Recycling

A Missed Opportunity to Make Denver More Sustainable

Authors

Danny Katz, **CoPIRG Foundation**

Kate Bailey, **Eco-Cycle**

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Denver is a great place to live, work, and play. With the Rocky Mountains for outdoor recreation, a hip arts and culture scene, and solid job growth, droves of people, especially Millennials, are moving to Colorado's capital city. And like their neighbors around the state, many Denver residents, both newbies and old-timers, put a premium on conservation and sustainability.

Despite these notable qualities and Denver's aspiration to be a national sustainability leader, the city is lagging behind, especially when it comes to recycling, composting, and other waste reduction practices.

This report is the first in a series that will examine Denver's current materials management system and recommend ways for the city to efficiently boost its recycling and composting rates and reap more of the significant economic, environmental, and public health benefits of waste reduction.

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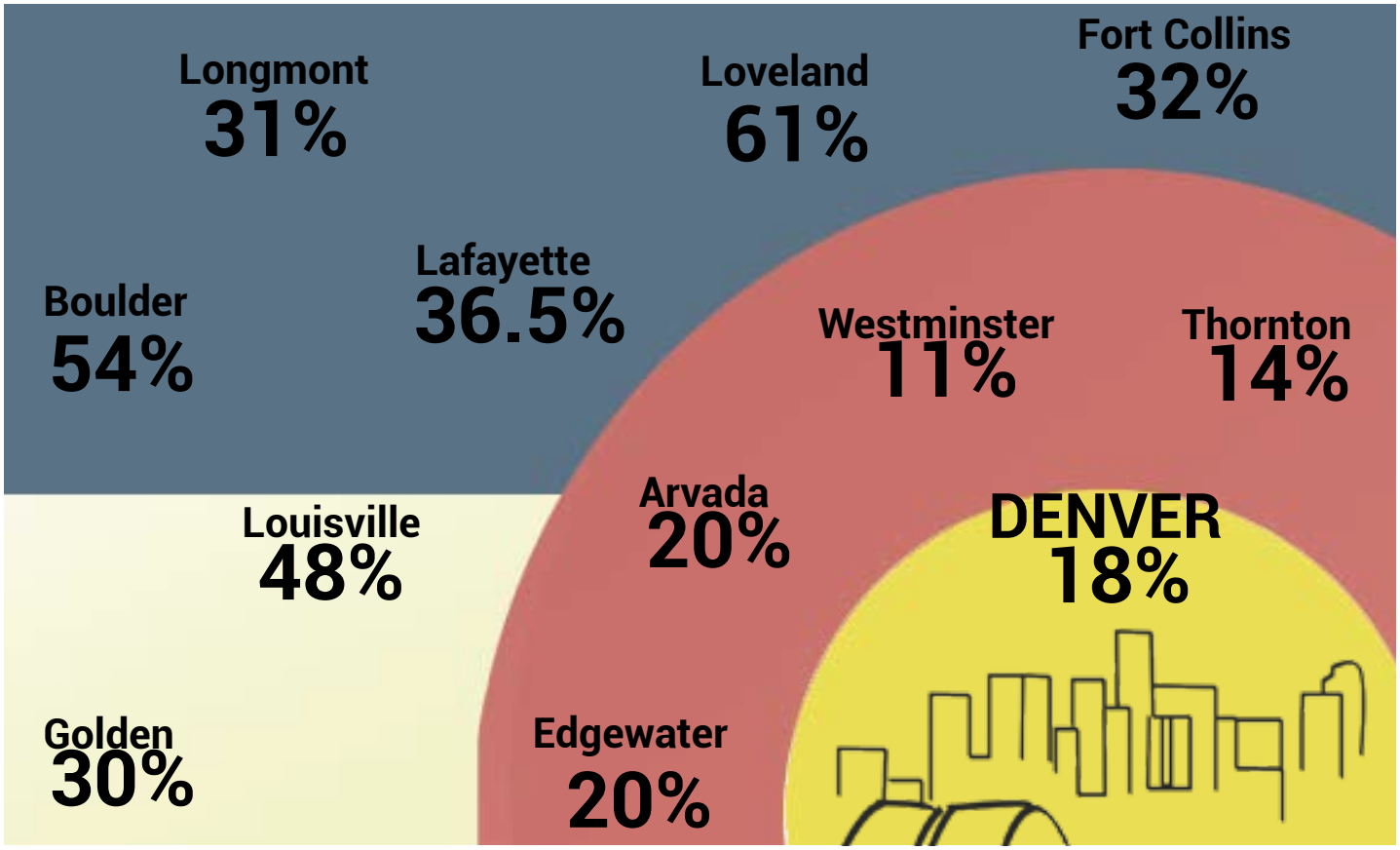
The Back of the Pack on Recycling

When it comes to recycling, Colorado and Denver fall well below the national averages. Colorado's recycling rate is only 12 percent compared to a nationwide average of nearly 35 percent[1], making it one of the most wasteful states in the country.

Denver's recycling rate is not much better. Last year, the city recycled only 18 percent of its residential waste, sending more than 207,000 tons of trash to landfills.[2] When compared to other Colorado cities and similarly sized cities across the country, Denver is at the back of the pack.

At least seven other Front Range cities are far ahead of Denver, providing residents with comprehensive recycling and composting programs that have boosted local recycling rates as high as 54 percent. And other metro-area cities are considering new or expanded programs.

FIGURE 1: Residential Diversion Rates in Select Front Range Colorado Cities [3]



[1] Colorado Department of Public Health and Environment, 2015. Annual Solid Waste Diversion Totals, 2014 data. *https://www.colorado.gov/pacific/sites/default/files/HM_sw-annual-diversion-totals.pdf*

[2] Denver Recycles, 2015. 2015 Annual Report, Page 3. Accessed at *https://www.denvergov.org/content/dam/denvergov/Portals/709/documents/DR_Annual%20Report_2015_Final.pdf*

[3] Eco-Cycle, 2016. Front Range Recycling Rates. *Accessed at http://www.ecocycle.org/take-action/denver*

The Back of the Pack on Recycling

Denver does not fare any better when measured against cities outside of Colorado. Los Angeles, New York, and San Francisco all have significantly higher recycling rates. These cities have also set goals to recycle and reduce most of their waste – a step Denver has not yet taken. Even Denver's peer cities, such as Salt Lake City, Utah; Charlotte, North Carolina; and Austin, Texas—have recycling rates that are twice that of Denver's rate.

TABLE 1– Residential Recycling Rates among Comparable Peer Cities to Denver*, Peer Cities with Municipally Run Trash and Recycling Services. [4]

City	Recycling Rate
Fresno, CA	71%
Seattle, WA	64%
Austin, TX	42%
Charlotte, NC**	39%
Salt Lake City, UT	38%
San Antonio, TX	30%
Washington, DC	26%
Phoenix, AZ	20%
Milwaukee, WI	25%
Denver	18%

* These cities were chosen because their populations are similar to Denver's and like Denver, they provide city-operated trash and recycling collection services for single-family homes. Cities with privately run trash and recycling services were not included.
***Includes Mecklenburg County*

Denver Residents Support Recycling

Denver's low recycling rate is not for a lack of desire to recycle by its residents. In annual city surveys[5], Denver residents rate recycling as a high priority and expect the city to help them reduce their environmental impacts:

- 88 percent of respondents said that recycling is very important or essential.
- 84 percent of Denver survey respondents said that recycling should be mandatory in large residences.
- 70 percent said that reducing the environmental impact of their personal lives was important.
- 73 percent said that it was important for Denver to help residents reduce their environmental impacts.

"Despite recent progress in recycling and reducing waste, which helps ensure a clean and safe environment for our families, Denver must do more. Residents simply can't do it on their own. We need expanded recycling and composting services; we need an affordable and efficient system that makes recycling and composting accessible for all."

Denver's 2020 Sustainability goal is to get us to the national average of 35 percent in the next four years – that's double the current recycling rate. CLLARO encourages our community to take care of our common home by recycling, composting, and reducing the amount of waste we produce, for the sake of our health and well-being."
- Christine Alonzo, Colorado Latino Leadership, Advocacy and Research Organization (CLLARO), Executive Director

[4] Eco-Cycle, 2016. How Denver Compares in Recycling. Accessed at http://www.ecocycle.org/take-action/denver.

[5] Denver Public Works, 2010. A Master Plan for Managing Solid Waste in the Mile High City – Appendices. Accessed at https://www.denvergov.org/content/dam/denvergov/Portals/709/documents/master-plan/master_plan_appendices.pdf

Why Has Denver Fallen Behind on Recycling?

Denver is one of many cities across the nation that provides trash and recycling collection services for single-family residents through city-run collection services. To compare apples to apples, we analyzed other peer cities in the United States with similar municipal services and found three main reasons why Denver's recycling rate is so low.

1. Many residents, especially those who live in apartments and condos, do not have access to recycling and composting services.
2. Many businesses do not have recycling services.
3. The city's trash rate system creates financial disincentives that discourage people from recycling and composting.

Photo courtesy of Denver Recycles.

Apartment Dwellers Lack Access to Recycling

Denver's low recycling rates for single-family residential homes alone are startling. But that's only part of the story.

Denver's 18 percent recycling rate does not factor in the recycling rates for large, multi-family buildings with eight or more units. That's because Denver Recycles, which is the City and County of Denver's waste management arm, only serves single-family residential homes and buildings with seven or fewer units, and Denver Recycles does not track diversion rates for large, multi-family properties.

Because one-third of Denver's housing is multi-family buildings, there is a huge number of Denver residents who do not have recycling services at home, which means that Denver's recycling rate citywide may actually be less than 18 percent.[6] This means that if you live in an apartment or condominium in Denver, then it is up to your landlord, or you as a resident, to find a private company to provide recycling and composting collection services. Property managers and landlords in Denver are not required to offer such services.

Denver Recycles frequently gets calls from MFU residents complaining about lack of access to recycling, according to the agency's staff.[7] That should be no surprise given that the city's current program is not meeting residents' needs. Denver residents overwhelmingly support recycling and want more of it, according to recent surveys.[8]

[6] National Multifamily Housing Council, 2015. NMHC tabulations of 2015 American Community Survey, 1-Year Estimates." with "2015 American Community Survey, 1-Year Estimates, US Census Bureau. Accessed athttp://www.nmhc.org/Content.aspx?id=4708

[7] Personal conversation, Charlotte Pitt, Operations Manager, Denver Recycles, 2016.

[8] Denver Public Works, 2010. A Master Plan for Managing Solid Waste in the Mile High City – Appendices. Accessed at https://www.denvergov.org/content/dam/denvergov/Portals/709/documents/master-plan/master_plan_appendices.pdf

Why Has Denver Fallen Behind on Recycling?

Leslie Proudfoot in front of her apartment's dumpster

Although Denver Recycles provides trash collection to all single-family homes, recycling service is voluntary and only available on request. Residents must take the initiative to contact Denver Recycles and subscribe to the service. As a result, more than one in five Denver homes—23 percent of homes—do not yet have a recycling bin.[9] The city has a goal of ensuring that all single family homes have recycle bins no later than 2018. They have begun distributing bins to each home and this is an important first step in the right direction.

Most of Denver's peer cities whose recycling programs were analyzed for this report provide a recycling bin to every single-family home and require property owners to provide recycling services to residents in apartments and condos. Providing bins and requiring service at MFUs were key elements to improving recycling performance in these cities.

"When it comes to zero waste solutions in Colorado, Denver should be leading the charge. Currently, multi-family units (MFUs) in the city are not required to recycle, let alone compost, and few viable options exist to allow residents to keep recyclables from entering landfills.

My girlfriend and I live in a three-story, 10-unit MFU on Capitol Hill, and constantly bear witness to the building's sole dumpster overflowing with cardboard, glass, plastics, metals and mixed waste. The choice to provide recycling bins for residents currently lies solely with property managers, and many are choosing the cheaper and environmentally irresponsible way out. This problem needs to be addressed citywide, and I'm hopeful that Denver will become a zero waste leader sooner than later."
- Cyrus Martin, Denver MFU resident

"I recycle to use less natural resources and avoid unnecessary waste. I'd like to be able to recycle at my apartment building because there are so many environmental benefits to recycling, and I'd like to be able to close the loop on the recyclable products that I use, creating an economic value for the community."

-Leslie Proudfoot, Denver MFU resident

[9] Denver Recycles, 2015. 2015 Annual Report. Accessed at https://www.denvergov.org/content/dam/denvergov/Portals/709/documents/DR_Annual%20Report_2015_Final.pdf

Why Has Denver Fallen Behind on Recycling?

Business Recycling: A Missed Opportunity

Another hole in Denver's recycling program is business recycling. Businesses generate an estimated 55 percent of Denver's municipal waste, yet Denver has very little data on whether businesses are recycling, what materials they are recycling, and how much they are recycling.[10] However, Denver Recycles recently began tracking diversion rates for commercial and business properties, which is a good first step.[11]

Because businesses produce a huge portion of Denver's waste, getting businesses to recycle and compost more could significantly boost the city's overall diversion rate.[12] The city does not currently require businesses to recycle nor does it provide incentives for them to do so. As is the case with MFUs, Denver Recycles does not currently offer trash or recycling services to the commercial sector, which uses private haulers.[13]

Many other cities have realized the critical role that businesses have to play in increasing recycling and supporting sustainability. More than 20 percent of the U.S. population lives in an area that already requires businesses to recycle. In some cities, these policies have been on the books for more than 20 years.

Denver Trash Rate System Undermines Recycling and Composting

A final underlying challenge for recycling in Denver is that its trash payment system creates a financial incentive for people to generate trash, and a disincentive for people to recycle and compost. Current policies are actually making it harder for people and businesses to support sustainability by reducing waste.

Denver's rate structure for trash, recycling, and composting would be more effective if it was modeled like Denver's rate systems for water and energy consumption. The more water and energy you consume, the more you pay for it above a designated minimum threshold. So, when Denver residents conserve energy and water, they pay less on their utility bills.

The same is not true when it comes to trash.

Why? Because Denver residents do not pay a separate "trash bill," and there are no obvious financial benefits for recycling, composting, and reducing waste.

Residents do not receive a trash bill because trash and recycling collection services are provided through the City's General Fund, which is funded primarily through sales taxes and some property taxes. This means that two homes of similar value pay the same amount for trash services, regardless of how much they use. A household that recycles and puts out its trash once a month is paying the same

[10] Denver Public Works, 2010. A Master Plan for Managing Solid Waste in the Mile High City. Accessed at https://www.denvergov.org/content/denvergov/en/trash-and-recycling/resources/solid-waste-master-plan.html

[11] Personal conversation, Charlotte Pitt, Operations Manager, Denver Recycles, 2016.

[12] Personal conversation, Charlotte Pitt, Operations Manager, Denver Recycles, 2016.

[13] Eco-Cycle, 2013. Cooling the Climate Campaign. Accessed at https://www.ecocycle.org/files/pdfs/Press_Release_Cooling-the-Climate-Candidates-Sign-On_Eco-Cycle.pdf

amount as a household that puts out two cans of trash every week. Simply put, the current system creates a financial incentive to put waste in the trash can and not in the recycle or compost bins.

For single-family residents, trash is perceived to be free, trash cans are big, and trash is picked up often, making it cheaper, quicker and more convenient to throw everything away. Recycling is picked up less often, and for years, residents had to order recycling bins, unless they lived in one of the MFUs where you are not even given the option. Some single-family homes still do not have them.

Composting actually comes with an additional fee of nearly $10 per month per household, is collected less frequently than trash and is not currently available for every resident. Fortunately, Mayor Hancock and the Denver City Council recently approved an expansion of the composting program as part of the 2017 City and County of Denver budget so that a resident from any neighborhood will be able to subscribe. However, currently only four percent of Denver households subscribe to the composting program.[14]

TABLE 2- Comparison of Trash, Recycling, and Composting Services in Denver

	Single-family Residences	Multi-family Residences (MFUs)	Businesses
TRASH			
Participation	100% homes have carts	Unknown	Unknown
Cost	Free to residents	Varies	Varies
Pickup Schedule	Weekly	Varies	Varies
RECYCLING			
Participation	77% homes have carts	Unknown	Unknown
Cost	Free to residents	Varies	Varies
Pickup Schedule	Every two weeks	Varies	Varies
COMPOSTING			
Participation	4% homes have carts	Unavailable	Unknown
Cost	$10/month for residents	Unavailable	Varies
Pickup Schedule	Weekly	Unavailable	Varies

In sum, the strategies that would divert waste—recycling and composting—are costly and inconvenient, and the current trash payment structure encourages sending materials to the landfill.

The idea of restructuring the rate structure to provide financial incentives to recycle and compost more—i.e., volume-based pricing or "Pay-As-You-Throw"-- is not new. More than 7,000 communities in the United States have structured their rates to

[14] Eco-Cycle calculation based on Denver Recycles 2015 Annual Report. Accessed at https://www.denvergov.org/content/dam/denvergov/Portals/709/documents/DR_Annual%20Report_2015_Final.pdf.

reward recycling and reduce waste. This means charging less money for smaller trash cans and more money for larger trash cans. This drives residents to participate more in recycling programs.[15]

Denver businesses also find themselves affected by this skewed pricing system. Businesses provide a large portion of Denver's General Fund via property taxes, which is part of the funding stream for Denver's trash and recycling services. But businesses do not receive any of the trash, recycling, and composting that the city offers; instead businesses must hire private haulers to provide these services for them. So businesses subsidize residents, resulting in a price system that encourages residents to throw it all away.

In reviewing the practices of peer cities that also operate municipal recycling, composting, and trash services, as well as in comparing Denver to local cities, it becomes clear how Denver's upside-down rate structure contributes to Denver's abysmal diversion rates.

TABLE 4 – Recycling Strategies, Cities with Municipal Run Trash and Recycling Services, [16]

City	Recycling Rate	Recycling bin in every home	Composting services: food and yard debris	Charged Based on How Much You Throw Away	MFUs and Businesses Required to Recycle
Fresno, CA	71%	yes	Free: food/yard	Extra cart fee	Yes
Seattle, WA	64%	yes	Required, fee-based	yes	Yes
Austin, TX	42%	yes	Free: yard	yes	Yes
Charlotte, NC	39%	no*	Free: yard	no	Some***
Salt Lake City, UT	38%	yes	Free: food/yard	yes	Large MFUs, businesses
San Antonio, TX	30%	yes	Free: food/yard	yes	MFUs only
Washington, DC	26%	yes	none	no	Yes
Phoenix, AZ	20%	yes	Subscription fee: yard	Partial	No
Milwaukee, WI	25%	yes	Free: yard**	Extra cart fee	Yes
Denver, CO	18%	no	Subscription fee: yard/food	no	No

**Bans plastic bottles, aluminum cans in trash*

***Only offered seasonally*

****Cardboard, paper, beverage containers*

[15] https://archive.epa.gov/wastes/conserve/tools/payt/web/html/index.html

[16] Eco-Cycle, 2016. Front Range Recycling Rates. Accessed at http://www.ecocycle.org/take-action/denver

Paying the Price for Trashy Behavior

Photo courtesy of Denver Recycles.

Denver's wasteful habits come at a steep cost. Much of the materials that residents and businesses throw away are valuable if recycled appropriately. Recycling and reusing discards also reduces air and water pollution and reduces fossil fuel consumption, all of which have significant public health benefits.

Golden Trash: Thowing Away Money

The trash can is a land of economic opportunity. Colorado throws away an estimated $265 million worth of recyclable materials—aluminum, metals, cardboard, paper, and plastics—every year.[17] These materials are valuable global commodities, which could be sold for profit instead of having residents and businesses pay to bury them in landfills.

When a plastic bottle or cardboard box goes into a recycling bin, the recycling process is only getting started. These materials are collected, processed and then sold to manufacturing facilities in the United States and around the world. These manufacturing plants use recycled products to make new products and packaging. Using recycled materials to make new products instead of virgin resources requires significantly less energy to process, which means the manufacturer not only saves money, but also emits a lot less pollution.

Recycling is big business and can bring local jobs and positive economic benefits to our area. The recycling, reuse and remanufacturing industries already contribute $8.7 billion to Colorado's economy, even with our low recycling rate.[18] And new businesses are coming here to capture the value in our trash. For example, Momentum Recycling, which just built a new state-of-the-art glass recycling facility in Broomfield, is now accepting

[17] Colorado Department of Public Health and Environment, 2016. Colorado Integrated Solid Waste & Materials Management Plan. Accessed at https://www.colorado.gov/pacific/sites/default/files/HM_sw-2016IntegSW%26MMPlan.pdf

[18] ENVIRON International Corporation, 2014. Economic Study of Recycling in Colorado. Accessed at https://www.colorado.gov/pacific/sites/default/files/DEHS_Environ_RecyclingInCO_FinalReport.pdf

glass from Denver. By committing to recycle more, we can attract more businesses like Momentum Recycling to Colorado, boost our recycling rate and create more local economic benefits.

Even though recyclable materials have economic value, once they are thrown in a trash can and contaminated by food residues and other waste, they cannot be recycled and are shipped to the landfill. It is critical that recyclable materials are separated from other discards, which cannot happen if Denver residents and businesses do not have access to separate recycling and compost bins.

Protecting Our Health and the Health of the Planet

Our society spends a lot of energy and pours a lot of resources into the stuff we consume. If what we consume, say a bag or a bottle, is then tossed away after one use, we have to use more energy and more resources to produce another one. This wasteful practice consumes large amounts of fossil fuel, contributing to climate change and polluting our air and water. It is an absurd and unsustainable system.

To understand the value of recycling, we must look at the entire lifecycle of a product- from the extraction and processing of raw materials, to the manufacture and consumption of the product, and then to its final disposal. Recycling creates a closed-loop system where discarded products are returned to manufacturers for use in new products. This prevents the pollution and destruction that occurs when virgin materials—like trees and precious metals—are extracted from the Earth.

Resource extraction and manufacturing can cause significant impacts to human health and the environment. The fossil fuel energy and the chemicals used in and emitted by manufacturing release greenhouse gas emissions, cancer-causing substances, and air and water pollutants. Particulate matter, carcinogens and toxic chemicals endanger human health through increased cancer risks, asthma rates and risks of disease. Water pollution threatens human health, agriculture, and ecosystems. Alternatively, by conserving natural resources, we protect wildlife habitat and biodiversity, avoid soil erosion and water pollution, and reduce greenhouse gas pollution that is driving climate change.

Paying the Price for Trashy Behavior

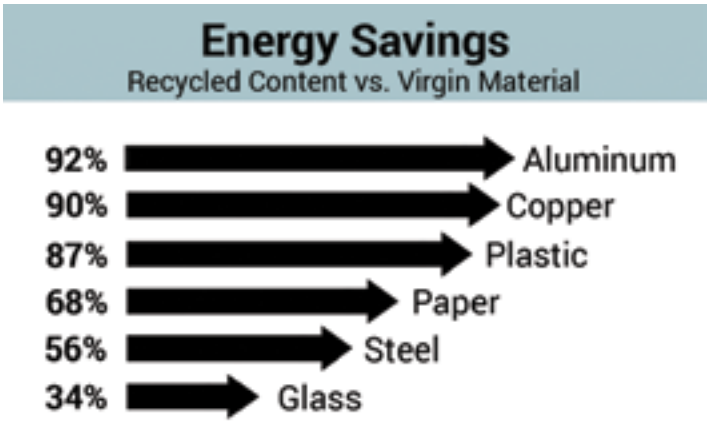


***FIGURE 2**– Energy Saving: Recycled Content vs. Virgin Material* [20]

Recycling materials creates a supply of resources for manufacturers to use to make new products. These recyclables still need mechanical and chemical processing before they are used in new products, but it is dramatically less harmful than processing virgin materials.

For example, making copy paper from 100 percent recycled content, instead of solely from virgin forest fibers, reduces total energy consumption by 44 percent, greenhouse gas emissions by 38 percent, particulate emissions by 41 percent, wastewater by 50 percent, solid waste by 49 percent, and wood use by 100 percent.[19] Buying items made with post-consumer recycled content helps support these recycling markets.

These savings are not limited to paper either. Figure 2 shows how much energy can be saved by using recycled materials instead of virgin resources. This also translates into public health and environmental benefits.

According to the Tellus Institute, when air and water pollution are reduced, the risk of humans contracting respiratory disease and cancer from exposure to these chemicals is also reduced. Pollution reductions also improve ecosystem health by reducing acid rain and excessive nutrient buildups in our waterways. If the United States achieved a goal of recycling 75 percent of its waste by 2030 instead of landfilling these materials, the public health and environmental benefits would be significant: [21]

- Respiratory emissions would fall by 45%
- Carcinogenic emissions would fall by 70%
- Eutrophication emissions would fall by 60%
- Toxic emissions would fall by 25%
- Acidification emissions would fall by 80%
- Ecosystem toxic emissions would fall by 90%

The environmental benefits are also good for the economy. Reducing pollution and energy use saves money in treating public health impacts and the destruction of our ecosystems. The environmental benefits of recycling and composting are valued at over $100 per ton.[22]

[19] Environmental Paper Network, 2007. The State of the Paper Industry. Accessed at http://www.environmentalpaper.org/stateoftheaperindustry/

[20] Institute of Scrap Recycling Industries, 2016. Facts and Figures Fact Sheet – Recycling. Accessed at http://www.isri.org/docs/default-source/recycling-industry/facts-and-figures-fact-sheet---recycling.pdf?sfvrsn=16

[21] Tellus Institute, 2011. More Jobs, Less Pollution: Growing the Recycling Economy in the U.S. Accessed at http://www.tellus.org/tellus/publication/more-jobs-less-pollution-growing-the-recycling-economy-in-the-u-s.

[22] Dr. Jeffrey Morris, 2009. The Environmental Value of Metro Region Recycling for 2007. Accessed at http://zerowaste.com/images/Environmental-Value-of-2007-Metro-Recycling-final.pdf

Paying the Price for Trashy Behavior

Landfills: A Costly, Toxic Legacy

While throwing something in a trash can appears easy and final, trash is never "out of sight, out of mind." Landfills can and have turned into toxic messes that cost hundreds of millions of dollars to clean up and can leach pollutants into waterways for centuries.

To find an example, Denver has only to look at its previous landfill—the Lowry Landfill now known as one of the most polluted sites in the country. Lowry Landfill served as Denver's landfill from the mid-1960s until 1980, accepting both industrial and municipal solid waste. It became a federal Superfund site in 1984 because of the risk of contaminants migrating off site and harming the environment and public health, and the need for long-term remedial action.[23]

More than 50 hazardous chemicals, including small amounts of radioactive materials, have been found on the site. Gases from buried wastes in the landfill are also emitting contaminants.[24]

Because this hazardous waste will remain dangerous for decades, large financial investments are required for long-term containment to prevent the waste from escaping and contaminating the surrounding area. Construction of remedial containment structures was completed in 2006, with ongoing modifications and revisions continuing at a cost to date of more than $100 million.[25] Monitoring will continue indefinitely, which means Denver will pay to manage this trash for a long time to come.

Landfills are a Dangerous Source of Climate Pollution

In addition to hazardous waste, landfills produce a lot of methane. Since there is no oxygen in the landfill, biodegradable materials, such as leftover food, cardboard boxes and grass clippings, decompose anaerobically. This makes landfills a leading source of methane emissions.

Methane is not just a greenhouse gas; it's a climate powerhouse. Methane traps 84 times more heat in our atmosphere than carbon dioxide over the short term.[26] This makes landfills a significant contributor to climate change.

But here's the good news: by keeping organic materials like food scraps, paper and yard debris out of the landfill, we can stop landfill methane emissions and take a big step to reduce climate pollution.

[23] Colorado Department of Public Health & Environment, "Lowry Landfill," 2016. Accessed at https://www.colorado.gov/pacific/cdphe/lowry-landfill. City and County of Denver and Waste Management Lowry Landfill public information website. Accessed at http://www.lowrylandfillinfo.com/

[24] US Environmental Protection Agency, Region 8, "Five Year Review Report, Third Review for Lowry Landfill Superfund Site, Arapahoe County, Colorado," September 2012. Accessed at http://www.lowrylandfillinfo.com/wp-content/uploads/2016/02/Lowry_3FYR-Sep2012.pdf

[25] "Site History," City and County of Denver and Waste Management Lowry Landfill public information website. Accessed at http://www.lowrylandfillinfo.com/the-site/site-history/

[26] Intergovernmental Panel on Climate Change, 2014. Anthropogenic and Natural Radiative Forcing. Accessed at https://www.ipcc.ch/pdf/assessment-report/ar5/wg1/WG1AR5_Chapter08_FINAL.pdf

Paying the Price for Trashy Behavior

From Climate Problem to Carbon Solution

When organic materials are composted instead of buried in the landfill, we create a net positive impact on climate change by helping soils store more carbon. Composting acts as an incredible carbon sink. Soils store three times more carbon than plants or our atmosphere.[27] That means applying compost to our soils can help pull carbon out of the atmosphere and thus fight climate change.

Research out of Marin County, California shows that widespread compost use could make a big dent in our country's carbon emissions. Applying less than a half-inch of compost to five percent of California's rangelands would sequester 28 million tons of carbon from the atmosphere — equivalent to taking six million cars off the road each year.[28]

How Composting Works

When Denver Recycles picks up food scraps and yard waste from residents who participate in the curbside composting program, the compost material goes to A1 Organics, an industrial composting facility in Eaton, Colorado. There, the compostable materials go into giant piles where it "cooks" at temperatures of up to 150 degrees. This breaks down the organic material, including bones, meat, and certified compostable products like cups and utensils made of corn, and destroys disease-causing bacteria. The result is a nutrient-rich soil amendment called compost, which is sold to local farms, garden centers, and residents.

Compost is extremely important for growing healthy food, both on local farms and in home gardens. Compost creates healthy soil by:

- Adding nutrients that boost plant growth
- Suppressing plant diseases and pests
- Reducing or eliminating the need for chemical fertilizers
- Helping soils absorb and hold water, reducing erosion[29]

Fifty percent of Denver's trash is compostable organic materials.[30] Organic materials make up a large part of waste streams in other major cities too. Therefore, many peer cities are aggressively working to stop compostable materials from landing in our trash heaps. For example, Salt Lake City is giving every home a composting cart to go along with their recycling cart. Unfortunately, Denver's compost bin comes with a monthly fee and only four percent of Denver households participate in the program.

FIGURE 3– Breakdown of Denver Waste, 2016 [31]

[27] Judith Schwartz, 2014. Soils as Carbon Storehouse: New Weapon in Climate Fight? Accessed at http://e360.yale.edu/feature/soil_as_carbon_storehouse_new_weapon_in_climate_fight/2744/

[28] Glen Martin, 2014. New Global Warming Remedy: Turning Rangelands into Carbon-Sucking Vacuums. Accessed at http://alumni.berkeley.edu/california-magazine/just-in/2016-06-01/new-global-warming-remedy-turning-rangelands-carbon-sucking

[29] Institute of Local Self-Reliance, 2014. State of Composting in the U.S. Accessed at https://ilsr.org/state-of-composting/

[30] Denver Public Works, 2016. Waste Wise 2016 Newsletter. Accessed at http://www.denvergov.org/content/dam/denvergov/Portals/709/documents/WasteWise_2016_for%20web.pdf

[31] Denver Public Works, 2016. Waste Wise 2016 Newsletter. Accessed at http://www.denvergov.org/content/dam/denvergov/Portals/709/documents/WasteWise_2016_for%20web.pdf

Denver: A huge opportunity to make huge impacts now

Denver prides itself for consistently being ranked as one of the best places to live and the capitol of a state that many people associate with green living. The city now has a great opportunity to live up to its green reputation and as the most populous city help move the state forward with improved recycling and composting.

By taking one of the easiest steps in sustainability—improved recycling and composting—Denver can recover millions of dollars of valuable recycling materials now being sent to the landfill. Denver can help stop the inefficient production system of making products from natural resources and landfilling those materials. This process produces unnecessary amounts of energy and creates unnecessary amounts of pollution. Denver can take action now on one of the most cost-effective solutions to reduce climate pollution. And Denver can stop creating landfills full of toxic soup that will burden future generations with untold debt for generations to come.

When it comes to recycling, Denver can go from being one of the worst cities of its size in the country to one of the best.

Denver can make huge strides in the next few years to catch up to our peers and provide high quality recycling services to the people and businesses of Denver. Denver Recycles has been working to put the systems and infrastructure in place so a change could be implemented quickly and produce results fast. We just need the Mayor and City Council to prioritize improving the recycling and composting program, and for residents and businesses to demand and use the services.

Mayor Hancock expressing his support for recycling. Courtesy of Denvergov.org

Recommendations for the City of Denver

Ensure that all Residents can Recycle

One-third of Denver's housing stock is made up of large, multi-family complexes but these properties are not required to provide residents with adequate and convenient recycling. The City of Denver must put policies in place that treat every resident equitably, whether they live in an apartment or single-family home, and ensure that every resident in Denver has a recycling and compost bin where they live. *Denver should require all property owners to provide adequate and convenient recycling and composting services at all multi-family properties.*

Increase Composting

Roughly half of the waste in residential trash bins is organic—i.e. leaves, grass clippings and food scraps. Denver should provide composting options for its entire service area, including every single-family home and small multi-family homes (seven units or less) at no additional charge. The city could cut residential waste by up to half by turning these materials into valuable compost, rather than burying them in the landfill. The city can also invest in preventing food waste and food rescue programs that feed residents and animals. NRDC is currently studying food waste in Denver and assessing needed infrastructure and services. *Denver should provide composting services to single-family homes at no additional charge.*

Provide Financial Incentives

Those who waste more, should pay more. Conversely, those who recycle and compost and minimize their trash should be financially rewarded. Ultimately, the city's trash rates should ensure that people with large, brimming trash bins are charged the most, and people with small, infrequently used trash cans are charged the least. *Denver should undertake a full financial study of its trash rates and create a plan to transition to volume-based pricing by 2020.*

Support Business Recycling and Composting Businesses produce more than half of the discards in Denver, so any meaningful strategy to improve recycling has to include them. From incentives to new services to new requirements, Denver must put policies in place to ensure businesses have the tools, the encouragement, and the directive to do their part in reducing, reusing and recycling. *Denver should create a plan to double its business recycling rate by 2020.*

Set a Zero Waste Goal

Denver's current vision of recycling 34 percent by 2020 would only put Denver on pace to reach the current nationwide average. Denver needs a more ambitious vision that puts us on a path towards Zero Waste where most all materials are used efficiently over and over again. Setting a more ambitious goal is not only necessary to catch up to our peer cities, but it is an important signal to send to private industry.

Ultimately, we produce way too much that cannot be reused or recycled in an efficient way. Fundamentally, we need to shift production to a more sustainable path that does not leave us with a legacy of toxic waste, polluted waterways and rampant climate pollution for centuries to come. *Denver should replace its solid waste master plan with a Zero Waste plan and formally adopt a Zero Waste goal.*

Recommendations for Denver Residents

Recommendations for Denver Residents:

Sign Up for recycling and composting services

Make sure you have your purple recycling cart. Enroll in Denver's compost program to get your green cart. For less than $10/month, you will be making a huge, positive impact on our future. Call Denver Recycles at (720) 913-1311 to get your carts.

Demand the Services

If you live in an apartment building that does not have recycling, talk to your landlord and ask for the service. In addition, contact your City Council member and the Mayor so they know how many of their constituents are being left behind. You can find that info at https://www.denvergov.org/content/denvergov/en/mayors-office/contact-the-mayor.html and https://www.denvergov.org/content/denvergov/en/denver-city-council/council-members.html.

Recycle Right

While recycling is a feel good activity, it also operates as a business. The better job you do putting materials in the correct bin, the better materials can be recycled, making more money for the city and improving the programs the City can deliver to residents. Review these guidelines to make sure you only recycle what the city accepts and know the most important materials to keep out of your bin. See Figure 4: https://www.denvergov.org/content/dam/denvergov/Portals/709/documents/Recyclables_Quick%20Print_2016.pdf

Reduce and Reuse Guidelines

To get started reducing your waste, check guidelines for the top five single-use, disposable items to avoid at www.ecocycle.org/ecoliving. Check these sites for information about local thrift stores, donation sites and tool libraries:

FIGURE 4 – *Denver's Recycling Guide.*

Denver Recycles Directory -- https://www.denvergov.org/content/denvergov/en/trash-and-recycling/recycling/recycling-directory-dropoff-locations.html

Denver Tool Library -- http://denvertoollibrary.org/.

Recommendations for Denver Residents

Get Involved

Your elected representatives need to know that you want more recycling and composting in Denver. Make your voice heard by emailing or calling them or speaking up at a City Council meeting.

Join our action network and sign Eco-Cycle's letter to Mayor Hancock asking him to make recycling and composting priorities at www.ecocycle.org/take-action/denver.

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 envirmentally responsible stewardship.
For more information—www.ecocycle.org

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.
For more information—www.copirg.org

Take Action Today!

Sign our letter to Mayor Hancock to tell him that you want to see the following Zero Waste strategies implemented in Denver within the next 2-5 years:

1. Reward recycling and composting; discourage waste. All Denver residents pay the same rates for trash service, so residents who produce less trash subsidize those who produce more. We need to create incentives for people to reduce waste by recycling and composting more.

2. Increase business recycling. Businesses produce as much as 60 percent of municipal waste. We need to help businesses improve their recycling and composting efforts as a key part of reducing our climate impact.

3. Provide curbside composting for all residents. Currently, composting is only available to a few neighborhoods. Composting fights climate change by increasing the soil's capacity to store carbon and also makes healthier soils that, in turn, produce healthier plants and food. We need to ensure that everyone in Denver has access to composting service.

http://ecocycle.org/take-action/denver