

COMPOSTING FOR RESTAURANTS

Of all food service businesses, restaurants tend to vary the most in the amount of compostables they produce and in overall generation of waste. Most compostables are generated behind the counter as food prep residuals. A full service restaurant can also compost plate scraps.

QUICK SERVICE

Quick service restaurants aim for almost zero food residuals and leftovers behind the counter. Very little--if any--food preparation is done in the restaurant and unsold food is kept to a minimum to reduce revenue loss.

The generation of waste as measured at four audited McDonald's in the upstate New York area

At Camp Lejeune Composting Goes Full-Scale

Camp Lejeune Marine Corps Base, North Carolina, occupies 153,000 acres and supports 144,000 Marines, sailors, and their families.

A 1993 waste sort showed that compostable materials comprised approximately 50% of the 300 tons generated each workday:

- paper products (37%)
- food residuals (15%)
- yard trimmings (3%)

Based on this analysis, it was estimated that as much as 8,000 tons, about 30 percent by weight, of the materials then being landfilled could be composted.

A pilot began in October 1995 using outdoor windrows for composting. Pulpers already in place at each of the mess halls process the food residuals prior to composting. The pulper produces a uniform size material with an adjustable moisture content.

Because of the pilot's success, Camp Lejeune is in the process of preparing a full-scale facility on a 3-acre site.

Four:One Compostables to Trash

"It wasn't a big deal to train employees," says John Teichmiller, part owner of Norwood Pines, a restaurant in Minocqua, Wisconsin. "It was relatively simple." Teichmiller and the head cook trained the 30 employees to separate organics, which includes prep residual and plate scraps. Aside from the traditional recyclables, employees use a two-sort system, compostables and trash.

The restaurant generates about two 55-gallon cans of compostables and about one-half a can of trash, which is mostly plastic. "It's about four to one, compostables to trash," says Teichmiller.

Compostable cans are lined with a degradable plastic bag provided by Oneida County, which owns and operates the composting site. These are then emptied into an outside dumpster. "We're doing something good for the environment," says Teichmiller.

showed that 26.7% by weight of the total waste stream is compostables generated behind the counter (buns, meat, coffee grounds, unsold food, paper wrappers and liners, egg trays, napkins, cups, etc.). The remaining 23.4%, again generated behind the counter, was waste destined for disposal, followed by 19.4% recycled paperboard and HDPE. Customer, or over-the-counter, waste was found to represent 30.6%.¹¹

FULL SERVICE

Full service chain restaurants tend to generate more compostables because they are doing more food prep in the kitchen and may also have plate scraps returned to the kitchen. Full service independent restaurants are variable, but tend to generate high amounts of compostables, especially if they serve a lot of seafood and prepare fresh fruits and vegetables every day. Independent restaurants may also have peak seasons when more compostables are generated.

In East Hampton, New York, 10 independently-owned restaurants participating in composting averaged about three tons per month per restaurant of compostable food and soiled paper. Monthly tonnage ranged from a low of .25 tons a month to a high of 14 tons a month. These

¹¹ Resource Integration Systems, DRAFT McDonald's BTC Composting Pilot Program, 1st Quarter Waste Audit Report, June, 1994.

restaurants included everything from a deli to several full-service and resort hotel restaurants.¹²

Many restaurants find that composting can reduce disposal costs or is a break-even activity. This does not take into consideration the beneficial environmental impact. *To assess the potential economic benefit for your restaurant, use the cost model on page 14.*

¹² *The East Hampton Source-Separated Composting Program: Final Report*, The National Audubon Society, 1996.

COMPOSTING FOR INSTITUTIONS

Like supermarkets, institutions tend to generate large amounts of compostables—food prep residuals, leftovers, plate scraps from serving hundreds of meals each day, and food residue from preparing catering orders. Institutions may also possess the necessary land for on-site composting operations.

UNIVERSITIES

Results of a 1995 Dartmouth College waste audit of the largest dining facility on campus, Thayer Hall, found that out of a total of 12,325.7 pounds generated per week,

- 75% by weight, or 18% by volume is food
- 16% by weight, or 53% by volume is other compostables (primarily soiled papers)
- 9% by weight, or 29% by volume is noncompostables (mostly plastic)

Compostables include produce trim, leftovers, fryolator grease and pot and pan scrapings, salad bar prep residuals, meat scraps, "old" baked goods, soiled paper and packaging, unused and expired foods, uneaten food scraps (from trays), napkins, paper cups and other paper containers and packaging.

Thayer Hall has a floor space of 60,000 square feet. It houses three main food-service areas and Dartmouth Catering Services. Based on these numbers, this facility expects to generate 232.6 tons of food, 41.2 tons of other compostables, and 25.2 tons of noncompostables each year. This excludes recyclables, which is mostly corrugated boxes. Other recyclables include office paper, newsprint, metal cans, glass, aluminum and plastics. Recycled material totals 6,705 pounds per week.¹³

Georgia Department of Corrections

Pressure from dumping restrictions, tip fee increases, and closing landfills prompted the Department of Corrections, with the help of Community Environmental Management, Inc. to consider composting prison kitchen wastes.

A pilot facility in Jackson, using inmate labor, a leased tractor, and an old tub grinder, saved enough money that four other correctional facilities in the state started on-site composting programs. Start-up costs for each facility were about \$250,000.

The facilities accept yard waste from communities and food scraps from usually more than one correctional facility. At one site, monthly trips to the landfill have dropped from 13 to three, and disposal costs have been reduced by 63 %.

Finished compost is used in prison farm operations and given to the Department of Transportation and other state agencies. The "composting detail" is popular among inmates. It allows them to be outside and to learn new skills.

Since 1990, the University of Maine in Orono, has composted food scraps, leaf and yard trimmings, brush and manure. On-site collection, processing and operation of the University's own composting site costs them \$13.82 per ton. Four local communities add their leaf and yard trimmings to the mix; their costs are not included. The local tipping fee for disposal is \$49 per ton.

The University has approximately 12,000 students and 4,000 employees. Of the University's total Fiscal Year 1997 waste stream, 6.9% by weight (319 tons) is yard debris, and another 6.7% (312 tons) is cafeteria waste. The majority of their waste stream (52.1%) is construction/demolition debris. 11.9% (37 tons) of the cafeteria waste is composted, and 92.4% (295 tons) of the yard debris is composted.

¹³ Institute for Community Environmental Management and Environmental Studies Department, Antioch/new England Graduate School, *Dartmouth College Organic and Compostable Waste Study: Thayer Dining Services Report*, May 1996.

INSTITUTIONAL DINING

The New York State Correctional Services Systems has been composting at 49 sites since 1989. Before initiating a composting program, they conducted a study of their waste stream and found that approximately 30 percent by weight was organic. This included produce peelings, trimmings and spoiled vegetables, leftover macaroni products, soups, beans, stews, juices and bakery goods. Post-consumer items included bones, soiled napkins, milk, bread and other assorted scraps.

These residuals were found to be 65-75 percent moisture and weighed 1,500 to 2,000 pounds per cubic yard. The generation rate of organics is estimated to be about one pound per inmate per day.¹⁴

Fletcher Allen Health Care in Burlington, Vermont, sends 6-8 tons a month (or about 600-900 pounds each week day) of preconsumer food scraps to Intervale Composting for processing.

The 585-bed facility serves 4,000 meals each day from an in-house kitchen. Compostables are collected in 64-gallon wheeled containers, which are collected daily, along with other recyclables. The tipping fee at the composting facility is about half of the fee charged by the landfill. Fletcher Allen estimates saving between \$5,000 and \$9,000 annually by composting food scraps.¹⁵

¹⁴ James I. Marion, "Correctional System Wins with Composting and Recycling," *BioCycle*, September, 1994, pp. 30-36.

¹⁵ Cornell Waste Management Institute, *Compost ... because a rind is a terrible thing to waste!*, October, 1996, pp. 38-39.

OTHER CONSIDERATIONS

COLLECTION AND TRANSPORTATION

Difficulty modifying existing hauler contract for compostables collection

Many haulers have disposal interests that conflict with composting. Some contracts cannot be modified until they come up for renewal, which can take months or years. In a few cases, there may be a designated hauler within an area for organics collection. Typically, however, any hauler can take organic residuals to a composting site.

If necessary, consider the economics of having separate contracts for organics and material going to disposal. The amount of material destined for disposal should be reduced when organics are removed from traditional collection, leading to less frequent collection.

Some companies and institutions use their own vehicles to transport recyclables and compostables. In a few cases, the composter will collect organics and take them to their site, which will be either an additional fee or included in the total fee (see side bar).

Hauler resistance to accommodate organics storage and collection

Some haulers have made substantial changes to accommodate recyclables--such as corrugated boxes, aluminum, and glass--and are reluctant to make further changes to accommodate organics. Because one more source-separated material has been added, separate containers and storage space are necessary. Reducing the size of containers that typically contain wastes destined for disposal may eliminate the space problem and offset any costs for container changes.

Location of composting site is too far away to be economical

The biggest cost of processing organics is for collection and transportation. If the composting site is considerably further away than where your wastes are currently going, hauling costs are likely to go up. This cost, however, may be offset by a lower fee charged by the composting site, which can then make composting a more competitive option.

Collection frequency

When you separate organics for composting, frequency of collection for materials going to disposal should drop. Frequency of organics collection depends on the size of storage containers. A few supermarkets that collect compostables in a compactor have it picked up as infrequently as every 28 days.

A Few Composters Provide Collection

At Oregon Soil in Oregon City, Oregon, a vermicomposting facility, three flat bed trucks are used to haul produce from 19 Fred Meyer supermarkets, two wholesale produce houses, and a school district. Organics are collected everyday in 32 gallon barrels.

Using a flat-bed pickup with an electric lift gate, North Coast Quality Compost in Arcata, California, is on the road six to eight hours each day, seven days a week, collecting food residuals from restaurants, produce distributors, and grocery stores. "We provide clean, washed 32-gallon plastic containers twice a week to our customers," says Brad Rother.

Stevenson's Environmental Earthworm, a vermicomposting business in Orlando, Florida charges commercial food generators a flat fee to collect and compost. Customers with greater volumes can save simply because of hauling efficiencies.

Dedicated Organics Route in Seattle, Washington

Emerald City Disposal and Recycling Company, in Seattle, Washington, operates organics collection for four supermarket chains. "We have a designated organics route that runs five days a week eight hours a day," says Bruce Bentley, District Manager.

The front-end load trucks deliver organics to Cedar Grove in Maple Valley. The trucks complete about 75 pick-ups each day, collecting every day at some stores. Supermarkets with compactors or roll-off containers are picked up on-call.

"I definitely see our route growing—probably by leaps and bounds, especially when we consider collecting post-consumer food waste," says Bentley.

During the summer months when temperatures can be high, organic material may need to be picked up more frequently. Adding lime to the storage containers can help to reduce any odors. Including soiled and other unrecyclable paper may help absorb both moisture and odors.

LOCAL REGULATIONS AND POLITICS

Local composting site is not permitted to accept food service organics

Ask the composter about getting the site permitted to accept your food residuals. If you combine with other businesses, there may be sufficient tonnage to induce the composter to consider making site changes and getting necessary permits to accommodate your request. States and localities are also likely to move more quickly in the permitting process when there is local business support.

Public or governmental resistance to composting

The "Not In My Back Yard" (NIMBY) sentiment has been applied to every kind of facility or land use. And, the fact is, when not managed properly composting sites can be malodorous. A handful of sites have been shut down because of odor. But for thousands of other sites, compost is being produced using "good neighbor" policies.

To reduce even further the number of facilities that are closed because of odor, the composting industry has developed a *Compost Facility Operating Guide (see the Composting Council publications list in the Resources section)*. When investigating a site to take your compostables, check with your local or state solid waste regulator to make sure that the site is in compliance with the principles of the *Guide*.

Public and government support is improved when composting sites have a track record of being good members of the community. Composters know this and will usually work with local government to resolve any issues that arise within the community.

Grand Hotel, Mackinac Island, Michigan

"Somehow I've become the garbage guru," says David Stout, Resident Manager of the Grand Hotel located on Mackinac Island, Michigan, where food prep and plate scraps are separated for composting. They also end up composting plenty of paper products like napkins, paper towels and cups.

At the Grand Hotel, which averages 750 guests each night, compostables are collected in about two dozen unlined plastic bins. The bins are transported by truck to the composting site and then returned.

Employees rinse the bins and return them to the kitchen areas. These four employees also separate recyclables, compostables and trash at the loading dock.

"While it is labor-intensive to sort at the dock, it pays off overall," says Stout. "In comparison to the landfill, we are saving money." Trash has to be taken off the island for landfilling.

Organics are composted at a city-owned facility. The three-sort collection is offered to all commercial businesses and island residents. Approximately 25 restaurants and nine hotels participate. The finished composted is used as a soil amendment and sold to community residents.

Flow control

Flow Control, which is the ability of localities to control where waste goes (e.g. to the county owned landfill at a mandated price), has been weakened in recent years by court decisions. In some areas this has meant a decrease in waste collection prices and/or more choices for waste collection, but there is still substantial regional variability in both.

CORPORATE SUPPORT AND EMPLOYEE PARTICIPATION

Reducing landfill input helped to get strong buy-in from managers. The key is that the program is very simple.

Steve Gaines
Operations Project
Manager
Save Mart

Manager support

Food service composting programs in operation continue to confirm that where there is support from the manager of a retail establishment, there is a higher degree of success. And management support is critical to begin organics separation and collection.

To improve manager support, education about composting and its benefits is the first step. Most composters welcome visitors to their sites. The Composting Council and local solid waste departments also have educational materials available on composting. If this initiative will save money, that may also be an incentive for a manager to pay careful attention to the program.

Employee acceptance and training

Employees may be unwilling to separate organics, especially when retail traffic is heavy. High employee turnover also makes it difficult to implement a consistent composting/recycling program. Education about composting and the beneficial use of compost—even a trip to the composting site—increases interest and understanding of why employees are being asked to separate organics. Consider posting compost education materials in employee areas.

In some cases, the composter will come into the business and manage employee training. They are then able to answer questions and be clear about what can and cannot be included for composting. Check with your composter about assistance with employee training.

Employee handling of organics

While employees may not like separating organics from other materials, there is currently only limited data on whether that translates into more handling time. The Food Marketing Institute's composting workbook reports that the average time required to move containers to and from the staging area is .05 hours or 3.0 minutes.¹⁶

For any business, adding something new requires an adjustment period and time to become more proficient—all of which may add up to more overall handling time. To make separation easier, simplify

Minnesota Survey Results

Respondents to a survey of participants in a composting program in Minnesota indicated that 65% of employees reacted positively to the program, with only 12% stating that employees reacted somewhat negatively.

Aspects of the program that were most troublesome were "extra work" (e.g. sorting), "location of inside collection containers not convenient," and "difficulty getting employees to sort materials accurately."

Source: *Minnesota Source-Separated Composting Project: Final Report*, National Audubon Society, October 1996, p. 40.

¹⁶ Willard Bishop Consulting, Ltd., *Composting Workbook, Reducing Waste Disposal Costs How to value the Benefits of Composting in the Supermarket Industry*, Food Marketing Institute, Washington, D.C., 1994.

procedures as much as possible: clearly label or color code containers, place containers within easy reach, and provide clear feedback to employees.

Space requirements for collection containers

Typically, new containers do not need to be purchased for inside collection. While the amount of material being thrown out does not change, separating organics changes the distribution. Some businesses may want to purchase different size containers to allow for this modification.

Make as few changes in containers as possible when initiating an organics separation program. Moving containers around affects work flow. A study of participants in a composting program in Minnesota, found that 35% of respondents didn't like the extra space needed for containers.¹⁷

Let employees help find solutions to how things will be configured when you initiate organics separation. They are more likely to be happy with the outcome when they play a role in placement of inside collection containers.

Perry Restaurant Group, Burlington, Vermont

At Perry's, an eight-restaurant chain, three stores have been composting for about eight years, with another that started separating organics for composting recently. "Now it's just a day-to-day thing," says Rod Raywinkel, Corporate Chef. "It just kind of happens." Perry's serves steak and seafood to about 100,000 dinner patrons at each restaurant annually.

Employees separate the compostables, which includes food and a few small paper cups used on the plates, into two bins, one for compostables and one for trash. "It definitely requires training and follow-up from the manager about what goes in the composting bin," says Raywinkel. "In this business, turnover in the dishwashing department means the general manager has to do a lot of individual training."

Compostables are collected in 10-gallon containers and then dumped outside into 96-gallon totes. The local hauler, who lines and cleans the totes, takes the organics to Intervale—also in Burlington, for composting.

COMMUNITY RELATIONS

Announce the Program

Sell the program to the community. If customers and the community understand that your business is initiating a program to help reduce waste and improve the environment, they are likely to respond positively.

Donate Finished Compost

One way to "show" the community the environmental benefits of a composting program and create a media event is to donate a truckload of finished compost for use on community grounds or gardens. Some businesses also sell the finished product back to the customer.

Form Community Advisory Group

You may want to form a community advisory group made up of program partners (hauler, composter,¹ participating retail businesses, local environmental organizations, etc.). This group can reach out to the community and respond to any complaints.

¹⁷ *Minnesota Source-Separated Composting Project: Final Report*, National Audubon Society, October 1996, p. 40.

CONCLUSIONS

To make a decision about whether a composting program is right for your business, consider the following. If you can answer "yes" to each of these benefits, start composting. See *"Getting Started: A Checklist" in the Resources section.*

ECONOMICS

After completing a cost assessment, do the economics make sense? This is the critical test. Be sure to amortize any capital investment, and look at long-term costs and savings.

LOGISTICS

Is it logistically feasible? This includes securing a hauler to take organics to the composting site and a nearby composter that accepts food/soiled paper. If you are planning to compost on-site, ensure that sufficient land, labor and capital are available.

Also consider the floor plan inside your business, including space requirements for both inside collection and outside storage. And determine management and employee support for a composting program.

ENVIRONMENTAL IMPACT

Will composting make a big dent in the amount of waste that goes to disposal? After assessing your waste stream and the amount that is potentially compostable, consider the environmental returns.

- Diversion to composting can contribute to local/state recycling or diversion goals.
- The finished product can be used on company grounds or for the benefit of the community.
- Finished compost can be returned to customers through retail sale for home gardens.
- The program provides an opportunity to educate customers and employees about the benefits of recycling organics through composting.

COMMUNITY ACCEPTANCE

Are the public and the regulatory community supportive of a composting program? A composter with a good reputation in the community and among regulators will go a long way in making a composting program work. The hauler must be committed as well. Finally, this initiative must be a partnership, with the needs of your customers and the community at the center.

Composting BIG in Fort Worth, Texas

Silver Creek Materials began as a topsoil mining company, but in 1990 expanded into composting and has never looked back.

The first to be composted were chips from power-line trimmers. Since then, owner Robert Dow has added wood shingles, manure from zoo animals, grain, waxed corrugated cardboard, diatomaceous earth, beer, wine, orange juice, processed fruits and vegetables, liquor, salad dressing, diaper fluff, sandpaper, and the list continues to grow.

In 1995 Silver Creek, which is located on 250 acres, processed over one million gallons of beer, wine, liquor, sports drinks, and soft drink beverages (Miller Brewing Company, Coca-Cola Bottling Company of Fort Worth, Nestle Distribution, Pepsi Cola, and Del Monte). Liquids were added when Subtitle D regulations were adopted banning liquids from landfills. Silver Creek has also tested the composting of U.S. Postal Service's undeliverable bulk mail.

Today, Silver Creek composts approximately 200,000 cubic yards of material per year. According to Dow, "It's approximately equivalent to 5% of the total waste stream of the city of Fort Worth."

RESOURCES

COMMERCIAL WASTE STREAM DATA

Data on generation of waste at food service businesses suggest a high degree of variability. However, businesses of similar type and size tend to generate amounts within a defined range.

Results of a 1992 commercial food waste study conducted in the Champaign/Urbana, Illinois area suggest that four restaurants, two grocery stores, and a sorority house generate significant quantities of waste at highly variable rates. For example, restaurants showed a large variation in total waste generation per employee (4.6 and 7.5 pounds per employee per day), waste generation per meal (0.8 to 2.2 pounds waste per meal), and waste-per-seating capacity (0.9 pounds to 4.8 pounds of waste per day per seat).

The grocery stores, however, had similar total waste generation per employee rates—25 pounds per employee per day. The two grocery stores also showed a range of total waste generation per floor area from 52 pounds per 1,000 square feet per day to 62 pounds per 1,000 square feet per day. The smaller grocery store had the higher waste production per floor area.¹⁸

This same variability was found in a Crawford County, Illinois study of five participating commercial establishments. Findings showed that the amount of food residuals, excluding compostable paper, separated at the point of generation was 20 percent by weight of the total refuse. "On a pound per employee per day (PED) basis using seven days as a base, food residuals were generated in a range from 0.19 PED to 7.40 PED, resulting in an average 1.54 PED rate."¹⁹

A 1994 composting pilot conducted by the Solid Waste Authority of Central Ohio and the Kroger Company found that during a two-week period, Kroger generated 45,570 pounds of waste: 24,700 pounds was trash and 22,330 pounds (45%) was compostable. Compostables included floral scraps, all bakery items and soiled papers, deli food, seafood, dairy (no milk), and all soiled or waxed paper, including waxed corrugated boxes.

Based on this data, a "compost collection formula" was derived: 6.348 pounds of compostable material for every \$1,000 of grocery/drug sales (not including pharmacy sales). For example: a store with \$350,000 in sales per week could expect to generate about 2222 pounds of compostable material per week.²⁰

Trying to understand the big picture, a 1992-1995 Commercial Food Waste Composting Demonstration Project was conducted in the Seattle, Washington area. Findings showed that food residuals comprise 25 percent or more of what is currently being disposed of by the commercial sector. This does not include any soiled paper.

The study involved a generator survey of 373 businesses and a food weighing study to verify their responses. Results of the food weighing study found that grocery stores generate 16.3 pounds of food

¹⁸ Ty Newell, Elizabeth Markstahler, and Matthew Snyder, *An Investigation of Commercially Generated Food Waste and Recyclable Materials*, Community Recycling Center, December, 1992; see also, Ty Newell, Elizabeth Markstahler, and Matthew Snyder, "Commercial food waste from restaurants and grocery stores," *Resource Recycling*, February 1993, pp. 56-61.

¹⁹ Crawford Solid Waste Disposal Agency and Patrick Engineering, Inc. for U.S. EPA Region V, *Food Waste Segregation and Collection: A Pilot Study in Crawford County, Illinois*, February, 1994; see also Larry Newton and Chris Burger, "Source Separating Small Town Food Waste," *BioCycle*, April, 1994, pp. 40-44.

²⁰ The Solid waste Authority of Central Ohio and The Kroger Company, *Food Composting Pilot (March 1, 1994 - May 15, 1994)*, September 14, 1994, p. 6.

per employee per day and restaurants generate 7.1 pounds of food per employee per day. Grocery stores discarded more than twice as much food residuals as restaurants.²¹

While these studies suggest some variability, they also demonstrate the potential for recovery through composting.

CONDUCTING A WASTE AUDIT

Conducting a simple waste audit involves sorting your waste stream into clearly defined categories, usually more than once. Constituent parts are then weighed to determine their portion of the total. A few tips about conducting a simple waste audit:

- You should have some record—usually provided by the hauler—of the amount of waste that is collected from your business. Use these records to determine daily or weekly averages.
- The entire waste stream can be sorted or, if it is large, use samples. Samples, however, need to be taken in some systematic, representative fashion. This way a mini-snapshot of actual organic generation can be collected, weighed and factored accordingly.
- You will need a designated area where you can dump waste and sort it. Make sure it is well ventilated. Also, have proper health and safety equipment available such as rubber gloves, face masks, safety glasses (if necessary), and other protective clothing.
- Make sure that your scales are reliable, and weigh collection containers before you begin sorting. Use the same scales for all sorts.
- To get more reliable data, it is probably best to take two, or even better three, samples at different times/day and on different days. This helps account for waste stream variations during peak days and any seasonal or daily menu fluctuations. A waste audit in the summer may look much different than one in the winter.
- Make sure that the sort categories are clearly defined and remain consistent. Keep categories as simple as possible. For example, just separating recyclables, compostables, and trash (or everything else) is probably all most businesses need to do.

²¹ Christine Luboff and Karen May, "Measuring Generation of Food Residuals," *BioCycle*, July 1995, p. 66-68.

GETTING STARTED: A CHECKLIST FOR OFF-SITE COMPOSTING

Step One: Locate a composting facility

- Contact your local or state solid waste agency (state composting association or the Composting Council) to get a list of composters in your area. They may be able to tell you which ones will accept or are permitted for food.
- Is the composting facility permitted to accept food scraps only?
- Is the composting facility permitted to accept food scraps *and* soiled paper?
- Is the facility in compliance with all state and local regulations?
- How does the tip fee compare to that for disposal? How would payment be set up?
- You and the composter have agreed on all materials acceptable for composting, as well as those that cannot be included.
- The compost facility can accept the amount of material you expect to deliver each week.
- Will the composter accept organics in plastic bags?

Step Two: Arrange for organics collection

- Can any hauler deliver to the composting site?
- Can any kind of truck get into the site (for example, one pulling a compactor) or are there limitations on size and frequency of trucks entering the facility?
- Does the composter provide any hauling service?
- Can organics collection be arranged under your current contract? At what cost?
- Will organics collection require another hauler?
- Will organics be collected as part of a larger composting program (that is, part of an organics collection route)?
- Can frequency of waste collected for disposal be cut back?
- Is hauler willing to work with you on size and arrangement of outside storage containers?
- Is hauler willing to work with you on changes in collection frequencies?
- Is co-collection an option (that is, two or more materials collected at the same time on the same truck) to reduce collection frequencies?

Step Three: Determine inside collection procedures

- Who is responsible for monitoring the program inside?
- Are any changes in size, number, or location of inside containers needed for separating compostables?
- Who will take the compostables to the outside containers?
- Is the procedure for separating recyclables and compostables posted in a central employee area?
- All inside containers are either labeled, color-coded, or in some way designated for recycling, composting, trash, etc.
- Are there any changes in container liners that need to be communicated to employees?

Step Four: Educate

- What are employee responsibilities?
- Who in the organization is responsible to educate employees? Does the composter provide any training services?
- How will new employees receive training?
- Will customers be asked to separate organics? (students, inmates, staff, etc.) If yes, how will a customer education program be implemented?

Step Five: Monitor the program

- Can inside separation be made more efficient by either location or size of containers?
- Is the outside compostables bin overflowing before it is collected or can compostables be collected less frequently?
- Can frequency of waste disposal be reduced?
- Is recycling still being maintained?
- Are there a lot of "mistakes" in the separated organics? How can this be reduced?
- Is employee turnover high, requiring continued reeducation?
- Get employee input on improving the program.
- How are new employees trained?

Step Six: Get out your story

- Issue a press release.
- Pitch or write an article for local newspapers, environmental publications, trade association newsletters, etc.
- Have an on-site promotion.
- Have a "composting day" where employees and the community are educated about composting (this may include a tour of the composting facility).
- Solicit local news coverage (radio and TV).

GETTING STARTED: A CHECKLIST FOR ON-SITE COMPOSTING

Step One:

A. Determine composting requirements

- How much capital is available to initiate a site?
- Is there sufficient labor to manage the site?
- Is there any equipment on-site that could be used for composting?
- How much land area is available for composting?
- How much food/food and soiled papers do you expect to compost each day? Of bulking agent, like wood chips? Of leaves and yard trimmings?
- What will be composted with the food service organics? Wood chips? Leaves and yard trimmings? Animal bedding? Manure?
- What other materials are on-site that could be composted with the food service organics (yard trimmings, straw, manure, etc.)
- What other sources of organic waste outside the institution (grocery and other produce, food processing, biosolids, yard trimmings, manure, straw, etc.) could be composted at your site?
- What are the regulatory or permitting requirements to compost and store this amount of organics?
- Are there state or local requirements for the finished compost product?
- Is there a market for the finished compost on site?
- Are there markets outside of the business for the compost?

B. Select a composting system/method

- Types of on-site composting methods:
 - Windrow
 - Static pile
 - Aerated static pile
 - Containerized/in-vessel systems
 - Vermicomposting
- How much material do you expect to compost each day?
- What are the permitting requirements for the site, selected composting method, and expected feedstock?
- What are the state and local rules/regulations for composting on-site?
- What capital, physical space, labor, and equipment (front-end loader, etc.) are available for composting?
- How will the composting method selected fit the proposed end market?

Step Two: Arrange for organics collection

- Who will be responsible for separation and collection of compostables?
- Will hauling be done within the business/institution, or will hauling be contracted out?
- How might your current hauling contracts be affected by composting?
- Will any material be brought to your site from outside of the business/institution?

- Can frequency of waste collected for disposal be cut back?
- How will composting affect the number, size, and arrangement of outside storage containers?
- How will composting affect collection frequencies?
- In addition to food residuals, what other organics on-site will be collected for composting?
- Is co-collection an option (that is, could trash be collected with another recyclable) to reduce collection frequencies?

Step Three: Determine inside collection procedures

- Who is responsible for monitoring the program inside?
- Are any changes in size or number of inside containers needed for separating compostables?
- Who will take the compostables to the outside containers?
- Is the procedure for separating recyclables and compostables posted in a central employee area?
- All inside containers are either labeled, color-coded, or in some way designated for recycling, composting, trash, etc.
- Are there any changes in container liners that need to be communicated to employees?

Step Four: Educate

- What are employee responsibilities?
- Who in the organization is responsible to educate/train employees?
- How will new employees receive training?
- Will customers (students, inmates, staff, etc.) be asked to separate organics? If yes, how will a customer education program be implemented?

Step Five: Monitor the program

- Can inside separation be made *more efficient* by either location or size of containers?
- Is the outside compostables bin overflowing before it is collected or can compostables be collected less frequently?
- Can frequency of waste disposal be reduced?
- Is recycling still being maintained?
- Are there a lot of "mistakes" in the separated organics? How can this be reduced?
- Is employee turnover high, requiring continued reeducation?
- Get employee input on improving the program.
- How are new employees trained?

Step Six: Get out your story

- Issue a press release.
- Pitch or write an article for local newspapers, environmental publications, trade association newsletters, etc.
- Have an on-site promotion.
- Have a "composting day" where employees and the community are educated about composting (this may include a tour of the composting facility).
- Solicit local news coverage (radio and TV).