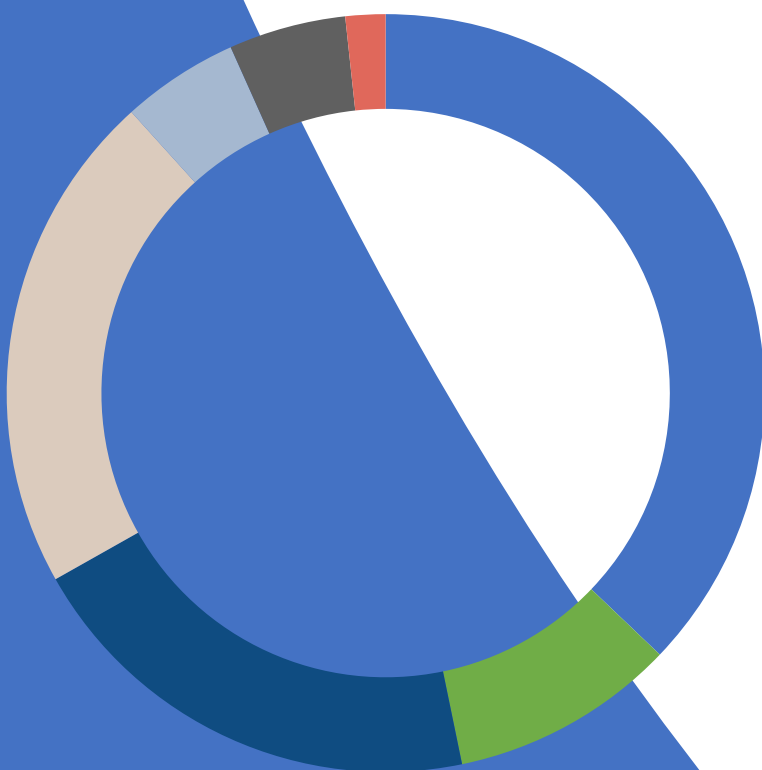


Boulder County

ZERO WASTE ACTION PLAN

Diversion Potential



37% CURRENTLY COMPOSTED + RECYCLED



21% C&D FACILITY



20% MUNICIPAL ZERO WASTE ORDINANCES



10% COMPOST FACILITY



5% CIRCULAR ECONOMY + EPR



5% Reduce & Reuse



2% CURRENTLY UNDIVERTABLE



TABLE OF CONTENTS

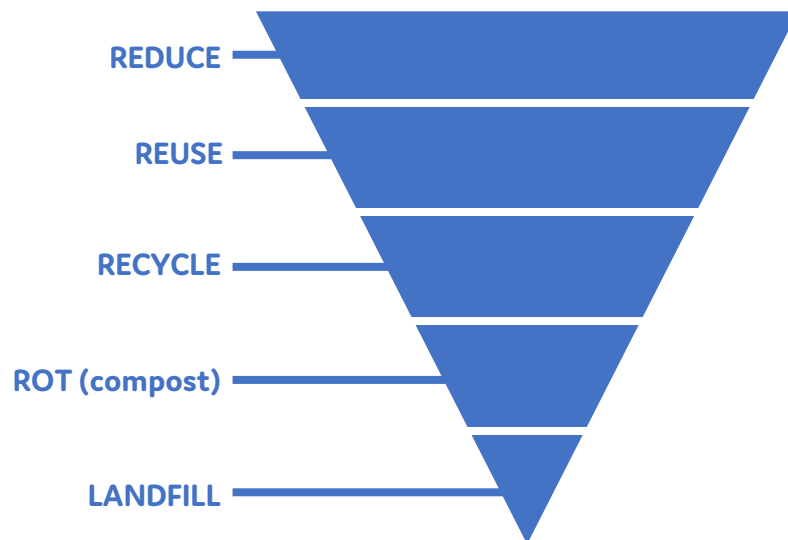
What is Zero Waste?	3
Where We Are At	4
Zero Waste Action Plan Update	5
Recommendations	6
Local Compost Facility and Decentralized Composting Solutions	6
OVERVIEW	6
PLANNING	6
PROGRAMMING	7
POLICY	7
Municipal Solid Waste Ordinances	8
OVERVIEW	8
PLANNING	8
PROGRAMMING	9
POLICY	9
Construction & Deconstruction (C&D) Solutions	10
OVERVIEW	10
PLANNING	10
PROGRAMMING	11
POLICY	11
Circular Economy + Extended Producer Responsibility and Product Stewardship	12
OVERVIEW	12
PLANNING	12
PROGRAMMING	14
Reduce and Reuse	16
OVERVIEW	16
PLANNING	16
PROGRAMMING	17
POLICY	18
Resources	19

WHAT IS ZERO WASTE?

Zero Waste is a resource management strategy modeled on the waste-free and self-sustaining systems seen in nature. Zero Waste accepts that the earth's ability to support life is finite and that natural resources must be used in the most efficient and sustainable way possible.

Zero Waste works to replicate nature's systems by reducing consumption, reusing as much as possible, recycling and composting everything that can be, and designing materials for durability, reuse, and recyclability. The model rejects the current, unsustainable system of waste disposal and landfilling because it is harmful to the environment and human health, and wasteful of natural resources.

Boulder County has committed to advancing zero waste and the circular economy in the community and its own practices. In 2005, the Board of County Commissioners (BOCC) adopted a Zero Waste Resolution, committing the County to divert 90% of its waste from the landfill by adhering to the 4 R's; Reduce, Reuse, Recycle, and Rot (compost).



WHERE WE'RE AT:

United States citizens throw away a lot of valuable resources into landfills. The national diversion rate -- amount of material that is recycled, composted or otherwise diverted out of the total amount generated-- is only 34%. Consequently, 66% of everything we use ends up in a landfill. The data is even more grim for Colorado, with only about 16% of material diverted from landfills.

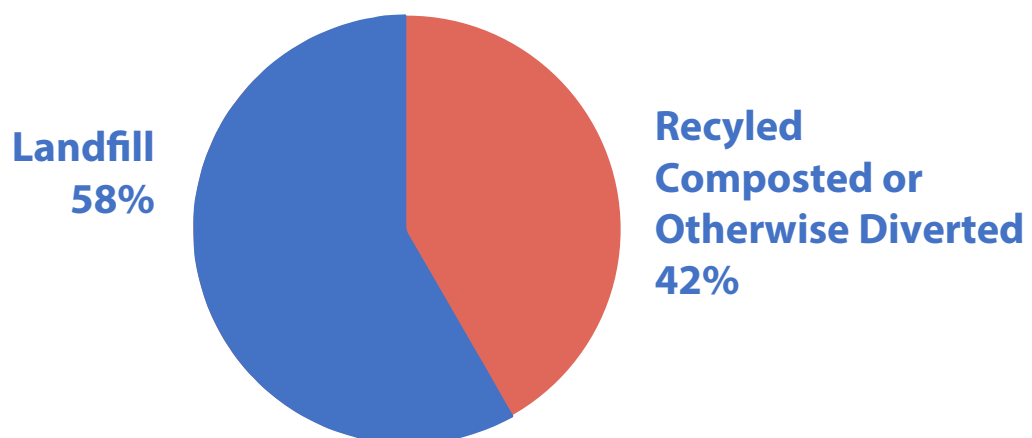
Boulder County is performing above the national and state averages with a diversion rate of 41.7% in 2022. However, with over 58% or about 234,000 tons still being landfilled, the County has a way to go to diverting and recovering these valuable resources. Boulder County governmental operations succeeded in reaching a 59% diversion rate in 2022.

BOULDER COUNTY DIVERSION RATE

What we have created is a five-year prioritized action plan with tangible diversion impact and cost referencing data from multiple sources, including: the 2019 Countywide Waste Composition Study; RRS Compost / C&D site analysis; Zero Waste Scorecard; EPA Warm Model; Boulder County Comprehensive Plan; and, other relevant work.

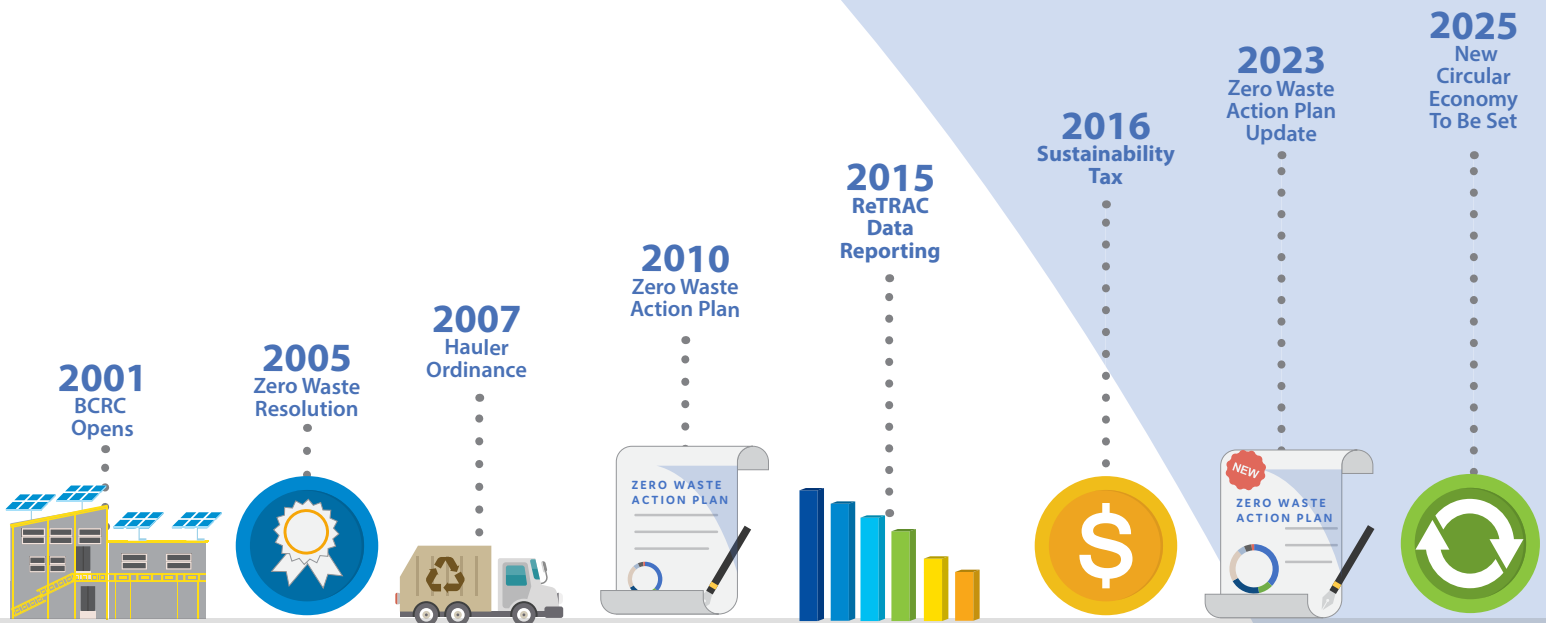
The measure of success will be the overall increase in diversion rate from the landfill.

Contributors to this document include staff from Boulder County's Public Works Resource Conservation Division and Office of Sustainability, Climate Action & Resilience (OSCAR).



ZERO WASTE ACTION PLAN UPDATE

As a sign of its continued dedication and ongoing support of climate change reduction strategies, Boulder County and the Boulder County Board of County Commissioners are updating and renewing the Zero Waste Action Plan from 2010.



This Zero Waste Action Plan Update will guide the County’s efforts to increase the diversion rate and reach the County’s Zero Waste goal. This update focuses on prioritized, actionable recommendations around planning, programming, and policy for the next five-years. These recommendations include material stream focuses and potential diversion impacts.

The plan update incorporates data from multiple sources including: the 2023 Boulder County Sustainability, Climate Action and Resiliency Plan, 2019 Countywide Waste Composition Study, RRS Compost / C&D Site Analysis, Boulder County Zero Waste Scorecard, Boulder County Comprehensive Plan, EPA Waste Reduction Model (WARM), and other relevant work.

Contributors to this document include staff from the Boulder County Resource Conservation Division (RCD) and Office of Sustainability, Climate Action & Resilience (OSCAR).

RECOMMENDATIONS

Local Compost Facility and Decentralized Composting Solutions Potential 10% diversion

OVERVIEW

According to the 2019 Countywide Waste Composition Study, 21% or about 49,000 tons of organic material disposed of in Boulder County and deposited in landfills is compostable. Organic matter in landfills is problematic because they decompose through anaerobic digestion, which releases potent greenhouse gas emissions like methane.

Boulder County already diverts about 37,000 tons of organic material through commercial composting services offered by haulers, required by Boulder County's waste hauler licensing ordinance. Building a local compost facility and supporting decentralized composting solutions would increase the processing capacity for organic material in the region. A local facility would also reduce greenhouse gas emissions by reducing distances current haulers must travel to out-of-county compost facilities. A local facility would provide residents the opportunity to close the loop on compost, from kitchen pail to garden.

A CIRCULAR ECONOMY FOR ORGANICS



RECOMMENDATIONS



PLANNING

- Support the development of a local composting facility in or near the County that will be capable of processing 50,000 tons of material. Site development efforts will include:
 - Collaborating with County leaders and departments to locate and review potential sites.
 - Conducting outreach with neighbors, community members and other local stakeholders to receive input on site location and designs.
 - Analyzing facility site design, logistics, costs, operations, environmental benefits, and environmental impacts.
 - Exploring potential end market users through interviews and surveys.
- Support decentralized composting by using in-vessel composting units or other composting technologies that are sited in each municipality and populated region of the county.

PROGRAMMING

- Create an outreach campaign to educate the public and increase support for a local compost facility.
- Explore programming to address woody biomass that may come from fire risk reduction efforts, like forest thinning efforts.

Boulder County will support activities at a future compost facility including but not limited to:

- Providing opportunities for public drop-off of organic material. Finished compost products will also be available to residents.
- Providing tours of the composting facility to the public and K-12 students.
- Implementing innovative composting programs, applying for grants like with the USDA Community Compost and Food Waste Reduction.
- Educating through Compost Workshops and Master Gardener Workshops.

POLICY

- Work with municipal partners to have organic material from their operations and from curbside collections sent to the County's compost processing facility.
- Pursue a cost-sharing intergovernmental agreement (IGA) with municipal partners to provide a subsidized drop-off program for residents.

RECOMMENDATIONS

Municipal Solid Waste Ordinances **Potential 20% diversion**

OVERVIEW

One of the most impactful ways to increase diversion is for municipalities within the County to implement zero waste ordinances. Zero waste ordinances require certain diversion activities from residents and businesses, for example businesses may be required to provide recycling and compost collection containers at establishments.

These ordinances can also provide valuable data through required tracking and reporting of waste/recyclables/organics weights that originate from within municipal boundaries. This data will improve understanding of Boulder County's wasteshed, helping to identify opportunities for programmatic and policy solutions.

PLANNING

Zero Waste Scorecard

The Boulder County Zero Waste Action Plan Scorecard, created in collaboration with Eco-Cycle, is a guide with action items that the County and cities can take to increase municipal solid waste diversion from the landfill. These action items are weighted by diversion potential and greenhouse gas (GHG) reduction impact for a cumulative score out of 100.

- The scorecard will be updated as needed to help track municipalities' progress towards zero waste.

ReTRAC Tracking Software

ReTRAC is a software system that transforms the way cities manage and measure waste and recycling programs. Every year the County financially sponsors any city that wants to participate in ReTRAC. The information collected by ReTRAC allows municipalities to measure the positive impacts of zero waste ordinance adoption.

- ReTRAC software will continue to be provided to municipalities free of charge.

RECOMMENDATIONS

Municipal Solid Waste Ordinances

PROGRAMMING

Incentive-based programming for [Zero Waste Policy Adoption](#)

The Zero Waste Scorecard showed that adoption of required recycling and composting has one of the highest greenhouse gas reduction and diversion rate impacts.

- To encourage municipalities to adopt zero waste ordinance with these types of requirements, Boulder County will develop an incentive-based program.
- Staff will also inform municipal partners of the FRWD Technical Assistance Service Provider (TASP) program that provides free zero waste consulting assistance to local government in the Front Range

[Zero Waste Scorecard Road Show](#)

The Zero Waste Scorecard contains critical data on a variety of zero waste actions and their potential impacts. Data on highest impact actions and policies can help inform municipalities strategic planning efforts.

- County Staff will offer and support presentations of the results to decision makers in municipalities.

POLICY

- Update land use codes to improve commercial and multi-family recycling and composting requirements.
- Support municipalities within Boulder County with adopting Zero Waste Ordinances and waste reporting requirements with staff time and input. Activities could include:
 - Reviewing drafts of ordinance language.
 - Attending or assisting with presentations.
 - Cross promoting cities' public outreach materials.
- Provide access to ReTRAC reporting free of charge.
- Support state legislation that promotes models for waste diversion, recycling, composting, reuse, and data tracking.

RECOMMENDATIONS



Construction & Deconstruction (C&D) Solutions **Potential 21% diversion**

OVERVIEW

According to the 2019 Countywide Waste Composition Study, 21% of materials disposed of in the County's total waste streams are building materials, like wood, carpet/padding and aggregate. This translates to about 109,000 tons of material available for diversion.

The County is already capturing and recycling 10,000 tons of C&D materials. Building a C&D transfer station and/or processing facility would increase the amount of material able to be processed and recovered in Boulder County. A local facility will also allow residents of the County to close the loop on construction materials, keeping them within state borders. Along with infrastructure development, the County will focus on supportive programs and policy to advance C&D diversion countywide.

PLANNING

Boulder County has made progress on C&D diversion through:

- Completing two C&D studies and a two-phase C&D audit to determine volumes and types of materials generated within the County.
- Forming an inter-departmental land acquisition team to locate an appropriately sized industrial-zoned parcel of land which meets the requirements for this type of facility.

Moving forward, County staff will:

- Research best practices for construction and deconstruction deposit systems that incentivize participation in C&D recycling requirements.
- Participate in Recycle Colorado's C&D Council.
- Ensure all proposed programs and policies align with the Sustainable Materials Element (SME) of the Boulder County Comprehensive Plan and provide updates to that plan as needed to align with Zero Waste needs.

RECOMMENDATIONS

PROGRAMMING

- Create an education campaign on the benefits of deconstruction versus demolition.
- Update and promote Boulder County's C&D Recycling Resources Guide.
- Research more sustainable building materials, like alternative cement.
- Track and support end market development, like drywall / gypsum board upcycling and recycling efforts.
- Explore implementation of a real-time data collection and permit tracking for all construction and deconstruction permits.
- Support expansion of new building material reuse stores (similar to Resource Central), to support end markets and services tied to deconstruction mandates. Support local business efforts to divert C&D materials through city and county subsidies for drop-offs.
- Offer free construction and deconstruction consultations, trainings, and/or audits for homeowners and contractors.

POLICY

- Learn from other municipalities C&D programs through interviews and resources like the Colorado Construction, Demolition & Deconstruction Policy Toolkit.
- Explore deconstruction incentives and ordinances, researching other cities ordinances:
 - Pitkin County, Colorado
 - City of Boulder
 - Portland, Oregon
 - Austin, Texas
 - San Diego, California
- Work with Boulder County's Community Permitting & Planning on construction building code improvements and enforcement efforts. Policy could include:
 - Building codes that require more circular materials.
 - Recycling participation component based on a point system, which includes such measures as the divertability of the materials used in projects.
 - C&D recycling deposit program (tied to Green Building requirements).

RECOMMENDATIONS

Circular Economy + Extended Producer Responsibility and Product Stewardship

OVERVIEW

Like the system of zero waste, circular economy is a system that also looks beyond the current take-make-waste industrial model. The circular economy emphasizes designing out waste and pollution and goes a step further by striving to regenerate nature. Circular economy principles, as defined by the Ellen MacArthur Foundation, are “design out waste and pollution, keep products and materials in use, and regenerate natural systems.”

Boulder County is advancing data collection, policies, and programs that accelerate the elimination of single-use materials and promote recyclable, compostable, or reusable products. This involves supporting businesses and manufacturers to design waste out of their systems, as well as advocating for Extended Producer Responsibility (EPR). EPR legislation, House Bill 22-1355, Producer Responsibility Program for Recycling, passed at the state level in 2022.

PLANNING

Consumption Based Emissions Inventory / Materials Flow Analysis

A consumption-based greenhouse gas (GHG) emissions inventory was developed to create baseline data to inform decision-making around future circular economy related programs. This information is a replicable model for other counties throughout the state. Staff will:

- Continue to present findings to the Board of County Commissioners and other stakeholders among municipalities within the county.
- Use to develop programs to target high GHG emissions reduction and circular economy acceleration.

Product Stewardship (PS) and EPR Legislation

Boulder County led an initiative in collaboration with Recycle Colorado to promote a paint stewardship bill, which became the first product stewardship law in Colorado. This legislation saves the County over \$100,000 annually in paint recycling expenses and provides a model to plan for handling future hard-to-recycle materials legislation. County staff will continue to:

- Actively participate in a statewide stakeholder process to best determine how to implement other EPR / PS laws in Colorado.

RECOMMENDATIONS

PLANNING CONT

Development of End Markets in Colorado

To date, Boulder County has end markets for glass, metal, some plastics, and paint in Colorado, which helps create and support a closed-loop system needed in a circular economy. County staff will:

- Actively explore new and expanded end markets for recyclable, compostable and recoverable materials in Colorado.
- Be involved with opportunities on a national level, such as with the Product Stewardship Institute, CalRecycle, Product Policy Institute, and others.

Collaboration with End Market Development Center

In July 2020, the Colorado legislature passed Senate Bill 20-055, Incentivize Development Recycling End Markets. This bill is intended to grow recycling programs by improving local end markets. As part of this bill, the Colorado Department of Public Health and Environment (CDPHE) convened stakeholders to shape a Recycling Market Development Center. County staff participated in the stakeholder process to guide beneficial end market development.

In 2022, the Colorado legislature passed Senate Bill 22-1159, Waste Diversion and Circular Economy Development Center. The purpose of the center is to “grow existing markets; create new markets; and provide necessary infrastructure, systems, logistics, and marketing to create a sustainable circular economy for recycled commodities and compost in Colorado.” Staff will:

- Continue supporting end market development that impacts the Boulder County Recycling Center, the Hazardous Materials Management Facility, future county owned Zero Waste Infrastructure and programs, and broader statewide recycling efforts.

Circular Economy Road Map

To attract and incentivize businesses with circular economy models, RCD staff will work with municipalities’ Economic Vitality Offices and Chambers of Commerce in Boulder County to launch a new program. Programming would include:

- Development of a toolkit for municipalities in Economic Vitality Offices in Boulder County. The toolkit would include sample clauses and criteria suggestions to incorporate into incentivizing sustainable design of packages.
- Development of economic incentive municipal language focused on manufacturing reusable, recyclable, and/or compostable goods, ideally with inputs from local resources.

RECOMMENDATIONS

PROGRAMMING

EPA Pollution Prevention Source Reduction Assistance Pilot Program

From 2020-2022, the County received an EPA grant to help food and beverage manufacturers in Boulder County to redesign packaging to reduce pollution and support end-of-life diversion. This program was the County's first engagement with circular economy on the circular design and manufacturing side or upstream end. This program built a platform in which other problematic materials in the waste stream that are manufactured in the County can also be addressed. Staff will continue to use learnings from this pilot program to generate ideas for assisting businesses with circular design and sustainable manufacturing efforts.

Circular Economy Grants

Boulder County's Circular Economy Grants provide seed money for supporting the circular economy at all stages, including collection, sortation, processing, design, manufacturing, and consumption. This program is built off the success of the previous zero waste grant program. Staff will continue to:

- Market the program to a wide range of businesses, non-profits, municipalities, and other organizations to encourage and incentivize circular economy solutions.

POLICY

- Prioritize active involvement in the implementation of EPR at the state level.
 - Continue membership on the Producer Responsibility Advisory Board.
- Review Boulder County's internal environmentally preferred purchasing (EPP) policies that specify buying local to identify expanded support opportunities to advance a circular economy.
- Share Boulder County's EPP policies as a model for other communities within and outside of Boulder County.
- Continue membership with Colorado Communities for Climate Action (CC4CA) promoting a circular economy and EPR/PS.
- Collaborate with the Boulder County Policy Team for any bills promoting extended producer responsibility or product stewardship.
- Assist businesses and municipalities with implementation of HB21-1162, Management of Plastic Products, which includes single-use plastic bag tax, ban on food establishments from distributing foam containers, and removal of the prior plastics pre-emption

RECOMMENDATIONS

Reduce and Reuse

OVERVIEW

Source reduction and materials reuse are the “most preferred” strategies of the Environmental Protection Agency’s Sustainable Materials Management (SMM) approach. Using the SMM approach, the County will prioritize sustainable purchasing, followed by developing reuse opportunities. These actions avoid creating waste in the first place and support the continuation of materials usage by offering expanded mid-life or end-of-life applications for products in the system.

Furthermore, these strategies avoid overconsumption, decrease the overall volume of waste generated, and strengthen the circular economy in Boulder County. The County seeks to be a model of sustainable procurement and reuse of its own materials and seeks to assist municipalities, businesses and residents to also adopt reduce & reuse practices.

PLANNING

- Research innovative reduce & reuse ideas and practices other municipalities have implemented. Analyze and promote appropriate policies and programming in Boulder County.
- Actively participate in the government reuse forums and groups. The team will continue to collaborate on national reuse solutions that can be implemented locally.
- Collaborate with local and national food waste prevention organizations to promote food waste reduction and redistribution.

PROGRAMMING

- Implement county-wide campaigns (or support other campaigns) using Community-Based Social Marketing principles. Campaigns could focus on the reduction and reuse of hazardous materials, C&D materials, and reduction of food waste. Tactics could include:
 - Improve and develop reduce & reuse strategy resources, to be hosted on the RCD and/or OSCAR websites.
 - Partner with and promote drop-off sites for reusable building materials,

RECOMMENDATIONS

PROGRAMMING CONT

- metals, asphalt shingles, clean wood, and aggregates.
- Create additional types of community libraries for materials beyond books and tools.
- Implement a Zero Food Waste challenge for residents.
- Promote upstream innovations to reduce waste and pollution at design and production stages.
- Develop coordinated communications with various stakeholders around reduce and reuse strategies for local communities.
- Evaluate and expand reduce & reuse efforts in existing county programming such as community funding, K-12 education, and a broader, more formalized surplus platform.

While there are many opportunities, there is a clear need to assist thrift stores in utilizing EcoCycle's Center for Hard to Recycle Materials (CHaRM). They are limited not only by funding to utilize CHaRM for items they can't sell or that are dropped off without their consent, but they also have limited staff or volunteer capacity to drop items off. Staff will support research and surveying needed to understand the metrics related to diversion as well as analysis of costs to implement a subsidy to support thrift stores utilizing CHaRM.

POLICY

- Explore plastic material or product bans prior to the pre-emption repeal in July 2024 from the state legislation HB21-1162, Management of Plastic Products.
- Promote national policy initiatives such as the RECOVER act and others.
- Collaborate with Boulder County's Community Planning & Permitting (CPP) department on efforts to promote deconstruction over demolition, expand BuildSmart training requirements, and require builders to use more durable, longer-lasting materials.

RESOURCES

BOULDER COUNTY

[Zero Waste Resolution](#)

[2010 Zero Waste Action Plan](#)

[2023 Boulder County Sustainability, Climate Action and Resiliency Plan 2019](#)

[Countywide Waste Composition Study](#)

[RRS Compost / C&D Site Analysis](#)

[Boulder County Zero Waste Scorecard](#)

[Boulder County Comprehensive Plan](#)

[Boulder County's Waste Hauler Licensing Ordinance](#)

[C&D Recycling Resources Guide](#)

[Tour de Thrift Guide](#)

[Reusable Solutions incentives](#)

[Guide to Sustainable Serviceware](#)

STATE

[FRWD Technical Assistance Service Provider \(TASP\)](#)

[Colorado Construction, Demolition & Deconstruction Policy Toolkit](#)

[Recycle Colorado's C&D Council](#)

[House Bill 22-1355, Producer Responsibility Program for Recycling](#)

[Senate Bill 20-055, Incentivize Development Recycling End Markets](#)

[Senate Bill 22-1159, Waste Diversion and Circular Economy Development Center](#)

[HB21-1162, Management of Plastic Products](#)

OTHER

[Ellen MacArthur Foundation](#)

[EPA Waste Reduction Model \(WARM\)](#)

[Pitkin County, Colorado Deconstruction Policy](#)

[City of Boulder Deconstruction Policy](#)

[Portland, Oregon Deconstruction Policy](#)

[Austin, Texas Deconstruction Policy](#)

[San Diego, California Deconstruction Policy](#)