

Washoe County

Two-Season Waste Composition
and Characterization Analysis

Methodology

- The intent of the solid waste composition and characteristics analysis is to identify, quantify and characterize MSW material types received for disposal at the Washoe County transfer stations.
- The waste generation categories specifically identified and sampled as part of this composition and characterization study include residential, commercial, self-hauled waste, and industrial and C&D materials.

Methodology

To ensure that the data collected was representative of the MSW as a whole, the following assumptions were made about the type and delivery method of the waste to be sampled:

- Residential and Commercial MSW is typically delivered in route collection vehicles to the Incline, Sage and Stead transfer stations. Although residential and commercial collection trucks may often be distinguished by either front-load, rear-load, or side-load configuration, drivers of the randomly selected vehicles were questioned by SVM staff in order to confirm the source of the load.
- Self-Haul, or Public solid waste is typically hauled to the Incline, Sage and Stead transfer stations by residents or small businesses using cars, pick-up trucks, and small trailers that are unloaded by hand.
- C&D materials are typically collected in open-top drop-boxes, end-dump trailers, dump trucks, and dump trailers. These materials are most often delivered to the Telegraph transfer station by waste collection companies, debris-box providers, and small contractors.

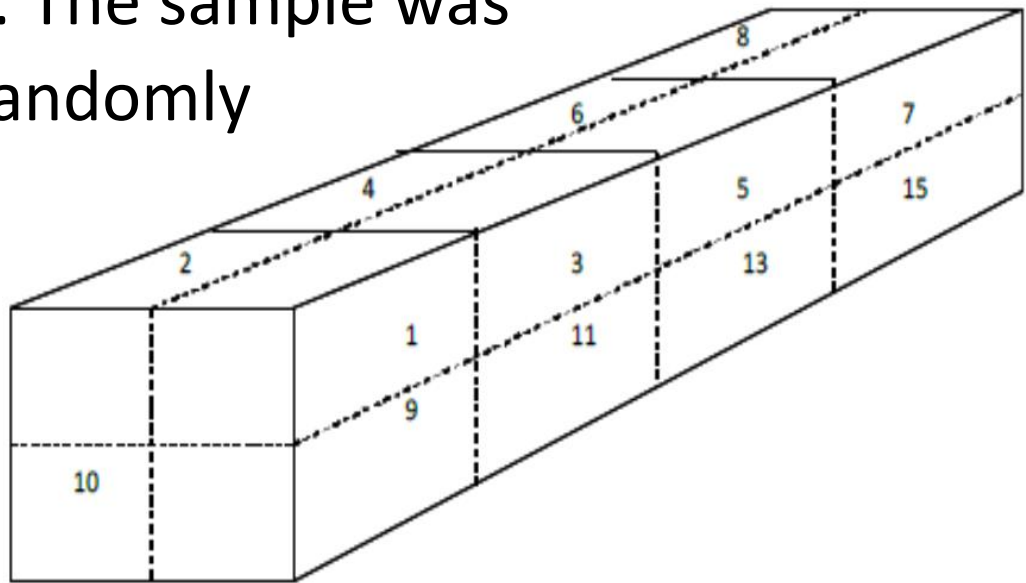
Sampling Approach

- All Washoe County residential and commercial waste samples were hand-sorted. All self-haul and industrial/C&D loads were visually characterized. The following table shows the number of samples characterized for each waste generation category during the two-season field-sampling process

Waste Generation Category	Sort Type	Incline	Sage	Stead	Telegraph	Total Samples
Residential MSW	Hand Sort	12	40	16	-	68
Commercial MSW	Hand Sort	12	56	12	-	80
Self-Haul	Visual Sort	16	58	20	-	94
Industrial/C&D	Visual Sort	-	-	-	80	80
TOTAL SAMPLES		40	154	48	80	322

Sample Cell Selection

- To randomly select samples, each load was divided into a 16-cell grid as depicted below. A randomizer tool was used to assign a primary and alternative cell for sampling. The sample was taken from the randomly assigned cell for each selected load.



Material Categories

- The materials identified, extracted, sorted and weighed were divided into designated categories for each sample in order to establish the composition, or the various types of material, as well as the characterization, which is the shape and size of those materials.
- The types of items included in each material category are described on the following slide.

		WEIGHT #1	WEIGHT #2	WEIGHT #3	WEIGHT #4	WEIGHT #5
DRY, RECOVERABLE FIBER						
PET						
HDPE						
FILM PLASTICS						
MIXED PLASTICS						
GLASS						
ALUMINUM UBC's						
MIXED FERROUS						
MIXED NON-FERROUS						
INERTS						
HAZARDOUS WASTE						
E-WASTE						
TEXTILES						
Organics	YARD WASTE					
	FOOD WASTE					
	CLEAN WOOD					
	TREATED/PAINTED WOOD					
	WET/CONTAMINATED FIBER					
	RUBBER PRODUCTS					
	ALLOCATED ORGANICS					
FINES						
OTHER						



Residential garbage being dumped at transfer station.



SVM crew sorting and categorizing a garbage sample.



Commercial compactor dumping at transfer station.



Self-Haul load including furniture, fencing, and mattresses unloading at transfer station.



Construction and Demolition material includes concrete roof tiles being dumped at recycling/transfer station.

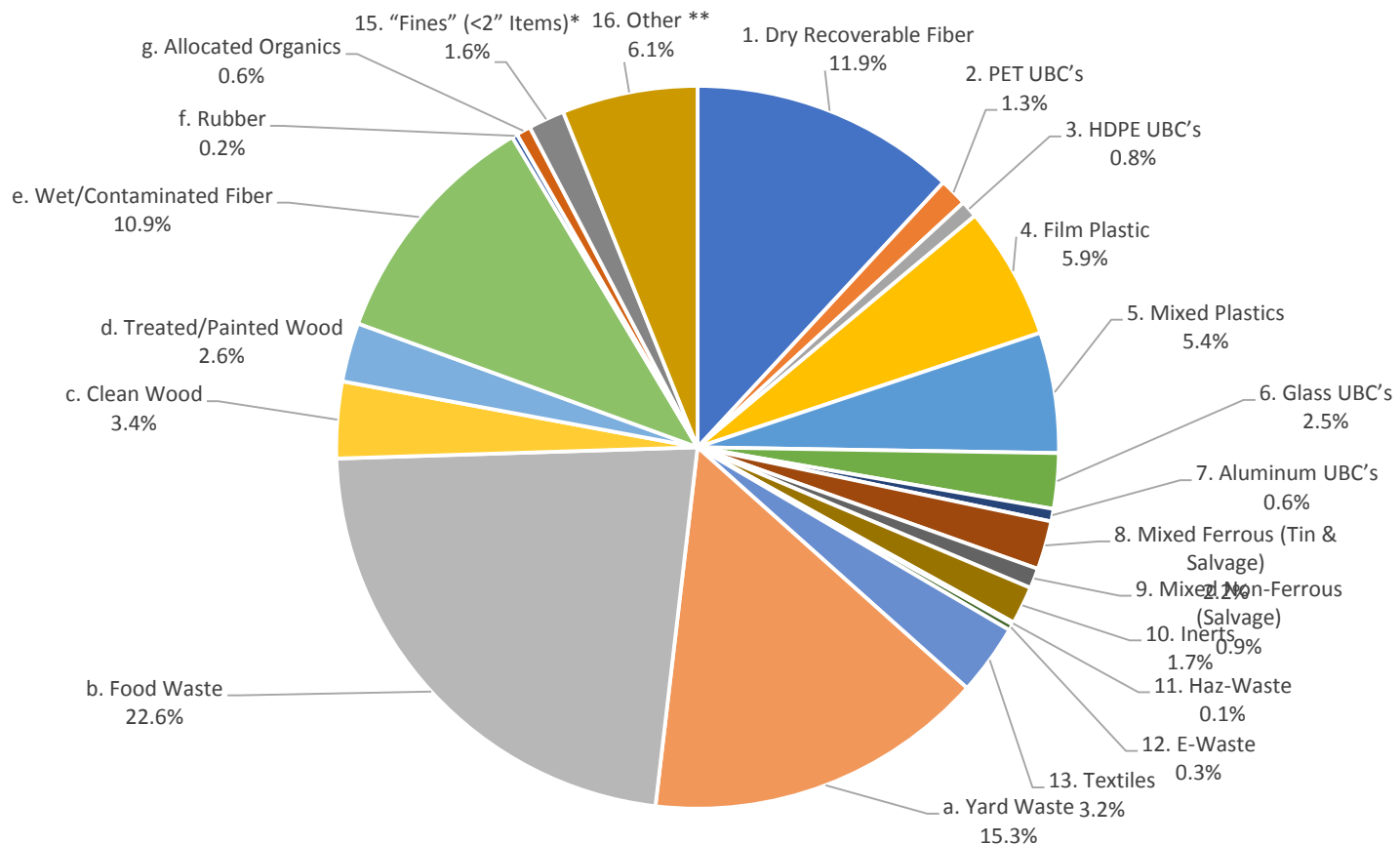


Washoe County generates a high percentage of organic waste, including green waste in the spring and summer, and leaves and pine needles in the fall and summer.

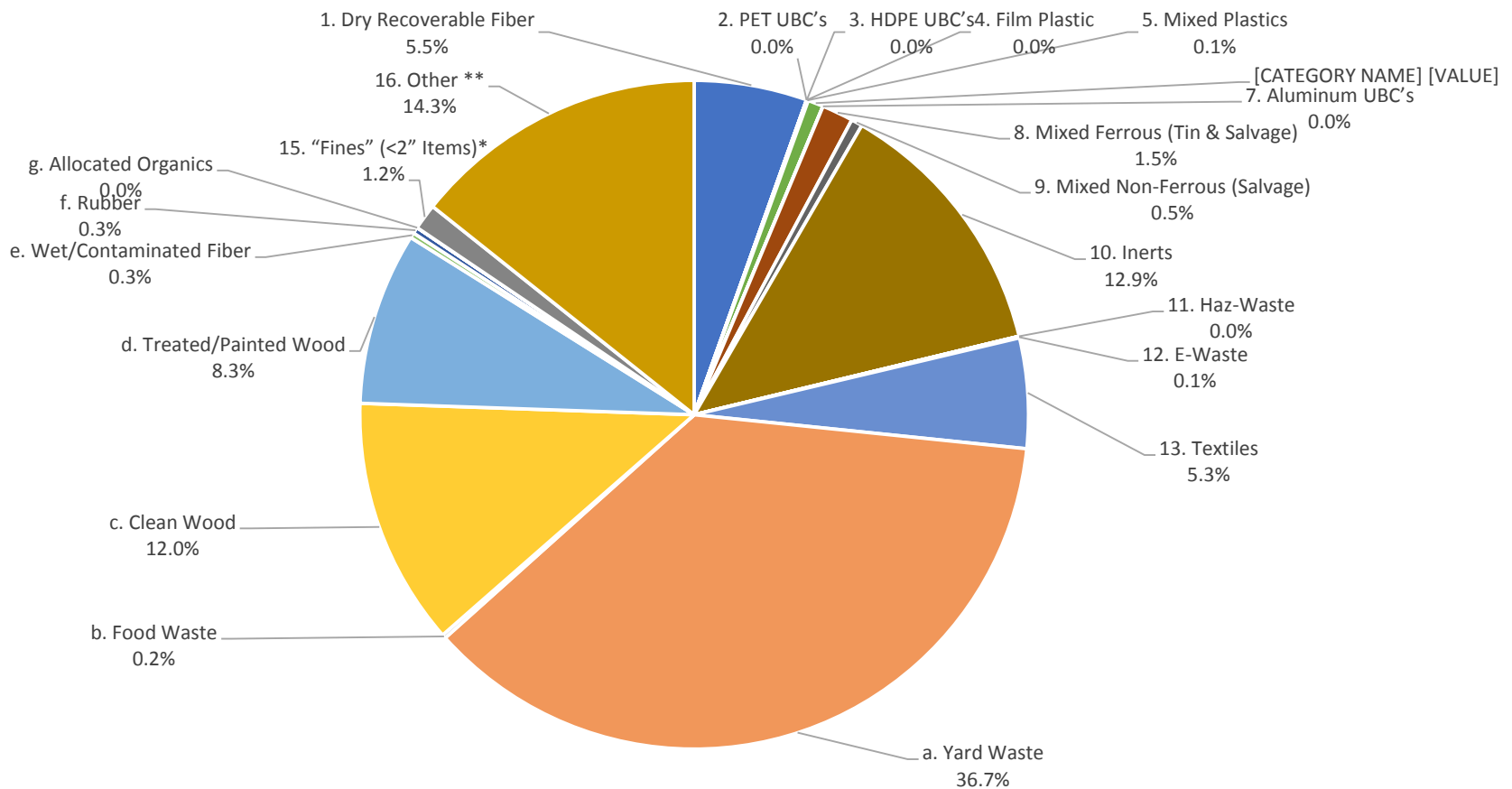


During the Fall study, leaves constituted a large volume of the samples from all sectors, including this residential garbage load.

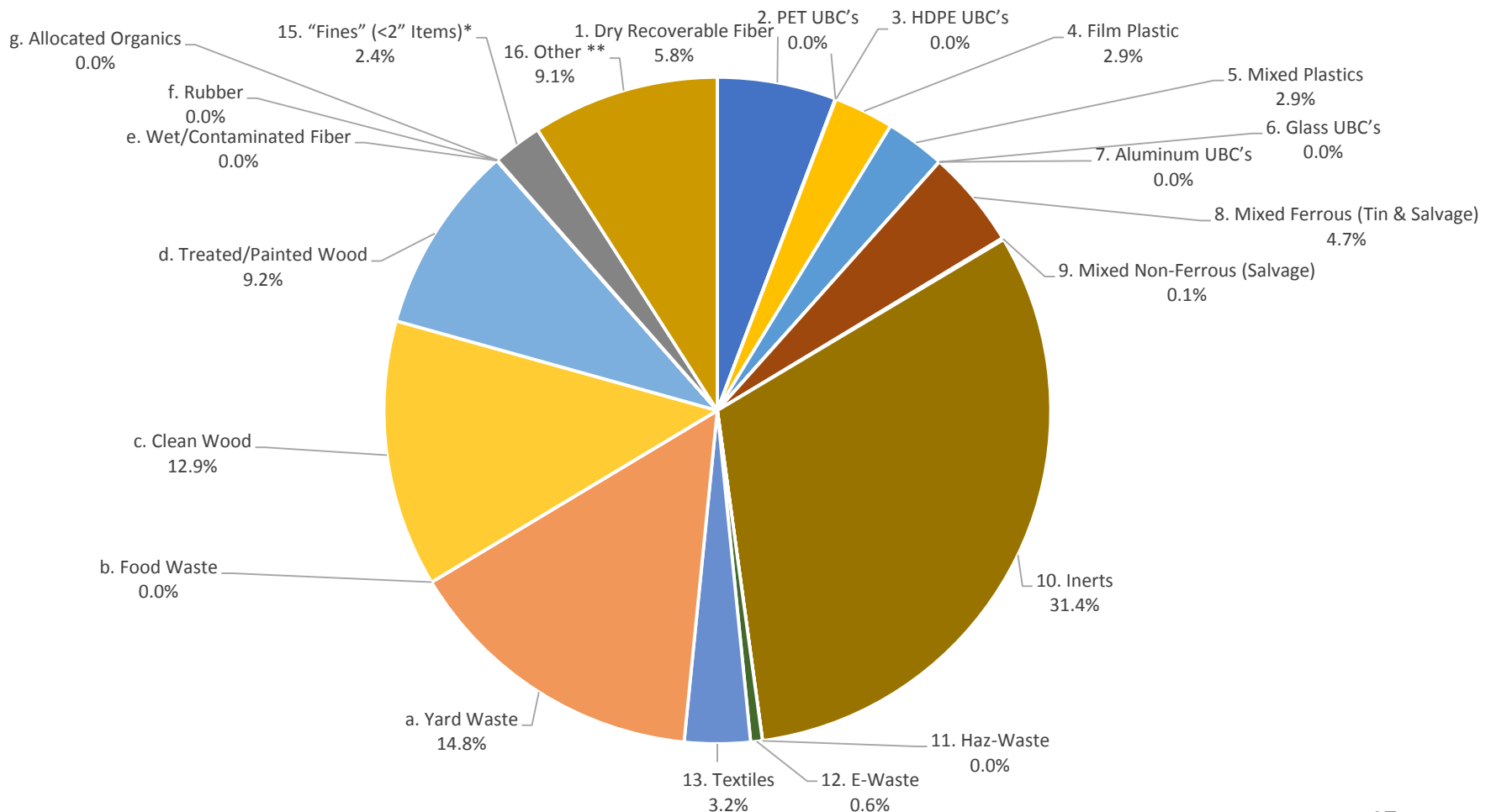
Incline, Stead & Sage Transfer Stations Residential & Commercial MSW Spring & Fall Data Results



Incline, Stead & Sage Transfer Stations Self-Haul MSW Spring & Fall Data Results



Telegraph Transfer Station Construction & Demolition Debris Spring & Fall Data Results



Study Highlights

- The combined MSW samples from the Incline, Stead, and Sage (Reno) transfer stations revealed the following highlights:
- An extraordinary amount of organic materials (55%) generated from the seven organics sub-categories.
- A considerable amount (12%) of clean, dry, recoverable fiber (paper) that may be targeted for recycling collection programs and marketed on post-consumer recycling markets.
- Notable amounts of PET plastic, glass, aluminum, and mixed-ferrous metal are available for source-separation, recovery, and sale.

Self-Haul Findings

The combined **Self-Haul** samples from the Incline, Stead, and Sage (Reno) transfer stations revealed the following highlights:

- For the purposes of recycling and reuse, the Self-Haul material is rich in both inert and organic materials, at 13% and 58%, respectively.
- Inert materials may be processed and reused as aggregate, road base, erosion control, and other uses.
- Organic materials can be separated and composted, or used as feedstock in renewable energy processes.

C&D Findings

- The Telegraph Construction and Demolition Debris facility yielded high percentages of inert and organic materials, as expected:
- 31% Inert materials (Dirt, brick, rock, tile, concrete, etc.)
- 37% Organic materials, mostly yard waste and clean wood.

Recommendations

- The relatively low percentages of traditionally targeted post-consumer materials (paper, bottles and cans) indicates many waste generators are diverting recyclable materials by participating in local recycling collection and salvage opportunities.
- Even so, the County may initiate educational and promotional programs to improve upon the recovery and recycling of:
 - PET Plastic
 - Aluminum Beverage Containers
 - Container Glass
 - Mixed Ferrous Metals

Recommendations

- Organic materials are typically of low-value and present costly challenges for source-separation, collection, and processing.
- Washoe County waste could be delivered to the Fulcrum Bio-Energy renewable energy plant in Mustang for the production of jet fuel, when the facility is complete.
- The County can help to support and sustain the renewable energy operation by developing policies that:
 - Assure the availability of high-organic, low-moisture MSW for renewable energy processes.
 - Develop programs to encourage the separation and collection of high-moisture content food-waste for the creation of animal-feed and/or organic compost.