



## Waste Audit Guide



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# WASTE AUDIT GUIDE

## Introduction

A waste audit is a process that characterizes the types, quantities, and origins of the waste generated at a specific location. The purpose of a waste audit includes identifying the types of waste generated at various entities, such as a business, office, school, or university/college, and estimating the weight and volume of the waste and recyclables. An audit, if applicable, may assist in identifying contamination issues or the level of improperly disposed waste materials in recycling containers. The results from an audit provide documentation to develop a plan of action for improving landfill diversion, increasing recycling, and reducing contamination. An entity may schedule a follow-up audit as part of an ongoing commitment to sustainability, typically every 3-5 years.

This waste audit design provides a basic requirement for consistent implementation across the state. The waste audit presents a qualitative (visual) and quantitative (numeric) examination of the different materials in the waste stream. The waste audit may integrate into a wide range of classroom or academic instruction from environmental science to social studies to mathematics.

## Waste Audit Process

The waste audit process includes four steps:

1. Organizing
2. Planning and Walk-Through Site
3. Preparing for Waste Audit
4. Conducting Waste Audit

### Step One: Organizing

#### **Audit Coordinator and Team Selection**

The first step in the waste audit is identifying an audit team coordinator and selecting audit team members. The coordinator may be an entity's employee or volunteer. The entity should recognize the coordinator with the authority and responsibility to complete the waste audit. The coordinator's commitment will be 10-15 hours to complete the four-step audit process and report the results.

A typical team will consist of 4-6 members. The number may be larger if the audit is a class/service project. The time commitment varies depending on shared responsibility with the coordinator with a minimum of 4 hours for the audit sort only or 8-10 hours for location walk-through and sort. A few options to consider for team members:

- Administration/Management Department
- Finance Department
- Operations or Facility Services Department
- Sustainability Department/Division
- Volunteer or student organization (service project)

The coordinator may choose a variety of ways to reach out to possible team members, including but not limited to:

- Email or phone call to staff or faculty
- Notice in an entity-wide communication/newsletter
- Outreach to student organizations
- Social media post

Individuals selected must be motivated, interested in, and committed to gathering facts about waste and recycling. The process is flexible to permit the audit's completion by staff, student, or class project.

## Step Two: Planning and Walk-Through Entity

The coordinator plus the team members, if possible, will conduct a walk-through of the entity facilities to identify the specific locations gathering the materials for the audit. During the walk-through, the coordinator should take notes and map sites for future reference and use during the audit implementation.

### Locations

The audit locations include a minimum of five (5) sites with one (1) receptacle, typically 32-55 gallons, serviced by the entity from each of the following sites:

- 1) Building Entrance (outside the main entrance)
- 2) Breakroom/ Cafeteria (outside or inside near entrance)
- 3) Open Space/Landscape Area (high traffic area walkway or congregation area)
- 4) Parking Lot/Structure
- 5) Outer perimeter (if receptacles serviced by the entity)

At these sites, waste receptacles are the requirement. The entity may conduct an optional audit of an adjacent or close-by recycling container.

### Sorting Site

The coordinator will identify a location for the sorting process associated with the audit, which may occur near each receptacle or at a centralized site. Pros and cons exist for each option. Both require transportation considerations. A near-the-location sort site means convenience in removing materials from receptacles but requires transporting the sorting supplies and team members around the entity. A nearby location might disrupt pedestrian or vehicular traffic in an area or lead to interruptions by individuals not associated with the audit creating possible safety concerns. A centralized site, outdoor or indoor, with a minimum 20 feet by 20 feet open space, brings all operations to one place. However, it requires transporting the five bags (optionally recycling bags) from the locations. A centralized site may be near a water source for cleaning supplies for volunteers to wash hands. Either option presents challenges and opportunities to consider based on who will conduct the audit and transportation. In either option, the audit coordinator and team may want to consult with faculty maintenance staff.

## Step Three: Preparing for Waste Audit

Once locations are determined to collect the materials to be audited, the coordinator and team will finalize preparations for the audit, including setting a date, purchasing supplies, and designating tasks.

### **Date and Time Commitment**

The recommendation for completing an audit is a midweek day (e.g., Tuesday-Thursday) with regular entity activity and limited special events. Avoid days of the week when there has been higher than usual activity or other high traffic times. Some factors to consider in selecting a date:

- Review calendar for special activities
- Check the schedule for custodians or facility services/management to empty containers
- Discuss dates with employees regarding activities or events

For a centralized sort site, the recommendation is for the custodians/facility management or team members to use a wheeled cart or transportation to remove the contents from the 5 locations and bring bags to the audit sort site. This process will collect materials from all locations on the same day, either in the late afternoon/evening before the audit sorting or early morning on the day of the sorting.

The time commitment for the coordinator and team varies. A general outline of the time commitment includes:

#### Coordinator (10-15 hours)

- Identifying team members including determining if the audit is staff, faculty, and/or student project or a class/service activity
- Organizing walk-through and location determination
- Communicating with the team
- Administering activities the day of audit and coordinating team tasks
- Documenting results and submitting the audit to KLB by the deadline

#### Team (6-8 hours)

- Participating in walk-through and location determination (optional)
- Conducting waste audit and implementing assigned tasks (outlined in procedure steps)
- Sharing experiences and evaluating process

## Supplies

Before conducting the audit, the coordinator will secure the supplies needed. The items may be available at the entity or purchased, and all items shown are available at Lowes or a similar store.

- 2 Tarps - 8' by 10' minimum or other material to cover the surface where sort occurs



- 5-7 Five (5)-gallon buckets or reusable containers to sort, weigh, and estimate volumes.



- Scale, e.g., luggage or fishing



- Sorting tools, e.g., litter tool or garbage grabber



- Reusable or disposable gloves



- Mask\*



- Face shield, goggles, or safety glasses



- Bags or wheeled carts, optional, to transport material from location to sort site



- Tape measure, e.g., measure area of a bucket to determine the volume



- Optional disposal cover-up or reusable lab coats



Other supplies:

- Audit data collection sheet
- Pencils and Pens
- Paper, marker, and tape for labeling buckets
- Tablet/Computer the entered data
- Table at the sorting site to display the team gear, e.g., gloves, masks, eye shields, etc.
- Towels, paper or reusable, to remove spills
- Hand sanitizer, depending on water availability
- First aid kit
- Phone for contacting the team and emergency assistance, if needed

## Step Four: Conducting Audit

### Informing Team

Prior to conducting the audit, the team implementing the sort should receive a message outlining any requirements. Remind the team to wear old clothes if no disposable cover-up or reusable lab coat is available. Suggested clothing:

- Shirt, long sleeve preferred
- Long pants
- Closed-toe shoes
- Hat or other to keep hair from interfering with the sorting process
- Do not wear loose-fitting clothing or jewelry

Inform the team of any necessary paperwork to be completed either before or at the sorting site (e.g., liability waivers or photo releases).

### Preparing to Collect Materials

Collect materials from all designated areas during a specific time window

If auditing at a central location, it is essential to mark the bags with a tag that indicates the site location.

- Contents collected, preferably in bags or a wheeled container, and labeled with the location and delivered to the sorting site
- Custodian/facility management or team brings the material to the sorting site
  - If indoor, place bags on one tarp to minimize leaking on surface
  - If outside, secure or protect bags to reduce animals from damaging bags

If using at location sort, work with custodian/facility management to ensure that container is open or may be easily opened, e.g., request instructions on opening and need for key or tool.

### Audit Procedure

On the day of the audit, the team will follow these steps to conduct the audit. The schedule should consider 4 hours, including setup and cleanup.

- Arrange sorting station
  - The coordinator or team member places all items for the team members in an entry area to the audit site, e.g., on a table or cart or displayed near the site
- Materials
  - Verify material from all designated location are accessible, e.g., either ability to open container at location or materials moved to a central location
  - Verify all bags or containers have a label with the specific location identified if moved to a central sorting location
- Team Safety Training
  - Safety reminders, including wearing masks, eye shields, and gloves
  - Review clothing requirements, if coverall or lab coats not provided
  - Cover any specific entity safety requirements
  - Paperwork, e.g., liability waiver and/or photo release, if applicable



- Assign Team Duties
 

Team members may have more than one duty, depending on the number of team members. Consider switching or rotating team assignments for each site to offer experience with each task. If conducting a class assignment, assign a different team to each location, with other groups observing.

  - Weigh each bag
  - Empty bags for each site (1 at a time)
  - Data collection
  - Sort and categorize Items
  - Weigh/Volume Determination
  - Cleanup
    - properly dispose of materials by either returning to waste container or recycling bin at each location or centralized site
    - washing tarp, buckets, and grabbers on-site
  - Assign a post-cleanup volunteer to wash gloves or other reusables not easily done on-site
  - Post data analysis
- Sort Process (use garbage grabber tool)
  - Empty content of one bag onto a tarp
  - Sort waste slowly and with caution to minimize potential risks
  - Begin sort of items by identifying all single-use plastic and determine weight and volume in comparison with other items in a bag
  - Sort into a bucket(s) all single-use plastic materials by type, e.g.
    - Plastic beverage containers
    - Film (do not include plastic bag used to transport materials to sorting site)
    - Food Packaging
  - Sort into buckets all materials by categories into buckets volume of each category
    - Paper
    - Plastic (Count Single-Use Plastic)
    - Glass
    - Metal
    - Organics
    - Containers with content, e.g., container(s) with liquid or items containing food, dirt, or waste not easily separated from the material
  - Determine the volume of each category of material by measuring the fill level of the bucket and report to data collector team member
  - Remove Containers with Content from buckets
  - Weigh each bucket, remember to subtract the weight of the bucket, and report to data collector team member
  - Upon completing all sorting and measurement activities, place the garbage into a bag for garbage disposal, recycle items into recycling bins, and ensure that the area is clean.

Optional: Recycling Container sort using the same steps to determine the amount of recycling and contamination level.

- Assign Team Duties
  - Team members may have more than one duty, depending on the number of team members. Consider switching or rotating team assignments for each site to offer experience with each task. If conducting a class assignment, assign a different team to each location, with other groups observing.
  - Weigh each bag
  - Empty bags for each site (1 at a time)
  - Data collection
  - Sort and categorize Items
  - Weigh/Volume Determination
  - Cleanup
    - properly dispose of materials by either returning to waste container or recycling bin at each location or centralized site
    - washing tarp, buckets, and grabbers on-site
  - Assign a post-cleanup volunteer to wash gloves or other reusables not easily done on-site
  - Post data analysis
- Sort Process
  - Empty content of one bag onto a tarp
  - Sort waste slowly and with caution to minimize potential risks
  - Verify the type of recyclables that should be in the recycling bin, e.g., container labeled for beverage container recycling only
  - Begin sort of items by identifying all recyclables and all waste or contamination and determine weight and volume in comparison between recyclables and waste
  - Sort into buckets by recyclable material that should be in the recycling bin, e.g., plastic beverage containers, metal beverage containers, or paper
  - Sort bucket waste or contamination
  - Weigh each bucket, remember to subtract the weight of the bucket, and report to data collector team member
  - Determine the volume of each category of material by measuring the fill level of the bucket and report to data collector team member
  - Upon completing all sorting and measurement activities, place the garbage into a bag for garbage disposal, recycle items into recycling bins, and clean the area.

### **Concluding Waste Audit**

At the end of the audit, ask the team about the experience and discuss their analysis of the type and amount of waste or recycling. These questions may assist in communicating the results of the waste audit. Possible concluding questions:

- What surprised you about the waste audit?
- What did you learn about waste or recycling?
- How could the entity reduce single-use plastic?
- How could the entity reduce other waste?
- What item(s) could the entity recycle that are not being recycled?

- Does the placement of a container impact the volume of waste produced at each location?
- What recommendations do team members have to improve the audit process?

### **Data reporting**

At the end of the audit, collect all data sheets or enter data into a spreadsheet or app, if applicable. The audit data results may assist the entity in waste management/zero waste planning and sustainability activities. A report with graphs and photos will assist in communicating the audit findings. Suggestions for the report include the following information:

- Description of Team
  - Administration/Management Department
  - Finance Department
  - Operations or Facility Services Department
  - Sustainability Department/Division
  - Volunteer or student organization (service project)
  - Approximate Time to Plan and Complete Audit (# Hours)
- Describe Location of Each Site/Percentage of each Material per site:
  - Building Entrance (outside main entrance)
  - Breakroom/ Cafeteria (outside or inside near entrance)
  - Open Space/Landscape Area (high traffic area walkway or congregation area)
  - Parking Lot/Structure
  - Outer perimeter (if receptacles serviced by the entity)
- Percentage of Single-Use Plastic

### **Conclusion**

A waste audit assists an entity in understanding the waste material produced or used by individuals. The results will help educate and engage entity leaders or business owners on environmental issues such as waste reduction, litter prevention, and marine debris that have long-term effects on our state and the Gulf of Mexico. The audit results will assist the entity in developing or enhancing strategies to reduce waste and potentially litter on the entity.

## Definition of Key Terms

Contamination:	Contamination refers to the materials placed in recycling or compost bins that should not be there in that container, e.g., paper in a bin labeled plastic beverage containers or bottles. Haulers may reject recycling with a high contamination rate and redirect the material for landfill disposal.
Container(s) with Content:	Container(s) with liquid or items containing food, dirt, or waste not easily separated from the material and would alter the weight of the original packaging
Landfill:	A landfill is a site for the safe disposal of unwanted materials, including items that are not recycled, composted, or otherwise diverted by some element of a waste management system.
Mixed-Material:	Containers that include two or more layers, typically metal, plastic, or paper, and the layers do not easily separate. Examples include cartons, snack foods, or food packaging.
Organics:	Organic or compostable waste is plant and animal products that decompose under certain conditions and includes food products and landscape materials, e.g., leaves or grass.
Paper:	All items made from pulp include but are not limited to office/writing/colored paper, envelopes and junk mail, newspapers, paper cups/plates/straws, food packaging or wrappers, paper towels/napkins, and cardboard or paper-board box.
Recycling:	Recycling refers to materials that can be transformed into the same object or a different object and typically refers to plastic beverage containers, glass bottles, metal cans, carton beverage containers, paper, and corrugated cardboard.
Single-Use Plastic:	Single-use plastics, or disposable plastics, are typically used only once before being thrown away or recycled. These items may include plastic bags, straws, coffee stirrers, soda and water bottles, and food packaging.

Waste Audit Pre-Audit Planning Checklist		
Task	Details	Date
Coordinator	Select leader for the waste audit	
Team	Identify team members	
Sites – Waste Material for Audit	Identify locations (Add to list) 1) Building Entrance 2) Breakroom/ Cafeteria 3) Open Space/Landscape Area 4) Parking Lot/Structure 5) Outer perimeter (if receptacles serviced by the entity)	
Site – Conduct Audit	Identify the location to complete the audit sort, either a large outside area or 20' by 20' indoor or a place near the location that will permit spreading a tarp with unobstructed minimum 4-foot walkway available	
Schedule Date and Time	Check calendar for a midweek day	
Supplies (purchase or verify)	See the detail list in the guide <input type="checkbox"/> 1-2 Tarps (8' x 10' or larger) <input type="checkbox"/> 5-7 buckets <input type="checkbox"/> 1 Scale (luggage) <input type="checkbox"/> Sorting tools, e.g., litter tool <input type="checkbox"/> Reusable or disposable gloves <input type="checkbox"/> Masks or face covering <input type="checkbox"/> Face shield, goggles, or safety glasses <input type="checkbox"/> Bags or wheeled carts <input type="checkbox"/> Tape measure <input type="checkbox"/> Disposal cover-up (optional)	
Reminder to the team (1 and 7 days prior)	Send a message to the team with details on the waste audit	
Collect Waste Material from Site	Arrange to move material to audit sorting site	

Waste Audit Day Planning Checklist		
Task	Details	Notes
Arrange sorting station (either at location or centralized site)	<input type="checkbox"/> Coordinator or team member places all supplies and materials (e.g., gloves, mask, eye shields, etc.) for the team members in the area <input type="checkbox"/> Setup sorting (e.g., grabbers, tarps, buckets, etc.) If conducting at centralized locations, check bags have a label with the specific location. If sorting at the various locations instead of one central location, arrange to transport the sort materials either hand-carrying buckets, tarps, etc., or using a cart from one site to the next.	
Team Safety Training	<input type="checkbox"/> Safety reminders, including wearing masks, eye shields, and gloves <input type="checkbox"/> Cover any specific entity safety requirements <input type="checkbox"/> Paperwork, e.g., waivers, if applicable	
Assign Team Duties (1-2 person per task and may rotate duties)	<input type="checkbox"/> Setup site including placing tarp, arranging and labeling buckets <input type="checkbox"/> Weigh bags <input type="checkbox"/> Empty bag for each site (1 at a time) <input type="checkbox"/> Data collection <input type="checkbox"/> Sort and categorize Items <input type="checkbox"/> Weight/Volume determination <input type="checkbox"/> Recycle or waste <input type="checkbox"/> Cleanup including on-site washing tarp, buckets, and grabbers <input type="checkbox"/> Post-cleanup <input type="checkbox"/> Post data analysis	
Sort Process (Two parts) Part 1 - single-use plastic (use garbage grabber tool) See p. 20 for measurement details and training presentation for more details	<input type="checkbox"/> Weigh each bag <input type="checkbox"/> Empty content of one bag onto a tarp, slowly <input type="checkbox"/> Use grabber to begin sorting items from the bag by identifying single-use plastic <ul style="list-style-type: none"> <li><input type="checkbox"/> Plastic beverage bottles</li> <li><input type="checkbox"/> Polystyrene #6 (Styrofoam) food containers</li> <li><input type="checkbox"/> PET or other food containers #1 or 2</li> <li><input type="checkbox"/> Food packaging</li> <li><input type="checkbox"/> Plastic bags</li> <li><input type="checkbox"/> Plastic straws</li> <li><input type="checkbox"/> Film/wrap</li> <li><input type="checkbox"/> Cutlery</li> <li><input type="checkbox"/> Cups</li> <li><input type="checkbox"/> Other</li> </ul> <input type="checkbox"/> Count number of each single-use plastic item	

	<input type="checkbox"/> Place all single-use plastic in a bucket to determine the volume of all single-use plastic material by measuring the bucket (p. 20) <input type="checkbox"/> Remove any plastic with liquid and move to bucket labeled container (s) with content <input type="checkbox"/> Determine weight by weighing each bucket; remember to subtract the weight of the bucket <input type="checkbox"/> Record on data on collector sheet or app, if applicable	
Sort Process Part 2: by material category (use garbage grabber tool) See p. 20 for measurement details and training presentation for more details	<input type="checkbox"/> Weigh each bag <input type="checkbox"/> Continue examining the content of one bag from each location following completion of Part 1, single-use plastic (above) <input type="checkbox"/> Use grabber to sort items into buckets <ul style="list-style-type: none"> <li><input type="checkbox"/> Paper</li> <li><input type="checkbox"/> Metal</li> <li><input type="checkbox"/> Organics</li> <li><input type="checkbox"/> Glass</li> <li><input type="checkbox"/> Mixed Materials</li> <li><input type="checkbox"/> Container(s) with content (any items with fluids sort to a bucket labeled contaminated material)</li> </ul> <input type="checkbox"/> Determine the volume of each bucket <input type="checkbox"/> Remove items “containers with content” from the bucket, e.g., bottle with liquid. <input type="checkbox"/> Determine weight by weighing each bucket; remember to subtract the weight of the bucket <input type="checkbox"/> Cleanup site, e.g., return materials to the trash can, recycling bin, or place in a dumpster	
Data Finalization/Reporting	Enter data in applicable forms	

## Training and Safety Procedure Talking Points

Note: This guide provides general suggestions only. The entity must provide training specific to criteria and requirements for their entity. The information may serve as a script for sharing information with additional entity-specific details added when appropriate.

### Overview of Waste Audit

The purpose of a waste audit includes identifying the types of waste generated and estimating the weight and volume of the waste and recyclables. An audit, if applicable, may assist in identifying contamination issues or the level of improperly disposed waste materials in recycling containers.

### Potential Hazards

Participants may observe a variety of items within the waste audit that must be safely sorted or handled with proper tools and protections. Auditors may come across biological and physical hazards inside the container. The following hazards are possible:

- Wet (contain liquid), dusty, or moldy material
- Sharp objects, e.g., broken glass or used needles
- Toxic or corrosive waste
- Live and dead animals or parts of animals and/or insects, including mosquitos, cockroaches, ticks, and fleas
- Body fluids
- Other potentially hazardous natural and/or manufactured materials

### Personal Protection

Audit participants must follow instructions by the coordinator. While the process recommendations include using a sorting tool to limit touching materials, personal protection items further reduce exposure to waste items. During the audit, team members must wear face masks, gloves, and eye protection, e.g., glasses, goggles, or shield. Clothing, recommendations, if no cover-up offered, include:

- Shirt, long sleeve preferred
- Long pants
- Closed-toe shoes
- Hat or other to keep hair from interfering with the sorting process
- No loose-fitting clothing or jewelry



### General Safety Considerations



- No eating or drinking or food and beverage items in the immediate area designated for waste sorting
- Wash hands with soap and water for at least 20 seconds to 1 minute or use an alcohol-based hand sanitizer if soap and water are not available
- Sort through the waste slowly and with caution at all times to minimize potential risks
- Be cautious of lifting or moving bags and use proper lifting techniques and waste bags may be heavy, unwieldy, and require the effort of more than one person to carry (consider checking with custodians or facility services/management for recommendations)

### **Sorting**

The team members will sort materials into 5-7 buckets labeled

- Paper
- Metal
- Organics
- Glass
- Mixed Materials, e.g., food packaging or containers with layers or combo plastic, paper, and/or metal containers
- Containers with content, e.g., containers with liquid or items containing food, dirt, or waste not easily separated from the material and would alter the weight of the original packaging
- Plastic (Single-Use Plastic and all plastic)

Note: The Coordinator may show examples to assist in understanding the types of materials.

### **Emergency Procedures**

If a team member notices any hazards that may pose a safety risk, quickly inform the waste audit coordinator. Team members with allergies, asthma, or other medical conditions should consider limiting direct participation and notify the coordinator of medical conditions before the audit process begins. The individual should ensure they have any needed medicines at the site if they actively participate.

- Call 911 for all immediate medical or fire emergencies.
- Notify police of any items found that may be illegal or criminal.
- Notify facility services/management department/division of any hazardous materials.

### **Liability Waiver**

Before starting the waste audit, all team members must sign an entity liability waiver or other paperwork if documents are not already on file with the entity. Many institutions require students to sign waivers before beginning classes and staff to sign as part of initial employment or annual contracts.

**Waste Audit Sort Sheets**

Entity Name:  
 Contact Name:  
 Phone and Email:

Material Type	Weight	Percent WT Total	Volume	Source/Notes
<b>PAPER</b>				
Office/writing/colored paper				
Envelopes and junk mail				
Newspapers				
Paper cups/plates/straws				
Food packaging				
Paper towels/napkins				
Cardboard/Box				
Other				
<b>TOTAL PAPER</b>				

<b>METALS</b>				
Aluminum cans				
Aluminum foil				
Food Packaging				
Other				
<b>TOTAL METAL</b>				

<b>ORGANICS</b>				
Food Waste				
Leaves/Grass/ Natural				
<b>TOTAL ORGANICS</b>				

<b>GLASS</b>				
Glass beverage bottles				
Other				
<b>TOTAL GLASS</b>				

<b>MIXED MATERIALS</b>				
Food packaging combo plastic, paper, and/or metal				
Other				
<b>TOTAL MIXED MATERIALS</b>				

<b>CONTAINER(S) WITH CONTENT</b>				
Packaging with liquid or waste				
Unsortable materials				
<b>TOTAL CONTAINER(S)</b>				

Waste Audit Sort Sheets					
Material Type	Count Single- Use Items	Weight	Percent WT Total	Volume	Source/Notes
PLASTIC					
Plastic beverage bottles					
Polystyrene #6 (Styrofoam) food containers					
PET or other food containers #1 or 2					
Plastic bags					
Food packaging					
Plastic straws					
Film/wrap					
Cutlery					
Cups					
Other					
<b>TOTAL PLASTICS</b>					

For plastics, count the number of pieces of each type of plastic, e.g., the number of plastic beverage bottles.

Recycling Audit Sort Sheet (Optional)				
Entity Name:				
Contact Name:				
Phone and Email:				
Material Type	Weight	Percent WT Total	Volume	Source/Notes
<b>PAPER</b>				
Recyclable				
Non-Recyclable				
<b>TOTAL PAPER</b>				
<b>METALS</b>				
Recyclable				
Non-Recyclable				
<b>TOTAL METAL</b>				
<b>ORGANICS</b>				
Recyclable				
Non-Recyclable				
<b>TOTAL ORGANICS</b>				
<b>GLASS</b>				
Recyclable				
Non-Recyclable				
<b>TOTAL GLASS</b>				
<b>PLASTIC</b>				
Recyclable				
Non-Recyclable				
<b>TOTAL PLASTIC</b>				
<b>CONTAINER(S) WITH CONTENT</b>				
Packaging with liquid or waste				
Unsortable materials				
<b>TOTAL CONTAINER(S)</b>				

## Determining Weight and Volume

### Weight

1. Using a scale, weigh the empty bucket
2. After sorting materials, weigh each filled bucket by the material type

weight of material - the weight of bucket = weight of material type labeled on a bucket

3. Enter the weights on the data tracking table
4. Calculate gross weight by summing up all material types from all buckets
5. Weight per category

weight of material  $\div$  total weight all buckets =  
weight of material type labeled on bucket X 100

The total of all categories column should equal 100.

### Volume

1. Determine the volume of an empty bucket. A standard 5-gallon bucket is approximately 1.03 cubic feet. The formula for volume uses the bucket's height, diameter, and radius. Modify the example below using the exact bucket measurement used to conduct the waste audit.

Height (Inches): 14.5          Diameter (Inches): 12.50          Radius (Diameter/2): 6.25

The cubic foot volume of the bucket is equal to  $\pi$  times the radius in feet squared times the height in feet.  $\pi$  is equal to 3.14159265359

$$\begin{aligned}\text{Volume} &= \pi \times r^2 \times h \\ \text{Volume} &= \pi \times 6.25^2 \times 14.5 \\ \text{Volume} &= 3.14159265359 \times 39.0625 \times 14.5 \\ \text{Volume} &= 1779.4 \text{ cubic inches}\end{aligned}$$

1 cubic foot = 1728 cubic inches  
1779.4 cubic inches  $\div$  1728 cubic inches

The volume of a standard 5-gallon bucket = 1.03 cubic feet

2. Sort materials into buckets based on waste type, e.g., paper, plastic, metal, etc. For purposes of this waste audit, measure the volume of items in the condition disposed of, e.g., do not crush containers but leave as removed from the bag.

3. After sorting materials, use the measuring tape for the exact height of fill within each bucket by each material type or estimate using the information below for standard buckets.

$\frac{1}{4}$  full = .26 cubic feet

$\frac{1}{2}$  full = .52 cubic feet

full = 1.03 cubic feet

4. Enter the volume on the data tracking table
5. Calculate volume by summing up all material types from all buckets

## Waste Audit Report Form

Entity:

Audit Coordinator Name:

Email:

Phone:

Date Waste Audit Completed:

Time to Organize/Plan (# Hours):

Time to Conduct (# Hours):

How many people were on the Waste Audit Team?

Description of Waste Audit Team (Check all Applicable)

- Administration/Management Department
- Finance Department
- Operations or Facility Services Department
- Sustainability Department/Division
- Volunteer or student organization (service project)

Specific Name of Organization(s):

Describe Location of Each Site/Percentage of each Material per site:

Location	Estimated Weight	Percentage by Weight	Estimated Volume
Building Entrance Location:			
Breakroom/ Cafeteria Location:			
Open Space/Landscape Area Location:			
Parking Lot/Structure Location:			
Outer perimeter Location:			
Total*		100%	

\* Add all weights together for total and add all volumes together for the total

Totals by Material	Estimated Weight	Percent Total (WT)	Estimated Volume
Paper			
Metal			
Organics			
Glass			
Mixed Materials			
Container(s) with Content			
Plastic			
Total		100%	

Briefly describe how the entity may use the audit results, e.g., create a waste reduction (zero waste) plan, relocate or install waste receptacle or recycling container, or replace single-use materials with reusables (1-3 sentences):



## Write a Report Suggestions

A report should generally have the following sections:

**Introduction:** Start with a brief 1-2 paragraphs outlining what you did, what you found, and recommendations

**Method:** Describe the steps to complete the audit include details relating to team and location and actual audit sort process

**Results:** Show graphs and tables and numbers including photographs

**Discussion:** Describe the meaning of the results, including information on related sustainability, e.g., possible reduction in litter

**Conclusions/Recommendations:** What was your overall impression of waste, and what can you do to reduce the amount sent to landfills?

## Frequently Asked Questions

### **Step One: Organization**

Do all the audit team members need to be from the same department or group?

- No, the waste audit team may include anyone interested in participating. The guide offers suggestions for identifying team members.

Should we keep names of the audit team?

- We recommend keeping a list with the audit team composition in Waste Audit files. The material may be beneficial if the university decides to conduct an audit in the future.

### **Step Two: Planning and Walking Through Entity**

Do we need to identify locations from across the whole entity?

- The required types of outdoor or indoor spaces might be anywhere on or in the entity. The diverse types of locations provide flexibility for selecting sites from different areas of the entity. If conducting the waste audit at the location of each container, the coordinator and team should plan the easiest route to transport the supplies from location to location. If implementing the audit at a central location, the coordinator and team should plan an area where bags from the container may easily be gathered and moved around the entity to the sort area.

Our entity has both recycling and waste containers. Do we need to do both containers at a site?

- We recommend starting with an audit of waste or trash containers. An audit of a recycling container is optional. The process to conduct a recycling audit is similar to the required waste audit with the exception that the team will also examine if materials in the recycling container match the labeling for materials that should be in the recycling container, e.g., empty plastic beverage bottle in a container marked for plastic beverage bottles.

When we place a tarp, is it acceptable to put a tarp in front of a door?

- No, the direct path out of a building should be clear in case of an emergency exit. The location should permit spreading a tarp with an unobstructed minimum 4-foot walkway available. An area on a hard surface adjacent to a door is acceptable when the walkway is free from any obstruction, or the team may choose a flat spot on a grass area adjacent instead of placing it on a hard surface.

### **Step Three: Preparing for the Waste Audit**

Do we need to use the same buckets at all sites?

- The recommendation is to use the same bucket-type for consistency. The same bucket assists in determining the accuracy of weight and volume. The use of 5-7 buckets provides 1 bucket for each of the 6 material types, with one bucket available for use if needed.

Should team members wear specific clothing?

- Yes. A list of clothing recommendations is on page 7. If possible, the university may provide coveralls or lab coats. The team should wear clothing to protect themselves from potential exposures to items in the containers, including closed-toe shoes and long sleeves and pants.

#### **Step Four: Conducting the Waste Audit and Reporting**

How do we deal with containers with liquids?

- Count the number of any single-use plastic container with liquid. In the first picture (on the left), the plastic beverage bottle counts as 2 for bottle and cap. Place the bottle in the plastic container to determine the volume of plastic. Remove the bottle and place it in the bucket with the “container with content” label to determine weight. In the second picture (on the right), the standing plastic cup counts as three single-use plastic items for the cup, lid, and straw. Place the cup with lid and straw in the plastic container to determine the volume of plastic. Remove the cup with lid and straw and place it in a bucket with the “container with content” label to determine weight.



Picture 1



Picture 2

Do we crush containers?

- For this waste audit, do not crush materials but leave them as found in the location container. The plastic bottle found in the location is flat in the picture below, and the two aluminum beverage containers are not. The audit team will sort as found.

