# THE STATE OF RECYCLING 2 CONPOSTING N COLORADO

REDUCING WASTE AND BUILDING A CIRCULAR ECONOMY

> 2024 8th edition





# 2024 STATE OF RECYCLING & COMPOSTING IN COLORADO

Reducing waste and building a circular economy

November 2024 8th Annual

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CoPIRG Foundation is a nonprofit, nonpartisan group. Through research, public education, and outreach, we serve as counterweights to the influence of powerful special interests that threaten our health, safety, or well-being. For more information, visit <u>copirgfoundation.org</u>.

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# STATE OF RECYCLING & COMPOSTING IN COLORADO

# **Executive Summary**

We have a waste problem. Everything we produce—from corn to computers, soda bottles to T-shirts—takes natural resources and energy. That comes at a cost, including impacts on our environment and on our health. Approximately 42% of US greenhouse gas emissions come from the energy involved in extracting, processing, manufacturing, transporting, and disposing of goods and food.<sup>1</sup>

The growing, mining, and extracting of natural resources, from food to forests to metals to fossil fuels, along with the pollution from factories and transportation systems that produce and transport our goods from all over the world to our doorsteps, all take a toll. And it is our climate that pays the tremendous cost of the embedded emissions from the products we consume and the impacts of their disposal, though these emissions are rarely included in federal, state, or municipal climate plans.

Not only do we pay an environmental and health price at every stage of a product's life cycle, we also pay with our wallets, including the cost to haul it to a landfill and to mitigate the resulting pollution.

## WASTE IS SIMPLY A SYMPTOM OF POOR DESIGN AND INEFFICIENCIES

Unfortunately, the majority of our linear production system goes one way, from extraction to the landfill, with much of what we produce meeting a literal dead end rather than being reused in a circular system. Some of it even heads to a landfill before it ever gets used—like produce that rots before being eaten, a product that arrives damaged, or an impulse buy that just gets tossed out.

Many products—like single-use cups, straws, and napkins—are designed for disposal, to be used once and then thrown away. Strategies such as "planned obsolescence" purposely ensure that items like cell phones and electronics have short lifespans.<sup>2</sup>

Much of our packaging is completely unnecessary, like a plastic-wrapped apple or banana, or cellophane around a box containing a tube of toothpaste.

Some items are valuable, including:

- batteries that contain critical minerals that could be reused,
- items that could be fixed instead of discarded,
- materials like glass bottles that could be recycled into new glass bottles an almost infinite number of times, and
- grass clippings and egg shells that could be composted into nutrient-rich compost to build up our depleted Colorado soils.

And while it may be out of sight for most people, the millions of tons of stuff sitting in Colorado landfills can create methane pollution or contaminate our water and soils. In fact, in 2020, Colorado landfills produced 6.2 million metric tons of  $CO_2$ -equivalent greenhouse gasses.<sup>3</sup> This is equal to nearly 1.5 million gasoline-powered passenger vehicles driven for one year, or the energy use of over 800,000 homes in a year.<sup>4</sup>

# COLORADO HAS THE TOOLS TO BUILD TOWARD CIRCULARITY-AND IT STARTS WITH DATA

Waste is a problem with extensive impacts that we should not accept when we have so many tools to prevent it, and we are capable of creating a circular economy that eliminates unnecessary stuff and reuses and recycles what we do need over and over. By measuring the total amount of discarded material we create, as well as how much was diverted from the landfill, Colorado has the data to take informed and decisive action to reduce both of these amounts in the transition from our current linear economy to a circular economy.

#### **MEASURING WASTE**

For the sake of this report, unless otherwise indicated, we are referring to municipal solid waste (MSW), the waste generated in residential

and commercial sectors. There are three key metrics for measuring how well our state and our communities are doing at reducing waste:



**Total waste generation:** The total amount of discards we're producing each year. This calculation accounts for all materials discarded, including materials that are recycled, composted, or landfilled. Even more useful is to take a more granular approach by looking at the tons discarded into each stream.



**Per capita waste generation:** The amount per person of all discards (including recycling, compost, and waste) we're producing, calculated by taking the total MSW generated and dividing by the population. Including this data gives us a clearer picture of whether we're reducing overall waste generation (not just diverting it) even as our population increases. It also allows comparisons between jurisdictions and reveals trends in the same jurisdiction over a period of time, rather than simply looking at total tons.



**Diversion rate:** The percent of our waste stream that we are diverting away from landfills through recycling or composting. A few communities are beginning to try to quantify the amount of material being diverted through reuse as well (see page 30 for calculation method).

A circular economy uses a systems-focused approach that enables natural resources used in production processes and economic activities to cycle repeatedly, maintaining their highest value for as long as possible. It is a change from the current linear-system model in which natural resources are extracted, made into products, and then landfilled as waste. A circular economy reduces pollution, redesigns materials to be less resource intensive, and recaptures "waste" as a domestic feedstock to manufacture new materials and products. Building a circular economy is vital to reining in greenhouse gas (GHG) emissions and environmental pollution from extraction processes, preserving biodiversity, reducing water and energy usage from extraction and manufacturing processes, and securing strong local supply chains that can rely on recycled materials as feedstocks for new products.

#### LINEAR ECONOMY: One way, from extracting natural resources to disposal.



**CIRCULAR ECONOMY:** Reduces the need for resource extraction and reintroduces "waste" as new feedstocks back into the economy.



## THE STATE OF REDUCE, REUSE, RECYCLING, AND COMPOSTING—BIG PICTURE

The good news is that since 2018 when the State updated their waste tracking process, Colorado has actually slightly reduced the amount of total waste generated from 7,077,958 tons in 2018 (reported 2019) to 6,870,398 tons in 2023 (reported 2024), all while the total state population has increased.<sup>5</sup> Colorado's per capita municipal solid waste (MSW) generation has also gone down from 6.8 pounds per person per day in 2018 to 6.4 pounds per person per day in 2023.<sup>6</sup> That's no small feat given hundreds of thousands more residents and visitors, the proliferation of single-use products, the constant barrage of messages that call for us to buy more and more, and an economy that churns out too much stuff designed not to last.

However, our landfill diversion rate in Colorado (commonly referred to as our recycling rate), has gone down slightly: In 2018, Colorado diverted 17.2% of waste from our landfills into recycling and compost bins. In 2023, our recycling rate was 15.5%.7

FIGURE 1: COLORADO'S FIVE-YEAR MUNICIPAL SOLID WASTE (MSW) TRENDS <sup>8</sup>						
	2018	2019	2020	2021	2022	2023
Population	5,697,000	5,758,000	5,808,000	5,812,000	5,840,000	5,877,000
Total MSW generation in tons	7,077,958	7,271,201	6,979,083	7,103,612	7,046,893	6,870,398
Per capita MSW generation in pounds per person per day	6.8	6.9	6.6	6.7	6.6	6.4
Diversion rate	17.2%	15.9%	15.3%	16%	15.8%	15.5%

While Colorado's waste diversion rate has held steady at around 15% over the past five years, the state's per capita waste generation has very gradually declined from 6.9 pounds per person per day to 6.4 pounds per person per day.

Although the diversion rate has remained stubbornly steady over the past seven years and stands at half the national average, it is not unexpected, because:

Many Colorado communities have not yet taken action to guarantee access to convenient recycling nor provided options for diverting organics. In our previous reporting we highlighted that fewer than half of Colorado municipalities with 10,000 or more residents automatically provided recycling for all households.9

• Many of the significant programs and policies the state and local communities have adopted over the last few years have yet to be fully implemented. Data from recently effected programs may not be reflected in the 2023 data included in this report. It can take years to develop policies and programs, longer still to fully implement them, and sometimes even longer than that to see results.

Colorado is poised for significant improvements in our waste diversion, driven by impactful legislative action, the leadership of Governor Jared Polis's administration, and the dedicated efforts of state and local elected leaders, along with many individuals and groups across the state. See page 22 for details on state initiatives, including:

- Colorado's Plastic Pollution Reduction Act (PPRA) (<u>HB21-1162</u>)
- Producer Responsibility for Recycling Packaging and Printed Paper (HB22-1355)
- Right to Repair (<u>HB22-1031</u>, <u>HB23-1011</u>, <u>HB24-1121</u>)
- Organics Management Plan and <u>SB 23-191 Colorado Organics Diversion Study</u>
- Colorado's Greenhouse Gas Pollution Reduction Roadmap 2.0
- The creation of <u>Colorado Circular Communities</u> statewide enterprise grant fund, which expands the Technical Assistance Service Provider (TASP) program (<u>HB24-1449</u>)
- The Circular Economy Development Center (CEDC) (HB22-1159)

### THE STATE OF REDUCE, REUSE, RECYCLING, AND COMPOSTING—LOCAL LEVEL

Though Colorado's diversion rate of 15.5% still lags well behind the national average, as we have reported over the years, many Colorado cities are recycling leaders with far higher rates, demonstrating what is possible in materials management.<sup>10</sup> And, as we have highlighted, too few Colorado municipalities collect their diversion data.

We applaud leading cities and counties that track their data, as it is an incredibly valuable tool for improving materials management. However, a significant challenge in compiling this report is data consistency; different municipalities track data in various ways, if they track it at all. This makes it difficult to provide accurate "apples to apples" comparisons between communities and even when comparing local data to the state's diversion data. Moving forward, the Producer Responsibility for Recycling Packaging program will require recycling haulers to report the tons taken to recycling facilities. While this will not account for tons landfilled or composted, it will establish a more universal metric for recycling.

We strongly encourage municipalities to adopt ordinances to require haulers to be licensed and report data on the tons landfilled, recycled, and composted as a key step toward understanding community material flows and ways to reduce waste.

We also particularly applaud the **City of Boulder** for taking initial steps to estimate the amount of material diverted through reuse, mainly through their sustainable deconstruction program. As the reuse economy grows, we hope that systems for calculating diversion and

waste prevention achieved through reuse will grow, including methods for calculating singleuse materials never needed due to food serviceware reuse systems, as well as products kept in circulation through secondhand stores and repair. As the saying goes, you can't change what you can't measure—or at least, it's a lot easier to change what you can measure.

#### FIGURE 2: COLORADO'S LEADERS FOR BEST RECYCLING AND COMPOSTING PROGRAMS IN 2023<sup>11</sup>

FRONT RANGE LEADERS	COMMUNITY	RECYCLING & COMPOSTING RATE*
Best citywide—residential and commercial	City of Boulder	52%**
Best residential	City of Loveland	58%
Best industrial	City of Ft. Collins	82%***
GREATER COLORADO LEADERS		
Best citywide—residential and commercial	City of Aspen	32%
Best residential	City of Durango	41%

\* See appendix for details on data collection terminology and how rates are calculated.

\*\* The City of Boulder diversion rate is 51.79% without estimated tons diverted through residential reuse, and 52.06% with the inclusion of estimated reuse tons.

<sup>\*\*\*</sup> The City of Fort Collins reported a much higher than previous industrial diversion rate. That is in part due to the addition of an increased amount of crushed aggregate, such as concrete and asphalt, and also due to new reporting that was previously not included.

#### These leading local cities have five common elements of success:

- Universal curbside recycling programs in which every resident is provided with a
  recycling cart alongside their trash cart, often at no additional charge to residents.
  Communities with organized curbside recycling are best positioned to easily and
  most immediately reap the benefits of free curbside recycling when the Producer
  Responsibility for Recycling Packaging and Paper program begins covering the cost for
  recycling.
- Volume-based pricing for trash that encourages recycling and composting by charging based on the amount of material landfilled and providing recycling and sometimes composting for no additional cost.
- Convenient drop-off centers and access to curbside collections for food scraps and/or yard trimmings.
- Strong education programs that teach residents and businesses why recycling and composting are important and provide clear guidelines on what can and cannot be recycled, reused, and composted.
- Community interest, advocacy, volunteering, and engagement in waste reduction and diversion, as well as dedicated staff and funding for waste diversion infrastructure, services, and programs.

# **MOVING FORWARD: THE BIG FOCUS AREAS FOR 2025**

In 2025, Colorado has a chance to make significant progress in a few key areas:

**Organics Diversion:** As we build toward a circular economy, Colorado has made significant strides in passing policy and creating programs that address the "materials" side of our economy, or the products and packaging. It is now time we do the same for the "organics" side of our economy. Diverting organic matter such as food scraps and yard trimmings from landfills avoids methane emissions and creates valuable soil amendments for depleted Colorado soils, including compost, biochar, and mulch, which protect and build healthier soils. The SB23-191 Colorado Organics Diversion Study makes it clear that Colorado could increase organics diversion from around 10% of organic materials to 60% by 2036.<sup>12</sup> This increase would require the addition of more collections and processing infrastructure as well as policies that require the diversion of organic material from landfills through donation of usable food and composting of nonedible organic material, similar to the <u>policy the City of Aspen adopted in 2023</u>. Of the reporting communities with diversion rates of 25% or more, all have access to organics diversion programs—either for food scraps, yard trimmings, or both.



# FIGURE 3: ALL OF THE TOP ELEVEN REPORTING COMMUNITIES OWE PART OF DIVERSION SUCCESS TO ORGANICS<sup>13</sup>

\*Telluride does have access to organics diversion through a private hauler even though the data reported does not reflect organics tons diverted.

**Batteries**: Batteries contain a variety of materials, some of which are very valuable and can be recycled into new products. However, when improperly disposed of in trash or curbside recycling, batteries, particularly lithium-ion batteries, pose a serious fire hazard. Battery-caused fires in collection trucks, material recovery facilities, and waste facilities are increasingly becoming more frequent, endangering employees, damaging infrastructure, and significantly increasing operational and insurance costs.<sup>14</sup> Adopting a Producer Responsibility program for batteries could provide funding and a mechanism to reduce battery waste and ensure these critical materials are recovered and repurposed.

**Reuse**: Reuse offers significant environmental benefits by reducing the need for new products, and it saves consumers and businesses money. The potential for reuse is vast, encompassing various sectors such as reuse/refill businesses (bulk food, serviceware, etc.), resale markets (thrift/consignment, used books and gear, used cars, auction, pawn, etc.), rental services (cars, bridal, sports equipment, etc.), and repair services (tailoring/mending, shoe repair, electronic repair, auto repair, etc.).

### **CIRCULARITY ALIGNS WITH COLORADO'S STRENGTHS**

As a state, we need to continue working to adopt and implement a range of approaches that will help us develop a true circular economy. Colorado is known for both its natural beauty as well as its commitment to being "green" and serving as a hub of technical innovation. Developing a true circular economy is a way to meld the values of conservation and innovation to drive solutions that provide the materials we need while protecting and actually regenerating the natural resources we rely on.



# THE Rs: KEY CONCEPTS TO EMBRACE AS WE DRIVE OUR LOCAL ECONOMIES TOWARD CIRCULARITY



**REDUCE** the need for a product or its packaging in the first place. This R is the highest priority in the Zero Waste hierarchy. If we don't make a product, we don't need to extract natural resources and can avoid the associated negative environmental and social impacts.



**REDESIGN** products to use fewer resources, few-to-no toxins, and higher recycled content. Design should prioritize longevity of use, repair, and ultimately recycling.



**REUSE** already extracted resources, keeping materials and products in circulation for as long as possible. Establishing reuse systems can help eliminate the need for single-use items.



**REFILL** reusable containers. Rather than using single-use items (even those that are recyclable or compostable), durable, reusable containers are refilled for everything from condiments and milk in schools to reuse/refill to-go containers at restaurants and returnable/washable containers at reuse/refill stores.



**REPAIR** products and keep them in use. For some products, this requires changing systems to guarantee the right to repair products.



**RECYCLE** transparently and authentically, capturing products at the end of their useful lives and turning these materials into new products that can be recycled yet again. Composting is essentially the recycling of organic matter, including food scraps and yard trimmings.



**REGENERATE** soils that have been depleted by overuse and conventional agricultural practices by applying recycled organic material such as compost, biochar, and mulch.



**BUILD RESILIENCE** within our urban landscapes using nature-based climate solutions so that we and our local ecosystems can better withstand the impacts of climate change.



# ORGANICS THE NEXT FRONTIER FOR COLORADO'S CIRCULAR ECONOMY

Diverting organic matter from landfills by creating valuable compost, biochar, or mulch is one of the most powerful climate change solutions we can implement to both reduce greenhouse gas production and to sequester carbon in the soil. Nearly 40% of Colorado's municipal solid waste is organic materials (food scraps, yard trimmings, clean wood, and "other" organics such as single-use paper napkins and paper towels, as well as other natural fiber or recyclable paper products that are landfilled), and we landfill roughly five times as much organic matter as we divert through composting, mulching, or other means.<sup>15</sup>

While Colorado has made huge steps to lay the groundwork for recycling, we are just beginning to make the same kinds of investments in organics diversion, including food scrap composting projects, new and expanded municipal programs to divert yard trimmings or compost food scraps, as well as a growth in entrepreneurial businesses hauling and/or composting organic materials from residents, businesses, and events.

Diverting organics is a vital climate change solution because organic material that decomposes anaerobically (without air, like when packed into a landfill) creates methane, a gas 84 times more potent than  $\rm CO_2$  within the first twenty years.<sup>16</sup> In addition, diverting organic matter through circular processes creates valuable soil amendments, including compost, biochar, and mulch, that protect and build healthier soils that are better able to retain water, withstand droughts and floods, and can actually sequester carbon. Estimates suggest that soil stores roughly three times more carbon than all living plants and animals combined.<sup>17</sup>

Work done in 2024 at local, state, and national levels to enable organics infrastructure and improve the economics around organics recovery makes 2025 an opportune time for the state and local governments, as well as businesses, to continue to build out organics diversion systems. As we reported in our <u>2023 edition</u>, CDPHE <u>updated regulations in 2023</u> to make it easier and less costly for compost facilities to be permitted. Additionally, this August, CDPHE released the <u>SB23-191 Colorado Organics Diversion Study</u> (referred to as

the Organics Management Plan 2.0 or OMP 2.0), which outlines steps that state agencies should take, and policies the state and local governments should adopt, to reduce food waste and to divert organic matter away from landfills and back into the circular economy as compost, biochar, or mulch. The OMP 2.0 makes it clear that Colorado could increase organics diversion from around 10% to 60% by 2036 with the addition of more collections and processing infrastructure as well as policies similar to those in other states (and already in place in Aspen) that require the diversion of organic material from landfills through donation of usable food and composting of nonedible organic material. The report suggests that by doing so, Colorado could compost *seven and a half times* more material than would be composted if we continue under business as usual. The modeling also shows that even if recycling does not change, by increasing the diversion of organics through the suggested approaches, the overall state diversion rate, which has hovered around 15% for years, could move to as high as 35%.<sup>18</sup>

In the fall of 2024, CDPHE began the <u>rulemaking process to update landfill emission</u> <u>regulations</u>. While the updated rule will not be finalized until early 2025 nor voted on by the Air Quality Control Commission until mid-2025, updated regulations show that reducing waste-related emissions is a priority for Colorado. Four other states (Washington, Oregon, California, and Maryland) have updated their landfill regulations, which include lowering the emissions threshold to require methane gas collection systems and improving methane leak detection technology.<sup>19</sup> Importantly, Colorado could become the first state to require drone and satellite methane monitoring for landfills, which is technology that is already required for oil and gas operations in Colorado. Having better data and monitoring on actual landfill methane production would empower landfills to address methane leaks more quickly and encourage them to divert organic materials away from landfills and into compost production.

#### WASTE IS A MISNOMER

Everything we use is made up of natural resources. When we discuss the material we dispose of as "waste," we devalue the material that went into the product, and we undercut the importance of keeping

that material in circulation for as long as possible. To underscore the value of the organic materials we use and dispose of, rather than saying food or yard "waste," we intentionally use the terms "food scraps" and "yard trimmings" to describe the organic materials that can be diverted into compost, biochar, or mulch.





#### \* Scenario 1:

- Add residential curbside collection of food scraps and yard trimmings for households where trash is collected and drop-offs for areas without curbside collection, and
- Require businesses generating 20 tons of food waste per year within 20 miles of a compost facility to divert food waste.

#### \*\* Scenario 2:

- Residential food waste reduction education campaign,
- Residential curbside collections of household food scraps and yard trimmings for residences where trash is already collected,
- Universal access to residential yard trimmings drop-off, and
- Mandated curbside food waste diversion for all businesses, including donation of usable food.

### **ORGANICS DIVERSION IS THE IDEAL LOCAL CIRCULAR ECONOMY**

Mulching and composting don't require distant mills or producers to process materials into new products. The best Circular Organics Economy models rely on small, locallybased facilities that reduce the distance between "waste" generation, processing, and use of the finished product. These community-centered approaches help lower costs and transportation-related GHG emissions, while also fostering a connection between people in the area and the importance of circularity for the organic discards they produce. Although individuals can compost in their own backyards, a growing number of local businesses and municipal initiatives now offer convenient solutions for those who prefer an accessible, community-based option for organic waste diversion.

composted is roughly equivalent to <sup>21</sup>		
	Landfilled (2023)	Composted (2023)
Tons of organic material <sup>.</sup>	2,000,000 landfilled	400,000 composted
Space (Olympic swimming pool)	2,000 used	400 saved
Gallons of water	2,600,000,000 wasted	520,000,000 saved
Households' worth of water	17,000 wasted	3,500 saved
Metric tonnes $CO_2$ equivalent avoided	2,200,000 produced	430,000 avoided
Cars removed from road	490,000 left on the road	98,000 removed from the road

Figure 5: In 2023, the amount of organic material Coloradans landfilled and composted is roughly equivalent to...<sup>21</sup>

\*Tons of organics landfilled and composted only account for food scraps, yard trimmings, and clean wood. They do not account for paper or cardboard landfilled, recycled, or composted.

## A CIRCULAR ECONOMY FOR ORGANIC MATERIAL HAS TREMENDOUS BENEFITS

Diverting organic materials from landfills through food waste reduction and food donation, composting, mulching, anaerobic digestion, or creation of biochar—and using end products as a resource to build soil—substantially reduces climate pollution and creates significant community, economic, and environmental benefits:

#### ENVIRONMENTAL BENEFITS

- Diverting organic materials from landfills reduces the production of methane, a greenhouse gas 84 times more potent than CO<sub>2</sub> in the near term.<sup>22</sup> Food waste is responsible for 58% of the methane generated in municipal solid waste landfills.<sup>23</sup>
- Greenhouse gas emissions from wasted food in the US are equivalent to the emissions from more than 50 million passenger vehicles.<sup>24</sup> For every 1,000 tons of diverted organic waste, the equivalent would be 225 cars taken off the road.<sup>25</sup>
- Applying compost to soil stores carbon in the soil.<sup>26</sup>
- The application of finished compost reduces irrigation needs and use of synthetic fertilizers by increasing soil nutrients and water retention.<sup>27</sup>

#### RESILIENCY

- Food donation helps reduce food insecurity.
- Applying finished compost improves soil quality by returning nutrients back to the soil.<sup>28</sup>
- Applying finished compost reduces erosion and stormwater runoff.<sup>29</sup>
- The average Colorado household consumes nearly 150,000 gallons of water per year. For every 1,000 tons of diverted organic waste, the equivalent of 8 Colorado households' worth of water is saved.<sup>30</sup>

#### ECONOMIC BENEFITS

- Investments in organics diversion programs are some of the most cost-effective climate change solutions.<sup>31</sup>
- Making and using compost creates at least five times as many jobs per ton of material as landfilling.<sup>32</sup>
- Diverting organic matter from landfills saves tremendous cost to communities by extending the life of existing landfills. For every 1,000 tons of organic waste diverted, just over one Olympic-sized swimming pool of landfill space is saved.<sup>33</sup>
- Hauling and processing of organic materials into new products such as biochar and compost can create profitable businesses. In Colorado, many compost companies are women-owned businesses.
- Using locally sourced mulch and compost in public works projects can save communities money over using imported materials, especially if the municipality generates their own mulch and compost.<sup>34</sup>

#### **GROWTH IN ENTREPRENEURIAL AND LOCAL GOVERNMENT-RUN ORGANICS DIVERSION PROGRAMS**

Businesses specializing in organics diversion play a vital role in the circular economy because most work very closely with the customers who use their services to provide immediate and actionable education around proper composting behaviors in order to make clean, nutrient-rich compost. As a result, people learn about the importance of compost as a climate solution and soil amendment, and they learn what they can do to increase organics diversion and to reduce contamination in the compost stream they often use themselves.

Desire for organics diversion service is increasing and entrepreneurs are stepping up to meet demand for collections and processing. Following the 2023 organics regulation changes that make it easier and less costly for smaller composters to become permitted (see page 31 of our 2023 report), the state has seen a number of permit applications for new or expanded composting facilities and they expect more in the near future. Already, **Elements Mountain Compost** in Salida has been approved to grow from multiple Conditionally Exempt Small Quantity (CESQ) sites to a larger, more efficient Class I location. In addition, the state is reviewing new applications from businesses and at least one university for additional CESQ, Class II, and Class III sites and one anaerobic digester that will be co-located at a dairy.<sup>35</sup>



Eco-Cycle rolled out the first large-scale electric commercial compost truck in the US in 2022.

Organics businesses are also seeing an increase in demand for their collection services. For example, **Elements Mountain Compost** has added 40% more subscribers in the last year, expanding their operations to Gunnison and Crested Butte.<sup>36</sup> Organics collection models vary from large to small, from repeat customers to event-goers, and include tipping dumpsters full of materials from businesses into collection vehicles, collecting compost at residents' homes, having subscribers deposit their materials into a shared dumpster, and diverting scraps at events. Many

compost operations start with one or two owners and a pickup truck, or even a bicycle with a trailer to haul collected materials, but can grow into larger businesses with many employees.

"We provide really great jobs and our employees love working for us. I love being part of the compost industry, as I think we all are absolutely key to preventing and adapting to climate change. I'm super excited to be part of growing the industry in western Colorado in an area that has had their workforce focused heavily on coal mining, has higher unemployment than other parts of the state and is also a region that benefits greatly from improved soil. It feels like we are exactly where we are supposed to be."<sup>37</sup>

Erica Sparhawk, CEO of **Delta Compost** in Delta, Colorado

# STATE AND LOCAL GOVERNMENT ACTION IS KEY TO DIVERTING COMPOST AND SUPPORTING BUSINESSES

State and local laws, grants, and partnerships are vital to driving organics diversion and helping small and large composting businesses in Colorado.



**POLICY:** State and local policies pave the way for organics diversion. The <u>OMP 2.0</u> outlines 13 policies to reduce food waste, and increase organics diversion and the use of finished compost. Policy recommendations for food waste reduction include standardizing "best by"-type food labeling similar to <u>the law California adopted in</u> <u>September 2024</u>. The OMP 2.0 also recommends the state pursue phased diversion requirements (sometimes called "landfill bans" or "recycling requirements") for yard trimmings and food scraps. Recommendations for local governments include updating zoning requirements to make it easier for compost systems and operations of various sizes to be sited.



**FUNDING:** The Front Range Waste Diversion Enterprise and Resource Recovery Economic Opportunity Enterprise (now combined and expanded into the <u>Colorado</u> <u>Circular Communities Enterprise</u> program) have provided millions of dollars in grants, funded by tip fees at landfills, to enable composting businesses to purchase essential equipment. Letters of support from local governments can be helpful or sometimes necessary when applying for grants. Some local governments provide sustainability grants directly to compost businesses and/or rebate programs for businesses wanting to add compost services.



**PROGRAMS:** Local governments like the **Town of Minturn** have partnered with local composting businesses to provide residents access for drop-off sites. The **City of Edgewater's** agreement with local hauler **Scraps** and the **City of Durango's** partnership with **Table to Farm** are great examples of how cities and compost haulers can work together to offer curbside pickup to residents at a lower rate than they would get in an open market, by generating more buy-in that creates more cost-efficient hauling routes. Other communities guarantee residents access to compost collections through ordinances (**City of Boulder**), hauling contracts (including the cities of **Louisville**, **Lafayette**, and **Golden**) or municipal hauling (including **Loveland**, **Grand Junction**, **Denver**, and **Longmont**).<sup>38</sup>



**END USE:** State and local governments are also key players in driving demand for finished compost. The OMP 2.0 recommends, for example, that the **Colorado Department of Transportation** continue to use locally generated compost, and that the **Colorado Department of Agriculture** continue to expand efforts to increase compost use in agriculture. Local governments could drive demand and lead by example by using locally made compost and mulch (see page 11) on landscaping projects or adopting codes that require compost be added to new lawns. For example, before a newly constructed premise may be landscaped, **Denver Water** requires application of <u>4 cubic yards of compost per 1,000 square feet of permeable area</u>.

#### **Colorado Organics Diversion Models**<sup>39</sup>

- The **City of Aspen**'s organics landfill diversion requirement went into effect in October 2023. Thanks to this first-in-state ordinance to target organics, all establishments with a retail food license are registered with an organics hauler to take their scraps to the local industrial composter. As a result, composting of food scraps is up 70% compared to last year, diverting nearly 900 tons compared to just over 500 tons last year at this time. The city's next phase is to apply this diversion requirement to the rest of the commercial sector and multifamily properties by the year 2026, then in 2028 every occupant and owner will have their own curbside pickup for organic waste. The city has purchased steel wildlife-proof containers and indoor receptacles for businesses and has worked to educate businesses and staff about composting to maintain the integrity of the compost stream.
- In January 2023, the **City and County of Denver** moved to volume-based pricing for trash, recycling, and compost collection service and began rolling out curbside composting to all solid waste customers (rollout to be completed in 2025). The city has prioritized neighborhoods with lower participation in the previous subscription-based service and has added 20,000 additional customers since the rollout began. The changes in pricing and services have resulted in a 9% increase in compost tonnage from 2022 to 2023 with an additional 7% increase so far this year.
- Town of Vail has begun offering rebates to businesses that add compost collection services. Based on the annual cost of compost hauling, Vail rebates up to \$2,000 for businesses adding services and \$500-\$1,000 for businesses that already had composting services. The program is funded through a tax that supports the town's sustainability budget. Town sustainability staff, in partnership with Walking Mountains Science Center, help businesses set up composting systems that fit their individual needs and assist them with staff training. Recognizing that some businesses and schools require money up-front rather than reimbursements in order to add composting, the town is considering offering this type of financial assistance on a case-by-case basis.



- The **City of Grand Junction** is expanding their USDA grant-funded food scrap program (see <u>2023 report</u>). The program, which diverted over 100,000 pounds of food scraps in 2023, now encompasses nine downtown businesses, one event venue, two community food banks, one hospital, and one 2-yard drop-off food scrap receptacle located at the recycle center for public use. Key to the success of this and the city's recycling program has been intentional engagement with participants to help them understand not only how to compost and recycle, but why it is important to create clean streams, which has helped reduce contamination and increase participation. Staff have also encouraged participating businesses to invest in reusables. Reusable items reduce customer confusion over what materials are actually compostable and usually save businesses money over time.
- In addition to their composting and mulching programs, the **City of Loveland** partners with a local landscaper to recycle sod. Residents can drop off their sod at the city's recycling center, and city staff transports it to a local landscaping company that processes and resells it as topsoil or soil amendments. Communities interested in partnering with local landscaping companies to create a similar program on sod recycling are advised to ask if the landscaper can accept sod directly, and whether they have the capacity to pick it up from those with no means of transporting it. If the landscaper charges a fee to collect and process the material, the cost to recycle and reuse the material should be comparable to or less than the cost to landfill it in order to incentivize participation. Once the material is composted it can be resold as topsoil, generating additional financial incentive for reuse over landfilling.
- The **Town of Superior** Board of Trustees voted unanimously in October 2024 to expand their waste hauling contract to pay-as-you-throw pricing for weekly collection of trash and recycling, and every other week collection of compost. HOAs with contracted services will be brought into the town contract as the HOA contracts expire.

# NEW TOOLS RELEASED TO HELP EXPAND ORGANICS DIVERSION INFRASTRUCTURE AND PROGRAMS

The year 2024 saw the release of new resources to help communities build or expand composting. These additions join existing tools such as the US Composting Council (USCC) <u>model zoning template and guidelines</u> and the Natural Resources Defense Council (NRDC) <u>model compost procurement policy</u>, which builds markets for the end use of compost.

#### SB23-191: Colorado Organics Diversion Study and Toolkit (aka OMP 2.0)

In 2022, the CDPHE released the <u>Statewide Organics Management Plan</u> (OMP), which concluded that, while existing compost infrastructure has the capacity to process more organic materials, significant additional infrastructure is needed to process the volume of organic materials being generated in Colorado. The OMP also found that the demand for finished compost in Colorado is five times as high as what is currently being created.<sup>40</sup> In August 2024, at the direction of state Senate Bill 23-191, CDPHE released a second statewide study of organics management (commonly called OMP 2.0), which identified state and local policies needed to reduce food waste and divert organic materials away from landfills and into usable commodities. The OMP 2.0 is accompanied by the <u>Colorado Organics</u> Infrastructure Toolkit, which takes into account challenges specific to Colorado's climate and feedstocks, and provides tools including funding opportunities.

#### **Municipal Blueprint for Composting**

This August, **Eco-Cycle**, **Closed Loop Partners**, and the **Compost Consortium** released <u>The Municipal Blueprint for Composting</u>, which includes both <u>ready-to-use and customizable</u> <u>compost outreach materials</u>. The four sections of the Blueprint include best practices and case studies addressing policy, infrastructure, outreach, and contracting with service providers intended to help local governments create or expand existing programs.



A great way to stay informed on the latest organics-related tools and network with others in the field is to attend meetings of the <u>Colorado Composting Council (COCC)</u>. COCC is a chapter of the US Composting Council and is a network of businesses, local governments, and individuals interested in expanding composting and the use of compost to build healthy soils in Colorado. COCC works to achieve this by advancing infrastructure, end markets, and policy.

# YARD TRIMMINGS: THE LOWEST-HANGING FRUIT WITH HIGH POTENTIAL BENEFITS

Better residential drop-off locations or collections for yard trimmings can make significant improvements to overall diversion of organic materials from the landfill. As stated in the OMP 2.0, yard trimmings account for 42.8% of organic waste statewide, and currently only 18% of these yard trimmings are diverted from the landfill.<sup>41</sup>

If existing trash collection routes across Colorado were expanded to include collection of residential yard trimmings for compost, 69% of total yard trimmings could be diverted from the landfill. In addition, if drop-off locations for this material were added in counties that do not currently have curbside pickup, an impressive 90% of total residential yard trimmings could be diverted from the landfill.

Investing in residential yard trimmings collection for composting would lead to a substantial increase in the diversion of organic waste. The addition of curbside collection and drop-off locations for yard trimmings would easily make yard trimmings the most diverted category of organic waste.<sup>42</sup>



When communities are looking to start an organics diversion program, adding a mulch drop-off site can be the lowest-hanging fruit with the most immediate potential for improvement in the effort to divert organics from the landfill. Many communities across Colorado already host tree branch collection and mulching facilities either for their own trimmings from municipal public works or that are open to the public. Yard trimming drop-offs can be co-located with other municipal facilities such as recycling centers or wastewater treatment plants and may be open to the public for drop-off on special limited days during the summer or year-round multiple days per week. Some cities like Aurora use their own chippers to process materials; others, like Longmont and Loveland, contract with a third-party vendor such as A1 Organics to chip material the municipalities will neither use nor provide to residents, and then haul the chips away for composting. Some communities like Louisville make mulch available for residents to self-haul any time, while others allow residents to haul mulch for free or at a cost at specific times.<sup>43</sup>



Cities that collect and mulch woody materials cite multiple benefits<sup>44</sup> of using locally made bulk mulch, including:

- costs savings,
- reduction of waste compared to using commercially purchased bagged mulch,
- reduction in transportation-related emissions over mulch trucked in from other areas or out of state,
- and ease of spreading bulk loads that are dumped compared to the inefficiency of opening individual bags.
- The **City of Glenwood Springs** has found an unexpected benefit in that using bulk mulch can reduce the threat and financial impact of people stealing costly, easily transportable bagged mulch, which allows teams to leave mulch piles for a few days while they work on a project with less concern of theft.<sup>45</sup>
- Leni Vaimagalo with the **City of Thornton** adds, "The knowledge of where our trimmings have come from helps to reduce the possibility of introducing a foreign disease or pest into our landscape."<sup>46</sup>

# SINGLE-STREAM RECYCLING INCREASING AND EXPANDING ACCESS

# COLORADO'S PRODUCER RESPONSIBILITY FOR PACKAGING PROGRAM IMPLEMENTATION PLAN IS WELL UNDERWAY

Colorado's Producer Responsibility legislation (<u>HB22-1355</u>), sponsored by then State Representative Lisa Cutter and State Senators Kevin Priola and Julie Gonzales, and supported by Governor Polis, passed its last legislative hurdle in April 2024 when Colorado's <u>Joint Budget Committee (JBC) voted to move forward with a nation-leading Producer</u> <u>Responsibility program</u> that will expand recycling statewide and divert hundreds of thousands of tons of valuable materials from going to the landfill. This monumental decision will expand recycling services to approximately 700,000 more households across Colorado, boost Colorado's recycling rate for packaging—including bottles, cans, and boxes—to 60% by 2035, and shift the cost of paying for Colorado's recycling system from taxpayers and households to producers.<sup>47</sup> The JBC's approval gave the green light to CDPHE to continue with rulemaking and working with the <u>Circular Action Alliance</u> (CAA), the Producer Responsibility Organization (PRO), to develop the implementation plan that will:

- Enable Colorado to recycle 410,000 tons of additional valuable materials, for a total of 720,000 tons annually by 2035.
- Add 7,900 recycling-related jobs by 2035.
- Reduce annual greenhouse gas emissions equivalent to removing 278,000 cars from the road.
- Save municipalities and residents millions of dollars each year. CDPHE estimated in its presentation to the JBC that the cost savings for Denver alone will be \$16.3 million by 2035.<sup>48</sup>

As of the writing of this report, the volunteer <u>Producer Responsibility Advisory Board</u>, comprised of 13 members with expertise in packaging, recycling, and the impact of recycling programs on communities, has met over 30 times to assist in both the <u>statewide</u> <u>needs assessment</u> released in January, and now in the development of the program plan. In

addition to engaging with the Advisory Board, CAA has held public stakeholder meetings as well as meeting individually with stakeholders and with groups of impacted parties organized by interest groups such as **Recycle Colorado**. The program plan is due to CDPHE at the beginning of February 2025, at which point CDPHE will post it for public feedback and additional input from the Advisory Board. If the plan is approved, CAA will move forward with implementing Colorado's Producer Responsibility system beginning in January 2026.

To be true to the intent of the law, which aims to greatly expand and improve Colorado's recycling system and increase the circularity and recyclability of product packaging sold in the state, it is important that the plan:

- Incentivizes recycling programs, haulers, and processors to create the highest-quality material commodities (e.g., paper, cardboard, glass, aluminum, etc.) with the lowest amount of recyclables ending up in residuals (i.e., material sent to landfill after sorting).
- Prioritizes worker safety and paying living wages by requiring participating service providers to show that any reimbursements they receive for labor costs are actually passed on to workers in the form of higher wages and benefit packages.
- Reinforce continued competition and community choice in selecting service providers, and not inadvertently creating or allowing for monopolies for haulers or processors.
- Creates a transparent and accountable system that uses authentic, proven methods
  for mechanical recycling and does not allow problematic <u>mass balance</u> accounting or
  <u>pyrolysis and gasification</u> to count as recycling. "Mass balance" is a complicated term
  that has multiple meanings; most concerningly, it is often used by the plastics industry
  as a "greenwashing" mechanism to claim higher recycled content in products than they
  actually contain, and to get recycling credit for problematic chemical recycling processes
  such as pyrolysis and gasification. Pyrolysis and gasification are energy-intensive,
  polluting processes that generate very little material that can be turned into new
  products, and instead, they create "pyrolysis oil" and "syngas" that are used as fuels.



Colorado's Producer Responsibility legislation will expand recycling services to approximately 700,000 more households across Colorado, boost Colorado's recycling rate for packaging—including bottles, cans, and boxes—to 60% by 2035, and shift the cost of paying for Colorado's recycling system from taxpayers and households to product manufacturers. Many communities continue to prepare for the expansion of recycling under Producer Responsibility by exploring ways to organize recycling in their communities before Colorado's system goes into effect in 2026. Other communities are implementing policies and programs that expand recycling to businesses that may not be covered under Producer Responsibility right away, or ever.

#### **Colorado Recycling Models**

- With the help of the Front Range Waste Diversion Enterprise's Technical Assistance Service Provider (TASP) program (see page 25 for more), the **City of Lafayette** conducted a feasibility study to develop a Universal Recycling Ordinance (URO) requiring commercial and multifamily property owners to have recycling service. The project's desired outcome was to make recycling accessible across all sectors in the community and to reduce the amount of waste destined for landfill disposal. In June 2024, Lafayette adopted the URO and is now offering businesses up to \$1,150 to start recycling as part of **Boulder County's** Zero Waste Coupons program. The **City of Longmont** implemented a similar URO in June of 2024. City staff recommend that municipalities considering similar ordinances engage in business outreach and waste education to know where small businesses will need support and guidance, and build enforcement provisions into their URO.<sup>49</sup>
- In 2023, the **Fort Collins** City Council unanimously approved a new residential hauling contract, which took effect on September 30, 2024. Under this new system, residents receive expanded recycling and composting services at a lower cost. For approximately the same price that previously covered trash collection and bi-weekly recycling, residents now enjoy trash pickup, weekly recycling, and seasonal weekly yard trimmings collection. This shift also ensures that all community members benefit from the same affordable rates, eliminating the previous variation in pricing. <sup>50</sup>
- **Summit County** adopted a pay-as-you-throw ordinance similar to those previously adopted in the towns of **Frisco** and **Breckenridge**, which will require licensed trash haulers serving residents in unincorporated parts of the county to bundle trash and recycling services. Haulers will be required to charge customers based on the size of their trash bin, increasing fees for larger trash containers.<sup>51</sup>
- Broomfield-based recycler Glass to Glass has been working with communities around the state that have limited glass recycling programs to divert more glass from landfills back into Colorado's circular glass system. For example, the 2,000-resident Town of Westcliff prioritized glass recycling and has created a program supported by nonprofit High Country Recycling that has helped the town divert 40 tons of bottle glass since February.<sup>52</sup> Glass-only collection programs help retain more of the value of glass and avoid wear and tear on recycling facility equipment by reducing glass breakage and mixing with other materials.

# **ELECTRONIC WASTE, BATTERIES, AND RIGHT TO REPAIR**

Colorado landfills receive almost 90 thousand tons of electronics and batteries per year—26 pounds of electronics (including embedded batteries) and an additional 4 pounds of batteries per person each year.<sup>53</sup> These disturbing numbers prevail despite a <u>Colorado</u> state law that bans the disposal of electronics, or "e-waste", from landfills and encourages communities to "make a good-faith effort" to secure the services of an e-waste collection and recycling business or offer a collection themselves.<sup>54</sup> Electronics contain a variety of materials, some of which are very valuable and can be recycled into new products and some of which can <u>pose risks to our health and the environment</u> when improperly discarded. Electronic devices that contain embedded batteries, as well as some loose batteries, present fire risks when improperly thrown in the trash or curbside recycling. Household hazardous waste (HHW) facilities, recyclers, and waste haulers and facilities reporting these weekly or even daily.<sup>55</sup> Lithium-ion batteries are especially dangerous as they can burst into flames when they are compacted by trash or recycling equipment.

Unlike Producer Responsibility laws for e-waste in many states where the cost of collections and responsible disposal are covered by producers of the products,<sup>56</sup> Colorado's law requires that e-waste is diverted from landfills, but it does not provide a funding source to cover the cost of collecting and recycling this material. Because of this lack of funding, residents and businesses must pay to dispose of e-waste—either at the point of disposal or through a local tax or fee. As a result, illegal dumping of electronics is still a challenge in many areas.

Managing e-waste overlaps with the proper disposal of batteries as some electronics contain embedded batteries. Batteries that are not embedded in electronic devices may be collected at HHW facilities and collection events, or through voluntary business-based takebacks. The problem is, much of Colorado lacks convenient safe battery disposal options. <u>Eleven</u> states across the country have at least one Producer Responsibility law targeting small- and medium-format batteries (e.g., Washington State, Illinois, and Washington, D.C.) that create producer-funded statewide systems to collect and safely recycle or dispose of these batteries.<sup>57</sup>





## **COLORADO ELECTRONICS COLLECTION MODELS**

For communities large or small, annual e-waste collection events can have an outsized impact in safely recycling electronics. These collection efforts are often hosted through partnerships or contracts with local household hazardous waste programs or other businesses specializing in the collection and recycling of specific targeted materials. Some models of electronics collections include:<sup>58</sup>

- The **Town of Fruita** offers an annual electronics recycling event that allows people to get rid of their unused electronics safely and for a minimal cost.
- The League of Women Voters hosts an annual Town of Estes Park Recycles Day, which collected over 14,000 pounds of electronics this year with support from local businesses and volunteers.<sup>59</sup>
- The **Town of Vail** provides two Hard-to-Recycle events that are free for residents and employees working in Vail and are funded through collected single-use bag fees.
- The **City of Longmont**'s annual Hard-to-Recycle collection event serves about 1,000 customers and collects 40–50 tons of materials, including e-waste and other Hard-to-Recycle items.
- Some counties like **Summit County** and larger communities like the **City of Boulder** offer full-time electronics collection at certain facilities. **Denver** Solid Waste Management offers Denver residents an "E-cycle Coupon" for recycling televisions, monitors, and other electronic items at a significantly discounted rate; residents are limited to one E-cycle Coupon per calendar year, and can request a coupon online, which allows them to drop off their e-waste at **Blue Star Recyclers**, a Denver-based nonprofit that provides electronics <u>recycling jobs for people with autism and other</u> <u>"disAbilities"</u>.
- The **City of Boulder** and **Eco-Cycle** are piloting new ways to make electronics recycling accessible for everyone, particularly low-income residents. E-waste is accepted at the Eco-Cycle/City of Boulder Center for Hard-to-Recycle Materials (CHaRM). Computers, mobile phones, and tablets are covered by the \$3 facility fee, while other items may have an additional fee. The most common barriers to recycling e-waste are cost, education,

and transportation. To address these barriers, the City of Boulder, working with Eco-Cycle, hosted free e-waste collection events in low-income communities, bringing CHaRM services and the opportunity to recycle unusual items to the doorsteps of 800 homes. These events are most effective when accompanied by educational flyers at each home as well as staff who can answer questions and monitor the drop-off site.

### **COLORADO IS A LEADER IN RIGHT TO REPAIR**

One of the best ways to reduce e-waste is to extend the life of our electronic products by fixing them. As more and more companies design their products in ways to undermine our right to fix our own stuff, the State of Colorado has acted. Over the last three years, Colorado has passed three "Right to Repair" bills to ensure residents have access to tools, resources, parts, and information to fix products themselves. Coloradans currently have <u>the broadest</u> repair rights of any state in the country, helping to extend the life of important electronics and supporting efforts to ensure products are designed to last. <u>HB24-1121</u>, the Right to Repair consumer and commercial electronics policy, will take effect on January 1, 2026, covering everything from appliances to computers, and cell phones to HVAC units.



Coloradans currently have the broadest repair rights of any state in the country, helping to extend the life of important electronics and supporting efforts to ensure products are designed to last.

# REDUCE AND REUSE SHOULD COME FIRST

It's often overlooked that the phrase "Reduce, Reuse, Recycle" is listed in order of environmental preferability. Waste reduction activities and systems, which include reusable and refillable containers, resale, and systematically banning or individually refusing unnecessary products, are the most environmentally beneficial methods to managing waste by entirely avoiding the resource extraction, manufacturing, and eventual disposal of singleuse products.<sup>60</sup> The benefits of durable, reusable products are realized every time they are reused by avoiding the use of a single-use product.

The reuse economy is vast, encompassing various sectors such as repair services (tailoring/ mending, shoe repair, auto repair, etc.), resale markets (thrift/consignment, used books and gear, pre-owned cars, auction, pawn, etc.), rental services (cars, bridal, sports equipment, etc.), and reuse/refill businesses (bulk food, serviceware, etc.). Contributing to the reuse economy can be practiced both on an individual and systemic level. For example, bringing a reusable beverage container to a cafe to avoid a single-use take-out cup is an example of personal waste reduction, whereas a large event venue choosing to implement a reusable cup program is an example of systemic waste reduction.

For governments or businesses, "green procurement," or environmentally preferable purchasing, is the practice of choosing to purchase materials with lower environmental impacts. Green procurement is relevant to waste reduction systems because large purchasers, businesses, institutions, and local governments have the purchasing power to make an impact in transitioning from our status-quo disposable, single-use culture to one where reuse is the norm. By implementing policies to prevent purchase of single-use products—such as plastic water bottles or paper coffee cups—these entities are investing in a sustainable, circular economy. While the State of Colorado and some local governments have adopted green purchasing programs, more can be done to ensure these programs are fully implemented, and to measure the environmental and economic impacts of these programs and make them replicable for other Colorado communities to adopt.<sup>61</sup>

# **COLORADO REDUCE AND REUSE MODELS**

Colorado municipalities and businesses are looking at strategies to reduce waste through reuse. See <u>last year's report</u> for examples in addition to the following models:

- The **City of Boulder** offers a one-time rebate for businesses of up to 70% of costs (capped at \$2,000) for businesses purchasing reusable solutions, such as dishwashers or durable serviceware. This initiative helps businesses reduce waste and adopt sustainable practices that transition from single-use to reuse.<sup>62</sup>
- This year, the City & County of Denver's Office of Climate Action, Sustainability, and Resiliency (CASR) partnered with Diversion Designers to launch a new Reuse Denver program, which financially incentivized retail food establishments to switch from disposable to reusable food serviceware. The city offered 35 retail food establishments up to \$600 worth of reusable food serviceware for on-site dining, which was partially funded through the city's disposable bag fee fund. CASR also launched the <u>Reuse</u>
   <u>Business Directory</u> to help the community find where to rent, repair, or buy used items locally. The new online platform was in direct response to a study conducted by the City that found these businesses employed over 3,000 people and contributed \$540 million to the economy in 2023. The reuse economy also helped Denver avoid an estimated 223,700 MT CO<sub>2</sub>e in emissions that same year.<sup>63</sup>



Photo courtesy of r.World Colorado is seeing a rise in reuse businesses focused on reducing food serviceware waste. Along with the increase in bulk stores across the state, companies like **OZZI**, **DeliverZero**, and **r.World** (formerly r.Cup) are helping reduce single-use waste from serviceware items like cups and to-go containers at grocery stores, restaurants, venues, campuses, ski areas, and events statewide. The success of these businesses depends on partnerships with local governments and other businesses.<sup>64</sup>



• In addition to recycling goals in the 2024 Silverthorne Sustainability Strategic Plan, the **Town of Silverthorne** prioritized reuse as a top action for waste reduction.<sup>65</sup>

# INNOVATIVE SOLUTIONS



#### **RECYCLING DOWN FILL AND FIREFIGHTING GEAR**

A company in Colorado now has a way to reuse and recycle down-filled products—think jackets, sleeping bags, pillows, and comforters—that their owners are done with. Denver-based **Tersus Solutions** works with dozens of outdoor and fashion companies to clean and repair used down-containing products to be resold back to customers through their "recommerce" program. The company uses a  $CO_2$  cleaning process to clean down fill from used products that can't be cleaned or repaired, so that it can be made into new products. They have recycled over 21,000 pounds of post-consumer down fill, enough to make up to 100,000 new down jackets.<sup>66</sup>

Tersus also uses the CO<sub>2</sub> cleaning process to clean firefighting gear. According to Captain Chris Wells of the **South Metro Fire District**, "We used to throw our old gear in the trash, but due to the new cleaning process we can now wash the gear and then we donate the gear to fire departments around the world that don't have funding to purchase proper gear."<sup>67</sup>

# RECENT WINS FOR A STATEWIDE CIRCULAR ECONOMY

Despite Colorado's stubbornly low and stagnant diversion rate, in the past few years, advocacy groups (like **Eco-Cycle** and **CoPIRG**), businesses, and local governments have worked with leaders in the **Colorado General Assembly** and the **Polis Administration** to adopt new laws and policies that set the stage for accelerated progress in the coming years. As highlighted throughout this report, Colorado has made significant progress toward a circular economy with the passage of significant, precedent-setting legislation, as well as the introduction of expanded services, funding mechanisms, and strategic tools. While some of the legislation was passed more than a year ago, planning and actual implementation is the important work moving forward. Some of the laws and initiatives below have been implemented, while others are still in the planning phases.

• Colorado's Plastic Pollution Reduction Act (PPRA) (<u>HB21-1162</u>, adopted in 2021; full implementation started July 1, 2024) banned single-use plastic carry-out bags from distribution at large retail stores and imposed a \$0.10 fee for paper bags, creating an economic incentive for customers to choose reusable bags. The law also banned polystyrene to-go food containers and cups, and eliminated a state statute that prohibited municipalities from further restricting the use of plastics. Because plastic bags and polystyrene are lightweight, banning bags will not dramatically reduce the total tons of waste Coloradans produce. However, PPRA and local bag ordinances are already resulting in billions fewer plastic bags and polystyrene items being used, reducing



plastic pollution and litter in Colorado as well as pollution from production and extraction up the supply chain. For example, the **Town of Breckenridge** reports that single-use "plastic grocery bags are practically nonexistent" in their most recent annual litter cleanup.<sup>68</sup> Bag laws are shifting behavior toward reuse as well as providing valuable funding for municipal sustainability projects. A **City of Denver** survey indicated that, due to the Disposable Bag Fee, about 80% of Denverites bring their own bags to the store "every time" or "most times," and survey respondents supported



using bag fees to fund sustainability efforts from water-bottle filling stations to community cleanup efforts.<sup>69</sup>

- Colorado adopted Producer Responsibility for Recycling Packaging and Printed Paper (<u>HB22-1355</u>, adopted in 2022; currently in planning stages; implementation begins in 2026—see page 13) which will provide residential and eventually some nonresidential recycling access for customer-facing packaging like bottles, boxes, cans, and some plastic packaging. Modeled on a successful Producer Responsibility program for paint in the state, **PaintCare**, which keeps over 800,000 gallons of paint out of landfills every year,<sup>70</sup> Colorado's Producer Responsibility program will expand recycling statewide to approximately 700,000 more households, boost Colorado's recycling rate for packaging to 60% by 2035, and shift the cost of paying for Colorado's recycling system from taxpayers and households to product manufacturers, creating an incentive to reduce unnecessary packaging.<sup>71</sup>
- **Right to Repair** (adopted 2022<sup>72</sup>, 2023<sup>73</sup>, 2024<sup>74</sup>; varying implementation dates): Over the last three years, Colorado has passed three Right to Repair bills, ensuring residents have the tools, parts, and information they need to fix everything from <u>tractors</u> to <u>phones</u> to <u>powered wheelchairs</u>. The third bill, focused on <u>consumer and business electronics</u>, will go into effect January 1, 2026. Coloradans currently have the <u>broadest repair rights of any state in the country</u>, which will help to extend the life of important electronics and support efforts to ensure products are designed to last.
- Major organics diversion studies and regulations update: The 2022 Organics Management Plan (OMP) provided crucial data on the capacity of existing composting infrastructure throughout the state to process the current volume of organic material generated statewide. This plan also provided some recommendations for how to increase composting in the state, including proposing an update to state permitting regulations, which was adopted in 2023 and makes it easier and less costly for small compost facilities to be permitted. The subsequent report, <u>SB 23-191 Colorado Organics Diversion Study</u> (aka OMP 2.0), and accompanying toolkit released in 2024, outlines steps that state agencies should take, as well as policies the state and local governments should adopt, to reduce food waste and to divert organic matter away from landfills and back into the circular economy as compost, biochar, or mulch.



- Greenhouse Gas Pollution Reduction Roadmap (updated in 2024; sets goals for 2024 and beyond): The Polis administration included waste management provisions in its 2024 <u>Colorado Greenhouse Gas Pollution Reduction</u> <u>Roadmap 2.0</u>, including calling for an updated Solid Waste Management Plan, updated landfill methane rules, and the completion of a statewide consumption-based emissions inventory as a goal for 2025.<sup>75</sup> Such an inventory will provide data necessary for the state to continue to take meaningful actions on waste prevention/reduction, recycling, composting, and reuse.
- Creation and consolidation of state grants for waste reduction and diversion: A 2024 law, <u>HB24-1449</u> combines the Front Range Waste Diversion Enterprise (FRWD) and Resource Recycling Opportunity Enterprise (RREO) into the new statewide <u>Colorado Circular Communities</u> (C3) Enterprise program. Funded through small landfill tip fees, combining the two funds into one statewide enterprise should make the program more efficient and will expand FRWD's free technical assistance service to local governments throughout the state to help meet their unique waste reduction and diversion needs. See next page for details.
  - **The Circular Economy Development Center (CEDC)**: Created by <u>HB22-1159</u> and funded through the C3 Enterprise fund, the CEDC provides expertise and support to attract new end-market businesses and empower Colorado businesses to manufacture new products using materials that Coloradans recycle. In 2024, CEDC commissioned an "<u>End Market Opportunity Assessment</u>," which evaluated the landscape of Colorado's manufacturing base and identified specific materials and industries that are ripe for further development of circular solutions. The CEDC is also leading a Circular Transportation Network to address rural recycling transportation challenges.<sup>76</sup>

# **TECHNICAL ASSISTANCE EXPANDING STATEWIDE**

For the past two years, CDPHE has partnered with Resource Recycling Systems (RRS) and Eco-Cycle to provide free technical assistance to help Front Range communities meet waste reduction goals. Soon, communities statewide can access this support through the Colorado Circular Communities Enterprise (C3), which replaces the Recycling Resources Economic Opportunity Enterprise (RREO) and Front Range Waste Diversion Enterprise (FRWD). C3 uses a circularity framework and funds from landfill tipping fees to modernize waste diversion across Colorado. Local governments, K–12 schools, and tribes can apply for free support through the Technical Assistance Service Provider (TASP) program, continuing with RRS and Eco-Cycle, to develop policies, programs, and infrastructure that reduce waste and increase diversion rates.

In 2024, TASP helped 14 communities complete the following projects leading to long-term solutions<sup>77</sup>:

- **Arvada:** Conducting research and stakeholder outreach to create a citywide Waste Diversion Action Plan that will provide city staff with a roadmap for programs, policies, and investments to advance waste diversion.
- **Bennett:** Implementing a feasibility study for developing a community composting program with a local regenerative farm, or an in-town or regional composter.
- **Brighton** and **Fort Lupton**: Leading feasibility studies to develop citywide contractual residential waste and recycling collection systems.
- **Broomfield:** Carrying out strategic communications and engagement for residents to ensure a successful transition to a single-hauler waste and recycling collection system.
- **Denver:** Providing a feasibility study for a municipally-owned compost facility that would process all residential yard trimmings and food scraps and potentially commercial organic material.
- Fort Collins: Analyzing options, potential partners, supportive policy, and expected costs for new community-scale composting and construction and demolition recycling facilities.
- Lafayette: Conducting a feasibility study for developing a universal recycling ordinance for commercial and multifamily sectors.
- **Pueblo:** Identifying opportunities to optimize and expand current recycling services offered at the city's RecycleWorks drop-off site to county residents.
- **Centennial, Englewood, Littleton, and Sheridan:** Developing an action plan for improving individual cities' and the region's waste diversion rates through a data-driven waste and recycling assessment.
- Superior: Evaluating opportunities to increase and improve compost collections.

For more information about this program, see <u>cdphe.colorado.gov/c3</u> or contact <u>c3.inquiries@state.co.us</u>. Attend an office hour with one of C3's Outreach and Technical Assistance specialists to learn more about how C3 can assist your community and for hands-on application and proposal development assistance.

# RECOMMENDATIONS

#### RECOMMENDATIONS TO ADVANCE CIRCULAR ECONOMIES IN COLORADO

	ORGANICS
STATE LEVEL	<ul> <li>Implement recommendations in the SB23-191 Colorado Organics Diversion Study, including:</li> <li>Work across agencies (CDPHE, CDOT, Agriculture, etc.) to create end markets for finished compost, including use by farmers.</li> <li>Adopt state policies to further organics diversion, including landfill diversion requirements for food scraps and yard trimmings.</li> </ul>
MUNICIPAL AND COUNTY LEVELS	<ul> <li>Add or expand organics diversion programs in your community by adding community-run residential programs or working with local businesses to:</li> <li>Divert yard trimmings through mulching and/or sod recycling.</li> <li>Compost food scraps.</li> </ul> Build end markets for compost use including: <ul> <li>Use locally made mulch and compost in municipal public works projects.</li> <li>Require compost application for new landscaping.</li> </ul>



	PACKAGING RECYCLING
STATE LEVEL	Continue working to implement Colorado's Producer Responsibility for Packaging system to ensure it provides equitable access to Colorado communities and residents, incentivizes packaging reduction and recyclability, and increases the capture of recyclable materials for circular remanufacturing and job creation.
MUNICIPAL AND COUNTY LEVELS	Provide public input to help shape the implementation plan under development, and comment on CDPHE's official draft plan due in February 2025. Explore adopting a hauling contract to guarantee recycling services for all residents. Require businesses to recycle through a Universal Recycling Ordinance.



	PRODUCER RESPONSIBILITY FOR BATTERIES
STATE LEVEL	Create a producer-funded system to provide safe collection and recycling of consumer batteries across Colorado.
MUNICIPAL AND COUNTY LEVELS	Let your state elected officials know how a fully funded program for battery collection and recycling could benefit your community.

	REUSE
STATE LEVEL	Emphasize reuse, refill, and waste reduction in Colorado's Producer Responsibility for Recycling program.
MUNICIPAL AND COUNTY LEVELS	Join Eco-Cycle's online conversations about building out reuse in Colorado. Email <u>ryan@ecocycle.org</u> to get involved. Work with local businesses to switch to reuse over single- use alternatives. Lead by example by implementing reusables at government- led events. Explore adoption of an ordinance requiring reusables for dine-in eating at restaurants.





# CONCLUSION

Waste is a problem with extensive impacts that we should not accept when we have so many tools to prevent it, and are capable of creating a circular economy that eliminates unnecessary stuff and reuses and recycles what we do need over and over.

Colorado is poised for significant advances toward creating a circular economy through waste diversion efforts. Leaders at the state legislature, the Governor's office, and on the municipal level have passed and enacted important policies to reduce single-use plastics, expand curbside recycling to everyone in the state and shift the cost of paying for Colorado's recycling system from taxpayers and households to product producers, enshrine Right to Repair protections, and create critical funding programs like the Colorado Circular Communities (C3) Enterprise as well as support systems like the 2022 Organics Management Plan and subsequent 2024 organics study and toolkit, and the Circular Economy Development Center (CEDC).

We're just beginning to see the effects as Colorado's overall municipal solid waste tonnage has slightly decreased in recent years even as population has increased. Some cities have demonstrated their leadership in diverting valuable materials away from landfills, including Boulder, Loveland, Fort Collins, Aspen, and Durango, which divert the highest percentages of material in the state.

In 2025, it is critical that state and local decision makers continue to build on this foundation by tackling organics, batteries, and reducing barriers for large-scale reuse systems.

The year 2025 is a particularly important one to make progress on organics. Diverting organic matter from landfills by creating valuable compost, biochar, or mulch is one of the most powerful climate change solutions we can implement to both reduce greenhouse gas production and to sequester carbon in the soil. Nearly 40% of Colorado's municipal solid waste is organic materials (food scraps, yard trimmings, clean wood, and "other" organics such as single-use paper napkins, paper towels, and other natural fiber or recyclable paper products that are not properly recycled), and we landfill more than five times as much organic matter as we divert through composting, mulching, or other means.

This report provides examples of success that Colorado needs to build upon and recommendations for further progress that will make Colorado a national leader that wastes less and reuses, recycles, and composts more. By becoming a national leader, Coloradans will benefit from less waste, reaping the public health, environmental, and economic benefits that come from reducing, repairing, reusing, recycling, and composting.

# **APPENDIX**

## **DATA COLLECTION TERMS**

The term "diversion rate" means different things both across Colorado and across the country, which makes it hard to compare between cities and states. This report distinguishes the recycling and composting rate based on the different parts of the community, including:

- Recycling rate—for the purpose of this report, refers to the amount of material recycled, composted, or diverted from landfill through reuse. Calculating tons avoided through reuse is much harder than measuring tons recycled or composted.
- Citywide recycling rate—includes households and businesses, also known as municipal solid waste (MSW).
- Residential recycling rate—includes single-family homes and apartment buildings of up to seven units (may not include homeowner associations, also known as HOAs).
- Industrial recycling rate—includes materials generated through agricultural activities, construction & demolition, energy production, and other industrial activities.

## HOW TO CALCULATE THE RECYCLING RATE

The recycling rate, commonly called the diversion rate, is the amount of material collected for recycling, reuse, and composting divided by the total amount of discards generated:

Tons of recycling + composting + reuse

= diversion rate

Tons of recycling + composting + reuse + trash

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