

# Waste Audit Guidebook for Schools



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## **Inspiration for Creating a Waste Audit Program at Your School**

Castro Valley Sanitary District (CVSan) safely facilitated waste audits at Castro Valley schools for 10 years. The last year CVSan offered waste audits to schools was during the 2019/20 school year and 16 public and private schools participated in the School Waste Audit Program. Students, teachers, and parent volunteers sorted through one day's worth of garbage from their campus, then CVSan compiled the results of data collected and provided each school with a report on what was found in the garbage with strategies on how to reduce waste at the school.

### **What is a school waste audit and how is CVSan involved?**

In a school **waste audit**, students hand-sort and identify materials from the previous day's garbage that could have been recycled or composted.

Data from the audit shows what the actual volume of garbage in the garbage is. Then, by itemizing what could have gone to recycling and organics instead, a plan can be developed to increase waste reduction and improve sorting.

Waste audits are an exciting learning activity for students, teachers, and parent volunteers to see firsthand, what items can be recycled or composted instead of being put into the garbage and sent to landfill.

### **Now schools can do waste audits on their own**

As of 2022/23, CVSan offers facilitation of waste audits for Castro Valley High School only due to the volume and level of coordination. While CVSan is no longer offering waste audits to schools, and it is not required in the Green Ribbon application, schools are encouraged to continue conducting waste audits on their own.

With this guide, you can complete a waste audit on your own at school to help students learn about waste reduction and to reinforce how we all play a role in the changes needed to make the planet a better place. We have included lessons learned from past waste audits will be helpful in developing a program that will work at your school.

### **Waste audit data and improvements**

During the CVSan School Waste Audit Program, the average garbage volume found in the garbage increased while the total material from the garbage sorted decreased over time by over 50 percent. This means that there was less garbage overall and what was going in the garbage was more garbage and less recycling or organics.

There is evidence of improvements in recycling and food scrap recycling at many schools. Schools who participated in waste audits regularly, over time were able to decrease the volume of garbage they generated, which also lowered their garbage service (and cost) by over 50% from 2011 to 2020. Great job Castro Valley schools!

## **Preparation for Waste Audit**

The purpose of a waste audit is to identify the amount and type of material a school is throwing away as garbage that could have been recycled or composted. By collecting data from **one day's** worth of garbage, the waste audit will reveal what improvements need to be made. Here's what waste audit organizers need to know:

- Scheduling** – wait at least until the middle/end of September to consider scheduling an audit. **Avoid** scheduling the audit anywhere near **major school events** that will affect garbage collected. The audit day should not be a Monday, Friday, or special holiday (like Halloween) which can alter what's in the garbage. During the audit, the garbage should be representative of a regular day.
  
- Prepare Supplies** – well in advance of your planned audit, make sure there are enough supplies in good working order and in stock (or ordered) for your audit. You will need most of the following:
  - Five containers which will include Organics, Recycling, Bag-a-Bag Recycling (optional), Garbage, and HHW with signage and plenty of clear bags to better see what's inside when done sorting all materials.
  - At least two Tarps on which to sort the waste.
  - Personal Protective Equipment (PPE) such as semi-rigid gloves (reusable/washable is better than disposable and CVSsan may be able to donate these), face masks, aprons (1 each per volunteer). \*It's good to have extra sets of PPE in case some break.
  - Waste Audit Data Collection Worksheets (see page 12), clipboards, pencils, tape.
  - All - purpose cleaner
  - Rags and paper towels
  - Hand sanitizer bottle(s)
  - Broom and dust pan
  - Bags of rocks (to stabilize tarp on the ground) and/or safety cones or other bright items that could be used for the same purpose
  - Extra Waste Audit Volunteer Forms (print out) (see page 12)
  - Weighing scale
  - Camera or cell phone with camera
  - Thank you item (CVSsan can possibly donate items with recycled content or reusable items. Make a request at [cvsan.org/DRForm](https://cvsan.org/DRForm)).

**Supply Maintenance:** tarps used will need to be washed every time. Rinse them over landscape outside if possible. Dry tarps over railing using binder clips to secure tarp from blowing away. Wash tarps on a warm day in the morning hours so they can dry and be put away the same day. Monitor PPE supplies, re-order supplies as needed, and throw out any supplies that are not useable again and gloves that show signs of wear or have holes that pose safety hazards.

- At least **one week** before the scheduled audit day, review and send Parent Reminder Email. (see page 14).

- Contact the school maintenance department to ask the night shift staff to set aside the garbage from one full school day (see page 15: Maintenance Reminder Email). Make sure maintenance/custodian staff know not to include garbage from the bathrooms in the audit garbage. Bathroom garbage should be set aside and weighed separately for the audit report only and should include mostly paper towels that will go into the organics.
- At least **two days** before, verify you have another teacher and/or adult volunteer(s). There should be at least two adults for every 10 students to assist with the audit that will be **present for the entire duration of the audit**. 10 students is a good number to be able to conduct the audit in 2 hours or less for the average school of 400 students in Castro Valley.
- Send a reminder email to custodians to make sure that the garbage is not put in the dumpster/carts the day before the waste audit. Make sure the garbage that is set aside is for a full day's worth of school garbage, from the entire school campus (no more and no less).

For example, if the audit is scheduled on Wednesday morning, ask the custodian to put **Tuesday's garbage only** (from the entire campus, including lunch time, classroom, staff room, kitchen, and main office garbage) in the designated waste audit area. Do not include bags or materials from the recycling or organics bins/carts. Mark the area with the garbage bags as 'off limits' using cones or yellow caution tape around the area and a sign where the bags are placed. Separate all garbage bags from the bathrooms and label them with a marker, tape or label. Only adults will sort these bags.

**Waste Audit Instructions:**  
 During a waste audit, students will sort through one day's worth of garbage. We only want to sort through items placed into the garbage, not materials that were placed into the blue recycling or green organics containers!

Set aside all GARBAGE from previous school day:

- Lunch Time Garbage
- Classrooms (ALL) Garbage
- Main Office/Staff Room Garbage
- Kitchen Garbage



- **Designate a waste audit area** – It's best to select an area near your school's garbage bin (dumpster). Also, provide an alternate (indoor or covered) waste audit site in the event of rain, wind, or extreme heat. In addition, if the audit is in a sunny area, ask volunteers to bring sunscreen, visors, and a water bottle. Make sure the audit location is in a safe space that doesn't impede the flow of foot traffic on campus and is away from vehicle traffic.
- Verify the total number of volunteers who will be participating **one day** before scheduled audit so that adequate personal protective equipment (PPE) can be prepared.
- Verify that Waste Audit coordinators understand all of the waste audit requirements (location, setup, safety, clothing, volunteers, etc.)
- Label all the collection containers where waste is going to be sorted (11-gallon containers work well for elementary schools and 23-gallon containers or larger work

well for middle and high school audits). If you do not have that size, just make sure that you are measuring how many gallons and/or pounds is sorted where.

## **Waste Audit Day**

**Safety is very important** for this activity – approach everything through the lens of safety. CVSan had a very good record of no serious injuries during our waste audit program for an average of 14 schools conducting them each year for over ten years. The following tips, setup, and scripts and practices helped us get there.

- On the day of the audit you and your volunteers should dress in clothing you don't mind getting dirty ex. old pair of jeans, pants, long-sleeved shirt, and closed-toed shoes. Clothing should cover the body as much as possible to limit the chances of direct exposure to the garbage. Let them know this well in advance.
- Prepare and organize all the waste audit materials to be used. Refer to the Waste Audit Supply List on page 5.
- Set up the collection containers for the waste audit.
  - a. Consider weather impacts during the audit:
    - i. Heat – if it's very hot, can you move the audit into the shade or inside?
    - ii. Wind – if it's very windy, can you move the audit into the hallway or inside?
    - iii. Rain – if it is raining, can you move the audit into a well-covered hallway or inside somewhere? (Multipurpose rooms are good)
  - b. Cover the ground with tarps and place safety cones and/or rocks or another item to keep them down. If you want to use a table to sort the materials, cover it with a tarp as well. Sorting the garbage on a table is best so that volunteers don't have to bend down as much.
    - i. As a safety precaution, always tuck in and wrap tarps with binder clips if waste audits are conducted on tables. As shown in the Chabot Elementary outside audit photo below, the tarp should be tucked in underneath the table and should not cover the table and benches, creating a slope.
    - ii. Clipping the tarp directly underneath the table will prevent a slipping hazard. Place safety cones and/or rocks or another item on ends of the table to ensure the tarp stays in place.
    - iii. You can also use safety cones to create a path from which nearby classrooms and students can walk around the audit site safely.
    - iv. \*All tripping and fall hazards should be addressed before beginning the audit.
  - c. Line the collection containers with bags (clear or translucent color are best) and place them in such a manner that volunteers have easy access to them.
- Gather all volunteer forms if you haven't done so before the audit day. Review all forms for completeness. Call out names from the forms before starting the audit.

- Introduce yourself to the volunteers (if some are not from your class). Sign in all the volunteers by checking their names on the signed volunteer forms you received. Volunteers without a signed form should not participate. Volunteers 18 years and older may sign the extra copies you have on the spot.

**Examples of Set-up:**



Outside on ground: Creekside Middle



Outside on tables: Chabot Elementary



Indoors: Independent Elementary



Outdoors with cones: Palomares Elementary



Inappropriate Attire



Appropriate Attire



## Script for the Waste Audit

The following can help guide you through what to say during your audit event:

### **Explain the activity of the day by saying:**

- a. *Today we are going to sort through the garbage and see what could have been recycled or composted. An adult volunteer or I will rip open a bag or two at a time and you will help sort the garbage into the correct collection container.*
- b. *We have 5 containers: Organics, Recycling, Bag-a-Bag Recycling (optional), Garbage, and HHW. [Give examples for each category and have them refer to the images on the sign.]*

### **Safety training and personal protective equipment (PPE) distribution**

- o **Say:** *My job is to make sure that you are having a fun and safe time. Here are some guidelines to keep in mind while we are performing our waste audit.*

[Model how PPE should be worn. Delegate PPE distribution to adult volunteers: apron, mask, and gloves.]

#### *Safety Rules:*

- i. *Do not touch anything with your dirty gloved hands, ex. hair, clothing, etc.*
- ii. *Walk waste to the collection containers, do not run or throw items. [model as you say this]*
- iii. *Either an adult volunteer or I will cut or rip open bags so that volunteers don't dig in bags.*
- iv. *Unsafe behavior or horseplay **will** result in immediate loss of the privilege to participate in the waste audit. [Remind volunteers that safe behavior (no horseplay) is rewarded with participation today.] Volunteers who exhibit safe behavior will receive a reward with participation today (if you have something small to give them).*

[Ask for adult volunteers to help supervise students] *Thank you (volunteer teachers, staff, and parents) for your help with supervising the students.*

**During your safety presentation, have students line up** with their safety gear and ask them to show their hands to see if gloves were put on properly (vinyl underneath and rubber on palms), and walk around the line to see if their aprons are tied and masks pinched over the nose. Make a last-minute check for any clothing that does not meet the requirements (long sleeves, closed-toed shoes, etc.). Resolve any issues with clothing before starting the audit (ex: ask for a jacket/sweatshirt or extra shoes - the lost and found might be used for this).

**Let participants know they must not be throwing any materials into the bins** but should be placing the materials there safely. It's important that students know there could also be hazardous materials (like batteries or chemicals) found in the garbage and that if they see anything like that (or sharp objects like broken glass or knives) that they should immediately let a teacher, parent or school staff person know and the adult should be removing the item from the sorting pile of materials. **If students do not meet the safety requirements, they should not be able to sort** the materials (they may be able to record the data on tracking sheets, if needed).

Let students know waste is sorted on tarps to prevent making a mess on the ground.

## During Audit Sorting

While changing bags during waste audit, ask students to stop what they are doing and pick up trash near the edges of tarp or under tarp (if audit is on table). This will help prevent slips or falls as well as help with tidiness.

Have an adult volunteer or responsible student take pictures.

- c. **Pictures are best without masks.** Action shots, headshots, location, documenting the entire process, etc. They can be used in a report if you choose to do one, or a message/presentation to the entire school to encourage better sorting and waste reduction.
- d. **At the end of the audit group pictures are always nice,** without masks. Please tell students to keep their hands down with no funny faces if you want to send your image and story to local newspapers).

Have another adult volunteer or responsible student **record data** on the audit worksheet.

Make sure materials are NOT compacted or pushed down into the containers by any volunteers, as data is measured by volume.

- e. **Engage students** during the audit on what goes where and why, so they learn more about the finer tips and details of sorting, recycling, and composting. Remind them that they should not be throwing any materials into the bins but should be placing the materials there safely. Also remind them that that if they see anything potentially hazardous that they should immediately let a teacher, parent or school staff person know and the adult should be removing the item from the sorting pile of materials.
- f. **If you want weight data** - set aside all tied and filled bags for weighing after the audit. Group bags by category – organics with organics, recycling with recycling, etc. At the end of all of the sorting - record the weight of each bag of recycling/organics/garbage (after it has been tied) with a common weight scale (even a small “bathroom” type of scale can work).

## Clean-Up

- g. Clean up the sorting area and thank the volunteers for their help. Collect masks and other disposable items such as gloves (unless reusable gloves were used) and throw these in the garbage. Dispose of sorted items in the correct outdoor carts and bins if space is available. Collect back all the reusable PPE material from the volunteers. Remind all participants to wash their hands or use the hand sanitizer.
- h. Present each volunteer with thank you gift items if you have them.

## **Data and Note Collection and Presentation**

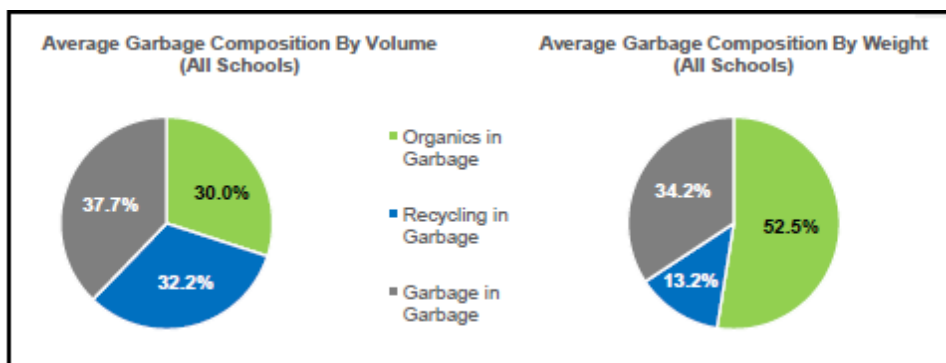
Data collection (like weight of materials for recycling, organics and garbage that are found in the garbage during the audit) is important so you can build on what you've done with one audit and track your progress. Here are some tips on data collection for the audit:

- Make sure to record the weight of all the waste sorted into the different containers – recycling, organics, garbage, and household hazardous waste.
  - a. The collection worksheet on page 11 can be used for this.
  - b. Recording the items that are found in each category can be very helpful. For example, finding out that plastic utensils are the most common item in the garbage or that a significant amount of food scraps are going into the garbage, lets you know these are areas the school can focus on to reduce waste.
- Upon completion of the audit, input the results in a data spreadsheet so you can save it for later and use it to create charts for presentation, if needed.
- Note down things that worked or did not work during the audit for future audits.

How you present the data you have collected during the audit depends on what you would like the data to influence and who the data will be presented to. CVSan often presented waste audit results data to teachers and principals to let them know how the school was doing with sorting materials into recycling, organics and garbage. This data helped determine what materials the school should focus on to reduce waste further. Having pictures of the audit and materials sorted is helpful and having charts reporting the results helps with getting the message across.

Waste Audits are an instrumental tool which provide insight and encourage improvements to waste reduction programs at schools. For example, data from all 16 waste audits in 2019/20 demonstrated that despite existing school recycling and food scrap programs in classrooms and at lunchtime, the percentage of recyclables based on volume (paper, plastic, metal, glass) and the percentage of organics (food, food-soiled paper) found in the garbage was still a high 62.2% (32.2% recycling and 30% organics). This doesn't mean that schools were doing bad with sorting into recycling, organics and garbage, it just means that there was still room for improvement.

CVSan also sometimes presented data to school administration and Board members to let them know how much money could be saved by reducing waste further. Here are some examples:



By weight:

YEAR	2017/18	2018/19
Organics in Garbage	67%	34.4%
Recycling in Garbage	8%	9.4%
Garbage in Garbage *	25%	56.3%
Total amount of garbage produced	24 Pounds	16 Pounds

Current Garbage Produced (cubic yards/week)	Recommended Garbage Service (cubic yards/week)	Potential Monthly Savings*
9	4	\$ 229.48
6	3	\$ 210.95
4	2	\$ 129.23
30	14	\$ 1,841.36
4	2	\$ 129.23
8	3	\$ 543.04
2	1	\$ 289.21

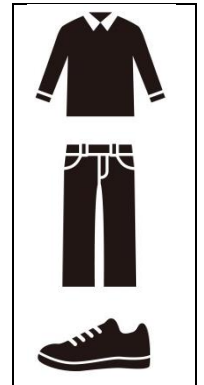
# Waste Audit Volunteer Form

School Name \_\_\_\_\_

Waste Audit Date \_\_\_\_\_

Thank you for volunteering to participate in your school's waste audit. This will involve the opening up of garbage bags and sorting the materials into categories (recycling, organics, garbage, and household hazardous waste). The waste audit will show the amount and type of material your school is throwing away as garbage that could have been recycled or composted.

School staff will provide personal protection equipment for all volunteers. This includes semi-rigid gloves, aprons, and face masks. Volunteers must wear old clothes that **cover their arms, legs, and feet** that they do not mind getting dirty such as an old pair of jeans, pants, long-sleeved shirt, and closed-toed-shoes. Long hair must be pulled away from the face. There will be school staff on site to facilitate the audit and parent and/or teacher volunteers to assist in supervising students.



Please sign below and submit to the teacher or school principal at least **1 day** before the waste audit scheduled date. School staff must have the signed form on the actual waste audit day.

## Hold Harmless Agreement

I assume all risks associated with participating in this Waste Audit, including but not limited to, following safety instructions, being in direct contact with waste, contact with other participants, and all such risks being known to and understood by me.

Having read this waiver and knowing these facts, and in consideration of the acceptance of participating, I, for myself and anyone entitled to and on my behalf, waive and release (INSERT SCHOOL AND/OR SCHOOL DISTRICT NAME HERE) and all persons and agencies connected with the Waste Audit from all claims or liabilities of any kind arising out of my participation in the activity, even though that liability may arise out of negligence or carelessness on the part of the persons named in this waiver.

I attest that I am physically able to participate in this Waste Audit. As part of this waiver, I acknowledge that I have read and understand all of the above.

**Parent/guardian of student participants MUST complete the table below and sign:**

Print Student/ Participant Name	Parent/Guardian Signature	Emergency Name and Phone #

## Photo/Video Release

I, (print parent/guardian name) \_\_\_\_\_ parent or guardian of (student/participant name) \_\_\_\_\_ hereby grant consent and authorize the use and reproduction of any and all photographs/videos taken or media produced in connection with the School Waste Audit, or anyone authorized by (INSERT SCHOOL AND/OR SCHOOL DISTRICT NAME HERE) to the use of negatives, positives, electronic images/videos or proofs for education and recycling promotional purposes, without further compensation to me or my child. All negatives, positives, and electronic images/videos, together with the prints shall constitute the property of (INSERT SCHOOL AND/OR SCHOOL DISTRICT NAME HERE), solely and completely.

Signature \_\_\_\_\_ Date \_\_\_\_\_

# Waste Audit Data Collection Worksheet

School: \_\_\_\_\_ Date & Time: \_\_\_\_\_ Facilitator: \_\_\_\_\_

1. Check off all materials you find in the garbage using the table below. For any material or item not listed, select the category you think it should belong to and write it on the "Other" line within that category. If the material or item does not belong to any of the four main categories listed, note it in the "Miscellaneous" section at the very bottom of the table. (For example, clothes are materials that can often be reused.)
2. School staff will check the bag to make sure the sorted material in it is correct for the category, and tally on the worksheet below. At the end of the sort, school staff will reconcile the data (INSERT SCHOOL NAME HERE) will also calculate the weight of all bags in each separate category.

Waste Category	Waste Type	Check Off	Tally (x gallon bin/ y gall bag)	Total Weight (lbs. of all)	% of Total Weight	Volume (gal.)	% Total Vol.
<b>Organics</b>	Food Scraps						
	Food-Soiled Paper						
	Pizza Boxes						
	Pencil Shavings						
	Shredded Paper						
	<b>Other:</b> _____						
<b>Recycling</b>	Bag-a-Bag: Plastic Bags / Wrap						
	Plastics #1-7						
	Metal Containers						
	Glass						
	Juice Boxes						
	Clean Paper						
	Cardboard or Cartons						
	Aluminum Foil						
	Bottles and Cans						
	<b>Other:</b> _____						
<b>Garbage</b>	Straws						
	Drink/Sauce Pouches						
	Composite Materials (chip/cookie bags)						
	Non-Recyclable Plastics						
	Plastic Utensils						
	<b>Other:</b> _____						
<b>HHW</b>	Oil-based Paint						
	Electronics						
	Cleaners / Chemicals						
	<b>Other:</b> _____						
<b>Misc. (ex: clothes)</b>							
<b>TOTAL</b>					<b>100</b>		<b>100</b>

## Notes

## PARENT REMINDER EMAIL

Dear PARENT OF STUDENT NAME,

We have scheduled our schools waste audit for **Day of Week, Month Date, Year from TIME**. Many schools have conducted waste audits multiple times over the years in Castro Valley. A waste audit is a fun and safe activity that identifies materials going into the garbage that could have been recycled or composted. For example, we find paper and plastic in the garbage that could have been recycled in the blue recycling bin or food scraps in the garbage that could have been composted in the green organics bin.

Waste audits are an exciting learning activity for students, teachers, and parent volunteers to see firsthand what else can be recycled or composted instead of going to the garbage and then directly to landfill. Waste audits help us achieve greater waste reduction and supports our Green Ribbon certification from Castro Valley Sanitary District. The less garbage we have the more money our school saves.

Please see the attached ***Volunteer Form*** for your student's participation in the audit. **All student volunteers** must have a parent/guardian sign the release form. If you are helping out with the audit, all non-student volunteers must sign the form as well. Signed forms will be collected by school staff on waste audit day. Any volunteer without a signed form will not be permitted to participate. Volunteers must wear **long-sleeve t-shirts, long pants, and closed-toed shoes** to participate in the audit. Any volunteer without the attire described will not be permitted to participate.

**Please complete the attached volunteer form** and email it back by **Day of Week, Month Date, Year**.

We are looking forward to our school's waste audit. Please contact me if you have any questions.

Warm regards,

[YOUR signature]



**MAINTENANCE REMINDER EMAIL**

Hi CUSTODIAN AND MAINTENANCE ADMINISTRATION NAMES,

\_\_\_\_\_ School's waste audit is scheduled for DAY, MONTH XX, 202X at TIME. We provided the attached instructions to the school.

The school waste audit contact has been instructed to coordinate with the daytime custodian to set aside the garbage from the DAY BEFORE ABOVE DATE, MONTH XX, 202X. The garbage from the entire campus, including lunch time, classroom, staff room, kitchen, and main office will be sorted at the waste audit.

Please remind your day time and evening custodian(s) at \_\_\_\_\_ school to set aside the bags from DAY BEFORE in the area where the waste audit will be performed.

Do not include bags or materials from the recycling or organics bins/carts. Mark the area with the garbage bags as 'off limits' (possibly using cones or yellow caution tape around the area and a sign where the bags are placed). Separate all garbage bags from the bathrooms and label them with a marker, tape or label, these will NOT be sorted for safety reasons.

Please ask custodians to visually inspect garbage and alert school staff to any safety issues (such as broken glass).

Thank you for your assistance with the waste audit preparations,

YOUR NAME

CC Principal