the status of funding for the program?

Funding is expected to be appropriated in the annual State budget. DEC maintains a waiting list of projects in anticipation of monies becoming available in future budgets.

How can a community apply for a grant?

Applicants need only complete a “Pre-application” form, and submit the required information, outlined on the form. This will insert the project on the waiting list until funding becomes available.

DEC will request a full final application in order to receive a grant award. Projects on the waiting list will be reviewed in sequence of their receipt and grants will be awarded according to the date DEC determines that full final applications are complete and approvable.

If you are interested in this program, please submit a “Pre-application” with the required information to DEC’s Albany office. If you have any additional questions, please call (518) 457-3966 or email ajribeir@gw.dec.state.ny.us (Gus Ribeiro) or spsmith@gw.dec.state.ny.us (Sharon Smith).

Empire State Development Office of Recycling Market Development

The Empire State Development Office of Recycling Market Development (ORMD) has been focusing on food waste composting for several years. While many advances have been made, a comprehensive solution has not been reached. Therefore food waste composting remains a priority investment area through the Recycling Investment Program.

The Recycling Investment Program includes several components. Categories include capital investments, such as facility development and research and design, such as technology evaluations and technical assistance. Investment in research and design attempts to support companies' efforts to get to the point that their technologies are cost effective for the generator to compost food waste.

Contact Edward Campbell 212/803-2313 or <ECAMPBELL@empire.state.ny.us>

NYSERDA ENERGY-EFFICIENT POLLUTION PREVENTION - Reducing, Reusing, or Recycling Industrial Waste

The New York State Energy Research and Development Authority (NYSERDA) invites short proposals for projects that promote development, demonstration, or commercialization of energy-efficient methods, products, and technologies to reduce, reuse, or recycle industrial wastes at the point of generation.

Financial assistance is available to support the following types of projects:

Feasibility Studies - Detailed engineering feasibility studies of innovative, energy-efficient industrial process waste reduction and reuse methods and technologies (Project Type 1).

Development and Demonstration Projects - Development and demonstration of innovative, energy-efficient waste minimization technologies, and for product development and commercialization (Project Type 2).

FlexTech Studies - Detailed engineering feasibility studies of commercially available energy- efficient waste reduction and reuse methods and technologies using one of several consulting/ engineering firms NYSERDA has contracted with for this service under its FlexTech Program (see the attached description).

Waste types may include:

Liquid (solvents) or aqueous (wastewater).

Solid

Gas

Strategies for reducing industrial waste may include, but are not limited to:

Modifying processes (e.g., design or operating changes and separations).

Making substitutions or enhancing feedstocks.

Improving operational efficiency (process or equipment).

Developing a new product or modifying or reformulating a product.

Recovering and reusing the waste in the process(es).

All proposals must be cost-shared, with at least 50% co-funding preferred.

All proposals must have substantial New York State impact and produce significant economic benefits, such as processing or manufacturing at a site or sites in New York State. Contact NYSERDA at 518 862-1090 or visit their web site at www.nyserda.org.

Appendix D - Potential Sources of Technical and Engineering Assistance

- **Retired Professional/Executive Organizations Service Corps of Retired Executives (SCORE)** is a national nonprofit organization of retired and active executives sponsored by the U.S. Small Business Administration that provide free business counseling. However, due to SCORE's extensive network of professionals, their expertise extends to the engineering field.

SCORE Regional Offices

Albany District 445 Broadway, Room 222, Albany, NY 12207 518 472-6300

Buffalo District John Knerr
111 West Huron Street, Buffalo, NY, 14202, 716 846-4301

Elmira District Jack Hinds
333 East Water Street, Elmira, NY, 14901, 607 734-8130

Rochester District James Scheible
Federal Building, Room 410, Rochester, NY, 14614, 716 263-6700

Syracuse District Shirley Wild
226 Dale Street, Syracuse, NY, 13206, 315 454-0611

- **Executive Service Corps of Retired Executives (ESCorps)** is a network of retired professionals. There are regional offices throughout NYS. Each regional office is tied into a national network of ESCorps offices. Decision about which projects to accept are made at the regional office level. They charge a small fee for services to cover administrative costs. They tend not to be hands on, but might be interested in searching for retired Engineers to assist with DEC permitting process. Typically, they work for non-profits organizations providing management assistance. Their projects generally do not exceed 100 hours and sometimes multiple consultants will collaborate on a single project. ESCorps services can cost less money to hire than major consulting firms.

ESCorps Regional Offices

Capital District John Wilson
517 Weston Avenue, Albany, NY, 12203, Tel 501 482-4673, Fax 518 482-0873

Long Island Richard Oehmller
240 Vineyard Road, Huntington, NY, 11743, Tel 516 547-6008

Otsego-Delaware Counties Betsy Busche
250 Main Street, Oneonta, NY, 13820, Tel 607 431-4372, Fax 607 431-4028

Westchester County James Vlachos
3 Outlook Avenue, Yonkers, NY, 10710, Tel 941 779-6648

- **Natural Resource Conservation Service (NRCS)** is a USDA agency that works with farmers through the United States to help implement conservation measures to protect the environment. A current focus is non-point source pollution such as run-off from area where animals and/or manure are kept.
- **American Society of Agricultural Engineers** is a not-for-profit professional and technical organization of members worldwide interested in engineering knowledge and technology for food and agriculture. The ASAE coordinates educational opportunities such as technical sessions, workshops, and conferences. **ASAE, Eastern Region** - 2950 Niles Road, St. Joseph, MI 49085, Tel 616 429-0300, Fax 616 429-3852
- **American Society of Civil Engineers** is organized on the national and state level. At the state level it is divided into sections. There are six sections in NYS. **National Headquarters** - 1801 Alexander Bell Drive, Reston, VA 20191, Tel 703 295-6300, Fax 703 295-6444
- **The Natural Resource, Agriculture, and Engineering Service (NRAES)** is an interdisciplinary, issue-oriented program sponsored by the cooperative extension directors of the member state universities. The mission of NRAES is to assist faculty and staff at member universities in increasing the availability of research- and experience-based knowledge to improve the competitiveness and sustainability of agriculture and natural resources enterprises, and promote environmental protection and enhancement. NRAES is focused on increasing the availability of knowledge for producers, producer advisors, educators, consumers, researchers, policy makers, and consultants. The “On-farm Composting Handbook” is referenced widely as a guide to basic engineering principles for composting projects.

Appendix E - Local Composting Projects/Weedsport Roundtable

Village of Weedsport - John O'Connell

The Village of Weedsport began investigating alternative methods of biosolids disposal in 1991, when the Auburn, NY incinerator was restricted from accepting biosolids. The alternative sludge disposal methods considered were direct land application, lime stabilization, and composting.

Composting was chosen as the most viable alternative. The facility was sited at the wastewater treatment facility using aerated static piles. The Village received a 50 percent matching grant from the Environmental Protection Fund for the building and most of the processing equipment and a 100 percent grant for one piece of processing equipment. To make the project economically viable, neighboring communities signed an agreement to deliver biosolids to the compost facility. The materials from different communities are processed separately at the facility, but are located under one roof. The biosolids are mixed with wood chips to provide bulk and covered with woodchips to control odors. Brush from the Village is chipped once a month to produce the woodchips. The end product is a Class 1 compost. Each community is responsible for delivery of the biosolids and pick-up of the compost. The tip fee was \$64.00/ton at start-up, but has been reduced to \$42.00/ton now that the building has been paid for. The compost site requires a single part-time operator.

Village of Sodus - Phil Badman

The Village of Sodus experienced difficulty drying the volume of biosolids from the wastewater treatment facility. The result was that the biosolids were landfilled at a high cost (\$80.00 to \$90.00/ton). Thus, the Village of Sodus was interested in alternatives to landfilling biosolids. Unfortunately, neither the Village nor the County have access to departmental engineering services, thus requiring the Village to select an outside consulting engineer. The effort to permit a biosolids composting facility was difficult at each step in the process. It is believed that the New York State Department of Environmental Conservation is particularly cautious in that region because of a previous bad experience. A leaf and biosolids composting site was finally permitted on April 1, 1998.

A vehicle with an industrial vacuum collects the leaves. Once delivered to the site, the dried biosolids are incorporated into the leaves and formed into windrows. The windrows are turned five times in fifteen days, which ensures the aeration of the piles. The finished compost is available at no cost for residents and is used for landscaping by the Department of Public Works. Because biosolids are used, the compost cannot be used on food crops.

Rose Valley Farm - Elizabeth Henderson, Organic Farmer

At Rose Valley Farm, the goal is to work in harmony with nature. One way that Rose Valley Farm is different from conventional commercial farms is that it utilizes a patchwork

of smaller fields that reflect the diversity of crops and allows for a heavy crop rotation. The farm prefers to use compost rather than synthetic fertilizers on its crops.

The town of Rose, located on Sodus Bay, traditionally used herbicide to kill aquatic vegetation along the lakeshore, which required closing the adjacent beaches for fourteen days to allow the chemicals to dissipate. The town recognized the dangers in using herbicide and decided to purchase a harvester to remove the weeds from the lakeshore. Rose Valley Farm offered to accept the harvested weeds, provided that they are free of unwanted chemicals. The farm combines the weeds with manure and shavings, from the Finger Lakes Racetrack as the basic recipe for the operation.

Due to financial constraints, it is essential that the composting process be simple. Rose Valley Farm uses a manure spreader and a front-end loader to mix the feed stocks and form them into 5' x 8' x 90' windrows. They also mix in rock phosphate to enhance the soil. Once the windrows are formed, they are left for one year. After one year the compost is of suitable quality to be incorporated into the soil. The compost costs approximately \$5.00/ton to process.

