Food Waste Diversion Guide for Schools

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“Food Waste Diversion Guide for Schools”

Introduction

So you want to start a food waste diversion program at your school? Awesome! You have obtained the right document. This guide will provide you with a basic framework to manage the food waste diversion process at your school, and help you identify the best strategy for processing the food waste that you collect. Although this guide provides information on where to find instructions for on-site processing of food waste, it does not include directions for how to manage an on-site composting system at your school. See the School Composting Resource Package for instructions for on-site composting at school.

Establishing a food waste diversion program provides a range of benefits for the environment and your school. Diverting food waste from the waste stream increases the life of existing landfills; prevents greenhouse gases like methane from being generated when food waste breaks down in landfills (See “Greenhouse Gases”, *Supplemental Information*); and when food waste is processed through composting, the finished product (compost) is a valuable soil amendment for farmers and gardeners that can replace the need for chemical fertilizers. Participation in food waste diversion programs increases your students’ environmental awareness, and empowers students by engaging in an environmental behavior that creates sustainable change in their community. Food waste diversion programs can also save your school money on disposal costs (something we will get into later in this document). Let’s get started!

To Start a Food Waste Diversion Program at Your School:

1. Build support for the food waste diversion program
2. Evaluate current waste operations and options
3. Plan the program
4. Implement the program
5. Analyze and maintain the program
6. Promote the program

1. Build Support for the Food Waste Diversion Program

Identify a Compost Coordinator for the School Program

To make your school food waste diversion program most successful, a “Compost Coordinator” should be identified. This person will oversee and facilitate the food waste diversion program, from planning and implementation to monitoring and promotion. It is important to note that this person does not have to be the one to carry out all of the actions outlined in this guide, but should serve as the point of contact and organizer in charge of arranging that all action steps are taken. The Compost Coordinator will be the driver of the food waste diversion initiative, championing its benefits and ensuring the program is developed effectively. Suggestions for a Compost Coordinator include: a school administrator; a school staff member, like a teacher, custodial/facilities staff or

librarian; an active PTA member; or a local farmer/composter. It is worth mentioning that successful programs have been implemented where a student took on the role of the Compost Coordinator. If a student is identified as the Compost Coordinator for your school's food waste diversion program, then it is essential to take appropriate steps to ensure the program remains sustainable after the student has moved on from your school.

Build Administrative and Staff Support

Before a food waste diversion program can be developed and implemented at your school, buy-in must occur at the top level of administrators and staff. Depending on who the person is at your school that is driving the effort to establish a food waste diversion program, it may be the responsibility of the Compost Coordinator to obtain approval and support from stakeholders. Stakeholders that should be in support of the food waste diversion program include: School administrators (when implementing the program district wide, this may include the Superintendent or representatives of the school board; when implementing the program at one school, this may just be the School Principal), the manager of the custodial or facilities staff, and the manager of the kitchen staff. (See "Tip for Building Administrative Support", *Supplemental Information*)

Form a Planning Committee

Once a Compost Coordinator has been identified and the food waste diversion program has received support from necessary stakeholders, the next step is to form a Planning Committee. Suggested stakeholders for the committee include representatives from: school administration, custodial/facilities department, kitchen staff, cafeteria monitors, your school's GREEN TEAM, and an active PTA member. In addition, it is a good idea to include a student representative(s) on the Planning Committee. It is important to be inclusive when forming the Planning Committee both to prevent conflict, and to build ownership through shared responsibility. The responsibility of forming the Planning Committee will likely fall to the Compost Coordinator. That being said, by forming a comprehensive Planning Committee at the beginning of the process, the Compost Coordinator will be reducing the amount of work that falls on them further down the line. (See "Planning Committee Tip", *Supplemental Information*)

2. Evaluate Current Waste Operations and Options for Food Waste Diversion Program

Assess Current Waste Operations

It is essential to understand your school's existing waste operations and the quantity and type of waste that your school generates prior to implementing a food waste diversion program. The first step to accomplish either of these tasks is to learn about your school's current waste operations (i.e. trash and recycling.). (NOTE: If your school does not currently have a recycling program, you may want to establish this prior to food waste diversion. If this is the case, you can utilize the "Starting a School Recycling

Program" toolkit to develop and implement a recycling program at your school.) It is important to identify if the hauler is contracted through the municipality, school district, or individual school and work with the contract manager to determine some information before calling.

- Does the school's current waste hauler charge a volume-based fee for service, a per ton fee, or a service frequency charge? Cost savings can be seen by reducing tonnage, volume, and service frequency.
- From the monthly invoice, determine the current amount of trash that is collected on a weekly basis from your school.
- Ask for authorization to contact the hauler and then the waste hauler account representative's contact information.

When talking with your school's hauler, mention that your school is thinking about establishing a food waste diversion program, and be sure to ask the following questions:

- Does the hauler offer collection of food waste?
- If not, is the hauler aware of any services in your region that do offer collection of food waste? (NOTE: RecyclingWorks in Massachusetts provides a searchable database to find local food waste haulers and processors in your area: Call 1-888-254-5525 or visit www.recyclingworksma.com/find-a-recycler)
- Does the hauler have an estimate for how much of the trash is food waste? (NOTE: RecyclingWorks in Massachusetts provides industry standards for estimating food waste in the Food Waste Estimation Guide. Food waste must be diverted from the trash if more than one ton per week of food waste is disposed, see http://www.recyclingworksma.com/commercial-organics-waste-ban/)
- If not, does the hauler offer a service to conduct on-site waste audits to identify quantity and type of waste generated at your school?

If the quantity and type of waste generated at your school is not clear after speaking with your school's existing waste hauler, it is a good idea to conduct a targeted waste audit for your school. A simple strategy to carry this out is to collect the trash bags after a single lunch period and sort them; then project your findings to include the remaining lunch periods, as well as any before or after school programs. Conducting a waste audit is important for a number of reasons:

- Identify the quantity and type of food waste and compostable material generated at your school
    - Includes: Pre-consumer kitchen prep food waste; Post-consumer cafeteria food waste; Non-recyclable paper products like napkins and paper towels as well as compostable serviceware including compostable cups, plates, trays and utensils. (NOTE: Compostable serviceware and non-recyclable paper products are not included in the Food Waste Ban calculation; however diverting them can further reduce your trash volume.)

- Determine the best option for processing food waste and compostable material generated at your school. Options for processing include:
    - A small-scale on-site composting system
        - A waste audit can help identify quantity of bulking (carbon) feedstocks necessary for your on-site system (e.g., compostable paper products)
    - Contracting with a commercial hauler to bring food waste and compostable material off-site for processing
    - Partnering with a local farmer that will use the food waste for animal feed
- Determine the number of collection containers needed for collecting food waste and compostable material at your school

The Compost Coordinator will likely be the point person in charge of reaching out to your school's existing waste hauler. Depending on how successful that correspondence is, the Compost Coordinator can work with the Planning Committee to arrange for a waste audit to be conducted at your school.

Determine Processing Option for Your School's Food Waste

The best processing option for your school will be determined by: the volume of food waste that your school generates, infrastructure of your school's grounds, and processing options available in your region. Armed with the knowledge from the waste audit and conversations with your school's existing waste hauler, as well as any additional research to identify processing options in your school's region, the Compost Coordinator and Planning Committee should be prepared to decide what the best processing option is for your school's food waste. It is important to note that processing compostable material on-site via a small-scale composting system requires resources in the form of material costs and staff time, and might be better suited for smaller schools that generate a lower volume of material. The decision you make for how food waste at your school will be processed will determine what compostable materials your school will be able to divert.

- If processing of food waste will occur on-site, choose what composting system your school will use. Examples of on-site systems include: an in-vessel bin system (i.e. backyard bin), a three-bin system, a vermicomposting system.
    - Ensure whatever composting system you choose can process the materials your school diverts.
    - AVOID: Compostable plastic cups and utensils, milk cartons, meat and dairy products
    - Permitting - Schools that do on-site composting (of anything other than garden/yard waste) are considered exempt from permitting under the solid waste regulations (310 CMR 16.03(2)(c)2), but must notify their local Board of Health and regional office of MassDEP, 30 days in advance of starting the program, as a "Small Composting Operation not at a

Residence." The notification form you may use is on the MassDEP website.

- If contracting for food waste to be processed off-site, choose a commercial hauling service.
    - Work with your commercial hauler to identify what materials will/will not be accepted in your program.
- If your school will be partnering with a local farmer that wants the food waste to feed livestock, contact the farmer to discuss what materials can/cannot be fed to the animals. This process is regulated by Massachusetts Department of Agricultural Resources (MDAR). Find more information.

For schools contracting with a food waste hauler, it is important to note that some food waste haulers also provide collection equipment as part of the service. When speaking with your food waste hauler, ask if they provide collection equipment. This information will help when determining the type of collection points inside and outside of school, as well as identifying what additional collection equipment your school will need to acquire for its food waste diversion program.

3. Plan Food Waste Diversion Program

Assessment of Collection Areas

Before being able to identify budget needs to purchase collection equipment, the Compost Coordinator and members of the Planning Committee should conduct a site visit to observe how current waste collection programs occur at your school. There are three areas that are important to visit: Cafeteria, Kitchen and Outdoor Collection Area.

- Cafeteria
    - Observe current collection system design, assess additional collection container needs, and identify custodial responsibilities for servicing collection containers
    - Observe student flow to collection containers, tray clearing habits, and overall lunchroom setup
    - Identify best location for educational materials, posters and stickers
- Kitchen
    - Identify the type and location of collection containers that will be amenable for kitchen staff routine. Concentrate on preparation areas where a majority of food scraps will be generated
    - Identify best location for educational materials, posters and stickers
- Outdoor Collection Area
    - If the food waste generated at your school will be processed on-site, identify the best location for storing collection containers prior to them being brought to your on-site system (Also identify best location for your on-site system)

- If a third-party hauler will collect the food waste generated at your school, work with your hauler to identify the best location and container type for outdoor storage. The hauler may provide the collection containers or may have specific types and sizes required for their automated collection.

Program Development and Set-Up

After conducting site assessments, the Compost Coordinator should meet with the Planning Committee to determine the best system for collection of food waste in the kitchen and cafeteria. Decisions that must be made during this meeting include:

- Collection points inside (for both cafeteria and kitchen) and outside of school
- Decide HOW food waste will be transported from one collection point to another
- Decide WHO will be transporting food waste from one collection point to another
- Decide FREQUENCY for how often food waste will be transported from one collection point to another
- Make a plan for the maintenance and cleanliness of the food waste diversion system, and whose responsibility it will be to maintain this as food waste moves from one collection point to another
- (If processing material on-site) Use this meeting to determine the best method for managing/maintaining the on-site composting system
    - Students and teachers can be great managers of your on-site system, and involving students provides additional educational opportunities

Develop Program Budget and Identify Potential Funding Sources

Regardless of the processing option you choose for the food waste generated at your school, your food waste diversion program will still require collection containers for both indoors and outdoors (See “Collection Container Examples”, *Supplemental Information*), and educational materials for effective participation in the food waste diversion program. The Compost Coordinator and the Planning Committee can use the information obtained through the Waste Audit, as well as their observations from conducting site assessments, to determine the number and type of containers that will work best for indoor and outdoor collection. It is important to note that the Massachusetts Department of Environmental Protection (MassDEP) offers collection equipment and on-site compost bins to schools for food waste diversion programs through THE GREEN TEAM program. The Compost Coordinator and the Planning Committee should also discuss and research other potential grant opportunities to cover costs of food waste diversion programs, such as municipal grants. Additional costs associated with the various processing options include:

- For schools processing food waste on-site:
    - Purchase of composting system
        - FREE compost bins may be obtained through the MassDEP GREEN TEAM program

    - Purchase of tools to maintain composting system (i.e. shovel, rake, hoe, compost thermometer)
    - Staff time
        - Students can play a role in helping maintain on-site composting systems during class time or through an after-school club
- For schools that plan to contract with a commercial hauler to bring material off-site for processing:
    - Additional fees associated with food waste hauling*

*It is important to remember that although there are initial additional costs associated with establishing a food waste diversion program, your school may actually save money by diverting food and maximizing recycling which can reduce the volume and hauling frequency of the trash.

Obtain Collection Equipment and Educational/Training Materials

After all program operations have been determined and agreed upon, and any outside funding sources have been identified and secured, the Compost Coordinator should work with the Planning Committee to arrange the purchase and distribution of collection equipment and supplies. At this point, all educational material on proper separation should also be obtained or created. Educational material should be specific to your school, and may even include the location where your food waste will be processed. This is a great opportunity to involve students in the process, especially classrooms that are participating in MassDEP's GREEN TEAM program.

4. Implement the Food Waste Diversion Program

Staff Training

It is now time to train staff about effective participation in the food waste diversion program at your school. Before educating teachers and students, it is important to train the custodial and kitchen staff that has a large role in making the program run smoothly. Buy-in from custodial and kitchen staff is essential for the success of your school's program. Important suggestions for these trainings are:

- Emphasize that the food waste diversion program is not generating any new waste, simply diverting existing food waste into a different container.
- Assuming you were successful at obtaining buy-in from the managers of these departments, have this stakeholder present at the training to exhibit the fact these directions are new operating policies
- Allow ingenuity, suggesting that as long as staff adhere to the system the Compost Coordinator and Planning Committee have set up, whatever they view as most efficient for them is fine
- Empower staff by emphasizing the environmental and community good they are helping to achieve

The Compost Coordinator should work with the Planning Committee to determine whose role it is to educate staff. If your school will be processing material on-site, anyone involved in managing the on-site composting system should be trained prior to educating students about the program.

Outreach and Education: Student Training

Now comes the fun part! Educating students about the food waste diversion program is a critical piece of the puzzle. Your school may want to expand upon the training associated with the food waste diversion program as part of classroom curriculum, but at a minimum, students must be shown exactly how to separate waste so only acceptable materials end up in the food waste collection bins. There are a number of strategies to educate students including school-wide assemblies, classroom presentations, student made videos and use of school digital signage boards. Even after students are trained, it is necessary to coordinate lunchroom monitors that will stand by the food waste collection bins and remind students what can and cannot go into the bins. Lunchroom monitoring should be consistent for at least 2-3 months after the food waste diversion program is implemented. Important tips for educating students on proper source separation include (See "Tips for Source Separation Education", *Supplemental Information*):

- Identify and work with "lead" classrooms that can help with outreach and education on the food waste diversion program, including educating students and lunchroom monitoring
    - Classrooms participating in MassDEP's GREEN TEAM are great candidates!
- Educate students as close to the time of program implementation as possible, especially younger students, so this information is fresh in their minds when they actually start participating

The Compost Coordinator and the Planning Committee should work together to identify the best strategy for educating students, depending on the size of your school, and who will be responsible for the actual education process. If your school plans to process food waste on-site, you should also plan to mention this during the training, and work with students to identify strategies for using the finished compost on your school's grounds.

Implement Food Waste Diversion

Whether your food waste diversion program is being implemented district-wide, or at your individual school, it is a good idea to start on a pilot basis so that you can fine-tune separation and collection system logistics. The Compost Coordinator and Planning Committee should emphasize that the pilot is just a chance to work out any bugs in the system, and is not a test of whether the program will happen. If your school is contracting with a hauler to collect the food waste, be sure to notify your hauler of the date when you plan to begin the diversion program. If you are implementing the program district-wide, start food waste diversion at one school. If you are implementing

the program at one school, start with one lunch period. It is important to try to implement your program at a time when there will be a consistent school schedule for several weeks after start up.

The Compost Coordinator should work with the Planning Committee (and whoever is responsible for food waste processing) to evaluate any problems related to cleanliness or contamination during the pilot phase, and strategies to correct these issues prior to expanded implementation. After 2-4 weeks of the food waste diversion program being implemented successfully on a pilot basis, implement the program at the remaining schools/lunch periods.

5. Analyze and Maintain the Food Waste Diversion Program

Program Monitoring and Maintenance

Congratulations! You have successfully started a food waste diversion program at your school. But the process is not complete. To ensure that the food waste diversion program remains sustainable, the Compost Coordinator and Planning Committee should develop a system for consistent monitoring of the program for the duration of the school year post implementation. The program should be monitored for cleanliness and contamination. Monitoring should also be reinstated for the first 2-3 months of school in subsequent years, or longer, as needed. Strategies to monitor the program include:

- Outreach to custodial staff responsible for collecting and transporting food waste within the school
- Outreach to the school's contracted food waste hauler (if applicable)
- Outreach to managers of the school's on-site composting system (if applicable)

If problems with contamination in the food waste are evident, consider strategies such as re-education, additional lunchroom monitors, or adjustments to the sorting station or the way in which students are dismissed from lunch so crowding of disposal areas is reduced.

Track Volume of Food Waste Diverted for "Impact" Assessments

Regardless of how food waste generated at your school is processed, the Compost Coordinator should work with the Planning Committee to arrange for tracking of food waste diverted from the school. This information is essential for promoting the program both within the school and to the community through local media outreach.

Oftentimes implementation of a food waste diversion program will also result in greater recycling participation. Work with the waste hauler to adjust the trash and recycling dumpster sizes and pick-up frequency for the new volumes.

Identify Responsibility for Making the Program Sustainable

It is unlikely that the Compost Coordinator and Planning Committee that did such an excellent job at getting your food waste diversion program started will assume those

responsibilities year after year. But before they pass on the reins, it is important to develop a plan for ensuring the program is implemented in following years. This plan should include:

- Strategies for identifying roles and responsibilities associated with program
- Strategies for re-education of students, teachers and staff, year after year
- Written instructions that include lessons learned and helpful resources (like this guide!) for the team that takes over the food waste diversion program responsibility

6. Promote the Food Waste Diversion Program

You have done such an amazing job, now it is time to promote your hard work! The Compost Coordinator should work with the Planning Committee to conduct outreach to local media outlets focused on letting the community know about the food waste diversion program. Use data collected for the "Impact" assessments to identify the impact the program has had on diverting food waste, and if possible, reduced trash volume. This positive media will reinforce enthusiasm regarding the program and encourage participation and buy-in from all stakeholders. Suggestions for promoting your program include:

- Promote through the MassDEP GREEN TEAM program
- Promote using school/district newsletter and website
- Present program results at School Board meeting
- Contact local politicians and inform them about program success

Within the school community, consider celebration or awards ceremonies to build and maintain enthusiasm for the food waste diversion program.

GREAT WORK! If you have additional questions about setting up a program, contact The Green Team at recycle@thegreenteam.org.

Supplemental Information

A. Greenhouse Gases

If a school with 2,000 students diverts 2 tons of food waste per month, it is the equivalent of preventing 1.76 Metric tons of carbon dioxide emissions, or removing 4.56 cars from the road. (http://www.stopwaste.us/partnership/calculator/)

Pound for pound, the comparative impact of methane (CH_4) on climate change is 25 times greater than carbon dioxide (CO_2) over a 100-year period. (According to the U.S. Environmental Protection Agency, http://epa.gov/climatechange/ghgemissions/gases/ch4.html)

B. Tip for Building Administrative and Staff Support

When meeting with stakeholders, it is a good idea to tailor the conversation to the individual stakeholder. For example, when meeting with administrators, stress the cost savings that can occur from diverting food waste and reducing the volume of trash the school generates, equating to potential savings in trash hauling from less frequent trash pick-ups. When meeting with custodial staff, emphasize that diverting food waste can make the entire waste program cleaner, as well as the range of environmental benefits associated with the program. For kitchen staff, emphasize that this program is not generating any new waste — workers will simply be putting the food waste into a different container.

C. Planning Committee Tip

Schools that prepare meals on-site have the option of implementing a food waste diversion program that only targets back-of-house, food preparation waste. This can be a simpler option to pilot food waste diversion at your school. If you choose to only divert back-of-house, food preparation waste, then it is important to make this decision early in the process, such as when forming the Planning Committee.

D. Collection Container Examples

Kitchen: 4- to 6-gallon buckets with lids, Slim Jim containers, bus tubs, restaurant pans

Cafeteria: 32 or 64-gallon rolling carts (compostable liners optional), converted trash receptacles

Outdoor: 32, 64, or 96-gallon locking totes, dumpster

TIP: To reduce the need for purchasing new containers, schools can collect 4- to 6-gallon buckets from local restaurants for kitchen collection, or convert old trash barrels for cafeteria collection. Many household products come in reusable containers, like kitty litter or soap, and these can make great kitchen food waste collection buckets. Also, 4- to 6-gallon buckets fit through most commercial dishwashing systems!

E. Tips for Source Separation Education

Here are some strategies that you can utilize when educating students on how to effectively source separate food waste and the importance of diverting food waste to composting:

- Play a game with your students where you hold up props or pictures of food materials (i.e. banana peels, apple cores, sandwich crusts) that can go into food waste bins, and materials like straws or condiment packets that cannot, and ask your students to say “YES” or “NO”. Be sure to explain why each individual material is either accepted or not accepted in food waste receptacles.
- Bring in a container of finished compost and explain to students that this is what the food waste will become. Explain how compost is used to fertilize gardens or farms, and helps plants and vegetables grow big and strong. Tell your students that when contaminants are included in food waste bins, the compost cannot be

used. (NOTE: If you have a school garden, bring students to the garden and explain how the food waste will be returned to the garden to grow more food.)

- Introduce the school's food waste hauler or composter. Explain to students that he/she wants food waste, not contamination.