



BEFORE you watch the web training, answer the following questions:

1. What do you think are the components of a waste management plan?

2. What do you currently have in place in your school or district?

AFTER you watch the web training, answer the following questions:

1. What additional aspects of waste management did you learn during the training?

2. What will you do to begin to improve waste management at your school or district?

3. What further information do you need to get started and where can you find it?



Recycling and Waste Management Training Companion Guide

Green Schools: A green school creates a healthy environment that is conducive to learning while saving energy, resources and money.

Recycling and Waste Management: The extraction and processing of raw materials, manufacturing of products, transportation to markets, use by consumers, and waste management processes all increase the need for nonrenewable resources, often wastefully. A recycling and waste management plan can control the use and disposal of resources with programs and policies that encourage students and staff to reduce, reuse, and recycle.

A recycling and waste management plan should address ongoing consumables, durable goods and facility alterations and additions. Ongoing consumables are low-cost materials that are regularly used and replaced through the course of a school day. Examples include paper, plastic, glass, and food waste. Durable goods are equipment, such as computers, monitors, and copiers. Facility alterations and additions include materials and waste related to a renovation, demolition, or new construction.

Ongoing Consumables

- Cardboard
- Corrugated cardboard
- Food waste
- Glass
- Paper Products (print and copy paper, folders and envelopes, paper towels, toilet paper)
- Pencils, pens and markers
- Plastics (water and juice bottles, binders)
- Metals (aluminum cans, paper clips, staplers)
- Toner cartridges

Durable Goods

- Appliances
- Computers
- Copiers
- Fax machines
- Furniture
- Monitors
- Nickel cadmium batteries
- Printers
- Scanners
- Televisions and plasma screens

Facility Alterations and Renovations

- Waste related to construction

Recommended Assessments

Gathering the answers to the preliminary assessment questions below can help you determine how far along your school or district is in implementing a recycling and waste management plan. This is not an exhaustive list, but it does provide a good starting point.

Recycling and Waste Management

- How much waste is generated at your school every week? Count the bins or bags.
- Does the school pay for waste pick-up?
- What percentage of waste is recycled?
- What percentage of waste is composted?
- Is there a waste avoidance policy or program at your school?
- Are there hand dryers or paper towels in restrooms?
- Is there a double-sided printing or no print policy?
- Are recycling bins located around the school?
- Are assignments given electronically?

Recycling Policy

Ongoing Consumables

Items that can be recycled in most municipalities:

Aerosol cans	Glass (all types)
Batteries	Magazines or catalogs
Bottles (soda and detergent)	Mail (even envelopes with plastic windows)
Cans (food, soda, and metal)	Newspapers
Cardboard	Paper
Cereal and other dry food boxes	Paper bags
Foil (trays and wrap)	Plastics (#1 and #2)
Wrapping paper	

Items that are difficult to recycle:

Plastics (#4, #5, and #6) can be recycled, but may not be part of a curbside pick-up program. Check with your municipality to confirm. See the website Earth 911 at <http://earth911.com> for more information.

Plastics (#3 and #7) are not accepted at curbside pick-ups.

Number 3: Rarely recycled, but accepted by some plastic lumber makers.

Number 7: Not recycled. The plastics industry is still in the early stages of recycling and does not recycle these in most cities, unless it is through a test program.

Items that cannot be recycled:

Educating the building occupants as to what can and cannot be recycled is one of the first steps in developing a successful recycling program. Only a few bottle caps thrown into a bin of recycled plastics can contaminate the entire bin.

- Bottle caps and lids
- Food waste (can be composted)
- Wax cups
- Wet paper

Recycling Etiquette:

- Wash and rinse out any food remains/pour away excess liquid before placing in the recycling bin.
- Drain all liquids from plastic bottles.
- Remove the caps and lids from plastic containers. Plastic caps are often made from a different polymer type, and therefore have a different melting point. Too many lids will contaminate the load, so remove and throw away plastic caps where possible.
- Remove lids from glass containers.
- Keep all paper dry as wet paper cannot be recycled.
- Keep paper products separate from other recyclable items.

Durable Goods

Durable goods have a useful life of two years or more. Examples include lighting, furniture, office equipment, appliances, external power adapters, televisions, and audiovisual equipment. Proper disposal or recycling of these items is important to the environment. Most durable goods contain hazardous chemicals, such as lead, mercury, cadmium or other heavy metals that are harmful to humans, animals and the environment. Without proper disposal, hazardous chemicals can leach into the soil and potentially enter a local water source. Below are some examples on ways to dispose of durable goods.

Two websites provide details on how to dispose of e-waste (discarded electrical equipment):

Local Electronics Recyclers
<http://earth911.org/electronics>

U.S. EPA's Product Stewardship
<http://www.epa.gov/epawaste/partnerships/stewardship/index.htm>

Old and discarded furniture often goes to the landfill. Furniture can have a second life and be reused and refurbished. Develop a plan to donate used furniture to local charities or thrift stores.

Fluorescent bulbs contain mercury and are harmful to both humans and the environment. If not properly disposed, the mercury in these bulbs can lead to a release of elemental mercury into the environment through breakage and leakage and ultimately contaminate the food chain. Recycling of fluorescent bulbs is an easy policy to implement. Major hardware stores accept used compact fluorescent bulbs (CFLs). For linear bulbs, refer to:

U.S. EPA's Recycling Mercury-Containing Light Bulbs
<http://www.epa.gov/epawaste/hazard/wastetypes/universal/lamps/>

The nickel-cadmium rechargeable batteries used in cordless and cellular phones, camcorders and cordless power tools can be recycled through a program sponsored by the Rechargeable Battery Recycling Corp. and then be recharged to be used several times over. Contact the Rechargeable Battery Recycling Corp. (RBRC) at 800-8-BATTERY. Most commercial retailers will take these batteries for free.

Facility Additions and Alterations (FA&A)

The facility additions and alterations section of the plan should include a waste management strategy for any construction occurring on a school site. The strategy should include waste reduction goals and specify construction and demolition waste management policies. Make sure to outline these goals and policies in contracts with general contractors and subcontractors. The strategy should specify the materials to be reused and/or recycled, including corrugated cardboard, metals, concrete brick, asphalt, demolition and land clearing debris (if applicable), clean dimensional wood, plastic, glass, gypsum board and carpet. The waste management plan for FA&A should designate a construction and demolition waste recycling area and include a process to train workers on the recycling protocols. It is also important to implement a tracking system to ensure all FA&A waste is accounted for in hauler reports and other logs to capture the full scope of the waste produced during the project.

Composting

Aerobic Composting: Composting in the presence of oxygen in the air. Microorganisms (like grass clippings or other green material) break down organic matter and produce carbon dioxide, ammonia, water, heat and humus. Humus is the relatively stable organic end product in the presence of heat. Aerobic composting requires high maintenance since the decomposition takes place under controlled conditions. Most commonly used in agriculture and gardening.

Anaerobic Composting: Composting without the presence of air. Anaerobic composting is low maintenance since you simply throw it in a pile and wait a couple years. Due to the presence of pathogens and weeds, the breakdown takes a long time. The bacteria break down the organic materials into harmful compounds like ammonia and methane. Anaerobic composting is not recommended for schools.

Vermi-composting: Very beneficial for composting food waste and yard waste. Red worms eat the microorganisms, fungi, and the food waste, and then deposit their *castings*. Castings are an organic material rich in nutrients and look like fine-textured soil. Oxygen and moisture are required to keep this compost healthy. Vermi-composting requires medium maintenance and is the most suitable form of composting for a school.

How to get started:

- Obtain a plastic bin, wooden box or manufactured composting bin.
- Fill the box with damp — not soaking wet — paper and cardboard shavings. This is called the worm's "bedding".
- Add your worms. Be sure they are red worms (red wigglers). You can order them online or find them at a local bait shop. Do not use earthworms; they won't survive.
- Add food waste from the cafeteria — bread, pasta, fruits and vegetables and bury them under the bedding. DO NOT add fats, meats, dairy products or pet droppings as these will attract pests and spread disease.
- Grass clippings, leaves and coffee grounds also work well in a composting pile.
- Let the composting begin!
- As the worms magically turn the trash into "castings," you can use to fertilize the school's organic garden.

LEED Certification: A Way to Define Green for New and Existing Schools

In 2000, the U.S. Green Building Council (USGBC) established the LEED® rating system as a way to define and measure “green buildings.” In school terms, LEED is like a report card for buildings, demonstrating to the community that a facility is built and/or operated in a way that supports the health and well-being of occupants and saves energy, resources and money. LEED is an internationally recognized certification system that measures how well a building performs using several metrics:

- sustainable land use
- energy savings
- water efficiency
- CO₂ emissions reduction
- improved indoor environmental quality
- stewardship of resources

LEED provides a concise framework for identifying and implementing practical and measurable green building solutions. Based on established sustainable building practices and emerging concepts, the LEED rating systems are performance-based and comprehensive in scope. Points are awarded on a 100-point scale, and credits are weighted to reflect their potential environmental impacts. Different levels of certification are granted based on the total number of earned points. The four progressive levels of certification are: Certified, Silver, Gold and Platinum.

Once the credits are implemented and the energy-efficiency and performance requirements met, the final step for certification is submitting the project certification documentation using the Web-based LEED Online system. The Green Building Certification Institute (GBCI) reviews the application and provides feedback. If all requirements are met, GBCI awards LEED certification to the building.

LEED Rating Systems:

LEED® for New Construction & Major Renovations™
LEED® for Existing Buildings: Operations & Maintenance™
LEED® for Commercial Interiors™
LEED® for Core & Shell™
LEED® for Schools™
LEED® for Neighborhood Development™
LEED® for Homes™
LEED® for Retail™
LEED® for Healthcare™

Green Building Certification Institute (GBCI)

Established in 2008, GBCI is the institution that grants both project certification and professional credentials that recognize excellence in green building performance and practice. GBCI administers project certification for commercial and institutional buildings and tenant spaces under USGBC’s LEED rating systems. GBCI also manages the professional credentialing programs based upon the LEED rating systems, including the LEED Green Associate and LEED AP credentials.

How Much Does LEED Cost?

The cost to certify a school facility is based on the project’s square footage. The process provides a comprehensive third-party review of the energy and environmental performance of the school and ensures that the stated goals of the project are met.

The cost to register and certify at 100,000-square-foot school for USGBC members is less than \$4,000 using LEED for Existing Buildings: Operations & Maintenance, and less than \$5,500 using LEED for Schools.

Prices are determined by GBCI and are subject to change. For complete pricing information, visit www.gbci.org.

LEED for Existing Buildings: Operations & Maintenance Rating System Credits Related to Recycling and Water Management

The LEED for Existing Buildings: Operations & Maintenance rating system credits that apply to waste and recycling fall under the Materials & Resources (MR) credit category.

MR Prerequisite 2 – Solid Waste Management Policy

Facilitate the reduction of waste generated by building occupants that is hauled to and disposed of in landfills or incineration facilities. Have in place a solid waste management policy for the building and site that addresses ongoing consumables, durable goods, and facility alterations and additions.

MR Credit 6 – Solid Waste Management: Waste Stream Audit

Conduct a waste stream audit of the building's entire ongoing consumables waste stream in order to establish a baseline that identifies the types of waste and amounts. Identify opportunities for increased recycling and waste diversion.

MR Credit 7, 8 – Solid Waste Management: Purchasing

Facilitate the reduction of waste and toxins generated from the use of ongoing consumables, durable goods by building occupants and building operations that are hauled to and disposed of in landfills or incineration facilities.

MR Credit 7 – Solid Waste Management: Ongoing Consumables (MRc7.1-7.2)

Develop and maintain a waste reduction, recycling, and/or composting program that addresses ongoing consumables.

MR Credit 8 – Solid Waste Management: Durable Goods

Develop and maintain a waste reduction, reuse, and recycling program that addresses durable goods.

MR Credit 9 – Solid Waste Management: Facility Alterations and Additions

Divert construction and demolition debris from disposal to landfills and incineration facilities. Redirect recyclable recovered resources back to the manufacturing process and reusable materials to appropriate sites.

U.S. Green Building Council Publications and Resources

Green Existing Schools Implementation Workbook (PDF)

The *Green Existing Schools Implementation Workbook* includes sample policies, programs, and plans; data collection forms and tables; and sample surveys.

Green Existing Schools Project Management Guide (PDF)

The *Green Existing Schools Project Management Guide* includes general guidance on navigating the LEED for Existing Buildings: O&M certification process, including how to conduct personnel and organizational assessments, educate and train staff, initiate the certification process, and manage a school or district-wide sustainability program.

LEED 2009 for Existing Buildings: Operations & Maintenance Project Checklist (XLS)

The LEED Project Checklist is a scorecard to track the credits being pursuing toward certification.

LEED 2009 for Existing Buildings: Operations & Maintenance Rating System (PDF)

The LEED 2009 for Existing Buildings: Operations & Maintenance rating system summarizes the intent, requirements, and technologies/strategies for each credit.

[Sustainable Purchasing Tracker – Materials and Resources](#)

[Sustainable Purchasing Tracker – Indoor Environmental Quality](#)

[Solid Waste Management Tracker](#)

[Occupant Commuting Survey - Summary Table](#)

The publications and resources can be found at the Centers for Green School's Green Existing Schools Toolkit at www.centerforgreenschools.org/k12toolkit.

Questions?

The Center for Green Schools at USGBC has assembled a panel of experts, facilities staff, and school district sustainability officers to answer your questions. Please email schools@usgbc.org with the subject line "Green Existing Schools," and we will promptly connect you with a peer who can help you find the answer.

Recycling and Waste Management References and Resources

The Center for Green Schools at USGBC
<http://www.centerforgreenschools.org/>

Composting for Kids
<http://www.benefits-of-recycling.com/typesofcomposting.html>
<http://meetthegreens.pbskids.org/episode4/kitchen-composting.html>

Electronic Recycling Programs
<http://www.earth911.com/>
<http://www.mygreenelectronics.org>
<http://www.eiae.org>
<http://www.lamprecycle.org>

Fundraising
<http://www.empties4cash.com>
<http://recycleforschools.com>

Green Building Certification Institute (GBCI)
<http://www.gbci.org>

Green Existing Schools Toolkit
www.centerforgreenschools.org/k12toolkit

Municipal Solid Waste in the US: 2009 Facts and Figures
<http://www.epa.gov/osw/nonhaz/municipal/pubs/msw2009rpt.pdf>

Recycling Activities for Kids
<http://www.populationeducation.org/docs/ppp/garbage.pdf>

Solid Waste Management Tracker
<http://www.usgbc.org/ShowFile.aspx?Docum>

U.S.EPA Waste Wise Program
<http://www.epa.gov/wastewise/about/index.htm>
<http://www.epa.gov/osw/education/pdfs/toolkit/tools.pdf>

U.S. Green Building Council (USGBC)
<http://www.usgbc.org>

Waste Free Lunches
<http://www.wastefreelunches.org/>