
**Solid Waste Advisory Council
AGENDA
March 23, 2022
6:00 pm**

To attend: <https://register.gotowebinar.com/register/7375278129820399118>
(Council members will receive direct links to join the meeting)

- I. 6:00 p.m., 5 Minutes – Call to Order/Introductions.....Chair
- II. 6:05 p.m., 10 Minutes – Approval of the MinutesChair
- III. 6:15 p.m., 20 Minutes – Community Member CommentsChair
- IV. 6:35 p.m., 10 Minutes – Update on Landfill Expansion CUP application statusStaff
Staff will provide an update and answer questions.
- V. 6:45 p.m., 35 Minutes – Sustainable Materials Management Plan (SMMP)Staff
SWAC will provide staff with feedback regarding the SMMP.
 - *What challenges should be addressed?*
- VI. 7:20 p.m., 15 Minutes – Solid Waste Program Grant InitiativeStaff
Staff will provide an overview of the initiative and answer questions.
- VII. 7:35 p.m., 10 Minutes – Chair ElectionStaff
SWAC will consider new elections.
- VIII. 7:45 p.m., 5 Minutes – Member Requests.....Chair
- IX. 7:50 p.m., 5 Minutes – Agenda items for next meetingChair
- X. 7:55 p.m. – Adjourn.....Chair

Tentative Upcoming Meeting Agenda Items:

- I. Sustainable Materials Management Plan: SWAC FeedbackStaff
- II. Food Waste Strategies.....Staff
- III. Equitable Solid Waste & Recycling ServicesStaff
- IV. Bylaws ReviewStaff

Next Meeting April 27th (DSAC & SWAC)

Supporting Materials for Agenda Item II

BENTON COUNTY **Solid Waste Advisory Council (SWAC)** **February 23, 2022 DRAFT Minutes**

Members Present: Ken Eklund, John McEvoy, Deborah Gile, Marge Popp & Joel Geier

Republic Services Present: Broc Keinholz, Ian McNab, Julie Jackson

Staff Present: Greg Verret (Benton County Community Development), Daniel Redick (Benton County Solid Waste and Water Quality Coordinator), Linda Ray (Benton County Community Development)

Call to Order/Introductions. Ken Eklund, Vice Chair called the meeting to order at 6:04 pm. Joel Geier & Marge Popp were given an opportunity to introduce themselves as the newest members of SWAC.

Approval of Minutes.

Deborah asked for an addition to the January minutes that captured the request made by a community member regarding an audit of waste and SWAC's response to add this topic to the next agenda for further discussion. With that addition, Debi made a **MOTION** to approve the January 22, 2022 minutes. Seconded by Ken, the **MOTION** was approved 2-0, 2 abstained.

Community Member Comments

- Request to ensure there is a thorough and independent audit of waste being disposed of at the landfill. The community member does not feel it is appropriate that Republic Services does their own audit and it should be done twice a year by an independent auditor. He also suggested the county use funds to have this happen.
- Need more accountability on the fate of recycled materials. He is curious what process is available to understand what happens to the recyclables once they are collected and if sent to the MRF. He thinks the best way to get people to recycle/reuse is to have a rate structure that rewards and encourages that behavior.
- A community member would like to see more action taken on some of the issues discussed in the near future. He also commented on having to sign up for public comment during these meetings. He would like to know when the future meeting agendas are available.

Ken recommended that the public send in written questions/comments ahead of time so that staff and council members can answer during the meetings. Greg responded stating that agenda items need priority during these meetings. Discussion is important and we want to get answers but the focus also needs to be on the agenda and accomplishing the items listed each month.

Recycling Market: Updates from Franchisee

Julie Jackson presented an update in Recycling (see Exhibit A attached) as there are a lot of changes happening.

Julie also provided several videos on the topic:

<https://www.oregon.gov/deq/recycling/Pages/Modernizing-Oregons-Recycling-System.aspx>

<https://www.oregon.gov/deq/recycling/Documents/recModORflyer.pdf>

America has a Recycling Problem: <https://youtu.be/ukD1BUxmH4>

(PBS Frontline) Plastic Wars: <https://youtu.be/-dk3NOEgX7o>

<https://www.oregon.gov/deq/recycling/Pages/Survey.aspx>

DEQ Opportunity to Recycle Report: Staff Update

Daniel has been working on a report to send in to the Department of Environmental Quality (DEQ) that is based on the City of Corvallis & City of Philomath and their actions that have been taken in the past year to meet the requirements for the state's "opportunity to recycle". The county's job is to compile those materials and report on outreach done on a county wide perspective. This report will be sent to DEQ on February 28th, along with collector surveys (like Republic Services and the landfill). DEQ takes the information and sends out a Waste Generation Summary in the next year. Staff expects to receive the 2020 summary in April. Daniel will bring those results back to the April meeting.

SWAC Overview: Reviewing SWAC's Roles

Daniel presented Exhibit B (see attached) that highlighted the roles for SWAC members. He suggested an orientation or work session be scheduled in the coming weeks to cover this topic further. Daniel will contact the members to schedule a work session to plan a date before the next monthly scheduled meeting on March 23rd.

Member Requests

- Deborah asked that the next agenda includes the public request for an audit on waste being brought to the landfill and the toxic (ash) cover being used at the landfill. Republic Services will provide a report at the next DSAC meeting in April.
- Ken asked to recall the previous recommendation made by SWAC during the Planning Commission hearing regarding LU-21-047; CUP; Valley Landfills LLC. Greg explained that since the recommendation was part of the public record, it is in the record and is going to the BOC as the appeal proceeds and it cannot be recalled. He did recommend that SWAC submit additional feedback during the appeal. Ken amended his request and asked Daniel to look into what SWAC's options are in regards to that legal document and if or what can be added to the document.

Agenda Items for Next Meeting

Due to time limits, two of the items on tonight's agenda were not discussed. So they will be first on the agenda for March 23rd; Solid Waste Program Grant Initiative & Sustainable Materials Management Plan.

Members also requested:

- Members would like an update on the status of the Coffin Butte Landfill expansion (CUP application) that was denied by the Planning Commission and is in the appeal

process with the Board of Commissioner's office. They would also like to discuss the options in regards to the previous public hearing that is now part of that record.

- Overview discussion on updating the county's SWAC website

Joel made a **MOTION** to adjourn the meeting. Seconded by Deborah, the meeting adjourned at 8:01 pm.

DRAFT

Exhibit A

Recycling Update

February, 2022

DRAFT



Markets

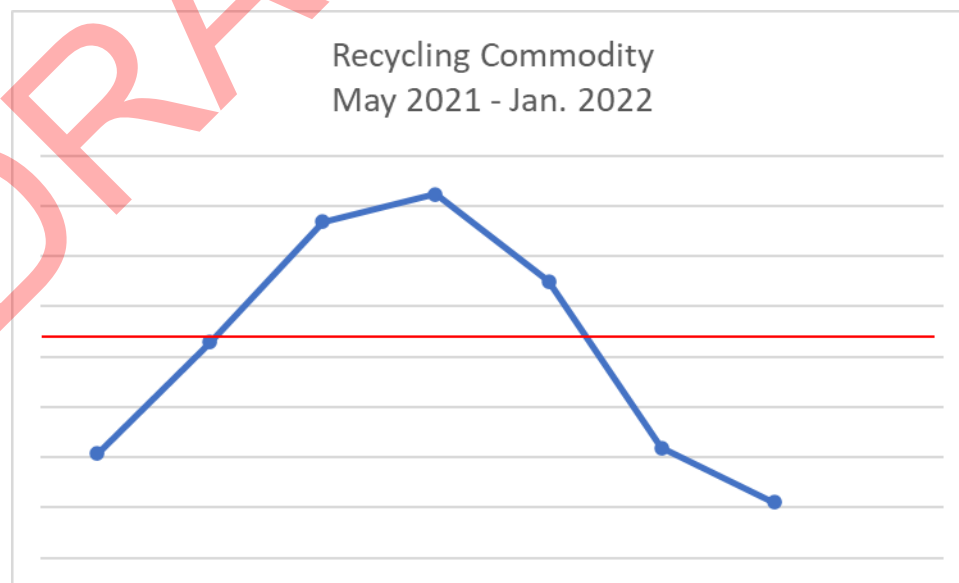


Why are commodity markets important? For a product to be recycled, there must be desire to use the raw material created. Some market incentives include:

- Quality of the material
- Cost of material vs virgin products
- Consumer desire for products with post consumer content
- Regulations requiring recycling
- Regulations requiring post consumer content use

China's National Sword Initiative

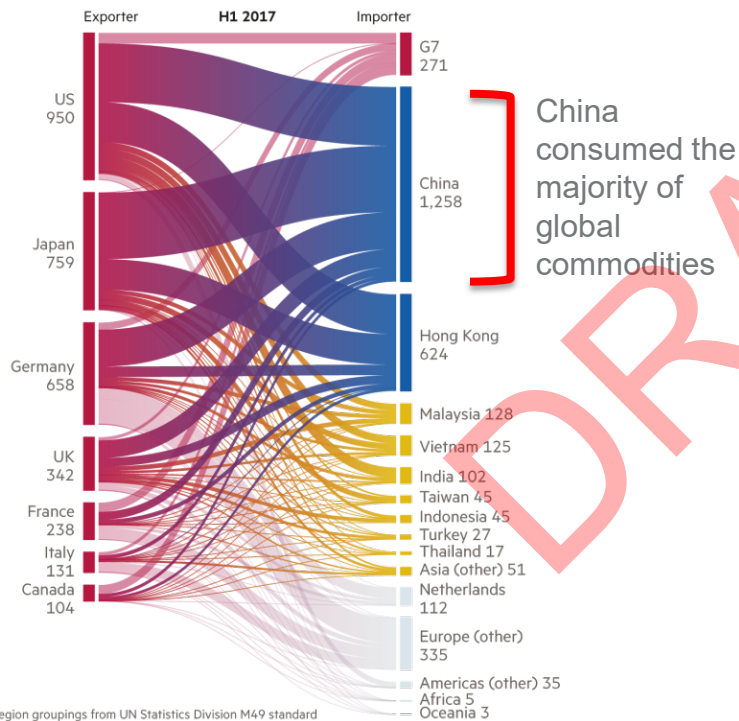
- Prior to National Sword, China was the world's largest importer of mixed recycling, consuming over 70%.
- In December 2017, China announced their environmental initiative, National Sword, to reduce pollution.
- China reduced the contamination level of imported materials from **3% to 0.5%**.
- China banned **all** mixed paper from import, regardless of contamination levels.



Shift in Commodity Markets

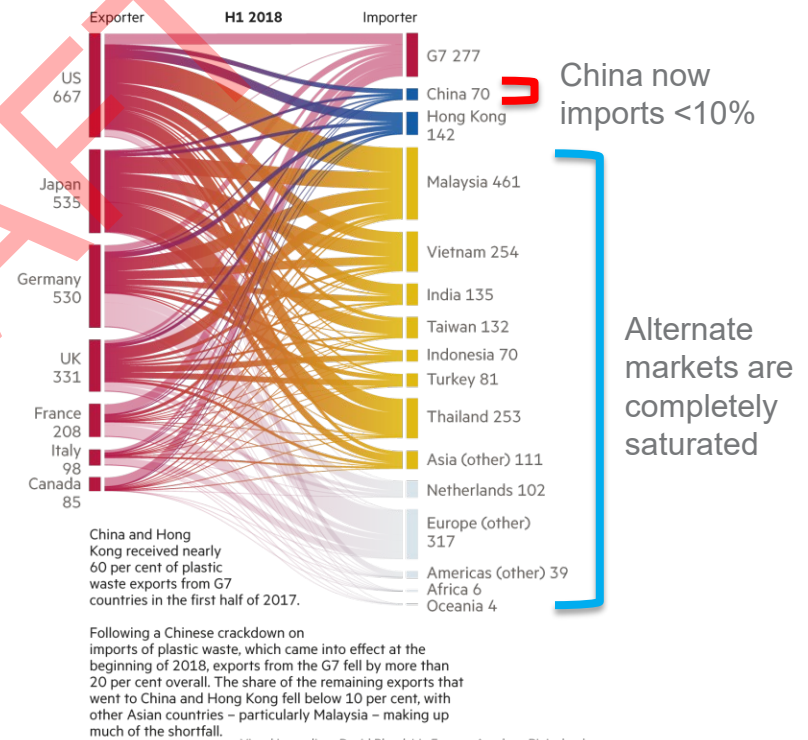
Exports of plastic waste, pairings and scrap from G7 countries ('000 tons)

Before China Sword



China consumed the majority of global commodities

After China Sword



China now imports <10%

Alternate markets are completely saturated

Region groupings from UN Statistics Division M49 standard
Data accessed Sep 19-Oct 1, 2018
Sources: US Census Bureau; Japan e-Stat; Eurostat; Statistics Canada
© FT

Source: Financial Times, Oct 24, 2018

Visual Journalism: David Blood, Liz Faunce, Aendrew Rininsland

The Oregon Solution:

- Stakeholders in Oregon began meeting in 2017 to work out a response to global recycling issues. A steering committee met for 2 years, working on this issue.
- Their work culminated in legislation supported by industry, local governments, environmental groups and government.
- SB 582 was adopted during the 2021 legislative session and was signed into law in August, 2021 as the **Plastics Pollution and Recycling Modernization Act**.

Plastic Pollution and Recycling Modernization Act

The Plastic Pollution and Recycling Modernization Act updates Oregon's recycling system by building on local community programs and leveraging the resources of producers to create an innovative system that works for everyone. The law requires packaging producers to share responsibility for effective management of their products after use. **The new law goes into effect January 1, 2022 and program changes will start in July 2025.**

KEY BENEFITS

- Shares and scales responsibility across the recycling system.** Producers will be brought into the recycling system to fund improvements and expand recycling services. Cost to producers will be based on what materials they use and how much they sell into Oregon.
- Increases access to recycling.** The new law will provide recycling services to people who didn't previously have it, such as those who live in apartments and rural areas.
- Prevents plastic pollution.** Ensures collected materials are recycled responsibly and keeps plastic and other trash out of our waterways and communities — both domestically and overseas.
- Creates one statewide list of what can be recycled.** The uniform collection list will provide clarity to households and businesses about what can be recycled, and create efficiencies in recycling operations across the state.
- Incentivizes sustainable products.** Producer fees will be higher for non-recyclable products and those creating more environmental pollution.
- Creates accountability to outcomes.** DEQ will permit and audit recycling processors, and a Governor-appointed advisory council will review producer program plans, the statewide collection list and educational resources.

WHAT'S NEXT?

Below are key dates through 2025. Stakeholder engagement, project planning and research extend throughout implementation.

<ul style="list-style-type: none"> DEQ implementation planning 	2021	<ul style="list-style-type: none"> Law effective Jan. 1 DEQ staff hiring Oregon Recycling System Advisory Council begins meeting Truth in Labeling Task Force submits report to Legislature by June
<ul style="list-style-type: none"> Rulemaking Needs assessment for collection expansion due July 1 Pilot projects for contamination reduction Studies for processor fees 	2022	
<ul style="list-style-type: none"> By July 1: <ul style="list-style-type: none"> Producers join a PRO PROs begin implementation Local governments implement program changes, including statewide collection list Processors obtain permit or 	2023	
	2024	<ul style="list-style-type: none"> Rulemaking First PRO program plans due Public procurement assessment due May 15 First equity study due Sept. 15 First needs assessment for multifamily services due Sept. 15
	2025	

How the Recycling Modernization Act Works

The Recycling Modernization Act requires producers of packaging, paper products and food serviceware to share responsibility for effective management of their products after use. These producers will finance improvements to the recycling system and perform specific functions to make Oregon's recycling programs convenient, accessible and responsible. Local governments will maintain their role overseeing collection and education in their communities.



How will Recycling Change?

We don't all know the details, but here is what we do know:

- Local governments will continue to oversee recycling at the curb.
- There will be one statewide list of materials collected.
- New plastics will be added to the list.
- Producers of material sold in Oregon will be responsible for end of life for their products.
- A part of the process will include Truth in Labeling.

Truth in Labeling

PET POLYETHYLENE TEREPHTHALATE Cosmetic containers Bottle caps Mouthwash bottles Prepared food trays	HDPE HIGH DENSITY POLYETHYLENE Detergent bottles Grocery Bags Milk Bottles Shampoo bottles	PVC POLYVINYL CHLORIDE Garden hose Window frames Blood bags Blister packs	LDPE LOW DENSITY POLYETHYLENE 6 pack rings Cling film Bread bags Squeezable bottles

PP POLYPROPYLENE Bottle caps Packaging tape Cereal liners Straws	PS POLYSTYRENE Disposable coffee cups Styrofoam Plastic cutlery Foam packaging	OTHER POLYCARBONATE Baby bottles Water cooler bottles Fiberglass Tupperware



Cool Comes Naturally.

Introducing ClimaCell™, our proprietary insulating material that performs as well as EPS foam and is certified curbside recyclable.

[LEARN MORE](#)



What can I do?



Pre Cycle

Be an educated recycler NOT a wishful recycler

Buy Products Made with Post Consumer Content

Advocate for Products Made with Recycled Content

REDUCE

WASTE

Supporting Materials for Agenda Item V

DRAFT INFORMATION: This is an incomplete draft, intended only to demonstrate general content and progress of the plan’s development to the Benton County Solid Waste Advisory Council (SWAC), to be reviewed and discussed during the SWAC meeting on January 26th, 2022. At this stage, the material may contain inaccuracies and errors. The material will be reviewed and edited as the plan is developed further.

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Chapter 1: Introduction

Agency Roles

U.S. Environmental Protection Agency (EPA)

The EPA regulates solid waste management under the Resource Conservation and Recovery Act (RCRA), setting standards for hazardous and non-hazardous solid waste. EPA also provides nationwide solid waste data and resources for the public. EPA created the Waste Reduction Model (WARM), which Benton County used to estimate greenhouse gas emissions associated with materials in the waste stream.

Oregon Department of Environmental Quality (DEQ)

Oregon DEQ regulates state solid waste management standards and is authorized to implement some aspects of RCRA federal standards, including the state's hazardous waste program, which must be as stringent or more stringent as the federal requirements (United States Environmental Protection Agency, 2021). Oregon is also authorized under RCRA to issue permits for solid waste management facilities, and does so largely through Oregon Revised Statute (ORS) Chapter 459.

Oregon DEQ also sets requirements for local government materials management programs through the Opportunity to Recycle Act (ORS Chapter 459A). These rules require Benton County and cities with more than 4000 residents to provide recycling services, waste prevention and reuse programs, and sets voluntary Wasteshed recovery rate goals for 2025 (Oregon DEQ, n.d.). Oregon Administrative Rules (OAR) Chapter 340 includes several divisions, which also relate to solid waste and materials management.

Cities in Benton County

There are five incorporated cities in Benton County: Adair Village, Albany (North Albany), Corvallis, Monroe, and Philomath, each with their own solid waste collection franchise agreements. Only three of these cities (Corvallis, Philomath, and Albany) have a population of more than 4000, requiring recycling collection and education as part of Oregon's Opportunity to Recycle Act. Each municipality has their own municipal codes and policies regarding solid waste, including permitting, and nuisance abatement regulations. The City of Corvallis is the largest city in Benton County, containing the majority of the county's population and solid waste collection service customers. These cities are part of Benton County's Wasteshed, with the exception of Albany, which has populations in two counties, and is included in the Linn County Wasteshed where the larger portion of the city's population resides (Materials Management Program, Land Quality Division, Oregon Department of Environmental Quality, May).

Benton County

Benton County has a twenty-year landfill host franchise agreement Valley Landfills, Inc. (Republic Services) for Coffin Butte Landfill (2021-2041), and a ten-year solid waste collection franchise agreement with Republic Services (2011-2021).

Benton County Code related to solid waste and materials management includes Chapter 21 Nuisance Abatement, and Chapter 23 Solid Waste Management. Chapter 21 Nuisance Abatement addresses solid waste accumulation violations. Staff works with the Code Compliance program staff to address any Chapter 21 Nuisance Abatement concerns or violations pertaining to solid waste. Chapter 23 Solid Waste Management addresses the process and requirements surrounding solid waste and recycling franchises and permits, Solid Waste Advisory Council, and other solid waste management details.

Benton County's Solid Waste and Materials Management Program is in the Community Development Department. Program staff coordinate with the landfill and solid waste collection franchisees to address community member challenges and concerns. Program staff also work on various initiatives, education campaigns, and partnerships to help meet state regulatory requirements, accomplish waste recovery and generation goals, and correctly and safely dispose of materials while supporting the community. Staff provide support for monthly meetings of the county's Solid Waste Advisory Council, and quarterly

meetings of the Disposal Site Advisory Committee, which are opportunities to receive regular feedback from the public.

Other county divisions and departments also have important roles with regard to solid waste and materials management. The county’s code compliance program is within the Community Development Department, and oversees the code compliance and enforcement related to solid waste. Benton County Sheriff’s Office responds to calls related to illegal dumping. Benton County Health Department’s Environmental Health Division inspects food service establishments countywide. The Health Department’s Public Health Division coordinates with food rescue organizations. The Public Works Department addresses materials and debris in the county right-of-way. In addition, the Board of Commissioners Office’s Sustainability Program supports a variety of sustainable materials management initiatives in the community.

Benton County Information

Benton County consists of an area of 697 square miles, with a 2021 population estimate of 93,976. Unincorporated areas of Benton County house approximately 21% of the county’s population, while over 63% of the population lives within Corvallis, and the remaining population within North Albany, Philomath, Adair Village, and Monroe (State of Oregon Employment Department; Sykes, Shawna;, 2021). More detailed demographic information can be found in appendix x.

QUICK FACTS	
Geographical Area:	679 sq. mi.
Population (2021):	93,976
Civilian Labor Force (2020):	46,257
Average Employment (2020):	43,645
Average Wage (2020):	\$58,050
Per Capita Personal Income (2020):	\$50,399
Gross domestic product (2020):	\$4,751,657,000

This plan assumes consistent per-capita waste generation across the various population centers, meaning that Corvallis generates the majority of waste in the county. The majority of waste-related resources, like household hazardous waste events or recycling depots, fall within the Corvallis area.

CITY POPULATIONS (2020)

<u>ADAIR VILLAGE</u>	1,325
<u>ALBANY*</u>	8,300
<u>CORVALLIS</u>	59,730
<u>MONROE</u>	640
<u>PHILOMATH</u>	5,370
<u>UNINCORPORATED</u>	19,300

**Benton County portion*

The 10 largest industries by number of employees in Benton County include more than 70% of the employees in the county (Esri, 2017). While employment numbers do not necessarily correlate to the volume of waste generated, it provides insight as to which organizations may be important partners in reducing waste across the county. See appendix x for detailed business summary.

Population Forecast

Portland State University forecasted Benton County's population to increase steadily through 2070. The population is forecasted to increase to over 101,000 in 2025, and over 120,000 in 2040 (Population Research Center, College of Urban and Public Affairs, Portland State University, 2021).

Increasing population will increase total waste generation in the county unless per capita waste generation decreases. An increase in waste generation will increase solid waste collection needs, and may require more waste from Benton County to go to the landfill or recovery facilities, depending on the waste characterization. Benton County's population is expected grow the slowest outside of Urban Growth Boundaries (UGB), which means that Benton County's collection franchise will likely be less impacted by population growth than other collection franchises. Adair Village is expected to grow faster than any other area of Benton County, followed by North Albany, Monroe, Philomath, and Corvallis, respectively. However, Corvallis is expected to contain a large majority of the county's population through 2070, making the materials management practices of the city particularly important for the entire Wasteshed.

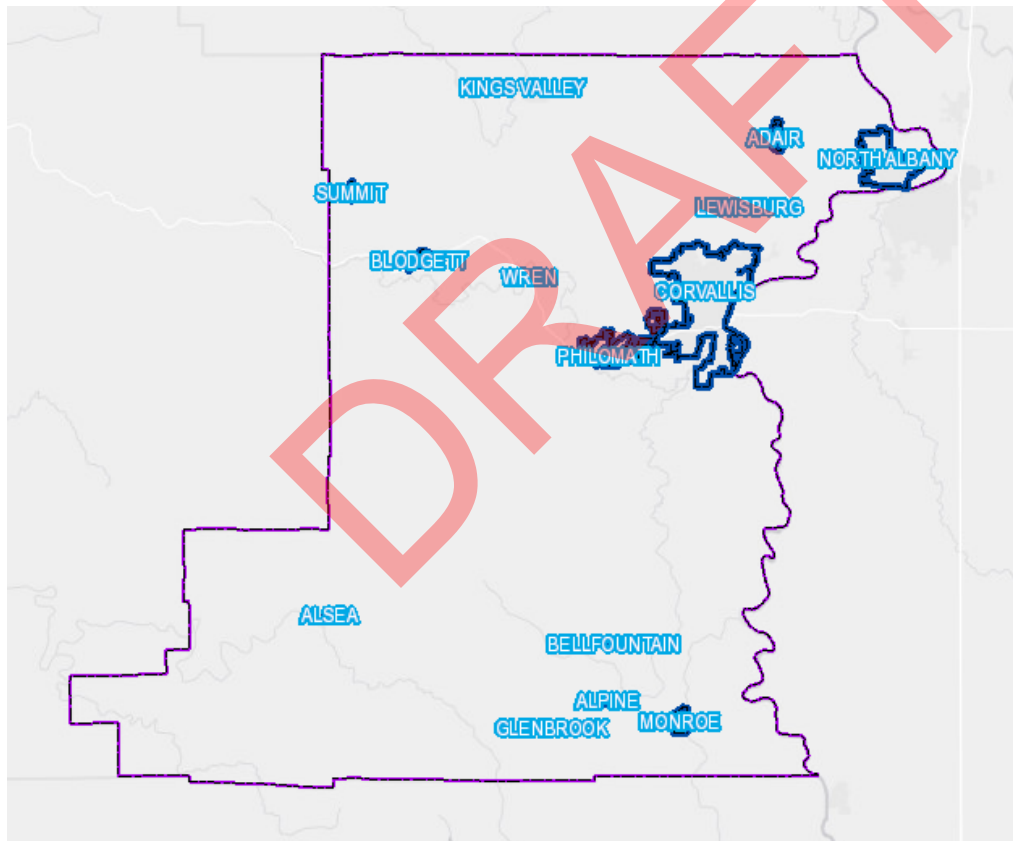
	Historical			Estimates		Forecast			
	2000	2010	AAGR (2000-2010)	2020	AAGR (2010-2020)	2045	2070	AAGR (2020-2045)	AAGR (2045-2070)
Benton County	78,153	85,579	0.9%	94,665	1.0%	124,493	146,570	1.1%	0.7%
Outside UGBs	16,128	16,485	0.2%	16,209	-0.2%	19,091	20,235	0.7%	0.2%
Larger Sub-Areas									
Albany (part)	5,445	6,868	2.3%	8,300	1.9%	13,702	21,735	2.0%	1.8%
Corvallis	50,439	55,328	0.9%	62,254	1.2%	79,471	88,388	1.0%	0.4%
Smaller Sub-Areas									
Adair Village	592	929	4.5%	1,370	3.9%	2,649	3,666	2.6%	1.3%
Monroe	653	671	0.3%	651	-0.3%	1,021	1,414	1.8%	1.3%
Philomath	4,897	5,298	0.8%	5,881	1.0%	8,558	11,132	1.5%	1.1%

Sources: U.S. Census Bureau; PRC Estimates; Forecast by Population Research Center (PRC).

Benton County Jurisdiction

Benton County jurisdiction generally covers the area within county lines, and outside of the incorporated city limits of Adair Village, North Albany, Corvallis, Monroe, and Philomath. These jurisdictional boundaries apply to solid waste-related county code and county franchised solid waste collection services.

Benton County is also considered a “Wasteshed” by the state, and the county is responsible for submitting annual county-wide Opportunity To Recycle reports to Oregon DEQ, combining report submissions from recycling collectors and incorporated cities with a population of more than 4000 (Corvallis and Philomath). Waste measurements and goals are generally countywide, or by Wasteshed. Coordinating efforts among agencies within the Wasteshed can be more beneficial to achieving countywide goals than local governments acting independently from one another. While Benton County already works with local municipalities and stakeholders to support countywide materials management initiatives, staff recommends that Benton County share formal agreements with incorporated cities to combine efforts to meet materials management goals outlined in this plan and in future Solid Waste and Sustainable Materials Management Plans.



Financial Information

Both the landfill franchise agreement and the collection franchise agreement produce revenue for Benton County. A Franchise Fee and a Host Fee are collected as part of the landfill franchise agreement. The Franchise Fee is a fixed sum detailed in the franchise agreement. In 2021 the Franchise Fee amounts to \$2,000,000 and in 2024 it amounts to \$3,500,000. The Host Fee is a per ton fee based on the landfill

tonnage accepted each year. This Host Fee is a credit against the Franchise Fee, in that if the Host Fee is less than the Franchise Fee, the Host Fee paid would be \$0. If the Host Fee is larger than the Franchise Fee, the Host Fee paid would be the value of the Host Fee minus the Franchise Fee (Benton County; Valley Landfills, Inc., 2020).

The county also collects five percent of the gross cash receipts from the collection services (for accounts in unincorporated areas of the county). In 2020, the collection receipts totaled \$3,651,566, and the fee paid the Benton County was \$182,570. The fees paid to Benton County by the franchisee go into the county's General Fund. The total Benton County revenue from solid waste services is expected to be less than 2% of the total revenue for the 2019-2021 biennium.

Budget and Funding for Solid Waste Program

Benton County's biennial budget provides funding for the Solid Waste Program. Every two years, program staff request funding to support program initiatives and expenses, which is then reviewed and amended as needed by the Budget Committee, and ultimately reviewed for approval by the Board of Commissioners. There is not a required budget range for the solid waste program, and the allotted budget does not depend on revenues from the solid waste franchise agreements. Resources required to support solid waste goals and initiatives inform the biennial budget requests. The 2021-2023 Biennial budget request included funding for staff salary, training, administrative costs, equipment, Dump Stoppers initiative, Green Business Certification initiative, and additional funding for initiatives to be developed during the biennium.

Supplemental budget requests can be made outside of the biennial budget process. These supplemental budget requests may be used for unforeseen expenses that were not captured in the biennial budget. Grant funding is another method of funding initiatives. Some past grant opportunities may include Oregon DEQ's Materials Management Grants Program, EPA grants, BLM grants, and USDA grants. There may also be opportunities for funding through partnerships, where other agencies contribute funds or resources towards collaborative initiatives. Republic Services has offered to fund or support to various initiatives such as the Dump Stoppers initiative.

Shifting from Solid Waste Management to Sustainable Materials Managements

In 2020, Benton County followed the lead of Oregon DEQ and US EPA, and shifted from a solid waste management framework to a sustainable materials management framework.

Conventional solid waste management focuses on the end of a material's life, primarily through the collection and transportation of wasted materials to landfills, recycling processing facilities, and compost facilities. This management method has focused primarily on effective and efficient disposal and recovery of materials, while limiting environmental and human health impacts associated with waste disposal.

A sustainable materials management framework uses a more holistic approach by considering the material's full life cycle impacts and utilizing waste prevention strategies in addition to recovery and disposal. A relatively small portion of greenhouse gas emissions can be attributed to a material's end-of-life, as compared to the material's full life cycle. The extraction, manufacturing, distribution, and use of

materials all have significant greenhouse gas emissions, and are not fully addressed through conventional solid waste management strategies.

Current Challenges

Roadside litter and debris

Vehicles transporting materials to the landfill can lose materials along the way, particularly if the loads are uncovered or unsecured in the vehicle. Those materials enter the environment, which can lead to pollution issues in terrestrial and aquatic environments. Community members who live in areas experiencing roadside litter and debris, specifically those near Coffin Butte Landfill, have concerns about the quality of the environment and impacts to their properties. Roadside litter and debris represent an ongoing challenge associated with solid waste in the county.

Illegal dumping

Some materials are dumped illegally onto public and private property in the county. This occurs most in less populated, more rural areas in the county, and can lead to pollution issues in terrestrial and aquatic environments. Community members who live in areas experiencing illegal dumping, specifically those have concerns about the quality of the environment and impacts to their properties. There has been an average of 12 instances of illegal dumping per year in Benton County's jurisdiction reported to the Sheriff's office, which ranges in the types and quantities of materials. The full extent of illegal dumping in in the county is unknown, and some dumping may go unreported.

Equity and Accessibility in Waste Collection Services and Materials Management Resources

Ensuring equitable and accessible services and resources across the county is challenging due to the wide geographic distribution of the county residents outside of UGBs, and concentrated resources in the Corvallis area. Waste collection services are offered countywide, which include comingled recycling and mixed organics collection services. However, additional services like household hazardous waste events and free recycling depots, are not currently available outside of Corvallis.

Participation in waste recovery collection services

Food waste recovery is currently available to all Benton County residences through mixed organics collection service, and to commercial accounts through a more specific food waste collection service. Approximately 62% of residential customers under the Benton County solid waste collection franchise subscribe to mixed organics collection service, and not all mixed organics customers place food waste in their carts. % of commercial accounts.

Comingled recycling service is also available to all Benton County residences and commercial accounts. Approximately 75% of residential customers subscribe to comingled recycling service. % of commercial accounts.

Construction and Demolition material recovery is a challenge in Benton County, primarily due to the distance to the nearest C&D MRFs and the lack of a local C&D Transfer Station, which makes transporting C&D waste materials less price competitive compared to landfill waste. Republic Services offers the option to haul C & D materials to C & D MRFs, however, the cost for the waste generator would be higher than hauling that material to the landfill.

Contamination

Contamination has a negative impact on recycling markets, increasing the costs to recover materials, and decreasing the value of comingled recycling and organics. The material recovery facility (MRF) provides the county's collection franchisee with information about contamination rates in the comingled recycling. The county's collection franchisee monitors contamination in co-mingled recycling and organics streams using cameras on collection vehicles, which can identify obvious contaminants (like large plastic trash bags full of material) for outreach to residents. However, less obvious contaminants are more challenging to monitor and address at the point of collection.

Participation in waste prevention activities

A large portion of disposed materials in Benton County's Wasteshed is preventable. The State of Oregon set a goal of reducing waste generation to 15% below 2012 levels by 2025, and by 2019 Benton County has increased waste generation to 11% over 2012 levels. Reducing waste generation requires waste prevention, and waste generators can participate in several waste prevention activities that apply to food waste, C & D, paper, plastic, and almost every other high-impact material category.

Lack of sustainable materials produced for consumption

Many product choices for consumers are not sustainable due to the use of high-impact materials in the product itself or the product's packaging, and the life cycle of the product. Many products do not have transparent impacts or are not easy to understand for consumers.

Chapter 2: Solid Waste and Recovery Facilities and Services

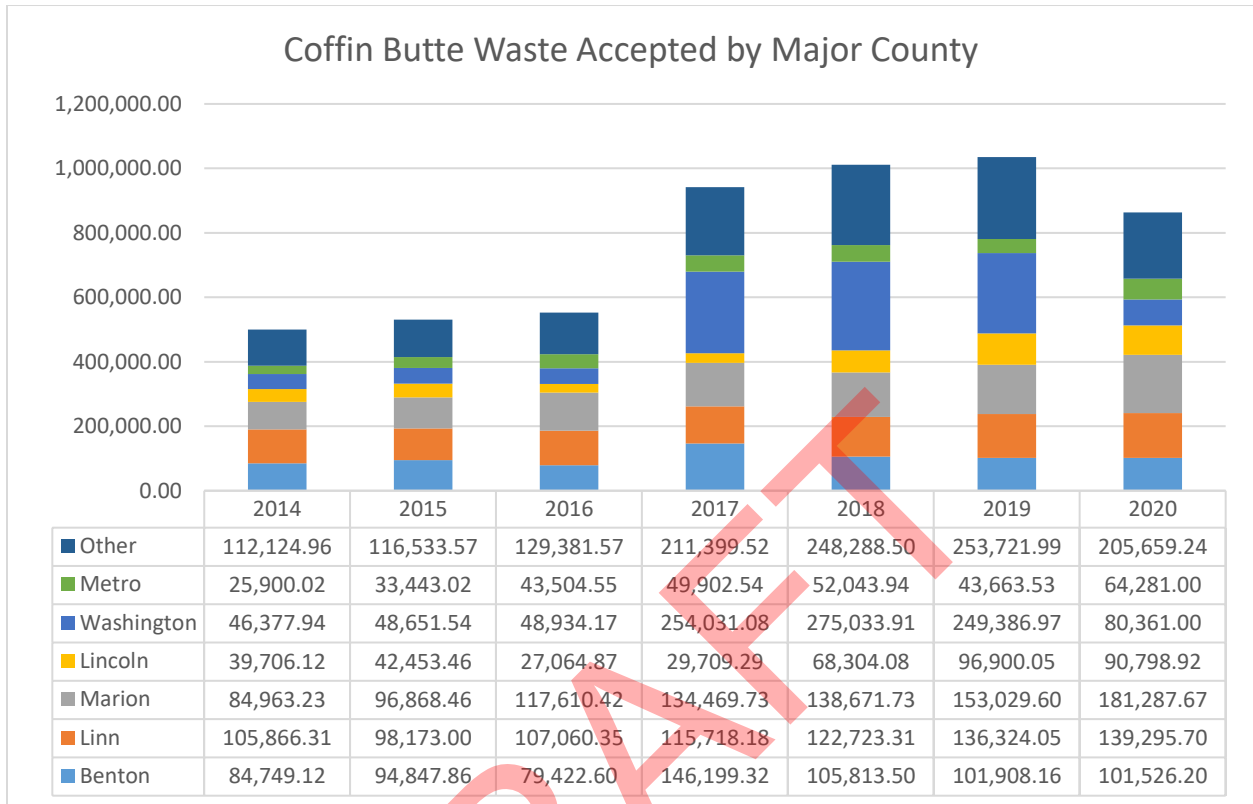
Coffin Butte Landfill

Waste disposal at the Coffin Butte Landfill site started in the 1940s for US Army waste disposal from Camp Adair, and operated as an open burn dump in a quarry until 1975. Valley Landfills, Inc. then purchased the site and began landfilling different cells throughout the site (Oregon DEQ, 2005). The landfill is currently operated by Republic Services, and Benton County has a twenty-year host franchise agreement with the landfill from 2021-2040.

Coffin Butte landfill has 38,443,830 cubic yards of permitted airspace, which includes space already consumed. The average amount of waste accepted at Coffin Butte Landfill from 2016-2020 is 880,686 tons/year. A landfill's lifespan is limited by its capacity, or permitted airspace. As of 2020, a total of 20,455,706 cubic yards has been consumed. There is approximately 17,621,208 cubic yards of landfill capacity remaining with the current permitted airspace, which has a reported estimate lifespan of 18.8-21.85 years from 2020 (2038-2041), depending density and annual accepted tonnage (Republic Services, 2020). The lifespan may change if the landfill expands and increases airspace, depending again on disposal rate and material density. The landfill applied for a Conditional Use Permit (CUP) to expand in 2021, and the result is pending.

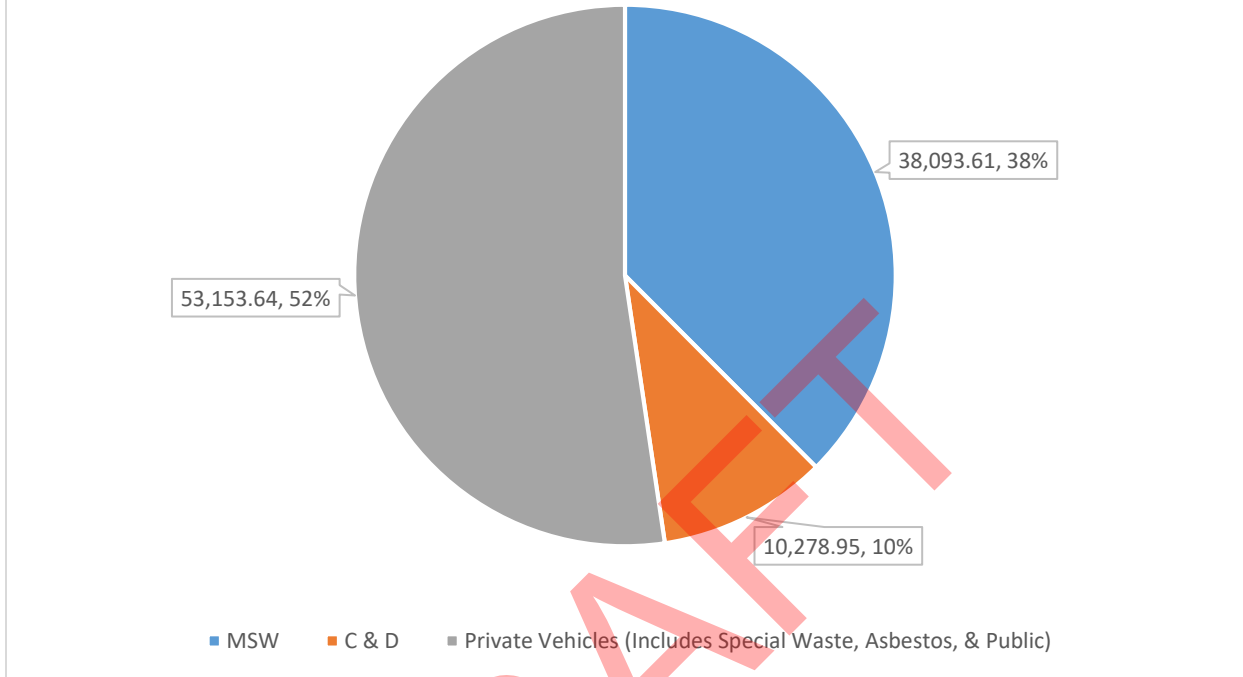
Coffin Butte Landfill accepts MSW, C&D, Special Waste, and Asbestos materials from commercial and public haulers. As a five-year average from 2016-2020, the most material comes from the following counties, in order from highest to lowest tonnage: Washington, Marion, Linn, Benton, and Lincoln. While the landfill is considered a "regional disposal site", meaning that it is designed to accept more than 75,000 tons of out-of-area materials per year, the landfill owners are not required to accept

specific amounts of waste from any specific area, and may choose to accept waste from various locations and in various quantities.



More than half of Benton County's waste disposed at Coffin Butte Landfill come from private vehicles, including special waste, asbestos, and public self-haulers. The remaining material disposed is MSW (38%), and C & D (10%) (Republic Services, 2020).

Benton County Waste Tonnage by Type at Coffin Butte Landfill 2020



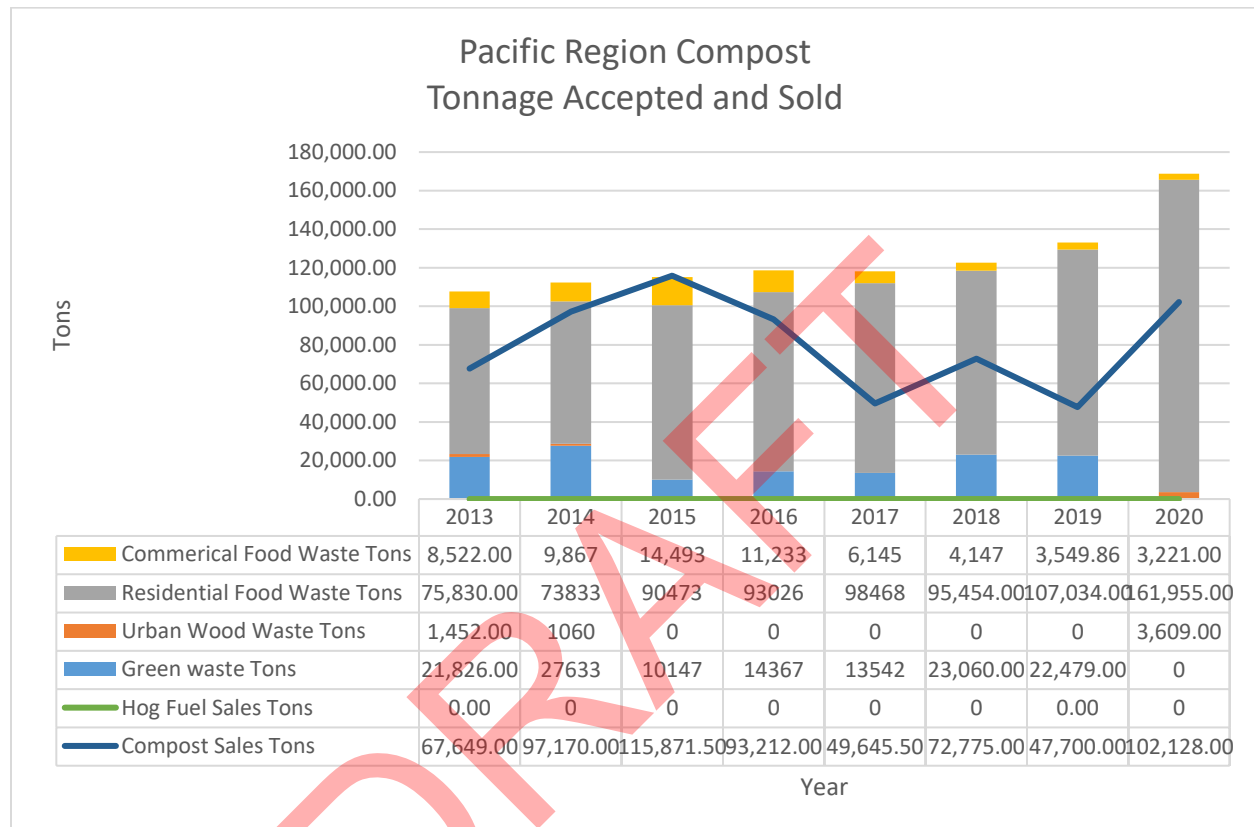
Other Disposal Sites

There are twenty-six MSW landfills in Oregon, which includes seven regional landfills and nineteen non-regional landfills (State of Oregon Department of Environmental Quality, n.d.). There are three regional landfills west of the Cascade mountain range, including Coffin Butte Landfill. There are some additional regional landfills in the State of Washington, which are either closer or similar in distance to Eastern Oregon sites from Coffin Butte Landfill. There is also one municipal solid waste-to-energy facility in the Western Oregon. See table x for a detailed list of municipal solid waste facilities, and appendix x for a map of commercial landfills currently accepting waste. While Benton County’s disposed material is currently landfilled at Coffin Butte Landfill, other solid waste disposal sites are important to consider for planning the county’s long-term solid waste disposal options, including for post-closure of Coffin Butte Landfill, and anticipating lifespan changes to Coffin Butte Landfill based on availability or closure of other disposal sites.

Pacific Region Compost

The Pacific Region Compost facility, owned and Operated by Republic Services, is where the county’s mixed organics, yard waste, and source separated food waste is recovered and processed into compost. Since the 1990s, it has been mulching yard debris, then began accepting food waste in 2010 after becoming the first facility in Oregon to be permitted to accept type 3 feedstock materials, which includes food waste (Republic Services, n.d.).

The Pacific Region Compost facility is located approximately 1.6 miles east of Coffin Butte landfill, and operates on 27 acres. Compost facilities differ from landfills in that there is not necessarily a lifespan leading to closure, and the facilities' capacity may be limited based on factors such as available space for compost processing and storage or available labor. In 2020, PRC accepted 168,785 tons, and a 5-year average (2016-2020) of 132,258 tons. In 2020, approximately 8% of accepted materials originated in Benton County.



PRC accepts green waste, urban wood waste, and food waste (residential and commercial), and some paper products. The facility sells OMRI certified finished compost. On a 5-year average (2016-2020), 88% of material processed at PRC was food waste, and 85% of total material processed was specifically residential food waste by weight.

Other Compost Facilities

There are 40 permitted compost facilities and anaerobic digestion facilities in western Oregon, some of which accept food waste. See table x for a detailed list of compost facilities. Other compost facilities are important to consider for planning long-term compostable material recovery options for Benton County, including when planning for service changes at PRC.

Collection Services

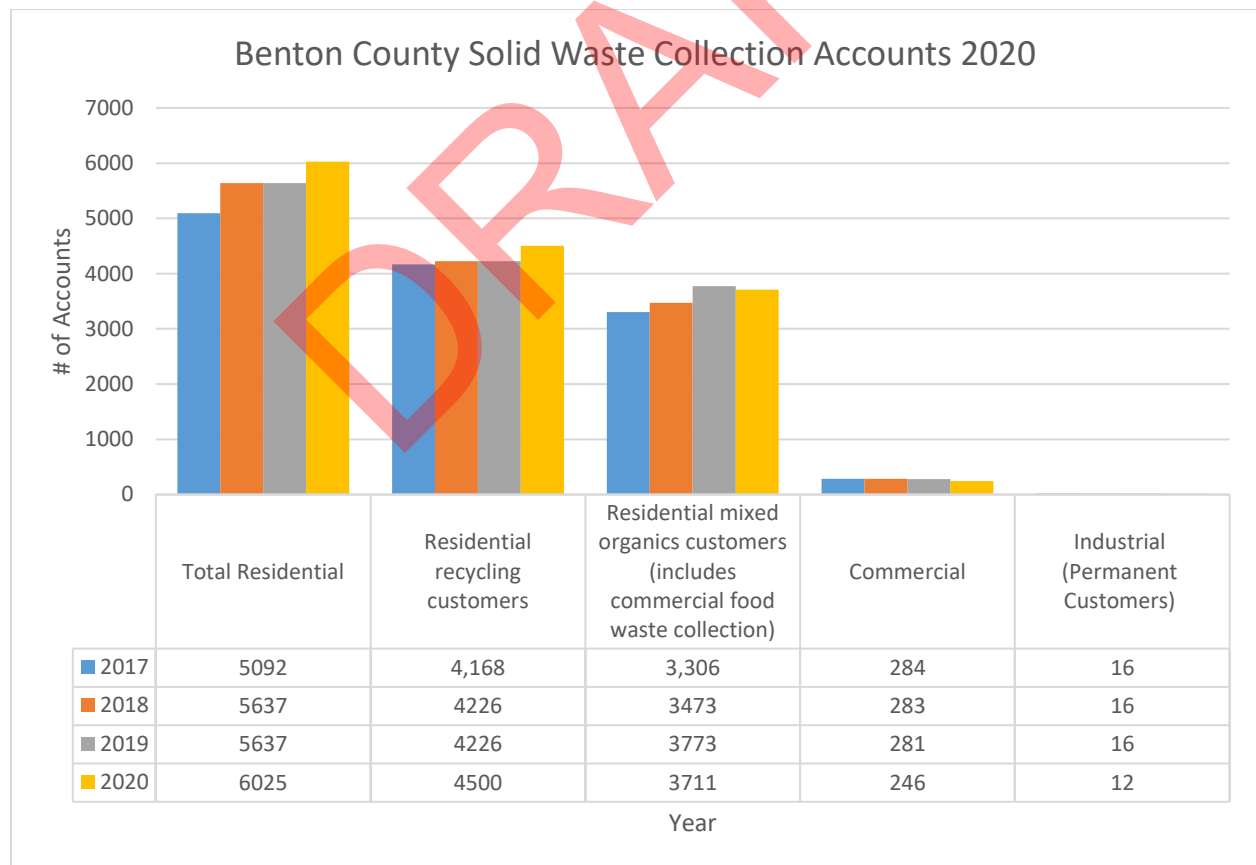
Benton County has a solid waste collection franchise agreement with Republic Services, to provide landfill waste, co-mingled recycling, and mixed-organics collection services to residential and commercial customers in Benton County outside of incorporated cities. Corvallis, Philomath, Adair

Village, Monroe, and Albany each have their own solid waste collection franchise agreements with Republic Services, which are detailed in appendix x.

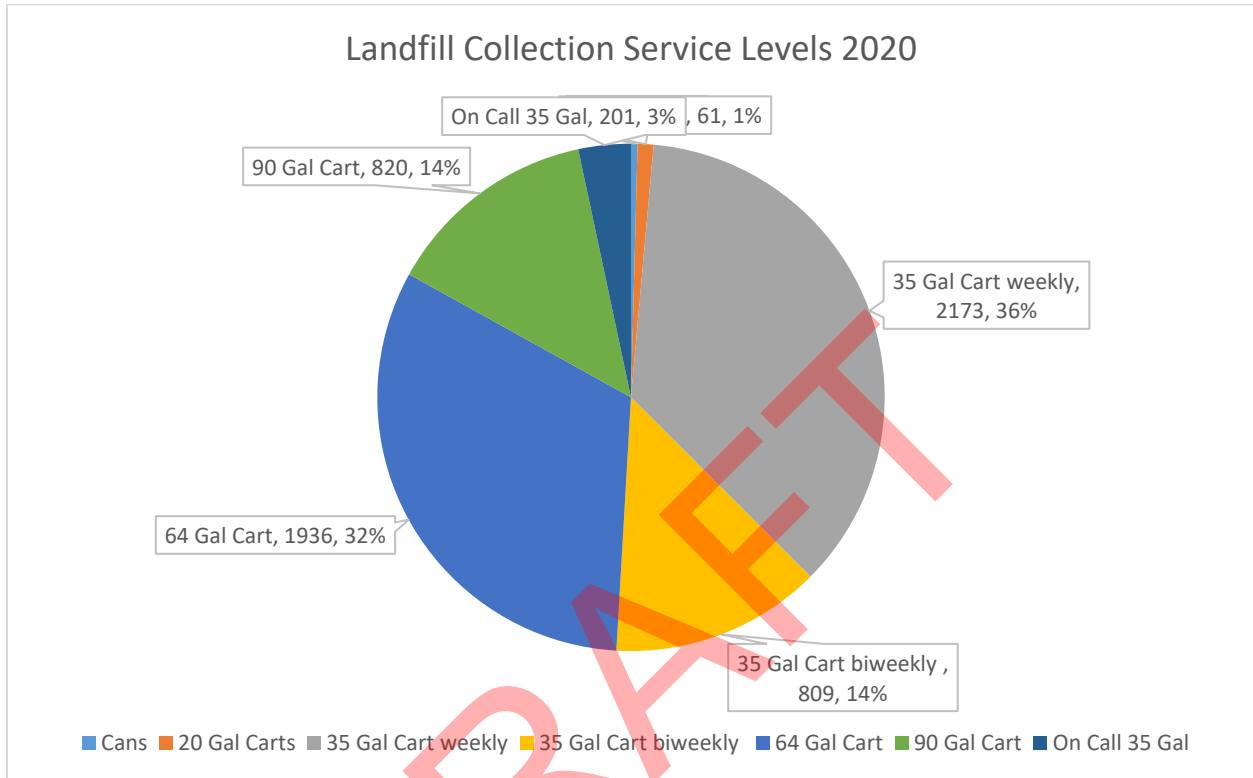
Participation in Collection Services

There are just over 6000 residential waste collection accounts under Benton County’s collection franchise. Of the residential waste collection customers, 82% of accounts subscribe to recycling collection, and 65% of accounts subscribe to mixed organics collection. There are also 246 commercial accounts, as well as 12 industrial accounts.

Some Benton County residents do not currently subscribe to collection services at all, while others only subscribe to specific collection streams. Those not participating in disposal collection may self-haul materials to the landfill. It is also possible that those not participating in disposal collection are disposing of materials illegally, potentially through illegal dumping, burning, or storage and accumulation of waste materials. Those not participating in recycling or organics collection possibly self-haul materials to available recycling depots or events, compost onsite, burn materials, or dispose of recoverable materials with their landfill waste. There is no data currently available that identifies the various ways in which materials are handled by those who do not participate in waste collection.



There are a variety of residential landfill waste collection service level options, ranging from 20 gallon to 90 gallon cart sizes with weekly, biweekly, and on-call options for 35 gallon carts. The majority of accounts subscribe to the weekly 36-gallon cart service, followed by 64 gallon, 90 gallon, and 35 gallon biweekly, respectively.



Self-Hauled Materials

At the public drop-off area of Coffin Butte Landfill, in addition to containers for MSW, there are also designated areas for waste recovery of specific materials, including:

- a. Paper,
- b. Plastic containers
- c. Cardboard
- d. Commingled recycling
- e. Glass
- f. Electronics
- g. Appliances

Republic Services provides a public recycling depot adjacent to their Corvallis office (Republic Services, n.d.). This depot accepts the following materials:

- h. Commingled recycling
- i. Cardboard
- j. Glass

- k. Electronics
- l. Cell phones (bring to office)
- m. Household batteries (excluding alkaline)
- n. Ink cartridges
- o. Compact fluorescent bulbs
- p. Scrap metal
- q. Motor oil
- r. Cooking oil

There is an additional recycling collection depot in south Corvallis, which is operated by First Alternative Natural Foods Co-op adjacent to their South Store in partnership with Republic Services (First Alternative Natural Foods Co-op, n.d.). This site accepts the following materials:

- Commingled Recycling
- Glass Recycling
- Metal Recycling
- Cardboard Recycling
- Styrofoam (for a fee)
- Corks
- Eyeglasses (for reuse)
- Cell Phones (for reuse)

Waste Recovery and Collection Events

Republic Services hosts Quarterly Household Hazardous Waste Events at their Corvallis recycling depot to collect hazardous materials from Benton County residents at no additional cost. Republic Services hosts this event, and SteriCycle collects and handles the hazardous materials received. Businesses and residents with more than five pounds of hazardous materials may also make appointments with Stericycle to drop-off hazardous materials at an additional cost the day prior to the Household Hazardous Waste events.

Additionally, Republic Services hosts four annual Spring Recycling Events in Corvallis, Philomath, Adair Village, and Monroe. One event is held at each location on separate weekends from April to June. These events provide the opportunity to recycle yard debris, wood, metal, and electronics to residents in each area at no additional cost.

As part of the county's Community Wildfire Protection Plan, Republic Services provides dumpsters and collection services to certain recognized Firewise Communities for removal of tree trimmings. These communities are also encouraged to participate in the Neighborhood Chipping Program, to chip these materials and use the chips locally, and to participate in the Spring Recycling events for yard debris collection (Benton County, 2016).

Waste Material Flow

Landfill waste, comingled recycling, and mixed organics materials are placed in designated residential or commercial carts or dumpsters and are collected by the franchisee, Republic Services. Republic Services also collects bulky material landfill waste, which placed outside of collection containers. After collection, landfill waste materials are transported directly to Coffin Butte Landfill.

Comingled Recycling

Comingled recyclables and glass are transported to Source Recycling in Albany to be baled. Glass is not accepted in comingled recycling containers, but is collected separately at recycling depots, and curbside within Corvallis and North Albany. Baled recyclables are then transported to Pioneer Recycling Services, a material recovery facility (MRF), where materials are sorted into various material categories. Sorted recyclables are sold into commodity markets at varying rates. Remaining contaminants that were sorted out of the recycling are sent to a landfill to be disposed.

Mixed Organics

Mixed organics, including yard waste and residential food waste, are transported directly to Pacific Region Compost (PRC). Food waste and yard waste are each collected separately for commercial waste generators, instead of using residential mixed organics containers, which is also transported to PRC. PRC then sorts out any contamination materials, processes the organic materials into finished compost, and sells the Organic Materials Review Institute (OMRI) Certified product to a variety of customers. Contamination materials are then transported to Coffin Butte Landfill for disposal.

Self-hauling

Waste generators who haul their own waste to Coffin Butte Landfill separate those materials into specific dumpsters designated for landfill waste, mixed organics, and specific recycling materials. Landfill materials are disposed at Coffin Butte Landfill, organic materials are transported to PRC, and co-mingled recyclable materials are transported to Source Recycling to be baled. Other special recycling materials collected at Coffin Butte Landfill and community recycling depots, like electronics or scrap metal, are transported directly to specific material recyclers.

Waste Generation

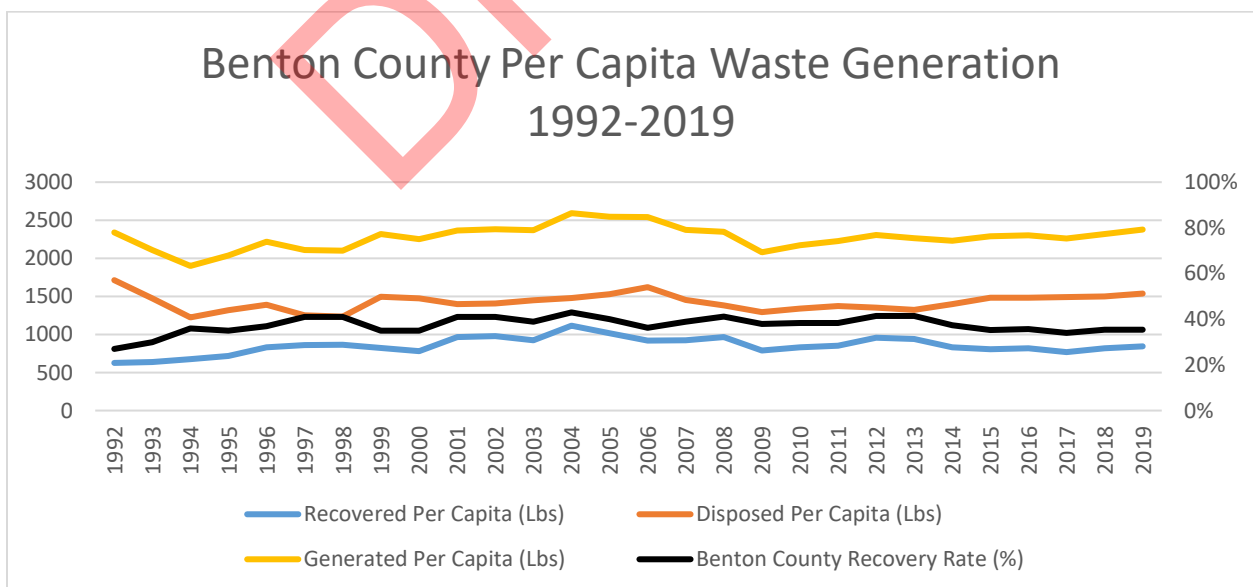
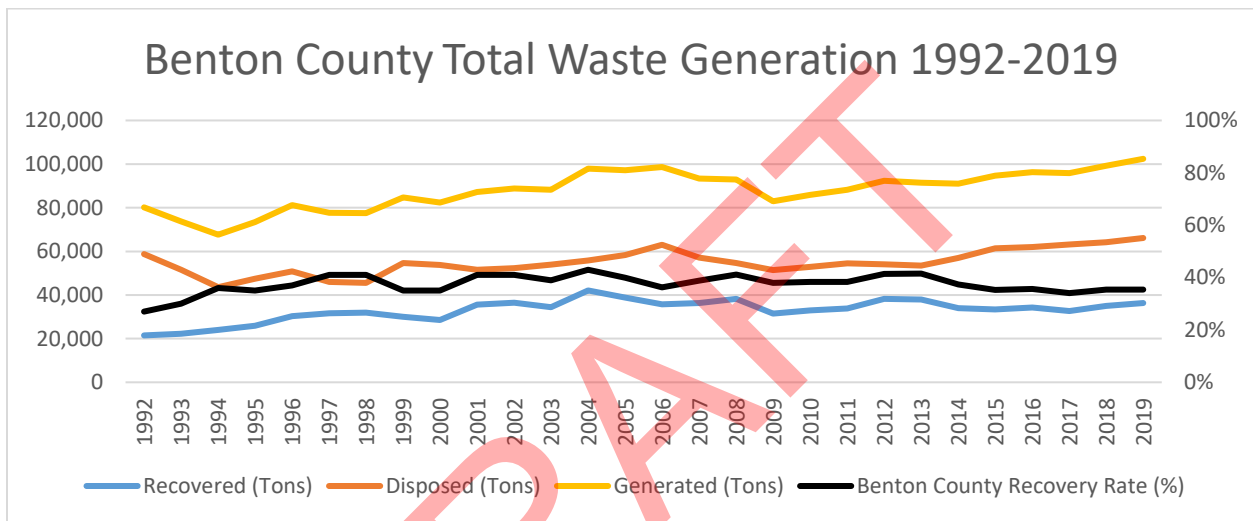
Waste generation represents materials entering the waste stream, both through disposal (landfilled material), through recovery (recycled and composted material). Benton County receives data about waste generation through various sources. Total recovery, disposal, and waste generation tonnage data for Benton County is available from Oregon DEQ through the 2019 Material Recovery and Waste Generation Rates Report (Materials Management Program, Land Quality Division, Oregon Department of Environmental Quality, May), as well as through supplemental data from Oregon DEQ for previous years (Oregon Department of Environmental Quality, 2019).

Waste Generation Trends

It is helpful to analyze waste generation trends from both a per-capita and cumulative perspective. Per-capita waste generation is total waste divided by the population size, and this data is helpful to understand waste material trends independent of population change dynamics. Per capita trends can be a useful indicator of how the county's population responds to program initiatives. Cumulative waste generation is important to understand total waste in the county, and represents per capita waste

generation multiplied by the county’s population size. Cumulative waste generation is integral to calculating the county’s material recovery rate, and planning for collection, disposal, and recovery services.

Per capita waste disposal and recovery have each increased over the last five, ten, and twenty years (to 2019). Waste disposal has increased faster than recovery in the past five and ten years, and from 2015-2019 per-capita waste disposal increased by an average of 1.9% per year. Total waste disposal and recovery has also increased faster than per-capita, with a 2015-2019 average annual growth rate of 3.0%. The county’s population had an average annual growth rate of 0.9% from 2000-2010, and 1.0% from 2010-2020 (Population Research Center, College of Urban and Public Affairs, Portland State University, 2021).



Outdoor Burning

Some generators burn waste materials. Oregon DEQ regulates outdoor burning in Oregon through rules for allowable burn days and for allowable burn materials. Smoke and air pollution from burning materials can cause negative environmental and health impacts. Waste generators are encouraged to utilize alternatives to burning material, such as using curbside yard waste and recycling collection, onsite composting, recycling collection events, and reusing materials (Oregon Department of Environmental Quality, n.d.). Materials burned by waste generators primarily include yard debris, lumber, and paper products. However, some burned materials possibly include those that are prohibited by Oregon DEQ, such as plastic products or general household garbage. There is currently no data to quantify how much material or which materials are currently burned in the county.

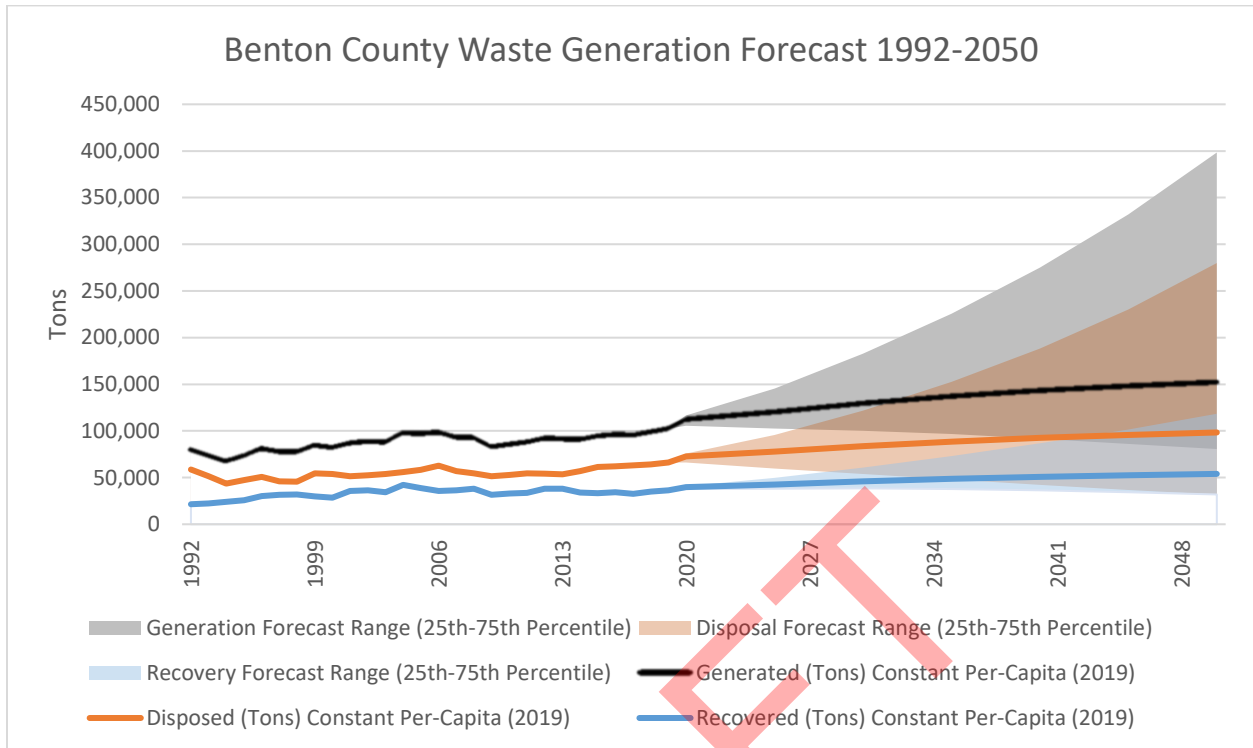
Onsite Composting

Waste generators may choose to compost their food waste and yard debris onsite, instead of using franchised collection services. Onsite composting is an effective way to manage organic materials, while being able to use the finished compost for gardening, agriculture, and other land application purposes. There is currently no data to quantify how much material or which materials are currently composted by waste generators in the county.

Waste Generation Forecast

Waste generation can be forecasted using previous per-capita trends and population forecasts. This plan uses disposal and total generation trends to inform the forecast range in each waste stream, where recovery is calculated from the difference of total generation and recovery. The lower and upper limits of the forecast are created by using the 25th, 50th, and 75th percentile of 1992-2019 per-capita annual growth rates for disposal and total generation, using that growth rate to find future per-capita generation, and then multiplying future per-capita generation by the forecasted population for each year. The forecast also shows a line that represents constant per-capita waste generation (constant recovery rate) for recovery, disposal, and total generation from 2019 onwards, with no growth rates applied to future per-capita waste generation, and forecasted population is the only driver of waste generation change.

There is significant variability in the range of 25th-75th percentile waste generation scenarios. This forecast not intended to predict future tonnage of waste, but rather to better understand how population and possible future trends waste generation may affect waste into the future. In this set of scenarios, Benton County would not meet the recovery rate goal of 44% by 2025. In the 25th percentile scenario, where waste generation and disposal increases while recovery decreases over time, the 44% recovery rate would be achieved between 2025 and 2030.

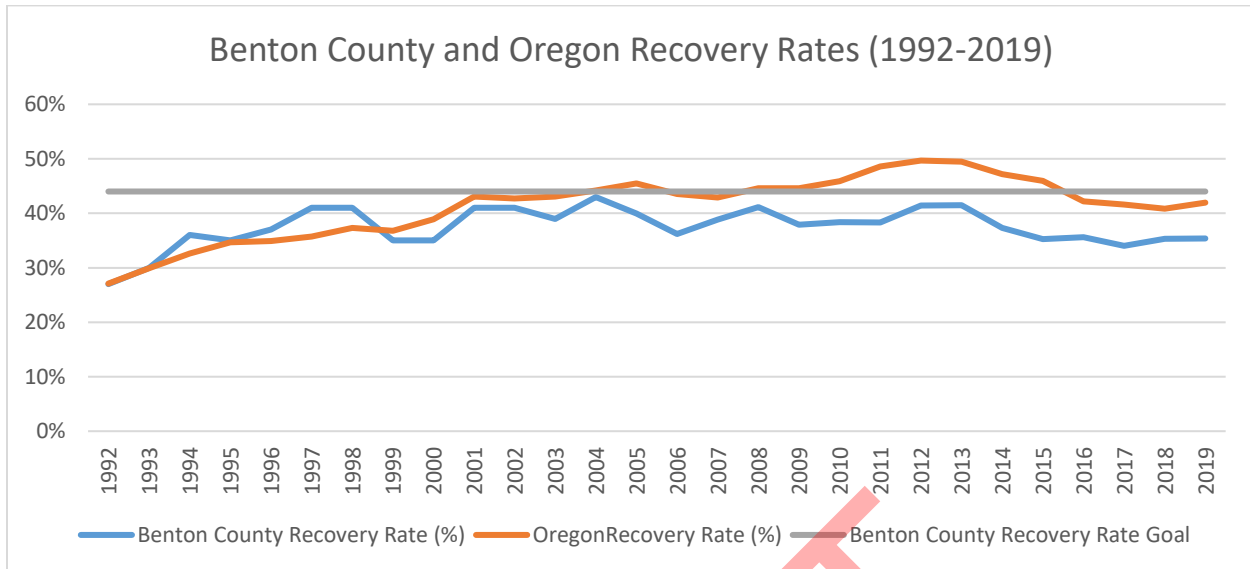


Recovery Rate

Oregon DEQ calculates waste recovery rates for each Wasteshed by dividing the county’s total materials recovered by the sum of total materials recovered and disposed. Each year, Oregon DEQ calculates the county’s recovery rate using data from material collectors and disposal sites.

$$\text{Recovery Rate} = \frac{\text{Recovery}}{(\text{Disposal} + \text{Recovery})}$$

Benton County has a voluntary recovery rate goal of 44% by 2025. The county’s 2019 recovery rate was 35.4%, which was short of the goal by 8.6% or 8,807 tons. Benton County’s highest recovery rate was 43% in 2004. To meet the goal, the county will need to recover more material through recycling and composting, generate less disposal material, or a combination of the two.



Timeline of Relevant Events

The amount of waste disposed and recovered in the county is related to a number of factors, including material consumption, recovery facilities, recycling markets, regulatory environment, and major events. The following timeline lists some important factors and contextual considerations for waste generation in Benton County:

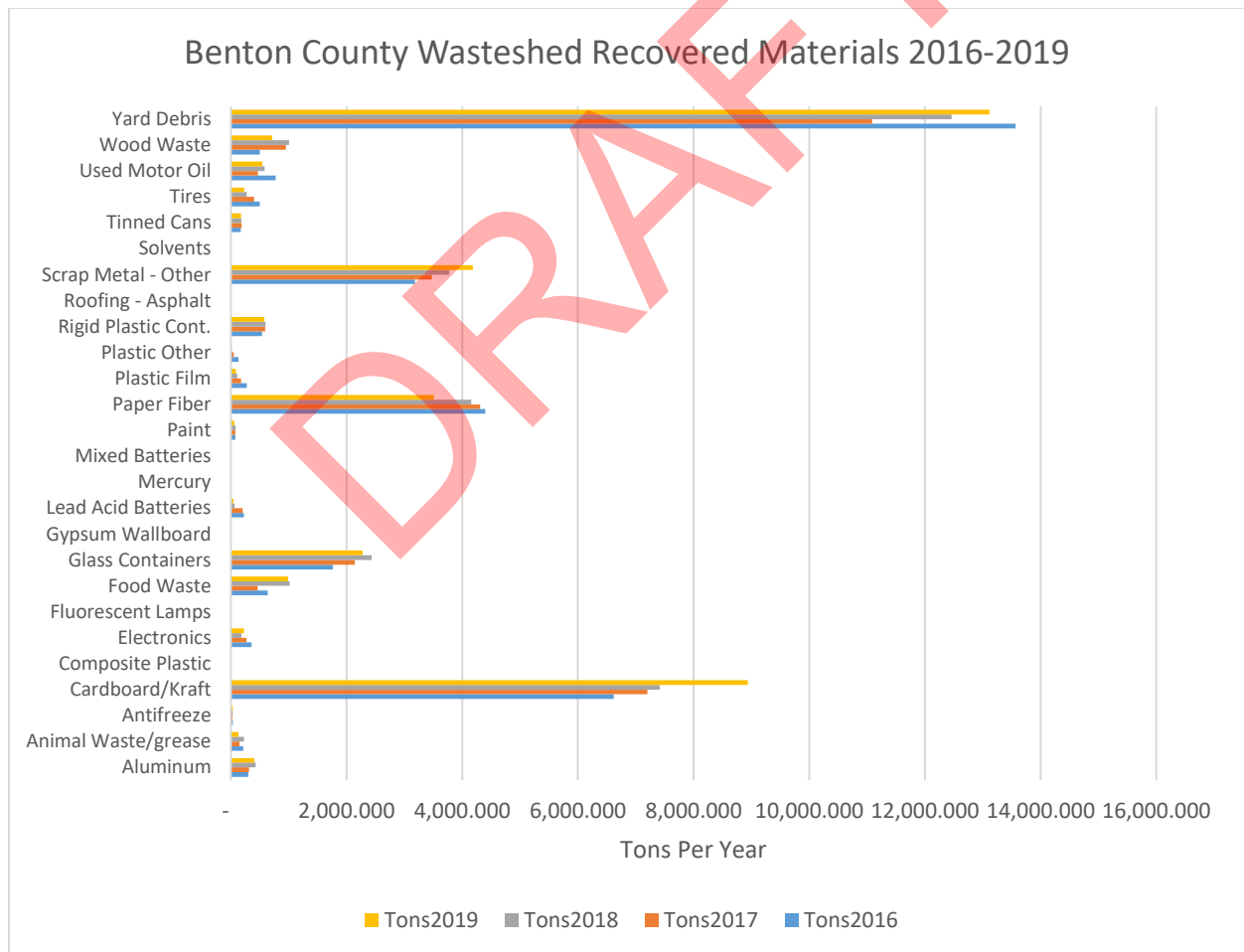
- I. 1983: Oregon’s Opportunity to Recycle Act established solid waste management and recycling policies, requiring Wasteshed recycling depots and monthly curbside recycling for some cities
- II. 1991: Oregon Recycling Act (SB 66) increased recycling requirements, and aimed to develop recycling markets
- III. 1997: Increased recycling program elements in SB 66
- IV. 1997: Local governments were offered recovery rate credits waste prevention, reuse, and backyard composting programs
- V. 2008: financial crisis – 2009 decline in waste generation, recovery and disposal
- VI. 2009: Bottle Bill Amendments – includes water and flavored water, and requiring some large retailers to accept empty containers.
- VII. 2011: DEQ workgroup developed 2050 Vision and Framework for Action (2050 Vision) to guide statewide materials management policy.
- VIII. 2013: China’s “Green Fence” policy, reducing garbage in imported materials
- IX. 2015: SB 263 and SB 245
- X. 2017: China’s “National Sword 2017” policy increased restrictions on imported recyclables.
- XI. 2018: increased recycling and education elements from SB 263 goes into effect
- XII. 2018: China’s ban on post-consumer plastics and un-sorted paper, and enacted more strict contamination standard on 0.5% for imported recyclables.
- XIII. 2018: Bottle Bill refund value increased to \$0.10, includes amendments expanding refunds to include teas, juices, and most non-carbonated beverage containers.

- XIV. 2020: COVID-19 Pandemic increased remote working, decreased dine-in experiences at restaurants. Potentially changed volumes and materials in commercial and residential landfill and recycling streams.
- XV. 2020: wildfires in Oregon increased fire-related materials from other Oregon counties at Coffin Butte Landfill
- XVI. 2022: The Plastic Pollution and Recycling Modernization Act, updating the state’s recycling system with extended producer responsibility.

Waste Characterization

Recovered Materials

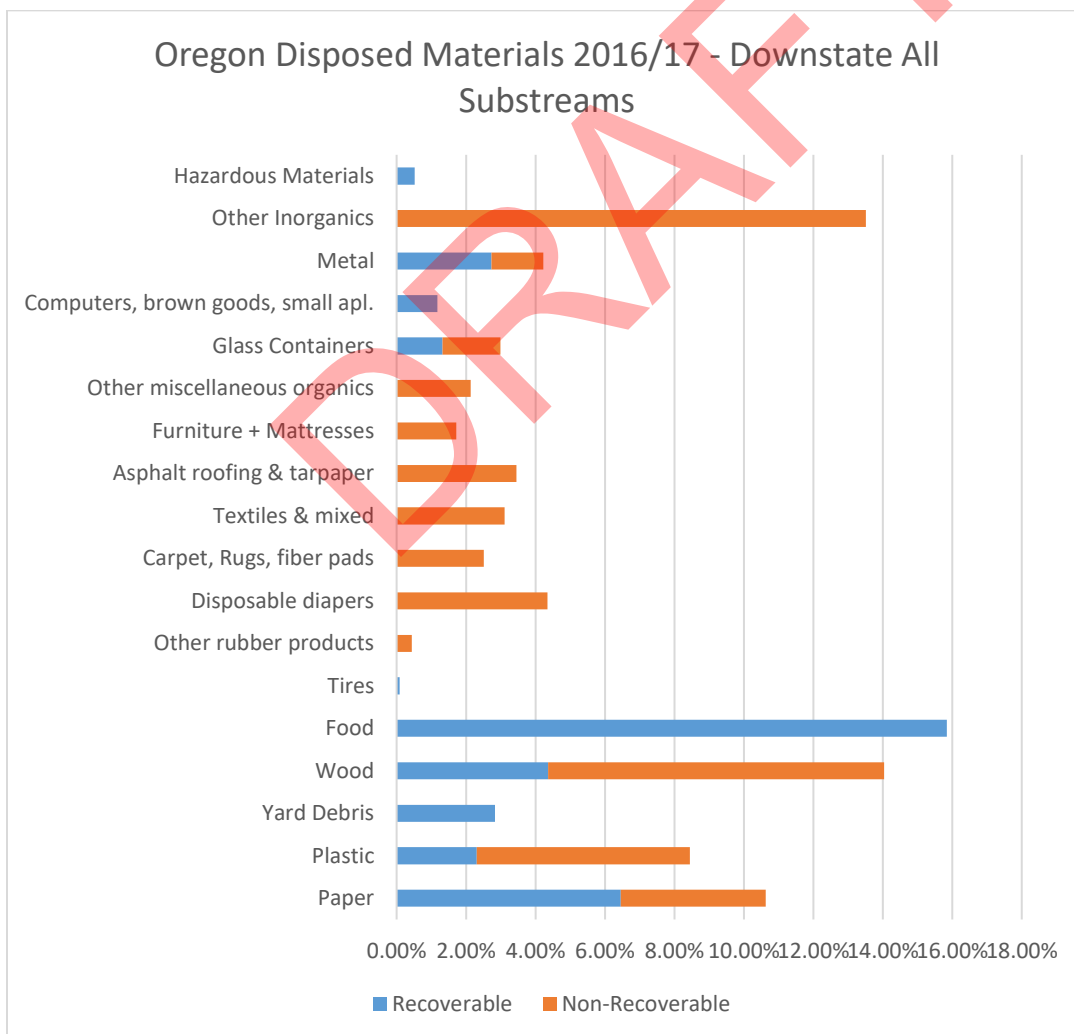
Oregon DEQ provides detailed waste recovery data in Benton Wasteshed’s 2019 DEQ Material Recovery and Waste Generation Summary, specifying the recovered weight of 26 different recoverable materials (Oregon Department of Environmental Quality, 2021). Yard debris, cardboard, scrap metal, paper fiber, and glass had the largest recovery tonnage in 2019, respectively. A full list of recovered materials is included in table x.



Disposed Materials

There is not currently information available that specifies which materials and quantities are disposed in Benton County. However, an Oregon Waste Characterization study by DEQ served as proxy for detailed Benton County waste disposal characterization at the time this plan was developed. Detailed waste composition data for disposed waste is available from DEQ for “downstate” areas, which is combined data from all of Oregon outside of the Portland Metro area. Composition data for other areas and statewide are available, however, “downstate” was used for this plan with the assumption that it would be the most relevant data set for Benton County. Relative quantities of disposed materials from the downstate data set was applied to Benton County’s total disposed tonnage to estimate the weight of each material disposed in Benton County. DEQ’s full 2016/2017 Oregon Solid Waste Characterization and Composition Study is not yet available, however, the preliminary detailed data is available and was used to inform this plan (Oregon Department of Environmental Quality, 2018).

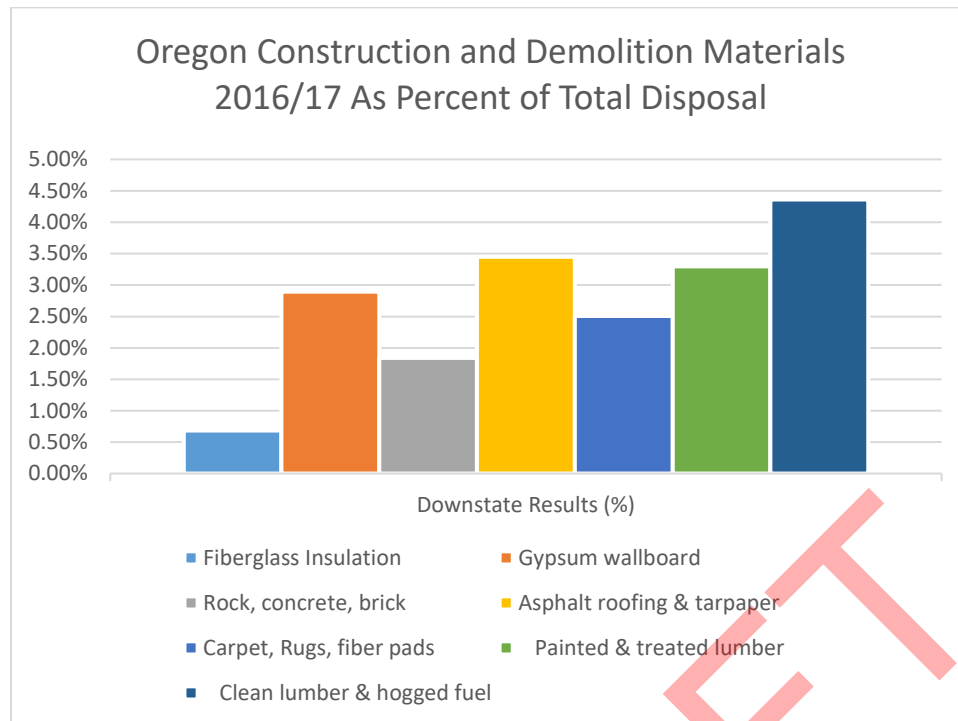
Food waste is the largest category of landfilled material, at over 15%, followed by wood, other inorganics (like rock, dirt, litter, gypsum wallboard, etc.), paper, and plastic. Food is also the largest category of disposed materials that are currently recoverable, followed by paper, wood, metal, and yard debris respectively.



The most accurate waste characterization data would come from a waste characterization study for Benton County specifically, as opposed to using Downstate data. Oregon DEQ had their previous waste characterization study in 2016, and offered local governments the option to pay for a more detailed study for their own jurisdictions. DEQ estimated the cost to be 140 samples at \$500 per sample for 140 samples, totaling approximately \$70,000 per waste characterization study. DEQ completes statewide waste characterizations studies every 6 years or less per Oregon statute. County staff, with support from SWAC, decided not to request funding for a waste characterization study in the 2021-22 biennial budget to prioritize other program funding. The major benefit to understanding waste characterization in detail is having a baseline set of information to use to prioritize materials management strategies and track progress.

Construction and Demolition (C & D) Materials

Construction and demolition (C & D) materials make up a significant portion of waste generated. C & D wastes are any waste materials generated during construction or demolition activities, including asphalt, carpet, concrete, cardboard, drywall, metal and wire, roofing, and wood. C & D waste materials in Benton County are estimated in a couple different ways. Coffin Butte Landfill labels some incoming loads as C & D. This labeling system like does not capture all of the landfilled C & D material, as some C & D material is likely mixed with regular commercial and residential wastes, or simply misrepresented as it arrived to the landfill. Coffin Butte Landfill accepted 10,279 tons of material from Benton County labeled as C & D material in 2020, which is about 16% of disposed materials from the county. An estimate of Benton County's C & D materials disposed can also be derived from 2016/2017 "downstate" waste characterization data from Oregon DEQ, which is approximately 20% of disposed material, or 13,127 tons. This estimate includes lumber, carpet, rugs, and fiber pads, asphalt roofing and tarpaper, rock, concrete, brick, gypsum wallboard, and fiberglass insulation. Other waste categories that are associated with C & D but not captured in this estimate include cardboard, metals, and plastics. C & D materials are complex to categorize, but with a conservative estimated range of 16-20% of disposed materials, C & D materials make up an even larger portion of landfilled waste than food waste.



Cumulative Material Categories

For the purposes of planning materials management strategies, some related materials can be grouped together into cumulative material categories if they are either closely related materials or if they are typically generated in closely related circumstances. Most of the categories are intuitive, and are represented as totals in DEQ's waste characterization study or as stand-alone materials in DEQ's Waste Generation Summary. However, some categories, like C & D materials, are not categorized in existing data and required staff to determine which specific materials applied to the category without applying the same materials to another category. Staff categorized materials for this analysis as follows:

- Construction and Demolition (C & D) Materials
 - Wood Lumber
 - Carpeting
 - Asphalt Roofing
 - Gypsum Wallboard
 - Fiberglass insulation
 - Concrete
 - Window and "other" glass (not glass containers)
- Plastics
 - Plastic Film
 - Rigid Plastic
 - Other Plastics
- Paper
 - Paper Fiber
 - Cardboard

- High grade paper, Office Paper, Printing Writing Paper
- Newsprint
- Other Paper
- Metal
 - Aluminum
 - Tinned Can
 - Scrap Metal
 - Other Metal
- Electronics
 - Computers, monitors, and peripherals
 - Brown goods
 - Small Appliances

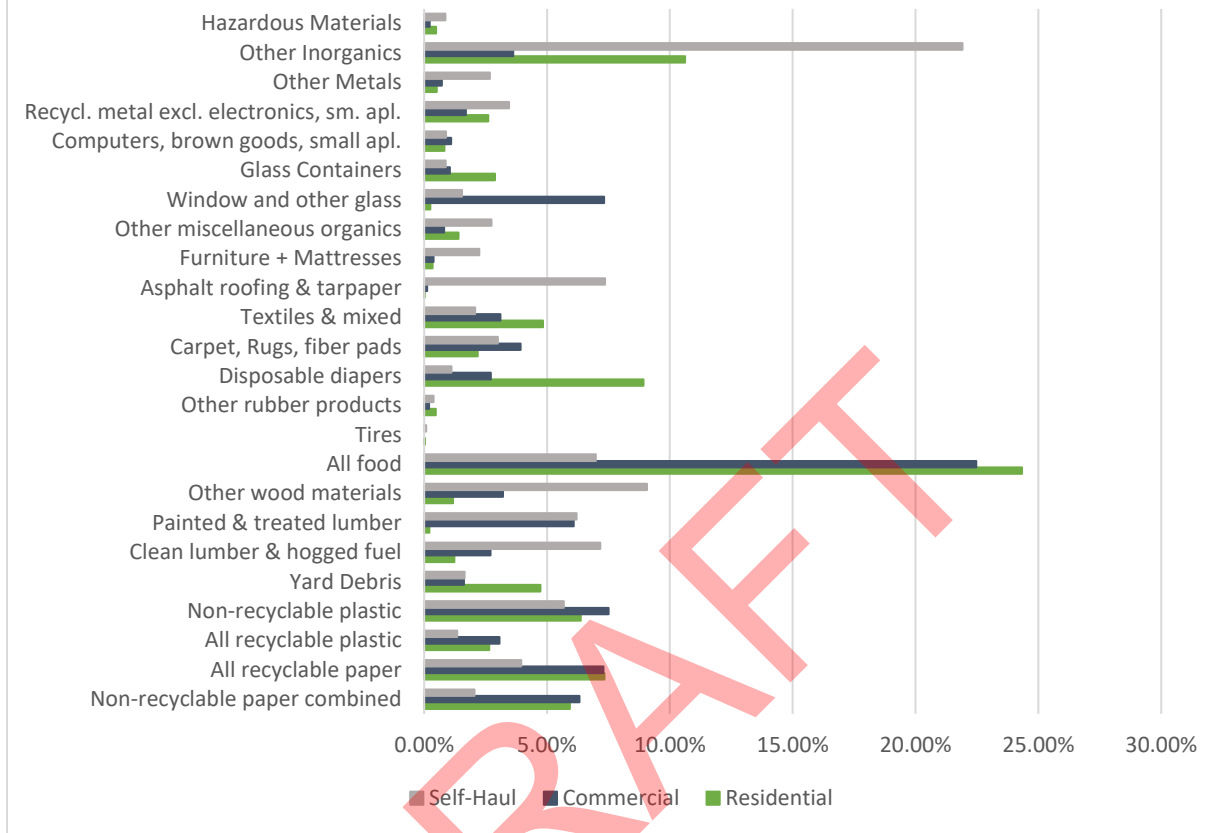
Other major material categories, like food waste, yard debris, textiles, only consist single material types, and did not require multiple categories to be grouped together. A complete list of how material categories relate to one another and between data sets is included as table x.

Residential vs. Commercial vs. Self-Haul Waste Characterization

Substreams of waste characterization are important to compare in order to understand what types of waste prevention and recovery initiatives would be most impactful to each waste generator group. DEQ waste characterization data is broken down by substream, which includes residential route trucks, commercial route trucks, and self-haul, among others. The most notable comparisons between the relative percentage of waste in the between residential, commercial, and self-haul waste characterization substreams are:

- Residential and commercial routes include a larger relative percentage of food waste than self-hauled loads.
- Self-haulers have a larger relative percentage of some construction and demolition-related materials (wood, “other inorganics”, asphalt roofing and tarpaper) than commercial and residential routes. Commercial routes include a slightly larger relative percentage of carpet, rugs, fiber pads than self-hauled loads.
- Commercial routes include a larger relative percentage of glass than residential routes and self-haulers, though residential routes include the largest relative percentage of recyclable glass.
- Residential routes include a larger relative percentage of yard debris than and commercial routes and self-hauled loads.

Disposed Materials in Oregon 2016/17 - Downstate Select Substreams



CHAPTER 4 – Strategic Planning

The vision and overarching objective of this plan is to ensure high environmental quality by minimizing the full lifecycle impact of materials through safe, equitable, resilient, and measurable management strategies. This plan uses greenhouse gas emissions and waste tonnage as the primary metrics for lifecycle impacts of materials. Other impacts are more difficult to quantify, like materials management impacts on community members or impacts on the environment through pollution, and these more abstract impacts are estimated to inform management strategies. Management strategies target high-impact material streams, and consider other factors that could satisfy the plans overarching objective. Strategies are broken down into goals and objectives, which generally involve reducing waste generation, increasing waste recovery, reducing litter in the environment, ensuring equity and accessibility in solid waste services, ensuring the solid waste and materials management program is effective.

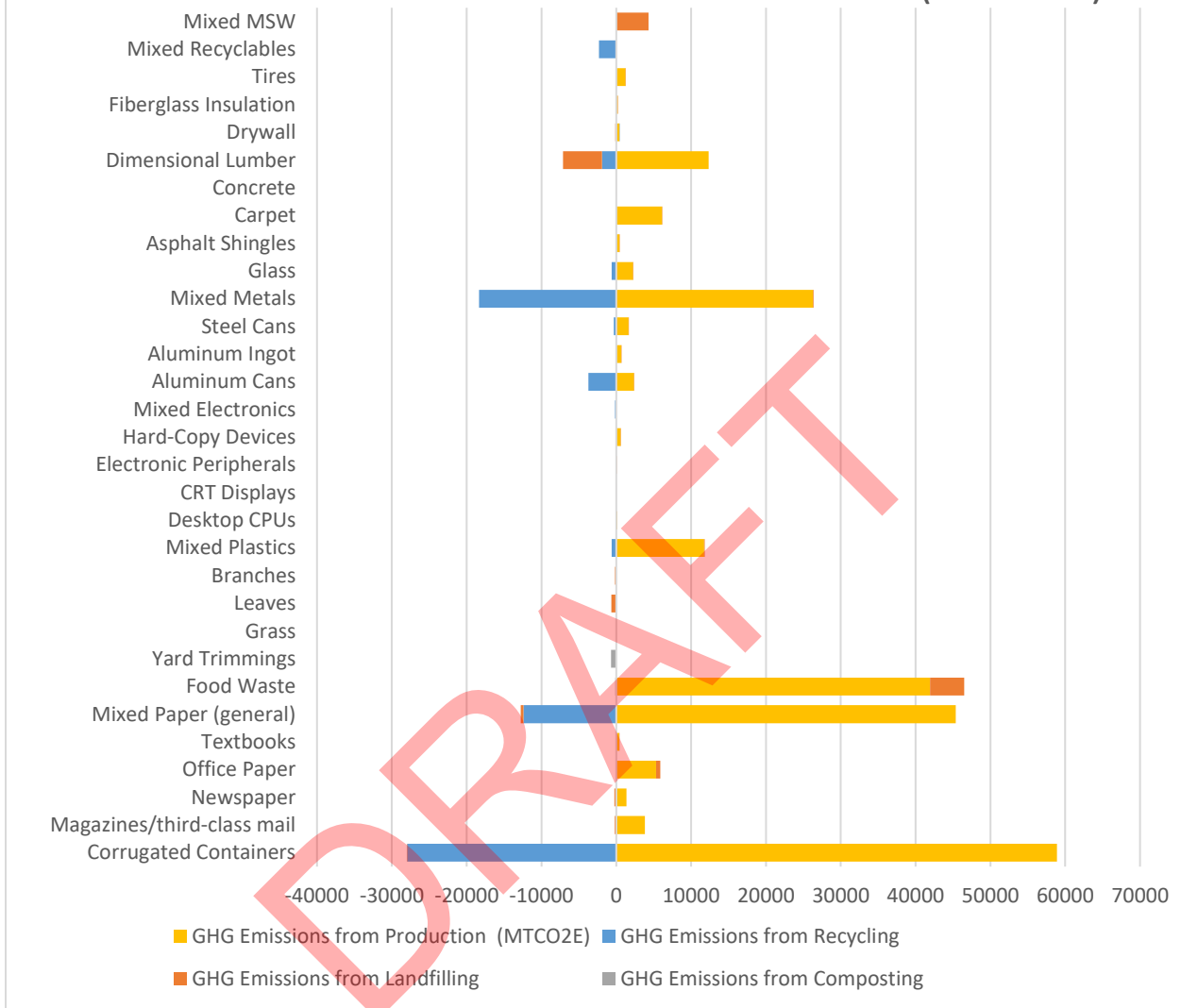
Greenhouse Gas Emissions

Greenhouse gas emissions associated with materials are an important consideration for sustainable materials management planning, as it helps prioritize targeted materials and strategies for most beneficial greenhouse gas impact. Staff used a tool from the US EPA called the Waste Reduction Model (WARM). WARM calculates greenhouse gas emissions associated with solid waste, including emissions from production, recycling, composting, and landfilling.

Recovery and disposal characterization data was used to calculate emissions associated with each material category. Disposal estimates were derived from 2016/2017 “downstate” waste characterization data from Oregon DEQ, and do not specifically reflect material disposed in Benton County. “Mixed MSW” and “Mixed Recycling” house available data that was not specifically categorized in WARM. WARM uses information about the county’s landfill, compost facility, and recycling processor to inform estimate emissions from each waste management process. This model also includes information about landfill gas production and capture.

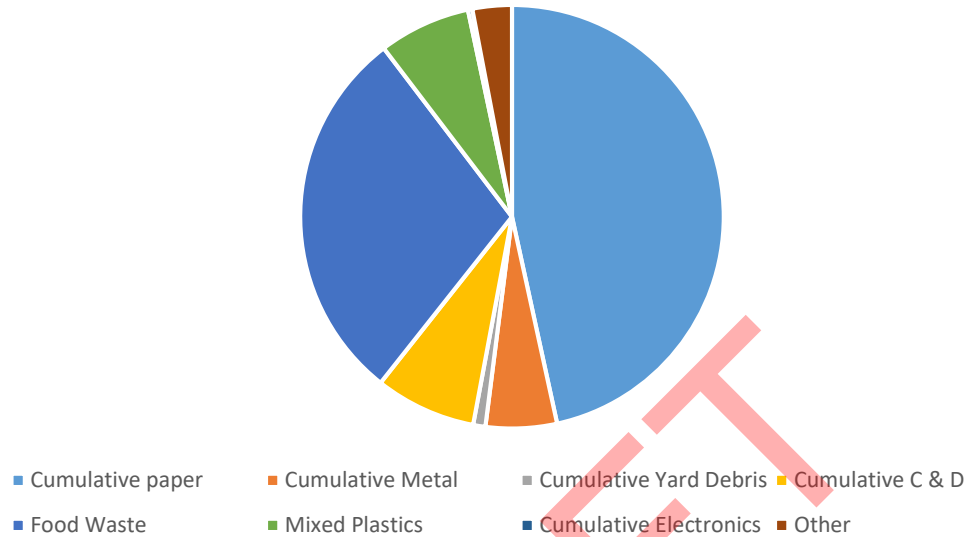
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2019 Benton County Total Solid Waste GHG Emissions - Production and End-Of-Life (MTCO2E)



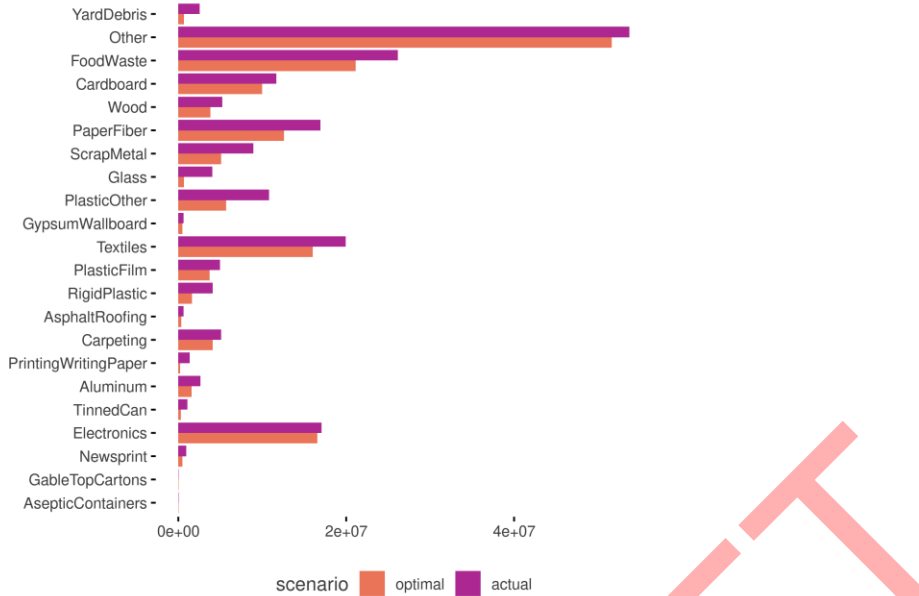
Emissions associated with production of materials is much larger than emissions associated with end-of-life waste management processes like recycling, composting, and landfilling. The cumulative net emissions from paper are the highest of the material categories, followed by food waste, C & D materials, mixed plastics, and cumulative metals.

2019 Benton County Net Solid Waste GHG Emissions - Production and End-Of-Life (MTCO₂E)

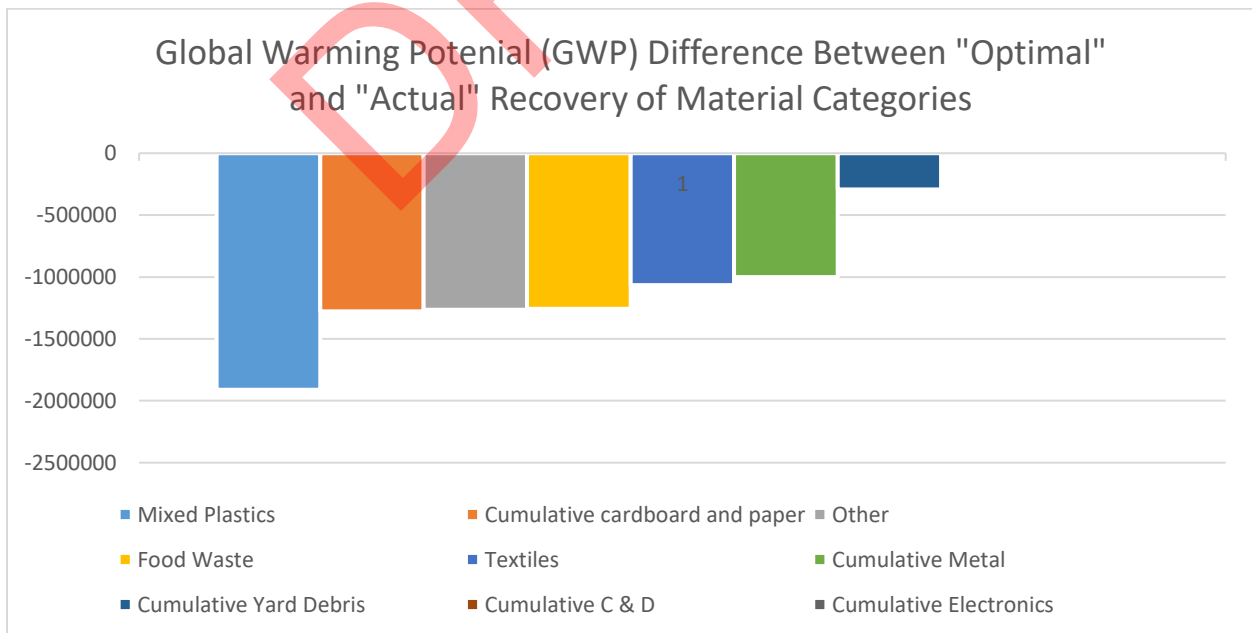


Oregon DEQ has also developed a Waste Impact Calculator (Oregon Department of Environmental Quality, n.d.), which estimates the life cycle impacts under different management scenarios of specific waste materials across various impact categories, including Global Warming Potential (GWP), human health particulate air impact, and water consumption. The results of the GWP 100 impact calculation show that the most impactful waste materials for global warming potential aside from the “other” category is cumulative cardboard and paper-related materials, followed by food waste, textiles, cumulative plastics, and electronics, respectively.

GWP 100 impact (kg CO2 eq.)



The calculator also provides a comparison between GWP from “optimal” and “actual” end-of-life material management scenarios, where “Optimal” means that all recoverable materials are recovered. This provides some insight as to what the potential reduction in emissions would be when increasing recovery. The most waste materials with the largest global warming potential difference between “optimal” and “actual” management scenarios aside from the “other” category is cumulative plastics, cumulative cardboard and paper-related materials, food waste, textiles, and cumulative metals, respectively.



This tool uses different estimates for disposed tonnage, categorizes materials differently, and uses different emissions factors for each material's life-cycle stage than the EPA WARM tool. However, data from both tools can provide insight in which material categories are generating the largest impacts. Between the two full life cycle greenhouse gas emissions-focused calculators, there are some notable similarities. Cumulative cardboard and paper, food waste, and cumulative plastics were in the top five highest calculated emissions for each tool. Textiles and electronics ranked in the top five highest emissions in the Oregon DEQ tool, while cumulative C & D materials and cumulative metals ranked among the five highest emissions in the EPA WARM tool.

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Supporting Materials for Agenda Item VI

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REQUEST FOR APPLICATIONS

February 8, 2022

To: Benton County Individuals, Groups, and Organizations Interested in Sustainable Materials Management, Solid Waste Prevention, Reuse, and Recycling Projects

From: Benton County Community Development Department, Solid Waste Program

RE: Sustainable Materials Management Grant Funding for Sustainable Materials Management, Waste Prevention, Reuse, and Recycling Projects in Benton County

Who may apply: Benton County Community Development Department's Solid Waste Program is requesting applications from individuals, groups, and organizations in Benton County to implement Sustainable Materials Management Grant funded sustainable materials management, waste prevention, reuse, and recycling projects that will benefit the community members of Benton County.

Eligible projects: To qualify for funding, proposed projects should be limited to the following categories:

1. Sustainable materials management projects or programs in Benton County that will reduce the environmental impacts associated with the full lifecycle of materials.
2. Waste prevention, reuse, and recovery (recycling) projects or programs in Benton County that will reduce the amount of waste being generated and disposed in Coffin Butte Landfill.
3. Waste prevention, reuse, and recycling promotion and education programs in Benton County.
4. Programs that will reduce generation and/or disposal of household hazardous waste in Benton County.

Funds available: This year, a total of approximately \$20,000 is available from Benton County. The source of the funding is Benton County Community Development's Solid Waste Program biennial budget. Award amounts will be based upon the number of successful respondents and may range as high as \$5,000. Grant funding for successful applicants may be reduced from the requested amounts depending on the number of applicants and the strength of the proposals.

Funding guidelines: Funding will be restricted to projects that will primarily benefit the community members of Benton County. Grant funds may not be used for indirect costs. Personnel costs should be kept to a minimum and limited to those activities that are directly related to the project.

How to apply: Interested individuals, groups, and organizations are required to submit an application according to the attached instructions. Applications must be submitted no later than 5:00 PM on March 31, 2022 to Daniel Redick, Solid Waste and Water Quality Program Coordinator, via email at Daniel.Redick@co.benton.or.us.

Evaluation of applications. Applications will be evaluated on the follow six criteria:

1. Measurable: The ability of the program to be evaluated for its effectiveness with measurable outcomes. (1 to 5 points)
2. Efficient: The extent that the grant money will go directly to the stated purpose of the project. (1 to 10 points)
3. Effective: The project's effectiveness in sustainable materials management, waste prevention, reuse, or recycling in Benton County. (1 to 10 points)
4. Sustainable: The extent that the project will be sustainable or have long-term impacts after this source of funding will no longer be available. (1 to 5 points)

Selection process: Applications will be reviewed and discussed at the April 27th, 2022 SWAC meeting. Applicants may be asked to be present at the meeting to answer questions and make a short presentation. Final selection will be made by staff by May 11th, 2022.

Project evaluation: All funding recipients will be required to develop an evaluation plan, with measurable outcomes, of their program or activity as part of their work plan. Respondents must be willing to perform the data collection involved to conduct the evaluation and to report to the Community Development Department the outcomes of the program or activity on a regular basis. Reporting requirements and schedules will be developed individually with each funding recipient.

Contracting requirements: Funds will be awarded through a contract or memorandum of agreement incorporating the work plan outcomes. Individuals, groups, or organizations entering into a contract with Benton County must be willing to name Benton County as additional insured on their liability insurance. Individuals in organizations that have no legal standings and are unable to enter into a contractual relationship must become official Benton County volunteers.

Funding availability: Funds will be available for expenditure by May 31 or upon full execution of the contract or memorandum of agreement. Payment of award funds will be made on a reimbursement basis with a portion of the funds available for start-up costs upon approval of a project line item budget that includes start-up costs.

Submission deadline: All submissions should be made to Daniel Redick (Daniel.Redick@co.benton.or.us) via email no later than 5:00 PM on March 31, 2022.

Applications received after the due date will not be accepted. It is highly recommended that applicants confirm receipt of their applications prior to the deadline. Benton County is not responsible for the failure of electronically delivered applications.

Timeline of important dates:

- February 28, 2022: Application materials available.
- March 31: Applications due at Benton County Community Development no later than 5:00 PM.
- April 27: Benton County Solid Waste Advisory Council meeting. Qualified applications reviewed and discussed. Applicants may be requested to make a short presentation and answer questions regarding their proposed project.
- May 11: Staff selection of funding recipients and award amounts made.
- By May 31: Contracts or memorandums of understanding fully executed. Funds available for expenditure.
- June 30, 2023 All projects completed and final reports submitted. Earlier completion dates may be required for some projects.

For additional information or questions, please contact Daniel Redick, 541-766-6819, Daniel.Redick@co.benton.or.us.

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Benton County Sustainable Materials Management Grant Initiative

Application Instructions

Submission and Due Date. Please submit applications to Daniel Redick (Daniel.Redick@co.benton.or.us) via email no later than 5:00 PM, March 31, 2022. It is highly recommended that applicants confirm receipt of their applications prior to the deadline. Benton County is not responsible for the failure of electronically delivered applications.

All applications must include the following three elements:

Please keep your responses down to a total of six pages or less.

1. Cover sheet. Include the following minimum items. Letterhead is preferred but not required.

- (A) A brief description of your group or organization. Include the organization or group's name, address, phone number, status as a legal entity (for contracting purposes), website, and mission statement if there is one.
- (B) Primary contact name plus one to two alternate contact persons (if available). Include phone number, mailing address, and e-mail addresses.
- (C) Provide a written statement acknowledging your willingness to implement an evaluation plan and to collect the data necessary to report the outcomes of the program or activity.
- (D) Either a statement of organization's ability and willingness to name Benton County as additional insured on organization's liability insurance or a statement of the organization's staff willingness to become official Benton County volunteers if awarded grant.

2. Work Plan. See attached requirements and example work plan.

3. Budget. See the attached example budget. Indirect expenses cannot be charged to the grant. Please show indirect and matching or other donated items in the budget even if grant funding will not be utilized for that item. Grant funds requested for personnel costs should be kept to a minimum. Depending on the nature of the proposed project, requests for excessive personnel costs in the grant application may lower the final score of the application.