

Chapter 13

Organic Wastes

Introduction

In Clark County, organic wastes comprise one of the single largest recyclable components of the disposed waste stream. Included in this chapter are estimates of the quantity of organic wastes disposed of, reviews of applicable regulations, an examination of the types of organic wastes processing technologies, and discussions on the need to encourage proper organic wastes handling and storage to improve water quality and salmon recovery efforts, as well as marketing the end product of composting.

The types of organic wastes addressed in this chapter include: Yard Debris, Food Waste, Land Clearing Debris, Biosolids and Agricultural Waste. (Wood waste, another organic material, is also addressed in Chapter 12 *Construction & Demolition* and Chapter 9 *Energy Recovery and Incineration*).

Definitions

The following are defined in WAC 173.350:

Composting means the biological degradation and transformation of organic solid waste under controlled conditions designed to promote aerobic decomposition. Natural decay of organic solid waste under uncontrolled conditions is not composting.

Type 1 feedstocks means source-separated yard and garden wastes, wood wastes, agricultural crop residues, wax-coated cardboard, pre-consumer vegetative food wastes, other similar source-separated materials that the jurisdictional health department determines to have a comparable low level of risk in hazardous substances, human pathogens, and physical contaminants.

Type 2 feedstocks means manure and bedding from herbivorous animals that the jurisdictional health department determines to have a comparable low level of risk in hazardous substances and physical contaminants when compared to a type 1 feedstock.

Type 3 feedstocks means meat and post consumer source-separated food wastes or other similar source-separated materials that the jurisdictional health department determines to have a comparable low level of risk in hazardous substances and physical contaminants, but are likely to have high levels of human pathogens.

Type 4 feedstocks means mixed municipal solid wastes, post collection separated or processed solid wastes, industrial solid wastes, industrial biological treatment sludges, or other similar compostable materials that the jurisdictional health department determines to have a comparable high level of risk in hazardous substances, human pathogens and physical contaminants.

State Legislation, Regulations and Guidelines

Regulations for compost facilities are addressed by Solid Waste Handling Standards 173-350-220 "Composting Facilities." In Washington State, jurisdictional health departments are responsible for permitting compost facilities under the Minimum Functional Standards and have the authority to decide under which standards, or combination of standards, compost facilities should be regulated.

Under the State's regulations, Composting facilities shall:

- Separate storm water from leachate
- Collect any leachate generated from areas of feedstock preparation, active composting and curing
- Be placed on compost pads
- Be operated by trained employees
- Implement and document pathogen reduction activities when type 2, 3 or 4 feedstocks are composted
- Analyze composted material for metals, nitrogen content, biological stability as outlined in U.S. Composting Council Test methods
- Conduct regular inspections
- Maintain daily operating records
- Be permitted as a solid waste handling facility unless it is one of the following activities and meets the terms and conditions of WAC 173-350-220 (c):
 - Production of substrate used solely on-site to grow mushrooms;
 - Vermicomposting, when used to process Type 1, Type 2, or Type 3 feedstocks generated on-site;
 - Composting of Type 1 or Type 2 feedstocks with a volume limit of forty cubic yards of material on-site at any time. Material on-site includes feedstocks, partially composted feedstocks, and finished compost;
 - Composting of food waste generated on-site and composted in containers designed to prohibit vector attraction and prevent nuisance odor generation. Total volume of the containers shall be limited to ten cubic yards or less;
 - Agricultural composting when all the agricultural wastes are generated on-site and all finished compost is used on-site;
 - Agricultural composting when any agricultural wastes are generated off-site, and all finished compost is used on-site, and total volume of

material is limited to one thousand cubic yards on-site at any time. Material on-site includes feedstocks, partially composted feedstocks, and finished compost; and

- Agricultural composting at registered dairies when the composting is a component of a fully certified dairy nutrient management plan as required by Chapter [90.64](#) RCW, *Dairy Nutrient Management Act*.
- Composting of Type 1 or Type 2 feedstocks when more than forty cubic yards and less than two hundred fifty cubic yards of material is on-site at any one time.
- Agricultural composting, when any of the finished compost is distributed off-site and when it meets the following requirements:
 - More than forty cubic yards, but less than one thousand cubic yards of agricultural waste is on-site at any time; and
 - Agricultural composting is managed according to a farm management plan written in conjunction with a conservation district, a qualified engineer, or other agricultural professional able to certify that the plan meets applicable conservation practice standards in the *Washington Field Office Technical Guide* produced by the Natural Resources Conservation Service.
- Vermicomposting when used to process Type 1 or Type 2 feedstocks generated off-site. Total volume of materials is limited to one thousand cubic yards on-site at any one time.
- Yard debris and food wastes are regulated as part of solid waste; biosolids and agricultural waste are regulated by other regulations. Table 13-1 outlines various regulations and who enforces them.

State Waste Discharge Permit (Chapter 173-216 WAC) must be obtained if leachate is discharged to ground water or to a municipal sewage treatment plant.

National Pollutant Discharge Elimination System Permit (NPDES) must be obtained if industrial wastewater (leachate) is discharged to any surface water. The leachate must be treated prior to discharge according to *All Known, Available, and Reasonable Methods of Prevention and Treatment (AKART)*. (Chapter 173-220 WAC). As part of the NPDES permit application, an engineering report needs to be submitted to the Washington Department of Ecology which describes the leachate treatment options and disposal. (Chapter 173-240 WAC).

General Regulations for Air Pollution Sources was issued by the Washington Department of Ecology in Chapter 173-400 WAC. These regulations work to control and/or prevent the emission of air contaminants statewide. The Southwest Clean Air Agency (SWCAA) is responsible for enforcing this regulation.

Washington State Biosolids Management Rule (Chapter 173-308 WAC) applies to compost facilities handling biosolids. Like its federal counterpart, 40 CFR Part 503, the biosolids rule is self-implementing. This means that the basic requirements of the rule must be met regardless of the permit status of a facility. The state biosolids rule was adopted in February 1998 and gave regulatory authority to the Washington Department of Ecology.

State Environmental Policy Act, Chapter 197-11 WAC applies to all new compost facilities during the permit application to an agency. All solid waste handling permits require SEPA review, which includes an environmental checklist.

Table 13-1. State Regulations Applicable To Organics Compost Facilities	
State Regulation	Who Enforces The Regulation
Chapter 173-350 WAC, Minimum Functional Standards for Solid Waste Handling (MFS)	Clark County Public Health; Department of Ecology
Chapter 173-216 WAC, State Waste Discharge Permit Program	Department of Ecology – Water Quality Program
Chapter 173-220 WAC, National Pollutant Discharge Elimination System Permit Program	Department of Ecology – Water Quality Program
Chapter 173-240 WAC, Submission of Plans and Reports for Construction of Water Facilities	Department of Ecology – Water Quality Program
Chapter 173-400 WAC, General Regulations for Air Pollution Sources	Southwest Clean Air Agency
Chapter 173-308 WAC, Biosolids Management	Department of Ecology
Chapter 197-11 WAC, State Environmental Policy Act	Lead agency responsible for SEPA compliance

Background

What organic materials are being discarded?

Based on a 2008 Waste Stream Analysis, compostable organic wastes accounts for almost eighteen percent of all waste received at the Clark County transfer stations (16.3% food scraps, 1.5% yard waste – percentages by weight). Table 13-2 shows a breakdown by material type of how much is discarded each year.

Table 13-2 Clark County Organic Wastes Disposal Estimates*	
Organic Material	Amount Disposed At Transfer Stations (2005)
Yard debris	10,000 tons
Food waste	40,000 tons
* Allocation of tons based on 2008 Clark County, WA – Waste Stream Analysis.	

Note: Most wood waste and land clearing debris is already being diverted to the wood waste processing facilities or ground on site. This is due to lower disposal costs to process wood waste into fuel rather than to sending it to the landfill.

Composting Facilities

Currently two organic waste composting facilities are permitted in Clark County. The West Van Materials Recovery facility is permitted to handle Type 1 feedstocks. West Van is capable of processing an estimated 20,000 tons of material per year. H&H Wood Recyclers is permitted to compost small amounts of Type 1 feedstocks; however the majority is transported to another location for composting.

It is important to note that at this time no local processing facility exists to process Type 2 & 3 feedstocks.

In July 2002, Clark County Solid Waste established a process for recognizing operations that became an “Approved Organics Process Facility.” Annually, organics processing facilities submit documents to the county demonstrating the following requirements:

- Provide a copy of the facility’s Plan of Operations, Odor Minimization Plan, and/or Solid Waste Handling Permit; provide any changes to these documents:
 - Provide certification results from a *Seal of Testing Assurance* Program (STA) or a comparable testing program
 - Document any permit violations incurred during the previous year
 - Provide data on amounts and types of feedstock received from Clark County

For 2007-2008, three facilities received this “approved” status. They are:

1. H&H Wood Recyclers, Inc.
2. West Vancouver Materials Recovery Center (Waste Connections, Inc.)
3. McFarlane’s Bark, Inc.

Approved facilities are the only ones allowed to receive materials collected through Clark County’s residential curbside yard debris programs and materials delivered through the City of Vancouver’s contracted yard debris processing contracts. Other facilities also process or accept organics within the County including Triangle Resources in Camas and City Bark in Vancouver.

Discussions of Organic Wastes

Assessment of Conditions – Yard Debris

Residential Yard Debris

Yard debris is different from other recyclable materials in that it can be managed and used at home by residents. The County actively promotes home composting and grasscycling as a waste reduction method as described in Chapter 4 *Waste Prevention and Reduction*. Home composting avoids the economic and environmental costs of operating collection systems and centralized processing facilities. However, not all residents have the ability or desire to compost their yard debris and/or other organic wastes at home. For those residents, collection services may play a role. Yard debris is a well-defined component of the waste stream and is easily handled by existing collection equipment. Yard debris collected in Clark County is currently either composted in relatively low cost open windrows at one of several yard debris composters in the Clark County/Portland Metro area or used as a source of fuel in industrial burners.

All single-family residences within the County's defined Urban Growth Area and the Southwest Clean Air Agency's (SWCAA) Burn Ban area have yard debris collection available. In Clark County, participants subscribe and pay directly for yard debris collection. Yard debris is collected in wheeled carts, with extra quantities handled in bags or marked containers. During 2005, Approximately 37,000 residences or 40% of the single-family residences subscribe to yard debris collection. Approximately 25,000 tons of yard debris was collected, equal to more than 100 pounds per subscriber per month. The remaining urban residences use backyard composting and/or grasscycling to manage these materials, dispose of yard debris in their garbage or self-haul to composting facilities. A 1997 County survey of 327 residents indicated that 52% compost regularly at home, 10% dispose of yard debris in their garbage, 19% use curbside yard debris services, 10% said they had no yard debris and the remainder gave other responses. Some yard debris may be burned or dumped illegally.

Central Transfer and Recycling Center, H&H Wood Recyclers, Inc., McFarlane's Bark, Triangle Resources, City Bark and West Van Materials Recovery Center all accept yard debris for a charge. These sites compost, process and/or transfer yard debris on their respective sites.

Free leaf drop-off is offered October through December to encourage residents to collect leaves and take them to a permitted facility to be turned into compost. The intent of the program is to keep leaves from clogging storm drains and catch basins, in order to avoid flooding and associated labor costs to unplug drains and basins. This program is jointly funded by Clark County and City of Vancouver Public Works Departments. Coordination keeps down costs and demonstrates government efficiency by working together. A coupon must be presented to qualify for free drop-off.

The Boy Scouts of America coordinate a one-day, large community project involving 50 scout troops, 1500 scout and adult volunteers, and 20 businesses and public agencies. The Boy Scouts collect approximately 20,000 trees each holiday season. Generally the event is held the first or second Saturday following Christmas. Christmas trees can also be set out for collection by those subscribing to yard debris collection.

The City of Vancouver offers residents free yard debris disposal coupons each spring (April through June) to encourage them to self-haul yard debris to an approved facility. Organized neighborhoods are also provided opportunities throughout the year to participate in Saturday yard debris collection opportunities or chipping events. As well, drop boxes are placed in especially "leafy" neighborhoods in the fall.

Rural Residential Yard Debris

Rural yard debris is often managed very differently from urban yard debris. Large lot sizes and different attitudes result in different management methods such as burning and backyard composting. Self-hauling is done to some degree, particularly in the denser areas close to the Urban Growth Boundary. No residential collection services for organic wastes are offered in rural areas.

Non-Residential Yard Debris

There is currently no tracking or data collection mechanism in place for non-residential yard debris collection in Clark County. Only data from those businesses that subscribe to yard debris collection services, as described under urban residential services, can be counted. Some large institutional generators of yard debris, such as schools, cities, parks, may self-haul their yard debris to centralized facilities, or, in some cases, practice on-site composting. Businesses often have yard maintenance services that haul the debris to composting operations.

Burn Ban

WAC173-425 calls for a burn ban for locations within a 15 mile radius of a “municipally-sponsored recycling program for disposal of organic refuse at a cost less than or equal to the median of all County tipping fees in the state.” The current burn ban area is shown on a map in Appendix N.

Assessment of Conditions – Food Waste

Food waste is a broad, general term. It includes both “*pre-consumer*” and “*post-consumer*” food waste. For composting purposes, food-contaminated papers that have no recyclable value but are compostable, are often included in with “food waste.” “*Pre-consumer*” food waste refers to materials that have no or low probability of having been exposed to human or other pathogens. Examples include meat scraps from butcher shops, grocery store meat departments, households; vegetable trimmings from produce warehouses, grocery stores, restaurant or household salad prep areas, and excess bakery products.

“*Post-consumer*” food waste refers to organic materials that may or may not have been exposed to human or other pathogens and are regulated more strictly. Examples include plate scrapings, salad or food bar leftovers, contaminated paper towels and tissues. For composting facility purposes, materials listed as pre- and post-consumer are further classified as Type 1 or Type 3 feedstocks (see Definitions section at the beginning of this chapter). Currently no facilities are permitted in Clark County to handle post-consumer food waste or Type 3 feedstocks however the County’s long-term contract with CRC does contemplate reload capacity for source-separated food waste and a separate food waste tipping fee at the West Van facility. This material will be stored and then transported separately to an organics processing facility. Should the County decide to implement a food waste collection program; the County will provide CRC with ninety days notice prior to implementation.

Composting is not the only waste diversion option of recovered food waste. Some pre-consumer food wastes and food processing by-products can be used by food banks, used for animal feeds or turned into other animal feed products by using processes other than composting.

According to the County’s 2008 waste stream analysis, an estimated 46,000 tons of food waste (16.3 percent of the overall waste stream) are thrown into the garbage

each year, the largest single source of material going to the landfill. When food wastes biodegrade in the landfill, methane gases result. Methane has a global warming potential 25 times more potent than CO₂. According to the Institute for Local Self-Reliance, “based on a 20 year time horizon, methane emissions from landfills alone represent 5.2 percent of all United States greenhouse gases.” Current landfill methane mitigation strategies focus on methane capture rather than methane avoidance. According to a 2007 Working Groups report to the International Panel on Climate Change, methane captured over a landfill’s lifetime may be as low as 20 percent of total methane emitted. The only effective way to prevent methane emissions from landfills is to stop biodegradable materials from entering landfills. Fortunately, food scraps can be composted and turned into a soil amendment called compost which has the added benefit of adding organic matter to soil, sequestering carbon, improving plant growth, and reducing water use.

Residential Food Waste

Currently there is no residential collection of food waste. Cost estimates indicate that the least expensive way to collect residential food is from only yard waste customers who would place their food waste directly in their yard waste container. Clark County is reviewing and evaluating other municipal programs that are collecting food waste curbside.

Some homes compost food scraps in their backyard using worm bins, compost bins or incorporating the food waste directly into trenches in their gardens. Through the Master Composter/Recycler (MC/R) Program at the Columbia Springs Environmental Education Center (CSEEC), the County actively promotes worm bin composting of food scraps as a waste reduction method. Vermicomposting (using worms to compost food scraps) avoids the economic and environmental costs of operating collection systems and centralized processing facilities. The MC/R Program also sells backyard composters to the public. Other households dispose of food waste down sink garbage disposals or in the garbage can.

Non-Residential Food Waste

Commercial food waste includes organic grocery debris (un-salable fruits and vegetables, vegetative trim, wax coated cardboard), restaurant organics (food prep, table scraps, soiled and non-recyclable paper), and food processing wastes. Businesses dispose of food waste in a variety of ways: donating to food banks, composting, down garbage disposals, through rendering services, to farmers for animal feed, or to processors for animal feed production.

Developing Programs

Save Organic Scraps

Save Organic Scraps (SOS), a school cafeteria composting program, was piloted in the spring on 2005 at two Vancouver School District elementary schools and one middle school. The results of this pilot were positive and the program moved on in the following school year to include all 20 elementary schools in the district. The

program expanded to the Evergreen School District and higher grade levels. Organic material is sorted from plastics trash by students when returning their trays in the cafeteria. Student monitors are highly encouraged at each school to help peers keep the organics clean. There were no rejected loads during the first full school year. The food waste is picked up by Waste Connections, taken to Metro Central where it is reloaded and taken to Cedar Grove, a commercial composting facility in the Tacoma area. The program kept almost 150 tons of compostable material out of the landfill in the first year and has a long-term goal of 300 tons per school year.

Commercial Composting Pilot Projects

In the fall of 2005, opportunities to develop a commercial effort for food waste composting were placed in motion. By the spring of 2006, a handful of Clark County businesses were actively collecting food waste and food contaminated paper for composting. Waste Connections, Inc. established an initial collection rate offering weekly removal of food wastes to a limited number of businesses on a trial basis. Pre-consumer food waste, and on a limited scale even post-consumer food wastes, were collected as part of developing commercial collection pilots in order to project, route, rate and collection frequency information. All commercial food wastes and food contaminated paper was transferred to Metro Central and sent north to the Tacoma area for composting.

There are several examples of businesses trying alternative methods to handle their food wastes. Four Vancouver area Safeway stores palletize and return their food waste to the company’s Clackamas County, Oregon distribution center. The food waste is then compacted and trucked to Metro Central where it is then transferred to Cedar Grove Composting in the Tacoma area for composting.

Onsite handling of food wastes has been successfully implemented at Larch Corrections Facility since late 2004.

Frito-Lay Vancouver turns vegetable waste from snack food production into daily staples for cattle. Food waste from cooking corn and peeling potatoes is processed by Frito-Lay’s internal wastewater treatment program into “waste cake” for animal feed production. The waste reduction program saves the company thousands of dollars per year in avoided wastewater treatment costs. Grease recycling is occurring at many restaurants in the County. Grease is collected from businesses by private companies for rendering. This waste may also be used as a feedstock in the manufacturing of biodiesel. Recent increases in automotive fuel costs may increase the use of biodiesel and the recycling of this waste may increase.

Table 13-3 examines possible alternatives to landfilling food waste.

Table 13-3 Alternatives to Landfilling Food Waste	
Food	Nonperishable and unspoiled perishable food can be donated to food banks, soup kitchens, shelters, and other charitable organizations.

Donations	
Animal Feed	Some types of food discards, such as inedible produce, can be used directly as animal feed. Other types such as baked goods can be converted into a high-quality pelletized poultry food.
Rendering	Meat products and cooking oils can be used in the rendering industry and converted into animal food, cosmetics, soap, and other products.
Composting	This method offers a range of options, from aerated windrows, where organic wastes are formed into long piles, to in-vessel composting, where waste is enclosed in a temperature and moisture-controlled chamber, to vermicomposting, which uses worms to break down materials.

Assessment of Conditions – Land Clearing Debris

Land clearing wastes contain natural vegetation and earthen materials from land clearing and grubbing activities usually associated with construction and agricultural development. Land clearing debris sometimes becomes mixed with, or, contaminated by demolition and other waste materials present on the site that is being cleared. For the purposes of this Plan, land clearing waste includes stumps; brush; vines; tree branches; mud; soil; sod; rocks; boulders and similar materials.

Prior to the early 1990s, woody land clearing wastes were either landfilled or burned. However, the burning of land clearing wood wastes is now restricted in Clark County. Increasingly land clearing waste is either ground and distributed as mulch on-site or trucked to local or regional wood waste processors, particularly in the more urban areas of the county. Land clearing wastes that can be chipped for mulch, trail surfacing, or composting include wood, brush, tree branches and stumps. Several public agencies and private developers are already doing this. Wood and vegetation can be composted or shredded for hog fuel, wood pellets, road base, or ground cover, using specialized chipping and shredding equipment. Wood, large woody debris, and stumps can also be used as environmental habitat in wetland remediation. Stumps and large bulky wood materials present special handling problems if delivered to the transfer stations. The inert material, especially soil, is typically recovered or left on-site as topsoil and fill.

Tree and plant salvage is a relatively new activity. Clark Public Utilities will work with developers and builders to re-establish firs, cedars or native deciduous trees and other native plants. The developer or builder needs to dig out the trees and the utility company will transport the trees off-site. Live trees and plants will be planted along stream banks to shade the streams and lower water temperatures and prevent stream bank erosion– both essential components of salmon habitat restoration.

Assessment of Conditions – Biosolids

Biosolids are not regulated as part of the solid waste stream, but can be an acceptable feedstock for composting at a facility that has met solid waste permitting requirements. Any compost facility incorporating biosolids as a feedstock is subject to the State’s requirements in Chapter 173-308 WAC, Biosolids

Management. This includes keeping records, maintaining proper temperatures and duration of composting for pathogen control and vector attraction reduction, and testing the final product. Like its federal counterpart, 40 CFR Part 503, the biosolids rule is self-implementing. This means that the basic requirements of the rule must be met regardless of the permit status of a facility.

Assessment of Conditions – Agricultural Wastes

There is a need for programs to help farmers compost their own wastes, both for their own economic benefit (including liability) and to protect water resources from contamination. Agricultural wastes are regulated in Washington under WAC 173-350 and in Oregon under OAR94-040. Most agriculture waste generated in Clark County never enters the MSW stream; it is most often disposed on-site. There is limited data on the specific types and quantities of livestock that produce wastes or on the farm acreage and crops being cultivated in the county and cities. The three principal methods for disposing of agricultural wastes on-site are:

- land application (manure and crop residue);
- burning (trimmings and crop residue);
- use as animal feed (crop residue).

Organics Marketing

Most of the discussion in this chapter has focused on the collection and processing of organic wastes. Recycling of organic waste is a four-step process: collecting; transporting; processing; and marketing the new product back to the consumer.

If the County expects increasing quantities of organic wastes to be collected and processed into compost, it should participate in developing increased markets for the resulting compost products. Compost is a valuable soil amendment with many beneficial uses including:

- Providing organic matter, restoring biological activity;
- Improving soil structure, increasing infiltration and permeability;
- Supplying slow-release nutrients to plants;
- Stabilizing soil pH;
- Suppressing soil-borne diseases and plant pathogens;
- Reducing the need for pesticides and fertilizers;
- Increasing water retention in both clay and sandy soils (compost can hold moisture up to 20 times its weight);
- Removing solids, oils, grease and heavy metals from stormwater runoff;
- Preventing pollutants in storm-water runoff from reaching water sources;
- Preventing erosion and silting on embankments adjacent to creeks, lakes and rivers;

- Providing attractive top dressing mulch that retains moisture in the soils and helps control weeds.

The Composting Council has adopted a national seal of quality assurance for compost products. To qualify, a producer must perform regular tests on the compost (based on quantity of compost produced) according to the Council's manual of testing procedures. In addition, the producer must provide directions for product use.

Currently, compost is marketed locally in Clark County by private compost wholesalers and nurseries. Possible options for the County and cities to stimulate the use of increased amounts of compost include:

- Expanding compost use in road and parks projects and other County and city applications;
- Using compost in controlling erosion as sediment fences and wood fiber hydro-mulch;
- Promoting the use of compost for application on right-of-ways throughout the County;
- Exploring the practicality of using leaf compost pellets in patented stormwater treatment filters.

Recommendations

1. Review yard debris collection programs to ensure that advancing technologies in commingling and co-collection are pursued to the fullest extent possible to minimize program costs and maximize diversion.
2. Continue and expand coordination with other agencies for organics programs.
3. Evaluate residential and commercial food waste collection and processing options to meet recycling and diversion targets.
4. Encourage the private sector to establish additional processing capacity to process organic feedstocks.
5. Expand implementation of the school, institutional and commercial food waste recovery programs.
6. Work with state agencies to develop a waste management plan for disposing of large amounts of animal carcasses in the event of a disease outbreak or disaster.