THE STATE OF RECYCLING IN COLORADO

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2019

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Building Zero Waste Communities

CoPIRG Foundation

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Eco-Cycle is one of the nation's oldest and largest nonprofit recyclers. The organization's mission is to identify, explore, and demonstrate the emerging frontiers of sustainable resource management through the concepts and practices of Zero Waste. We believe in personal and community action to transform society's throw-away ethic into environmentally-responsible stewardship.

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CoPIRG– the Colorado Public Interest Research Group is a non-profit, non-partisan, public interest advocacy group with thousands of dues paying members across the state.

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THE STATE OF RECYCLING IN COLORADO: 2019

EXECUTIVE SUMMARY

2018 and 2019 have been tumultuous years for recycling markets around the U.S. and the world, some of the worst ever seen. Here in Colorado, we have weathered the storm better than most states, and we continue to inch forward on recycling with new community programs and a slight increase in tons recycled. However, we still lag far behind the national average and must substantially pick up the pace if we are to meet our state recycling goals. In the wake of dire warnings about the need for immediate action on climate pollution, and the equally alarming proliferation of plastic pollution in our oceans, there has never been a more important time for Colorado to double down on its commitment to protect our environment and build smart, sustainable communities.

Over the last two years, prices for recyclable materials plummeted to their lowest levels in 25 years. Every major news outlet ran headline stories about the recycling "crisis." Dozens of communities around the U.S. cancelled programs due to rising costs and limited markets. Colorado was not exempt from the challenging conditions and suffered a few of our own setbacks, particularly in rural areas. **However, the good news in our state is that our recyclable materials are still being recycled, and there are no reports of Colorado recyclables being sent to landfills.**[i]

1

FIGURE 1: COLORADO'S GOLD MEDAL WINNERS FOR BEST RECYCLING* IN 2018[ii]

FRONT RANGE		
Best citywide recycling rate residential and commercial	Boulder	57%
Best residential recycling rate homes only	Loveland	60%
Best county-level recycling rate residential and commercial	Boulder County	44%
Best industrial recycling rate	Fort Collins	73%
GREATER COLORADO (outside Front Range)		
Best citywide recycling rate residential and commercial	Durango	31%
Best county-level recycling rate residential and commercial	Pitkin County	37%

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

2

FIGURE 2. COLORADO'S CURRENT RECYCLING RATE[iii] COMPARED TO STATE GOALS[iv]

DIVERSION RATE & GOALS	2018 (actuals)	2021	2026	2036
Front Range	18%	32%	39%	51%
Greater Colorado (outside Front Range)	10.7%	10%	13%	15%
Statewide	17.2%	28%	35%	45%

3

FIGURE 3. SEVEN OUT OF 10 OF COLORADO'S LARGEST CITIES DO NOT PROVIDE CURBSIDE RECYCLING TO ALL RESIDENTS[v]

CITY	Recycling at all Residential Properties*
Denver	✓
Colorado Springs	
Aurora	
Fort Collins	✓
Lakewood**	
Thornton	✓
Arvada**	
Westminster	
Pueblo	
Centennial	

*Defined as residential properties with less than eight units and not including homeowner associations; multi-family properties are considered commercial accounts based on state law.

**Lakewood and Arvada issued RFPs in 2019 for comprehensive curbside recycling programs and are moving toward implementing a convenient program for all residents.

Colorado communities recycled and composted over 1.2 million tons of materials in 2018, up nearly 75,000 tons compared to 2017. At the local level, most communities reported expanding or improving their recycling or composting programs during 2018 and the first part of 2019, rather than scaling them back.[vi] At the state level, the legislature took a huge step forward in 2019 to improve recycling by creating a significant new funding source for Front Range communities to increase recycling (see p. 13).

However, despite some all-star community efforts, Colorado continues to be one of the worst states at recycling and one of the most wasteful states in the country. Colorado generated over 15,900,000 tons of materials in 2018 (from residential, commercial, and industrial sources), up from 14,000,000 tons in 2017. **That makes 2018 our most wasteful year ever! We created an extra 10 million pounds of trash per day in 2018 compared to 2017.** Coloradans only recycled or composted 17% of our municipal solid waste in 2018 (from residential and commercial sources), less than half the national average of 35% and far below our statewide goal of 28% by 2021.[vii]

Increasing recycling in Colorado is vital to reducing carbon pollution and boosting our economy by creating jobs and providing needed materials to companies manufacturing goods in our state. The challenge to increasing recycling in Colorado is two-fold — **we need to increase access to convenient recycling and composting programs, particularly along the Front Range, and we need to attract more businesses to Colorado to use our recyclable and compostable materials.** Over 95% of Colorado's waste could be diverted from landfills, which could serve as the feedstock for businesses in the state to make new products or be used to build stronger, more

The best way to solve Colorado's waste problem, and substantially reduce our carbon footprint, is to stop producing so much stuff, and to focus more on reusing what we have. Then, for the stuff we do need, it needs to be both recyclable and recycled.

resilient soils that grow healthier food and store carbon out of our atmosphere.[viii] While Colorado has strong markets for recycled glass and some for metals and compost, we need to grow the entire recycling sector by incentivizing other manufacturers to incorporate recycled materials in their products by providing them a strong supply of clean, recycled feedstock materials to use from our curbside recycling programs.

Providing convenient curbside recycling to all residents is one of the most important and proven steps our cities can take to improve recycling in Colorado, especially on the Front Range. The Front Range alone sent over 5,000,000 tons of municipal waste to landfills in 2018, accounting for more than 85% of the waste in the state. Front Range residents are also more wasteful than their rural counterparts, producing an extra pound of trash per person per day.[ix]

This is why focusing on improving recycling on the Front Range provides the biggest bang for our buck to increase our overall recycling rate. Yet residents in most Front Range cities have to go out of their way to get curbside recycling—they have to find a hauler that offers it and then pay more for the service. By contrast, our leading recycling cities bundle recycling and trash service together so residents automatically get a recycling cart when they sign up for trash service, and both services are included for one price. National studies show bundling is one of the most effective ways to get more people to participate in recycling and to collect more recyclable material per household.[x]

This 2019 report is a call to action to our largest cities to provide curbside recycling to all residents, and to our state legislature to invest in local end markets to build a new recycling economy in Colorado. In addition, the report looks at how national trends are impacting Colorado's recycling programs, explores which cities are leading and lagging at recycling, and recommends strategies to boost recycling based on proven solutions working here and across the U.S.

WHY INVEST IN RECYCLING NOW: ENVIRONMENT + ECONOMY

Recycling already produces substantial environmental and economic benefits for Colorado, even at our low rates. But there is so much more we can gain by recycling and composting more. In 2018, our recycling and composting efforts:

- **Reduced greenhouse (GHG) emissions by over 1,800,000 $MTCO_2e$, the equivalent of removing over 400,000 cars from the road annually;**
- **Saved over 13,000,000 BTUs of energy, the equivalent to conserving the annual energy use of over 142,000 households; and**
- **Boosted the local and state economy with nearly $195,000,000 in total wages earned from recycling and composting, compared to landfilling.[xi]**

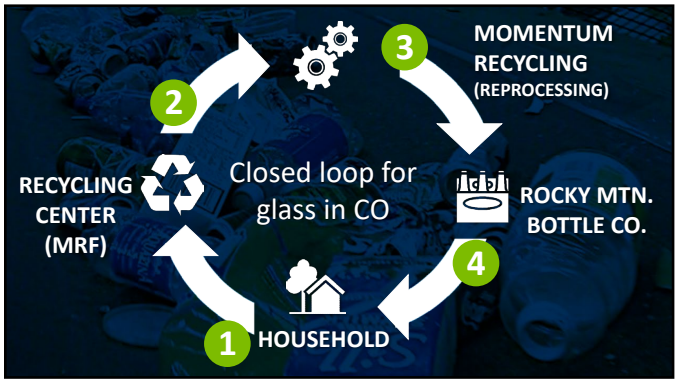
PART I

GROWING A NEW RECYCLING ECONOMY IN COLORADO

WHAT DOES SUCCESSFUL RECYCLING LOOK LIKE IN COLORADO?

Colorado is very fortunate to have a closed loop recycling system for glass containers that serves as a great model for how recycling could work statewide if we had more recycling markets locally. Here's how it works:

1. You recycle your glass bottle in your curbside recycling bin or at a drop-off center.
2. Your recycling is picked up and sent to a materials recovery facility (MRF) where the glass is sorted out.
3. The glass is transported to Momentum Recycling in Broomfield where it is cleaned up and sorted by color and size.



4. The cleaned and sorted glass is then sold to local bottling companies, Rocky Mountain Bottle Company in Wheat Ridge and Owens-Illinois in Windsor, where it is remanufactured into new beer bottles, ready to repeat the cycle again.

With this closed loop system, your used beer bottle can be back on store shelves in just a few weeks without leaving the state. All this helps Colorado's economy by creating local jobs and tax revenues. It also helps our environment—making products using recycled glass uses 40% less energy than making new glass products with raw materials. This helps facilities run more efficiently and reduce their carbon pollution.[xii]

However, having an end market isn't a guarantee for successful recycling. In fact, **Colorado has existing end markets that don't get enough materials from local recycling programs, causing them to buy recycled materials from other states and undermining their long-term economic**

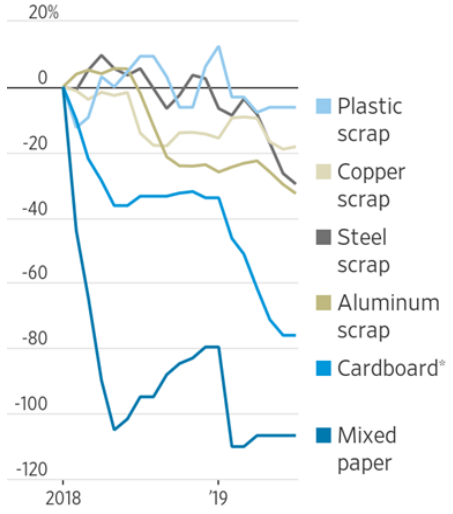
viability. Rocky Mountain Bottle Company ships in glass from Michigan to use in its bottles, while Evraz Rocky Mountain Steel is only able to source about 60% of its scrap metal from Colorado. Despite our great markets for glass, Momentum Recycling's facility remains at less than 70% capacity because there is not enough recycled glass collected from residents and businesses in the Front Range because most of Colorado's Front Range cities do not have comprehensive curbside recycling programs for all residents and businesses. Momentum needs to process more recycled glass in order to make the economics of doing business in Colorado financially sustainable.[xiii] Simply put, **if we want recycling businesses to be successful in Colorado, we have to increase the amount of quality recycled materials collected locally, which means we need to commit to comprehensive curbside recycling programs for all residents and businesses across the Front Range and in the more populated areas of rural Colorado.**

WHAT IS HAPPENING WITH GLOBAL RECYCLING MARKETS?

It's been a tough two years for national recycling markets. In January 2018, China banned nearly all imports of U.S. recycled paper and plastic. China had been buying nearly one-third of our country's recyclables for a decade, so this was a huge loss for recycling markets. The result has been steep price drops for recyclables worldwide and demoralizing headlines about communities, especially on the coasts, that had no choice but to temporarily landfill paper and some plastics because their markets vanished overnight.[xiv] For example, the price for selling recycled cardboard has dropped to its lowest levels in 25 years, down to less than $30/ton in mid-2019 compared to $70/ton at the beginning of 2019 and way down from $180/ton in 2017.[xv]

4

FIGURE 4. SHARP DECLINE IN PRICES OF RECYCLABLES OVER THE PAST TWO YEARS[xvi]



The price for selling recycled materials has sharply declined in 2018 and 2019, making it harder for recycling to compete against cheap landfilling.

Source: Wall Street Journal

WHAT IS A RECYCLING END MARKET?

End markets are manufacturers that use your recyclables to make new products. These end markets can include paper mills, metal smelters, glass factories, and plastics fabrication plants. Examples of end markets here in Colorado include:

- Evraz Rocky Mountain Steel, which uses scrap metal to make new steel products.
- Rocky Mountain Bottle and Owens-Illinois, which use recycled glass to make new beer bottles.
- Applegate Insulation, which uses recycled paper to make home insulation, pet bedding, and seed mulch/erosion control products.
- Spring Back Colorado, which uses recycled mattresses to make Green Pup Dog Beds.

HOW TO FIX THE ECONOMICS OF RECYCLING AND WHO PAYS FOR IT

Saying the economics of recycling are a challenge isn't a concession that recycling doesn't work—it's an assertion that the free market isn't fair and balanced. The economics have always been stacked against recycling because of current subsidies on virgin resource extraction and the lack of accounting for environmental and social externalities like air pollution and carbon emissions. When environmental and social benefits are given a fair market value through full-cost accounting, recycling wins out over burying or burning our waste.[xvii]

While recycling delivers proven environmental benefits, there is growing recognition that the economics are unsustainable unless product manufacturers share some of the responsibility. Local governments have traditionally managed most of the costs of recycling and solid waste programs, but new approaches are gaining momentum around the world that shift some of the costs and responsibilities from local governments and taxpayers to product manufacturers. Under this system, known as Extended Producer Responsibility (EPR), product manufacturers are responsible for financing recycling programs for their products. This has resulted in greater access to recycling and improved recycling rates, and reduced costs to local governments.[xviii]

EPR legislation is becoming more widely adopted in the U.S. in recent years with 118 policies across 33 states. Here in Colorado, our EPR program for paint has successfully increased recycling rates and access to collection sites while reducing costs to cities and counties.[xix] States around the U.S. are actively discussing how to transition to EPR for packaging to help sustain recycling in the long term.

The good news in our state is that our recyclable materials are still being recycled, and there are no reports of Colorado recyclables being sent to landfills.

The upside of this steep market upheaval is that China's decision is prompting the U.S. to reinvest in domestic recycling infrastructure. Companies have pledged to open or expand 17 paper mills and committed to over $400 million in investments in new plastics recycling projects.[xx] Unfortunately, these facilities don't open overnight, and the industry continues to struggle with record-low prices driven by an oversupply of materials.

In most Colorado communities, the greatest impact of tough recycling markets nationwide has been on pricing, with a steep decline in the value of recyclable materials, exacerbated by rising labor costs due to low unemployment rates statewide. While Colorado has certainly weathered the recycling crisis better than other states, we have had a few setbacks to local recycling programs. The value of recycled materials is far below what it has been in previous years, and costs are posing a challenge to a number of Colorado communities. Programs that have closed or reduced materials include:

- **Fort Collins**: Stopped accepting low-value #3-7 mixed plastics[xxi]
- **Cortez**: Stopped accepting newspaper for recycling[xxii]
- **Gunnison County**: Discontinued carton and paperboard recycling at drop-off center[xxiii]
- **Greeley**: Recycling drop-off center closed, pushing customers toward curbside recycling[xxiv]
- **Trinidad**: Local recycler Terra Firma closed[xxv]

While these few closures are not ideal, it is far better than the situation across most of the country. The good news in our state is that our recyclable materials are still being recycled, and there are no reports of Colorado recyclables being sent to landfills. **It's critical that Colorado residents and businesses keep recycling so we can show we are committed to recycling and open for business for new recycling markets.**

WHEN IT COMES TO PLASTICS, REDUCING IS BETTER THAN RECYCLING

While some Colorado communities have had to cut back on the types of plastics they accept for recycling, this might not be a bad thing in the long run. Recycling plastics has always been more problematic than other materials, such as cardboard and metal, which traditionally have had relatively healthy markets and end users.[xxvi] Unfortunately, we continue to produce more and more plastic, even though less than 10% of plastics ever made have been recycled.[xxvii] A staggering eight million tons of plastic waste finds its way out of the world's collection systems and into the oceans every year.[xxviii] Ultimately, the best way to handle our plastic waste problem is to dramatically reduce the amount of plastic being produced in the first place. This will not only keep more materials out of the landfill, but it will also reduce the climate impacts of plastic production. Some Colorado cities have taken action to reduce single-use plastics, but a state statute preempts local action around plastics, stopping many Colorado municipalities from doing more. Removing this pre-emption is a key recommendation for how to improve recycling in Colorado (see p. 25).

In fact, while China's decision to stop importing U.S. recyclables, known as National Sword, has been blamed for many of the nation's challenges, **it really only underscored the larger looming problem that has faced Colorado's recycling programs since their inception: a lack of local end markets.**

WHY WE NEED LOCAL MARKETS

Without local markets, Colorado's recycling programs have to ship their materials thousands of miles across the country to be remanufactured into new products. Your plastic bottles may be sent to North Carolina or your paper to Wisconsin, for example. Often the high transportation costs eliminate any profits on the sale of these materials, which hurts the economic viability of recycling, and transporting long distances emits air pollution and greenhouse gases, which could be greatly reduced with local recycling end markets.

At the same time that prices have dropped, the costs to collect and process recyclables has greatly increased. Very low unemployment rates in the metro Denver area have driven up the cost of labor

5

FIGURE 5. TRANSPORTING RECYCLING OVER LONG DISTANCES STILL SAVES ENERGY[xix]

MATERIAL	BREAK EVEN POINT IN ENERGY SAVINGS (IN MILES)		
	TRUCK	RAIL	FREIGHTER
Aluminum	116,000	451,000	524,000
PET (#1 plastic) bottles	11,000	43,000	50,000
Newspaper	23,000	90,000	104,000
Cardboard	27,000	104,000	120,000
Glass	2,000	9.000	11,000

IS IT STILL WORTH RECYCLING DESPITE THE TRANSPORTATION IMPACTS?

Transporting recyclables over long distances causes air pollution and carbon pollution, which could be significantly reduced if Colorado had local and regional end markets. However, it is important to note that these transportation emissions do not outweigh the benefits of recycling. Recycling saves huge amounts of energy in the manufacturing process, and these energy savings are far greater than the energy used to transport our recycling, including the extra trucks used to collect recycling from your home or business. For every 100 tons of recycling collected in the U.S., there is a net savings of about 235 tons of carbon emissions, while producing only about 4 tons of carbon emissions in the transportation of these materials.[xxx] Figure 5 shows how far recycled materials would have to be shipped before the transportation emissions were greater than the energy savings. This isn't to suggest that we should ship our recycling tens of thousands of miles. It simply shows that recycling is a net win for our climate despite the transportation impacts, and we should continue to recycle while we work to build local markets in order to reduce transportation emissions.

and recycling facilities are struggling to find enough staff to operate equipment and sort materials. Because China stopped buying U.S. materials, there is currently an overabundance of materials going to domestic markets. This means it's a buyers market, so manufacturers can be pickier about the materials they accept and set stricter standards on the amount of non-recyclable materials, or contamination, in loads of baled recyclables. To meet these cleaner specifications, recyclers are having to slow down their conveyor belts and increase sorting labor. For example, Alpine Recycling increased its workforce by 15% to help sort better and decrease contamination.[xxxi] These increased costs, together with low market prices, have raised the overall costs for recycling and made it harder for recycling to compete against Colorado's very cheap landfill dumping fees.

While recycling is in a short-term market slump, China's National Sword has actually presented the U.S. recycling industry with an opportunity. Now is the time to focus on developing new end markets within the United States so that the full value of these materials is reinvested in our own economies and more green jobs are created in our respective states. Washington, Michigan and California have launched new market development initiatives in the past two years in response to global declines. Developing end markets in Colorado would further increase demand while decreasing transportation costs, especially to rural parts of the state.

GROWING NEW RECYCLING BUSINESSES IN COLORADO

Recycling is a win-win for Colorado's economy as well as our environment. Recycling, reusing, and remanufacturing already generate over $8.7 billion in economic benefits in Colorado annually, even with our low recycling rate.[xxxii] But there is so much more we can do. The good news is that there are positive signs at the state level and in the business community that Colorado's new recycling economy is poised to grow. This is demonstrated by these three examples:

6

FIGURE 6. COMPREHENSIVE MARKET DEVELOPMENT PROGRAMS IN OTHER STATES[xxxiii]

STATE	MARKET DEV. CENTER	TECHNICAL ASSISTANCE	FUNDING	STATE POLICIES
California		✓	✓	✓
Massachusetts		✓	✓	✓
Michigan		✓	✓	
Minnesota	✓	✓		
North Carolina	✓	✓	✓	✓
Pennsylvania	✓	✓	✓	✓
South Carolina	✓	✓	✓	
Washington	✓	✓		✓

NextCycle grant program incubates new businesses

Nationally recognized NextCycle is a business incubator developed by Colorado Department of Public Health and Environment (CDPHE) to "improve the end markets for recovered commodities and organic materials in Colorado." In addition to publishing a free resource directory, NextCycle selected nine businesses in 2019 to receive grants and technical assistance. The awardees included businesses working to divert a variety of materials including plastics, hemp byproducts, organics, solar panels, and steel.[xxxiv]

Alpine invests in more recycling capacity in Denver

A major equipment upgrade at Alpine Waste & Recycling's (now GFL Industries) facility in Denver demonstrates the company is committed to growing recycling here in Colorado. Alpine recently retrofitted its materials recovery facility (MRF) to increase its processing speed by 33% and to handle over 30% more single-stream recyclable materials. Alpine's MRF was also one of the first recycling facilities in the country to begin accepting disposable paper coffee cups for recycling, launching the new program in late 2018.[xxxv]

Suction cups are used on AMP's robotic sorting equipment to quickly grab specific recyclable materials, such as milk cartons or plastic bottles, from mixed recyclables on the conveyor belt.

AMP Robotics leads national trend to use high tech in recycling

Based in Louisville, CO, AMP Robotics is at center stage in a new national spotlight on the use of robotics and artificial intelligence (AI) in recycling. Robotics can improve sorting speeds at recycling facilities and improve material quality, both of which help drive down operating costs. Their technology, which also improves safety at these facilities, can be used on multiple waste streams, including construction and electronic waste. With investments from major industry sources such as the Closed Loop Fund, AMP serves as a great example of how recycling can support innovation and brings jobs and economic value to Colorado.[xxxvi]

HOW COMMUNITIES ARE PROVIDING CLEAN, HIGH-QUALITY RECYCLABLES TO END MARKETS

Recycling programs across the country are struggling with high amounts of contamination in recycling bins. This is due in part to behavior commonly known as "wish-cycling," where people toss something into the recycling bin without checking whether it's actually recyclable because they "hope" it can be recycled. As a result, many local communities have invested in new recycling education campaigns to ensure they collect only what can be recycled, helping their programs run more efficiently.

These cities are working to reduce contamination:

- **Northglenn** used a CDPHE grant to create "oops" tags to help city workers audit recycle carts, along with refrigerator magnets and colorful cart decals to hand out at events.
- **Steamboat Springs, Longmont and Eco-Cycle** launched an online recycling and sorting game through the ReCollect app.
- **Eagle County** partnered with Walking Mountains Science Center to run a county-wide recycling education blitz with newspaper ads, social media, and e-blasts to help residents better understand how to recycle via an updated simplified recycling guide.
- **Gunnison County** hired outreach staff at their recycling drop-off center to help educate residents on what is or isn't acceptable.[xxxvii]

PART II

SUCCESS STORIES

SUCCESS STORIES AT THE STATE LEVEL: 2019

Millions of dollars now available to support recycling in the Front Range

From Larimer County to Pueblo County, the Front Range generates about 85% of the state's waste, so improving recycling participation here offers the biggest bang for the buck when it comes to increasing Colorado's statewide recycling rate. In a move praised by environmentalists and local recycling organizations, Governor Polis and state legislators made a significant investment in recycling with the creation of the new Front Range Waste Diversion Enterprise Grant Program, which will provide up to $15 million per year for grants and services to help cities, haulers, schools, and businesses in the Front Range implement new waste diversion programs. By comparison, Colorado's only other major grant funding for recycling, the Recycling Resources Economic Opportunity (RREO) Program, has awarded $25 million over the past 12 years, making this new fund a considerably large financial investment. Increased funding was a top recommendation in the 2018 State of Recycling in Colorado report and we're so proud to see the state taking such strong action![xxxviii]

Governor proclaims first ever Colorado Recycles Week

In a strong show of support for the growing importance of increasing statewide recycling, Governor Polis will proclaim November 11-15 as Colorado Recycles Week. This coincides with America Recycles Day on November 15. In his proclamation, the Governor will highlight the importance of recycling to protect Colorado's beautiful environment for future generations to enjoy.

First designated Zero Waste Interim Committee explores recycling, proposes two bills

A bipartisan group of ten legislators representing both houses and many parts of the state met between sessions to explore policy options and propose legislation to increase recycling and help move the state toward zero waste. The group, chaired by Representative Lisa Cutter (Jefferson County), toured waste and recycling facilities as well as Colorado companies that use recycled materials in their production. The committee will submit two bills in the 2020 session. One bill will promote the development of end markets for recycling by recommending how to structure, fund, and govern a recycling end market development center. The center would assist businesses

that process recyclable materials and make them into new products by providing market analyses, identifying financial incentives, and advocating for pro-recycling policies at the state and local level. The second bill will aim to develop composting facilities and the usage of compost to help restore Colorado's soils and store carbon, playing a key role in reducing our GHG emissions.[xxxix]

SUCCESS STORIES AT LOCAL LEVEL: 2019

Carbondale contracts for curbside recycling for all residents

Photo credit: John Stroud/Glenwood Springs Post Independent

Carbondale approved a citywide recycling and trash contract that will provide all residents with every-other-week recycling. This replaces the previous system where multiple haulers offered different levels of services and residents had to ask for, and pay more for, recycling collection. Moving forward, trash will be priced based on volume, giving residents a financial incentive to reduce waste and increase recycling. There is even the option for every-other-week trash collection for households that maximize their waste diversion. By requiring all households to have trash and recycling services, Carbondale hopes to reduce waste, decrease truck traffic, and decrease the amount of illegal dumping of household trash at city parks and in Main Street trash bins.[xl]

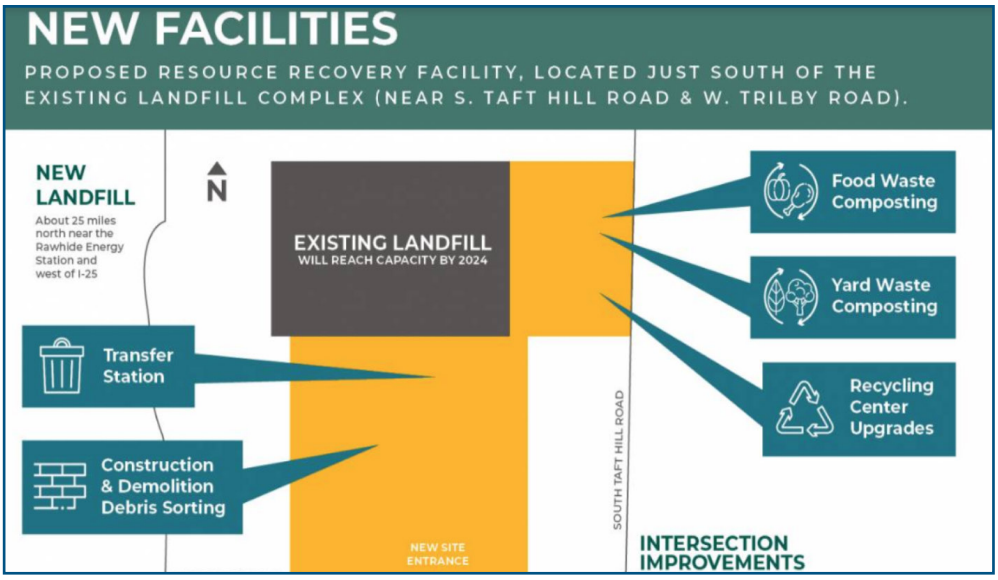
Steamboat students lead charge to ban plastic bags

Photo credit: Eleanor Hasenbeck/Steamboat Pilot & Today

After a year of discussion, a group of Steamboat Springs high school students have succeeded in their efforts to ban plastic bags at the major grocery stores in the city. Steamboat becomes the 11th Colorado city to place a ban and/or fee on single-use checkout bags. Smaller retailers are encouraged to opt-in to the program to further reduce single-use bags throughout the city. If customers forget their reusable bags, they can get paper bags for 20 cents each. Fees collected from paper bags will fund education efforts, community clean-up events, and waste reduction infrastructure.[xli]

Larimer County develops model regional planning

With just five years of capacity remaining at the Larimer County landfill, representatives from Estes Park, Loveland, Fort Collins, and Larimer County came together in exemplary regional cooperation to plan for new facilities and programs to manage their waste and increase recycling. Under the North Front Range Regional Wasteshed project, the County proposed building substantial new recycling facilities if local governments committed to adopting policies that require a minimum amount of materials are delivered to the County recycling facilities. These policies would support the County's investment and ensure the economics of the facilities will work. This type of intergovernmental agreement sets a new model for supporting regional recycling infrastructure, and the supporting financial and technical documents are a tremendous resource to other regions as well. Additionally,



while the County will build a new landfill, there will also be a construction and demolition recycling facility, and new compost facilities for food scraps and yard trimmings, which could keep an additional 40% of materials out of the landfill.[xlii]

Other 2019 local highlights include[xliii]:

- **Arvada** issued an RFP for citywide trash and recycling services, which would provide curbside recycling to all residents and reduce truck traffic in the city.
- **Aurora** partnered with local compost collection company Wompost to collect food scraps for composting from city events.
- **Denver** offered its voluntary compost collection service to all households and reached over 21,000 subscribers.
- **Minturn** added recycling stations at all town-hosted events, a new composting drop-off site at Town Hall, and a water station at their summer farmers market to eliminate single-use plastic bottles.
- **Northglenn** collected recycling at all city events and piloted compost collections at one event.
- **Pitkin County** required all residents in unincorporated areas of the county to have curbside recycling in order to increase diversion and extend its landfill capacity.
- **Recycle Colorado** launched ReCircle, an online materials exchange platform to help businesses recycle and reuse industrial quantities of materials.
- **Summit County** residents approved the Strong Future ballot measure, which provides $1.7 million annually for 10 years to support and expand its recycling programs, including new programs for glass, food scraps, and hard-to-recycle materials like mattresses.
- **Vail** initiated its first annual Business Recycling Challenge to increase recycling rates in the business community. McNeill Property Management was the overall challenge winner with an 84% recycling rate.

PART III

RECYCLING BY THE NUMBERS: WHICH COLORADO CITIES LEAD AND LAG

STATEWIDE WASTE AND RECYCLING NUMBERS

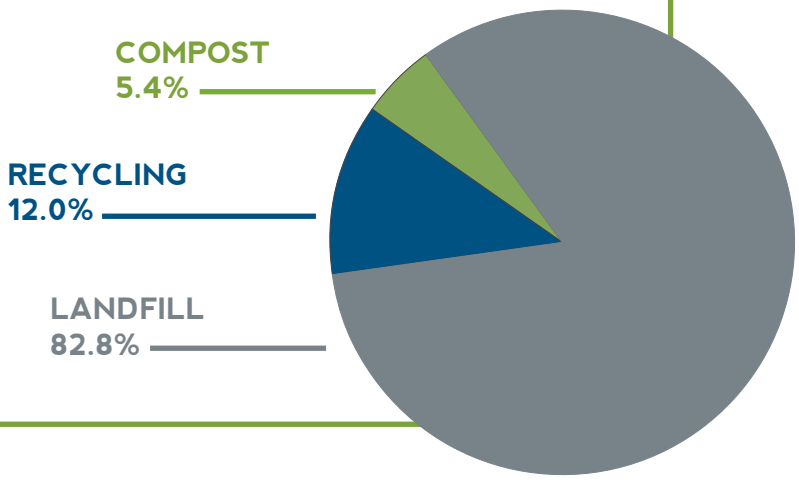
Colorado produced more waste in 2018 than in 2017, a trend that continues to move in the wrong direction. From all residential, commercial, and industrial sources, Coloradans generated over 15,900,000 tons of materials in 2018, up from 14,000,000 tons in 2017. That's a staggering increase of over 10 million pounds of waste generated per day in 2018! Residents and businesses produced about half of our total waste statewide, generating 7,077,958 tons of municipal solid waste in 2018. Of this, residents and businesses recycled and composted only 1,217,062 tons, which puts the recycling rate for non-industrial waste at just 17.2% statewide. **Colorado's diversion rate of 17% is just half the national average of 35% and far below the state goal of reaching 28% by 2021.**[xliv]

7

FIGURE 7. COLORADO'S DIVERSION RATE FOR 2018 (NON-INDUSTRIAL)[xlv]

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

$$\frac{\text{recycling + composting}}{\text{(recycling + composting + trash)}}$$



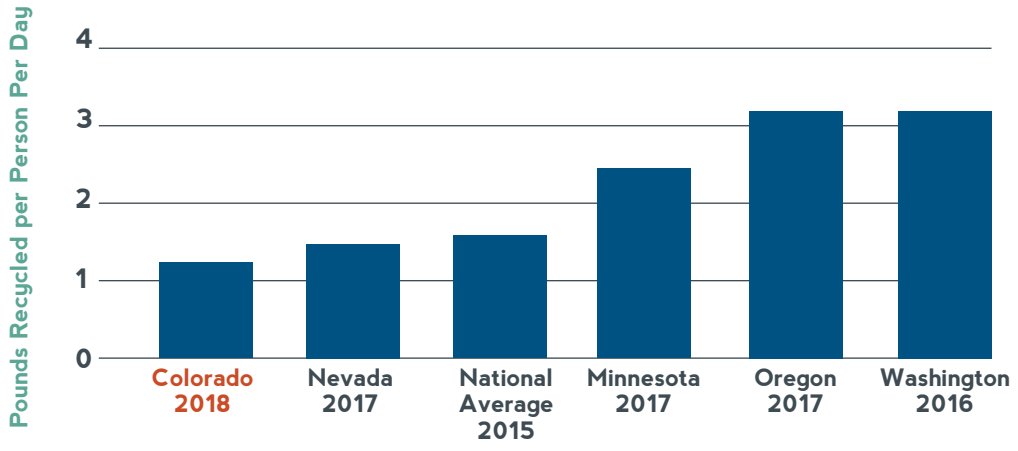
Compared to other Western states with a similar mix of urban and rural populations, Coloradans are more wasteful than our peers. On average, each Coloradan threw away more than 5.6 pounds of trash per day, compared to only 4.2 pounds of trash per person in Oregon and 3.9 pounds of trash per person in Washington.[xlvi]

RECYCLING INCHES SLIGHTLY UP

Despite producing more waste, Colorado continues to inch slowly forward on recycling. Colorado communities recycled and composted over 1,217,000 tons of materials in 2018, up nearly 75,000 tons compared to 2017. While it's great that we are keeping slightly more tons out of the landfill, we still only recycle about 1.2 pounds per person per day, which is far less than our peers. Residents in Oregon and Washington recycle 3.1 pounds per person per day, nearly three times more than Colorado residents.[xlvii]

8

FIGURE 8. RESIDENTS IN OREGON AND WASHINGTON RECYCLE NEARLY THREE TIMES MORE THAN COLORADO RESIDENTS[xlviii]



MAKING SENSE OF THE NUMBERS

Wait a minute...the recycling rate jumped from 12% to 17%? Yes, compared to last year's report, Colorado's recycling rate did jump from 12% in 2017 up to 17% in 2018. But before you break out the party hats, we need to clarify why that happened. Colorado's recycling rate isn't higher because we recycled a lot more. It is higher because the state adjusted how the recycling rate is being calculated and excluded industrial waste from the new numbers.[xlix] But don't be too disappointed — that's still good news. Thanks to CDPHE's efforts, Colorado's data is now better aligned with other states because we are using the same methodologies to calculate and compare residential and industrial wastes. As a result, we have more accurate information about what's happening at the city level.

RECYCLING AT THE LOCAL LEVEL

Colorado's Gold Medal Winners

While Colorado lags behind as a state, we do have several communities that are recognized leaders in recycling and composting, both in the state and beyond. We honor these cities below for their outstanding recycling leadership!

Boulder leads the state when it comes to recycling at households and businesses with a 57% citywide recycling rate. Boulder has seen a rapid increase in its recycling rate, up 17% from 40% in 2016, thanks to the implementation of its Universal Zero Waste Ordinance that requires all businesses, apartment complexes, and homes to have recycling and composting collection. While Boulder residents have been recycling for decades, the business sector was lagging behind and producing over twice as much trash than residents before the ordinance went into effect in 2015. The policy helps Boulder move toward its goal of 85% diversion and meet its climate action goals to reduce carbon pollution.[l]

Loveland continues to lead Colorado cities with the highest residential recycling rate of 60%. This measures recycling efforts from single-family households and multi-family properties with seven or fewer units, and is the most common type of recycling program provided by Colorado cities. It is also the most common type of data collected on recycling by cities throughout the state (see Figure 10).

Fort Collins deserves recognition for being the only Colorado city collecting a full data set on industrial diversion, in addition to residential and commercial diversion information. The city boasts an impressive 73% diversion rate for industrial materials, which includes the recycling of scrap metal, concrete, asphalt, and soil. This is far better than the average statewide industrial diversion rate of 50%, making Fort Collins a model both for its strong industrial recycling efforts and for its comprehensive data tracking.[li]

Recognizing that there are greater challenges with recycling outside of the Front Range (see p. 22), we are separately highlighting the top cities in residential recycling in both the Front Range and in Greater Colorado (as defined by CDPHE)[lii]. **The winner for the best recycling program outside the Front Range is Durango at 31%.**

HOW LOVELAND SUCCEEDS AT RECYCLING

"When we developed our green waste collection and curbside recycling programs 20ish years ago, we focused on providing an easy way to recycle coupled with the Pay-as-You-Throw program. Because we made the cost of recycling mandatory and we provided a very easy means for people to recycle, both curbside and via the city-operated Recycling Center, the recycling part was a no-brainer. Then, depending on how ardent of a recycler you were, you could save money on your trash bill by selecting a smaller trash container."

Tyler Bandemer, Solid Waste Superintendent
Loveland, CO

9

FIGURE 9: COLORADO'S GOLD MEDAL WINNERS FOR BEST RECYCLING* IN 2018[liii]

FRONT RANGE		
Best citywide recycling rate residential and commercial	Boulder	57%
Best residential recycling rate homes only	Loveland	60%
Best county-level recycling rate residential and commercial	Boulder County	44%
Best industrial recycling rate	Fort Collins	73%
GREATER COLORADO (outside Front Range)		
Best citywide recycling rate residential and commercial	Durango	31%
Best county-level recycling rate residential and commercial	Pitkin County	37%

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

10

FIGURE 10: TOP 10 FRONT RANGE CITIES AT RESIDENTIAL RECYCLING[liv]

CITY	DIVERSION RATE
Loveland	60%
Louisville	53%
Boulder	52%
Lafayette	38%
Longmont	36%
Golden	31%
Superior	30%
Fort Collins	27%
Greenwood Village	27%
Denver	23%

11

FIGURE 11: TOP 5 GREATER COLORADO CITIES AT RECYCLING[lv]

CITY	DIVERSION RATE
Durango	31%
Aspen	27%
Vail	25%
Rifle*	22%
Silt*	18%

*Residential recycling rate only.

COLORADO'S GOLD AND SILVER MEDALISTS FOR RECYCLING

Residents in most Colorado cities have to go out of their way to opt in to a curbside recycling program. This means they have to reach out to trash haulers, find one that offers recycling, and, typically, pay more for recycling service. By contrast, our Gold and Silver medal winners combine, or bundle, recycling and trash service together so residents automatically get a recycling cart when they sign up for trash service, and both services are included for one price. National studies show bundling is one of the most effective ways to get more people to participate in recycling and to collect more recyclable material per household.[lvi]

Providing convenient curbside recycling to all residents is one of the most important and proven steps our cities can take to improve recycling in Colorado, especially on the Front Range. We are proud to recognize these 30 cities for providing recycling to all residents. This type of program can be done through city-run trucks, through contracts with haulers, or through hauler licensing programs. We hope these cities serve as inspiration to their peer communities to offer these valuable services in 2020, and as inspiration at the state level to provide more financial and technical support to expand curbside recycling programs.

12

FIGURE 12. COLORADO'S GOLD AND SILVER MEDAL WINNERS: CITIES WITH CURBSIDE RECYCLING* FOR ALL RESIDENTS[lvii]

FRONT RANGE		GREATER COLORADO
Boulder	Lafayette	Aspen
Commerce City	Lone Tree	Durango
Dacono	Longmont	Fruita
Denver	Louisville	Hayden
Edgewater	Loveland	Montrose
Evans	Morrison	New Castle
Fort Collins	Northglenn	Rifle
Frederick	Sheridan	Silt
Golden	Superior	Telluride
Greenwood Village	Thornton	Vail

*Defined as bundling curbside recycling alongside trash service automatically for all residential properties (excluding HOAs). Does not include multi-family properties with eight or more units as these are considered commercial properties under state law.

BIGGEST OPPORTUNITY FOR IMPROVEMENT: FRONT RANGE CITIES WITHOUT COMPREHENSIVE CURBSIDE RECYCLING

With 85% of our waste coming from the Front Range, we can make the biggest impact on our statewide recycling rate by focusing our efforts on improving recycling along the urban corridor. While Greater Colorado has already hit its 2021 target recycling rate, the Front Range is woefully behind on reaching the state's 2021 diversion goal.[lviii] Further, Front Range residents are also more wasteful than their Greater Colorado counterparts: Residents in the Front Range produce 5.8 pounds of trash per day compared to only 4.8 pounds of trash per day produced by residents in Greater Colorado.[lix]

It's no surprise that Colorado lags behind on recycling when you consider seven out of ten of our largest cities do not provide convenient curbside recycling to all residents.[lx] If Colorado is going to make measurable progress to increase recycling, our biggest cities need to step up to the plate. While curbside recycling is available by subscription in all of Colorado's major cities, it is not widely used by residents because people have to go out of their way to opt-in and subscribe to recycling services, and often have to pay extra for recycling. We strongly encourage cities to remove this barrier to participation and ensure every resident has a recycling cart next to their trash cart as part of a single, bundled service package.

13

FIGURE 13. FRONT RANGE CITIES WITH OVER 10,000 RESIDENTS WITHOUT CONVENIENT CURBSIDE RECYCLING FOR ALL RESIDENTS[lxi]

Arvada*	Aurora	Brighton	Broomfield
Castle Pines	Castle Rock	Centennial	Colorado Springs
Englewood	Erie	Federal Heights	Firestone
Fountain	Greeley	Johnstown	Lakewood*
Littleton	Parker	Pueblo	Westminster
Wheat Ridge	Windsor		

*Lakewood and Arvada issued RFPs in 2019 for comprehensive curbside recycling programs and are moving toward implementing a convenient program for all residents.

RECYCLING RATES AT THE COUNTY LEVEL

Five Colorado counties, including Boulder, Denver, Eagle, Pitkin and Summit, deserve Gold Medals for collecting recycling data at the county level every year. Another 36 counties earn Silver Medals for having a waste composition study conducted within the past five years, giving them a baseline report on how to improve their recycling rates. These baseline studies should be a goal for the rest of Colorado's counties. CDPHE and its Recycling Resources Economic Opportunity (RREO) grant also deserve a Gold Medal for funding many of these rural and regional studies.

14

FIGURE 14: COLORADO'S GOLD MEDAL WINNERS AT THE COUNTY LEVEL FOR ANNUAL DATA TRACKING[lxii]

COUNTY	RECYCLING RATE
Boulder County	47%
Pitkin County	37%
Eagle County	26%
Denver (also reported under cities)	23%
Summit County	20%

15

FIGURE 15. COLORADO'S SILVER MEDAL WINNERS AT THE COUNTY LEVEL FOR CONDUCTING WASTE COMPOSITION STUDIES[lxiii]

Alamosa	Lake
Archuleta	Larimer
Baca	Las Animas
Bent	Mesa
Chaffee	Mineral
Conejos	Moffat
Costilla	Montezuma
Crowley	Montrose
Custer	Otero
Delta	Ouray
Dolores	Pueblo
El Paso	Rio Blanco
Fremont	Rio Grande
Garfield	Routt
Grand	Saguache
Gunnison	San Juan
Huerfano	San Miguel
La Plata	Teller

RURAL RECYCLING CHALLENGES

Across the U.S., recycling in rural areas is generally more challenging than in urban areas. Colorado's mountain and rural areas face several disadvantages, including:

- Higher transportation costs because of longer distances to end markets
- Lower population densities, which make it harder to provide curbside collection programs so there is higher reliance on drop-off centers for recycling
- Lower material generation, which requires more storage space or regional cooperation to gather a sizeable load for shipping
- Lower tax base to fund infrastructure investments

Despite these challenges, Greater Colorado deserves kudos for already reaching its 2021 recycling target set by the state thanks to several rural champions with strong recycling programs (see p. 19). Colorado's rural areas remain an integral part of achieving our state recycling goals, and they need tailored solutions, such as those outlined in the state's solid waste plan, to address these additional challenges.

PART IV
RECOMMENDATIONS

Cities big and small around the state are proving every day that recycling can and does work in Colorado, but we need a more concerted effort if we are going to at least raise our recycling rate up to the national average, if not surpass it. These key recommendations would help Colorado achieve its recycling goals while creating jobs, reducing climate pollution, conserving resources and bolstering our local economies:

LOCAL LEVEL RECOMMENDATIONS

1. **Expand curbside recycling to all residents.** Curbside recycling service should be provided to every resident in every Front Range community and in larger rural areas to provide the most convenient access to recycling. This means recycling is bundled together with trash service so they are delivered as one package of services and residents do not have to ask for or subscribe to recycling separately.

2. **Use financial incentives, such as volume-based pricing, to reduce waste and increase recycling.** Communities that charge for trash service based on the volume collected, rather than providing unlimited trash collection for a flat fee, typically have higher recycling rates and produce less trash per person. Some cities call these

16

FIGURE 16. SEVEN OUT OF 10 OF COLORADO'S LARGEST CITIES DO NOT PROVIDE CURBSIDE RECYCLING TO ALL RESIDENTS*[lxiv]

CITY	Population 2018	Recycling at all Residential Properties*
Denver	716,492	✓
Colorado Springs	472,688	
Aurora	374,114	
Fort Collins	167,830	✓
Lakewood**	156,798	
Thornton	139,436	✓
Arvada**	120,492	
Westminster	113,479	
Pueblo	111,750	
Centennial	110,831	

*Defined as residential properties with less than eight units and not including homeowner associations; multi-family properties are considered commercial accounts based on state law.

**Lakewood and Arvada issued RFPs in 2019 for comprehensive curbside recycling programs and are moving toward implementing a convenient program for all residents.

programs Pay As You Throw (PAYT) or Save Money and Reduce Trash (SMART). This is the same way residents are charged for other utilities, such as electricity, gas and water—based on how much they use. Nearly 9,000 communities across the U.S. use volume-based pricing to provide fair, cost-effective trash services and encourage recycling, making it one of the most proven policies to improve diversion rates.[lxv]

3. **Increase recycling access for apartments and businesses.** Apartments and businesses produce nearly 50% of the waste in Colorado, yet most lack curbside recycling services.[lxvi] All residents deserve convenient access to recycling and composting, both at work and at home.

4. **Develop composting infrastructure and services.** About 40% of Colorado's trash is organic material such as food scraps and yard waste that could be composted.[lxvii] Colorado needs to invest in composting infrastructure and develop more convenient drop-off centers and curbside collections to turn these materials into nutrient-rich soil amendments. A good place to start is for cities to host or contract for spring clean-up events and fall leaf and branch composting. At the state level, we urge legislators to support a proposal for a statewide composting management plan that would help improve soil quality and store more carbon by supporting Bill B from the 2019 Interim Zero Waste Committee.

5. **Collect data.** You cannot improve what you don't measure. It's time for municipalities to require regular reporting on how much of the local waste stream is recycled, composted, and landfilled. We recommend cities use the free data tools available through the Municipal Measurement Program (MMP). The new MMP platform provides several useful reporting features such as diversion rate charts, benchmarks to other communities and tools to help calculate the economic benefits generated by your program. Using the national platform also helps to ensure that recycling data is reported consistently using the same calculation formulas and terminology across the U.S.[lxviii]

STATE LEVEL RECOMMENDATIONS

1. Invest in recycling end markets

In order to develop and attract end markets, Colorado needs a centralized program and coordinated leadership to make the tools we have more effective, robust and widely adopted. We simply won't get recycling businesses without proactively targeting them. A Recycling Market Development Center in Colorado will provide the needed leadership to coordinate a comprehensive, proactive, cross-agency effort and is a proven strategy that has been successful for other states including Minnesota, North Carolina, South Carolina, Pennsylvania and Washington. We urge the state legislature to prioritize the creation of a market development center to solve the most important challenge in creating closed-loop recycling systems.

Special thanks to the 2019 Zero Waste Interim Committee, Representative Lisa Cutter (Jefferson County) and Senator Kevin Priola (Adams County) for their leadership in crafting a 2020 bill to develop an end market center, known as Bill A: Incentivize Development Recycling End Markets.

2. Repeal preemption law to reduce plastic pollution

Many communities across the state would like to ban or restrict the use of many types of single-use disposable plastics, such as plastic bags and foam take-out containers, but cities are prevented from doing so by a 1993 state statute that preempts local plastic bans. Already six counties and 22 municipalities across the state have called for removing this restriction on their ability to take action and lead on this important issue.[lxix] We urge the state legislature to repeal this preemption in the upcoming 2020 legislative session so cities can fight back against plastic pollution in our streets and waterways, as well as microplastics inside our bodies.[lxx]

3. Transition toward a recycling system funded by manufacturers, not taxpayers

Cities don't have the funds to continue underwriting recycling programs, and they shouldn't be the ones to foot the bill. Extended Producer Responsibility (EPR) policies are the best proven strategy to shift the costs away from cities and general taxpayers and onto the direct producers and consumers. Studies are underway in Maine, Oregon and Washington on how to implement a producer responsibility system for packaging, and Colorado should follow suit.

4. Lead by example at the state level

In order to attract new remanufacturing businesses to Colorado to support recycling, we have to prove that we can supply a steady stream of high-quality recyclable materials—which means we have to do a much better job at recycling. The State should show leadership by setting a good example. Here are three proven approaches:

- **Provide recycling and composting (where available) at all state facilities**. Currently the state only requires agencies to recycle at one building per agency. Other state models include South Dakota, Maine and Wisconsin.
- **Purchase compost for state projects.** The state can require the use of certified compost—with preference to programs that collect food scraps—in landscaping and transportation projects. Stronger demand for compost end products will help compost processors invest in new equipment and facilities to increase the recovery of food scraps and yard debris throughout Colorado. Using compost can improve water conservation, reduce irrigation needs, help revegetate landscapes and protect against erosion. Illinois is a good state model.
- **Recycle at least 50% of construction debris in all state-sponsored building projects.** This policy will help reduce waste in the construction industry as well as stimulate investments in construction recycling facilities for aggregates (concrete, asphalt, brick) as well as clean lumber, metal, and cardboard.

PART V
CONCLUSION

In the wake of dire warnings about the need for immediate action on climate pollution and the equally alarming proliferation of plastic pollution in our oceans, there has never been a more important time for Colorado to double down on its commitment to protect our environment and build smart, sustainable communities. **Recycling should be at the cornerstone of Colorado's climate commitment: it is one of the fastest, easiest and most cost-effective local solutions to reduce carbon pollution.**[lxxi] It is an accessible, simple solution that everyone can participate in every day—at home, at work, at school and everywhere. Plus, recycling is the foundation of a circular economy, where we can create value from our waste and feed it back into local businesses, creating economic, environmental and social benefits. While many Colorado cities are leading efforts on recycling and composting, we need concerted leadership from our Governor and our state legislature to take Colorado from being one of the worst states for waste diversion to living up to its green reputation. Together we can make 2020 the year we ditch our trashy ways and start forward on the path to make Colorado a hub for a circular economy.

Find out more about how you can help move Colorado forward at:
www.ecocycle.org/zerowastecolorado.

PART VI

APPENDIX

IMPORTANCE OF DATA COLLECTION

Many communities around Colorado do not have data on their waste and recycling rates. This is often due to having multiple haulers operating in their area, many of which do not provide data on waste and recycling tonnage. Better data collection is key to moving recycling forward in Colorado. With accurate data that is updated regularly, municipalities and counties can:

- Measure the effectiveness of policies and programs.
- Discover new opportunities to increase recycling at businesses and apartment complexes.
- Compare progress with peer cities to improve performance.
- Identify the best opportunities to start new or expand existing programs and services.
- Demonstrate the benefits of recycling by converting the amount of material recycled into larger benefits, such as reductions in greenhouse gas emissions, new jobs created, and other economic and environmental benefits.

We recommend cities use the free data tools available through the Municipal Measurement Program (MMP) (see p. 24), as well as reach out to your peer cities in our gold and silver medal list to learn more about their data collection methods.

DATA COLLECTION TERMS

The term "recycling rate" means different things both across Colorado and across the country, which makes it hard to compare between cities and states. This report tries to clarify how existing recycling data refers to different parts of the community. The common data categories used in Colorado are:

- **City-wide recycling rate** - just households and businesses, also known as municipal solid waste (MSW)
- **Residential recycling rat**e - single-family homes and apartments up to seven units (typically does not include homeowner associations (HOAs))
- **Industrial recycling rate** - includes materials generated through agricultural activities, construction and demolition, energy production and other industrial activities.

While industrial waste and recycling is the least available data at the city level, it is of growing importance because of its high volume and its high recyclability. Nearly 50% of what's buried in Colorado's landfills is construction and industrial waste.[lxxii] One city that has addressed this challenge is Fort Collins, which diverts 73% of its industrial waste, including wood waste, scrap metal, and concrete and asphalt.[lxxiii]

HOW TO CALCULATE RECYCLING RATE

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

$$\frac{\textbf{recycling + composting}}{\textbf{(recycling + composting + trash)}}$$

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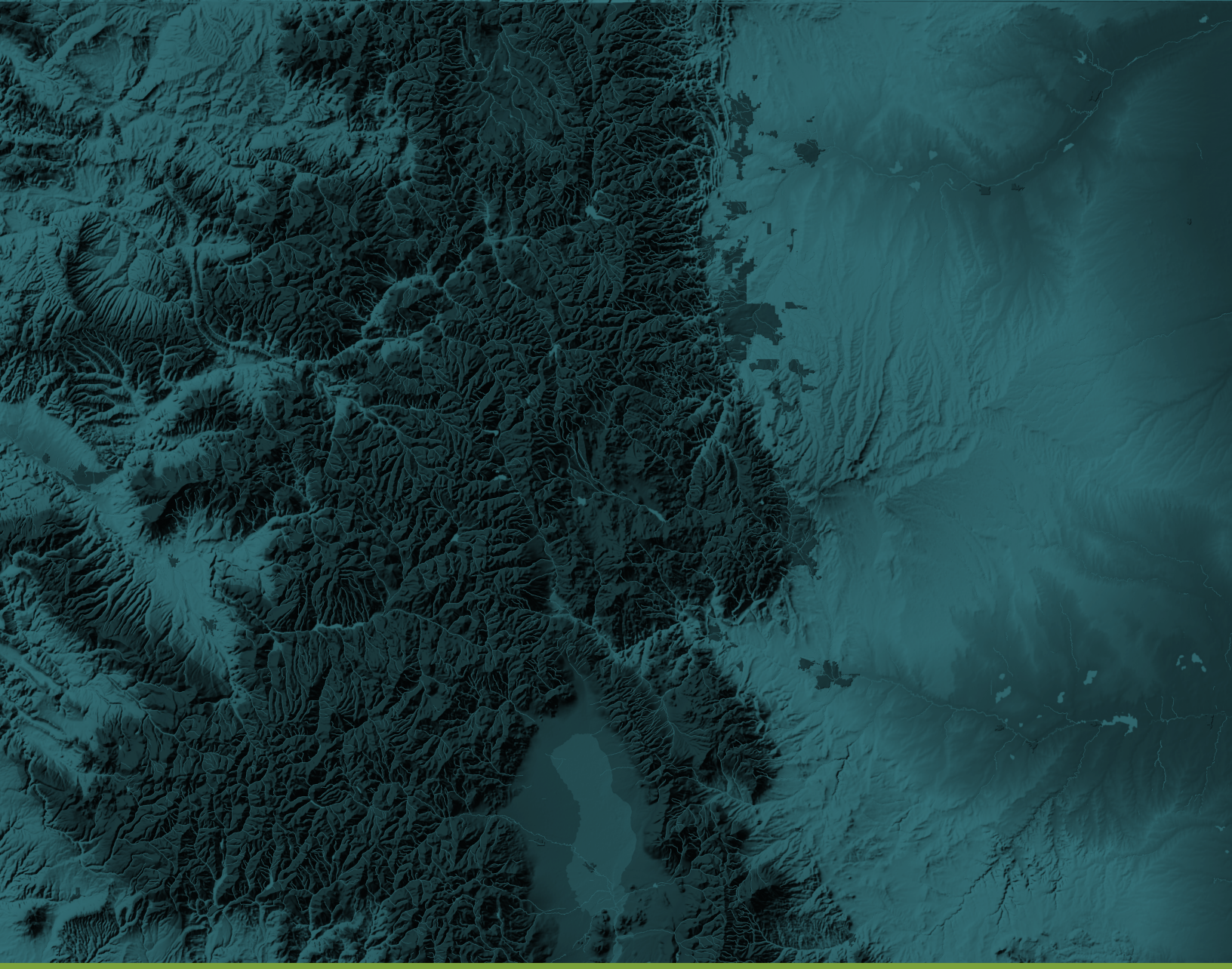

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