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# Marion County Supplement to the 2023 Oregon Waste Composition Studies



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Abbreviations used in this report:

FSW = Food Serviceware

MRRF = Marion Resource Recovery Facility

USCL = Uniform Statewide Collection List, defined in Oregon Revised Statues 459A.914

# 2023 Oregon Solid Waste Composition Marion County Supplement

March 5, 2026

The Oregon Waste Composition Study for 2023 is a state-wide study of the composition of municipal solid waste generated in Oregon across disposal, inbound commingled recycling, and outbound recycling commodities and waste streams after being sorted at commingled recycling processing facilities. To supplement the statewide emphasis of the study, Marion County, Deschutes County, Lane County, and Metro all participated in and contributed to the study to obtain more detailed information about the waste within each of their respective jurisdictions.

This report is a supplement to the overall 2023 Oregon Waste Composition Study report. Aspects such as study methodology and statewide results will be covered briefly here and will be presented in more detail in the overall 2023 statewide study report. This supplement will concentrate on the results from the Marion County samples, as well as present quantity information for the Marion County wastes.

The disposal study was conducted by obtaining samples of disposed waste directly from route trucks, drop boxes, self-haul vehicles, and residue from mixed solid waste processing facilities, sorting the waste into different material categories, weighing each component, and then combining these results with disposal tonnage reported by landfills and energy recovery facilities to determine the total amount of each material being disposed that was generated in Oregon. Similar methodology was used for the inbound commingled recycling study, with the large majority of samples coming from recycling route trucks and relatively few from depots or separate loads from individual businesses. The total amount of commingled recycling collected in each jurisdiction was derived from Oregon's annual material recovery survey.

## Disposal study

The statewide disposal composition study includes municipal solid waste and construction and demolition debris disposed of at landfills, transfer stations, and incinerators in Oregon or transported out-of-state for disposal. The study excluded whole loads of sewage sludge, industrial waste, inert rock, dirt, asphalt, and similar material specified in Oregon Revised Statutes 459A.010 (3)(d), matching the waste streams that are excluded from counting in Oregon's annual material recovery survey. The intent of the Marion County disposal study was to determine the composition of waste generated in Marion County by sampling the relevant points of disposal in Marion County in proportion to the amount of each waste stream directly received at each facility listed in Table 1, with the exception that any selected trucks or drop boxes that were scheduled to unload directly at the Marion County Energy Recovery Facility were diverted to the nearby Marion Resource Recovery Facility so the crew could collect and sort the sample, as there was insufficient room at the Energy Recovery Facility for the crew to work safely. Sampling was conducted during the months of February, May, August, and November of 2023.

Marion County participated by paying to have 90 additional disposal site samples collected and sorted from within the county. DEQ also contributed samples in addition to those that would have been done for the statewide study, with a goal of obtaining at least 150 samples from Marion County. Table 1 summarizes the number of samples from each facility across the various load types (substreams). In addition to these samples, 50 samples were collected from transfer trailers at the Marion Resource Recovery Facility arriving from Marion County's two transfer stations, as a separate study conducted at Marion County's request.

The flows of waste in Marion County differs substantially from the rest of the state in that in 2023, much of the waste flowed through the MRRF where certain recyclable materials are removed before the remainder is sent to disposal. Since the intent of the study was to determine the composition of waste actually disposed, we did not collect samples of self-haul waste from the two Marion County Transfer Stations because all of that waste was taken to the MRRF where it was processed to remove and recycle materials such as wood and scrap metal. Instead, we collected our samples from the residue destined for disposal at the MRRF after sorting. The same is true for drop box loads delivered to the MRRF for sorting. We did collect samples from drop box loads scheduled to be delivered directly to the Energy Recovery Facility and to the MRRF for immediate transfer to the Coffin Butte Landfill without sorting, but for transfer station, drop box, or other loads delivered to the portion of the MRRF where the sorting of mixed solid waste for recovery took place, we collected samples only from the residue to be disposed after sorting, and not directly from the loads themselves.

The majority of samples were collected from MRRF, representing a mix of all substreams except the “Special Purpose Landfill” substream, which was sampled from Brown’s Island Landfill.

**Table 1: Number of disposal samples collected for each different waste substream and waste facility**

<b>Location</b>	<b>Brown’s Island LF</b>	<b>MRRF</b>	<b>Salem-Keizer TS</b>	<b>North Marion TS</b>	<b>Total</b>
Residential Route Truck	0	27	0	0	<b>27</b>
Mixed Route Truck	0	12	0	0	<b>12</b>
Commercial Route Truck	0	8	0	0	<b>8</b>
Compacting Drop Box	0	9	0	0	<b>9</b>
Loose Drop Box	0	12	0	0	<b>12</b>
Special Purpose Landfill	21	0	0	0	<b>21</b>
Mixed Solid Waste Processing Facility	0	61	0	0	<b>61</b>
<b>Subtotal (used in study)</b>	<b>21</b>	<b>129</b>	<b>0</b>	<b>0</b>	<b>150</b>
Transfer stations (separate study)	0	0	33	17	50
<b>Total</b>	<b>21</b>	<b>129</b>	<b>33</b>	<b>17</b>	<b>200</b>

Table 2 and Table 3 summarize Marion County waste reported quarterly to DEQ throughout 2023 by facility, source, and substream. In Table 2, we collected samples from the large majority of streams going to disposal, but there were limited waste streams we did not collect samples from, including the following:

- 2994 tons of hauler compacted waste at Coffin Butte Landfill (route trucks and compacting drop boxes)
- 540 tons of hauler uncompacted waste (loose drop boxes)
- 976 tons of self-haul waste at the Coffin Butte Landfill
- 291 tons of what is referred to as “Supplemental Waste” – often sensitive materials that must be securely destroyed such as police evidence files. These tons were reported as “private vehicle” tons on the Energy Recovery Facility’s quarterly disposal form.
- 576 tons of Marion County medical waste

For supplemental waste and medical waste, we did not include these tons in the waste composition results. For the Coffin Butte route trucks and compacting and loose drop boxes, we included those tons in the total tons of each substream as part of data analysis. For the 976 tons of self-haul waste at Coffin Butte Landfill, we used the composition results from the 50 Marion

County transfer station samples as a proxy for the composition of the Coffin Butte Landfill self-haul, since the Marion County transfer station waste is all self-haul.

**Table 2: Tons of Marion County waste disposed by facility as reported to DEQ**

Name	Form	Q1 2023	Q2 2023	Q3 2023	Q4 2023	Total
Brown's Island Landfill	Special Purpose LF	4,485	7,813	7,703	5,110	<b>25,112</b>
Coffin Butte Landfill	Hauler compacted	887	737	767	603	<b>2,994</b>
Coffin Butte Landfill	Hauler Uncompacted	161	79	64	235	<b>540</b>
Coffin Butte Landfill	Private Vehicle	199	294	276	207	<b>976</b>
Coffin Butte Landfill	MRRF transfer & residue	43,047	54,865	67,805	45,982	<b>211,699</b>
Energy Recovery Facility	Hauler compacted	23,917	17,395	10,898	27,302	<b>79,512</b>
Energy Recovery Facility	Hauler Uncompacted	5,023	4,473	2,979	3,577	<b>16,052</b>
Energy Recovery Facility	Private Vehicle	76	90	59	66	<b>291</b>
<b>Total</b>		<b>77,796</b>	<b>85,745</b>	<b>90,552</b>	<b>83,083</b>	<b>337,176</b>

**Table 3: Tons of waste disposed by substream from Marion County**

Substream	Q1 2023	Q2 2023	Q3 2023	Q4 2023	Total
Route	35,322	35,568	35,803	37,822	<b>144,515</b>
Residential Route	19,149	19,282	19,410	20,504	<b>78,345</b>
Commercial Route	6,127	6,169	6,210	6,560	<b>25,066</b>
Mixed Route	10,046	10,116	10,183	10,757	<b>41,103</b>
Compacting drop box	3,997	4,293	3,997	4,790	<b>17,077</b>
Loose drop box	3,734	3,336	2,988	2,736	<b>12,793</b>
Self-haul to Coffin Butte	200	295	275	206	<b>976</b>
Special-Purpose Self-haul (Brown's Island)	4,514	7,839	7,679	5,080	<b>25,112</b>
Mixed waste processing residue	29,804	34,181	39,610	32,241	<b>135,836</b>
"Top Load" - large items going direct to disposal	9,537	10,938	12,675	10,317	<b>43,468</b>
"Belt Feed" - rejects loaded on a belt to compactor	10,133	11,622	13,467	10,962	<b>46,184</b>
Residue from sort line - ground-up	10,133	11,622	13,467	10,962	<b>46,184</b>

<b>Subtotal sampled</b>	<b>77,570</b>	<b>85,512</b>	<b>90,352</b>	<b>82,874</b>	<b>336,309</b>
Medical Waste (not sampled)	150	143	140	142	<b>576</b>
Supplemental Waste (not sampled)	76	90	59	66	<b>291</b>
Total including medical, supplemental waste	77,796	85,745	90,552	83,083	<b>337,176</b>

For the residue coming out of the part of the Marion Resource Recovery Facility dedicated to sorting, there were 3 distinct streams of residue being produced, and we sampled separately from each stream. We referred to these streams as follows:

- “Top Load” – generally large items like furniture that was loaded directly into a drop box for disposal.
- “Sort line” – This is material that came out as residue after being partly shredded and then fed into the automated sort line. It consisted of small pieces that were difficult to sort due to the shredding, and were fairly homogeneous, so we took only small samples from this residue stream.
- “Belt feed” – Certain loads or parts of loads were pushed to an area where a piece of equipment was used to separate large recyclable items from other waste. The equipment would pick up the non-recyclable items and place them on the same conveyor belt that transferred the sort line residue to a compactor for disposal. The “belt feed” stream was sampled after large recyclable items were removed and before the waste was mixed with “sort line” residue.

Sky Valley Associates developed estimates of the amount of each of these three wastestreams that were sent to disposal from the MRRF soft line, and DEQ used those quantity estimates to combine the streams and produce the overall composition of the residue from the MRRF.

## Disposed waste results

The [Oregon Waste Composition Studies page](#) on the DEQ website includes a link to the file [A03-Marion-2023Semifinal-WC2023.xlsx](#) which contains the disposed waste composition results for Marion County, as well as results for the different substreams of waste listed in Table 3 above for the County. Table 4 below gives a summary of those results for the county as a whole. The results shown here are the results of composition as measured in the field, but that means that absorbent materials such as paper or light thin materials such as film plastic and aluminum foil include not only the material itself, but also water absorbed into the material and sticky materials such as food waste contaminating the material. In the past, DEQ has done studies to produce contamination correction factors to determine the “clean, dry” weight of materials as opposed to the “dirty, wet” weight of materials as measured in the field. The Excel

file on the website is labelled "Semifinal" because DEQ intends to do additional work applying contamination correction factors from the past studies to come up with a better estimate of the clean, dry weight of materials disposed. Although the file is labelled "semifinal" the field results themselves are final.

**Table 4: Summary of Marion County disposed waste composition**

<b>Material</b>	<b>Field Results Percent (90% conf. interval)</b>	<b>Field Results Tons (90% conf. interval)</b>	<b># present / # samples **</b>
<b>Total paper</b>	<b>12.53% (11.44 - 13.59%)</b>	<b>42,141 (38,459 - 45,714)</b>	<b>182/ 200</b>
Printing, packaging, and FSW Paper*	9.23% (8.36 - 10.10%)	31,049 (28,108 - 33,952)	179/ 200
Printing and writing paper	2.21% (1.80 - 2.65%)	7,442 (6,038 - 8,919)	154/ 200
Cardboard/Brown bags	3.26% (2.68 - 3.91%)	10,971 (9,028 - 13,143)	171/ 200
Other paper packaging, FSW*	3.76% (3.34 - 4.18%)	12,637 (11,234 - 14,066)	168/ 200
Paper products	3.30% (2.83 - 3.81%)	11,091 (9,515 - 12,802)	160/ 200
All recyclable paper	7.48% (6.62 - 8.30%)	25,164 (22,253 - 27,918)	178/ 200
All nonrecyclable paper	5.05% (4.52 - 5.67%)	16,977 (15,186 - 19,065)	167/ 200
<b>Total plastic</b>	<b>16.30% (14.95 - 17.81%)</b>	<b>54,822 (50,286 - 59,899)</b>	<b>189/ 200</b>
Rigid plastic containers (RPCs)	2.10% (1.91 - 2.33%)	7,071 (6,415 - 7,845)	164/ 200
Other Rigid Plastic Packaging, FSW	1.34% (1.08 - 1.65%)	4,514 (3,627 - 5,549)	167/ 200
Rigid Plastic Products Excluding FSW	6.02% (5.00 - 7.06%)	20,260 (16,831 - 23,758)	175/ 200
Recyclable polyethylene film	2.18% (1.69 - 2.75%)	7,331 (5,684 - 9,255)	176/ 200
Nonrecyclable plastic film	4.65% (3.97 - 5.47%)	15,646 (13,361 - 18,382)	177/ 200
<b>Yard Debris</b>	<b>2.18% (1.30 - 3.13%)</b>	<b>7,322 (4,368 - 10,539)</b>	<b>129/ 200</b>
Leaves and grass	1.06% (0.55 - 1.57%)	3,578 (1,866 - 5,269)	63/ 200
All Prunings and Stumps	1.11% (0.59 - 1.70%)	3,745 (1,993 - 5,714)	104/ 200
<b>All Wood</b>	<b>9.28% (8.25 - 10.53%)</b>	<b>31,211 (27,750 - 35,407)</b>	<b>177/ 200</b>
Clean Lumber & Hogged Fuel	6.19% (5.38 - 7.14%)	20,810 (18,100 - 23,999)	156/ 200
Painted & Treated Lumber	2.09% (1.66 - 2.57%)	7,034 (5,573 - 8,655)	127/ 200
Wood pallets, crates	0.96% (0.27 - 1.85%)	3,215 (908 - 6,230)	50/ 200
Wood furniture + other products	0.40% (0.25 - 0.56%)	1,331 (833 - 1,892)	87/ 200
Mixed wood/materials	0.43% (0.19 - 0.70%)	1,447 (655 - 2,365)	40/ 200

<b>Material</b>	<b>Field Results Percent (90% conf. interval)</b>	<b>Field Results Tons (90% conf. interval)</b>	<b># present / # samples **</b>
<b>All Food</b>	<b>10.88% (9.53 - 12.17%)</b>	<b>36,590 (32,057 - 40,920)</b>	<b>140/ 200</b>
All edible food	7.49% (6.59 - 8.35%)	25,176 (22,177 - 28,093)	131/ 200
All non-edible food	3.39% (2.57 - 4.28%)	11,414 (8,634 - 14,382)	105/ 200
<b>Tires</b>	<b>0.04% (0.00 - 0.09%)</b>	<b>139 (15 - 295)</b>	<b>5/ 200</b>
<b>Other rubber products</b>	<b>0.38% (0.25 - 0.51%)</b>	<b>1,280 (827 - 1,727)</b>	<b>90/ 200</b>
<b>Disposable diapers</b>	<b>2.23% (1.80 - 2.72%)</b>	<b>7,505 (6,039 - 9,155)</b>	<b>75/ 200</b>
<b>Carpet, Rugs, Carpet Pads</b>	<b>4.99% (3.87 - 6.25%)</b>	<b>16,781 (13,011 - 21,004)</b>	<b>91/ 200</b>
<b>Textiles and mixed materials</b>	<b>5.23% (4.55 - 6.00%)</b>	<b>17,585 (15,289 - 20,172)</b>	<b>171/ 200</b>
<b>Asphalt roofing &amp; tarpaper</b>	<b>6.08% (4.68 - 7.53%)</b>	<b>20,446 (15,725 - 25,338)</b>	<b>103/ 200</b>
<b>Furniture + mattresses</b>	<b>7.98% (6.54 - 9.48%)</b>	<b>26,834 (21,998 - 31,897)</b>	<b>52/ 200</b>
<b>Other carbon-containing materials</b>	<b>2.46% (1.97 - 3.09%)</b>	<b>8,262 (6,611 - 10,376)</b>	<b>143/ 200</b>
<b>Glass</b>	<b>1.48% (1.08 - 1.99%)</b>	<b>4,979 (3,637 - 6,692)</b>	<b>117/ 200</b>
Glass containers	0.64% (0.53 - 0.77%)	2,153 (1,774 - 2,603)	85/ 200
Nonrecyclable glass	0.84% (0.46 - 1.31%)	2,826 (1,540 - 4,390)	91/ 200
<b>Metal</b>	<b>3.23% (2.82 - 3.68%)</b>	<b>10,857 (9,487 - 12,390)</b>	<b>172/ 200</b>
Aluminum	0.33% (0.25 - 0.42%)	1,120 (855 - 1,405)	132/ 200
Other nonferrous metal	0.38% (0.26 - 0.51%)	1,266 (862 - 1,723)	87/ 200
Steel (tinned) cans	0.48% (0.35 - 0.63%)	1,621 (1,177 - 2,120)	82/ 200
Other ferrous metal	0.93% (0.75 - 1.12%)	3,114 (2,536 - 3,782)	151/ 200
Mixed ferrous/non- ferrous	0.22% (0.09 - 0.37%)	741 (318 - 1,247)	27/ 200
Mixed metal/materials	0.89% (0.60 - 1.23%)	2,995 (2,023 - 4,149)	88/ 200
<b>Electronics + small appliances</b>	<b>0.65% (0.42 - 0.90%)</b>	<b>2,186 (1,403 - 3,042)</b>	<b>68/ 200</b>
<b>Rock, dirt, litter</b>	<b>8.69% (7.04 - 10.63%)</b>	<b>29,236 (23,691 - 35,749)</b>	<b>147/ 200</b>
<b>Gypsum wallboard</b>	<b>3.30% (2.13 - 4.55%)</b>	<b>11,085 (7,164 - 15,311)</b>	<b>94/ 200</b>
<b>Other miscellaneous inorganics</b>	<b>1.33% (0.91 - 1.81%)</b>	<b>4,477 (3,054 - 6,093)</b>	<b>116/ 200</b>
<b>Total medical waste</b>	<b>0.34% (0.12 - 0.58%)</b>	<b>1,130 (410 - 1,966)</b>	<b>30/ 200</b>
<b>Hazardous materials</b>	<b>0.43% (0.23 - 0.64%)</b>	<b>1,440 (786 - 2,141)</b>	<b>89/ 200</b>

\* FSW is an abbreviation used for "Food Serviceware"

\*\* 50 transfer station samples were used only as a proxy for 975.83 tons of Marion County self-haul waste disposed out-of-county

# Inbound recycling study

The Oregon Waste Composition Study for 2023 also includes a statewide study of the composition of inbound commingled recyclable material going to recycling facilities. Marion County participated by paying to have 23 additional inbound recycling samples collected and sorted from within the county, in addition to the 26 samples DEQ was planning to do in Marion County for the statewide study, bringing the total to 49<sup>1</sup>. The study included commingled recycling received at commingled recycling processing facilities in proportion to the amount of commingled recycling unloaded by collection vehicles at each facility. Table 5 summarizes the number of samples from each facility across the various load types (substreams).

**Table 5: Number of Marion County inbound commingled recycling samples collected by substream and facility**

Location	Residential Route Trucks	Mixed Route Trucks	Commercial Route Trucks	Total
Marion Resource Recovery Facility	26	4	1	31
Republic Services Woodburn/MRRF	3	0	0	3
Garten Services	9	4	2	15
Total	38	8	3	49

Sampling for the inbound recycling study was conducted at the facilities listed in Table 5 during the months of February, May, August, and November of 2023. Marion County collectors reported a total of 19,459 tons of inbound recycling in 2023.

Table 6 gives a summary of the composition of commingled recycling collected in Marion County in 2023. Full results for Marion County samples are located in the tab labelled "03MarionCounty" of the [2023 Inbound Commingled Recycling Study Results](#) file, available on the [DEQ waste composition webpage](#).

**Table 6: Composition of commingled recycling from Marion County route trucks**

Material	Percent	95% conf. interval	Tons	95% conf. interval
Cardboard	51.71%	(48.54-54.95%)	10,063	(9,445-10,693)
Other cart-acceptable paper	25.26%	(22.89-27.82%)	4,916	(4,455-5,413)

<sup>1</sup> Originally DEQ was planning on collecting an additional 24 samples for Marion County, but missed collecting one sample, resulting in a total of 49 samples instead of 50.

<b>Material</b>	<b>Percent</b>	<b>95% conf. interval</b>	<b>Tons</b>	<b>95% conf. interval</b>
Plastic Bottles 6 oz to 5 gallons	4.73%	(4.12-5.33%)	921	(802-1,038)
Plastic tubs, pails: cart-acceptable	0.41%	(0.30-0.53%)	79	(58-102)
Aluminum beverage cans	0.35%	(0.24-0.48%)	68	(47-93)
Aluminum foil, pet food cans *	0.21%	(0.13-0.32%)	41	(25-63)
Other aluminum: cart-acceptable	0.03%	(0.00-0.06%)	5	(0-12)
Tinned cans excluding aerosols	1.88%	(1.63-2.13%)	366	(317-414)
Other scrap metal cart-acceptable	0.54%	(0.35-0.76%)	106	(67-147)
Paper not cart-acceptable	2.98%	(2.59-3.36%)	579	(504-654)
Rigid plastic not cart-acceptable	3.43%	(2.74-4.25%)	668	(533-827)
Film plastic	1.27%	(0.98-1.58%)	247	(192-308)
Empty aerosol cans	0.05%	(0.03-0.07%)	10	(6-14)
Other scrap metal not cart-acceptable	0.76%	(0.33-1.27%)	147	(63-246)
All glass	1.73%	(1.04-2.63%)	337	(202-511)
Food, yard debris, and wood	1.39%	(0.89-1.98%)	270	(173-385)
Disposable diapers	0.05%	(0.01-0.12%)	10	(1-23)
Cloth textiles	1.08%	(0.56-1.78%)	210	(108-347)
Other non-hazardous nonrecyclables	0.61%	(0.30-0.99%)	118	(59-192)
Medical waste	0.00%	(0.00-0.00%)	0	(0-0)
Sharps	0.00%		0	
All batteries	0.01%	(0.00-0.02%)	2	(1-4)
All other hazardous materials	0.01%	(0.00-0.04%)	3	(0-7)
Bagged garbage	1.52%	(0.89-2.23%)	296	(174-434)
All acceptable in cart (USCL)	85.01%	(82.51-87.39%)	16,543	(16,056-17,005)
All acceptable in cart (2023 list)	85.31%	(82.82-87.65%)	16,600	(16,117-17,057)
All not acceptable in cart (USCL)	14.99%	(12.61-17.49%)	2,916	(2,454-3,403)
All not acceptable in cart (2023 list)	14.69%	(12.35-17.17%)	2,859	(2,402-3,342)

Contaminant rows are shaded gray

\* Aluminum foil and foil-form containers were cart-acceptable (Metro) in 2023 but not on the USCL, but aluminum pet food

cans are on both lists. Lacking data, half this category was included in "cart acceptable" and the other half not acceptable.

Empty aerosol cans were acceptable on the 2023 but not on the USCL list

Only shredded paper in plastic bags was listed as not acceptable in 2023, but all shredded paper is not on the USCL list.

## What is acceptable in commingled recycling

During field work for the commingled recycling study, the crew used the Metro definition of what materials are acceptable in commingled recycling when sorting each load, with one exception – scrap metal was considered acceptable only if items weighed less than 10 pounds and were less than 18 inches long. The standard Metro had used for years was that scrap metal up to 30 pounds or 30 inches long would be acceptable. DEQ used the Metro list as we believed it would be very close in definition to the Uniform Statewide Collection List which at the time had not been defined under Oregon’s Recycling Modernization Act.

After field work was completed, Oregon finalized what materials are on the uniform statewide collection list and thus would be acceptable in commingled recycling. Generally, the USCL is very similar to the lists already used in the Metro area but includes plastics tubs and pails and some other materials not collected in 2023 in Marion County. There were some differences between the 2023 (Metro) list that DEQ used and the USCL, and DEQ made the following adjustments as an approximation to what are contaminants under the USCL:

- All shredded paper and all empty aerosol cans were reclassified as contaminants
- For the category of aluminum pet cans and aluminum foil and foil-formed containers, we did not have data on what percentage was cans vs. foil, but estimated that each made up a substantial share, assigning 50% as acceptable (the pet food cans) and 50% contamination (the foil).
- There were differences in the smallest size of rigid plastic containers that would be acceptable in commingled recycling.

In Table 6, DEQ estimates the contamination rate using the USCL definition of acceptable material as well as the original definition (referred to as the 2023 list)

## Methodology

The general methodology for the Oregon Waste Composition Study involves the following steps:

1. **Select samples:** Select loads being directly disposed at landfills, transfer stations, and solid waste incinerators. The selection protocol is designed to accurately represent all of the municipal solid waste being disposed from Oregon, or in this case, from Marion County. The definition for solid waste that is included in this study is the same as is used in [Oregon's material recovery survey and calculation of Oregon and watershed material recovery rates](#). In the disposal study DEQ selects loads being directly disposed at

landfills, transfer stations, and solid waste incinerators. In the inbound recycling study, DEQ selects loads inbound to recycling facilities.

2. **Sort into categories:** Sort the selected load categories of materials specified in the document [Material Categories for the 2023 Waste Composition Study](#) and then weigh each material category. The disposal study includes 152 categories, and the inbound commingled recycling study includes 88 categories.
3. **Determine substreams compositions:** Use the sorted sample weight data to determine the composition of different substreams of wastes listed in Table 3 for disposed waste. For the Marion County inbound recycling samples, we analyzed them all as a single substream as we did not have reliable independent information as to the quantity of commingled recycling collected in residential, commercial, or mixed route trucks.
4. **Compile composition:** Combine the different substream compositions to produce the overall composition for Oregon or for the specific jurisdiction.

The goal of the study was to provide the most precise estimate of waste composition for Marion County as a whole, as well as the composition of the different substreams, given the total budget of the study. To achieve this, the study oversampled self-haul waste to the Brown's Island Landfill and drop box substreams (excluding those going to the MRRF for mixed waste processing) relative their total portion of Marion County's solid waste, for two reasons:

- Self-haul and drop box samples are far more variable than samples from route trucks, since they represent waste from only a single family or business, whereas route trucks mix together wastes from many different generators.
- Self-haul and drop box samples are usually much easier and cheaper to sort than route truck samples, and so more samples could be collected and sorted for the same amount of money.

As discussed earlier, almost all self-haul wastes and much loose drop box waste are sent to the MRRF for mixed waste processing to remove recoverable materials such as scrap metal, cardboard, and wood. This processing tends to homogenize the waste in each of the residue streams and also makes them more difficult and expensive to sort, so we did not oversample the MRRF residue waste.

When combining the substreams to produce the overall Marion County waste composition, each substream was weighted by the total tons in that substream.

The methodology for the inbound commingled recycling study was very similar to that used in the disposed waste composition study and is described in more detail in Appendix A of the report [2023 Oregon Inbound Commingled Recycling Composition Study](#).

## Acknowledgements

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- Garten Services, Salem - Will Posegate, Pete Grell, Caytlin Wilson
- Republic Services Woodburn – Luba Toran, Joshua Harvey
- D&O Garbage – Derek Neliton, Dave Marxer
- Loren’s Sanitation – John Sullivan, Marcus Gerber, Kambria Sullivan
- Pacific Sanitation – Kyle Ritchey
- Republic Services of Salem – Heather Sorenson, Mark Wironen, Autumn Ostermiller, Joe Farrior
- Suburban Garbage – Shane Kuenzi, Kenny Buchheit
- Valley Recycling – Mike Willis, Ryan Willis

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