

Organics recycling in schools

Best practices guide

January 2015



Best practices guide for organics recycling in schools



Organics recycling is a relatively new yet rapidly growing component of waste management in Hennepin County. Organics recycling is also commonly referred to as composting, named after the end product of this recycling method. For purposes of this report, organics recycling will be referred to as organics recycling or composting, whereas conventional recycling refers to recycling of materials such as paper, bottles and cans.

Because organic waste makes up such a large portion of a school's waste composition, organics recycling is a highly valuable management technique for schools to reduce trash disposal and associated environmental and financial costs.

The goal of this guide is to help implement sustainable organics recycling programs in schools. Several schools have incorporated organics recycling into their waste management strategies over the past several years. The experiences of these local schools and professional advice from Hennepin County will help you implement a successful organics recycling program.



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Organics recycling overview

What is organics recycling?

In an organics recycling program, organic waste, which includes food waste and non-recyclable paper products, is collected and hauled separately from trash and conventional recycling. Organic waste is sent to a compost facility, where the waste is managed to produce compost that can be used in landscaping or road construction projects.

What happens to organic waste that is not collected for composting?

Without an organics recycling program, organic waste is collected and disposed of as trash. Depending on your location and waste hauler, trash in the county is either sent to a landfill or burned to generate energy at the Hennepin Energy Recovery Center. Composting organic waste is preferable to incineration or landfilling (where decomposing organics generate methane, a potent greenhouse gas).

Are there other options for food waste?

Yes. In addition to composting, there are food-to-people and food-to-animals programs. These programs have different parameters than composting, such as health requirements, and are limited to food items only. For these reasons, organics recycling for composting diverts the most waste.

What items are accepted in organics recycling?

Basically, anything that is not plastic, glass, metal or liquids (including grease) is accepted. Examples of materials accepted include:

- Any food or parts of a food: meat, bones, grains, eggshells, vegetables, candy, fruit, prep scraps
- Non-recyclable paper: paper towels, tissue paper, tissues, uncoated paper plates, pizza boxes, waxed paper
- Other accepted items: tea bags, coffee filters and coffee bean grounds, plants, flowers, paper- and wood-based arts and craft supplies, pencil shavings

What about (recyclable) paper?

Although recyclable paper is compostable, it should be recycled. Organics recycling includes paper products that have no place in the recycled paper market due to low quality or food contamination. However, paper, especially high grade paper such as white paper, should be collected for paper recycling to drive the recycling market and reduce reliance on trees.

Should milk cartons be recycled or composted?

As of 2012, local material recovery facilities are able to accept gable top containers (like milk cartons) and aseptic containers (like juice boxes).

Gable top containers, such as milk cartons, consist mostly of paper and some plastic. Aseptic containers, such as juice boxes, consist mostly of paper and layers of foil and plastic. Recycling the high grade paper in the gable top and aseptic containers back into other paper products is a higher, better use of this material.



Despite the plastic component, gable top containers are reluctantly accepted by local composting facilities. Aseptic containers, however, are strictly limited to conventional recycling and will not be collected for composting. Hennepin County encourages you to divert all gable top and aseptic containers into conventional recycling. Notify your hauler of your intent to collect these cartons for recycling.

What is the process of carton recycling at Material Recovery Facilities (MRFs)?

Cartons are brought in to the MRFs together with other recyclables as part of single stream recycling. Some MRFs separate the cartons by hand, but in 2012 MRFs were funded by the Carton Council to install new optical sorters to better collect cartons. The optical sorter is situated over the conveyor line and detects the plastic layer on top of the cartons. The optical sorter then pulls the cartons off the line and sends them to their own bunker, where they are baled and sent to a paper mill. At the paper mill, the cartons are mixed with water in a hydropulper that extracts the paper from the plastic and the aluminum. The extracted paper is then used to make products such as tissues, office paper, newspaper and materials for building.

Organics Recycling in Schools

How much of a school's waste is organic?

A 2010 study of Minnesota public schools found that 40 percent of school waste is organic, with more than half of that being food waste.

How many schools in the county have organics recycling?

As of summer 2014, there are approximately 180 schools, school districts and universities in Hennepin County that have incorporated organics recycling.

Why aren't more schools recycling organics?

Many schools do not know that this waste management option exists. Others are concerned with the upfront capital costs to start the program.

Costs of Implementing Organics Recycling

What are the upfront costs for starting an organics recycling program?

To start an organics recycling program, you will need the following materials:

- New containers
- Compostable bags
- Hauling service
- Promotional materials

The major cost savings of an organics recycling program is in reduced trash disposal costs; therefore, it is important that as much organic waste is diverted from trash as possible. Reducing trash disposal costs enough that it outweighs the initial capital costs and ongoing costs will yield the expected cost reductions.



Students at the School of Engineering and Arts compost on-site.

Is any financial assistance available to help with setting up an organics recycling program?

In 2012, a new Hennepin County incentive fund program that focused solely on schools was formed. Up to \$200,000 is available for this School Recycling Grant program each year. Funds are awarded to schools in Hennepin County that engage in projects aimed at waste reduction, reuse and recycling. For more information or to apply, go to www.hennepin.us/schoolrecycling.

The Green Partners Environmental Education Program provides funding and support to organizations, including schools, which empower residents to reduce waste, increase recycling, conserve energy and protect water quality. For more information or to apply, go to www.hennepin.us/greenpartners.

Benefits of Organics Recycling

How does organics recycling benefit the environment?

Organics recycling reduces the methane gas production that results when organic waste decomposes in landfills, which helps alleviate climate change. Methane is a potent greenhouse gas. Keeping organic waste out of landfills also extends the productive life of landfills. Minnesota state law states that composting is environmentally preferable to landfill or incinerating waste to produce energy. Reduction in trash services also reduces the fuel use and emissions from waste hauling trucks.

How will organics recycling affect my conventional recycling program?

Organics recycling has also been shown to reinvigorate conventional recycling and awareness of waste reduction in general, resulting in further environmental and economic benefits. Many schools take pride in teaching students the environmental stewardship value of organics recycling.

How does organics recycling affect disposal costs?

From an economic perspective, organics recycling is a cost effective waste management strategy. In Hennepin County, trash disposal costs \$43 per ton, with added costs of a 17 percent state solid waste tax and 14.5 percent Hennepin County solid waste fee. On the other hand, processing organic waste costs \$15 per ton and is exempt from the state tax and county fee.

Without effective recycling programs, schools manage the majority of their waste as trash. Managing waste as trash results in large dumpsters that are serviced almost daily, which both result in higher disposal costs.

The Composting Process

What happens to organics after they are hauled away?

Organics are hauled to a composting facility. There, the waste naturally decomposes as a result of oxygen, moisture and bacteria. Depending on conditions, it can take as little as six months for organic waste to break down into finished compost. During this time, compost piles are monitored and turned to speed up decomposition.

What is compost?

Compost is a soil amendment that resembles dirt. It is the finished product of decomposition of organic matter. Compost provides nutrients to plants and improves soil conditions by improving immunity in plants, retaining water and maintaining beneficial microorganisms. This reduces the need for fertilizers and pesticides.

What is contamination?

Contamination is any item that does not belong in a specified waste stream. In this case, anything not organic is a contaminant. Compost facilities are equipped to handle low levels of contamination but will reject organic loads that are too contaminated.

The quality and subsequent sale of finished compost depends on the quality of organic waste; therefore it is important that schools provide organic loads low in contamination.

What happens if organic waste gets rejected?

Highly contaminated loads of organic waste are disposed of as trash. Contaminated loads that go unnoticed result in poor quality compost that can harm the whole organics recycling program because sales will be negatively impacted.

This is why it is important to educate your school community about properly sorting organics, recycling and trash.



Making compost at a compost facility.

Implementing an Organics Recycling Program

How do I introduce organics recycling into a school?

Start by designating a coordinator to lead the program. Engage key school staff, including custodial and food service personnel. Get administrative approval by informing the school's administrator of the benefits of organics recycling. Educate students and staff on how to properly sort their waste. Additionally, the importance of organics recycling and the goals of the program should be shared with all members of the school community, including parents. Although one individual can bring organics recycling into a school, it takes the entire school community to make it work. Recycle More Minnesota has a great step-by-step guide on their website as well: www.recyclemoreminnesota.org/schools.

Which haulers collect organics?

Many of the same waste haulers who provide service for trash and conventional recycling pick up organics. The growth of organics recycling in homes, businesses and schools has helped to make collection of organics economical for waste haulers.

What should I look for in a hauler?

Check with your current waste hauler but also shop around for the best price; after all, reducing cost is one of the incentives for adding organics recycling. Also, look for a hauler who is flexible to changes in service. It is not uncommon for waste haulers to offer tips and assistance in waste reduction and recycling.

How does organics recycling reduce disposal costs if it requires additional hauling service and collection containers?

Remember that organics recycling reduces waste disposal costs by reducing the more expensive costs associated with disposing of waste as trash. The goal of organics recycling programs is to reduce trash service and related costs.

How big should the organics dumpster be?

To avoid unnecessary costs, start off with a small dumpster. You can always increase the size of the dumpster as your organics collection expands and improves.

Do dumpsters need to be set up in a particular fashion?

The simplest setup is to keep all the dumpsters together, as pictured. Placing the trash dumpster closer than the recycling and organics recycling dumpsters may result in recyclables and food waste being disposed of in the trash dumpster. Label the dumpsters to help workers identify quickly and accurately which waste goes where.

Where should I collect organic waste in the school?

The cafeteria, where the most food waste is produced, is the most obvious place to collect organics. Local schools also collect organics for recycling in

Which haulers collect organics?

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Hauler	Website
Aspen Waste Systems	www.aspenwaste.com
Eureka Recycling	www.eurekarecycling.org
Organic Disposal	www.organicdisposal.net
Randy's Environmental Services	www.randyssanitation.com
Republic Services	www.republicservices.com
Sanimax – Organics	www.sanimax.com
Troje's Trash and Recycling	www.trojestrash.com
Vintage Waste Systems	www.vintagewaste.com
Waste Management	www.wm.com

Please note that this list does not constitute an endorsement of any of these companies nor do we claim this list is complete.



Dumpsters are placed side by side to make proper disposal easy.

several locations beyond the cafeteria, including in the kitchen, restrooms, faculty lounge and even classrooms.

Restrooms are easy to include in organics recycling because restroom waste is almost exclusively paper towels. Making organics recycling available in faculty lounges helps promote the program to staff.

When starting an organics recycling program, it may help to start in the cafeteria and expand to other areas over time. Collecting organics exclusively during lunch does not take full advantage of the program.

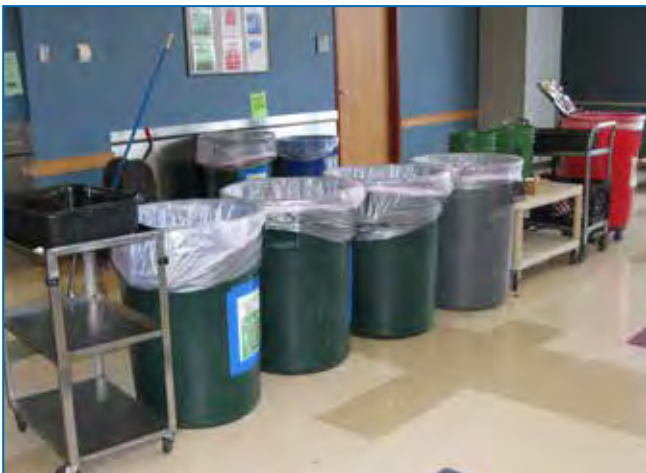
How should the sorting area be set up?

Provide separate containers for trash, organics, conventional recycling and liquid waste. Provide signage near containers that identify the separate waste streams. If your school allows, provide a table for collecting uneaten food and unopened milk for reuse. As every school is different, you'll have to do a little experimenting to find out what works best for you.

Orono School District uses color-coded containers and clear signage in their sorting area.

How should the containers be set up?

Place all containers together in sequence. Here are examples showing options for setting up an effective sorting area.



At Earle Brown Elementary in Minneapolis, four green barrels for organics and only one red trash can are set out to maximize the capture of organic waste. The lone trash barrel is a testament to how little trash the school is producing as a result of diverting organic waste!



The buildings and grounds department at Wayzata High School made their own sorting tables, complete with varying sized holes to divert bottles and cans away from the larger opening aimed at collecting organics.



The custodians at Cityview Elementary in Minneapolis helped design a wheeled cart that holds three barrels and a bucket; notice the strainer top on the bucket which allows liquid waste to be safely disposed of down the sink.



Distinct recycling receptacles, such as the ones at Edina High School, are well suited for high schools, where bottles and cans are prevalent. Note the shape of the lids on the recycling receptacle and organics barrel that prompt students to sort their waste.

What are the benefits of color-coding containers?

The idea is to distinguish between the waste streams as much as possible so users are aware that not all waste is trash, and to help them easily sort their waste. In addition to color-coding, different shapes of containers and lids, and signs or posters can be used to draw attention to the different containers.

Why should liquid waste be disposed of separately?

Moisture is a requirement for the composting process to take place, but too much moisture results in odor issues. Disposing of liquid waste separately will also reduce leaks in bags.

Liquid waste can be dumped down the drain at no extra cost. Straining liquid to prevent clogs is a good idea. In contrast, there is a cost to not separating liquids from the solid waste stream because trash, organics and recycling are charged based on weight.

Do trays need to be stacked?

Whether your school uses compostable or disposable trays, used trays should be stacked and disposed of separately to conserve space and resources, specifically bags. In a study of Minnesota school waste, a 96-gallon cart held 920 stacked trays but only 114 trays when not stacked. Stacking trays conserves bag use and frees up space in dumpsters. Stacked trays may also be placed unbagged directly into dumpsters and carts if your hauler is fine with the practice.

How do I reduce contamination?

Plan to have monitors available to help students and staff sort their waste during the initial stage of the program. If your site has sufficient support, maintaining monitors beyond the initial stage will help ensure the on-going success of your program.

Monitors can be students, staff, or volunteers, including parents. Monitors educate students on how to sort their waste so that the program can be successful in the absence of monitors. Monitors are also available to pick out contaminants. Provide gloves and grabbers for monitors.

Is it normal for long lines to develop now that students are sorting their waste?

Long lines typically occur at schools that dismiss students by table or class. Keep in mind that like many things, it will take time for the students to get up to speed. One way to reduce congestion is to allow students to dispose of their waste at their leisure. Another option is to set up your containers in a way that allows for the flow of two lines or have several setups in different parts of the cafeteria as opposed to one central location.



Ribbon cutting ceremony for West Education Center's color-coded sorting system.



Sorting waste at Northpoint Elementary School.

Are signs really effective?

Posters and signs are vital to the success of recycling. Signs prompt users to sort their waste and assist in identifying compostable and recyclable items.

What information should be included on signage?

Creating signs or posters for your waste containers will help students and staff place the correct materials in each container. When creating signage, avoid excessive wording and use pictures of materials that belong in each container as much as possible. If your bins are color-coded, use the same color scheme for your signage.

Consider your audience when designing posters and decide what will capture their attention most. Use pictures or props that represent common items they can relate to. You can order free posters and labels from Hennepin County at www.hennepin.com/schoolrecycling.

If you wish to provide more information on organics recycling, such as on the benefits or process of composting, create a separate poster or display.

Where should posters be placed?

The best location is right next to the containers, so users can refer to the posters to determine how to sort their waste. Whether on the wall, hung from the ceiling, or on an easel, another important aspect is to place the posters at eye-level. Additionally, signage can be placed on the side or lids.

Do I need a sorting station?

Sorting stations are beneficial but not necessary. There are fine examples of successful organics recycling at sites that do not have stations. Many schools have found that sorting stations are aesthetically pleasing and more user-friendly for young students as they provide a ledge that students can place their trays on to have both hands available for sorting.

Where can I purchase a sorting station?

County schools have purchased sorting stations from the following places. Please note that this list does not constitute an endorsement of any of these companies nor do we claim this list is complete.

Jim Murphy, Murphy Construction Services Inc., 612-366-1389

Williams Restaurant World, 651-646-2649

Ross, Rapids Foodservice Contract and Design, 612-339-4010

What are some ideas schools have come up with to promote and improve organics recycling?

Schools have used a variety of techniques to promote the organics recycling program while making it fun and educational for staff and students. Some of the methods schools have used include:

- Create videos
- Create paid positions or internships related to organics recycling
- Revamp nutrition services, such as: buy in bulk rather than individually wrapped; have recess take place before lunch; replace plastic foodservice ware with compostable counterparts



Free signs and stickers are available from Hennepin County.



Sorting station at South Education Center.



Consider buying in bulk to reduce waste.

- Work closely with waste hauler to monitor progress
- Conduct waste audits
- Tie in with education curriculum
- Make it into a competition
- Utilize resource management contracts with waste haulers (see Additional Resources, pg. 12)

Compostable Bags and Foodservice Ware

What is the difference between compostable and degradable or biodegradable products?

Both degradable and compostable products can be bio-based, meaning they are made from plant derivatives such as starch and fibers.

The difference is that products labeled biodegradable, degradable, and oxo-degradable are made of either plastic or bio-plastic with an additive that causes the plastic to break down into small pieces. These degradable products are not compostable and should be avoided in organics recycling programs.

Products labeled compostable, on the other hand, are fully compostable. Also remember that paper products, including wax-lined or food-soiled paper that is not usually accepted in conventional recycling programs, are compostable. The Biodegradable Products Institute, www.bpiworld.org, has more information on products that are certified as compostable. Keep in mind that compostable products do not degrade as quickly under “backyard” composting conditions, which may not have the ideal conditions of composting facilities.

Where can I buy compostable bags?

Larger schools typically purchase compostable bags through the state contract set up by Hennepin County. To purchase through the state contract, go to the county website, www.hennepin.us/business/recycling-hazardous-waste/organics-recycling, click on the “Compostable bag and foodservice ware” tab and scroll to the bottom. If your school is small and does not require bulk purchasing, compostable bags are becoming more and more common in retail stores. Be sure to look for Biodegradable Products Institute (BPI) certified compostable bags.

Are all compostable products BPI certified?

No. The BPI certification is an option manufacturers can use to ensure a product’s compostability to customers.

Do compostable bags cost more?

Yes. Compostable bags cost slightly more than traditional plastic bags.



Products with this logo are certified compostable by the Biodegradable Products Institute.

What about not using bags altogether?

It is possible, but both custodians and waste haulers must agree to this. Although it would reduce costs of purchasing bags, several issues concerning odor, aesthetics, and freezing of waste onto dumpsters and carts during winter would need to be addressed. Schools that have experimented with collection of organic waste without bags found it inconvenient and ended up using compostable bags.

Where can I buy compostable foodservice products?

Compostable food ware is becoming increasingly popular. The Biodegradable Products Institute certifies a range of compostable products, so look for the certification logo if you are unsure of a product's compostability. Hennepin County is currently working on a state purchasing contract for certified compostable products.

A listing of local vendors is available on our website:

www.hennepin.us/business/recycling-hazardous-waste/organics-recycling.

Additional Resources

Where can I get more information?

Hennepin County hosts metro area school organics meetings every other month. At these meetings, you can meet individuals who pioneered organics recycling in metro area schools, organics coordinators, school representatives, and other interested parties. If you are interested in attending or presenting at a meeting, please contact Kira Berglund at kira.berglund@hennepin.us.

Additional resources and contacts

Hennepin County Environment and Energy

www.hennepin.us/organics

www.hennepin.us/schoolrecycling

Organics Coordinator – 612-348-5893

School Recycling Coordinator – 612-596-1498

Examples of what other schools have done to promote organics

- Carondelet Catholic School
www.carondeletcatholicschool.com/carondelet_composting.aspx
- Minneapolis Public Schools
www.mpsgoesgreen.mpls.k12.mn.us/Organics_Recycling.html

Resource management contracts. See “resource management” at www.pca.state.mn.us

Specialized Environmental Technologies composting facility in Rosemount, MN www.mulchstoremn.com/

Full Circle Organics composting facility in Becker, MN
www.fullcircle-organics.com/



Hennepin County
Public Works

Environment and Energy