



DATE: October 12, 2023
TO: Planning Committee/Recycling Board
FROM: Emily Alvarez, Program Manager
SUBJECT: 2023 Waste Characterization Study Update

SUMMARY

As part of the FY 22-23 Agency budget, the Waste Management Authority approved funding for a Waste Characterization Study (WCS) and awarded a contract to SCS Engineers in December 2022 for completion of the study. A WCS identifies predominant materials in the waste stream and changes in composition over time and will be used by StopWaste and member agencies to refine programs and track progress toward the long-term goal of landfill obsolescence. The WCS commenced in July 2023 and this memo highlights the sampling conducted thus far and several initial patterns based upon preliminary data. Sampling is anticipated to conclude at the end of the year and a final report will be produced in 2024.

BACKGROUND

A WCS is a valuable snapshot in time of the materials that are consumed in Alameda County and ultimately comprise our material streams. It can contribute to Agency priorities by highlighting the largest components of the landfill, recycling, and organics streams to understand what materials are commonly disposed of, how accurately those materials are sorted, and to what extent the organics and recycling streams are contaminated. In addition to these general study purposes, the WCS will satisfy the organics processing capacity planning requirements of SB 1383.

WMA must conduct a WCS every five years or otherwise use statewide numbers for capacity planning required by CalRecycle. The statewide numbers overestimate need in Alameda County, therefore the WMA has opted to conduct its own studies, which also help with Agency priority setting and evaluation. The most recent study occurred in 2017-2018. The 2017-2018 Study only sampled the landfill stream and not organics and recycling. Staff issued an RFP for the 2023 WCS in September 2022 and awarded the contract to SCS Engineers, who also conducted the 2017-2018 study.

A WCS uses industry-standard sampling techniques and statistical analysis to estimate the composition of the material stream and tonnages by material type and generating sector. As in the

four past studies the 2023 WCS will focus on physical sampling by hand-sorting and weighing materials, visual sampling to estimate material weight for loads not suitable for sorting and weighing, and additional data collection from haulers. This methodology is standard and meets CalRecycle's requirements.

SCS Engineers provided a sampling plan to staff based upon data collected in Measure D Reports, CalRecycle Electronic Annual Reports, and facility information in order to understand the total material flow in the county, the approximate amount of the total materials in the landfill, organics, and recycling streams, and the proportion of materials originating from each member agency and to which facilities the materials are sent. This resulted in a plan to collect 500 two-hundred-pound samples divided across Alameda County's material processing facilities.

DISCUSSION

Approximately 300 of the 500 samples have been sorted to date. The following preliminary data are from sampling that occurred in July and August 2023 facilities in Alameda County. For the landfill stream, the samples were divided into single-family and multifamily residential and commercial. For the organics and recycling streams, they are separated by residential and commercial. The samples are sorted into a list of 10 broad material categories (i.e.; Paper, Plastic, Metal) and about 70 subcategories developed by SCS Engineers and WMA Staff. Highlights mentioned in this memo are subject to change with the additional sampling left in the study. The final report will provide detailed information on all material categories.

Thus far, Compostable Organics are the largest category by weight in the landfill stream. The largest subcategory within Compostable Organics in the landfill stream is Inedible Food (about 20%). This demonstrates the need for better sorting behavior and the reduction of edible food waste. In the commercial landfill stream, there is also a significant amount of Pallets and Untreated Lumber (about 10%) in this Compostable Organics category that are not as commonly found in the residential landfill stream.

Initially, the recycling stream has a much lower percentage of Compostable Organics than the landfill stream. The largest recycling stream material across both the residential and commercial streams is Paper, followed by Plastic and then Glass. Initially, this is encouraging as these materials appear to be winding up in the appropriate stream. Looking into the subcategories, the largest Plastic material is Film Plastic which is not recyclable in most cases and can get tangled around other items and sorting machinery. Considering Film Plastic does not weigh much, it is significant that from these samples it is about 3% of the recycling stream by weight.

Of the organics stream sampled to date, the number one material in both residential and commercial is Compostable Organics. There is a significant difference in the composition of the Compostable Organics category in the residential versus commercial stream. In the residential stream, almost 75% of the Compostable Organics are Green Waste (i.e.; Leaves, Grass, Prunings) which are only about one-third of the commercial stream. In the commercial stream, the largest subcategory is Inedible Food, which is nearly half of the material sorted.

When looking at contamination in the organics stream, the preliminary data shows the largest category in the residential sector is Treated Wood. Residents may be unaware of what wood is considered compostable. Wood also weighs a significant amount and can therefore mask the contamination from lighter categories such as plastic. However, Treated Wood has the potential to leach chemicals into the organics stream and is therefore an important material to keep out of the organics stream. The largest contaminant in the commercial organics stream is Plastic, specifically Film Plastic.

It should be noted that all of these categories are being reported by weight, as is standard practice for a WCS. Food and wood are heavier items in general than plastic and paper. If material were counted or measured by volume, these proportions would be different. In the WCS, SCS Engineers is performing counts for certain subcategories and we will also receive photos of all sample loads that can help to visually assess the volume and composition of materials.

These are preliminary results and there are still approximately 200 samples to be conducted, with sampling expected to conclude by the end of 2023. The trends discussed above may change as more samples are sorted. Additionally, certain facilities, like California Waste Solutions, the residential recycling hauler for the City of Oakland, have had no sampling conducted yet which could significantly change the results for the recycling stream. Other facilities have had a portion of their sampling done but will have more samples taken in the next few months. Staff will return with the results of the complete study, including a comparison to previous studies, in 2024.

RECOMMENDATION

This item is for information only.