



CHAFFEE WASTE DIVERSION PLAN

2022 April 6

ACKNOWLEDGEMENTS

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EXECUTIVE SUMMARY

Determining specific waste reduction goals and strategies to achieve those goals is the responsibility of many, just as creating the Chaffee County Comprehensive plan took time and many minds to create a shared vision. Therefore, the purpose of this Waste Diversion Plan is not to set requirements, but rather, to help present and organize the many dozens of recommendations and strategies that have been compiled from surveying the Chaffee County community, interviewing and visiting nearby and similar communities, and researching resource management solutions around the country, including local experts, that enable communities to create achievable goals. This Plan outlines a process and should be considered as a living document to be revised as new businesses and technologies arise, and as the feasibility of the ideas presented here is fully assessed. Prioritizing the recommendations and strategies presented in this Plan should be determined by county and municipal planners & administrators, business owners, residents, and other key stakeholders in Chaffee County and associated municipalities.

The Plan is divided into three sections: 1.) An analysis of the status of waste diversion in Chaffee County; 2.) Short-term goals for consideration; and 3.) Mid to long-term goals. Short-term goals address relatively easy ways to reduce waste quickly. Long-term goals require more time because they demand changing building codes, passing ordinances, making other policy-level changes or engaging the community in a meaningful way. The most effective recommendations build on existing successes and bring the whole County – unincorporated areas and municipalities – together to create a vision for a shared starting point. The analysis of the status of waste diversion includes baseline data from the Countywide Waste Audit conducted in 2020 by GARNA in collaboration with waste service haulers, providers, and business owners that operate in Chaffee County. In addition, [results from GARNA's Residential](#) and [Business Recycling Surveys](#) conducted in 2021 and 2022, respectively, helped to shed light on the community's current practices and needs, which also influenced some of the included recommendations. Appendices to this plan include a summary of planned and completed education and outreach efforts, and a case study of Gunnison County's transfer center. This work was made possible with funding support from Chaffee County and the Board of County Commissioners, the City of Salida, Town of Buena Vista, and Town of Poncha Springs.

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INTRODUCTION

WHAT IS WASTE DIVERSION?

Waste diversion is the process of reducing the amount of waste that enters landfills. Increased diversion is commonly achieved through five primary activities including expanding source reduction activities, recycling, mulching, composting, returning waste to the original provider, and reusing waste that is generated within a community.

WASTE DIVERSION IN CHAFFEE COUNTY: WHERE ARE WE?

Many residents and businesses are already working to reduce waste. In fact, residents and community leaders have been striving to reduce waste in Chaffee County since the implementation of recycling systems in the mid-1990's, and probably long before that. Several businesses also provide the infrastructure and processes required for diverting waste, in addition to offering jobs and economic resources to the county. Methods used by residents, businesses, community leaders, and other members include the following:



1. Recycling

Recycling is critical for landfill diversion and involves finding end markets for used materials, to prevent the disposal of those materials in landfills. The most common materials that can be recycled include glass, paper, cardboard, metals, plastics, textiles, and electronics. Many other items can be recycled with varying degrees of ease, including mattresses, paint, batteries, appliances, and foam. Numerous recycling service providers offer Chaffee County residents and businesses opportunities to recycle traditional materials, as well as other more difficult-to-recycle materials such as batteries, motor oil, tires, and plastic film. Recycling service providers include Chaffee County Waste, Waste Management, and Shamrock Waste Disposal, among others. An extensive list of recycling service providers located in Chaffee County can be found in the [Recycling Guide](#) developed through this project.

After the unexpected closure of Angel of Shavano in April 2021, waste service providers were faced with a decision about whether to accept co-mingled (single stream) materials, require users to sort materials, or to continue to exclude recycling services from their operations. Co-mingled recycling tends to garner higher participation rates, though it can also result in higher amounts of tainted or un-recyclable materials. Co-mingled recycling requires a Materials Recovery Facility (MRF) that is close enough to make transport to the MRF cost-effective. Chaffee County does not currently have a MRF, nor does it have a transfer station that can serve as a temporary holding space for materials, but providers are currently hauling materials to MRF's in front-range communities.

2. Reusing and Returning Waste

Many businesses offer opportunities to “upcycle” construction materials, home furnishings, and personal goods, such as Habitat for Humanity’s ReStore, Caring & Sharing, New Bees, Colorado Sports Recycler, Free the Monkey, La Luna Consignment, ACA Products and Hard Rock Paving (concrete recycling), Salida Shipping Depot & Mailboxes Buena Vista (packing materials).

The development of more closed loop systems helps to increase waste diversion. Reusing waste created by the manufacturing and production process leaves minimal levels of waste for disposal, and so, it is both environmentally and economically responsible and is gaining traction worldwide. Other companies find new uses for waste products. Everything from gently used textiles and home goods to construction and demolition materials—even whole shipping containers—can be upcycled in creative ways to reduce waste. With some products, it is possible to return waste to the supplier of the original material. For example, beer kegs and propane tanks can often be returned to a distributor to be refilled, and some companies accept their used/damaged textiles to be returned for recycling. Colorado state House Bill 22-1355, to be voted on in Fall, 2022, will attempt to hold large waste producers responsible for the packaging they generate by increasing producer funding to local recycling programs to incentivize the use of more sustainable packaging.

3. Expanding Source Reduction Activities

Government leaders, local organizations, business owners, and residents have shown their commitment to ecological health by working on waste diversion efforts over the years, including source reduction campaigns and education. Source reduction means reducing waste by not creating it in the first place and is the best way to divert waste from landfills. It can also be the most challenging waste diversion strategy, in part, because it requires either changing consumer behavior or implementing policies (or fees) aimed at minimizing waste. Some relatively easy ways to expand source reduction activities include avoiding and/or prohibiting single-use products such as bags, straws, and cutlery. These items are already banned in several US cities, making adoption of such a policy within a community more likely. 2021 saw the passage of Colorado State Legislation (HB21-1162) which opened the door for local government regulation of single use items such as Styrofoam and plastic grocery bags. Providing water fountains and/or water refill stations also encourage the use of reusable bottles and reduces the consumption of single-use plastic water bottles.

Local businesses who employ source reduction techniques include, for example, Monarch Mountain, which has water refill stations for customers to use their own water bottles, and Natural Grocers, which does not give out plastic bags to customers. Many local restaurants no longer put straws in drinks or use paper straws. Several local breweries, including Eddyline, Elevation, Moonlight and Soulcraft sell “growlers”, reusable glass bottles for purchasing beer to take home. These are just a few examples of businesses that engage in source reduction without being regulated to do so through policy.

In the absence of policies, fees are also a way to reduce waste. For example, requiring a waste management plan or fee for builders during the building permit process is one way to increase reuse of construction and demolition materials. Similarly, increasing landfill tipping fees encourages builders and residents to recycle or repurpose household, construction, and demolition items. Volume Based Pricing (referred to as “Pay-As-You-Throw” by the US Environmental Protection Agency and many cities that have adopted this strategy) is one model of imposing fees to reduce waste which has been successful in other rural areas of Colorado. The US Environmental Protection Agency (EPA) describes Volume-Based-Pricing as unit pricing or variable-rate pricing where residents are charged for the collection of ordinary household trash based on the amount they throw away. This creates a direct economic incentive to recycle more and to generate less waste. VBP breaks with tradition by treating trash services just like electricity, gas, and other utilities. Households pay a variable rate depending on the amount of service they use. Several comments on the [Residential Survey](#) indicated that community members would appreciate Volume Based Pricing.

Finally, in the absence of policies and fees, reducing waste often requires public education and community engagement. For example, education about the importance of maintaining a vehicle’s tires not only helps prolong the life of those tires, which saves community members money, but also reduces tire waste—an especially undesirable and bulky waste product. GARNA and others have engaged in education on these topics for several years, and Appendix B contains a summary of this project’s completed and planned education and outreach activities.

4. Mulching and Composting

Diverting “green” waste from the landfill is incredibly easy if a source for this material exists. Trees and large branches, for example, can be chipped and turned into mulch or fuel, which not only reduces landfill waste but also helps soil retain moisture in the case of mulch and provides heat in the case of fuel. Hundreds of residents and businesses in Chaffee County pay for and participate in service programs with Elements Mountain Compost (EMC), a business that operates with Chaffee County, so kitchen scraps and yard waste can be turned into healthy soil rather than put into the landfill. The Chaffee County Landfill also accepts trees and large branches, turning them into mulch that can be, in-turn, taken home from the landfill.

Composting breaks down biological “living” waste such as yard and food waste with the help of microorganisms and creates nutrient-rich soil and fertilizer as a byproduct. Mulching and composting prevent beneficial nutrients from entering the landfill and reduce a huge source of methane—a powerful greenhouse gas that contributes to climate change. When organic materials decompose in anaerobic conditions such as landfills, they release methane into the atmosphere. However, the aerobic process of composting does not produce methane because methane-producing microbes are not active in the presence of oxygen.

Since roughly 30-40% of municipal solid waste typically includes green waste, diverting it from the landfill could dramatically increase diversion rates with relative ease. Many other residents steward the land by composting at home. The [results of the Business Recycling Survey](#) also suggest that some business owners compost on site or take compostable materials home. Furthermore, several local restaurants and bars have switched from single-use plastic containers, cups, straws, and utensils to compostable materials, which are accepted by EMC. The list of participant businesses is too long to mention, but to create a closed loop for these materials, the public must be educated about how to dispose of the materials properly.

CHAFFEE COUNTY 2020 WASTE ASSESSMENT

Measuring waste diversion can be done in a variety of ways. For example, the size of a landfill can be compared from one year to the next. If the landfill grows minimally, then policies addressing landfill diversion are deemed successful. Another way to measure the success of landfill diversion policies across regions could be to track the number of landfills over time. GARNA’s 2020 waste assessment used available data on the weights of materials (landfilled, recycled & composted).

In 2020, the Greater Arkansas River Nature Association (GARNA) conducted a countywide waste assessment in Chaffee County. The assessment built off the **Waste Optimization Regional Waste Study** funded by the Colorado Department of Public Health and Environment through the Recycling Resources Economic Opportunity Program (RREO) in 2017, which took physical samples of bags of municipal solid waste in Chaffee County to determine their contents. Rather than sampling the actual composition of waste, GARNA’s 2020 waste audit focused on determining the county’s diversion rate by obtaining the total weight of materials recycled and composted, then dividing those numbers by the total weight of all waste taken to the Chaffee County Landfill, which is assumed to be the total amount of waste generated in the county. Data was provided by the Chaffee County Landfill, which receives waste from three commercial waste service providers: Chaffee County Waste, Shamrock Disposal Services, and Waste Management;

Recycling service providers also provided data, including Chaffee County’s former recycling facility Angel of Shavano, which accepted recyclables from Waste Management and the general public, as well as Chaffee County Waste. Elements Mountain Compost, the only commercial compost provider, provided data on diverted green material. When weights were not provided, volume and counts were converted into weights using a variety of standard procedures.

Figure 1 shows that in 2018 Chaffee County’s diversion rate was 8.1%, and 7.3% in 2019. Including tires, which are used as an alternative daily cover at the landfill, increases those numbers to 8.2% and 7.4%, respectively. As a comparison, in 2018, Colorado diverted 12%, or 1,116,840 tons from its landfills generating 9,307,000 tons of waste total. While Chaffee’s county-wide diversion rate was lower than the state average, residents of Chaffee County generated less trash per person per day than the state average. On average, each Colorado resident throws away nearly 8 pounds of trash per day, whereas each Chaffee resident throws away only 6.5 pounds of trash per day. In 2019, the diversion rate for the US was 35%, which is substantially higher than the rate in both Chaffee County and Colorado, as a whole.

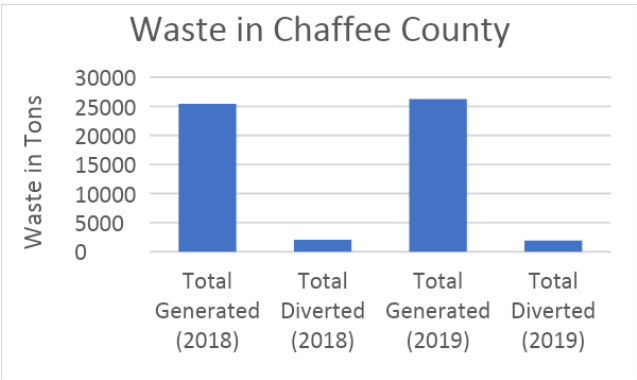


Figure 1. Waste generated and diverted in Chaffee County in 2018 and 2019.

STATUS OF EXISTING WASTE SERVICE INFRASTRUCTURE

There are currently three waste haulers that provide residential and commercial trash and recycling service in Chaffee County: Chaffee County Waste (an expansion of Teller County Waste), for whom David Royer is the Regional Sales Manager; Shamrock Disposal Services, for whom Chris Lyons is the owner; and Waste Management (formerly Martinez Trash Company), for whom Scott Martinez is the Senior District Manager. There is also one business that offers commercial and residential composting, Elements Mountain Compost, for whom Julie Mach is the owner. GARNA’s Executive Director, Dominique Naccarato, GARNA’s former Community Outreach Associate, Kelsey King, and sustainability consultant, Erica Wohldmann-Gift, met separately with each of the waste haulers to better understand their current and potential services. Erica met with Mickey Barry and Julie Mach multiple times on her own. Glen Egbert, TR Price, and Cat Anderson met with commercial trash and recycling owners and managers additional times to verify information. Notes are summarized below.

Chaffee County Waste

Chaffee County Waste provides residential and commercial trash, as well as recycling services, throughout Chaffee County. They offer curbside, comingled recycling services for most traditionally recycled materials including plastics #1-7, glass, cardboard, paper, and aluminum/tin. Recycling is taken to Teller County, where it ultimately ends up at the Green-for-Life (formerly Bestway Recycle) MRF. According to their [website](#), all materials are taken to an end user in the US (Alabama, Oklahoma, Texas, Iowa, Colorado, Pennsylvania) or Mexico.

In addition to traditional materials, Chaffee County Waste offers rollout bins for concrete and recyclable aggregate, and these materials are taken to ACA Products, Inc. in Buena Vista for recycling. Chaffee County Waste strives to be a good community partner, and has offered free trash service to several local organizations that provide services to disadvantaged community members including, for example, The Food Pantry and Habitat for Humanity, as well as free portable toilets at some events.

Waste Management

Waste Management also provides both residential and commercial trash and comingled recycling services within the limits of each municipality—not to households and businesses located in the county. After the closure of Angel of Shavano, Waste Management began accepting glass and cardboard from their residential customers, thus, they currently accept all traditional materials. Materials are taken to a dedicated Waste Management MRF located in Colorado Springs. Like Chaffee County Waste, Scott Martinez said Waste Management helps the community by offering free rollout bins at events. For example, Waste Management donates a bin to GARNA and Arkansas Headwaters Recreation Area for their annual Clean Up Green Up public lands event

Shamrock Waste Disposal

Shamrock Waste Disposal provides both residential and commercial trash and recycling service in Chaffee County, with the greatest density of customers in Salida. Recycling services began shortly after the closure of Angel of Shavano. Like Chaffee County Waste, Shamrock accepts single stream recycling of traditional materials (plastics #1-7, glass, cardboard, paper, and aluminum/tin), and materials are transported to the Colorado Springs Green-for-Life MRF. Given this, the list of end users should be the same as that described for Chaffee County Waste above.

At the moment in time that this report is being produced, plastics #4, 6 and 7 are not being recycled. They are still accepted by the waste haulers, for simplicity's sake, but are being landfilled after sorting at the MRF.

Elements Mountain Compost

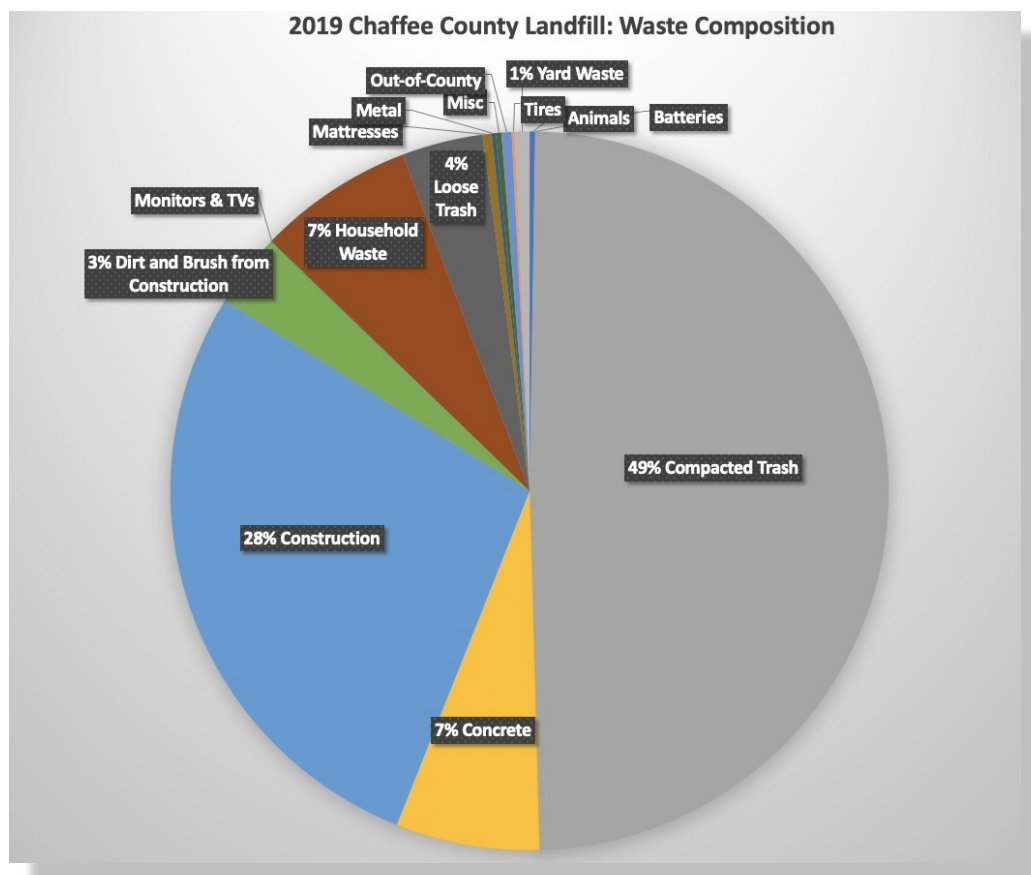
Element Mountain Compost (EMC) has been providing composting services to businesses and residents in Chaffee County for over four years. At the time of report publication, EMC offers pick-up services for 24 businesses, drop-off compost stations in Buena Vista and Salida for 124 households, serves four multi-unit housing complexes, and coordinates green waste collection (branches, limbs, etc.) events as needed. EMC's largest customers are Pure Greens and City Market, and business has grown considerably in the past year from education and outreach. Incentives and encouragement to participate from the county and municipalities could expand business further. Because EMC is operating at nearly full capacity, EMC staff applied to CDPHE RREO for developing a Class 3 composting facility, which could service the entire county while complying with the increased regulations entailed by the Colorado Department of Public Health and Environmental. Chaffee County provided a \$10,000 cash match to support this project.

TYPES OF WASTE IN CHAFFEE COUNTY

EVERY HUMAN ACTIVITY GENERATES SOME TYPE OF WASTE

Virtually every resident, organization, and human activity generates some type of waste. Waste generation, in most cases, represents inefficient use of materials. Tracking the quantity, composition, and effects these materials have on the ecosystem can provide insight into how to reduce waste and improve both economic, human, and ecological health.

Chaffee County's waste stream looks very similar to other rural areas in the country, and is primarily composed of construction and demolition materials, municipal household waste (compacted trash), yard and food waste, and miscellaneous waste such as tires, livestock, and agricultural waste, and hazardous waste such as batteries, electronics, light bulbs, paint, and other chemicals. The chart below reflects the composition of waste generated in Chaffee County in 2019.



Construction and Demolition Materials

A broad range of materials constitute the construction and demolition (C&D) category. The most common C&D materials are concrete, asphalt, wood, drywall, asphalt shingles, metals, plastics, vinyl, carpet, ceiling tiles, and cardboard. According to records obtained for GARNA's 2020 waste assessment, C&D made up 38% of the waste sent to the Chaffee County Landfill in 2019, with 28% being construction materials broadly speaking, 7% concrete, and 3% dirt and brush. In terms of weight, **C&D contributed roughly 9,178 tons** (or 18,356,000 pounds) of material to the Chaffee County Landfill in 2019, which is **equivalent to more than 5,500 midsized cars**.

Municipal Solid Waste and Household Waste

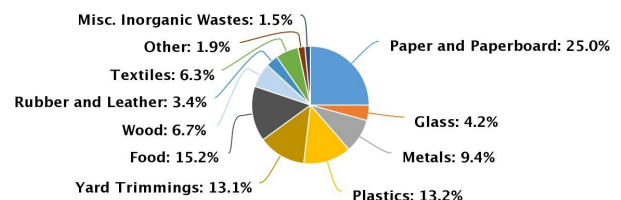
Forty-nine percent (49%) of the material accepted at the Chaffee County Landfill in 2019 was Municipal Solid Waste (MSW), which is referred to as "compacted trash." MSW is all the waste that is brought to the landfill by the three waste haulers that operate within the county. Household waste and loose trash are materials taken to the landfill by residents and accounted for 7% and 4% of the material accepted by the landfill, respectively. Again, in terms of weight, **this category contributed the equivalent of more than 8,800 midsized cars** at roughly 14,611 tons (29,222,000 pounds) of material to the Chaffee County Landfill in 2019.

Because a waste composition study was not included in GARNA's 2020 waste

assessment, the composition of Chaffee's municipal solid is unknown. However, according to the 2017 RREO-funded Regional Waste Study, waste sampled at the Chaffee County Landfill included mixed recyclable materials, compostable materials, and electronics. Of great concern is the fact that every sample collected for the 2017 RREO-funded study included hazardous and special waste (often described as "harder to manage" than traditional recyclables due to additional handling and storage needs). These include, among other materials, film plastics, paint, textiles, batteries, and materials banned from landfill disposal in Colorado such as motor vehicle oil, electronic wastes, and some chemicals.

The results of a 2017 study of national municipal waste by the Environmental Protection Agency shows a typical makeup of MSW. Just 9.7% of waste included special and hazardous waste in the EPA study, whereas the 2017 RREO-funded study included an alarming 21%.

Total MSW Generated by Material, 2017
267.8 million tons



Source: <https://www.epa.gov/facts-and-figures-about-materials-waste-and-recycling/guide-facts-and-figures-report-about-materials>

Yard and Food Waste

Based on the results of GARNA's 2020 Waste Audit, yard waste (not including dirt and brush from construction) only accounted for about 1%, or 160 tons (320,000 pounds, ~100 mid-sized cars), of Chaffee's waste stream in 2019. Again, a waste composition study was not included in the 2020 waste assessment, but, according to both the US EPA and the 2017 RREO-funded study, roughly 30-40% of MSW is organic waste, much of which is likely food scraps. In fact, the EPA has found that 24% of MSW is food waste. Therefore, it is relatively safe to assume that about 30% of Chaffee County's MSW stream is composed of yard (approx. 5-10 %) and food waste (approx. 25%).

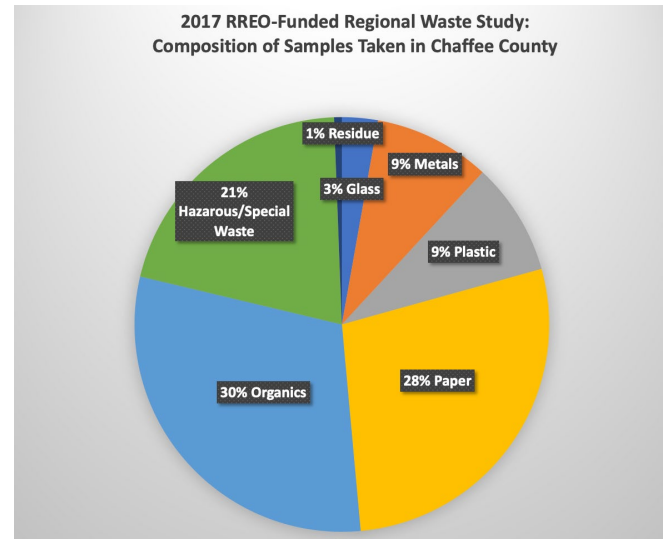
Miscellaneous Waste

Relatively small contributors (less than 1% per type of material) to the waste stream in Chaffee County include waste brought in from out-of-county (110 tons); mattresses (99 tons); animals (61 tons); metal (47 tons); tires (34 tons); computer monitors/televisions (8 tons); and batteries (2 tons).

Hazardous and Special Waste

Because the Chaffee County Landfill accepts only limited types of household hazardous waste, and because some is discarded improperly, it is challenging to determine how much of this material is being generated and disposed of. Certainly, some banned, hazardous, and special wastes are ending up in the landfill. In fact, according to the 2017 RREO-funded study, 21% of Chaffee's MSW was hazardous and special waste.

That said, the RREO-funded study took only four physical samples, thus, it seems relatively safe to assume that this percentage does not represent actual MSW compositions. Unfortunately, when options for proper disposal of hazardous and special wastes are limited, residents and builders will likely discard them improperly.



GOALS FOR CHAFFEE COUNTY

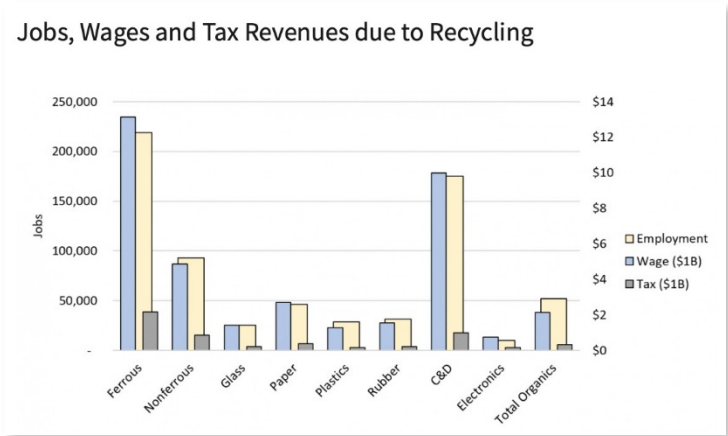
CONSIDERATION

WHY IS WASTE DIVERSION IMPORTANT?

New strategies for waste diversion are important for Chaffee’s economy. Homes, schools, business, and government waste money when goods and products are wasted. Waste diversion saves communities money and creates more jobs per ton than landfills and incinerators—quality jobs that require low- and mid-level skilled workers. Local economies are strengthened by keeping dollars and materials circulating through the region, instead of burying them in a landfill, especially when experiencing supply chain issues like those in 2022. In fact, the EPA’s 2016 [Recycling Economic Information \(REI\) Report](#) shows that the recycling and reuse of materials created 757,000 jobs, provided \$36.6 billion in wages, and brought in \$6.7 billion in tax revenues. This equates to 1.57 jobs for every 1,000 tons of materials recycled.

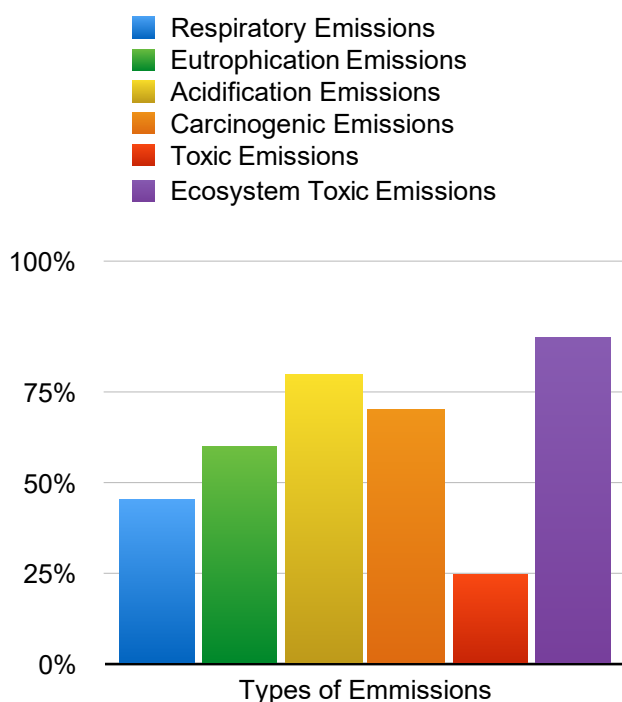
THREE WAYS WASTE REDUCTION CREATES JOBS

1	2	3
Collecting, sorting, processing, and Preparing discarded materials to be sold.	Creating and manufacturing new products from recycled materials, making soil amendments from composted green waste	Economic development and expansion of reuse and repair businesses that sell up-cycled and reclaimed products.



Our planet's supplies of freshwater, fossil fuels, metals and other important resources are limited. Reducing waste ensures we are using these resources efficiently and preserving them for future generations. In the US, we bury or burn more than two-thirds of the waste we produce, which means the value of these materials is lost. New approaches to waste diversion protect community, economic and ecological health by being efficient with materials and reducing pollution in the air, water, and soil.

According to the **Tellus Institute**, achieving 75% recycling in the U.S. by 2030 would reduce:



Working towards Low or Zero Waste also reduces our contribution of greenhouse gases—more so than expanding nuclear power, improving vehicle efficiency, carbon capture projects, and many other popular climate strategies. The savings from increased waste diversion come largely from the energy savings attributed to recycling. As shown in the graphic below, using recycled materials to make

new products requires far less energy than making products from virgin materials.

Working towards Low or Zero Waste also reduces our contribution of greenhouse gases—more so than expanding nuclear power, improving vehicle efficiency, carbon capture projects, and many other popular climate strategies. The savings from increased waste diversion come largely from the energy savings attributed to recycling. As shown in the graphic below, using recycled materials to make new products requires far less energy than making products from virgin materials.



In sum, waste diversion efforts decrease the economic, environmental, and social costs associated with finding, maintaining, closing, and eventually, cleaning up landfills. They also reduce greenhouse gas emissions, create green jobs, improve the health, productivity, and moisture retention of soil, save communities money, and conserve and protect economic, ecological, and human resources.

Goals outlined below are based on Chaffee County's specific needs and 2020 status, with consideration for statewide waste diversion goals.



SHORT TERM GOALS

Ways to Divert Construction and Demolition (C&D) Material

There are opportunities and challenges to recycling C&D materials. For example, concrete recycling has become increasingly popular because of its relative ease. Recycling concrete eliminates the expense of aggregate material imports, helps builders avoid transportation costs and landfill disposal fees, and increases project efficiency while lowering job costs. In fact, according to the Construction and Demolition Recycling Association (CDRA), recycled concrete aggregates yield more volume by weight (up to 15%). Like concrete, aggregates such as asphalt and brick can also be recycled and/or repurposed.

According to CDRA, wood waste typically makes up roughly 40% of the materials sent to mixed C&D recycling facilities, with the most common type of C&D wood being dimensional lumber. The main products made from dimensional lumber are mulch, compost, and biomass. However, wood can also be recycled into animal bedding, composite panels or other new wood products, wood pellets,

and more. Plywood, treated wood, and manufactured wood (e.g., composite panels) cannot be used for mulch and compost, and painted wood should also not be used. The US EPA does allow some woods that have been treated to be used as fuel, and because these woods have already been kiln dried, moisture does not have to be removed before it can be incinerated and the energy recovered. For this reason, C&D wood is excellent source material for wood fuel pellets.

Gypsum, which makes up 90% of the weight of a piece of drywall, has many uses. In addition to drywall, gypsum is widely used as a soil amendment, in the production of cement, and as an ingredient in many types of commercial products. If gypsum can be recovered from drywall, then much of the material can be recycled. Scrap gypsum drywall is currently being recycled in many places across the US, and examples of the uses for recycled drywall include manufacturing new drywall; as an ingredient in the production of cement; as a soil and crop amendment to improve soil drainage and plant growth; as an ingredient in the production of fertilizers; and as an additive to composting operations.

Challenges to widespread recycling include collection and separation, low landfill disposal fees, and the need for more education of potential end users of the recycled material.

Other C&D materials such as tiles, cardboard, metals, mercury devices (e.g., thermostats), and roofing shingles can also be recycled and/or repurposed. Chaffee County has existing infrastructure to recycle cardboard and metal. Tiles and other items from remodeling and demolition products can often be reused. For example, cabinets, doors, fixtures, flooring materials, and windows can be sold, reused, or taken to the Habitat for Humanity ReStore in Buena Vista.

There are many businesses in the Front Range area that accept C&D materials, and several exist in Chaffee County. For example, ACA Products in Buena Vista and Hardrock Paving in Salida accept concrete for recycling, and Chaffee County Waste provides rollout bins for concrete upon request. As mentioned above, the Chaffee County Habitat for Humanity ReStore in Buena Vista accepts remodeling and demolition materials that are in good condition, and Sherwin Williams in Salida and Buena Vista True Value both recycle paint, even if it wasn't purchased at those stores. The sharing economy that is largely enabled by social media is another outlet that Chaffee County residents use to exchange, reuse, and avoid wasting some of products listed above.

Recommended strategies for achieving short-term diversion goals that increase landfill diversion rates for C&D include: increasing the landfill tipping/disposal fee for these materials; requiring a waste diversion plan and/or disposal fee during the permitting process; requiring all

building projects funded by the public (i.e., those funded by the municipalities, Chaffee County, Colorado, or the Federal Government) to have a waste management plan; and providing a transfer station or other location, making it easier to drop-off, sort and pick up materials.

Most C&D diversion ordinances include a requirement that a waste management plan be completed and submitted prior to the beginning of a project. A WMP is essentially a plan that estimates how much C&D debris will be generated by the project and describes how the materials will be managed. This requires a project applicant to estimate how much C&D material will be generated and to consider how, where, and how much they will divert.

In addition, creating a list of local resources for residents and builders to direct them towards opportunities to reuse and recycle these materials is a relatively easy and low-cost task that can be accomplished quickly. This could be as simple as providing a brochure listing the C&D diversion facilities in the region, with hours, location, cost (if any), and material types accepted. The more complicated task involves educating and incentivizing residents and builders to sort and recycle these materials. Requiring diversion plans and/or fees for C&D would be effective ways to incentivize reusing and recycling but could also result in increased illegal dumping. Because professional builders are less likely than residents to engage in illegal dumping, raising tipping fees for residents should be considered carefully.

Other Opportunities to Recycle C&D

- Asphalt shingles can be used in road paving projects.
- Glass cullet can be used in sidewalks and driveways.
- Tumbled glass can be upcycled in garden paths and walkways in place of pea gravel or river stones.
- Clean wood can be chipped and used as mulch and fuel.



Finally, a C&D diversion policy is another way to increase diversion. More specifically, an informal advisory document or a program could strongly encourage the diversion of C&D materials, and such a policy does not need to provide a local jurisdiction with the same level of enforcement authority as would an ordinance. That is, a diversion policy or resolution does not need to have the force of law within a jurisdiction, but would simply be an expression of preference. In this context, the purpose of a policy would be to encourage C&D diversion without actually requiring it. A policy can:

1.) Serve as a viable alternative to an ordinance when a jurisdiction does not have the time and resources necessary to fully implement an ordinance;

2.) Be used as a "steppingstone" in the ordinance process. While there may be a need to establish a C&D diversion program, a jurisdiction may first want to try alternatives to an ordinance. A policy can be a useful tool in "testing the waters" if used as a first step in establishing a C&D diversion program. Once a policy is in place and a C&D diversion program is established, a jurisdiction can determine over time if an ordinance would be more effective, or if a policy is adequately achieving diversion of C&D waste; 3.) Provide a jurisdiction with more flexibility than an ordinance, since ordinances require a more formal process to revise.

Ways to Divert Municipal Solid Waste (MSW) and Household Waste

According to the US EPA, and confirmed by the 2017 RREO-funded study, approximately 65% of MSW could be recycled in Chaffee County with existing infrastructure. Almost 30% could be composted by expanding existing infrastructure. Achieving this rate of recycling and composting, however, would require several changes to current waste handling in Chaffee County. To reach short-term goals, one recommendation is to couple a transfer station with Volume-Based-Pricing (VBP) disposal model for waste haulers that provide recycling services.

VBP (also called "unit pricing" or "variable-rate pricing") treats trash like a utility. Most policy driven VBP models require waste haulers to provide recycling services to all their customers. Residents are then

charged for the collection of municipal solid waste based on the amount they discard, which can be done in a couple of ways. First, the most common form of VBP allows residents to select the size of the waste receptacle for their household, and the monthly bill is determined by the size of that bin (and any trash that exceeds the bin). The fee for a small bin would be lower than for a large bin. Second, in a small number of communities, residents are billed based on the weight of their trash rather than on volume. Either way, VBP programs are simple and fair—the less individuals contribute to the landfill, the less they pay. In this way, VBP creates a direct economic incentive to recycle more and to generate less landfill waste.

Traditionally, residents pay for waste collection through a fixed fee or property taxes, regardless of how much—or how little—trash they generate. VBP breaks with tradition by treating trash services just like electricity, gas, and other utilities. Households pay a variable rate depending on the amount of service they use, in this case, the size of the bin they select in their annual contract. The US EPA suggests this is one of the most effective ways to divert MSW from the landfill, and supports this approach to solid waste management because it encompasses three interrelated components that benefit the community:

1. **Economic Sustainability** - VBP is an effective tool for communities struggling to cope with a high cost of living, a lack of affordable housing, and high utility bills—including the cost of municipal solid waste. Well-designed programs generate the revenues communities need to cover their solid waste costs, including the

costs of recycling and composting, giving residents the opportunity to take control of their trash bills.

2. **Environmental Sustainability** - Communities with VBP programs in place have reported significant increases in recycling rates and reductions in waste. Less waste and more recycling mean that fewer natural resources need to be extracted and, hence, show reduced greenhouse gas emissions associated with the manufacture, distribution, use, and subsequent disposal of products.
3. **Equity** - One of the most important advantages of a variable-rate program may be its inherent fairness. When the cost of managing trash is hidden in taxes or charged at a flat rate, residents who recycle and prevent waste subsidize their neighbors' wastefulness. Under VBP, residents who select a small trash bin pay a lower monthly trash bill than those who select a large trash bin.

VBP has been an incredibly effective waste diversion tool in [8,000 communities in 18 states](#) including Frasier, Superior and other cities along Colorado's Front Range. To be effective, VBP is always coupled with a "free" (i.e., built into the cost of trash service) curbside recycling bin. This is a necessary part of VBP since a small trash bin is the incentive for recycling.

To incentivize residents and businesses to pay for curbside VBP service, tipping fees could be raised. As shown in Appendix A, despite the recent increase in tipping fees, Chaffee County fees are still generally lower than several other similar counties in the state, and much lower than both Colorado's average of \$58.42 and the national average of \$53.72. As stated previously, an increase in tipping fees for residents could result in an increase in illegal dumping, so this strategy should be considered carefully. Alternatively, rather than increase tipping fees for residents and businesses, county officials could incentivize waste haulers to provide low- cost recycling services by building a transfer station. A transfer station would benefit Chaffee County residents by:

- 1.) reducing the greenhouse gasses associated with waste disposal and transport;
- 2.) improving air quality, as fewer waste trucks making less frequent trips would result in fewer particulates associated with truck

exhaust; and

- 3.) reduce noise pollution, again, as fewer waste trucks and less frequent trips would be necessary. particulates associated with truck exhaust; and 3.) reduce noise pollution, again, as fewer waste trucks and less frequent trips would be necessary.

However, the primary economic benefit of a transfer station would be for the waste haulers. Thus, to take full advantage of this strategy, the County could negotiate the VBP fee for recycling with waste haulers in advance of agreeing to build a transfer station. Requiring all service providers to offer VBP means residents who opt for a smaller trash bin then they currently have should see a decrease in their current trash bill, which they could apply to the cost of participating in a recycling program. In contrast, residents who choose not to decrease the volume of their trash bin may see an increase in their current trash bill if a VBP requirement is adopted. To justify the expenditure of tax dollars for building a transfer station, negotiating a VBP fee structure that benefits the community would be an essential part of the process.





Importance of a Transfer Station

Investing in infrastructure by building a transfer station for recycling could be incredibly helpful for achieving Chaffee County's waste diversion efforts. Waste transfer stations are a key component of cost-effective solid waste transportation. The 2021/2022 GARNA/Chaffee County Residential and Business Waste Diversion Surveys revealed residents and business owners are incredibly committed to recycling. After the sudden closure of Angel of Shavano, all three Chaffee County waste service providers (Waste Management, Shamrock and Chaffee County Waste) began offering recycling services, and materials are transported to Colorado Springs. Currently, the waste haulers each use their own refuse compactor trucks to transport the materials. While there's an obvious commitment to recycling, and a benefit for the county in terms of increased diversion rates and longevity of the landfill, there are also unsustainable costs for the waste haulers that they must pass on to their customers, negative environmental costs including increased greenhouse gas emissions, and increased air and noise pollution from waste truck exhaust and frequency of pick-up.

Unfortunately, refuse compactor trucks average **3 miles to the gallon**. At roughly 208 miles for a round trip journey to Colorado Springs from Salida, an estimated 69 gallons of gas is used per trip. Further adding to need for a transfer station, refuse compactors are only able to hold up to 6 tons per vehicle, Chaffee/Teller Waste collects around 20 tons per week and Waste Management collects around 15 tons totaling 35 tons per week. This means that at least 6 refuse compactor trucks are driving round trip from Salida per week, at least. The rising cost of gas, current inflation, wear and tear on roads, pollutants and noise emitted by the trucks, and greenhouse gas emissions associated with this operation build a strong case for a transfer station—especially if coupled with VBP that passes the savings on to residents, businesses, and publicly serviced buildings/spaces. For more information about the environmental costs associated with the County's current waste hauling practices, see [GARNA's Transfer Station Story Map here](#).

Finally, one additional suggestion that was derived from GARNA's Business Recycling Survey is to work with waste haulers to offer larger recycling bins for businesses. Several business owners reported that the containers provided are insufficient and, thus, recyclable materials must be discarded into the trash or taken to the landfill. For example, cardboard is often bulky and exceeds the capacity of bins. In addition, many businesses do not have alley access or the space for a bin.

Having a dedicated cardboard receptacle at the landfill and strategically located within each municipality, perhaps solely available for local businesses and, perhaps, paid for by business revenue taxes, could be one way to increase the diversion rate for this valuable and easily recyclable material.



Ways to Divert Yard and Food Waste

The soil in the Arkansas Valley is naturally sandy, rocky, and lacks organic and nutrient matter because of its geological history. Adding composted yard debris and food scraps replenish the needed soil nutrients to support agriculture, grow healthy food, maintain ecological diversity, absorb and filter water, and sequester atmospheric carbon.

As mentioned previously, GARNA's waste assessment found that yard waste accounted for just 1% of the waste Chaffee

County discarded in 2019. However, because residents typically throw yard waste in their trash bins rather than drop it off at the landfill, yard waste is accounted for in the MSW category. The EPA estimates as much as 10% of MSW is yard waste, and according to the USDA's Economic Research Service, an estimated 30-40% of the total food supply is wasted each year in the United States. Roughly 31% of food loss is thought to occur at the retail and consumer levels. The majority of yard and food waste, then, is co-mingled in MSW, but could easily be diverted instead.

Elements Mountain Compost (EMC) offers a food-waste pick-up service for businesses and drop-off stations for residents but currently only diverts a small fraction of food waste from the landfill. EMC's current facility would not be capable of handling a large portion of Chaffee County's green waste, but EMC has the capacity to expand with Chaffee County's help. Developing a Class 3 composting facility within the County would allow for diversion of up to 30% of MSW from the landfill and create thousands of yards of nutrient-rich soil for use in local farming, landscaping, and gardening operations. Julie Mach is working to establish this facility and submitted a proposal for CDPHE RREO grant funds to implement a class III facility and secured \$10,000 in matching funds from Chaffee County. If funded, the new facility will increase the diversion rate of compostable materials.

Another way to increase composting is to provide community members with countertop compost bins. Recently, GARNA conducted a pilot study in which countertop compost containers were distributed to three multi-unit properties using three unique distribution strategies:

1. Containers and literature were dropped at residents' doors with no direct contact;
2. Containers were delivered directly to residents and outreach staff spoke with them about composting; and
3. Outreach staff set up a table and distributed countertop containers to residents while also answering questions about composting.

To determine the impact of container distribution, the average volume of organic waste was calculated for 12 weeks prior to the container distribution and again, for the five weeks following the distribution.

All groups showed an increase in organic waste diverted, which suggests that providing countertop containers to residents results in significant increases in organic waste collections. However, locations in which outreach staff interacted directly with residents while distributing containers saw significantly higher increases (92% increase for Strategy 2 and 35% increase for Strategy 3 in organic waste collection compared to those who did not receive direct education (Strategy 1).

While interacting with residents, GARNA's outreach staff learned that residents expressed interest in and enthusiasm for participating in organic waste recycling, and some residents expressed that not having an appropriate countertop collection container had been a barrier to them participating in composting. This anecdotal evidence supports the notion that there is support for composting and that information and proper equipment may be barriers to participation in some cases.

Ways to Divert Miscellaneous Waste

The waste in this category is relatively small compared to C&D, MSW, and green waste. However, it makes sense to attempt to divert as much as possible, since some materials in miscellaneous waste are easy to divert. An increase in tipping fees presents some solutions outlined below and could also reduce the amount of out-of-county trash the landfill receives. Several counties do not allow people from out-of-county to drop off trash. However, second homeowners and tourists who visit Chaffee County often need to use the landfill and banning out-of-county disposal could result in illegal dumping.

Mattresses can be recycled, and multiple businesses focused on mattress, foam, and bedding recycling exist in both Denver and Colorado Springs. If tipping fees were increased slightly to be more in line with those in other counties (e.g., \$15 in Mesa County, \$29 in Gunnison County), then these fees could be used to help offset the cost of recycling. While only 100 tons of mattresses went to the landfill in 2019, mattresses are bulky and take up a lot of space. Chaffee County might consider hosting a mattress disposal day if the cost of transporting and recycling mattresses out-of-county could be paid for with disposal fees.

Ways to Divert Hazardous and Special Waste

Special wastes include some materials that can already be recycled/upcycled in Chaffee County. For example, plastic films can be taken to City Market in Buena Vista and textiles can be dropped off at many locations throughout the county.

Hazardous wastes are more difficult to divert. The US EPA considers household products that can catch fire, react, or explode under certain circumstances, or those that are corrosive or toxic, as household hazardous waste. Some of these products include paints, cleaners, oils, batteries, and pesticides. Hazardous wastes require special care at disposal because they can deteriorate the landfill liner, pollute the environment and groundwater, and pose a threat to human health. Currently, the Chaffee County Landfill accepts limited types of household hazardous, which unfortunately means residents and builders may dispose of these materials improperly.

Tires are highly durable and non-biodegradable and, thus, can consume valued space in landfills. To help offset the cost of disposal, on January 1, 2020, Colorado raised the waste tire fee on the sale of new motor vehicle tires and new trailer tires to \$1.25 per tire. Ideally, tires would be recycled instead of discarded, and that is possible. For example, although tires have been notoriously difficult to recycle in the past because they were required to be melted first, new techniques for using waste tire rubber in asphalt and concrete have become easier and less expensive. Currently, the Chaffee County Landfill shreds tires for use in landfill operations. Due to their heavy metal and other pollutant content, waste tires can leak toxins into the groundwater, posing a risk to human and ecological health.

The best way to divert these materials would be to create a hazardous waste drop-off site at the landfill, which could either be available to residents only or to both residents and businesses. Hosting more frequent or annual hazardous waste collection events like the one held in 2021, and like the electronic waste and yard waste collection events, could be another way to reduce improper disposal. Partnering with businesses that currently accept paint, stains and motor oil, such as those listed in the [Chaffee County Recycling Guide](#), along with [Clean Harbors](#) or a similar organization, and supporting the program through subsidies, marketing, and even staffing, are recommended strategies for ensuring these materials get diverted properly and safely.

Public education about the importance of reducing these wastes at the source could also help minimize the amount of hazardous waste that goes into the landfill improperly, and partnering with a local organization (e.g., GARNA) on a

hazardous waste diversion campaign could be very effective. The US EPA's [Safer Choice website](#) suggests alternatives to hazardous cleaning supplies and chemicals. Below is a table with just a few of the ideas offered on their website.

Hazardous Waste Source Reduction around the Home	
Drain Cleaner	Use a plunger or plumber's snake.
Glass Cleaner	Mix one tablespoon of vinegar or lemon juice in one quart of water. Spray on and use newspaper to dry.
Furniture Polish	Mix one teaspoon of lemon juice in one pint of mineral or vegetable oil and wipe furniture.
Rug Deodorizer	Liberally sprinkle carpets with baking soda. Wait at least 15 minutes and vacuum. Repeat if necessary.
Silver Polish	Boil two to three inches of water in a shallow pan with one teaspoon of salt, one teaspoon of baking soda and a sheet of aluminum foil. Totally submerge silver and boil for two to three more minutes. Wipe away tarnish and repeat if necessary.
Mothballs	Use cedar chips, lavender flowers, rosemary, mints or white peppercorns.

SPECIFIC SHORT TERM GOALS TO CONSIDER

1 - 3 years

CONSTRUCTION AND DEMOLITION C&D MATERIALS

1. Support recyclable demolition and remodeling materials such as concrete, bricks, flagstone, and aggregate to be taken to listed local businesses by encouraging builders to obtain rollout bins during the permitting stage.
2. Educate builders and residents about opportunities to recycle C&D materials.
3. Require construction and demolition projects paid for with public tax dollars to include a waste management plan for C&D materials.
4. Increase tipping fees for concrete and demolition materials.
5. Support the capacity for clean (metal-free), damaged dimensional lumber to be incorporated into a chipping and slash management program and turned into mulch or fuel. This may require builders and residents to separate clean lumber from other C&D materials. Tipping fees on these materials could be raised to encourage separation.
6. Plan for a transfer station to provide a location for sorting and exchange of materials

MUNICIPAL HOUSEHOLD WASTE/COMPACTED TRASH (INCLUDING GREEN WASTE

7. Build a transfer station for recyclable materials either exclusively for Chaffee County or with support from neighboring counties that can be used by all waste haulers. Couple this with Volume-Based-Pricing (below), and work with waste haulers to pass their savings onto residential and business customers to incentivize increased participation in recycling programs.
8. Encourage curbside collection of recyclable materials by changing the fee structure for trash service. Adopting a VBP collection program has been incredibly effective for reducing waste in several parts of Colorado. The monthly trash service fee would be determined by the size of the trash bin (small, medium, large) and, thus, residents who generate a lot of trash would pay more than those who generate very little. Such a fee structure could be used to reduce the cost of curbside recycling.

9. Support the capacity for dedicated cardboard recycling receptacles, particularly for local businesses, funded by business tax revenues or landfill fees with one bin located at the Chaffee County Landfill and at least one strategically placed near downtown businesses in Buena Vista and Salida.
10. Continue to support the capacity for expanding composting by 1.) working with Elements Mountain Compost (EMC) to expand commercial and residential food-waste diversion and obtaining a Class 3 compost facility. Incentivize businesses to opt-in and explore ways to expand residential compost drop-off services; 2.) provide funding to distribute countertop composting bins, especially to lower-income residents and those living in multifamily residential units, and work with EMC to facilitate a regular pickup schedule; 3.) continue to use standardized signage at local businesses that compost to help shift social norms; and 4.) continue to facilitate drop-off areas for residents to make lawn waste collection more convenient within the municipalities, to be taken to the landfill to be shredded/mulched. Both EMC and the landfill already offer mulch and compost for sale.
11. Explore the potential of collaborating with an organization (e.g., Clean Harbors, GARNA) on more frequent hazardous waste collection events and public education campaigns.

ADMINISTRATION

12. Determine a Waste Diversion funding mechanism.
13. Replicate the annual “free dump day” with “free recycling day.”
14. Create a sustainability committee that conducts audits, reports, and advocates for funding.
15. Continue to develop branding and initiate a comprehensive education program by working with local organizations such as GARNA.
16. Establish a process for annual data reporting and sharing including a requirement for all garbage and recycling collectors to report the weight of garbage, compost and recycling they collect in-county each year. This will involve a process change for the Chaffee County Landfill, as some loads are measured by the “count” (e.g., television monitors), some are measured by volume (e.g., by the yard) and some are measured by weight. Similarly, since waste haulers take recycling out of the county, this may involve a process change for them, as well. Other Colorado communities have established similar regulations for their waste service providers.

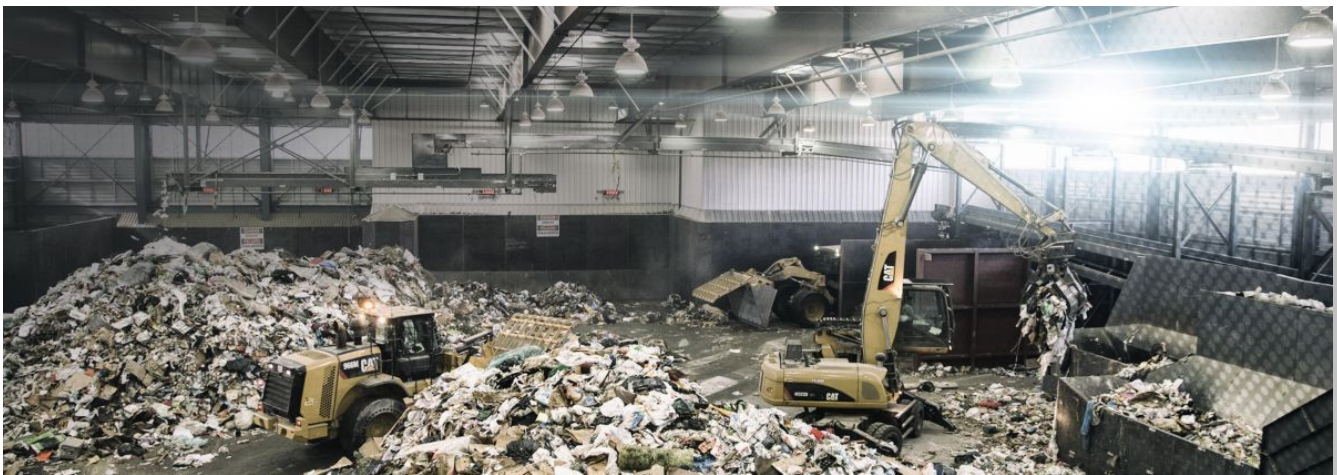
17. Conduct a waste composition study to assess what types of recyclables and compostable materials are currently going to the landfill. Data from this study is needed to determine where the recommendations of this Plan will be most effective.
18. Educate the public about hazardous wastes to encourage reductions in usage; and expand collection of hazardous wastes at the Chaffee County Landfill so they do not end up being disposed there improperly.
19. Adopt a resolution that specifies waste reduction goals.

MID to LONG TERM GOALS

Smart Growth and Development

The population of Chaffee County grew by almost 21.5% between the year 2000 (16,242) and 2020 (20,671), according to the US Census. There is no doubt that growth will continue if not increase. To accommodate increases in demand for land, housing, and limited resources such as water and energy, the county could consider changes to building and energy

codes that would encourage building practices that are efficient with materials. For example, building codes for unincorporated areas could require all new construction projects to recycle cardboard, concrete, scrap metal and clean wood. Moreover, all deconstruction projects could require the salvage of all reusable cabinets, doors, windows, flooring, and fixtures and the reuse or recycling of clean lumber and wood sheathing.



SPECIFIC MID-LONG TERM GOALS

3 - 5 years

CONSTRUCTION AND DEMOLITION C&D MATERIALS

1. Require construction and demolition projects to provide a waste management plan that includes recycling and reuse.
2. Support the capacity for reusable demolition and remodeling materials. For example, work with a waste hauler to provide rollout bins for reusable remodeling materials to be sorted and processed for repurposing by ReStore and other businesses; or, for example, by offering a Drop-N-Swap area at the Landfill.

MUNICIPAL HOUSEHOLD WASTE/COMPACTED TRASH (INCLUDING GREEN WASTE)

3. Encourage the curbside collection of compostable materials, or expanding collection locations to make composting more convenient, especially for restaurants and businesses that sell and serve food. Sales taxes generated by these businesses could be used to pay for the cost associated with the composting program.
4. Increase electronics and hazardous waste collection events.
5. Support the capacity for expanded commercial food composting and encourage all businesses to participate.
6. Require landscaping materials and yard waste to be diverted from landfill.

ADMINISTRATION

7. Provide waste audits for businesses by partnering with a local organization (e.g., GARNA) or devoting county staff time to this service.
8. Require county and municipality-funded trees and slash from grubbing/clearing to be diverted from landfill.

9. Encourage the use of compostable and recyclable take-out containers at restaurants and businesses, plus events and festivals, coupled with infrastructure (onsite recycling and compost bins), and education campaigns for proper disposal of these items.
10. Support policy requiring food scraps from publicly funded institutions be diverted to compost instead of landfilled and create the accommodating infrastructure.
11. Support policy requiring recyclables to be diverted from the landfill.
12. Support policy that requires recycling and composting for all large events on County and municipal property.
13. Collaborate with the Chaffee County Economic Development Corporation, Colorado Mountain College, and local nonprofit organizations to offer education and workshops around waste-to-product innovations and business opportunities.

CONCLUSIONS

CHAFFEE COUNTY



7%

Chaffee County's current waste diversion rate is just over 7%. By adopting some of the recommendations in this document and making strategic changes to the County's waste stream, the diversion rate could increase substantially, which is especially important as the county continues to grow. Chaffee County businesses and residents have already demonstrated a collective willingness to support and create landfill alternatives. Engaging the community further and taking advantage of local and national resources for waste diversion will build on that momentum.

There are many online resources available for municipalities, counties, and states to understand, manage, and reduce waste. [The Managing and Transforming Waste Streams Tool](#) features a table of 100 measures communities can employ to reduce waste and recover materials, with interactive functions that allow for sorting, searching and/or filtering, which can help local planners explore best practices in the form of ordinances, policies, programs, contracts, outreach, technical assistance, and infrastructure development to expand on the list of strategies outlined in this document. The tool also includes over 300 implementation examples from communities across the US. The measures and implementation examples recognize timelines that local governments can use and illustrate opportunities to phase in more stringent practices.

Waste is often considered a problem, but it is also a *valuable resource* that can be leveraged by rural communities. By taking a systematic approach to diverting waste, Chaffee County can recover the value of discarded materials. Building and strengthening the existing network for reusing, recycling, and composting, is the first step. Two ideas proposed in this plan, a Chaffee County Transfer Station, and a Class III Compost Facility, do exactly that. When residents and business owners understand the benefits of waste diversion—benefits such as creating jobs to strengthen the local economy, prolonging the life of our landfills, conserving, and maintaining natural resources, and protecting ecological and human health—willingness to support diversion efforts will only increase.

APPENDIX A

National Average Tipping Fee = \$53.72

Colorado Average Tipping Fee = \$58.42

Tipping Fees in Selected Counties

County Name	Population	MSW Compact/Loose	C&D/ton	Notes
Mesa	155,703	\$37/\$39	\$39	Mattress or Box Spring = \$15; accepts e-waste, compostable waste, and some hazardous waste
Chaffee	19,476	\$39/\$44	\$44	Mattress = \$5 each
Garfield	61,685	\$44	\$44	\$84/ton for out-of-county; Mattress = \$5/each
Moffat	13,292	\$50	\$50	\$80 out-of-county
Fremont	49	\$50		
Gunnison	16,918	\$56/\$77	\$56	Mattress or Box Spring = \$29/each
			\$98.25 (0-30 tons); \$118.25 (31-60 tons); \$138.25 (61+ tons); \$198.25 (mixed loads)	C&D waste diversion requirements are now tied to building and demolition permits from the Pitkin County Community Development Department. Reduced fees for sorted/recoverable materials
Pitkin	17,358	\$64.50/\$98.25		
Summit	31,055	\$58/\$72	\$72 unless sorted for recovery	offers discounts for recoverable C&D sorted items
Park	17,390	\$74	\$277 unless sorted for recovery	\$185 out-of-county (charges per yard, 3.7 yards per ton); offers discounts for recoverable C&D

APPENDIX B

Waste Diversion Education and Outreach

Education

As part of Waste Diversion planning, the Greater Arkansas River Nature Association (GARNA) has created [elementary](#), [middle school](#), and [high school](#) level waste diversion curriculum to present in Chaffee County schools, along [with a presentation geared towards adults and the general public](#). The presentations, linked above, discuss the impacts of waste on a global and local scale, offer solutions to waste problems, explain the recycling process and its impact, and provide information about local recycling resources. GARNA has presented at the Crest Academy and the Salida Montessori Charter School so far, with plans to present at Buena Vista Middle and High Schools and Salida Middle and High Schools. In partnership with the Salida campus of Colorado Mountain College, GARNA will teach a community education course, [Sustainable Home Living](#), with Executive Director Dominique Naccarato and Programs Coordinator Cat Anderson and will focus on ways to implement sustainability practices in the home.

Outreach

In the spring of 2021, shortly after the close of the Angel of Shavano recycling drop-off, GARNA launched a residential recycling survey and throughout 2021 and early 2022, strove to address concerns found in the [residential survey results](#). In late 2021 and early 2022, GARNA dispersed a business survey through channels such as the Chambers of Commerce and Economic Development Corporation. [The results of that survey can be found here](#). Through that process, the consultant working with GARNA contacted 44 [businesses](#) to inquire about their recycling and composting practices. Businesses that were confirmed to recycle and/or compost were provided with a “[We Recycle](#)” and/or “[We Compost](#)” poster to hang in their windows, and GARNA distributed 32 for recycling and 14 for composting. These posters include a QR code and link to GARNA’s sustainability page, where people can find more information about recycling and composting through a Chaffee County [Recycling Guide](#). The goal of the posters and personal visits is to provide community based social marketing to consumers and influence other businesses to participate in recycling and composting. Next steps in business outreach include focusing on Buena Vista based businesses, and expand outreach to larger businesses, such as grocery stores and prisons. In order to increase diversion of specialty recycling items from the landfill, and based on anecdotal data collected from the landfill manager, GARNA created a [handout](#) for County staff to use at the landfill when customers have questions or bring items not accepted at the landfill.

GARNA launched a [pilot study](#) to evaluate organic waste diversion practices at three multi-unit managed properties, Bluejay Apartments, 505 Apartments, and the Magpie. Between January 25 and January 31, 2022, countertop compost containers were distributed at these multi-unit properties using three unique distribution strategies. Average weekly collected organic waste volumes were calculated for the twelve weeks preceding and five weeks following the distribution of countertop containers for each property. The collection data indicates that there were increases in average amounts of weekly organic waste collected at all three locations following the distribution of countertop containers to residents. Distribution strategies that included outreach staff speaking directly to residents about composting showed significantly higher increases in organic waste recycling volumes (32% at the Magpie, 92% at the 505) compared to a strategy where containers were dropped at residents’ doors with no direct contact with residents (10% at Bluejay).

Moving forward, next goals include increasing recycling rates at multi-unit managed properties (MUMPS) and through Homeowner Associations (HOA’s). Data from recycling surveys shows that less expensive and more conveniently located recycling collection points would encourage recycling participation. Action items to achieve this goal include reaching out to HOA and MUMP managers to discuss community drop off points for recycling and organics, using data from composting buckets study to encourage the provision of countertop buckets to residents, and suggesting a partnership with local waste haulers. Another goal is to create a list of resources for builders/developers to divert construction and demolition waste.

APPENDIX C

Gunnison Recycling Center – a Potential Model

GARNA staff met with Gunnison County to discuss their recycling center as a potential model for Chaffee County. The Gunnison County [Recycling Center](#) is open 24 hours/day, seven days/week for public drop off and has staffed attendants available for assistance Sunday-Saturday, 8:00 am - 4:00 pm. The Recycling Center brokers their own goods, and continues to work with Mick and Micky Barry, formerly of Angel of Shavano Recycling. The Gunnison center only takes materials that they can broker with reliability—plastics #1 & #2, glass, and cardboard. They have their own glass crusher and conveyor and send the product to the Front Range. They have their own baler and bale everything besides glass with shed space to store about 30 bales at a time. The structure, foundation, asphalt, and equipment were all funded by a \$400K implementation grant from CDPHE Rural Recycling and Economic Opportunities (RREO) – details below.

Gunnison County Public Works Department

RREO Grant Projects for Fiscal Year 2017

Project title: Recycling Center Hub Relocation and Renovation of Existing Hub into an Additional Spoke

Award: \$399,382

Geographic area: Gunnison and Hinsdale Counties



Gunnison County Public Works Department improved the processing and storage capacity of recyclables collected from Gunnison and Hinsdale County residents by relocating the existing recycling facility to a larger parcel of land. The new recycling facility improved operational efficiencies, ensuring the long-term sustainability of the region's recycling program. Funds were used to purchase a new horizontal baler, install two concrete pads, and construct a storage building for baled recyclables. CHPHE and the Department of Energy gave the County the land where their Public Works and Recycling Center is located. The center was designed by Western Colorado University's Industrial Arts program.



The brokering of the products does not fully subsidize the program, and it is largely funded (2/3) by a surcharge at the landfill. Landfill surcharges are adjusted each year to accommodate the recycling needs. In 2021, their recycling [budget](#), including steel and concrete at the landfill, was \$397K, including three full-time employees. Gunnison County staff told GARNA that one challenge was that RREO restricted the type of equipment they could purchase, and the county was forced to purchase a brand of baler that does not function well in Gunnison's cold weather.

Their waste haulers include Golden Eagle and the City and Counties of Gunnison. Each of these hauls both trash and recycling. Waste Management has its own transfer station in Crested Butte and is no longer allowed to bring materials to the Gunnison Recycling Center because of high levels of contamination.

