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2020 Oregon Material Recovery and Waste Generation Rates Report

By:

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Acknowledgments

The Oregon Department of Environmental Quality's Materials Management Program conducted the 29th annual Oregon Material Recovery Survey for calendar year 2020. DEQ extends its appreciation to industry representatives, collection service providers, local governments, and landfill administrators and staff for providing recovery and disposal data for 2020 and working with DEQ staff to complete this report. The survey team also thanks DEQ personnel who contributed to the accuracy and integrity of the information contained in this report:

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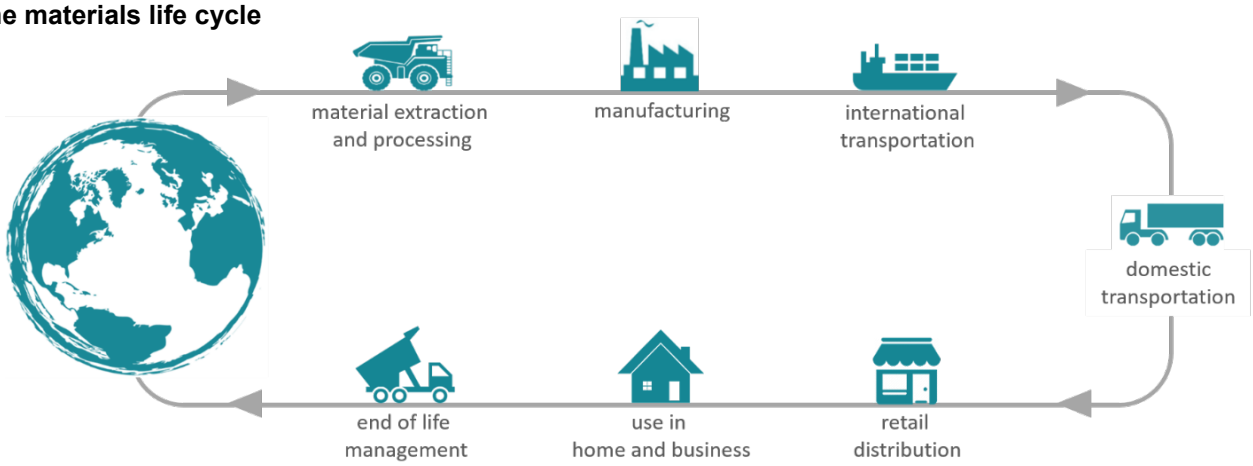
This report provides one of the most complete and accurate collections of state-level disposal and recycling data in the country.

DEQ can provide documents in an alternate format or in a language other than English upon request. Call DEQ at 800-452-4011 or email deqinfo@deq.oregon.gov.

Executive Summary

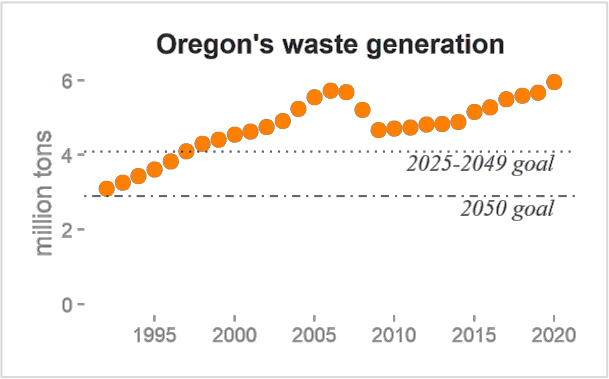
The Oregon Department of Environmental Quality's Materials Management program takes a holistic view of environmental impacts of materials. It considers the impacts that occur across the full life cycle of materials, including resource extraction, design and production, use, and end-of-life management, including solid waste disposal and recovery.

The materials life cycle



This report focuses on how Oregon manages materials at the end of their useful lives, via disposal and recovery.

- *Disposal* refers to all materials placed in landfills and many materials burned in incinerators.
- *Recovery* refers to recycling, composting and some incineration with energy recovery.
- *Generation* is the sum of disposal and recovery and represents the total tonnage of the waste stream.
- The *recovery rate* is the percentage of generation recovered.

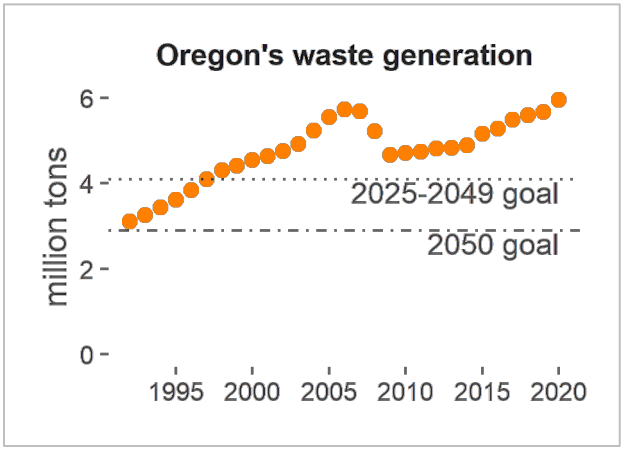


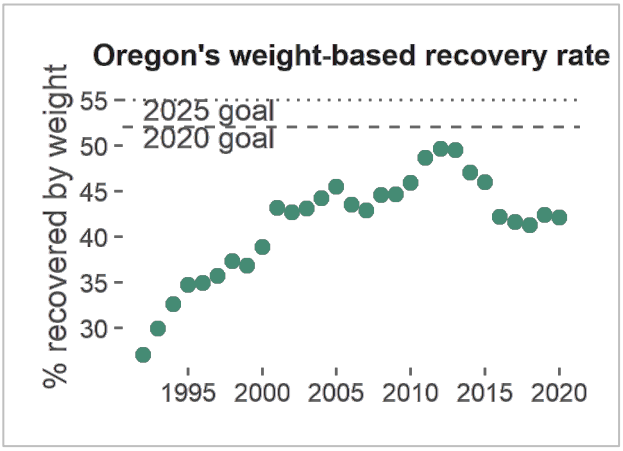
In 2020 people in Oregon:

- Generated 5,960,805 tons of waste, up five percent from 2019;
- Disposed of 3,452,854 tons into landfills and incinerators, up 5.2 percent from 2019; and
- Recovered 2,507,951 tons of material, up 4.4 percent from 2019. The recovery rate is thus 42.1 percent of waste generated, very similar to 2019's 42.2 percent.

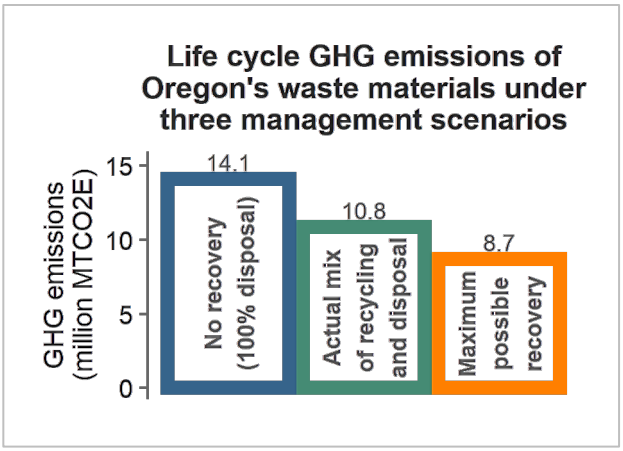
The rise in waste generation in 2020 was interesting given 2020 was the first year of the COVID-19 pandemic. Other Oregon statistics, including use of transportation fuels, appear to show pandemic-related declines in this period. However, waste generation by households and businesses increased more than five percent over 2019, bigger than the last four previous year-over-year increases, which ranged between 1.5 and 4.2 percent. It was also bigger than the likely year-over-year population increase (less than one percent). Something about pandemic or lockdown conditions apparently increased certain types of consumption.

The total recovered tons increased by about 100,000 tons in 2020 when compared to 2019. Materials showing the biggest changes in recovery were yard debris (+75,000 tons) and ferrous scrap metal (+50,000 tons). Meanwhile, container glass and wood waste recovery declined. Cardboard recovery showed an increase of nearly 30,000 tons when compared to 2019, while other grades of paper fiber continued a trend of decline, dropping 14,000 tons, as people used electronic media rather than paper for communication. DEQ was expecting to see an increase in residential recycling recovery when compared to commercial, due to the great reduction in commercial activity due to COVID-19, but surprisingly, the ratio of residential to commercial recovery increase only slightly in 2020 and remained well in the range of the ratio in the past.





State goals for solid waste:
Waste generation remained well above the goal set for 2009-2024 by the Oregon Legislature. Weight-based recovery rates are lower than the legislated goals set for 2020 and 2025.



Recovery and environmental impacts:
Recovery via recycling and other means has environmental value. DEQ estimates that in 2020 (just as in 2019), material recovery reduced greenhouse gas emissions by 3.3 million metric tons of CO_2 equivalents, compared to a scenario where all waste was disposed. Another 2.15 million MTCO2E in

reductions are possible if recovery rates could be raised in an optimal fashion for reducing greenhouse gas emissions.

Even with maximized recovery, the GHG impacts of materials in the waste system would be considerable, around 8.7 million MTCO2E. For context, Oregon's total emissions from all sources exceeded 60 million MTCO2E in 2018.

Recovery does present an opportunity for environmental impact reductions, but only a limited one. To achieve deeper reductions in the environmental impacts of materials and waste, DEQ and its partners will need to take actions across the entire materials life cycle, for example, by redesigning products and reducing overall materials use.

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Introduction and purpose

This report describes results and methodology for Oregon's Material Recovery Survey for calendar year 2020. "Material recovery" includes all materials collected for recycling or composting, and for a subset of materials, incineration with energy recovery. Each year, the Oregon Department of Environmental Quality compiles data on municipal post-consumer waste recovery. DEQ sends a survey to all collection service providers and private recycling companies that handle materials for recycling, composting and energy recovery. Survey data is combined with data gathered from quarterly and annual disposal site reporting forms. Together, recovery and disposal numbers make up the amount of waste generated by people in Oregon each year.

$$\frac{\textbf{Total Recovered}}{\textbf{Total Generated}} = \textbf{Recovery Rate}$$

Total Recovered: 2,507,951 tons

Total Generated (Total Recovered + Total Disposed): 5,960,805 tons

Recovery Rate: 42.1%

DEQ uses this information to estimate energy savings and greenhouse gas reductions, two important environmental benefits from material recovery; additionally, using it to calculate material recovery rates and waste generation. The recovery rate is the percentage of the total waste generated in Oregon that is recycled, composted, or recovered for energy. Waste generation is the amount of waste recovered plus the amount of waste disposed. Recovery, disposal and generation data, as well as recovery rates, are calculated for the state and for each of Oregon's 35 individual wastesheds[1].

Individual wastesheds also use this information to implement and improve their waste prevention and material recovery programs.

[1] A "wasteshed" is defined in Oregon law as being an area of the state that shares a common solid waste disposal system, or an appropriate area in which to develop a common recycling system. For the most part, individual Oregon counties are designated as wastesheds. Three exceptions are that:

- The greater Portland tri-county area, consisting of Clackamas, Multnomah and Washington Counties, is designated as the Metro wasteshed.
- Milton-Freewater, a city within Umatilla County, is designated as a separate wasteshed.
- For most cities such as Albany that have populations in two counties, the entire city was included in the wasteshed that included the larger portion of the city population. The exception is Salem, where most of Salem is in the Marion Wasteshed, but West Salem is included in the Polk Wasteshed.

This is the 29th year that DEQ has used the survey to gather this data. The 1991 Oregon Legislature enacted requirements (see Oregon Revised Statute 459A) for this annual survey and set goals for state and local recovery rates. These recovery goals were amended by the Legislature in 2001, and then again in 2015. Wasteshed goals range from 15 percent (Lake Wasteshed) to 64 percent (Metro and Marion Wastesheds) by 2025. The statewide recovery goals are 52 percent recovery by 2020 and 55 percent recovery by 2025.

In 2001, the Legislature also established statewide goals for reducing waste generation. These goals were revised by the Legislature in 2015. The waste generation goals require that the generation of solid waste in the years 2025 to 2049 be 15 percent below the amount of solid waste generated in 2012, and for 2050 and beyond, the generation goal is 40 percent less than the waste generated in 2012.

Requirement to report

Oregon law requires that all publicly and privately operated recycling and material recovery operations complete a Material Recovery Survey form. This includes landfills, local recycling collectors, private recycling collection companies and depots, transfer stations, material recovery facilities, composters, local governments, and any other operation that handles post-consumer recoverable materials. One exception, due to the difficulty of separating post-consumer scrap metal from commercial and industrial scrap metal, are companies handling only scrap metal. These companies are not required to report on privately obtained post-consumer scrap metal, but many do report on a voluntary basis.

The survey requires that companies report all recyclable materials they handle, including the amount of each material collected, the county of origin, the company they received any transfers from, and where or to whom the materials were marketed.

Oregon law further requires DEQ to keep confidential the information reported by private recyclers. This includes customer lists and specific amounts and types of materials collected or marketed by individual companies. For private recyclers, only aggregated information may be released to the public.

Materials included in the analysis

Oregon's analysis of the environmental benefits from material recovery and the recovery rates includes only post-consumer materials generated in Oregon for recycling, composting or energy recovery. Per Oregon's recycling law (ORS 459A.010 (3)(a)), waste from manufacturing and industrial processes (pre-consumer materials), reconditioned and reused materials, material that can be disposed of as clean fill without being put in a landfill such as brick and concrete, and waste originating out of state (but handled in Oregon) are excluded. Some scrap metals, including discarded vehicles or parts of vehicles and metal derived from major demolition activities handled by scrap metal dealers, are also excluded. Scrap metal collected at disposal

sites by collection service providers, at community recycling depots or through municipally sponsored collections events counts as recovered material.

The first Material Recovery Survey for the 1992 calendar year included 30 types of materials. Since then, some new materials have been added and other materials consolidated, so that the survey now contains 33 types of material. The major materials for 2020 are:

- Yard Debris
- Metals – Tinned cans, aluminum and other scrap metals
- Cardboard
- Wood Waste
- Paper Fiber – Other paper fiber (combined high-grade paper, newsprint and mixed scrap paper) not including cardboard
- Container Glass
- Food Waste – Residential and commercial food waste
- Other – Including tires, used motor oil, antifreeze, batteries of all types, gypsum, asphalt roofing materials, textiles, paint, and animal waste and grease
- Plastic – Rigid plastic containers, plastic film, other plastics and composite plastics (including carpet pad)
- Electronics

A complete list of materials recovered is included in Table 8, at the end of this report.

Recovery and reductions in environmental impacts

Summary of analytical results

Oregon's recovery activity in 2020 can be associated with:

- 3.3 million metric tons CO_2 equivalents of reductions in greenhouse gas emissions; and
- 40 trillion British thermal units of savings in energy demand.

These savings in energy and greenhouse gas impacts are similar to the values reported for 2019 (32 trillion BTU and 3.3 MMTCO2E). The increase in energy savings is probably mostly due to changes in DEQ's methods (discussed later under "Methodological Details").

If recovery could be increased from its current rate (about 42 percent by weight) to rate corresponding with a maximum reduction in greenhouse gas emissions (about 70 percent by weight), it can be estimated that:

- GHG emissions would decline an additional 2.2 MMTCO2E; and
- Energy expenditures would decline an additional 45 trillion BTU.

Such savings must be placed within the context of the state's total environmental impacts.

- Oregon's total GHG emissions are more than 60 MMTCO2E. A recent DEQ report[2] gives recent yearly totals as 66.2 MMTCO2E, from a sector-based method, and 88.7 MMTCO2E, from a consumption-based method.
- Oregon's overall direct energy expenditures are around 1,015 trillion BTU per year, in a recent Oregon Department of Energy report.[3]

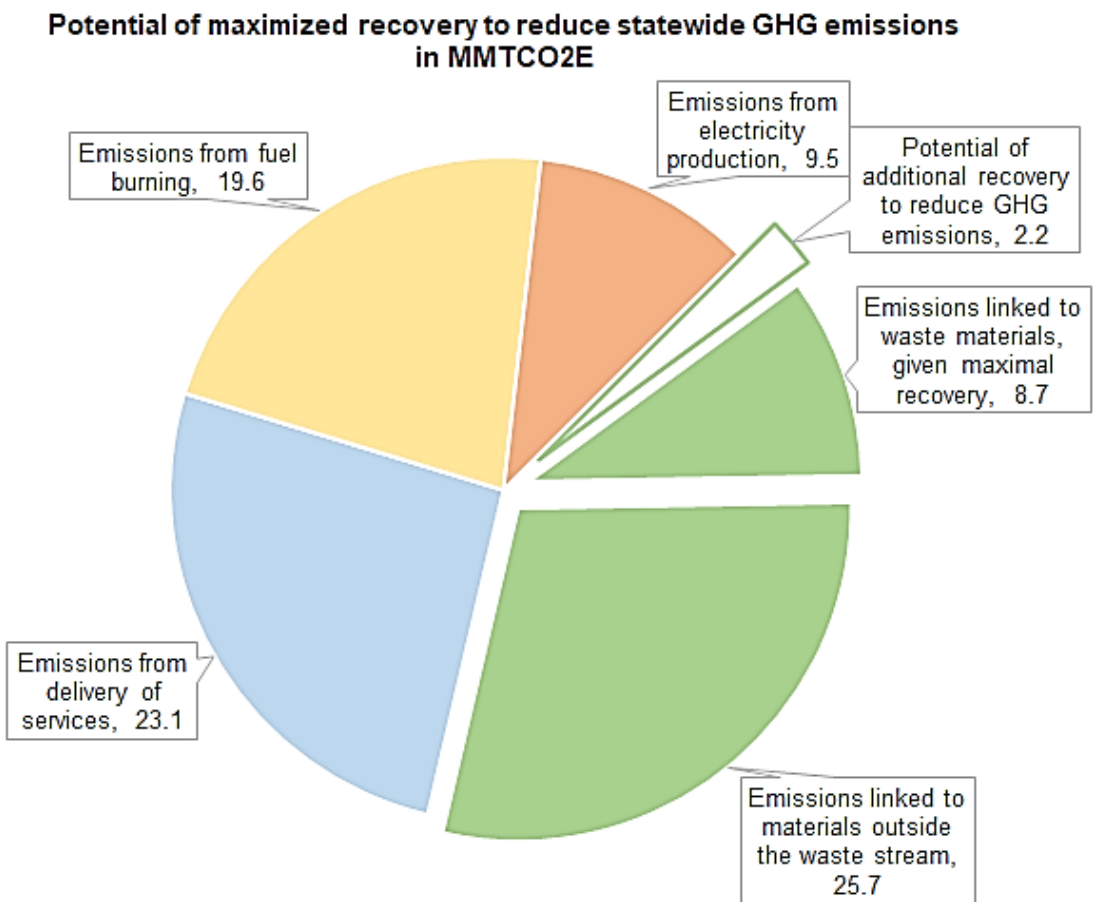
The pie chart below combines results from the consumption-based emissions inventory with estimates of the impacts of waste. It shows that while increased recovery does present an opportunity for environmental impact reductions, the opportunity is limited. Increased recovery, by itself, cannot provide the sizeable decreases in impacts anticipated by the state's greenhouse gas reduction goals (ORS 468A.205), or the *2050 Vision*.[4] Achieving greater reductions in

[2] Oregon DEQ, "Oregon's Greenhouse Gas Emissions through 2015: An Assessment of Oregon's Sector-Based and Consumption-Based Greenhouse Gas Emissions," May 2018, www.oregon.gov/deq/FilterDocs/OregonGHGreport.pdf.

[3] Oregon Department of Energy, "2020 Biennial Energy Report," November 2020, https://www.oregon.gov/energy/Data-and-Reports/Documents/2020-Biennial-Energy-Report.pdf

[4] Oregon DEQ, "Materials Management in Oregon: 2050 Vision and Framework for Action," 2012, www.oregon.gov/deq/FilterDocs/MManagementOR.pdf.

environmental impacts of materials will require other materials management strategies, such as the redesign of products and reduced material use.

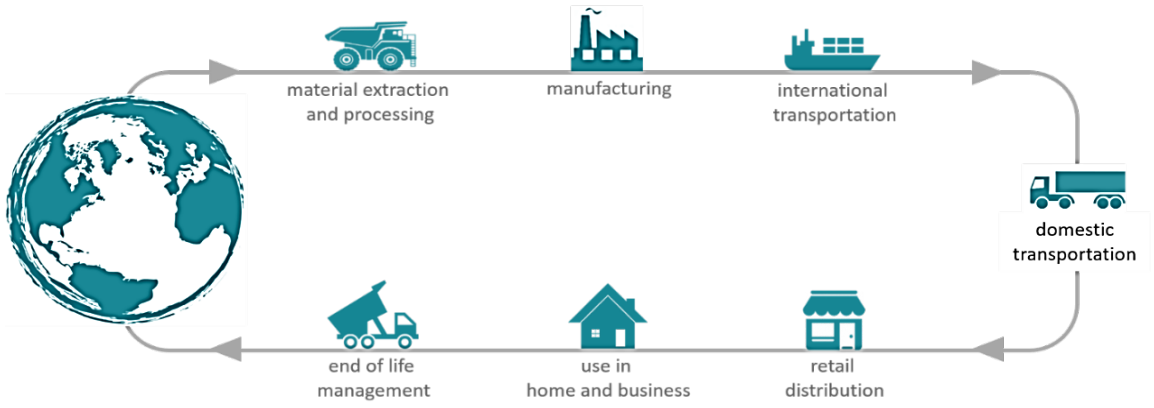


Sources of GHG emissions in Oregon, in MMTCO2E, according to the state's consumption-based inventory, combined with results from a life cycle assessment of the solid waste stream. The impact of materials (in grey-green) already includes the current benefits of recovery. Additional recovery (above current levels) offers 2.2 MMTCO2E in possible further impact reductions. The remaining GHG impacts of materials are either not preventable by recovery (8.7 MMTCO2E), or not represented by the solid waste stream at all (25.7 MMTCO2E).

Understanding impact reductions

All products and materials can be seen within the context of the materials life cycle. Everything people touch or use has been created somehow – usually via "extraction" from the earth or soil, followed by production, distribution, consumption, and use, and "end of life" processes such as disposal or recycling. Environmental impacts occur at every stage of this life cycle. For example, extracting ore or operating a farm uses machinery that emits GHGs and expends energy. The sum total of impacts associated with the materials life cycle are called the "life cycle impacts."

The materials life cycle



Recovery activities such as recycling and composting also create impacts. For example, recycling trucks emit GHGs and expend energy as they collect material, as does processing collected recyclables to create new products.

Where, then, do the "impact reductions" or "savings" associated with recovery come from?

DEQ assumes, as is conventional in the field of life cycle assessment, that use of recovered materials prevents production from newly extracted material, or otherwise prevents some undesired environmental impact. For example, production of a metric ton of glass from recycled sources may save about 300 kg of GHG emissions, *compared to the emissions of production from newly extracted material*.[5] Similarly, while aerobic composting does lead to CO_2 emissions, composting may still represent a savings *compared to the methane emissions that could result from disposal in a landfill*.[6]

[5] David A. Turner, Ian D. Williams, and Simon Kemp, "Greenhouse Gas Emission Factors for Recycling of Source-Segregated Waste Materials," *Resources, Conservation and Recycling* 105, Part A (December 2015): 186–97, https://doi.org/10.1016/j.resconrec.2015.10.026.

[6] US EPA, "Organic Materials Chapters [Documentation for Greenhouse Gas Emission and Energy Factors Used in the Waste Reduction Model (WARM)]," February 2016, www.epa.gov/sites/production/files/2016-03/documents/warm_v14_organic_materials.pdf.

Accordingly, "impact reductions" or "savings" are not direct measurements, but *projections* of how impacts could differ if materials had been managed differently at end-of-life.[7]

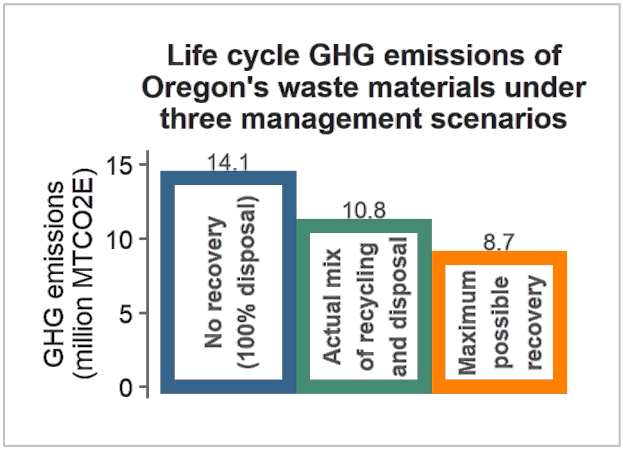
It is important to note that these impacts may occur spread over time instead of in a single year and may occur in areas outside of Oregon. Though we associate the materials in the waste stream with a particular place (Oregon) and time (for example, 2020), the life cycle impacts of those materials are not always so localized. An item recycled in 2020 in Oregon may have been created in another state or country in a different year. An item disposed in 2020 may decay in a landfill, but slowly over a period of many years. Environmental impacts, and "savings," are spread out over time and space.

Methodological details, in brief

DEQ calculates impact reductions through a multi-step process. First it characterizes Oregon's solid waste stream, which includes both disposed and recovered materials, by weight and end-of-life disposition (for example, recycling, composting or landfilling). Next it links those weights to "impact factors" that convert weights into environmental impacts for both production processes and end-of-life dispositions. Appropriate credits are given for recovery activities when it can be presumed that recovery has prevented some other, greater environmental impact, as described earlier. Then it sums life cycle impacts for three possible management scenarios:

- *Actual*: the life cycle impact of materials in the solid waste stream, given the current mix of recovery and disposal.
- *No recovery*: the life cycle impact of materials in the solid waste stream if no recovery had taken place and all materials had been disposed.
- *Maximum possible recovery*: the life cycle impact of materials in the solid waste stream, if all materials were recovered in the fashion that reduced total life cycle GHG emissions the most.

Note that in all scenarios, the weights of materials are the same. The scenarios differ only in the end-of-life dispositions of those materials. The *maximum possible recovery* scenario assumes that recovery has been maximized in the way that produces the lowest total life cycle greenhouse gas impacts, which corresponds to a recovery rate of about 70 percent by weight. (The figure is less than 100 percent because some materials have no



[7] The assumptions behind such projections are important to note. Such calculations, including DEQ's, presume that demand for materials is unaltered by the presence of recycled materials, and that collected recyclables actually replace newly extracted materials at a high rate, often 1:1. Authors such as Zink and Geyer question both these assumptions – see doi://10.1111/jiec.12545 and doi://10.1111/jiec.12355 .

realistic recycling path, and for others recycling does not reduce greenhouse gas emissions.)

Finally, "impact reductions" or "savings" are calculated as differences between the scenarios. The currently realized savings are the difference between the *no recovery* impact and the *actual* impact. The additional savings, which might be realized by maximizing recovery, are the difference between the *actual* impact and the *maximum possible recovery* impact.

For example, the currently realized GHG savings of 3.3 MMTCO2E, and the additional potential savings of 2.2 MMTCO2E (after rounding), were calculated by comparing life cycle emissions for the three scenarios, totaling 14.1, 10.8, and 8.7 MMTCO2E.

The weight data describing Oregon's waste stream comes from several sources.

- Quantities and dispositions of recovered materials come from DEQ's Material Recovery Survey for 2020.
- Quantities of disposed materials are derived by combining the total amount of material disposed in Oregon in 2020, from DEQ's disposal records, and the Waste Composition Study[8] for 2016/17, which lists proportions of disposed waste in various material categories.

Impact factors come from Oregon DEQ's new Waste Impact Calculator model. This is a change from reports representing years up to and including 2019, which drew impact factors from EPA's WARM model. The Waste Impact Calculator was created by Oregon DEQ specifically to match assumptions appropriate to Oregon and was independently reviewed by Dr. Christoph Koffler of the life cycle consulting firm Sphera. The WIC model, its documentation, and Koffler's review are available on github.[9]

In general, the switch to WIC has lowered estimates of the total GHG impacts linked to solid waste, but calculations of savings linked to recovery are very similar.

For further information about how DEQ calculates impact reductions contact Martin Brown at 503-229-5502, or martin.brown@deq.oregon.gov.

[8] Oregon DEQ, "Statewide 2016 Waste Composition Study: Excel Results Files Updated June 20, 2018 [Sheet P16TOT]," 2018, www.oregon.gov/deq/FilterDocs/A01-StatewideWCS16.xlsx.

[9] https://or-dept-environmental-quality.github.io/wic/

Recovery rates

The recovery rate is the percentage of total waste generation that is recovered. DEQ calculates both the statewide recovery rate and a recovery rate for each of the 35 individual wastesheds in the state.

2020 statewide recovery rate

In 2020, the state recovered 2,507,951 tons of material. This represented 42.1 percent of the municipal post-consumer waste stream, well below the statewide goal of 52 percent recovery by the year 2020. Recovered tons increased by 4.35 percent from the previous year surveyed, 2019.

From 1992 through 2005, tons of material recovered increased regularly each year. From 2006 through 2009, recovered tons declined even though recovery rates were fairly flat, as declining consumption of newspapers and magazines, followed by a general decline in overall consumption due to the recession, reduced the amount of material available to be recovered. In 2010, Oregon saw an increase in recovery, as the economy gradually recovered from the recession. In 2020 cardboard recovery saw an increase of 28,684 tons and scrap metal increased 49,641 tons over 2019 levels. Paper fibers continue to decrease setting a record low of 179,400 tons recovered and electronics saw a decrease of 2,832 tons.

Oregon State Recovered Tons and Recovery Rates

Year	Tons Recovered	Tons Disposed	Calculated Rate[10]
1992	839,679	2,263,099	27.1
1993	974,685	2,280,513	29.9
1994	1,118,912	2,312,669	32.6
1995	1,257,204	2,362,146	34.7
1996	1,338,259	2,497,170	34.9
1997	1,462,114	2,633,017	35.7
1998	1,604,985	2,695,903	37.3
1999	1,626,271	2,788,699	36.8
2000	1,765,817	2,778,463	38.9
2001	1,999,085	2,635,072	43.1
2002	2,029,261	2,723,365	42.7
2003	2,116,880	2,796,787	43.1
2004	2,317,064	2,923,462	44.2
2005	2,523,367	3,026,457	45.5
2006	2,494,050	3,235,828	43.5
2007	2,437,569	3,248,126	42.9
2008	2,326,146	2,890,503	44.6
2009	2,082,631	2,586,721	44.6
2010	2,163,957	2,523,808	46.2
2011	2,306,124	2,437,767	48.6
2012	2,391,490	2,424,833	49.7
2013	2,390,859	2,513,404	49.5
2014	2,307,269	2,634,653	47.2
2015	2,369,080	2,784,467	46.0
2016	2,225,950[1]	3,059,745[1]	42.1[1]
2017	2,286,969	3,237,214[1]	41.4[1]
2018	2,307,545[1]	3,295,468[1]	41.2[1]
2019	2,403,393[1]	3,286,308[1]	42.2[1]
2020	2,507,951	3,452,854	42.1

[1] These tonnage figures are corrected from earlier published values.

[10] Between 2001 and 2015, Oregon's law specified that "credits" be provided towards the statewide recovery goal for jurisdictions that promoted programs for home composting and for material reuse - programs for which recovery is difficult to measure directly. At the state level, these credits added about 3.6 to 3.8 percent to the statewide recovery rate in those years. Changes in legislation in 2015 eliminated the recovery credits, and so they have been dropped from this table.

A total of 3,452,854 tons of municipal post-consumer waste from Oregon were disposed in 2020. This increase of over five percent from 2019 is a record high since the material recovery survey began in 1992. Per-capita disposal was 1,618 pounds for the year, a nearly seven percent increase above the 1992 figure of 1,513 pounds; however, still below the 2007 per capita disposal peak of 1,734 pounds per year.

Total tons disposed added to total tons recovered equaled an all-time high of 5,960,805 tons of total waste generated in 2020 (see Waste Generation on page 12). Total generation increased five percent, with per-capita generation increasing over four percent from 2019 levels.

Waste recovery increased by 4.35 percent (+104,559 tons) and disposal increased more than five percent (+166,546 tons), resulting in the increase in generation (+271,104 tons). Although waste generation has increased steadily since 2010, moving us away from our waste generation goals, total generation in 2020 reached an all-time high, surpassing its peak in 2006 by 230,927 tons. This is an increase of four percent in waste generation between 2006 and 2020, but on a per-capita basis, the 2020 generation rate was still ten percent less than the 2006 rate.

How DEQ calculates the statewide recovery rate

DEQ combines information about quantities of material collected from privately-operated recycling and material recovery facilities with recovery information from collection service providers and disposal site collections, in a manner that eliminates double counting of material that is passed on from collectors through processors to end-users. This determines the total weight of material recovered.

Next, DEQ adds the total weight of material recovered to the total weight of material disposed, obtained from disposal site reports. This sum is the total weight of material generated. The total weight of material recovered is divided by the total weight generated. This results in the calculated recovery rate.

How DEQ calculates individual wasteshed recovery rates

The total weight of material recovered is allocated to the wasteshed of origin. Direct collectors of materials are the primary and best information source for the collected materials' wasteshed of origin. When information from direct collectors is not available, or when a survey respondent does not know the wasteshed of origin for the collected materials, DEQ uses information from the companies receiving materials from the collectors in order to allocate material back to wastesheds. Material is allocated back to wastesheds based on population in rare cases when survey respondents and market information is insufficient.

DEQ also uses information from disposal site reporting forms to determine the total weight of material disposed to the wasteshed of origin. For each wasteshed, total weight of material disposed is added to total weight of materials recovered to ascertain the amount of waste

generated in the wasteshed. The total weight of material recovered is divided by the total weight generated to determine the calculated recovery rate for each wasteshed.

Marion County adjustment

As home to the state's only municipal waste-to-energy incinerator, Marion County's recovery and disposal tonnages are revised each year to include certain wastes burned for energy as recovered, as directed by the 2001 Legislature. For 2020, two materials that could be counted toward the recovery rate when burned for energy were wood waste and yard debris. In 2020, 14,885 tons of these materials burned for energy in the county's incinerator were counted as recovered instead of disposed. Marion County also recovered 7,558 tons of scrap metal from the incinerator ash. DEQ subtracted the scrap metal tonnage from the Marion County disposed tons so that the same tons would not be counted as being both disposed and recycled.

Wasteshed recovery rates

Oregon has 35 individual wastesheds, each with its own recovery rate and goal. Based on the new goals established by Senate Bill 263, seven wastesheds are already at or above their goal for 2025.

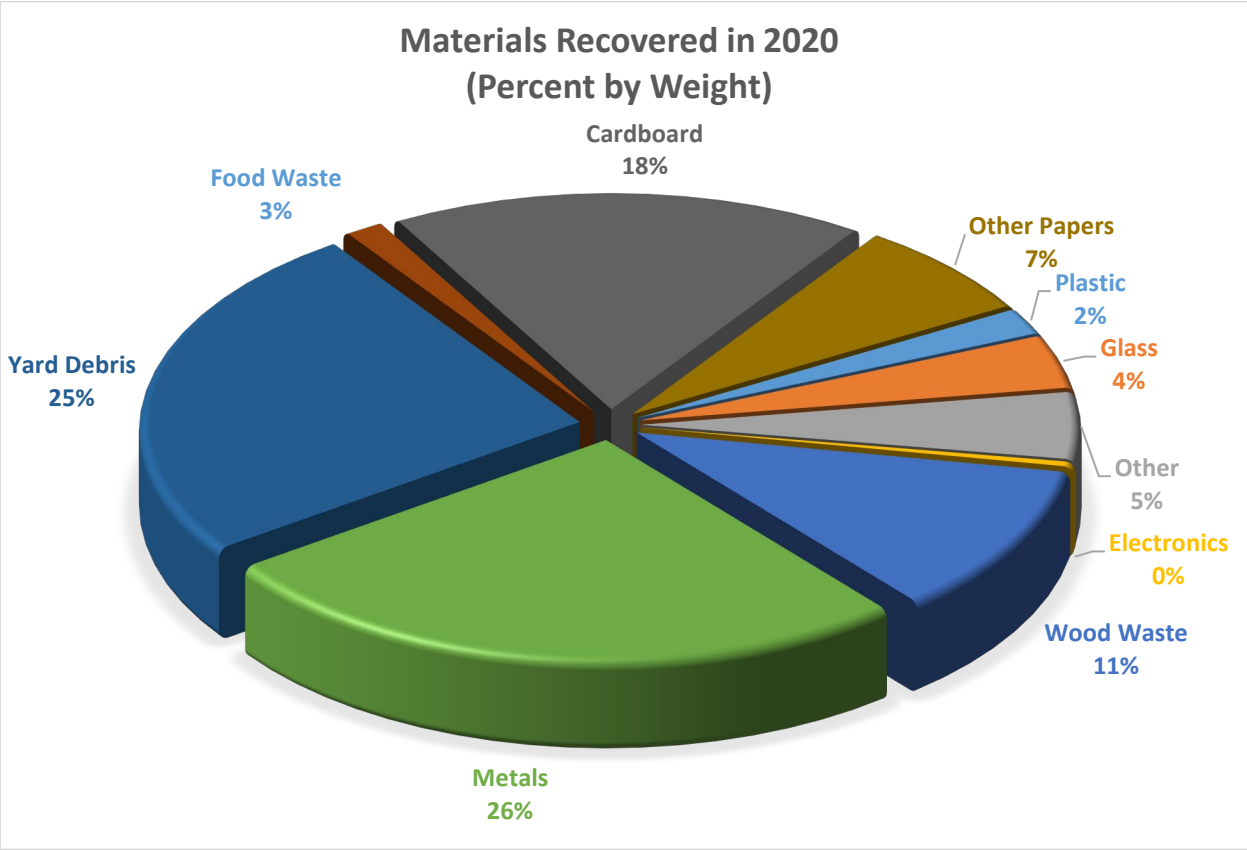
The Survey Report Tables listed on page 21 of this report show 2020 recovery rates for each wasteshed (Table 1), tons of materials recovered in 2020 by wasteshed (Table 2), and tons of solid waste disposed by wasteshed in 2020 (Table 3).

For a historical look at recovery, disposal and generation data in Oregon, see Survey Report Tables 4, 5, 6 and 7, which provide the most recent and updated recovery rates, recovered material tons, disposal tons, and tons of solid waste generated each year since the Material Recovery Survey began in 1992.

Materials recovered

Oregon's material recovery rate for 2020 includes materials that were recycled, composted (including yard debris, food waste and some wood waste), and burned for energy (including tires, fuels, oil-based paint, used oil, wood waste and some yard debris). Sixty-two percent of the material recovered was recycled, 26 percent was composted, and 12 percent was burned for energy.

The chart below shows major categories of materials recovered in 2020 and the percentage of total recovery (by weight) for each category. Specific materials included in these categories are listed on page four.



Factors affecting material recovery in 2020

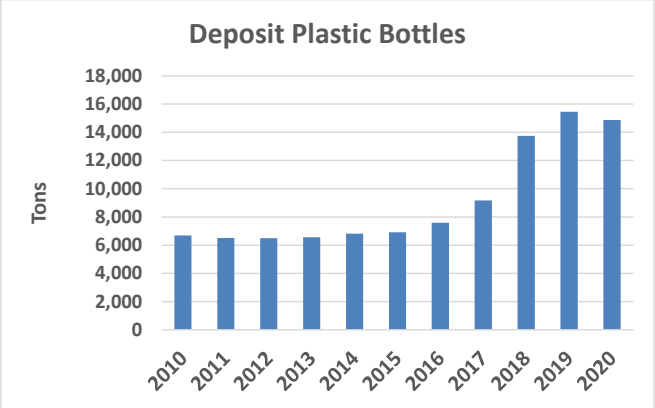
The COVID-19 lockdowns probably had a significant impact on the generation and recovery of materials, although other factors also played a role. Yard debris recovery was up 75,000 tons from the previous high in 2019, and 140,000 tons (28 percent) more than the average for the past 10 years. Possibly this may have resulted from people spending more time at home, and thus having more time for gardening and yard maintenance. Surprisingly, scrap metal (excluding tin cans and aluminum) was up nearly 50,000 tons in 2020 over the previous high in 2019, and

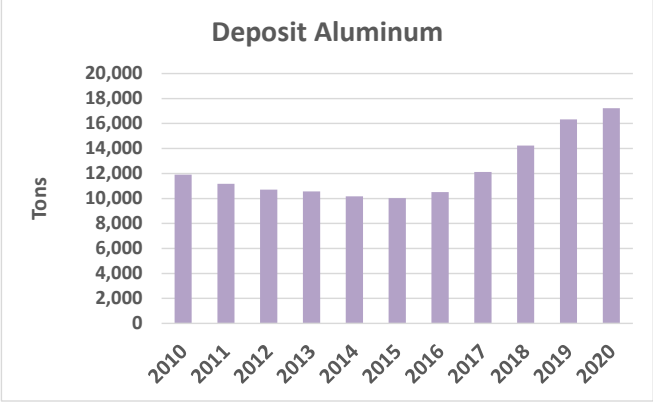
150,000 tons (32.7 percent) over the average for the previous 10 years. This is especially surprising since scrap metal prices were generally lower in 2020 than in previous years, and scrap metal recycling rates are usually positively correlated with metal recycling prices.

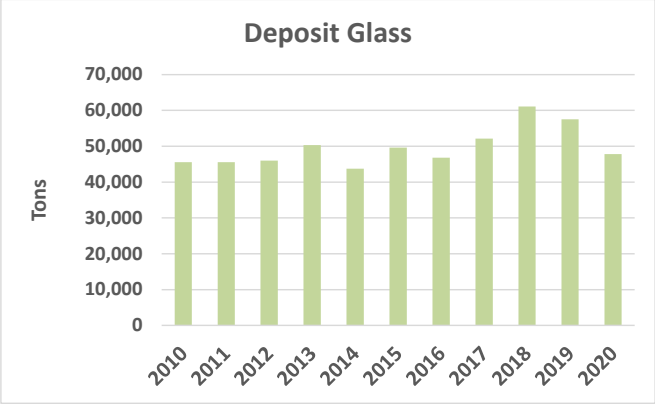
The trends for paper recovery continue the recent patterns. Cardboard recycling increased by 28,700 tons or 6.9 percent over 2019, in spite of a likely reduction in commercial activity due to the COVID-19 lockdowns. Increase in e-commerce has led to an increase in cardboard generation in residential settings. On the other hand, the recycling of other paper has continued its long, slow decline since its peak in 2007, as newspaper and magazine sales continue to fall as people switch more to electronic media for communication. Recycling of paper other than cardboard was down 14,200 tons (7.3 percent) compared to 2019, and down 83,500 tons (31.8 percent) compared to the average for the previous 10 years.

COVID-19 definitely impacted the recovery of beverage containers under the Oregon Bottle Bill. Through much of the year, most stores discontinued the redemption of beverage containers, as allowed by the Oregon Liquor and Cannabis Commission due to concerns over COVID-19 transmission. Redemption centers remained open, but large parts of the state are not served by redemption centers. At the same time though, the consumption of beverages at home increased greatly in 2020. So, even though the redemption rate of beverage containers fell from 85.8 percent in 2019 to 77.2 percent in 2020, the absolute number of containers redeemed only fell by one percent. There was also a continued shift in beer sales from glass bottles to aluminum cans, increasing the tons of aluminum recycled while decreasing the glass. The three bar charts to the right show the tons of aluminum, glass and plastic beverage containers recycled under the Bottle Bill since 2010.

The large increase in beverage container redemption starting in 2017 and 2018 resulted from the doubling of the refund value to 10 cents in April 2017 and the addition of juices, teas, and many other beverages to the Bottle Bill in 2018.







Although the redemption rate dipped in 2020 due to COVID-19, preliminary data from the Oregon Beverage Recycling Cooperative show that the redemption rate climbed again in 2021. Increases in recycling tonnage under the Bottle Bill come from two sources:

- More containers being redeemed instead of being disposed or littered, and
- Containers being redeemed instead of being placed out for curbside collection or recycled at depots.

Moving containers from disposal or litter clearly has major environmental benefits. However, even moving containers from depots or on-route collection also results in a greater tonnage of material recycled, as Bottle Bill recycling is much less contaminated than is true for materials collected commingled, resulting in a higher yield of material actually recycled into new products or packaging.

Impact of China's import bans and 2017-18 recycling market disruption

As discussed in the 2018 and 2019 Oregon Material Recovery Surveys, China implemented a ban on importation of mixed recyclables including almost all post-consumer plastics starting in 2018. Many other Asian countries then took similar steps, strongly limiting the markets for plastics and mixed paper. With the disappearance of markets for these materials, the price of plastic and paper for recycling dropped precipitously, and instead of being paid for commingled recyclable materials, on-route collection companies were having to pay to have their materials accepted by the commingled recycling processing facilities. According to data from *RecyclingMarkets.net*, prices for most grades of paper and plastic continued to be very low through the late fall of 2020, although the prices of many recyclables skyrocketed in 2021.

In response to the market disruption, many jurisdictions dropped plastic tubs and pails, and sometimes other materials such as mixed paper, from their collection programs in 2018. Most programs that dropped material in 2018 continued to not collect those materials in 2020, although a few did add back certain items to their on-route programs. Programs in the Portland Metro area, Deschutes County, and Clatsop County did not make any changes to their on-route collection programs in spite of the market disruption and continue to collect the same materials that they have collected for more than a decade.

Plastics recycling tonnage, particularly film plastic, dropped sharply in 2018 due to the market crisis for recycled plastic. Film plastic tonnage increased slightly in 2020, but is still nearly 40 percent lower than the record film plastic recycling tonnage in 2016. Rigid plastic recycled tons has increased back to 2016 levels, but only because the increase in tonnage collected under the Bottle Bill replace the tons of plastic tubs and pails lost when many recycling programs dropped tubs and pails from their collection list.

Year to year changes in material collected

Plastics. A total of 9,736 tons of film plastic were collected for recycling in 2020, compared to 8,170 tons in 2019. Rigid plastic containers increased by 1,307 tons, from 29,857 tons in 2019 to 31,165 tons in 2020.

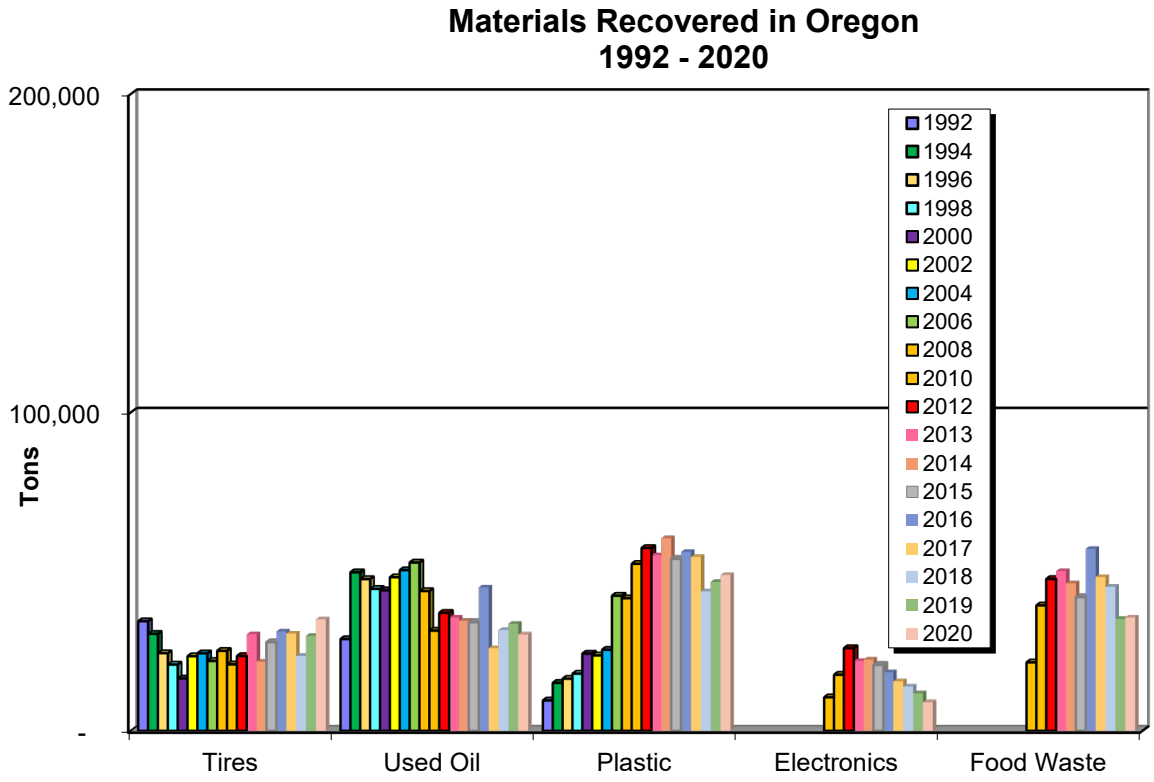
Paper (including cardboard). Although there was an overall increase in recovery for paper fibers by over two percent in 2020; printing, writing and other papers continued their decline by over seven percent, a decrease of 14,226 tons from 2019. Cardboard recovery increased by 28,684 tons, nearly seven percent up from 2019. The cardboard increase is mainly attributed to the pandemic, as a large portion of the population were sequestered home and conducted their shopping online.

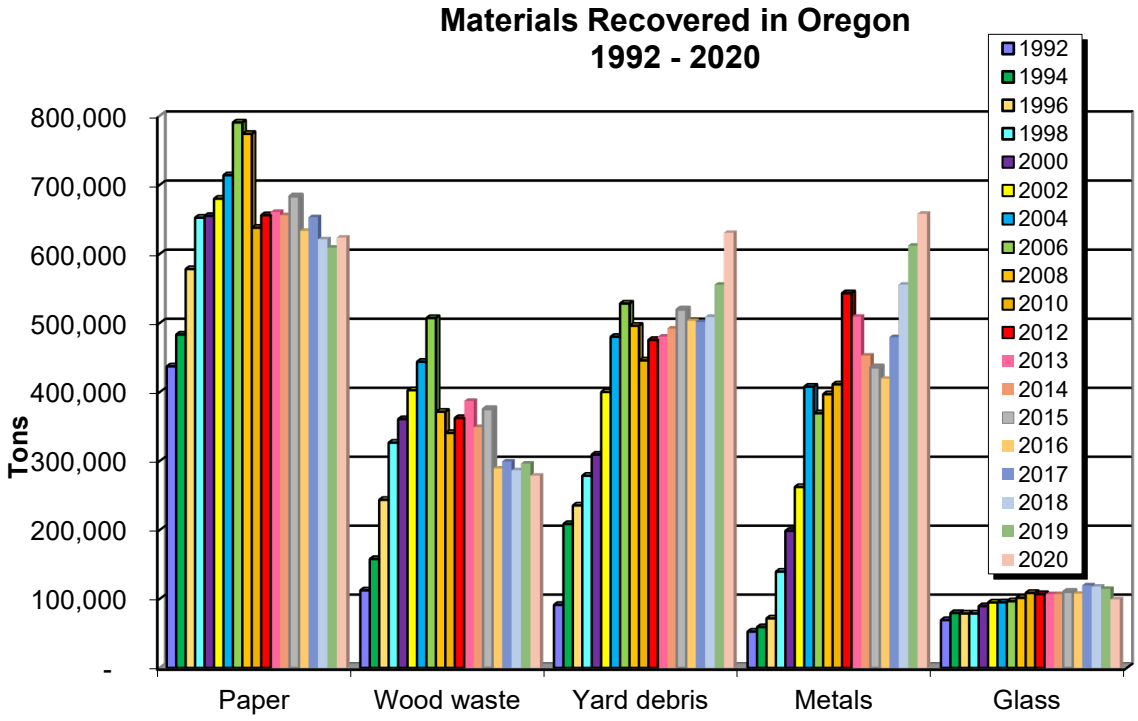
Metals. The total amount of scrap metal increased by over seven percent in 2020 compared to 2019. This increase of 49,641 tons is in spite of the pandemic. Tinned cans saw a decrease of over 33 percent, while aluminum saw a fraction of a percent decrease, only 83 tons.

Electronics. Electronics recovery continued its decline showing a decrease of over 24 percent in 2020 compared to 2019. This is still partially due to the decrease in the number of cathode ray tube monitors and TVs returned for recycling as lighter flat-screen devices replace the heavier CRT devices.

Organics. The total recovery of organics (which includes animal waste/grease, wood waste, yard debris, and food waste) increased over seven percent in 2020. There was an increase of 75,066 tons of yard debris compared to 2019; and a notable increase in animal waste/grease recovered by over 67 percent from 2019.

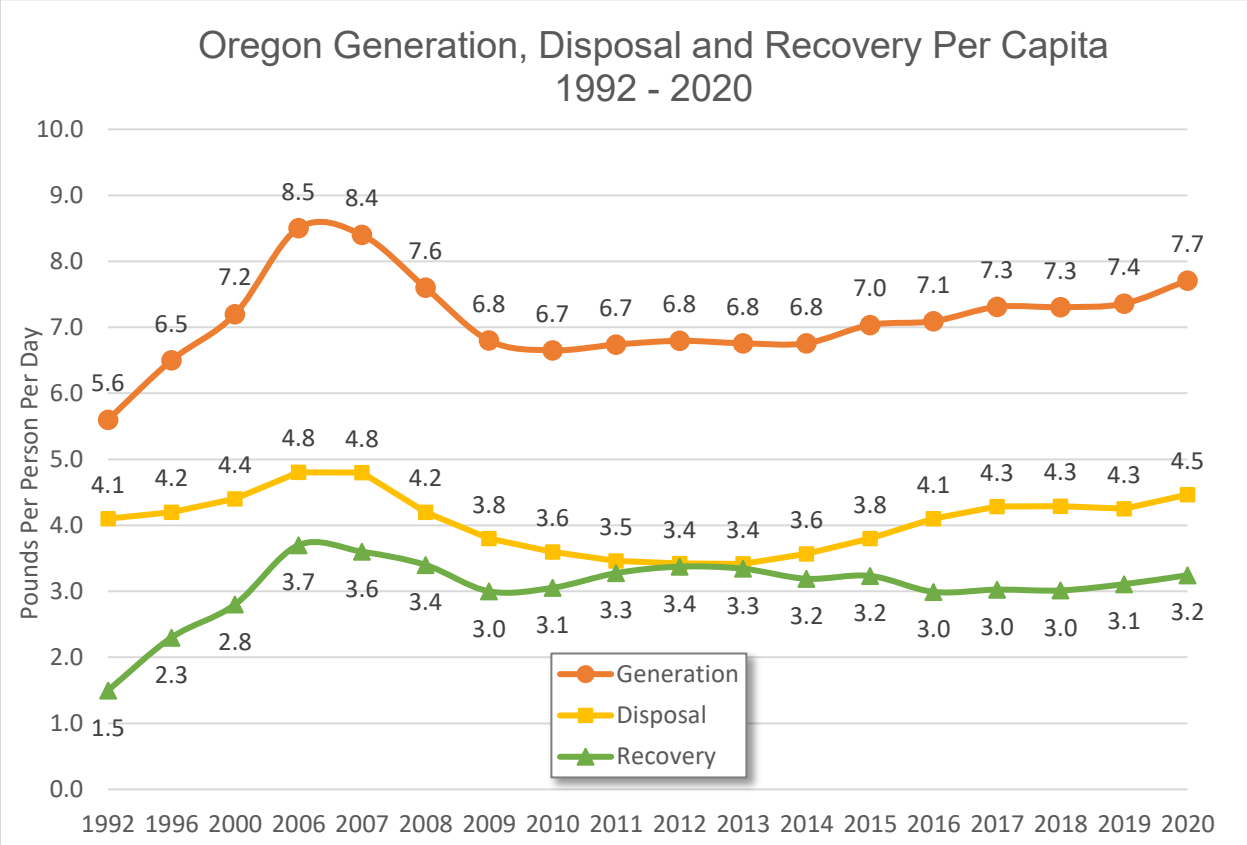
The following charts compare the materials recovered over the past 29 years.


Materials Recovered in Oregon
1992 - 2020
200,000
100,000
-
Tons
1992
1994
1996
1998
2000
2002
2004
2006
2008
2010
2012
2013
2014
2015
2016
2017
2018
2019
2020
Tires
Used Oil
Plastic
Electronics
Food Waste


Materials Recovered in Oregon
1992 - 2020
800,000
700,000
600,000
500,000
400,000
300,000
200,000
100,000
-
Tons
1992
1994
1996
1998
2000
2002
2004
2006
2008
2010
2012
2013
2014
2015
2016
2017
2018
2019
2020
Paper
Wood waste
Yard debris
Metals
Glass

Waste generation

Changes in the total amount of municipal solid waste generated (materials recovered plus waste disposed) in Oregon over time tells an interesting story. From 1992 to 2006, total waste generation increased every year, often steeply. Waste generation then declined slightly in 2007 and sharply in both 2008 and 2009, coinciding with the economic recession. Between 2009 and 2014, waste generation started growing again, but at a very slow pace, averaging less than one percent increase per year. In 2020 Oregon generated 5,960,805 tons of municipal solid waste, an increase of nearly five percent over 2019. This equates to per-capita generation of 2,793 pounds per person (7.7 pounds per day), a four percent increase from 2,686 pounds per person (7.4 pounds per day) in 2019. Total waste generation in 2020 was a new high (230,927 tons over) from its peak in 2006. This is an increase of over four percent in total waste generation between 2006 and 2020, or an over 10 percent increase in the per-capita amount.



Generation can be seen as a crude measure of consumption, and for many materials, the environmental impacts of production (the corollary of consumption) are many times higher than the impacts of disposal. For example, EPA has estimated that roughly 40 percent of the country's

greenhouse gas emissions are associated with the production and transportation of goods[11]. The leveling off of waste generation in 2006, the sharp decline in 2007 through 2009, and lack of restoration to pre-recession levels since then suggests that some of the changes in waste generation that occurred during the last recession may be long-lasting, and that the reduction in use of materials is not temporary. Reduction in materials use would, in turn, likely result in a reduction of greenhouse gas emissions associated with all stages of the life cycle of materials. Many other adverse environmental impacts associated with materials likely also decreased.

The following table shows the disposition of the municipal solid waste generated in Oregon in 2020. See Table 9 for individual wasteshed dispositions.

Disposition of Waste Generated in Oregon in 2020	
Disposition	**Percent by weight**
Disposed*	57.9
Recycled	26.2
Composted	10.8
Recovered for Energy*	5.1

*For the Marion County's waste-to-energy facility only the portion of waste that counts toward the county's and state's recovery rates is included here in "recovered for energy" (see Marion County Adjustments on page 15). Other wastes burned at the facility are counted here as disposed.

[11] Figure ES-1of Opportunities to Reduce Greenhouse Gas Emissions through Materials and Land Management Practices. US Environmental Protection Agency, Sept. 2009.

Discussion

In 2015, Oregon adopted new statutory goals of 52 percent recovery by 2020 and 55 percent by 2025. We did not meet the 2020 goal, as our 2020 recovery rate was 42.1 percent. At the time these goals were adopted, we did not anticipate the closure of the paper mill that by far was the largest user of post-consumer wood waste as a fuel, nor the discontinuance of the use of wood by other mills, strongly impacting the ability to recover and use wood. Though much less impactful from the perspective of tonnages of material recycled, we also did not anticipate that Oregon and the world would experience disruptions in the markets for most plastics and for mixed paper, as China, the largest importer of recyclable material in the world, restricted the importation of these materials and has banned the importation of unsorted paper and all unprocessed post-consumer plastics in 2018.

Despite these challenges, in 2020 Oregon recovered 2,507,951 tons of material for recycling, composting and energy recovery, giving a recovery rate of 42.1 percent, just under the 2019 rate of 42.2 percent (corrected). Other anticipated changes in products and packaging are likely to make it even harder to achieve the state's goals in 2020 and 2025, as products and packaging become increasingly difficult to recycle due to such factors as substituting light-weight non-recyclable packaging for heavier recyclable packaging. Although these changes may make achieving a weight-based recovery goal more difficult, they may lead to environmental benefits since less material is needed for the packaging, resulting in less energy use and greenhouse gases produced and even less solid waste generated and disposed.

The energy savings and greenhouse gas reductions associated with materials recovered for recycling, composting and energy recovery in 2020 were similar to the values reported for 2019. Energy savings were 40 trillion BTUs, and reductions in GHGs continue to be 3.3 MMTCO2E. If recovery were increased to the maximum possible level using current technology, another 45 trillion BTUs and 2.2 MMTCO2E in savings might be realized.

These numbers should be viewed in the context of Oregon's total environmental impacts. Oregon's total yearly energy expenditure is around 1,000 trillion BTUs, and Oregon's total yearly GHG emissions are around 66 or 89 million metrics tons, depending on analytical method. Recovery can reduce impacts, but it cannot reduce them on the scale of the changes anticipated by state goals such as the *2050 Vision*.

Greater impact reductions should be achievable by other materials management strategies, such as reducing the generation of waste in the first place. Unfortunately, waste generation in 2020 reached a new high, about 230,000 tons higher than Oregon's previous peak of generation in 2006. Though per capita waste generation was lower in 2020 than 2006, the state's overall increase in generation is concerning, since every ton of waste represents environmental impacts from across the materials life cycle.

Adjustments to reports from previous years

DEQ continues to review and use survey data even after publishing the final report each year. Occasionally, we encounter and correct errors in previously reported results. Thus, tonnages published in this report for previous years may not match the tonnages originally reported for that year.

DEQ made the following adjustments for the 2020 report:

- A correction to food waste reported in 2019 as recovered was revised to "reuse," removing those tons from the total recovered for 2019.
- A correction to disposal tonnage, the non-reporting of some disposal tons going out-of-state and the misreporting of counting solid waste tons was made to the 2019 survey period.

DEQ corrected data in previous years, for the following reasons:

- A correction to disposal tonnage, the non-reporting of some disposal tons going out-of-state – was made to the 2018 survey period.
- A correction to recovered tonnage of some materials reported by a recycler was made to the 2017 survey period, due to some double counts discovered.
- Based on the recyclers reporting in 2018, some materials were not reported due to unknown markets. These materials will be revised during the 2019 reporting period.
- A correction to recovered tonnage of cardboard was made to the 2017 survey period, due to a double count discovered.
- A revision was made to the breakdown of food waste and yard debris mix from the curbside tons collected and composted. Prior to 2018 reporting, the breakdown was 90 percent yard debris and 10 percent food waste; the revised breakdown is split between metro area collections (89.3 percent yard debris, 9.5 percent food waste and 1.2 percent solid waste) and non-metro area collections (94.1 percent yard debris, 4.8 percent food waste and 1.2 percent solid waste). This breakdown revision resulted in an overall increase of yard debris and an overall decrease in food waste; as well as a slight decrease in overall organic tons by accounting for the 1.2 percent solid waste.
- A significant correction to disposal for several wastesheds, increased the total tons disposed in Oregon and dropped the recovery rate from 42.8 percent to 42.1 percent for 2017. This also resulted in the publishing of a revised 2017 report in March 2019.
- A correction to recovered tonnage of yard debris was made to the 2015 and 2016 survey period, due to a double count discovered.

- A correction was made to some asphalt roofing tons that were found to be used as alternative daily cover at a local landfill but that had been reported as recovered. "Alternative daily cover" - material used to cover garbage daily at a landfill instead of using soil, is considered to be a form of disposal rather than recovery. This correction was made to 2015 and 2016 data.
- The yard debris and asphalt roofing corrections resulted in adjustments to the previous year's recovery rates; the recovery rate for 2015 dropped from 46.2 to 46.0 percent, the recovery rate for 2016 dropped from 42.6 to 42.2 percent.
- A correction to recovered tonnage of yard waste was made to the 2015 survey period, a reporting facility for 2016 sent in a missing 2015 report.
- In 2016 a correction was made to some "plastic other" and "plastic film" incorrectly converted to tons from pounds, this increased the total recovered for both materials.
- A couple of 2015 disposal reports were revised. This adjustment increased disposal tonnage for 2015; which dropped the state recovery rate from 46.5 percent to 46.2 percent for 2015.
- A correction to recovered tonnage of wood waste in two wastesheds was made to survey years 2014 and 2013, as some tonnage was determined to be pre-consumer material.
- Adjustments were made to 2014 and 2013 animal waste/grease collection amounts, as well as correctly identifying wastesheds of origin, based on revised reporting by an end-user.
- Disposal tonnage was reported for the wrong wasteshed. This adjustment increased disposal tonnage for 2014 for one wasteshed; which changed the wasteshed rate of the two wastesheds involved. This did not affect the state's recovery rate.
- An error in reporting was discovered by one of the recycling processors; a large amount of newspaper was double counted in the previously published 2004 results. The paper was counted both at the processing facility and at the paper mill.
- An enforcement action carried out by Metro showed that most of the brick reported as being recycled by one facility was falsely reported. DEQ subsequently decided that brick more closely resembled other inert materials such as cement and asphalt. Since these are not counted toward the recovery rate, brick was removed from all previous recovery tonnages.
- New information showed that corrections needed to be made to tonnages for roofing and non-container glass in 2003 and 2004, as well as other minor adjustments in other categories.
- Field visits showed that some plastic for 2005 had been reported as 'Plastic Other' and that this material was actually 'Rigid Plastic Containers.' The 2005 numbers have been adjusted for this change, along with a few other minor adjustments.
- Field visits and continued investigation showed that previously reported 'Wood Waste' collections for 2006 were actually collected in three years – 2004, 2005 and 2006. These years are now correct.
- The 2006 and 2007 plastics numbers were adjusted between grades of "Rigid Plastic Containers," "Plastic Other," and "Plastic Film." This may have led to small changes in the recovered tonnages for these materials.
- Investigation of disposal numbers at two landfills led to deductions in the amount of SW disposed – these were really Industrial Waste, non-counting for the purposes of this survey.

- Some changes were made in 2006 and 2007 to disposition of materials. Changes were made to composted, burned for energy recovery and disposed amounts.
- Adjustments were made to the 2007 collection amounts, correctly identifying the wasteshed of origin.
- For 2006 and 2007, some non-counting slaughterhouse material was deleted from the recovered tonnage.
- Sawdust material from manufacturing was deleted for 2006 and 2007.
- Beginning with 2006, material previously identified as "CD – Construction and Demolition" was separated out into individual materials.
- Textiles previously counted were determined to be re-used, which does not count for recovery. 2006, 2007, 2010 and 2011 recovered tonnage was decreased.
- Some gypsum sent for disposal was included in the 2006 and 2007 tonnage – this was removed.
- Bottle Bill materials, container glass and aluminum had better reporting for 2009, and DEQ made some adjustments to those materials for 2008.
- Municipal solid wastes from another landfill were determined to be industrial and were deleted from the 2007 and 2008 counting tonnages.
- Minor disposal adjustments were made to two wastesheds for 2006 data with incorrectly reported county of origin.
- Yard debris numbers contained a large double counting for the Metro region – the correction caused a decrease in recovered tons
- Some roofing material was deleted - it was determined to be industrial material.
- Added in disposal tonnages for 2009 and 2010 for material sent out of state for disposal.
- Corrected the disposition methods for food waste and yard debris in 2011.
- Fixed the disposal tonnages originally recorded for the incorrect wasteshed in 2011.
- An error in food waste reporting discovered by DEQ showed a large amount of food waste was double counted in the 2011 and 2012 reports. The food waste was counted both by the composting facility and by the recycling collectors.
- More accurate reporting identified corrections needed in tonnages for used oil, antifreeze, solvents and used oil filters in 2011 and 2012.
- Adjustments were made to 2013 and 2012 collection amounts, as well as correctly identifying wastesheds of origin.
- Municipal solid waste from one landfill was reported incorrectly as out-of-state waste, this adjustment increased the "counting" disposal tonnage for 2013. This in turn adjusted the state recovery rate from 54 percent for 2013 to 53.4 percent.

2020 survey report tables

List of data tables one through nine used for this report.

Table 1: Wasteshed Recovery Rates, 2020

Table 2: Amount Recovered in 2020 by Wasteshed

Table 3: Solid Waste Disposed in 2020 by Wasteshed

Table 4: Oregon Calculated Recovery Rates by Wasteshed, 1992-2020

Table 5: Oregon Amount Recovered by Wasteshed, 1992-2020

Table 6: Oregon Solid Waste Disposed by Wasteshed, 1992-2020

Table 7: Oregon Solid Waste Generated by Wasteshed, 1992-2020

Table 8: Oregon Materials Recovered, 1992-2020

Table 9: Disposition of Recovered Materials, 2020

Table 1: Wasteshed Recovery Rates, 2020

Wasteshed	Tons Disposed	Tons Recovered	Tons Generated	Calculated Recovery Rate[1]	SB 263 Goal[3] 2025
Baker	13,940	3,386	17,326	**19.5%**	25%
Benton	60,967	39,466	100,433	**39.3%**	44%
Clatsop	35,328	24,262	59,590	**40.7%**	53%
Columbia	34,174	11,059	45,233	**24.4%**	45%
Coos	55,189	14,750	69,940	**21.1%**	30%
Crook	25,800	7,342	33,143	**22.2%**	20%
Curry	20,176	6,473	26,649	**24.3%**	30%
Deschutes	197,979	98,491	296,470	**33.2%**	45%
Douglas	94,378	41,787	136,166	**30.7%**	34%
Gilliam	2,214	353	2,568	**13.8%**	25%
Grant	4,490	946	5,436	**17.4%**	25%
Harney	5,046	1,131	6,178	**18.3%**	25%
Hood River	23,184	7,562	30,746	**24.6%**	35%
Jackson	222,250	115,701	337,951	**34.2%**	25%
Jefferson	16,816	4,140	20,956	**19.8%**	32%
Josephine	87,625	46,828	134,454	**34.8%**	20%
Klamath	67,802	18,985	86,787	**21.9%**	20%
Lake	5,954	425	6,379	**6.7%**	15%
Lane	283,634	331,183	614,817	**53.9%**	63%
Lincoln	54,591	18,455	73,047	**25.3%**	37%
Linn	109,434	93,426	202,860	**46.1%**	45%
Malheur	26,438	5,333	31,771	**16.8%**	25%
Marion[2]	287,947	270,824	558,771	**48.5%**	64%
Metro	1,357,591	1,179,812	2,537,404	**46.5%**	64%
Milton-Freewater	4,985	1,519	6,504	**23.4%**	25%
Morrow	36,961	5,847	42,808	**13.7%**	20%
Polk	51,685	44,596	96,281	**46.3%**	48%
Sherman	1,246	142	1,387	**10.2%**	20%
Tillamook	30,550	14,000	44,550	**31.4%**	37%
Umatilla	92,834	36,670	129,504	**28.3%**	20%
Union	19,300	7,086	26,385	**26.9%**	25%
Wallowa	6,150	1,304	7,453	**17.5%**	25%
Wasco	28,872	5,026	33,898	**14.8%**	35%
Wheeler	387	76	463	**16.5%**	20%
Yamhill	86,938	49,561	136,499	**36.3%**	45%
OR Totals	3,452,854	2,507,951	5,960,805	**42.1%**	

[1] The recovery rate is calculated using the following formula:
1) Tons Disposed + Tons Recovered = Total Tons Generated
2) Tons Recovered / Total Generated = Calculated Recovery Rate

[2] The Marion County disposal and recovery rates reflect 22,443 tons of recyclable materials burned for energy in 2020 (per ORS 459A.010(3)(f)(B)).

[3] ORS 459A.010(6).

Table 2: Amount Recovered in 2020 by Wasteshed

Wasteshed	2020 Tons Recovered	2020 Pounds Per Capita	2020 Wasteshed Population
Baker	3,386	400	16,910
Benton	39,466	914	86,365
Clatsop	24,262	1,230	39,455
Columbia	11,059	415	53,280
Coos	14,750	466	63,315
Crook	7,342	626	23,440
Curry	6,473	563	23,005
Deschutes	98,491	1,000	197,015
Douglas	41,787	743	112,530
Gilliam	353	355	1,990
Grant	946	259	7,315
Harney	1,131	311	7,280
Hood River	7,562	590	25,640
Jackson	115,701	1,037	223,240
Jefferson	4,140	343	24,105
Josephine	46,828	1,082	86,560
Klamath	18,985	558	68,075
Lake	425	105	8,075
Lane	331,183	1,737	381,365
Lincoln	18,455	764	48,305
Linn	93,426	1,376	135,820
Malheur	5,333	332	32,105
Marion*	270,824	1,552	348,920
Metro	1,179,812	1,258	1,876,155
Milton-Freewater	1,519	373	8,150
Morrow	5,847	912	12,825
Polk	44,596	1,076	82,910
Sherman	142	158	1,795
Tillamook	14,000	1,055	26,530
Umatilla	36,670	1,000	73,346
Union	7,086	528	26,840
Wallowa	1,304	364	7,160
Wasco	5,026	368	27,295
Wheeler	76	106	1,440
Yamhill	49,561	905	109,500
OREGON TOTALS	**2,507,951**	**1,175**	**4,268,055**

Source for population data is the Center for Population Research and Census, Portland State University, published April 2020. Wastesheds populations are not the same as County populations for the Wastesheds of Benton, Linn, Marion, Metro, Milton-Freewater, Polk, Umatilla, and Yamhill (see OAR 340-090-0050).

*Includes certain Marion County recyclable materials burned for energy (per ORS 459A.010(3)(f)(B)).

Table 3: Solid Waste Disposed in 2020 by Wasteshed

Wasteshed	2020 Tons Disposed	2020 Pounds Per Capita	2020 Wasteshed Population
Baker	13,940	1,649	16,910
Benton	60,967	1,412	86,365
Clatsop	35,328	1,791	39,455
Columbia	34,174	1,283	53,280
Coos	55,189	1,743	63,315
Crook	25,800	2,201	23,440
Curry	20,176	1,754	23,005
Deschutes	197,979	2,010	197,015
Douglas	94,378	1,677	112,530
Gilliam	2,214	2,225	1,990
Grant	4,490	1,228	7,315
Harney	5,046	1,386	7,280
Hood River	23,184	1,808	25,640
Jackson	222,250	1,991	223,240
Jefferson	16,816	1,395	24,105
Josephine	87,625	2,025	86,560
Klamath	67,802	1,992	68,075
Lake	5,954	1,475	8,075
Lane	283,634	1,487	381,365
Lincoln	54,591	2,260	48,305
Linn	109,434	1,611	135,820
Malheur	26,438	1,647	32,105
Marion*	287,947	1,651	348,920
Metro	1,357,591	1,447	1,876,155
Milton-Freewater	4,985	1,223	8,150
Morrow	36,961	5,764	12,825
Polk	51,685	1,247	82,910
Sherman	1,246	1,388	1,795
Tillamook	30,550	2,303	26,530
Umatilla	92,834	2,531	73,346
Union	19,300	1,438	26,840
Wallowa	6,150	1,718	7,160
Wasco	28,872	2,116	27,295
Wheeler	387	537	1,440
Yamhill	86,938	1,588	109,500
OREGON TOTALS	**3,452,854**	**1,618**	**4,268,055**

Source for population data is the Center for Population Research and Census, Portland State University, published April 2019. Wastesheds populations are not the same as County populations for the Wastesheds of Benton, Linn, Marion, Metro, Milton-Freewater, Polk, Umatilla, and Yamhill (see OAR 340-090-0050).

*Excludes certain Marion County recyclable materials burned for energy recovery (per ORS 459A.010(3)(f)(B)).

Table 4: Oregon Calculated Recovery Rates by Wasteshed, 1992-2020

Wasteshed	1992 Rate	1996 Rate	2000 Calc. Rate*	2002 Calc. Rate*	2004 Calc. Rate*	2006 Calc. Rate*	2007 Calc. Rate*	2008 Calc. Rate*	2009 Calc. Rate*	2010 Calc. Rate*	2011 Calc. Rate*	2012 Calc. Rate*	2013 Calc. Rate*	2014 Calc. Rate*	2015 Calc. Rate*	2016 Calc. Rate*	2017 Calc. Rate*	2018 Calc. Rate*	2019 Calc. Rate*	2020 Calc. Rate*
Baker	10%	25%	18%	20.5%	19.9%	16.8%	21.9%	20.6%	26.3%	21.7%	22.4%	23.2%	22.7%	28.4%	26.2%	20.0%	17.4%	16.4%	16.2%	19.5%
Benton	27%	37%	35%	41.0%	43.0%	36.2%	38.9%	41.1%	37.9%	38.4%	38.3%	41.4%	41.5%	37.3%	35.3%	35.5%	34.0%	35.1%	35.5%	39.3%
Clatsop	19%	20%	25%	25.2%	30.6%	33.9%	34.0%	36.5%	36.0%	36.0%	38.7%	39.9%	44.3%	37.8%	39.5%	37.8%	41.8%	41.5%	35.9%	40.7%
Columbia	34%	22%	31%	33.8%	30.9%	30.5%	28.5%	29.9%	32.1%	35.8%	35.3%	33.3%	34.7%	28.6%	31.0%	32.5%	23.8%	24.4%	25.3%	24.4%
Coos	21%	29%	23%	25.5%	21.2%	20.8%	19.7%	22.3%	23.0%	35.0%	47.7%	43.7%	40.3%	38.3%	23.5%	22.5%	22.4%	19.8%	23.2%	21.1%
Crook	16%	23%	27%	26.8%	21.4%	25.6%	25.1%	33.2%	31.6%	33.6%	31.5%	34.6%	30.5%	26.1%	20.9%	20.6%	23.1%	19.7%	22.1%	22.2%
Curry	21%	35%	41%	36.0%	25.2%	18.1%	23.7%	21.0%	19.8%	20.4%	27.2%	25.3%	22.8%	26.6%	24.1%	26.6%	21.4%	24.2%	22.9%	24.3%
Deschutes	15%	23%	31%	26.6%	26.8%	27.0%	29.8%	31.1%	39.1%	35.1%	39.3%	38.8%	38.2%	35.8%	36.6%	33.0%	31.7%	31.6%	31.5%	33.2%
Douglas	26%	26%	26%	29.0%	31.2%	23.7%	25.8%	34.4%	28.7%	35.9%	42.9%	41.0%	37.4%	32.8%	30.3%	27.0%	28.6%	28.2%	25.8%	30.7%
Gilliam	17%	19%	14%	19.7%	11.3%	8.5%	12.9%	14.4%	27.0%	20.9%	18.0%	44.2%	41.8%	17.6%	35.4%	13.7%	14.8%	7.1%	10.4%	13.8%
Grant	18%	16%	19%	18.0%	19.3%	21.2%	24.2%	25.1%	22.4%	22.1%	25.0%	21.5%	28.8%	18.4%	24.5%	27.4%	17.2%	16.3%	16.5%	17.4%
Harney	18%	24%	20%	27.6%	21.3%	28.0%	25.2%	33.8%	23.6%	26.2%	31.1%	28.4%	27.3%	27.6%	21.8%	22.3%	23.7%	18.7%	15.3%	18.3%
Hood River	16%	17%	18%	33.7%	37.2%	33.1%	29.5%	28.2%	29.3%	26.5%	34.4%	31.4%	32.2%	28.1%	29.5%	26.9%	21.9%	23.9%	24.4%	24.6%
Jackson	15%	34%	28%	36.4%	31.3%	33.7%	30.4%	32.3%	35.6%	42.0%	41.6%	43.3%	43.1%	40.9%	37.2%	38.6%	35.0%	33.0%	38.3%	34.2%
Jefferson	21%	24%	27%	20.7%	34.0%	27.7%	36.2%	33.7%	30.7%	41.3%	47.2%	44.8%	41.6%	33.2%	24.6%	31.6%	25.9%	22.3%	17.1%	19.8%
Josephine	14%	38%	33%	36.8%	37.4%	38.9%	34.3%	38.9%	37.6%	40.1%	49.0%	49.9%	46.0%	40.3%	34.5%	35.4%	35.2%	31.7%	28.7%	34.8%
Klamath	13%	15%	18%	30.4%	31.0%	33.6%	34.8%	45.4%	32.9%	29.2%	28.1%	33.1%	29.9%	30.9%	22.3%	25.6%	23.4%	20.5%	20.6%	21.9%
Lake	6%	7%	8%	10.8%	25.0%	19.4%	21.8%	34.5%	25.1%	27.2%	28.5%	26.8%	26.3%	16.7%	12.5%	12.1%	8.6%	10.7%	6.4%	6.7%
Lane	19%	39%	46%	43.9%	45.0%	46.9%	46.3%	46.4%	46.1%	51.2%	55.5%	54.7%	50.9%	53.1%	50.4%	50.0%	52.4%	53.8%	55.1%	53.9%
Lincoln	20%	16%	23%	27.2%	29.1%	26.3%	27.6%	30.8%	29.4%	32.6%	32.4%	35.9%	29.2%	32.1%	31.2%	26.3%	22.6%	24.1%	27.2%	25.3%
Linn	15%	32%	29%	38.5%	44.0%	40.5%	37.4%	41.3%	40.5%	43.8%	49.2%	45.0%	44.0%	42.4%	39.3%	38.0%	36.9%	40.1%	42.2%	46.1%
Malheur	19%	20%	25%	26.9%	26.7%	22.8%	22.6%	21.9%	18.9%	23.3%	20.9%	27.3%	27.8%	24.7%	24.2%	26.4%	22.6%	16.5%	18.5%	16.8%
Marion	26%	28%	38%	**50.9%	**47.4%	**51.9%	**50.4%	**52.4%	**52.2%	**50.1%	**54.7%	**54.4%	**55.2%	**53.8%	**52.2%	**49.4%	**48.3%	**49.7%	**47.7%	**48.5%
Metro	35%	41%	45%	47.5%	51.0%	49.6%	48.9%	50.2%	50.4%	51.9%	53.3%	56.3%	57.0%	53.6%	53.0%	46.9%	46.1%	45.4%	46.8%	46.5%
Milton-Freewater	16%	21%	21%	23.9%	24.2%	32.8%	30.8%	43.0%	34.9%	35.3%	37.9%	27.0%	41.2%	39.0%	40.1%	28.8%	35.2%	17.6%	14.4%	23.4%
Morrow	11%	13%	15%	15.7%	19.7%	21.5%	26.4%	24.8%	23.2%	22.0%	23.2%	25.1%	18.3%	20.9%	21.1%	24.4%	21.4%	22.0%	15.6%	13.7%
Polk	20%	19%	33%	38.4%	44.1%	47.9%	46.4%	47.0%	45.9%	45.6%	47.7%	44.2%	43.6%	46.0%	45.1%	45.9%	47.3%	41.5%	47.3%	46.3%
Sherman	24%	21%	17%	13.5%	25.8%	18.5%	16.4%	14.8%	14.3%	11.5%	13.9%	21.9%	14.2%	15.9%	15.9%	11.8%	11.1%	13.5%	6.6%	10.2%
Tillamook	31%	26%	26%	27.7%	38.8%	33.4%	30.6%	31.5%	29.1%	31.2%	33.7%	33.0%	31.9%	29.6%	28.9%	26.1%	27.8%	27.8%	25.7%	31.4%
Umatilla	14%	20%	26%	35.3%	35.9%	35.0%	36.5%	37.9%	31.7%	29.3%	29.3%	31.1%	28.6%	28.1%	29.5%	25.0%	26.9%	29.7%	36.2%	28.3%
Union	16%	26%	22%	27.6%	27.4%	33.7%	31.5%	29.8%	29.3%	28.6%	30.7%	30.5%	30.4%	25.2%	24.8%	25.1%	22.0%	26.9%	27.2%	26.9%
Wallowa	6%	11%	21%	19.3%	18.4%	22.2%	27.4%	24.1%	23.5%	19.4%	23.5%	22.4%	23.7%	26.6%	22.4%	27.0%	24.3%	21.4%	21.8%	17.5%
Wasco	25%	30%	34%	28.3%	24.6%	18.8%	23.0%	23.4%	32.7%	28.0%	31.3%	27.8%	32.0%	28.0%	28.1%	26.6%	19.6%	19.2%	16.6%	14.8%
Wheeler	7%	20%	14%	25.2%	15.8%	23.9%	26.9%	27.1%	20.0%	8.1%	12.9%	8.8%	8.7%	7.3%	15.6%	12.8%	17.5%	26.0%	15.3%	16.5%
Yamhill	19%	35%	44%	54.4%	50.2%	39.0%	35.7%	35.6%	39.7%	34.2%	40.2%	32.8%	38.1%	37.1%	38.3%	29.9%	28.7%	29.9%	35.3%	36.3%
OREGON TOTALS	**27.1%**	**34.9%**	**38.9%**	**42.7%**	**44.2%**	**43.5%**	**42.9%**	**44.6%**	**44.6%**	**45.9%**	**48.6%**	**49.7%**	**49.5%**	**47.2%**	**46.0%**	**42.1%**	**41.4%**	**41.2%**	**42.2%**	**42.1%**

*does not include 2% credits
**does include certain Marion County recyclable materials burned for energy

Table 5: Oregon Amount Recovered by Wasteshed, 1992-2020

Wasteshed	1992 Rvd (tons)	Per Capita (lbs.)	1996 Rvd (tons)	Per Capita (lbs.)	2000 Rvd (tons)	Per Capita (lbs.)	2006 Rvd (tons)	Per Capita (lbs.)	2010 Rvd (tons)	Per Capita (lbs.)	2012 Rvd (tons)	Per Capita (lbs.)	2014 Rvd (tons)	Per Capita (lbs.)	2016 Rvd (tons)	Per Capita (lbs.)	2017 Rvd (tons)	Per Capita (lbs.)	2018 Rvd (tons)	Per Capita (lbs.)	2019 Rvd (tons)	Per Capita (lbs.)	2020 Rvd (tons)	Per Capita (lbs.)	Change in Per Capita 2020-19
Baker	982	124	3,644	438	2,849	340	2,782	338	3,793	469	3,200	395	4,071	499	3,111	377	2,957	353	2,624	313	2,621	312	3,386	400	28.5%
Benton	21,480	626	30,352	830	28,488	779	35,728	921	32,938	832	38,226	955	33,959	832	34,311	820	32,590	768	35,072	819	36,326	844	39,466	914	8.3%
Clatsop	5,148	300	7,118	403	10,586	593	19,576	1,057	17,440	941	19,465	1,047	19,025	1,015	20,671	1,082	23,962	1,235	24,448	1,247	19,629	998	24,262	1,230	23.2%
Columbia	7,894	407	6,258	302	10,361	474	12,940	551	13,729	555	12,703	511	10,273	410	13,781	543	10,032	391	10,448	403	11,513	437	11,059	415	-4.9%
Coos	10,035	323	14,972	472	11,754	374	13,364	425	22,551	716	31,613	1,005	26,190	833	13,215	418	14,030	443	12,603	398	16,093	509	14,750	466	-8.4%
Crook	1,581	206	3,156	363	5,215	540	7,075	577	7,006	667	6,328	613	5,209	501	5,302	491	6,189	560	5,618	495	7,152	610	7,342	626	2.7%
Curry	2,863	288	6,011	572	10,387	980	4,830	452	4,349	389	5,557	499	5,748	514	6,989	618	5,548	487	6,445	562	6,003	522	6,473	563	7.8%
Deschutes	12,858	305	30,222	605	49,993	858	69,443	910	62,077	786	72,065	900	72,965	877	79,754	903	84,808	927	83,501	884	84,251	873	98,491	1,000	14.5%
Douglas	29,467	614	30,945	621	31,390	625	31,980	616	41,949	779	50,342	931	36,263	663	27,725	502	31,634	569	33,227	595	30,880	550	41,787	743	35.0%
Gilliam	177	205	284	306	266	280	225	239	596	637	1,684	1,773	488	495	358	361	354	355	301	303	282	283	353	355	25.3%
Grant	911	232	687	171	791	199	1,055	277	1,105	296	954	256	838	226	1,457	393	852	230	827	224	851	231	946	259	11.9%
Harney	600	171	678	188	806	212	1,165	304	1,122	301	1,414	387	1,360	374	1,156	316	1,285	349	1,057	286	856	232	1,131	311	33.7%
Hood River	1,855	212	3,333	345	3,403	332	9,200	862	6,404	572	7,785	681	6,701	565	7,437	601	6,501	517	7,217	570	7,585	595	7,562	590	-0.9%
Jackson	17,134	221	60,292	707	63,872	701	92,807	935	102,539	1,009	108,893	1,064	108,992	1,046	110,456	1,033	101,568	937	96,171	877	121,708	1,100	115,701	1,037	-5.8%
Jefferson	1,269	170	2,667	307	3,661	382	5,506	514	7,300	671	8,244	752	5,400	486	6,161	541	5,296	457	4,612	391	3,010	252	4,140	343	36.0%
Josephine	7,826	239	21,688	600	26,534	698	42,005	1,036	32,992	797	48,567	1,173	39,387	948	38,476	909	41,782	976	37,385	865	33,572	774	46,828	1,082	39.8%
Klamath	8,827	301	11,171	360	14,070	440	36,650	1,120	20,571	619	23,432	702	22,134	662	20,055	595	18,156	536	17,442	513	17,131	502	18,985	558	11.0%
Lake	269	74	601	161	369	99	1,360	361	2,215	561	1,843	465	1,145	287	897	224	606	149	773	191	366	91	425	105	16.1%
Lane	72,072	493	153,843	992	216,532	1,337	248,599	1,463	237,493	1,349	268,429	1,516	264,472	1,474	258,326	1,412	302,487	1,632	318,395	1,698	346,037	1,827	331,183	1,737	-4.9%
Lincoln	6,886	338	7,823	352	12,192	547	18,030	810	18,810	815	22,104	955	19,940	850	17,012	713	14,868	620	18,516	768	19,657	815	18,455	764	-6.2%
Linn	17,232	352	33,201	634	33,830	623	60,754	1,057	62,832	1,016	65,299	1,045	60,159	947	60,100	923	62,464	947	74,440	1,113	80,594	1,194	93,426	1,376	15.2%
Malheur	3,283	237	4,808	319	7,212	454	6,862	433	6,289	401	7,470	476	6,621	421	7,973	503	6,791	426	5,170	324	5,462	341	5,333	332	-2.6%
Marion	55,834	462	85,731	645	134,032	937	264,168	1,724	206,398	1,308	228,708	1,428	238,422	1,463	237,132	1,421	248,035	1,463	262,576	1,527	242,977	1,398	270,824	1,552	11.0%
Metro	514,747	825	752,470	1,106	970,850	1,338	1,337,848	1,705	1,110,443	1,350	1,222,024	1,461	1,182,294	1,377	1,116,644	1,255	1,116,851	1,233	1,108,975	1,206	1,134,526	1,221	1,179,812	1,258	3.0%
Milton-Freew.	908	323	1,186	392	1,317	406	2,612	793	2,346	617	1,615	419	2,674	683	1,884	472	1,375	341	1,147	284	813	200	1,519	373	86.1%
Morrow	930	227	842	181	1,428	257	2,874	474	3,020	541	3,680	651	4,047	702	5,635	960	5,989	1,007	5,384	906	5,151	813	5,847	912	12.2%
Polk	4,873	187	6,787	237	18,000	581	38,074	1,155	33,134	888	30,505	805	34,580	899	39,522	1,002	45,872	1,145	35,979	886	46,732	1,139	44,596	1,076	-5.6%
Sherman	270	278	264	275	217	223	232	249	154	174	319	362	219	246	164	182	151	168	193	216	90	101	142	158	56.0%
Tillamook	4,518	406	5,246	438	6,174	508	12,554	983	10,159	804	10,606	838	9,078	713	9,331	720	10,539	805	10,890	825	10,172	768	14,000	1,055	37.5%
Umatilla	6,641	236	12,454	414	20,115	625	35,495	1,082	27,461	803	28,990	835	26,990	766	24,283	676	28,954	799	33,575	924	43,877	1,201	36,670	1,000	-16.8%
Union	2,525	210	5,203	419	5,062	412	7,518	599	7,159	555	7,991	611	6,350	480	6,916	517	6,375	474	6,979	519	7,078	527	7,086	528	0.1%
Wallowa	433	119	503	135	1,219	336	1,431	401	719	205	923	263	904	256	1,513	424	1,425	396	1,386	386	1,793	502	1,304	364	-27.4%
Wasco	5,443	485	7,519	648	9,194	771	5,131	426	7,089	562	6,688	525	7,062	541	7,025	526	5,416	400	5,437	400	4,801	353	5,026	368	4.5%
Wheeler	59	82	185	226	100	129	161	206	38	52	37	52	29	40	55	74	80	108	132	182	70	97	76	106	9.3%
Yamhill	11,850	338	26,116	663	53,548	1,242	64,017	1,386	49,737	992	43,787	864	43,277	837	41,124	777	41,146	768	38,600	713	53,733	986	49,561	905	-8.2%
OR. TOTALS	**839,679**	**562**	**1,338,259**	**825**	**1,765,817**	**1,028**	**2,494,050**	**1,352**	**2,163,957**	**1,128**	**2,391,490**	**1,232**	**2,307,269**	**1,164**	**2,225,950**	**1,092**	**2,286,969**	**1,105**	**2,307,545**	**1,100**	**2,403,393**	**1,135**	**2,507,951**	**1,175**	**3.58%**
change in total from previous year			6.45%		8.58%		-1.16%		3.90%		3.70%		-3.50%		-6.04%		2.74%		0.90%		4.15%		4.35%		
change in per capita from previous year				4.40%		7.25%		-2.74%		3.53%		3.04%		-4.59%		-7.48%		1.13%		-0.40%		3.14%		3.58%	

Data from some years is not shown due to page formatting. Please contact DEQ directly for data from these years.

Certain recoverable materials in mixed waste burned at the waste-to-energy facility in Brooks are excluded from Marion County and Statewide recovery in years prior to 2001 but included in 2001 and subsequent years (per ORS 459A.010(3)(f)(B)).

Table 6: Oregon Solid Waste Disposed by Wasteshed, 1992-2020

Wasteshed	1992 Disposed (tons)	Per Capita (lbs.)	1996 Disposed (tons)	Per Capita (lbs.)	2000 Disposed (tons)	Per Capita (lbs.)	2006 Disposed (tons)	Per Capita (lbs.)	2010 Disposed (tons)	Per Capita (lbs.)	2012 Disposed (tons)	Per Capita (lbs.)	2014 Disposed (tons)	Per Capita (lbs.)	2016 Disposed (tons)	Per Capita (lbs.)	2017 Disposed (tons)	Per Capita (lbs.)	2018 Disposed (tons)	Per Capita (lbs.)	2019 Disposed (tons)	Per Capita (lbs.)	2020 Disposed (tons)	Per Capita (lbs.)	Change in Per Capita 2020-19
Baker	8,419	1,062	10,897	1,310	12,617	1,507	13,770	1,672	13,693	1,692	10,610	1,309	10,251	1,256	12,432	1,506	14,078	1,681	13,420	1,601	13,563	1,613	13,940	1,649	2.23%
Benton	58,761	1,713	50,840	1,390	53,835	1,472	62,940	1,622	52,945	1,338	54,062	1,351	57,050	1,398	62,440	1,492	63,214	1,490	64,847	1,514	66,131	1,536	60,967	1,412	-8.09%
Clatsop	22,263	1,299	28,671	1,623	31,489	1,764	38,125	2,058	31,036	1,674	29,291	1,575	31,314	1,670	34,076	1,783	33,381	1,720	34,442	1,757	35,031	1,781	35,328	1,791	0.53%
Columbia	15,131	780	22,650	1,095	23,201	1,062	29,541	1,258	24,616	996	25,400	1,023	25,697	1,026	28,657	1,128	32,062	1,249	32,377	1,248	33,961	1,288	34,174	1,283	-0.38%
Coos	37,596	1,211	36,436	1,148	39,329	1,253	50,868	1,617	41,862	1,328	40,733	1,295	42,222	1,343	45,468	1,439	48,728	1,539	51,175	1,618	53,356	1,686	55,189	1,743	3.39%
Crook	8,378	1,091	10,646	1,224	13,841	1,434	20,566	1,677	13,860	1,319	11,978	1,160	14,736	1,418	20,409	1,891	20,637	1,867	22,966	2,023	25,247	2,154	25,800	2,201	2.19%
Curry	10,555	1,062	11,121	1,059	14,644	1,382	21,834	2,044	16,982	1,519	16,419	1,473	15,885	1,421	19,279	1,706	20,360	1,786	20,212	1,764	20,218	1,758	20,176	1,754	-0.23%
Deschutes	72,529	1,720	103,397	2,070	111,013	1,904	188,146	2,466	115,030	1,457	113,611	1,419	130,956	1,574	161,645	1,830	182,649	1,997	180,640	1,912	183,593	1,903	197,979	2,010	5.64%
Douglas	85,040	1,772	87,325	1,751	89,451	1,780	103,061	1,985	75,047	1,394	72,583	1,342	74,219	1,357	75,069	1,360	79,114	1,423	84,736	1,517	88,655	1,580	94,378	1,677	6.19%
Gilliam	872	1,008	1,176	1,271	1,663	1,751	2,429	2,577	2,255	2,411	2,126	2,238	2,285	2,314	2,247	2,270	2,038	2,043	3,946	3,976	2,439	2,451	2,214	2,225	-9.20%
Grant	4,178	1,063	3,492	869	3,441	866	3,918	1,027	3,896	1,044	3,473	932	3,730	1,005	3,868	1,044	4,089	1,103	4,256	1,150	4,300	1,168	4,490	1,228	5.07%
Harney	2,650	756	2,126	591	3,160	832	2,999	782	3,153	847	3,563	974	3,576	984	4,036	1,103	4,137	1,124	4,582	1,242	4,731	1,286	5,046	1,386	7.82%
Hood River	9,959	1,139	16,016	1,659	15,741	1,536	18,620	1,745	17,782	1,589	17,046	1,490	17,175	1,448	20,187	1,632	23,135	1,840	23,004	1,818	23,460	1,841	23,184	1,808	-1.79%
Jackson	98,002	1,265	115,011	1,348	165,129	1,813	182,404	1,837	141,765	1,394	142,338	1,391	157,217	1,509	176,022	1,647	189,007	1,743	195,218	1,781	196,367	1,775	222,250	1,991	12.19%
Jefferson	4,813	645	8,380	965	9,889	1,033	14,385	1,344	10,387	955	10,148	925	10,883	980	13,351	1,172	15,157	1,307	16,036	1,361	14,569	1,222	16,816	1,395	14.16%
Josephine	47,687	1,457	35,873	992	54,033	1,421	66,105	1,630	49,268	1,190	48,812	1,179	58,277	1,402	70,229	1,659	76,898	1,796	80,597	1,866	83,442	1,924	87,625	2,025	5.24%
Klamath	57,247	1,950	66,874	2,153	64,619	2,023	72,315	2,210	49,933	1,502	47,284	1,417	49,603	1,483	58,298	1,730	59,314	1,753	67,513	1,987	66,167	1,941	67,802	1,992	2.64%
Lake	4,364	1,196	7,468	2,002	4,057	1,089	5,651	1,499	5,925	1,502	5,025	1,269	5,698	1,426	6,496	1,621	6,428	1,583	6,467	1,594	5,398	1,336	5,954	1,475	10.37%
Lane	302,695	2,072	239,310	1,542	256,205	1,582	281,347	1,656	225,988	1,284	222,486	1,256	233,477	1,301	258,136	1,411	274,913	1,484	273,549	1,458	282,440	1,491	283,634	1,487	-0.23%
Lincoln	27,601	1,355	42,443	1,908	40,406	1,812	50,537	2,270	38,932	1,688	39,388	1,702	42,098	1,796	47,787	2,002	51,009	2,127	58,189	2,414	52,562	2,178	54,591	2,260	3.76%
Linn	94,644	1,931	69,506	1,328	83,701	1,540	89,163	1,551	80,589	1,303	79,746	1,276	81,869	1,289	97,894	1,504	106,847	1,620	111,314	1,665	110,453	1,636	109,434	1,611	-1.52%
Malheur	13,815	996	18,776	1,246	21,338	1,344	23,292	1,468	20,713	1,322	19,920	1,269	20,201	1,284	22,205	1,401	23,262	1,461	26,136	1,637	24,074	1,503	26,438	1,647	9.56%
Marion	158,109	1,307	219,182	1,648	222,098	1,552	245,214	1,600	205,923	1,305	191,947	1,199	204,991	1,258	243,107	1,457	265,977	1,569	266,140	1,548	266,817	1,535	287,947	1,651	7.50%
Metro	945,634	1,516	1,097,246	1,613	1,207,348	1,663	1,356,955	1,730	1,029,314	1,252	946,915	1,132	1,022,371	1,190	1,266,283	1,423	1,306,106	1,442	1,331,557	1,448	1,287,931	1,386	1,357,591	1,447	4.42%
Milton-Freew.	4,642	1,649	4,332	1,431	5,029	1,549	5,349	1,625	4,303	1,132	4,367	1,133	4,189	1,069	4,670	1,169	2,527	628	5,366	1,329	4,819	1,187	4,985	1,223	3.02%
Morrow	7,221	1,763	5,883	1,264	8,253	1,487	10,506	1,733	10,734	1,921	10,976	1,943	15,285	2,653	17,477	2,976	22,055	3,710	19,095	3,213	27,960	4,410	36,961	5,764	30.70%
Polk	19,036	729	28,655	1,000	37,322	1,204	41,453	1,257	39,552	1,060	38,564	1,018	40,516	1,054	46,533	1,180	51,177	1,277	50,788	1,251	52,102	1,270	51,685	1,247	-1.83%
Sherman	876	903	987	1,028	1,031	1,057	1,021	1,095	1,190	1,349	1,135	1,286	1,160	1,300	1,219	1,358	1,213	1,347	1,233	1,382	1,269	1,434	1,246	1,388	-3.19%
Tillamook	9,940	893	15,212	1,271	17,807	1,466	24,988	1,958	22,373	1,771	21,556	1,704	21,590	1,695	26,403	2,037	27,325	2,088	28,233	2,139	29,357	2,216	30,550	2,303	3.94%
Umatilla	41,059	1,461	51,388	1,709	57,952	1,801	65,980	2,011	66,345	1,940	64,341	1,854	69,030	1,958	72,808	2,025	78,725	2,173	79,503	2,187	77,490	2,122	92,834	2,531	19.31%
Union	12,866	1,069	14,676	1,181	18,311	1,492	14,801	1,179	17,841	1,382	18,237	1,393	18,872	1,425	20,643	1,544	22,541	1,676	18,993	1,413	18,901	1,408	19,300	1,438	2.11%
Wallowa	6,801	1,876	4,024	1,076	4,655	1,284	5,009	1,403	2,990	854	3,197	912	2,495	706	4,091	1,146	4,434	1,232	5,105	1,423	6,446	1,803	6,150	1,718	-4.72%
Wasco	16,760	1,494	17,480	1,508	18,118	1,519	22,089	1,835	18,196	1,442	17,368	1,363	18,175	1,392	19,419	1,455	22,233	1,641	22,910	1,685	24,085	1,768	28,872	2,116	19.64%
Wheeler	758	1,053	763	930	596	769	512	655	427	593	384	540	368	511	371	507	378	511	376	519	385	535	387	537	0.41%
Yamhill	52,199	1,490	48,909	1,241	67,141	1,558	99,934	2,163	95,662	1,908	89,805	1,771	73,473	1,422	96,488	1,823	102,067	1,905	90,547	1,672	98,590	1,810	86,938	1,588	-12.26%
Rounding adj.																									
OR. TOTALS	**2,263,099**	**1,513**	**2,497,170**	**1,539**	**2,778,463**	**1,617**	**3,235,828**	**1,754**	**2,550,509**	**1,329**	**2,424,833**	**1,249**	**2,580,933**	**1,303**	**3,059,745**	**1,501**	**3,237,214**	**1,563**	**3,295,468**	**1,571**	**3,286,308**	**1,551**	**3,452,854**	**1,618**	**4.29%**
change in total from previous year			5.72%		-0.37%		6.92%		-1.40%		-0.53%		5.65%		9.89%		5.80%		1.80%		-0.28%		5.07%		
change in per capita from previous year				3.68%		-1.62%		5.21%		-1.76%		-1.18%		4.49%		8.20%		4.15%		0.48%		-1.25%		4.29%	

*includes flood debris

Data from some years is not shown due to page formatting. Please contact DEQ directly for data from these years.

Certain recoverable materials in mixed waste burned at the waste-to-energy facility in Brooks are included in Marion County and Statewide disposal in years prior to 2001 but excluded in 2001 and subsequent years (per ORS 459A.010(3)(f)(B)).

Table 7: Oregon Solid Waste Generated by Wasteshed, 1992-2020

Wasteshed	1992 Generated (tons)	Per Capita (lbs.)	1996 Generated (tons)	Per Capita (lbs.)	2000 Generated (tons)	Per Capita (lbs.)	2006 Generated (tons)	Per Capita (lbs.)	2010 Generated (tons)	Per Capita (lbs.)	2012 Generated (tons)	Per Capita (lbs.)	2014 Generated (tons)	Per Capita (lbs.)	2016 Generated (tons)	Per Capita (lbs.)	2017 Generated (tons)	Per Capita (lbs.)	2018 Generated (tons)	Per Capita (lbs.)	2019 Generated (tons)	Per Capita (lbs.)	2020 Generated (tons)	Per Capita (lbs.)	Change in Per Capita 2020-19
Baker	9,401	1,186	14,540	1,748	15,466	1,847	16,552	2,010	17,486	2,161	13,810	1,704	14,322	1,755	15,543	1,883	17,035	2,034	16,044	1,914	16,184	1,924	17,326	2,049	6.48%
Benton	80,241	2,339	81,192	2,220	82,323	2,250	98,668	2,543	85,883	2,170	92,288	2,307	91,009	2,231	96,751	2,313	95,804	2,258	99,919	2,333	102,457	2,380	100,433	2,326	-2.27%
Clatsop	27,411	1,600	35,789	2,027	42,075	2,357	57,701	3,115	48,476	2,615	48,757	2,622	50,339	2,685	54,747	2,864	57,343	2,954	58,889	3,005	54,661	2,780	59,590	3,021	8.67%
Columbia	23,025	1,187	28,908	1,397	33,562	1,536	42,482	1,809	38,345	1,551	38,103	1,534	35,970	1,437	42,438	1,671	42,094	1,640	42,825	1,650	45,474	1,724	45,233	1,698	-1.52%
Coos	47,631	1,534	51,409	1,620	51,083	1,627	64,232	2,042	64,414	2,044	72,346	2,301	68,412	2,175	58,682	1,857	62,757	1,983	63,778	2,016	69,449	2,195	69,940	2,209	0.67%
Crook	9,959	1,297	13,802	1,586	19,056	1,975	27,642	2,254	20,866	1,985	18,305	1,773	19,945	1,920	25,711	2,383	26,825	2,427	28,583	2,517	32,400	2,764	33,143	2,828	2.29%
Curry	13,418	1,350	17,132	1,632	25,031	2,361	26,663	2,496	21,332	1,908	21,977	1,971	21,633	1,935	26,268	2,325	25,908	2,272	26,656	2,327	26,221	2,280	26,649	2,317	1.61%
Deschutes	85,387	2,025	133,618	2,676	161,006	2,762	257,589	3,376	177,107	2,243	185,676	2,319	203,921	2,451	241,400	2,733	267,458	2,924	264,142	2,795	267,844	2,776	296,470	3,010	8.43%
Douglas	114,507	2,386	118,269	2,372	120,841	2,405	135,041	2,602	116,996	2,173	122,925	2,272	110,482	2,020	102,795	1,862	110,748	1,992	117,963	2,111	119,534	2,130	136,166	2,420	13.63%
Gilliam	1,049	1,213	1,459	1,577	1,929	2,031	2,654	2,816	2,851	3,049	3,810	4,011	2,774	2,809	2,605	2,631	2,392	2,398	4,247	4,279	2,721	2,734	2,568	2,581	-5.62%
Grant	5,089	1,295	4,179	1,040	4,232	1,065	4,973	1,304	5,001	1,341	4,427	1,189	4,568	1,230	5,325	1,437	4,941	1,333	5,083	1,374	5,151	1,400	5,436	1,486	6.19%
Harney	3,249	927	2,804	779	3,966	1,044	4,163	1,086	4,274	1,148	4,977	1,361	4,936	1,359	5,191	1,418	5,422	1,473	5,638	1,528	5,587	1,518	6,178	1,697	11.79%
Hood River	11,814	1,352	19,349	2,004	19,144	1,868	27,820	2,608	24,186	2,161	24,831	2,171	23,876	2,012	27,624	2,234	29,636	2,357	30,220	2,388	31,046	2,437	30,746	2,398	-1.58%
Jackson	115,135	1,486	175,303	2,054	229,001	2,514	275,210	2,771	244,304	2,403	251,230	2,455	266,209	2,555	286,479	2,680	290,575	2,679	291,389	2,659	318,075	2,875	337,951	3,028	5.32%
Jefferson	6,082	815	11,047	1,272	13,550	1,415	19,892	1,858	17,688	1,626	18,393	1,677	16,284	1,467	19,512	1,712	20,453	1,764	20,648	1,753	17,578	1,475	20,956	1,739	17.90%
Josephine	55,513	1,696	57,560	1,592	80,567	2,119	108,110	2,665	82,261	1,988	97,379	2,353	97,664	2,350	108,705	2,568	118,681	2,771	117,983	2,731	117,014	2,698	134,454	3,107	15.16%
Klamath	66,074	2,251	78,044	2,512	78,689	2,463	108,965	3,329	70,504	2,120	70,715	2,119	71,737	2,144	78,353	2,325	77,470	2,289	84,955	2,500	83,298	2,443	86,787	2,550	4.36%
Lake	4,633	1,269	8,069	2,163	4,426	1,188	7,011	1,860	8,140	2,063	6,868	1,734	6,844	1,713	7,394	1,845	7,034	1,732	7,240	1,784	5,764	1,427	6,379	1,580	10.73%
Lane	374,767	2,565	393,153	2,534	472,737	2,919	529,946	3,120	463,480	2,633	490,915	2,772	497,949	2,776	516,462	2,823	577,401	3,116	591,945	3,156	628,477	3,318	614,817	3,224	-2.81%
Lincoln	34,487	1,693	50,266	2,259	52,598	2,359	68,566	3,080	57,742	2,503	61,492	2,657	62,038	2,646	64,799	2,715	65,877	2,747	76,704	3,182	72,219	2,993	73,047	3,024	1.05%
Linn	111,875	2,282	102,707	1,962	117,531	2,163	149,917	2,608	143,420	2,320	145,045	2,320	142,028	2,235	157,994	2,428	169,311	2,567	185,753	2,778	191,047	2,830	202,860	2,987	5.55%
Malheur	17,098	1,233	23,583	1,565	28,550	1,798	30,155	1,901	27,002	1,723	27,390	1,745	26,822	1,705	30,177	1,904	30,053	1,887	31,307	1,961	29,536	1,844	31,771	1,979	7.32%
Marion	213,943	1,768	304,913	2,293	356,130	2,489	509,383	3,324	412,321	2,612	420,655	2,627	443,413	2,721	480,239	2,878	514,012	3,033	528,716	3,075	509,795	2,934	558,771	3,203	9.18%
Metro	1,460,380	2,341	1,849,716	2,719	2,178,198	3,001	2,694,802	3,435	2,139,757	2,602	2,168,939	2,593	2,204,665	2,567	2,382,926	2,679	2,422,957	2,675	2,440,532	2,654	2,422,457	2,607	2,537,404	2,705	3.76%
Milton-Freew.	5,551	1,972	5,518	1,823	6,346	1,954	7,961	2,418	6,648	1,750	5,982	1,551	6,863	1,752	6,555	1,641	3,901	969	6,513	1,613	5,632	1,388	6,504	1,596	15.01%
Morrow	8,151	1,990	6,725	1,445	9,681	1,744	13,380	2,207	13,754	2,462	14,656	2,594	19,333	3,355	23,112	3,936	28,044	4,717	24,479	4,119	33,111	5,223	42,808	6,676	27.82%
Polk	23,909	916	35,442	1,237	55,322	1,785	79,527	2,412	72,686	1,947	69,068	1,823	75,095	1,953	86,055	2,182	97,048	2,422	86,768	2,137	98,834	2,409	96,281	2,323	-3.59%
Sherman	1,146	1,181	1,252	1,304	1,248	1,280	1,254	1,344	1,344	1,523	1,454	1,647	1,379	1,545	1,383	1,541	1,364	1,515	1,426	1,598	1,358	1,535	1,387	1,546	0.71%
Tillamook	14,458	1,300	20,458	1,709	23,981	1,974	37,542	2,941	32,532	2,576	32,162	2,542	30,669	2,407	35,735	2,757	37,865	2,893	39,124	2,964	39,529	2,983	44,550	3,358	12.58%
Umatilla	47,700	1,698	63,843	2,123	78,067	2,426	101,475	3,094	93,806	2,743	93,331	2,689	96,020	2,724	97,091	2,701	107,679	2,973	113,078	3,111	121,367	3,323	129,504	3,531	6.27%
Union	15,391	1,279	19,879	1,599	23,373	1,904	22,319	1,778	25,000	1,937	26,228	2,004	25,222	1,905	27,559	2,061	28,916	2,150	25,972	1,932	25,979	1,936	26,385	1,966	1.56%
Wallowa	7,234	1,996	4,528	1,211	5,874	1,620	6,440	1,804	3,709	1,059	4,121	1,175	3,399	962	5,605	1,570	5,858	1,628	6,491	1,809	8,239	2,304	7,453	2,082	-9.66%
Wasco	22,202	1,980	24,999	2,156	27,312	2,290	27,220	2,262	25,285	2,004	24,057	1,888	25,237	1,933	26,443	1,981	27,649	2,040	28,348	2,084	28,886	2,121	33,898	2,484	17.12%
Wheeler	817	1,135	948	1,156	696	898	673	860	465	646	422	592	397	551	426	582	459	620	508	701	455	631	463	643	1.78%
Yamhill	64,049	1,829	75,024	1,904	120,689	2,800	163,951	3,549	145,400	2,901	133,592	2,635	116,749	2,259	137,612	2,600	143,214	2,673	129,148	2,385	152,323	2,796	136,499	2,493	-10.84%
OR. TOTALS	**3,102,776**	**2,075**	**3,835,427**	**2,364**	**4,544,280**	**2,645**	**5,729,878**	**3,105**	**4,714,467**	**2,457**	**4,816,323**	**2,481**	**4,888,202**	**2,467**	**5,285,695**	**2,593**	**5,524,183**	**2,668**	**5,603,013**	**2,671**	**5,689,701**	**2,686**	**5,960,805**	**2,793**	**3.99%**
change in total from previous year			5.97%		2.93%		3.24%		0.97%		1.53%		1.13%		2.56%		4.51%		1.43%		1.55%		4.76%		
change in per capita from previous year				3.93%		1.65%		1.59%		0.60%		0.87%		0.00%		0.99%		2.88%		0.12%		0.56%		3.99%	

Data from some years is not shown due to page formatting. Please contact DEQ directly for data from these years.

Table 8: Oregon Materials Recovered, 1992-2020

Material Type	1992 Tons	1996 Tons	1999 Tons	2000 Tons	2006 Tons	2010 Tons	2012 Tons	2014 Tons	2016 Tons	2017 Tons	2018 Tons	2019 Tons	2020 Tons
Container glass	69,284	77,231	80,194	87,889	95,946	107,830	107,042	106,853	107,238	119,561	117,825	113,052	98,590
Other glass	41	1,557	1,476	1,578	673	867	21	32	232	1	-	1,531	661
Total glass	**69,325**	**78,788**	**81,670**	**89,467**	**96,619**	**108,697**	**107,062**	**106,885**	**107,470**	**119,562**	**117,825**	**114,583**	**99,251**
Aluminum	18,245	17,815	21,046	18,209	21,521	38,495	23,733	21,318	21,566	25,499	30,583	33,861	33,778
Scrap metal	26,927	45,271	141,653	165,728	339,723	363,805	511,026	422,845	389,347	444,487	516,129	567,617	617,258
Tinned cans/aluminum				14,779	-	-	-	-	-	-	-	-	-
Tinned cans	7,400	8,635	8,407	-	8,399	8,890	8,398	8,747	8,363	9,611	8,844	10,450	6,963
Aerosol cans	0	0	7	-	1	0	0	2	1	1	1	1	-
Total metals	**52,572**	**71,722**	**171,114**	**198,716**	**369,644**	**411,190**	**543,158**	**452,912**	**419,276**	**479,599**	**555,556**	**611,929**	**658,000**
Cardboard/kraft paper	204,729	304,093	305,138	310,776	440,813	368,604	356,906	375,097	365,903	403,392	403,136	415,560	444,244
Paper Fiber[6]	-	-		-	-	269,353	299,224	280,888	267,205	249,753	218,052	193,626	179,400
High-grade paper[6]	67,077	49,298	56,035	54,358	47,324	-	-	-	-	-	-	-	-
Magazines	11,246	17,250	13,988	8,375	-	-	-	-	-	-	-	-	-
Phone books[1]	-	3,103	2,841	2,881	-	-	-	-	-	-	-	-	-
Mixed waste paper[6]	24,012	53,771	75,764	91,559	39,347	-	-	-	-	-	-	-	-
Newspaper[6]	130,181	141,412	183,710	187,108	263,193	-	-	-	-	-	-	-	-
Fiber-based fuel		9,235	-	-	-	-	-	-	-	-	-	-	-
Total papers	**437,245**	**578,161**	**637,476**	**655,057**	**790,677**	**637,957**	**656,130**	**655,985**	**633,109**	**653,145**	**621,189**	**609,186**	**623,644**
#1 PET beverage	3,329	5,803	4,840	-	-	-	-	-	-	-	-	-	-
#1 other	58	-	-	-	-	-	-	-	-	-	-	-	-
#2 milk jugs	1,940	3,049	1,088	-	-	-	-	-	-	-	-	-	-
#2 other	1,841	1,331	852	-	-	-	-	-	-	-	-	-	-
#3 PVC	25	144	2	-	-	-	-	-	-	-	-	-	-
#4 LDPE	1,196	2,501	1,418	-	-	-	-	-	-	-	-	-	-
#5	360	283	1,093	-	-	-	-	-	-	-	-	-	-
#6	471	430	227	-	-	-	-	-	-	-	-	-	-
Composite plastic	-	1,077	1,357	863	2,004	1,964	2,311	2,426	2,369	1,305	1,182	715	685
Mixed plastic	300	1,708	7,344	-	-	-	-	-	-	-	-	-	-
Other plastic (P7)	-	12	1	-	-	-	-	-	-	-	-	-	-
Plastic bottles[2]				-	-	-	-	-	-	-	-	-	-
Plastic film				3,969	11,594	12,839	14,886	14,831	15,873	14,755	9,025	8,170	9,736
Plastic other				3,718	9,426	9,019	10,720	12,507	13,232	8,761	7,691	8,010	7,327
Rigid plastic containers				15,672	19,439	28,599	29,485	30,692	24,697	29,773	25,856	29,857	31,165
Total plastic	**9,520**	**16,338**	**18,222**	**24,222**	**42,463**	**52,421**	**57,401**	**60,455**	**56,171**	**54,593**	**43,754**	**46,752**	**48,913**
Antifreeze	5	52	317	424	3,085	6,762	2,598	2,719	2,472	2,545	2,676	2,366	2,480
C & D -- roofing[7]			6,933	25,162	10,072	15,803	18,223	18,568	19,769	18,661	14,047	9,219	25
Carpeting -- used			361	919	-	1,641	1,837	1,355	0	-	-	-	-
Diesel					151	33	33	33	33	-	-	-	-
Electronics				617	6,345	17,587	25,957	22,344	18,349	15,513	13,881	11,752	8,920
Fluorescent lamps	-	7	22	21	453	620	662	422	364	343	374	311	278
Gypsum wallboard	3,695	9,419	8,345	5,300	4,174	2,138	5,025	3,819	4,225	3,862	5,823	8,460	6,185
Household Haz Waste				14	143	452	338	246	326	273	264	276	289

Material Type	1992 Tons	1996 Tons	1999 Tons	2000 Tons	2006 Tons	2010 Tons	2012 Tons	2014 Tons	2016 Tons	2017 Tons	2018 Tons	2019 Tons	2020 Tons
Alkaline batteries					-	-	-	-	-	-	-	-	-
Mixed batteries					120	247	436	301	333	172	265	360	254
Lead acid batteries[3]	176	559	974	1,184	15,509	15,305	14,036	12,562	17,537	16,758	14,674	19,667	22,052
NiCad batteries			13	-	-	-	-	-	-	-	-	-	-
Paint[5]	120	489	556	555	1,434	1,931	3,396	3,826	4,263	4,201	4,623	3,506	3,483
Porcelain	-	5	9	-	307	327	551	1,071	366	85	258	201	565
Rubber tire buffings[4]	-	2,935	-	-	-	-	-	-	-	-	-	-	-
Scrap film (X-ray)	42	68	19	21	-	-	-	-	-	-	-	-	-
Solvents[5]	16	110	227	188	261	312	444	480	457	475	450	280	111
Textiles		508	2,661	4,033	1,819	216	872	1,157	1,054	681	811	317	207
Tires[5]	34,392	24,360	22,804	16,420	21,931	20,834	23,470	21,711	31,175	30,504	23,471	29,820	34,995
Used Motor Oil[5]	28,796	47,632	33,664	44,114	52,837	31,443	37,032	34,516	45,015	25,916	31,644	33,582	30,216
Total other	**67,243**	**86,145**	**76,903**	**98,969**	**118,640**	**115,648**	**134,909**	**125,129**	**145,739**	**119,989**	**113,260**	**120,117**	**110,060**
Animal waste/grease	-	22,957	19,315	25,670	15,928	11,942	7,148	10,491	15,002	10,923	15,541	13,862	23,198
Food waste	-	5,000	2,458	3,486	12,430	39,367	47,665	46,289	57,118	48,276	45,174	35,157	35,558
Wood waste[5]	112,425	243,773	335,861	360,819	503,967	340,794	362,448	349,139	289,022	299,359	286,561	296,312	278,841
Yard debris[5]	91,348	235,562	283,440	309,407	543,683	445,944	475,578	492,035	503,171	501,528	508,709	555,494	630,560
Total organics	**203,773**	**507,292**	**641,074**	**699,382**	**1,076,008**	**838,047**	**892,839**	**897,954**	**864,312**	**860,086**	**855,985**	**900,825**	**968,157**
Adj. rounding/unspecified		2		1									
OREGON TOTALS	**839,678**	**1,338,446**	**1,626,458**	**1,765,814**	**2,494,050**	**2,163,959**	**2,391,499**	**2,299,320**	**2,226,077**	**2,286,974**	**2,307,569**	**2,403,393**	**2,508,025**

[1]Phone books included in mixed waste paper in 1992, 1993 and 2001 and subsequent years.

[2]About 900 tons of plastic bottles was included with mixed plastics in the 1995 survey.

[3]Includes only batteries collected at household hazardous waste collection events until 2001.

[4]From 1998 rubber tire buffings were included with tires.

[5]Includes Marion Co. materials in 2001 and subsequent years burned for energy.

[6]In 2007 and subsequent years, Mixed Waste Paper, Hi Grade & Newspaper was combined into Paper Fiber

[7]Asphalt Roofing was included as burned for energy only in years 2001-2006

Data from some years is not shown due to page formatting. Please contact DEQ directly for data from these years.

Table 9: Disposition of Recovered Materials, 2020

Wasteshed	Total Recovered	Recycled	% of Total	Energy Recovery	% of Total	Compost	% of Total	Stock
Baker	3,386	2,389	71%	105	3%	885	26%	7
Benton	39,466	24,323	62%	535	1%	14,609	37%	0
Clatsop	24,262	14,652	60%	8,897	37%	713	3%	0
Columbia	11,059	7,804	71%	185	2%	3,071	28%	0
Coos	14,750	14,425	98%	256	2%	69	0%	0
Crook	7,342	6,273	85%	675	9%	395	5%	0
Curry	6,473	6,413	99%	45	1%	16	0%	0
Deschutes	98,491	61,709	63%	11,493	12%	25,290	26%	0
Douglas	41,787	27,341	65%	14,446	35%	-	0%	0
Gilliam	353	298	84%	54	15%	-	0%	2
Grant	946	898	95%	46	5%	2	0%	0
Harney	1,131	855	76%	57	5%	211	19%	9
Hood River	7,562	5,363	71%	206	3%	1,973	26%	20
Jackson	115,701	61,030	53%	22,368	19%	32,303	28%	0
Jefferson	4,140	4,003	97%	74	2%	63	2%	0
Josephine	46,828	31,141	67%	5,380	11%	10,307	22%	0
Klamath	18,985	15,410	81%	2,352	12%	1,220	6%	3
Lake	425	393	92%	22	5%	-	0%	10
Lane	331,183	201,958	61%	42,405	13%	86,819	26%	0
Lincoln	18,454	12,059	65%	2,173	12%	4,222	23%	0
Linn	93,426	75,577	81%	1,654	2%	16,195	17%	0
Malheur	5,333	4,880	92%	34	1%	419	8%	0
Marion	270,824	142,835	53%	63,294	23%	64,695	24%	0
Metro	1,179,799	730,442	62%	110,918	9%	338,439	29%	0
Milton-Freewater	1,519	1,334	88%	11	1%	175	12%	0
Morrow	5,847	5,468	94%	372	6%	-	0%	7
Polk	44,596	21,916	49%	11,296	25%	11,384	26%	0
Sherman	142	123	86%	18	13%	-	0%	1
Tillamook	14,000	11,617	83%	378	3%	1,960	14%	46
Umatilla	36,670	32,551	89%	2,761	8%	1,313	4%	44
Union	7,086	4,702	66%	197	3%	2,186	31%	0
Wallowa	1,304	593	45%	11	1%	700	54%	0
Wasco	5,026	3,946	79%	300	6%	760	15%	21
Wheeler	76	74	98%	1	1%	-	0%	1
Yamhill	49,561	24,421	49%	716	1%	24,424	49%	0
Total	**2,507,937**	**1,559,215**	**62%**	**303,735**	**12%**	**644,817**	**26%**	**170**