

Zero Waste Audit and Waste Characterization Study



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1.0 INTRODUCTION

The County of Sonoma's 5-year Strategic Plan identifies Climate Action and Resiliency as one of its five pillars. Within that pillar, detailed goals and objectives help direct the County's efforts in combatting the climate crisis. The Zero Waste Audit and Characterization Study (ZWACS) was identified as a necessary step to establish a baseline understanding of current waste levels and conditions and outline a path to making all County facilities zero waste.

The County of Sonoma (County) partnered with SCS Engineers (SCS) to conduct a waste audit and analysis, including the assessment of the existing solid waste management, waste reduction, and recycling activities at a representative group of County run facilities. Waste sampling, which included the hand-sorting of waste samples from County sources, was conducted at County sites ranging in use from recreation, administration, and veteran services to detention centers, and the Sonoma County airport.

The findings of the ZWACS will be compared to that of Zero Waste Sonoma's waste characterization study conducted in 2022. Zero Waste Sonoma is a local government entity, specifically a joint power authority (JPA), for the unincorporated area and nine cities and towns in Sonoma County. Zero Waste Sonoma exists to serve and help the residents and businesses of Sonoma County reduce, reuse, recycle, and discard all materials in the safest and most environmentally responsible way possible. As discussed, and in agreement with the definition of Zero Waste Sonoma's resolution, zero waste is defined as:

*The conservation of all resources by means of responsible production, consumption, reuse, and recovery of products, packaging, and materials without burning and with no discharges to land, water, or air that threaten the environment or human health.*¹

In conjunction with the County's strategic plan, the California Short-Lived Climate Pollutant Reduction Strategy (SB 1383), effective January 1, 2022, aims to reduce organic waste disposal 75% by 2025, and rescue at least 20% of currently disposed surplus food for people to eat by 2025. SB 1383 will be a key component in the County's approach to achieve zero waste by 2030. SB 1383 focuses on the reduction of methane generated in the decomposition of organic material in landfills. This legislation requires all businesses and multi-family dwellings with more than 2 cubic yards (CY) of weekly service, generating over 20 gallons of organic waste weekly to participate in organic waste collection. The County may use the results of the ZWACS to identify which County facilities need to participate in organics collection.

The primary objectives of the study were to:

- Collect statistical evidence of material categories of waste generated by County operations.
- Identify specific generator types that are contributing substantial quantities of recyclable and organic materials to the waste stream.

¹ Zero Waste International Alliance, December 2018

- Create a qualitative assessment of the composition of the County waste streams, additionally accounting for seasonality.
- Provide recommendations for prioritized actions to achieve the goal of Zero Waste by 2030.

The results of the ZWACS include:

- Quantitative report of waste generated at County facilities.
- Qualitative assessment of the composition of the County's waste streams.
- Recommendations for prioritized actions to achieve zero waste.

2.0 METHODOLOGY

The overall approach to assessing waste and recycling performance at County facilities was designed through a series of meetings between SCS and the County. At SCS's request, the County provided background information regarding waste collection service. Data was provided by Recology, the hauler that services all County facilities. Information about County facilities, including facility size, number of employees, and other relevant data, was provided by the County. The coordination of the waste audit was broken down into the following steps:

- Facility selection
- Site visit and visual audit
- Waste characterization study

2.1 FACILITY SELECTION METHODOLOGY

Upon reviewing the list of County owned and leased facilities, it was determined there are many similarities in the types of waste generated by the facilities. This eliminated the need to sample and sort waste at all County sites and instead, generator categories were developed to group similar types of facilities. The selected facilities are representative of all other County facilities. The categories of key waste generators by facility type include:

- Airport
- Animal Shelter
- Corp Yard/Maintenance/Warehouse
- Detention
- Office
- Recreation
- Veterans Memorial Buildings

In order to audit a representative sample of these facilities, SCS examined the waste generation levels and the number of County facilities by generator type. Facilities were selected to match the percent of total waste generated by the facility type. For example, detention facilities make up 23% of County facility generated waste. Therefore, 20% of the total number of samples were selected from the detention facilities. Table 1 presents the calculations performed to identify the number of facilities by generator type that were included in ZWACS. These selected facilities consider a weighted average based on the facility type and the percentage of materials generated.

Table 1. Facility Selection by MSW Capacity

Type of Use	County Assigned Type of Use	Number of Facilities	Facility Square Footage	MSW CY	Total MSW CY	Percent of Total MSW CY	Number of Facilities to Audit
Airport	Airport	2	56,000	30	30	4%	1
Animal Shelter	Animal Shelter	1	40,044	12	12	2%	1
Corp Yard/Maint./ Warehouse	Corp Yard	3	25,268	8	73	10%	2
	Fleet	5	41,336	17			
	Machinery	4	0	22			
	Office; Warehouse	2	0	3			
	restoration site	1	0	4			
	Warehouse	5	51,561	19			
Detention	Detention center	4	18,180	20	164	23%	4
	Detention Center; Court Room; Office	2	11,900	120			
	Detention center; Office	2	296,000	24			
Recreation	Recreation	1	0	8	228	32%	5
	Recreation (sports fields), storage and maintenance	1	1,470	4			
	Recreation; Warehouse	1	8,369	8			
	Restroom	1	0	0			
	Restroom; Recreation	5	4,211	69			
	Marina	2	0	8			
	Mixed Use: Recreation, office	1	7,065	0			
	Mixed use: Recreation, office and visitor center, ice house	4	12,940	35			
Mixed Use: Recreation, office, storage	1	4,272	96				
Office	Office	29	553,674	127	149	21%	4
	Office; Corp Yard	1	10,756	4			
	Office; Labs	1	20,116	8			
	data center	2	940	8			
	Office; Warehouse	1	13,600	2			
Veterans Memorial	Veterans Memorial Building	8	96,404	56	56	8%	1
subtotal					713	100%	18

A total of 18 samples were selected to be included in the ZWACS, one at the airport, one at the animal shelter, two for the corp yard/maintenance, four at detention facilities, five at recreation facilities, four offices, and one Veterans memorial building.

2.1.1 Selected Facilities Schedule

Table 2 indicates the date of audit by facility type and name/location.

Table 2. Facility Audit Schedule

DATE OF AUDIT	FACILITY CATEGORY	FACILITY NAME
June 12, 2023	Veterans Memorial Buildings	Santa Rosa Veterans Memorial Hall
	Detention	Hall of Justice / Sonoma County Jail
	Recreation	Schopflin Fields
	Office	Administration Building
June 13, 2023	Office	Human Services
	Recreation	Marina
June 14, 2023	Recreation	Steelhead Park
	Recreation	Spring Lake
	Office	Permit Sonoma
	Corp Yard/Maintenance/Warehouse	Roads Department Yard
June 15, 2023	Airport	Charles M. Schulz Sonoma County Airport
	Detention	Juvenile Detention Center
	Animal Shelter	Sonoma County Animal Shelter
	Recreation	Doran Beach Campground
June 16, 2023	Detention	Male Adult Detention Facility
	Corp Yard/Maintenance/Warehouse	Central Mechanical Plant
	Detention	Sherriff's Office
	Detention	Hall of Justice / Sonoma County Jail

2.2 SITE VISIT AND VISUAL AUDIT METHODOLOGY

The purpose of the site visit and visual audit is to assess the existing solid waste management, waste reduction, and recycling activities at the facility. Prior to performing the site visits, SCS conducted a phone interview to engage with facility staff and provide an overview of the assessment process. SCS requested documentation including site maps, information about existing solid waste services and practices, and related invoices associated with services or products purchased.

During the site visits, SCS performed a visual waste assessment of the exterior on-site waste carts and bins. The objective of the visual waste assessment was to identify materials not accepted by the hauler (contamination) at the source and focus on opportunities for improving waste reduction and recycling practices.

The following protocol was used for the visual waste assessments performed for recycling and organics containers:

- Verify container size and fill levels.
- Visually assess a percent of the total container contents of each material.
- If a container is full, the top visible portion is assumed to be representative of the contents of the entire container.

This protocol was developed by SCS and approved by CalRecycle for conducting container contamination minimization required by SB 1383. It is applicable for the ZWACS, as the regulation requires a visual assessment be conducted for business and residential waste containers.

For each facility, SCS identified the following information for entry into the data management system during the walkthrough assessment and staff interviews:

- Whether containers (waste, recycling, organics) are shared by multiple tenants or a single tenant.
- Who arranges for waste service.
- Third-party vendor service provider, container size, and material types.
- Areas generating waste, recycling, and organics on-site.
- Landscaping waste produced.
- Food donation waste.
- Self-hauling – waste generated and hauled by the same entity.
- Janitorial services.
- Backhauling – transport of recyclable materials to approved distribution center by a third-party.
- All other third-party waste reduction or recycling activities.

2.3 WASTE CHARACTERIZATION METHODOLOGY

To guide the waste characterization process, the procedures for sampling and sorting waste followed ASTM Standard Test Method for Determination of the Composition of Unprocessed Municipal Solid Waste – Designation D 5231-92 (reapproved 2003). This test method outlines the process of identifying material composition within municipal solid waste by employing manual sorting. SCS provided scales, data forms, and equipment necessary to conduct the fieldwork. Two audit teams of three experienced professionals traveled to each designated facility to collect and sort waste samples. Sampling was scheduled in conjunction with normal collection service, to allow for the

availability of adequate waste material for a legitimate characterization of each facility's waste stream. Waste samples were manually sorted into designated categories and weighed separately.

The waste samples were placed on a sorting table (See Appendix B Figure 1) and separated by hand into categories set forth in a predetermined customized material type list shown in Table 3. Separated materials were placed in containers to be weighed and recorded. The waste samples were sorted until mixed residue remained. This consists of all materials that do not fit into any other category along with the unidentifiable materials that are two inches or smaller. The overall goal was to sort each sample directly into the material categories. This reduced the number of indistinguishable fines or miscellaneous categories in each sample. Lastly, SCS reviewed the sorted material for homogeneity before the containers were weighed as a final quality assurance step. Using a pre-calibrated scale, SCS recorded the weight for each sorted material category on a sampling form. The waste characterization process was conducted for the landfill stream, while a visual assessment was conducted for the recycling and organic waste streams.

The waste characterization process included the following steps:

1. The work crew visited two facilities per day per team. Once on site, the crew pulled 200 pounds of material from the waste bin. If exterior bins had been recently hauled and had little waste to characterize, the crew pulled waste from other facility receptacles in order to get as close to a 200-pound sample as possible.
2. Plastic bags of waste were opened, and crew members manually segregated each item of waste until all identifiable components were placed into the proper container. SCS staff hand sorted the samples into 38 material categories. The remaining material was swept into a separate container for "mixed residue".
3. A quality check was performed by the SCS crew lead. Photographs were taken sporadically throughout the process.
4. Upon completion of sorting each sample, the containers of segregated materials were weighed. Measurements were made to the nearest 0.01 pound.
5. After the weight of each waste material had been recorded, the materials were placed into proper bins for disposal.

This process was repeated at each site until all samples at each facility had been characterized.

2.3.1 Material Categories and Divertibility

There were 38 distinct waste material categories defined for this study. Each material category can be classified further based on whether it is a divertible item. Divertibility in the context of waste management refers to an item's potential to be redirected from the landfill waste stream to another outlet.

Each of the 38 material categories were classified into one of four divertibility groups:

- Divertible Materials - This includes materials for which source reduction programs or methods, collection programs, and/or recycling infrastructure exist.

- Compostable Materials - This includes organic materials that are appropriate for municipal composting programs.
- Potentially Divertible Materials - This includes material for which methods and/or technology exist for recycling, reuse, or other beneficial uses, although programs to collect and process the materials are limited or nonexistent in the Sonoma County area.
- Other / Non-Divertible Materials - This includes materials that do not fit any of the definitions above and that are not easily diverted from disposal.

Table 3 shows the 38 material categories grouped according to their divertibility potential. The remainder/composite categories can be defined as materials that do not fit into any other category and/or contain more than one material type and are not readily separated. These materials were placed into the remainder/composite category based on the majority material type of the item.

Table 3. Material Divertibility Classifications

CATEGORY	TYPE
DIVERTIBLE	
PAPER	Recyclable Paper
GLASS	CRV Containers
	Non-CRV Containers
METAL	Aluminum cans
	Steel/Tin Cans
	Other Ferrous
	Other Non-Ferrous
PLASTIC	PET Bottles
	HDPE Containers
	#3-7 Containers
TEXTILES	Textiles
C&D DEBRIS	Recyclable Wood
	Gypsum Board
	Rock, Soil, Fines
HAZARDOUS WASTE	Other Universal Waste (fluorescent lamps, CRTs, CRT glass, mercury wastes, Non-empty aerosol cans, PV modules)
	Paint
	Covered Electronic waste
	Batteries
	Used Oil, Filters

CATEGORY	TYPE
COMPOSTABLE	
PAPER	Compostable Paper
ORGANICS	Food-Potentially donatable
	Food-Not Donatable
	Leaves, Grass, prunings, trimmings
	Compostable food service ware
	Remainder/Composite Organics
POTENTIALLY DIVERTIBLE	
C&D DEBRIS	Carpet
OTHER / NON-DIVERTIBLE	
PAPER	Remainder/Composite Paper
GLASS	Remainder/Composite Glass
METAL	Remainder/Composite Metal
PLASTIC	Film
	Durable Plastics
	EPS Packaging/Food service ware
	Remainder/Composite Plastic
C&D DEBRIS	Treated wood
	Remainder/Composite C&D
HAZARDOUS WASTE	Remainder/Composite Hazardous and E-Waste
	Medical Waste
RESIDUAL	Residual

3.0 KEY FINDINGS

After compiling the data from all the waste characterizations, a select number of observations were readily identified:

- Organic material was the most frequently encountered waste type within the landfill stream.
- Residue, paper, and metal also occupy a significant portion of the waste stream.
- A majority of material encountered, almost two-thirds, could be diverted to recycling or composting facilities.



Image of residue category.

SCS site visits performed during this study included visual assessments of both organics and recycling streams. Visual audits were used to quickly quantify and report observed contamination and opportunities for waste reduction and recycling. All facilities are enrolled in the recycling program, and performance remains relatively strong in comparison to compostable streams. Visual assessments of organics services varied widely within each County facility type. A select few facilities were not enrolled in organic services, while others encountered issues with contamination, hauler services, and education.

3.1 WASTE STREAM COMPOSITION

A total of 18 samples were collected at County facilities during the week of June 12, 2023. As shown in the Summary Table (Appendix A), the facilities demonstrate different waste stream composition characteristics. There were some common aspects found throughout the data, notably an abundance of organic material encountered in each sample. However, the facility types also exhibited important variations in content that allow for targeted diversion opportunities. The ZWACS does not incorporate the waste generated by subcontracted services.

3.1.1 Waste Composition for All County Facilities

The overall waste composition of the facilities is shown in Exhibits 1 & 2. Organic materials, paper, and metal are the notable material classes found in the County facility waste containers, at 25.9%, 19.4%, and 11.0% respectively. Residue makes up 21.0% of the waste stream. Residue consists of materials that do not fit into any other category and are not recyclable or compostable through Recology’s waste collection. Examples include, film, plastic bags, air filters, and materials smaller than two inches.

Exhibit Waste Composition – All County Facilities

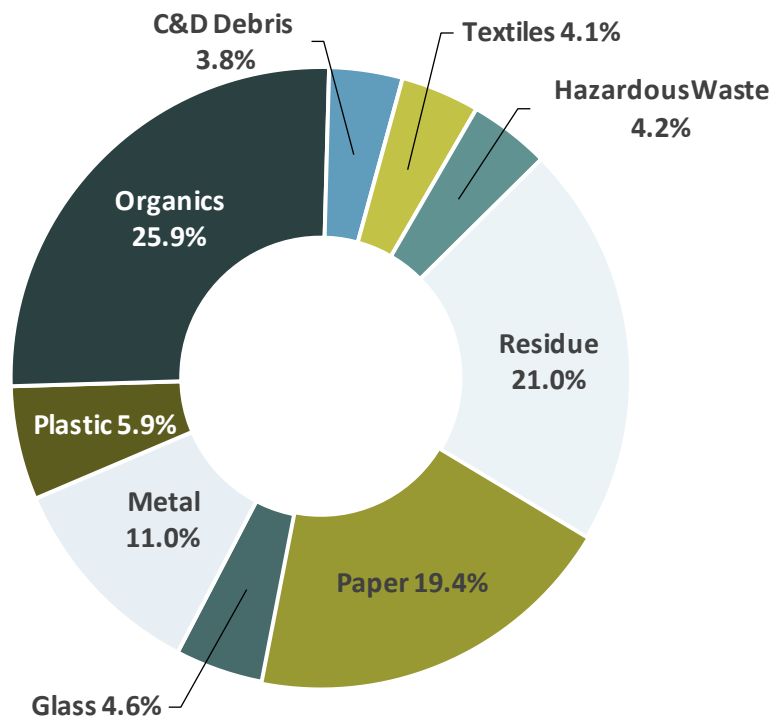


Exhibit Waste Composition – All County Facilities

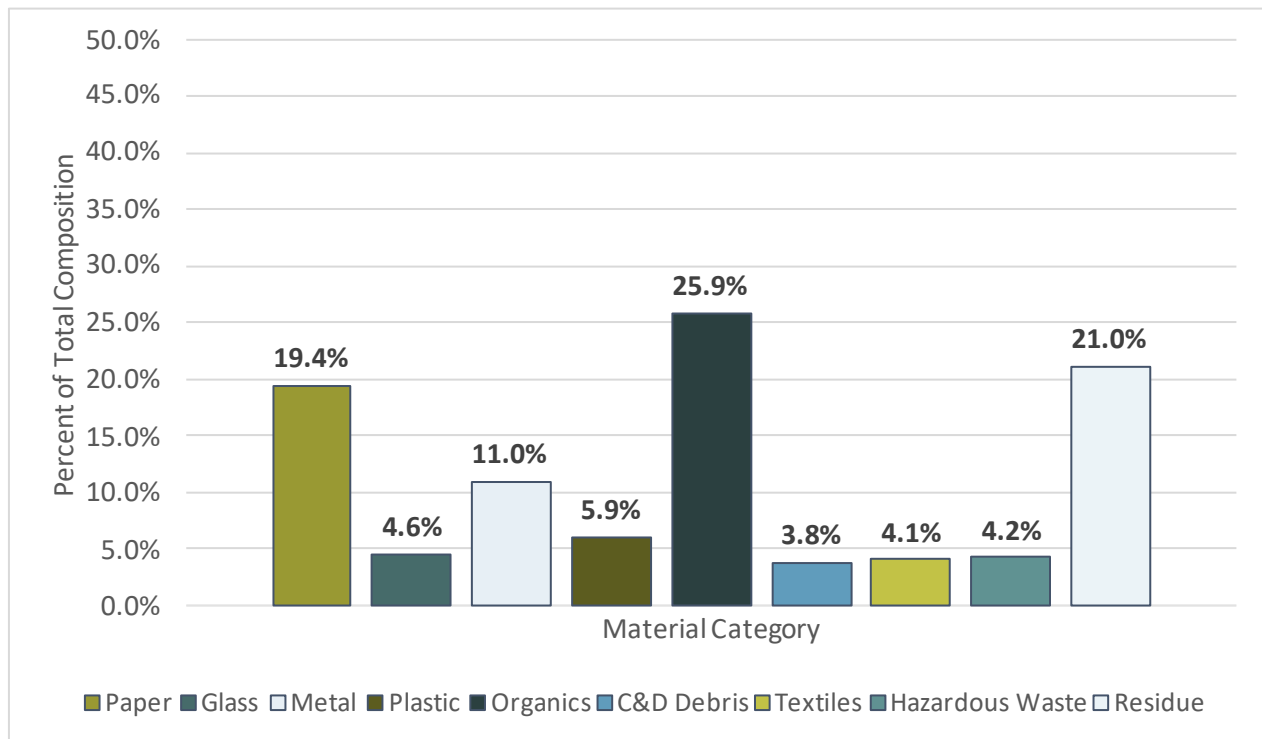


Table 4 outlines the quantity of material generated at County facilities per week by waste stream, based on the service levels provided by Recology. The largest stream is the landfill, representing 52.9 tons per week of material. Exhibit 6 shows that 66.8% of the landfill waste stream is made up of divertible, compostable, or potentially divertible materials. Therefore, the County has the potential to reduce upwards of 35.3 tons per week of material currently sent to landfill from County facilities.

Table 4. Weekly County Facility Waste Generation

Waste Stream	Cubic Yards / Week	EPA Volume-to-Weight Conversion ²	Pounds / Week	Tons / Week
Landfill	765.9	138	105,701	52.9
Recycling	577.8	111	64,139	32.1
Organics	69.6	135	9,399	4.7
TOTAL	1,413.3		179,239	89.7

² Volume-to-Weight Conversion Factors U.S. Environmental Protection Agency Office of Resource Conservation and Recovery April 2016

Exhibit 3 displays the results of the recycling visual assessments at all County facilities. A total of 11.3% of materials were not recyclables. Exhibit 4 displays the results of the visual assessment all County facilities. A total of 25% of materials were not organics.

Exhibit 3. Recycling Visual Assessment-All County Facilities

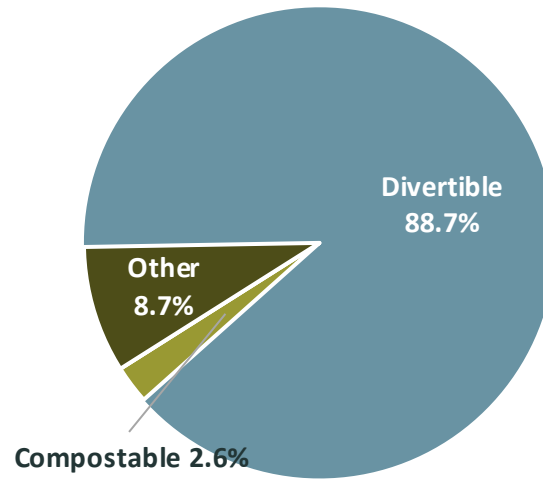
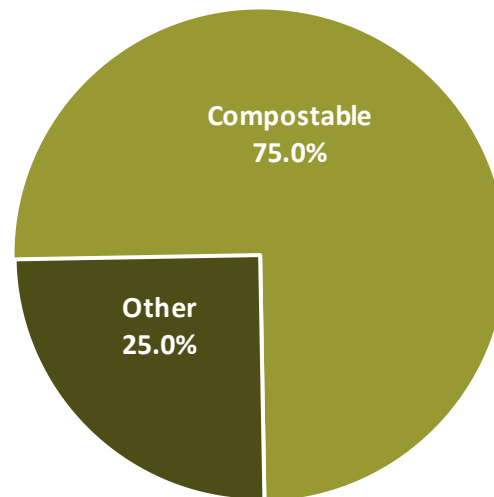


Exhibit 4. Organics Visual Assessment – All County Facilities



Zero Waste Sonoma conducted a waste characterization study in 2022 analyzing countywide waste composition. SCS analyzed the waste composition for that study by single- family residential, multi-family residential, and commercial generator types. The County facility waste composition can be compared to the commercial waste composition identified in 2022. Exhibit 5 shows the waste composition of commercial generators in Sonoma County in 2022. Zero Waste Sonoma’s Waste Characterization Study identifies organics, plastic, and paper as the top three material types in the landfill stream. Organics, paper, and metal were the three notable materials in the County facilities landfill stream. Notably in comparison, the County facilities have less contamination of divertible materials.

Exhibit 5. Zero Waste Sonoma Waste Composition – Commercial Facilities 2022

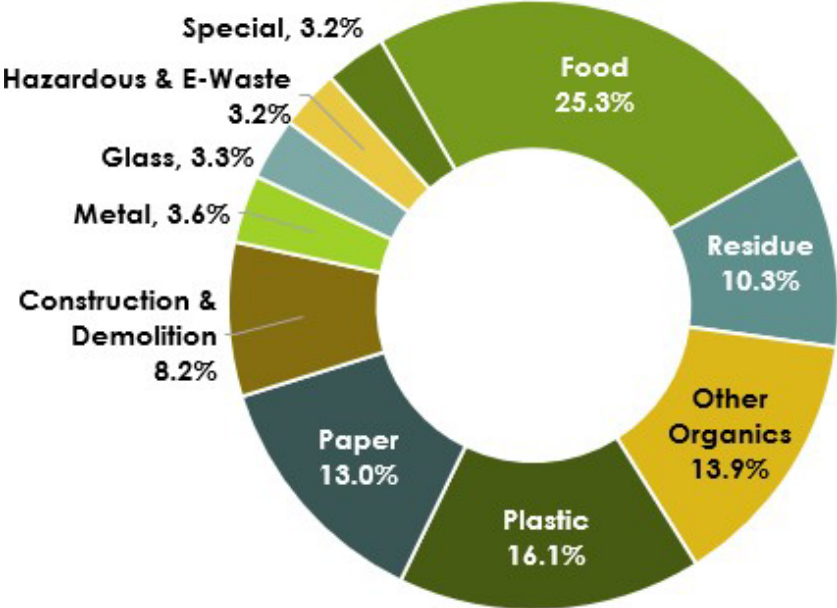


Exhibit 6 displays the waste composition in relation to its ability to be diverted (“divertibility”). Overall, the County facilities waste stream is composed of 66.8% divertible, compostable, or potentially divertible materials. Exhibit 7 displays the commercial generator waste composition from Zero Waste Sonoma’s study, which shows 64.6% is classified as recyclable, compostable, or potentially divertible materials. Exhibit 8 compares the divertibility of County facilities with Zero Waste Sonoma commercial facilities.

Exhibit 6. Divertibility Assessment – All County Facilities 2023

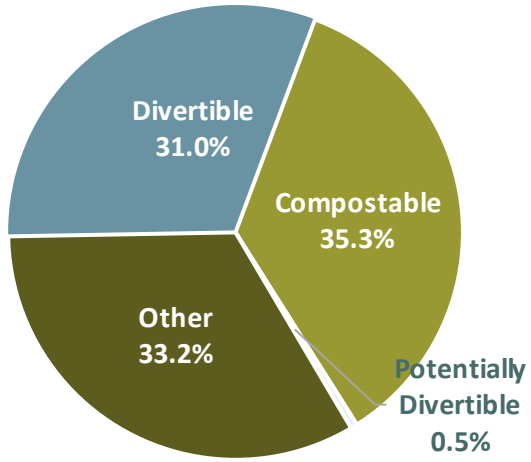


Exhibit 7. Divertibility Assessment - Zero Waste Sonoma Commercial Waste 2022

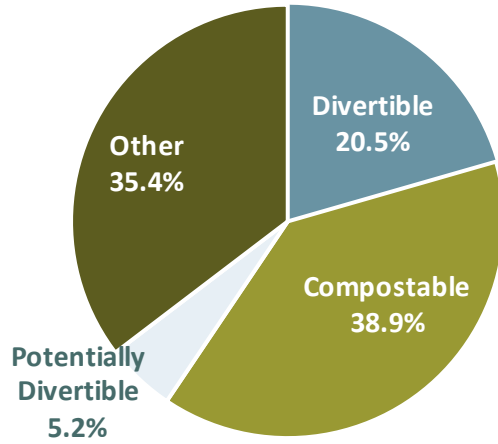
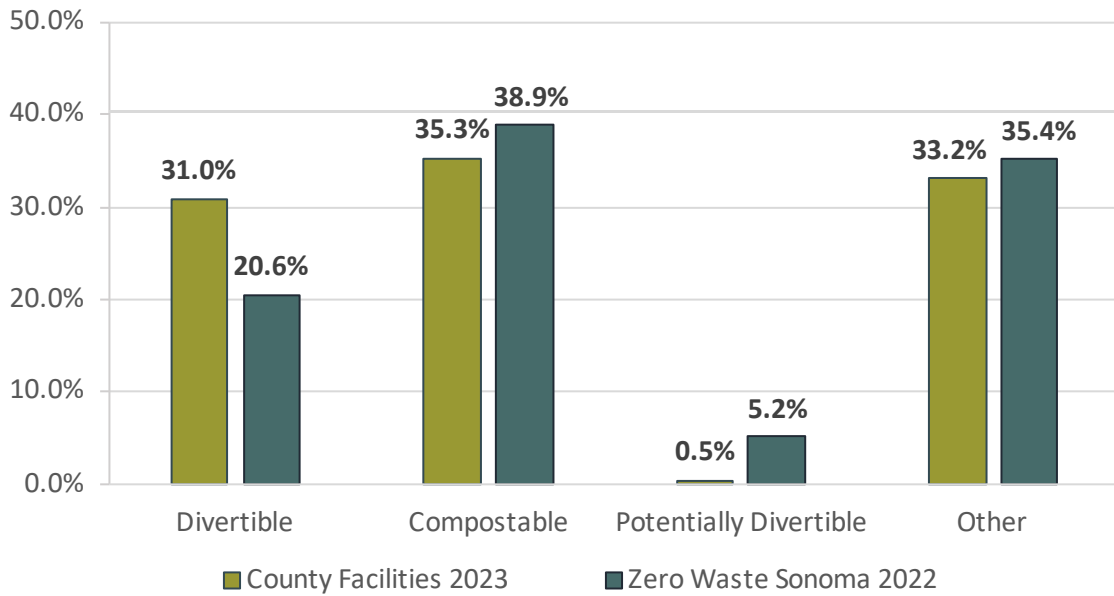


Exhibit 8. Divertibility Comparison – County Facilities 2023 vs. Zero Waste Sonoma Commercial Facilities 2022



3.1.2 Waste Composition by County Facility Types

As described in Section 2 of this report, waste samples were gathered by facility types. See Appendix C & D for field forms. The analyses shown in Exhibits 9 through Exhibit 28 present the composition of material categories according to the following County Facility types:

- Airport
- Animal Shelter
- Corp Yard/Maintenance/Warehouse
- Detention
- Office
- Recreation
- Veterans Memorial Buildings

3.1.2.1 Airport

The composition of waste at the Charles M. Schulz Sonoma County Airport is shown in Exhibit 9. Residue and paper account for the largest percentage of material, with paper representing the best opportunity for future increased landfill diversion. Clearly labeled signage (see Appendix B Figure 2) at waste areas aided in the capture of residual trash. The Airport had the cleanest landfill stream of any facility type encountered during the study.

The Sonoma County Airport is currently enrolled with Recology for organic service, however, during interviews with on-site staff it was observed that the two-yard organic bin had not been used in some time. While the restaurant and public areas were equipped with SB 1383 compliant triple stream stations (see Appendix B Figure 3), janitorial service within the facility was seen taking the organic bag from a triple station and placing it into the landfill stream.

Exhibit 9. Waste Stream Composition - Charles M. Schulz Sonoma County Airport

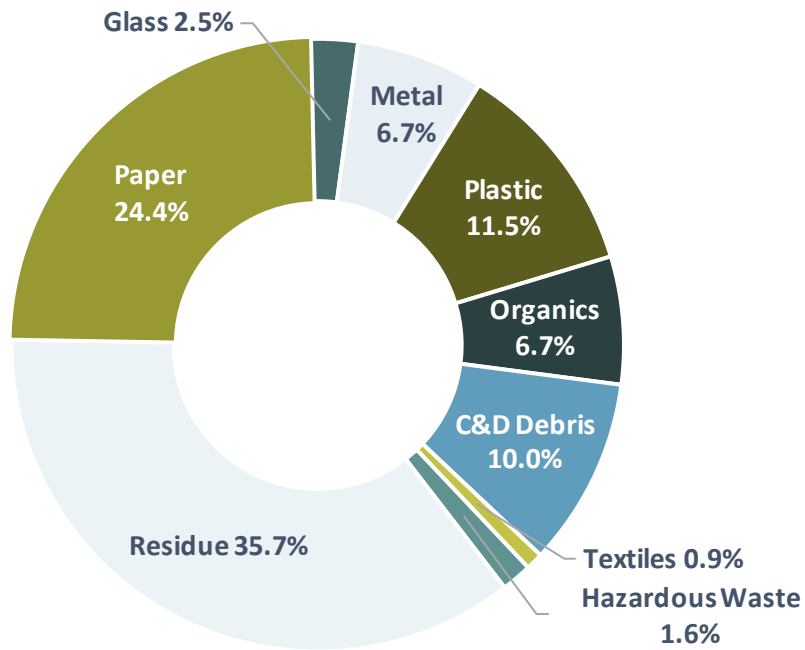
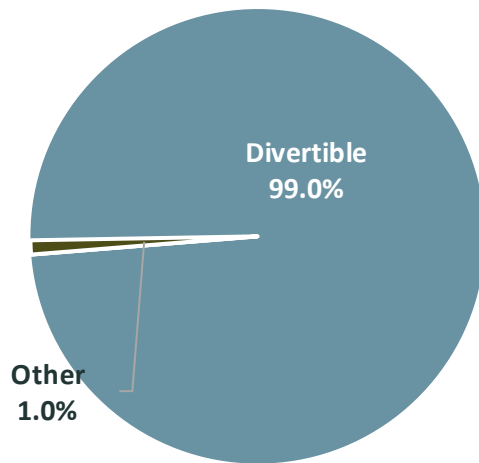


Exhibit 10 displays the results of the visual assessment conducted for the Airport’s recycling containers. Of the materials observed, 1% is not accepted in the recycling stream.

Exhibit 10. Recycling Visual Assessment - Airport



3.1.2.2 Animal Shelter

The Sonoma County Animal Shelter’s waste stream composition is shown in Exhibit 11. The data shows that organic material accounts for a significant portion of waste found in the waste stream. SCS staff identified that the majority of the organic material was due to animal bedding. The animal shelter did not have organics collection on site, and therefore all organic waste was placed into the waste.

Exhibit 11. Waste Stream Composition – Animal Shelter

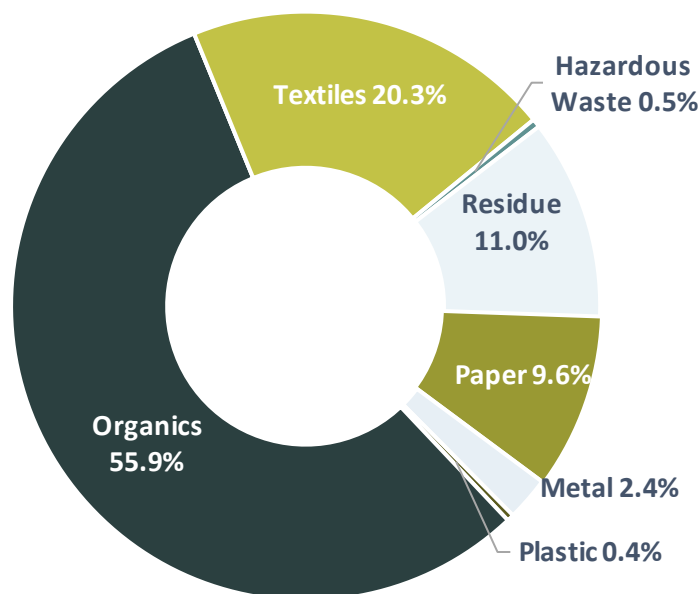
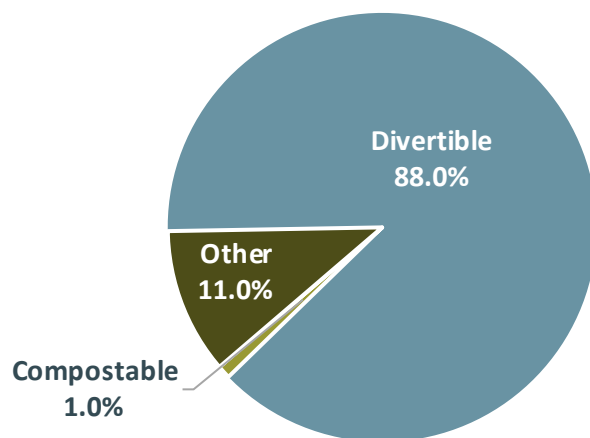


Exhibit 12 displays the results of the recycling visual assessment. The assessment identified 12.0% of the contents are not accepted in the recycling stream. The animal shelter does not have organics service and therefore a visual assessment was not conducted.

Exhibit 12. Recycling Visual Assessment – Animal Shelter

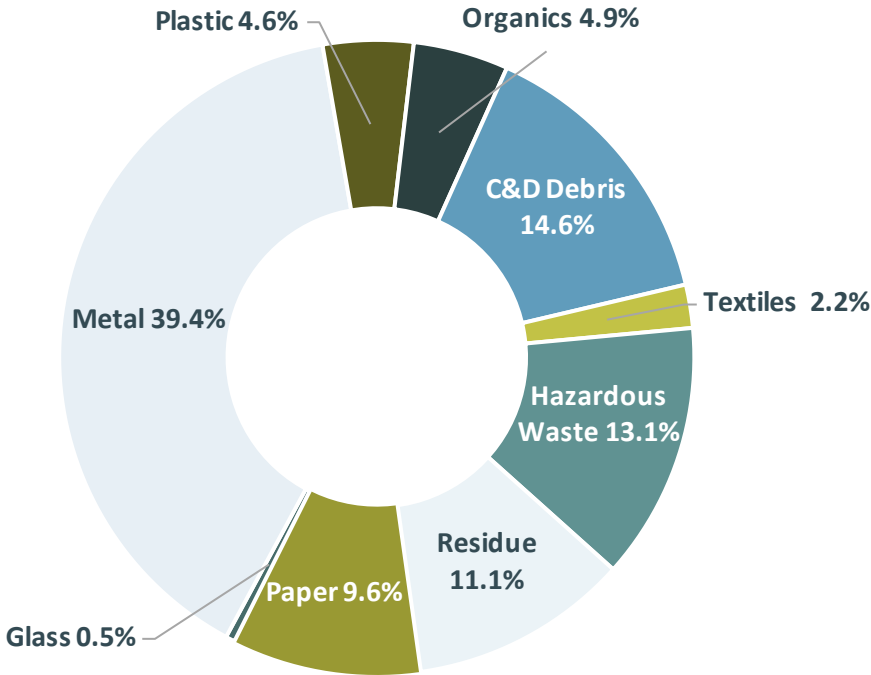


3.1.2.3 Corp Yard / Machinery / Maintenance

The composition of waste at Sonoma County corporation yard, machinery, and maintenance facilities is shown in Exhibit 13. Due to the nature of machinery and maintenance facilities, a sizable portion of waste generated was comprised of construction and demolition debris. Construction & demolition debris represents a unique characteristic for facilities of this type. Inspection of the Sonoma County Road Maintenance facility revealed a robust recycling program for various metals (see Appendix B Figure 4) woods, tires, and green waste. The metal, wood, and tire recycling program were spearheaded by one staff member who organized designated areas for these materials to be consolidated and monitored. A partnership with the California Conservation Corps supports the continual effort to remove plant matter from roadsides and composting of the material accordingly.

The Central Mechanical Plant located at 2680 Ventura Avenue contained several separate areas for a variety of maintenance and construction tasks. The wide assortment of activities at a facility of this type requires a nuanced approach to recycling for maximum diversion. While all areas had some recycling procedures in place, the overarching facility had no selected leader, resulting in a lower diversion rate than the Roads Department.

Exhibit 13. Waste Stream Composition – Corp Yard / Machinery / Maintenance



Exhibits 14 & 15 display the results of the recycling and organics visual assessments for the Corp yard / Machinery / Maintenance facility type, respectively.

Exhibit 14. Recycling Visual Assessment – Corp Yard / Machinery / Maintenance

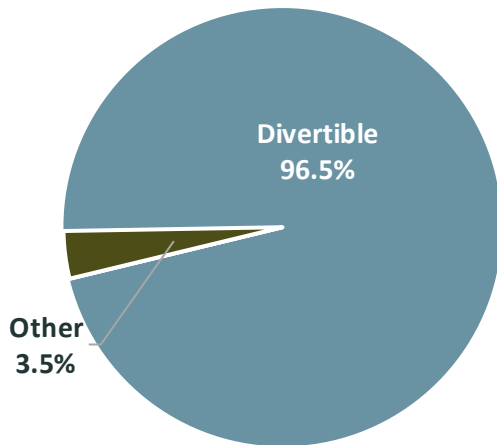
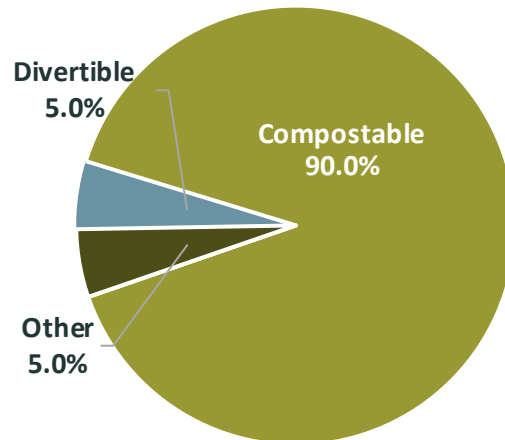


Exhibit 15. Organics Visual Assessment – Corp Yard / Machinery / Maintenance



3.1.2.4 Detention Centers

The overall waste composition observed at the five detention facilities is shown in Exhibits 16 and 17. The waste stream at these facilities contained high percentages of organics and paper, 42.8% and 23.6% respectively.

Exhibit 16. Waste Stream Composition - Detention Centers

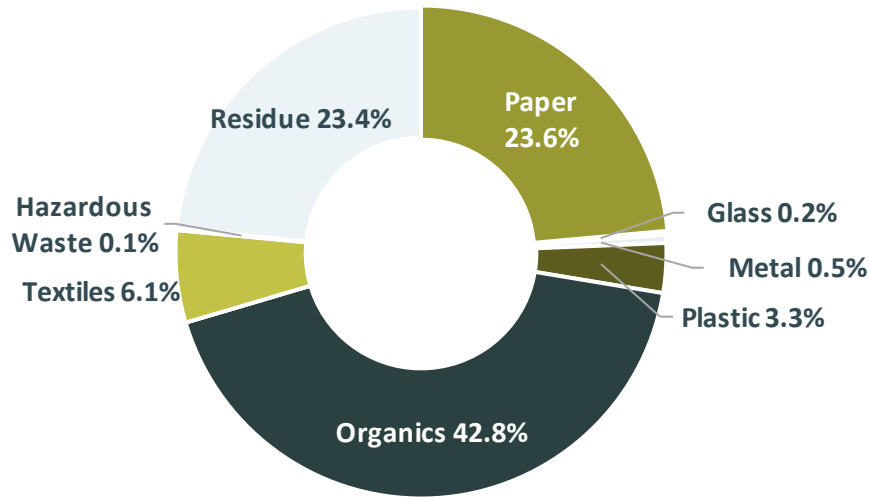
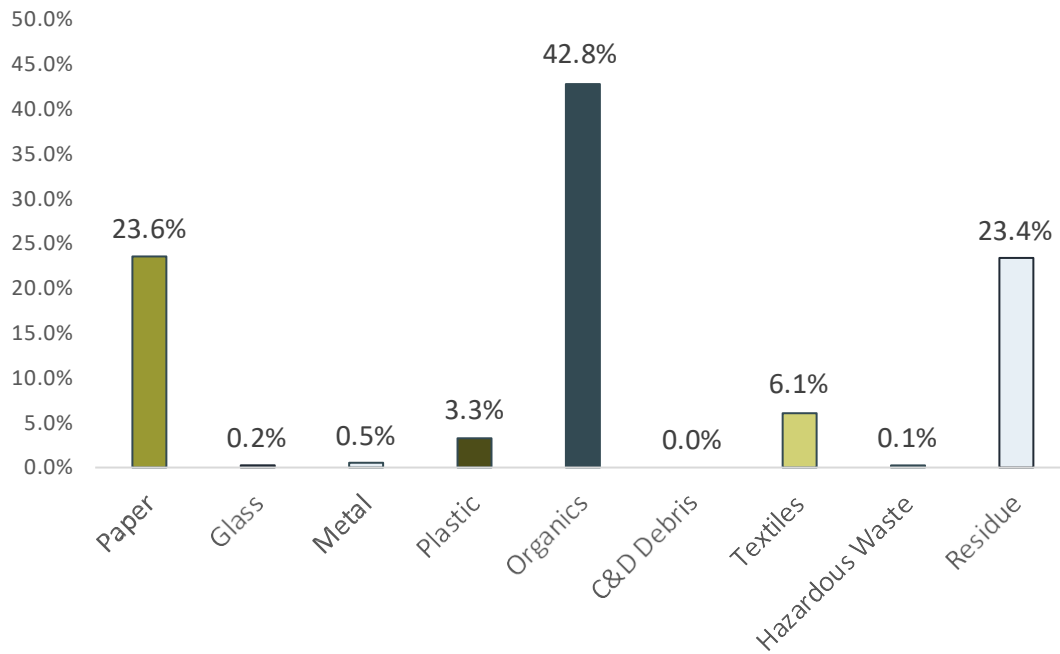


Exhibit 17. Waste Stream Composition – Detention Centers



Exhibits 18 & 19 display the results of the visual assessments conducted at the County's detention facilities. Based on the assessments, the recycling and organics had minimal contamination.

Exhibit 18. Recycling Visual Assessment - Detention Centers

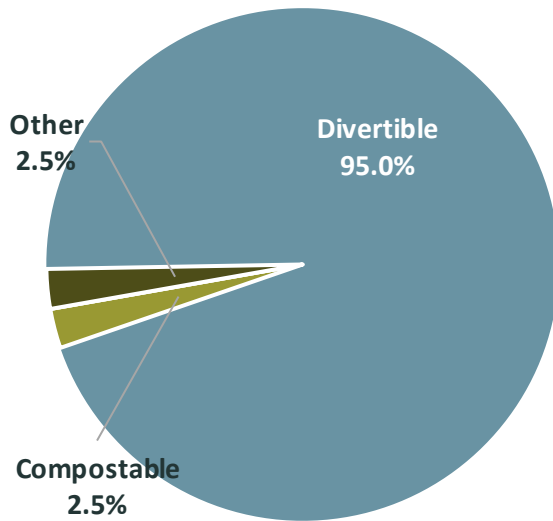
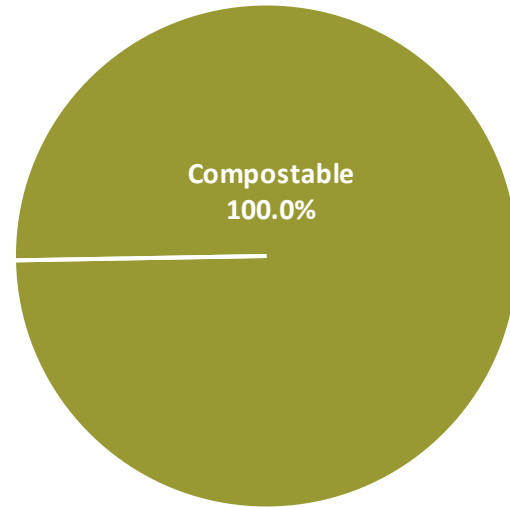


Exhibit 19. Organics Visual Assessment - Detention Centers



3.1.2.5 Offices

The waste composition of County offices is shown in Exhibits 20 and 21. As indicated, a considerable quantity of paper and organic materials was found in the waste stream.

Activities monitored and sanctioned by the County require thorough documentation and recordkeeping, creating a considerable amount of paper waste (see Appendix B Figure 5). The pie chart (Exhibit 20) denotes the large percentage of recyclable paper waste encountered in the landfill stream.

It was determined during SCS's interview process that volumes of books containing County, State, and Federal codes are kept in a physical form within the office space. Therefore, many of the offices participate in a third-party shredding of confidential documents. Paper diversion should be maximized during these events using staff input.

SCS's tour of the Administration Building included in-depth discussions with staff regarding procurement processes and legal necessities that complicate paper recycling. SB 1383 requires paper procurement practices that include 30% or more postconsumer fiber along with vendor certification. These qualifications limit the purchase options. County staff are actively purchasing SB 1383 compliant paper when possible.

Exhibit 20. Waste Stream Composition – Offices

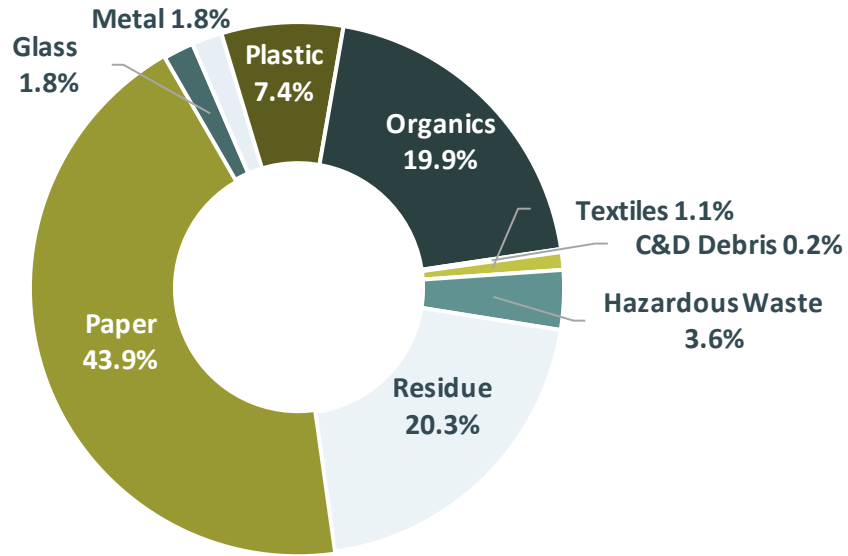
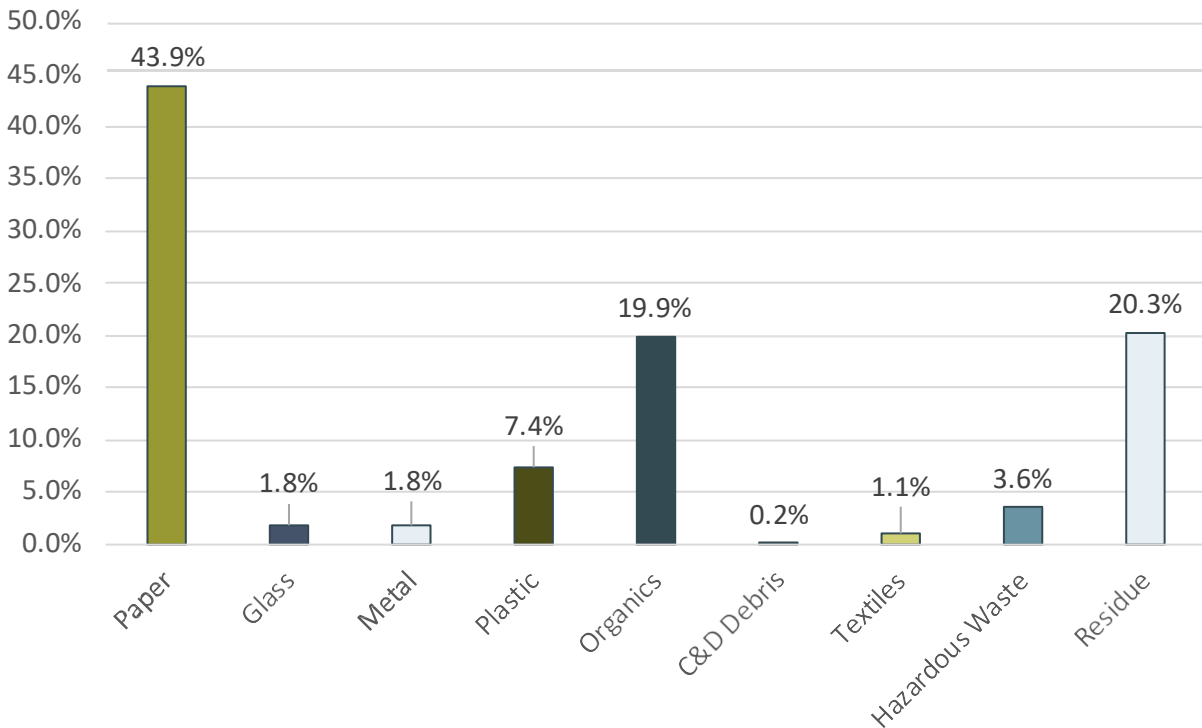


Exhibit 21. Waste Stream Composition - Office



Exhibits 22 & 23 display the results of the visual assessments conducted at the County's office buildings. Based on the assessments, recycling had 14.4% contamination, while the organics had 29% contamination.

Exhibit 22. Recycling Visual Assessment – Office

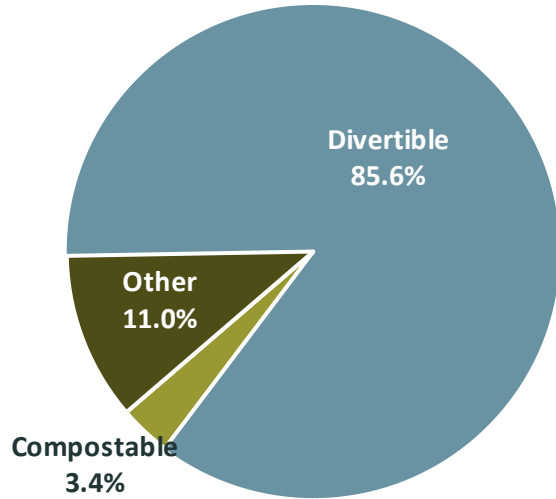
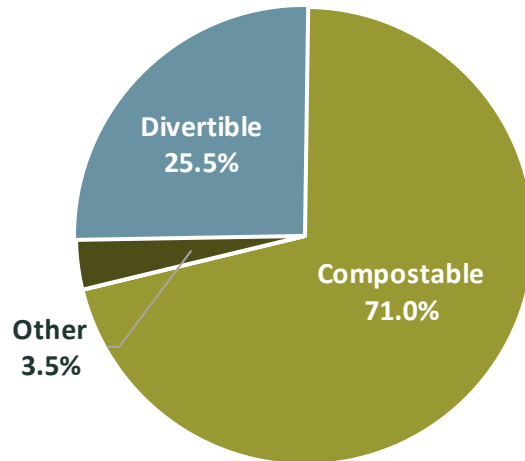


Exhibit 23. Organics Visual Assessment – Office



3.1.2.6 Recreation Facilities

The waste composition for recreation facility is shown in Exhibit 24. Many of the recreation facilities sampled did not have organics service or were not using their organics service. As a result, compostable materials constitute a large percentage of the overall landfill stream. Divertible material found in the landfill stream ranged widely in this facility type.

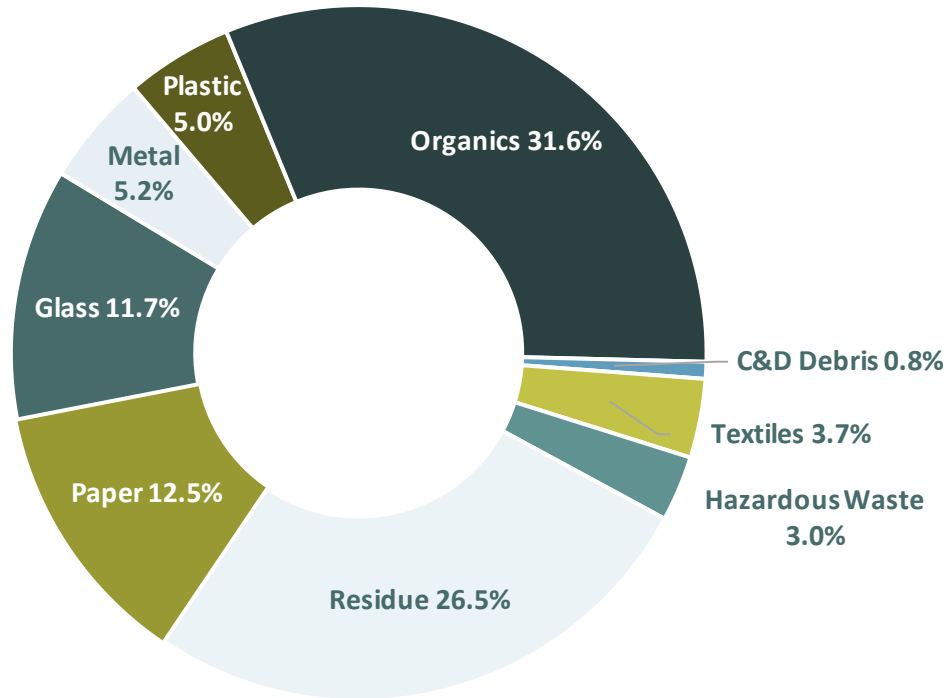
Sonoma County is known for its recreational opportunities. SCS sampled a variety of County recreational facilities including sports facilities, campgrounds, Spud Point Marina, and parks. In general, waste disposal at these sites is rarely supervised, due to the remote nature and size of some of the facilities (see Appendix B Figure 6). Waste generation can also be highly seasonal at recreational facilities, depending on the type of facility and use by the public. During the spring and summer months, the recreation facilities likely see higher public usage and therefore higher levels of waste generated onsite.

The Marina experiences regular seasonal use changes, along with fishing seasons that impact waste generation. During fishing season for salmon, halibut, cod, Dungeness crab, clams, and other catch, the Marina sees elevated levels of discarded fishing waste from individual and commercial operations. This is typically organic waste being discarded into the landfill stream.

Steelhead Park's landfill stream contained hazardous waste, textiles and considerable recyclable materials, likely due to the lack of recycling options and monitoring at this location. Considering the transitory nature of camping, SCS found that campgrounds also collected all types of waste,

including a high percentage of organic material. Organic bins were not in use at Doran Beach Campground (see Appendix B Figure 7).

Exhibit 24. Waste Stream Composition – Recreation



Exhibits 25 & 26 display the results of the visual assessments conducted at the selected recreation sites. Recycling was observed to have 18.6% contamination. When the organics service was being used, it was observed to have 25% contamination.

Exhibit 25. Recycling Visual Assessment– Recreation

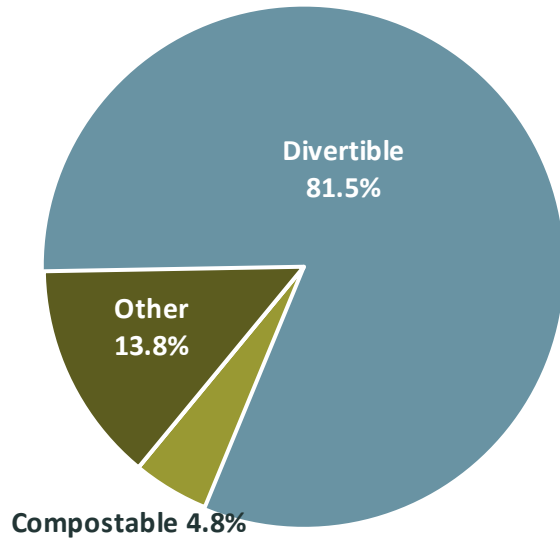
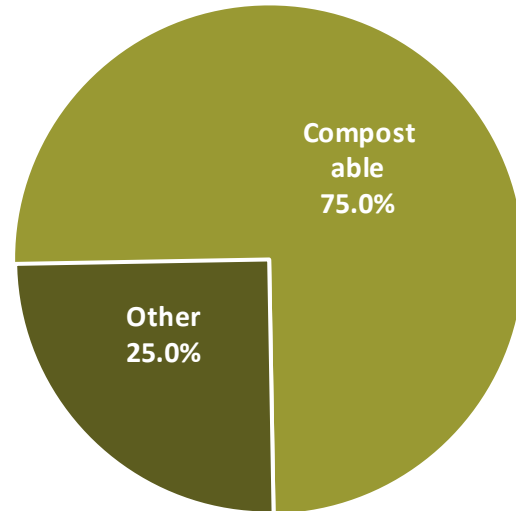


Exhibit 26. Organics Visual Assessment– Recreation



3.1.2.7 Veterans Memorial Building

The waste stream composition for Veterans Memorial Building is shown in Exhibit 27. The Santa Rosa Veterans Memorial Building is a large venue hosting events that serve food and drink, and can average 1,000+ attendees. Events of this magnitude necessitate waste management on a scale in which the limited staff is sometimes unable to administer (see Appendix B Figure 8). Facilities of this nature would benefit from an integrated waste management plan that includes a focus on informative signage and education for both staff and patrons. A quarter of the waste generated was compostable, however, because Recology frequently tags the organics bin for contamination, staff use it less often for fear of consequences. Additional education and outreach to staff and patrons could provide information on methods to properly sort the waste, and result in an increase in organics diversion at these types of facilities.

A substantial number of recyclable plastics and metals were found in the landfill stream. This is also a result of large-scale events in which attendees are not adequately informed and lack resources for maximum recycling diversion. As shown in Exhibit 27, much of the waste generated at these events is divertible.

Exhibit 27. Waste Stream Composition – Veterans Memorial Building

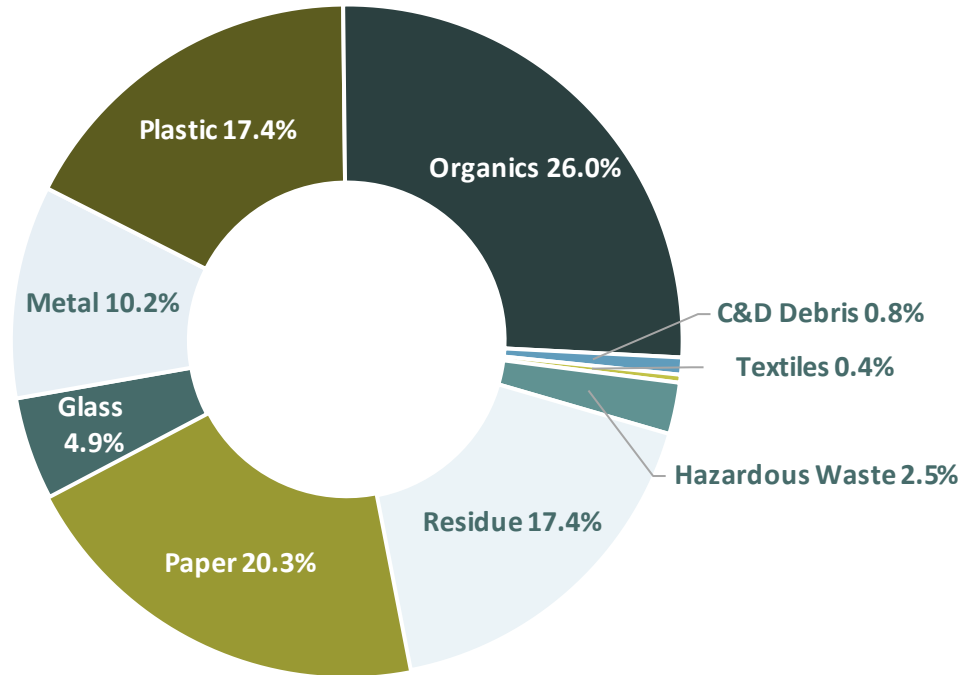
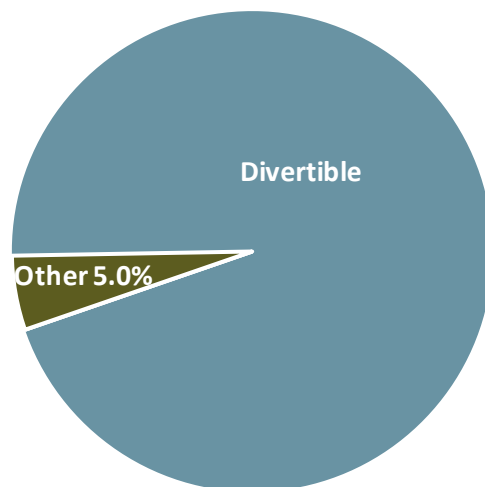


Exhibit 28 displays the results from the visual assessment conducted at the Santa Rosa Veterans Memorial Building. Staff observed 5% contamination in the recycling container.

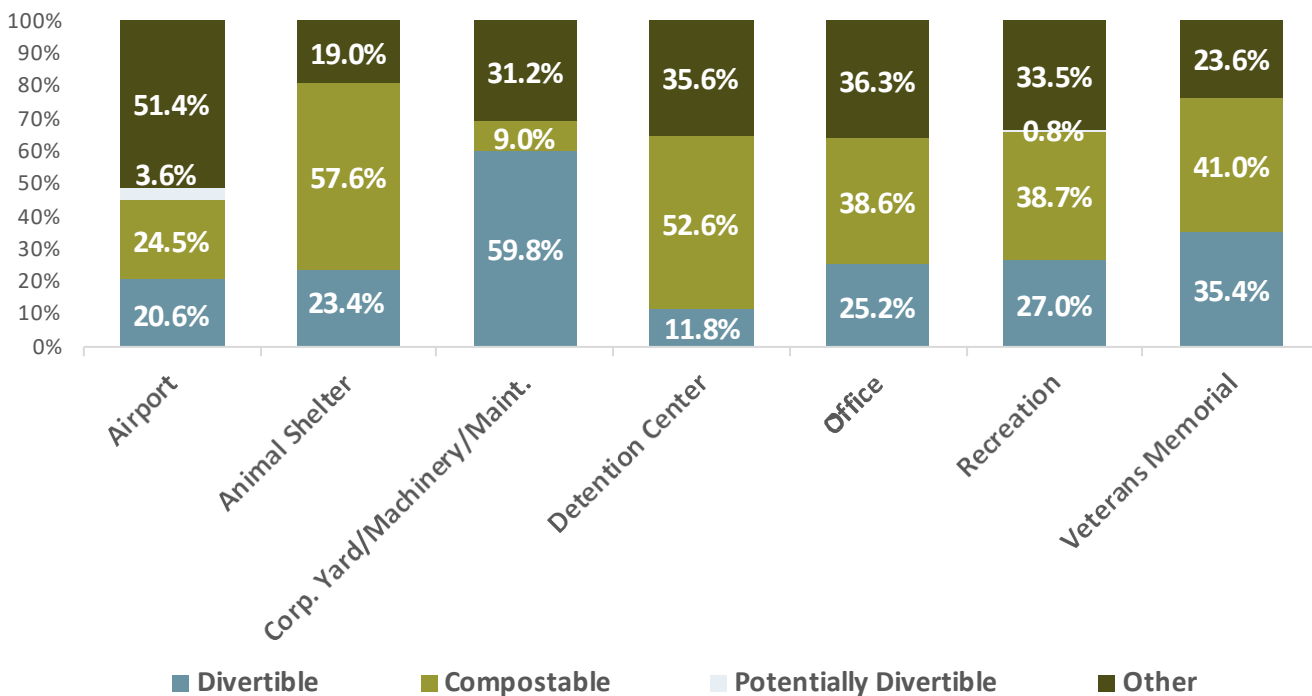
Exhibit 28. Recycling Visual Assessment – Veterans Memorial Building



3.1.3 Divertibility by Facility Type

Exhibit 29 presents the divertibility potential of all County facilities. Compostable materials represent the largest potential for diversion for all facility types, which offers great opportunity for achieving the County's zero waste goal.

Exhibit 29. Divertibility Potential by Facility Type



3.2 COVID-19 IMPACTS

As the County settles into a new standard of operations post the COVID-19 pandemic, waste characterization study results could be subject to variation given facility use and seasonality.

In regard to airport travel, there are often fluctuations in operations as the number of travelers coming through the facility varies over time. With occasional spikes in outbreaks, travel decreases as people take more precaution; overall waste generation also decreases. At the time of this study, airport facility usage would be considered average.

As the pandemic shifted the way work is performed, many office employees have opted for a more hybrid or remote schedule. Waste generation has the potential to fluctuate greatly depending on the day of the week or office work style.

Recreation facility waste generation could also fluctuate depending on how many people utilize the parks and recreation facilities. It is generally assumed that operations at these locations have increased because outdoor activities are considered safer than indoor activities.

In facilities such as detention centers and veterans centers, occupancy increases the likelihood of personal protective equipment (PPE) and medical waste generation because of illnesses like the COVID-19 pandemic. Hand washing awareness could have led to an increase in paper waste.

3.3 CONSTRUCTION, DECONSTRUCTION, & DEMOLITION

As new County buildings are proposed for construction, the potential quantity of waste generated from these projects will increase. Construction, deconstruction, and demolition (CD&D) material should be diverted from the landfill to the greatest extent possible during the demolition and construction phases. Projects are required to incorporate the CALGreen building standards, which requires 65% of the CD&D waste to be recycled and/or salvaged for reuse.

In designing and building a new facility, programs like LEED, the U.S. Green Building Council standards, or TRUE certifications could be implemented to ensure the County is using waste-minimizing design practices. These programs account for the facility's sustainability metrics while operating, tracking the electric, water, and solid waste metrics pertaining to the overall annual footprint of the building.

The Board of Directors of Zero Waste Sonoma has recently approved a model CD&D ordinance for the County and its cities to review and potentially adopt. The ordinance aims to amplify the reduction of CD&D waste by requiring all CD&D projects to "recover all recoverable amounts of CD&D materials generated by the project".³ The County could consider adopting the ordinance for implementation for its future construction projects.

4.0 RECOMMENDATIONS

After a review of the data, along with information gathered from interviews with County staff at each site, the following recommendations are proposed for consideration at County facilities:

- Verify compliance with SB 1383 regulations at all County operated facilities.
 - This requires applicable County facilities to participate in organics collection.
 - Procure recycled -content paper products.
 - Provide triple stations at waste generating locations inside facilities (Gray, blue, and green containers). This includes providing green bins in restrooms to collect paper towel waste.
- Confirm proper use of organic waste collection programs.
 - This may be accomplished through quarterly inspections at select facilities.
 - Recology may help with this as they provide the following services:
 - Conduct an on-site visit and provide tailored recommendations to help businesses reduce waste and save money.
 - Conduct an audit of the waste stream to determine waste diversion opportunities.
 - Customize service options and equipment to meet facility needs.

³ Zero Waste Sonoma Model CDD Ordinance, June 2023

- Provide signage, flyers, stickers, and training (link to some of the available resources: <https://www.recology.com/recology-sonoma-marin/technical-assistance/>)
- Education and outreach.
 - Share facility-specific results of the study with management and staff.
 - Share zero waste goals and objectives with management and staff.
 - Provide education and outreach for staff.
 - Provide education at public spaces, such as parks, for visitors.
 - Provide signage on or near all waste receptacles for proper sorting of material.
 - Provide additional training and support materials for facilities with high levels of divertible materials not readily accepted in hauler recycling bins. (i.e., batteries, ink cartridges, etc.)
- The County should consider conducting a similar auditing process for subcontractor-run facilities and operations.
- Create integrated holistic waste management approaches at facilities in need (Veterans Memorial Halls, campgrounds, marinas) including signage and public education/information. Zero Waste Sonoma has event guides that facilities can be directed to use. <https://zerowastesonoma.gov/uploads/icons/04.13.23-event-guide-for-web.pdf> Partner with Recology and Zero Waste Sonoma for the education and outreach materials.
- Incorporate incentives into vendor contracts for meeting zero waste goals. Incorporate fines for vendors operating at County facilities that do not properly sort their waste. This can be a written agreement stating that vendors will be responsible for fines at County facilities that are a result of their activities.
- Implement seasonal staff/seasonal waste programs related to spikes in generated materials. It is anticipated that the recreation facilities will be the most impacted by seasonal changes. The spring and summer months bring in a large number of visitors to these park and recreation facilities and will in turn generate a large quantity of waste. The Marina sees a fluctuation based on the fishing season. Coordination with Marina staff for extra organic service during fishing season would maximize diversion. It is recommended the County consider implementing a “what goes where program” at these facilities.
- Provide ongoing technical assistance to accommodate seasonal variations and updates on SB 1383 in conjunction with Recology and Zero Waste Sonoma efforts.
- Adopt the CD&D model ordinance to help reach zero waste. Zero Waste Sonoma retains a thorough list of organizations that specialize in deconstruction, salvage and reuse services: <https://zerowastesonoma.gov/materials/building-materials-deconstruction-services>

