Waste Assessment Guide

WASHINGTON COUNTY OREGON
GREEN BUSINESS LEADERS

503-846-3605
recycle@co.washington.or.us

WASHINGTON COUNTY
OREGON
Solid Waste & Recycling

Conducting a Waste Audit

To remain competitive in today's marketplace, organizations confront the challenge of controlling costs while improving productivity. Reviewing your organization's purchasing and disposal practices may significantly reduce your costs without sacrificing productivity or quality.

A waste assessment can help evaluate the flow of materials through your organization. A waste assessment includes such activities as reviews of purchasing and disposal records, walk-through evaluations of facilities and operations, and manual sorting of material pulled from garbage containers.

This guide provides tips and tools for conducting a waste assessment at your organization.

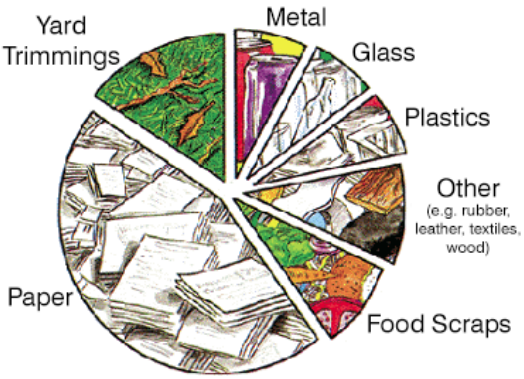
Why conduct a waste assessment?

Overall, a waste assessment reveals opportunities for reducing disposal costs and improving your organization's financial and environmental bottom lines. A waste assessment is a cost-effective first step in setting up or improving your organization's waste reduction and recycling programs. It allows you to develop baseline data on the quantity and type of waste your organization generates. Baseline data is useful for:

- Estimating cost savings potential, to justify recycling and waste prevention activities,
- Identifying specific materials to target for inclusion in recycling and waste reduction efforts, and
- Measuring progress and communicating results to employees.

Leading a waste assessment

Conducting a waste assessment involves many people within an organization. However, one person will need to be responsible for coordinating the assessment and recruiting a team. This individual should be familiar with the overall operations of the organization and in particular with purchasing, garbage collection services, and janitorial contracting. The team size will vary depending on the size of the organization, the departments and operations represented. For example, a small sort team may consist of one or two people. For larger organizations, create a team that encourages diverse input and support. This may include establishing teams made up of environmental health and safety staff; building supervisors; officials involved with the technical/operational, administrative, facilities maintenance and/or purchasing aspects of your organization; or, employees interested in waste reduction.



Washington County Green Business Advisors are available to assist in the facilitation and reporting of waste assessments and to coach coordinators. Contact a Washington County Green Business Advisor at (503) 846-8605 or via email at recycle@co.washington.or.us.

Image adapted from the U.S. EPA.

Collect Data

Examine facility records

Facility records provide useful information, such as the cost, quantity and pick-up schedule for materials. Additionally, this information will assist in the identification of potentially hazardous materials at the work site. Information gleaned from these records will assist the waste assessment coordinator in the setting of goals and recommendations, as well as the development of safety and sort plans.

Examples of useful documents include:

- Purchasing, inventory, maintenance and operating logs,
- Supply, equipment, repair and raw material invoices,
- Waste hauling and disposal records and contracts, including contracts with recycling facilities and records of earned revenues from recyclables, and
- Equipment service contracts and health-and-safety.

Conduct a facility walk-through

A facility walk-through provides the waste assessment coordinator with valuable information regarding the day-to-day activities that ultimately affect the waste stream. A walk-through allows one to:

- Observe the types and amounts of waste produced,
- Identify waste-producing or waste-reducing activities,
- Account for all garbage and recycling collection equipment,
- Detect inefficiencies in operations,
- Map the path waste moves through the organization,
- Observe the layout of operations, and
- Observe current recycling and waste prevention educational efforts.

Additional information can be gained via employee interviews or surveys.

The facility walk-through and record examination provides the waste assessment coordinator with the information necessary to plan a sort strategy. What is the date and time the waste should be collected for sorting? Where is a good location to conduct the sort? How much waste needs to be sorted? From where should the waste sample be sampled? What material categories should waste be sorted into? Answering questions such as these will help the waste assessment coordinator to properly manage the sort preparation and implementation.

TIP

Gain employee support through first-hand experience. Conduct a waste assessment with your Green Team.

Sources: The Waste Audit Manual for New Jersey State Agencies, courtesy of the New Jersey Department of Environmental Protection and Energy, Division of Solid Waste Management Office of Recycling and Planning, Bureau of Source Reduction and Market Development; U.S. EPA's A Business Guide for Reducing Municipal Solid Waste; Waste Sort Methodology, courtesy of Portland State University's Community Environmental Services.

On-Site Waste Sort

Staying safe during the waste sort

Developing a health and safety plan prepares coordinators should an unfortunate injury or accident occur while conducting the waste sort. Communication is crucial to ensure each team member understands the correct procedures, the potential hazards, and the risk reduction plan.

Identify and communicate the following to the waste sort team:

- All potential risks. Risks will vary for each workplace. However, common hazards include: sharp objects in the materials being sorted, such as needles or broken glass and chemical or infectious waste. Injury can also occur from lifting heavy bags or encountering on-site vehicles or machinery.
- Strategies for reducing potential risks.
- Procedure for obtaining medical assistance, and the locations of first aid kits, should an injury occur.

Plan the waste sort

Determine sort categories and prepare data sheets before the sort. Information gathered from the records and facility reviews will help determine into which categories to sort material. See Appendix A - Glossary of Common Sort Categories - for more information.

Determine sampling and sorting procedures. A standardized process for all participants to follow will help maintain consistency and data integrity. Consider the following questions.

- Are there waste containers that should not be sorted, such as those containing medical waste; potentially hazardous materials; loose animal or human waste; medical syringes; broken glass; etc?
- Which waste containers will be sorted?
- What is the best time of day to sort?
- What is the safest location to sort?
- Into which categories will the material be sorted?
- How much of the material will be sorted?

A representative sample should be pulled and sorted from the landfill-bound waste; this sorted sample should comprise roughly 10 percent, by estimated volume, or no less than 300 pounds, of the waste. Consider sorting all collected landfill-bound waste for small-scale sorts.

Recommended supply list:

- Protective gloves
- Tyvek suits
- Safety glasses
- Closed-toes shoes
- High visibility safety vest
- Dust masks
- Hard hat (if necessary)
- Health and safety plan
- First aid kit
- Tarps
- Sorting bins
- Scale
- Garbage bags
- Broom and dustpan
- Camera
- Sort category glossary
- Notepad
- Pens/pencils
- Data sheets
- Clipboard
- Team contact list
- Hand sanitizer

Waste sort methodology

TIP
Photograph any materials of interest; more photos are better than not enough.

1. Review procedures

Go over sort procedures, safety considerations, sampling approach, and goals with your team before you begin.

2. Set up sorting and weighing areas

- Determine weighing procedures beforehand.
- Set the scale to zero and ensure it is placed on a level surface.

3. Pull waste according to sort plan

A representative sample should be pulled and sorted from the landfill-bound waste; this sorted sample should comprise roughly 10 percent, by estimated volume, or no less than 300 pounds, of the waste. Consider sorting entire landfill-bound load for small-scale sorts. Spread out the waste so sharp or hazardous objects are clearly seen. Ensure your sorters respect confidentiality of any sensitive materials.

TIP
Assign one person to take photos and notes throughout the sort. These notes and photos will significantly help during post-sort analysis and future reports based on the sort data.

4. Analyze the load before sampling begins

Sample from all sections of the load. Pull materials from the bottom, top, middle, and each side of the pile or container.

5. Begin sorting

- Pour liquids into one container and set aside. By doing this, the liquid can be weighed separately and the empty recyclable containers can then be included in the data without skewing the weight distribution.
- Keep track of time.
- Take notes. Was there an abundance of certain materials? Was there more or less of a material that you would expect to see? Are there any unusual materials present? Record comments about items seen in the sample.
- Check in with team members on sorting progress and categorization of materials.

6. Verify enough materials have been sorted

After the sample is sorted, decide if more data is necessary. Was the sample representative of your organization's waste stream, as identified in the facility walk-through?

7. Document results of the sort

Line up all bins for photo evidence. Snap photos of the sorted bins together, then take a photo of each category.

8. Weigh the bins

When the bins become full, weigh the contents and record the weight.

- Identify each bin by category to the data collector.
- Collect both volume and weight data, if possible. Use the bin as one unit of volume measurement.
- Wait for the data collector's OK before dumping out the bin's contents.
- Discard the recyclable materials in the recycling containers and the garbage in the trash.
- Return empty bins to the scale so the data collector can record the tare weight of each container.

9. Return tools and supplies to proper location in clean condition

TIP
Be sure to take pictures of the waste pile before the sort (use a person in the photo for size reference), during the sort process, and of each material category, after the materials have been sorted.

Appendix A: Glossary of Sort Categories

When determining the material categories that waste will be sorted into, remember that “narrow” categories are generally more useful than “very broad” categories. Separating cardboard and mixed paper as different categories is more useful for targeting waste reduction actions than classifying them together as “recyclable paper.”

One can always add together multiple categories, but cannot split a broad category for more specific data. Further, it is advised to avoid sort categories that overlap, such as paper and newspapers. The following material categories are typical to the waste stream for many businesses, although this list is not comprehensive.

Bathroom waste: Typically bagged waste including paper towels. This material should not be sorted for safety reasons, but simply weighed and recorded.

Block foam: Styrofoam or other foam-like materials used to protect products in packaging.

Corrugated cardboard: Corrugated boxes used for shipping and packaging materials.

Donateable goods: Reusable items fit for donation to non-profit or charity organizations, such as intact dishware, furniture and office supplies.

Electronic waste: Computers, monitors, printers, copiers, fax machines, phones, cables and power supplies, televisions and electronic tablets.

Food scraps: Vegetables, meats, dairy, grain-based food scraps. This also includes half-eaten plate scrapings.

Glass bottles/jars: Containers made of glass and exhibiting a neck or threaded top. This category excludes light bulbs, flat glass, drinking glasses and flower vases.

Liquids: Water, juice, soup broth and any other liquids that can be poured out of containers found in the sort.

Metal cans: Containers made of aluminum, steel or tin, most often non-refundable metal beverage and food containers.

Mixed paper: Office paper, paperboard/soft cardboard, folders, scrap paper, sticky notes, shredded paper, paper bags, magazines, newspaper, and all other non-corrugated cardboard.

Plastic bags and film: Shrink wrap, plastic pallet wrap and bubble wrap. Also includes plastic bags, such as grocery, trash and sandwich. Does not include crinkly plastic such as cereal liners and chip bags.

Plastic bottles and tubs: Plastic containers with a neck, including containers for beverages and other fluids and yogurt/margarine type plastic tubs.

Rigid plastics: Hard plastic such as clamshells, fruit trays, bottles and tubs smaller than 6 ounces, and hard plastic beer top holders.

Scrap metal: All metal in the sample that was not classified as a “container.”

Single-use items: Containers primarily used to contain food and drink, such as disposable plates, plastic cups, coffee cups, carry-out food containers and plastic cutlery.

Redeemable containers: Any recyclable beverage container redeemable for a deposit in Oregon, including metal, plastic and glass containers of water and flavored water, beer, other malt beverages, carbonated mineral waters and carbonated soft drinks that are 3 liters or less.

True waste: All other materials that cannot be recycled, such as bathroom paper towels, napkins, nitrile/latex gloves, “crinkly” plastic, food wrappers, paper ream wrappers, sticker label backing, and certain foam products. These materials are known as true waste because there are no recycling options for these items.

Wood waste: All wood-based materials considered non-reusable or sellable, such as broken shipping pallets.

Yard debris: Floral and plant material not accepted in the commercial food scraps collection program.

Appendix B:
Sample Data Form

Company	
Date of Sort	
Waste Evaluator	
Team Members	

Total Sample Weight (lbs)	

Material Type	Sub Category	Gross Weight	Tare	Net Weight	Percent of Sort	Notes
Organics						
	Food Scraps					
	Liquids					
	Yard Debris					
Total Organics						

Material Type	Sub Category	Gross Weight	Tare	Net Weight	Percent of Sort	Notes
Curbside Recyclables						
	Plastic Bottles and Tubs					
	Recyclable Paper					
	Metal Containers					
	Cardboard					
	Glass					
Total Curbside Recyclables						

Material Type	Sub Category	Gross Weight	Tare	Net Weight	Percent of Sort	Notes
Other Recyclables						
	Film Plastics					
	Rigid Plastics					
	Redeemable Containers					
	Scrap Metal					
	Wood					
	Styrofoam					
	Electronic Waste					
Total Other Recyclables						

Material Type	Sub Category	Gross Weight	Tare	Net Weight	Percent of Sort	Notes
True Waste						
	Bathroom Waste - Do Not Sort					
	Single Use Foodservice items					
	Other True Waste					
Total True Waste						

Material Type	Sub Category	Gross Weight	Tare	Net Weight	Percent of Sort	Notes
Reuse						
	Donatable or Reusable items					
Total Reuse						