

## Chapter 12

# CONSTRUCTION & DEMOLITION WASTES TO RESOURCES

This chapter describes the management and disposal systems for construction and demolition (C&D) waste in Clark County. C&D wastes are solid wastes that require special handling and are collected, processed, recovered, recycled and/or disposed of. C&D includes materials regulated as MSW, as well as other wastes regulated in other ways. Some C & D materials are considered special wastes; see *Chapter 14 Special Wastes* for greater details.

## Definitions

Construction and Demolition wastes are generally defined in the Clark County Code (CCC) Chapter 24.12 as “waste building materials and rubble, resulting from construction, remodeling, repair and demolition operations on houses, commercial buildings, pavements and other structures,” and are generated primarily during residential and non-residential development, redevelopment and remodeling. The construction and demolition waste substream is made up of similar materials that come from two distinct but related activities. Remodeling and repair work generate both types of wastes, often mixed together. Both terms are more specifically defined in the Washington Administrative Code (see below). These definitions should be applied to the content and recommendations in this Plan.

### Construction Waste

[WAC 480-70-041](#) defines construction waste as “solid waste resulting from the building or renovation of buildings, roads and other man-made structures. Construction debris includes, but is not limited to, materials such as plasterboard, cement, dirt, wood and brush”. For the purposes of this Plan, construction waste is defined as: Material that is generated as a direct result of building construction activity; such waste includes, but is not limited to, concrete, rubble, fiberglass, asphalt, bricks, plaster, wood, metal, caulking, paper and cardboard, roofing wastes, tar paper, plastic, plaster, paint, block foam wallboard and other similar materials.

Construction job site waste often includes components that make the combined mixed wastes equivalent to MSW. Paint cans, food packaging, floor sweepings, polystyrene foam and other MSW components are often put into construction site waste containers. The combined waste stream can require disposal of the load as MSW.

### Demolition Waste

For purposes of this Plan, “Demolition waste” is defined in [WAC 480-70-041](#) as “solid waste resulting from the demolition or razing of buildings, roads and other man-made structures. Demolition waste consists of, but is not limited to, concrete, brick, bituminous concrete, wood and masonry, composition roofing and roofing paper, steel, and minor amounts of other metals, such as copper. Plaster (i.e., drywall or plasterboard) or any other material, other than wood, that is likely to produce gases or a leachate during the decomposition process and asbestos wastes are not considered to be demolition waste for the purposes of this regulation.” Contaminated or regulated waste is considered to be Special Waste.

Demolition job-site waste often includes components that make the combined mixed wastes equivalent to MSW. Paint cans, food packaging, floor sweepings, polystyrene foam and other MSW components are often put into construction site waste contain-



ers. The combined waste stream can require disposal of the load as MSW. It may also contain toxic materials and require that the waste be handled and disposed as regulated hazardous or dangerous waste.

## Inert Waste

Inert waste is defined in [WAC 173-350](#) as solid wastes that meet the criteria for inert waste in [WAC 173-350-990](#) including cured concrete, brick and masonry, ceramic materials, glass, stainless steel and aluminum.



Inert wastes do not include contaminated soils removed from cleanup sites (see [Chapter 14 - Special Wastes](#)) or asphalt. Non-hazardous dusts, ashes and other residues produced by incinerators, industrial processes and air pollution control equipment may or may not be classified as inert wastes, depending on their specific characteristics. For the purposes of this Plan, these materials are not considered inert wastes, unless specifically designated by Clark County Public Health with agreement from the Washington Department of Ecology.

Inert waste may be treated or contaminated with toxic chemicals; or painted with lead based paint. In such situations, the waste may be required to be handled and disposed as regulated hazardous or dangerous waste.

## Deconstruction

Deconstruction is a process of building disassembly in order to recover the maximum amount of materials for their highest and best reuse. The intent is to salvage and reuse any or all materials in new construction or remodel projects. Reuse is the preferred outcome because it requires less energy, raw materials, and generates less pollution than recycling does in order to continue the life of the material. As a consequence of deconstruction, there are also many opportunities for recycling other materials along the way. The US EPA estimates that 92% of building-related C&D waste is from renovation and demolition.

## Green Building Standards and Practices

Green building standards are required by [RCW 39.35D](#) (High-performance public buildings) to be followed for new buildings and renovation projects that receive state funding. Increasingly, private projects and public projects (even those without state funding) in the region are also either formally, or informally incorporating green building practices that seek to reduce the environmental impacts of the built environment.



Alternative certification processes related to green building generally have mandatory and optional credits or points that a design team must meet or can choose from when planning the green features they want in their project. The [Leadership in Energy and Environmental Design \(LEED\)](#) rating system, developed by the U.S. Green Building Council (USGBC) is one example of such a rating system intended to provide building owners and operators with a concise framework for identifying and implementing practical and measurable green building design, construction, operations and maintenance solutions.

These standards, practices and rating systems, whether pursued voluntarily or as a mandated process, generally address waste reduction, reuse, recycling and disposal efforts undertaken in construction, demolition, and/or remodeling phases of a project and can offer an incentive to contractors and building owners to provide a focus on waste diversion and utilization of recycled content materials.

## Relationships Between C&D Wastes



Although construction wastes are similar to demolition wastes, they are often cleaner because the waste materials usually have not been painted or mixed with other materials. Construction wastes are also generated in distinct stages as construction progresses. For example, framing and sheathing produces large quantities of wood waste; drywalling produces waste sheet rock; and plumbing and mechanical installations generate pallets, metal, plastics and cardboard. The sequential nature of construction allows targeted recovery of specific recyclable materials as a construction project proceeds. In remodeling projects, manual demolition provides the potential for a high degree of source separation, similar to that of construction.

Demolition waste is more difficult to source-separate than construction waste. Reusable items and certain recyclables are sometimes recovered before mechanical demolition begins. Manual demolition, also known as “deconstruction,” can maximize the separation and recovery of recyclable materials, but is not always feasible. Mechanical demolition, done by bulldozer or excavator, tends to crush and combine materials, limiting source-separation, unless recovery facilities that sort mixed materials are available. Mechanically crushed materials are commonly landfilled, with limited attempts at recovery.

The construction and demolition waste substream can also include materials that are contaminated with asbestos, lead from paint or solder, mercury from fluorescent light bulbs, preservatives, such as pentachlorophenol and creosote, PCBs from light fixtures and other electrical equipment, and other organic and inorganic contaminants. These materials are more common in demolition waste, because current regulations restrict many of them from being utilized in new construction.

WAC 173-350 defines the landfill requirements for:

- Inert Waste Landfills
- Limited –Purpose Landfills

## Assessment of Conditions

### Construction Waste

Most construction waste in Clark County is delivered to the CRC transfer stations in Clark County, some also is exported out of the county to C&D landfills/dry waste recovery facilities or is recycled, reused or burned for energy recovery. Depending on the project, recovered materials may be source-separated at the job site (this includes some commingled collection), or may be pulled from mixed loads delivered to a transfer station or recovery facility. Some wastes are illegally dumped, buried, and burned on-site or at other un-permitted locations within the county.

The management of waste from construction sites is regulated. Solid waste collection service is regulated in the unincorporated County by the Washington Utilities and Transportation Commission (WUTC). Solid waste collection service in the cities is regulated through city ordinances, exclusive contracts or state franchises issued under the WUTC.

Waste Connections of Washington (WCW) has the exclusive right to collect and haul mixed solid waste throughout Clark County and its cities and should be used to haul solid waste from construction job sites. However, state statutes (WAC 480-70-011) do allow for some exemptions to using WCW as the hauler on your job site. These exemptions include:

**Recycling Exemption** – Other private hauling companies are allowed to place recy-



cling containers at a job site to collect source-separated recyclable materials. These materials must be delivered to a facility for recycling. The materials cannot be hauled directly to a disposal facility. The recyclable materials may be mixed/commingled (e.g. mixing wood, cardboard, and metal in one container) or separated on the site by the material type (e.g. wood in a separate container; cardboard in a separate container; and metal in a separate container). If the materials are mixed in a single container, they must be free of contamination (garbage) to qualify for this exemption. Under the recycling exemption, there must be a WCW container on the site for the collection of solid waste generated by the job or the waste must be self hauled as described below.

A sub-contractor hired by a general contractor to demolish a building on a job site may haul the material as this is incidental to the primary service of the demolition. Similarly, a contractor who is providing a service of roofing removal and replacement may haul the material as a self-haul providing their own driver and equipment are used (see Self-Haul Exemption below).

If the company hires a private hauling company at a job site to collect recyclable materials, generators of the waste need to make sure of the following:

- the hauler is registered as a Recyclable Materials Transporter with the Washington Department of Ecology
- the hauler is licensed by the City of Vancouver (if the job site is within the city jurisdiction); the County is planning to adopt a similar program of registering commercial recycling service providers.
- the materials are taken to a facility in which recycling occurs (i.e. the material is not placed in a landfill)

**Self-Haul Exemption** – A company generating waste on a construction job site is allowed to “self haul” materials for disposal or recycling if the company’s employee hauls these materials to a disposal site utilizing the firm’s company-owned vehicle. The “self haul” option does not allow hiring a sub-contractor to haul the material.

**Occasional Transport Exemption** – A company generating waste on a construction job site is allowed to haul occasional loads of waste to a disposal site using a dump truck that is performing other dump truck operations on the job site. The use of a dump truck is for occasional use only and cannot be the primary way of collecting and hauling waste generated on the job site.

**Special Waste Exemption** – A company that is contracted for the removal and abatement of asbestos or other dangerous waste may also be the hauler for that material as the hauling and disposal is incidental to their primary service. (See *Chapter 14 Special Wastes.*)

## Demolition and Inert Waste

Demolition and inert wastes are currently delivered to the CRC transfer stations, exported to out-of-county disposal or processing locations, buried on site, dumped or burned illegally or recycled. Some inert and demolition wastes, such as concrete are being recycled into reusable base rock, feedstock, rip-rap and other building materials. In addition, some wood demolition wastes are being chipped into composite wood product feedstock and hog fuel. In some cases, demolished buildings are chipped and the screened wood materials are spread on-site. Yet, some demolition waste must be handled as MSW. The final demolition of structures that have been damaged by fire results in a mix of damaged household goods, clothes, food and charred wood and ash. Unless separated, this mix is considered MSW for regulatory purposes.

The hauling of demolition waste meets the same restrictions as construction wastes and in addition requires proper management of Special Wastes, Hazardous Wastes, Contaminated Soils, Fuel Storage Tanks, Septic Systems and Wells – Many structures being demolished may contain special wastes (e.g., asbestos) or hazardous waste (e.g., wood contaminated with lead paint). Mobile homes or trailers to be demolished are special cases that have unique requirements. The removal, abatement and disposal of special or hazardous wastes can require permits prior to demolition, specific procedures for removal/abatement, special handling and preparations for transportation, and designated sites for disposal. Soils contaminated with petroleum or petroleum products will also require special handling. In addition, fuel storage tanks, septic systems and water wells on a demolition site must be abandoned or permanently removed according to state and local codes.

## Deconstruction

Deconstruction is a very viable and under-utilized alternative to demolition that helps support the salvage of building materials and fixtures for reuse in some situations. In addition to reducing the amount of waste going into the landfill, deconstruction preserves architectural history, reduces the use of our natural resources, often provides scarce materials and architectural features, and provides affordable materials to many home owners and professional project managers.

Clark County continues to grow and there will be a certain amount of “infill” within the urban growth boundaries during the next few years. As new buildings and developments are designed, the opportunity to deconstruct existing buildings will increase as well.

## Salvage

If full deconstruction is not an option, particularly due to expense, and demolition is not preferred, salvage is encouraged. There are now businesses in Clark County willing to come in quickly and remove reusable items such as plumbing fixtures, cupboards, cabinets, stairways and architectural features such as solid wood doors, leaded or stained glass, hardwood floors and windows. These items can be sold for reuse in new construction projects or in remodels. This process provides materials for reuse at reasonable prices, reduces the amount of material going to landfills, and allows salvage businesses to employ workers and to generate funds for non-profits. One of these businesses is the Habitat Store. Using the permit lists issued by the Cities and County, they contact owners of structures to be demolished and request permission to salvage any reusable materials. These materials are then sold in the Habitat stores to raise money for construction of new Habitat homes in the area. Check the *Clark County Toolkit* for a listing of these businesses under “Salvaged and Used Building materials.”

## Construction and Demolition Recycling In Clark County



Clean wood wastes are accepted for recycling at various facilities in the County, including: Central Transfer and Recycling, H & H Wood Recyclers, McFarlane’s, Triangle Resources, City Bark and West Van Materials Recovery Center. Combined construction site waste – all of a site’s waste, combined in one drop-box and hauled by certificated or contracted garbage haulers – is accepted at CRC transfer stations as MSW. A special rate of has been established for delivery of C&D waste to West Van (lower than the drop box rate). The intent of this discounted tipping fee was to ensure that the local rate was competitive with rates charged at Metro area dry waste processing facilities while also considering market conditions for recoverable materials found in these loads. Construction waste in drop-boxes is charged a reduced per ton fee as the waste may be sorted more easily than compactor loads and, depending on the contents, some of the material may be recovered. Waste in

drop-boxes is charged a reduced per ton fee as the waste is sorted and some of the material may be recovered.

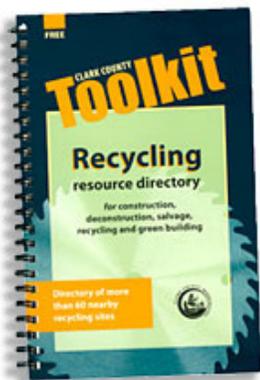
CRC currently uses manual tipping floor methods to recover some non-source-separated materials, as well as accepting source-separated materials for a further reduced tipping fee. Several existing recyclers/reusers accept presorted loads of materials for a fee. These are primarily metal recyclers and scrap dealers, wood processors, and paper and cardboard recyclers. Some small-scale salvage and restoration operators focus primarily on recovering reusable goods, building materials and fixtures. At some construction and demolition sites, “free wood” and other material bins have been placed out for salvage by the public. In addition, inert materials such as clean soils, rock and crushed concrete and bricks may be used as general grading fill material.

Currently, no specialized recycling facilities in the County are designed to process mixed loads of construction and demolition wastes. However, a sort line at the West Van Materials Recovery Center has been installed and includes a reduced fee for C&D waste.

In August 2007, the Metro Council passed legislation intended to increase the amount of materials recycled or recovered from construction and demolition projects in the region. Known as the Enhanced Dry Waste Recovery Program (EDWRP), the ordinance requires dry waste from construction and demolition to be processed through a dry waste recovery facility to pull out recyclables before the waste is dumped into a landfill. The program became effective on January 1, 2009. Previously, all of Metro’s recycling programs (with the exception of business recycling in the city of Portland) were voluntary. More than half of the construction and demolition debris generated in 2005-06 was disposed of in landfills. For the first full calendar year after the program’s implementation, recovery of dry waste tonnage delivered to solid waste facilities increased by nearly 20,000 tons. During that same period, total incoming dry waste tonnage decreased 22 percent, primarily due to the reduction of building projects in the Metro area.

## Construction and Demolition Recycling In The Metro Area

## Education Programs



Many construction contractors and subcontractors, as well as demolition companies that operate within Clark County and the cities also work in other cities and counties throughout the greater Vancouver/Portland area and the Northwest. Regulations about hauling and disposal vary from jurisdiction to jurisdiction. Recycling and reuse opportunities also vary from area to area. There is limited distribution of information about waste prevention practices, recycling and reuse options, and county hauling and disposal regulations. Waste Connections, City of Vancouver and the Clark County Solid Waste Program provides education, in many cases through coordination with the building or permit departments, about how to do job site recycling, as well as information about licensed or authorized haulers to ensure that generators who want to recycle have fewer barriers. Education programs should promote green building opportunities and encourage construction meeting Green Building standards or High Performance school standards per RCW 39.35D.

## Recycling Facilities

Since 1992, Clark County's non-recycled MSW, including some C&D wastes, has been exported out of the county to the Finley Buttes Landfill in Eastern Oregon, through the CRC transfer station system. When the CRC MSW recycling and exporting system was developed, it was not necessarily intended to become the principal method of handling the C&D waste stream.

In addition to the Finley Buttes Landfill, a portion of the county's C&D waste is being disposed in Oregon landfills, including the Coffin Butte Sanitary Landfill, Columbia Ridge Landfill & Recycling Center, Hillsboro Landfill, Tualatin Valley Waste Recovery, and Wasco County Landfill, as depicted in Figure 12-1.

No new landfill should be sited in Clark County for C&D wastes; however, options may exist for the development of C&D material recovery facilities that sort out recyclable materials and then send the residue to one of the County designated landfills.. Such options for another C&D material recovery facility could include but are not limited to:

- **County Contracted Facility** - Development of C&D processing and recycling capabilities at the County's contracted transfer station(s) through coordination with the Contracted Owner-Operator of these facilities. CRC installed a processing system at West Van. In addition, CRC has implemented some on floor sorting activities at both West Van and CTR that is diverting a significant portion of the delivered C&D material.
- **Other Independent Private Sector Involvement** - The county and cities could allow the private sector to proceed with the siting and development of one or more in-county material recovery facilities to process C&D wastes and have sufficient capacity to handle the volume of waste generated within the county, as well as the anticipated volume of imported out-of-county waste over the next 20 years. This approach reflects the county's present situation. It encourages the private sector to provide for C&D management without county participation, other than through permitting and its general oversight role in solid waste matters. The economic climate and C&D volumes also need to improve before this would be an attractive option for a third party.
- **Private Sector Involvement through County-Controlled Procurement** - Calls for the county to initiate procurement process to select and contract with a vendor, or vendors, for C&D management services. The county would develop a competitive process for periodically evaluating proposals for C&D material recovery facilities and awarding contracts for the operation pursuant to RCW

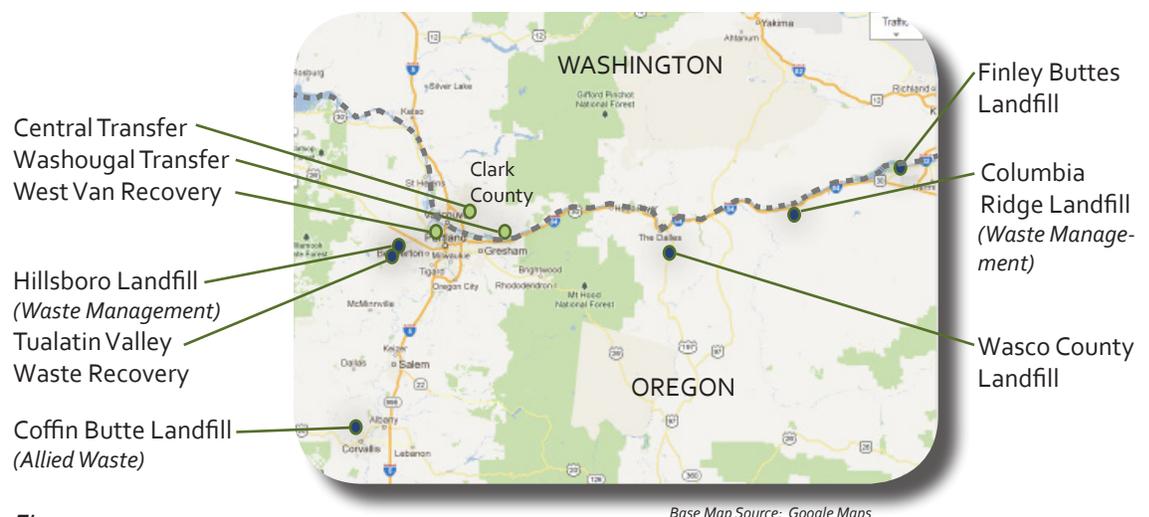


Figure 12-1

Base Map Source: Google Maps

36.58. Prior to the final approval of a solid waste conditional permit, private C&D facilities within the county would be required to enter into an operating (franchise) agreement with the county.

- **Private Sector Involvement with County in Selecting a Reserve Site** - Calls for the county to begin a reserve site selection and development process for a C&D material recovery facility if the private sector is unwilling or unable to provide for management of the C&D waste stream. Under this alternative, the county would take over the responsibility for providing for C&D management or allow the private sector to continue its siting activity, while selecting a reserve site. Initially the reserve site selection process could encourage the private sector to provide a facility, while providing insurance against failure by the private sector in being able to develop a functioning site.

Clark County Code Chapter 9.32.020 County transfer stations designation states the following: "The county transfer stations are hereby designated as the initial disposal site for, and the referenced collection companies or recycling facilities are hereby directed to utilize said transfer stations, residual waste remaining from a recycling facility." This provision is intended to ensure that material requiring disposal in a landfill actually ends up there, whether an intermediate step for diversion and recovery is provided at a designated transfer station or at a separate site.

## Recommendations

1. **Continue public and private sector education programs** designed to encourage C&D waste reduction and recycling. (12-6)
2. **Expand C&D waste recycling and reuse opportunities** at West Van and other sites as demand allows. (12-7)
3. **Use the (building and demolition) permitting process to promote recycling opportunities, deconstruction, and proper disposal options.** (12-5)
4. **Continue regular dialogue to facilitate new recycling opportunities for the C&D waste** stream within the County to ensure convenient and cost-effective disposal alternatives. (12-7 to 12-8)
5. **Rely on recycling and the export of residual wastes to a county designated facility** to handle C&D generated in the County; in recognition that Clark County's Troutdale Aquifer is designated as a sole source aquifer; no new C&D landfills should be sited in the County. (12-7)
6. **Continue to provide both source-separated and post-collection recycling opportunities** for C&D wastes at the CRC transfer stations. (12-6)
7. **Provide clear information to the public on regulations** for hauling C&D waste. (12-4)
8. **Partner with the public and private sectors to develop materials** for diverted / recovered materials from the C & D stream. (12-7)

*End of Chapter 12*