



COMPOSTING

How Denver Can Achieve Sustainability from the Ground Up

CoPIRG
Standing Up
To Powerful Interests

eco-cycle
Working to Build Zero Waste Communities

Composting: How Denver Can Achieve Sustainability From the Ground Up is the second 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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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.

For more information—www.ecocycle.org

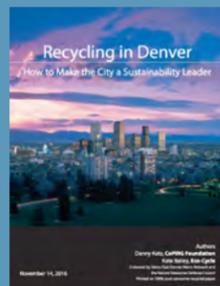
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CoPIRG– the Colorado Public Interest Research Group is a non-profit, non-partisan, public interest advocacy group with thousands of dues paying members across the state.

For more information—www.copirg.org

Endorsed by Sierra Club Denver Metro Network and Natural Resources Defense Council.

RECYCLING IN DENVER



In 2016, COPIRG and Eco-Cycle released the first report on how Denver lags behind in recycling. The report identified five key reasons for Denver’s dismal recycling rate. Read more about Denver’s recycling opportunities and get involved at www.ecocycle.org/take-action/denver



COMPOSTING:

How Denver Can Achieve Sustainability from the Ground Up

Introduction 1

How Does Denver Compare?..... 3

Getting to Know the Green Bin: What Can be Composted 5

How Composting Works 6

Benefits of Composting 8

Best opportunity to reduce waste 8

Fight climate change 9

Soil and water conservation 11

Healthy food 12

Green jobs and economic benefits 13

Denver Residents Want More Composting 13

Current State of Composting in Denver 14

What Denver Needs to Grow Composting: Recommendations 16

Call to Action: What You Can Do to Bring Composting to Denver..... 19

Conclusion 20

References 21



COMPOSTING

How Denver Can Achieve Sustainability from the Ground Up

INTRODUCTION

With a 20 percent recycling rate, Denver is at the back of the pack compared to other U.S. cities. For starters, Denver is far below the national average recycling rate of 34 percent. Worse yet, Denver's recycling rate is less than half that of its peer cities like Salt Lake City, Utah and Austin, Texas, which are recycling 40 percent or more.

Denver's residents send more than 190,000 tons of trash to the landfill every year, enough to fill a train all the way from Denver to Fort Collins, more than 70 miles long. All this garbage leaves Denver with more than just a trashy reputation—we're missing big opportunities to reduce climate pollution, build healthy soils that grow healthy food, recycle our waste and create local jobs.

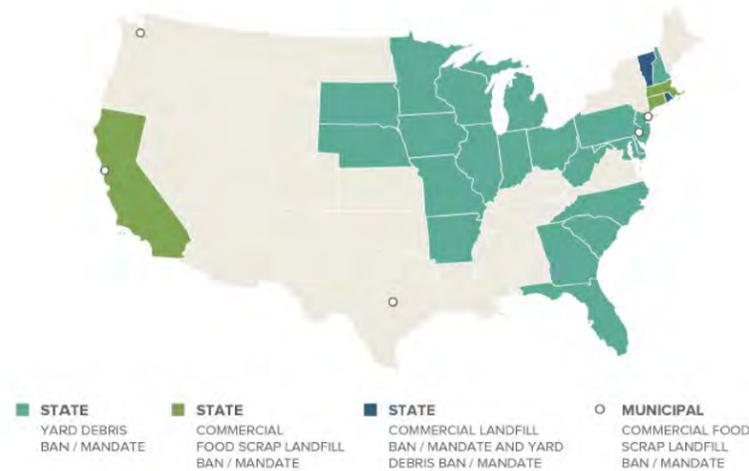
So what's in all this trash that's filling up Denver's landfill? It's a lot of leaves, grass clippings, branches and wasted food. More than half of what residents throw away is biodegradable materials that could have been easily composted in a green bin instead of ending up in the trash. The problem is Denver's existing composting program is extremely limited, costly and inconvenient. While nearly 80 percent of residents have a purple bin for recycling at their home, only six percent of Denver residents have a green bin for composting. To make matters worse, these residents are paying an additional monthly fee to compost and do the right thing, while people who produce more trash don't pay any direct fees. This means the financial incentive is backwards and promotes wasting instead of more recycling and composting.

It doesn't make sense to maintain the current system where Denver residents send compostable materials to the landfill, creating both a toxic soup that threatens to pollute our groundwater, and releasing methane, one of the most potent greenhouse gases contributing to climate change.

WHAT'S IN DENVER'S TRASH?



FIGURE 1 COMPOSTING POLICIES



Recycling yard debris and food scraps is widespread across most of the U.S. with many policies to encourage composting.

TOP 5 REASONS DENVER RESIDENTS SUPPORT COMPOSTING:

- Makes less trash
- Right thing to do
- Reduces climate pollution
- Creates natural fertilizer to improve soil
- It's simple

Denver's lack of composting is a leading reason why the city has one of the worst recycling rates in the country. Thousands of U.S. communities already compost their yard debris, and more than 200 U.S. cities already collect food scraps from residents as well.

It doesn't make sense to maintain the current system in which Denver residents send compostable materials to the landfill, creating a toxic soup that threatens to pollute our groundwater, as well as methane gas, one of the most potent greenhouse gases contributing to climate change.

Instead of sending compostable materials to the landfill and exacerbating groundwater pollution and climate change, Denver residents should be able to easily compost their food scraps and yard debris. By doing so, residents can be part of a new system that helps to combat climate change, reduce waste, create local green jobs and build healthy soil to grow healthy local food.

Denver residents want to compost because it reduces their trash, reduces climate pollution, and is a simple thing to do to support a healthy environment. According to city surveys, residents believe composting is "the right thing to do" and 88% of residents want to increase recycling and reuse.

It's time for Denver to be the city people expect it to be—a sustainability leader that breaks down the barriers to green living to help residents do the right thing. It's time to build a sustainable future and healthier community in Denver through citywide compost collection!

HOW DOES DENVER COMPARE?

Across the United States, 19 states ban leaves, grass clippings and branches from the landfill. There are more than 3,400 composting facilities for yard debris, meaning there are thousands of communities around the U.S. where separating yard debris from the trash is common practice, including nearby cities like Norman, Oklahoma; Olathe, Kansas; and Lincoln, Nebraska. Many of these programs have been on the books for more than 20 years. In addition, programs that also collect food scraps for composting are growing exponentially: There are now more than 200 communities with food scrap collections compared to only 24 programs in 2005.

Unfortunately, much like in recycling, Denver also lags behind its peers when it comes to citywide composting for both yard debris and food scraps. Peer cities like Salt Lake City, Utah, and Portland, Oregon, have had citywide composting for single-family residents for more than five years. More than 900,000 residents of New York City already have composting, and the city plans to service 3.3 million by the end of 2018.

It's not only household composting where Denver lags behind. Businesses and apartments sorely lack these services as well, even though they produce more than 55 percent of Denver's waste.

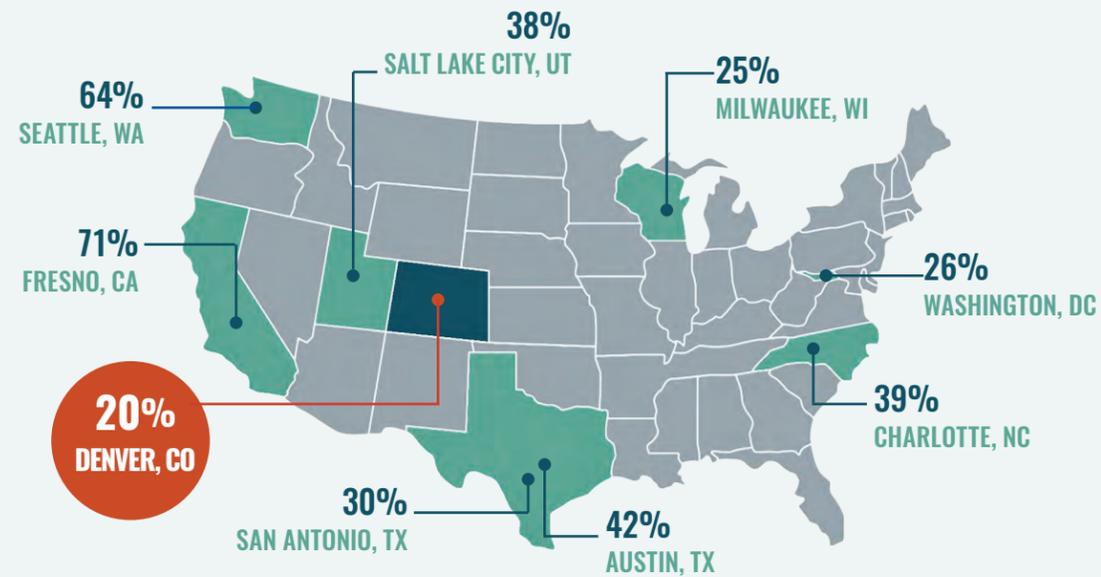
Here's a look at how Denver compares to its peer cities:

FIGURE 2 COMPOSTING PROGRAMS IN DENVER'S PEER CITIES

	HOMES	BUSINESSES	APARTMENTS
SEATTLE, WA	✓	✓	✓
SAN FRANCISCO, CA	✓	✓	✓
PORTLAND, OR	✓	—	—
SALT LAKE CITY, UT	✓	—	—
FRESNO, CA	—	✓	✓
AUSTIN, TX	✓ by 2020	✓ Mandatory for food service industry	—
NEW YORK CITY, NY	— 3 million residents by 2018	✓ Mandatory for large food businesses and venues	—
DENVER, CO	— 6% of residents	—	✗

✓ provided to everyone automatically
 — by request only
 ✗ no service available

FIGURE 3 HOW DOES DENVER'S RECYCLING + COMPOSTING RATE COMPARE?



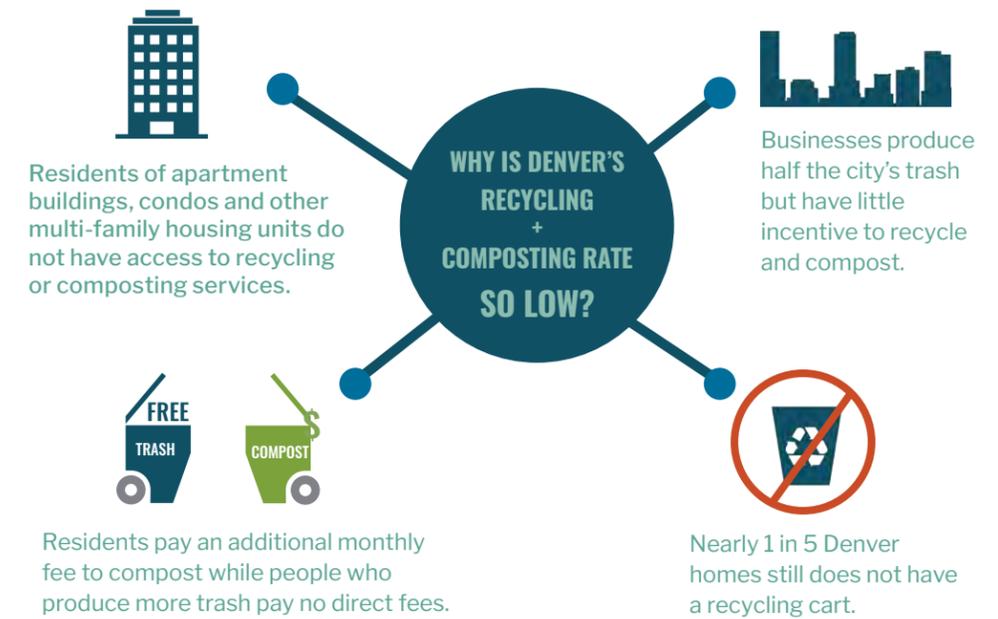
Denver lags behind other Colorado cities when it comes to recycling and composting as well. Residents in Loveland recycle and compost three times as much as Denver residents, and all City of Boulder residents have been composting food scraps and yard debris since 2008.

Here's how Denver's recycling and composting rate compares to Front Range leaders:

FIGURE 4 HOW DOES DENVER COMPARE ACROSS THE STATE?



FIGURE 5 WHY IS DENVER'S RECYCLING + COMPOST RATE SO LOW?



GETTING TO KNOW THE GREEN BIN: WHAT CAN BE COMPOSTED

More than 50 percent of Denver's residential trash could be easily composted. In general, anything that comes from a plant or animal is compostable—think “if it grows, it goes!” Fruits and vegetables, leaves, grass clippings, tree branches, non-recyclable paper like napkins and paper towels, meat and dairy leftovers, and bread are all good candidates for the green composting bin.

WHAT CAN BE COMPOSTED IN DENVER'S COMPOST PROGRAM?

FOOD SCRAPS	YARD DEBRIS	NON-RECYCLABLE PAPER	MISCELLANEOUS
Dairy	Branches	Napkins	Pet hair
Meat	Brush	Paper towels	Tea Bags
Fruits + Vegetables	Grass clippings	Paper plates + cups	Wooden chopsticks
Pasta + Cereals	Flowers	Pizza boxes	Wooden popsicle sticks
Baked Goods	Leaves	Tissues	
Coffee grounds + filters	Weeds	Waxed paper	

WHAT CAN'T BE COMPOSTED?

- Recyclables that go in your purple bin (cans and bottles, etc.)
- Dog poop or other pet waste
- Plastic bags
- Liquids, cooking oil and grease
- Diapers + other sanitary products
- Treated or coated wood
- Plastic-coated paper products like paper coffee cups and glossy paper plates

HOW COMPOSTING WORKS

So, what is composting? Composting is all about decomposition and is a natural part of every ecosystem. When leaves fall or plants die, decomposers get to work breaking down the organic material. Decomposers can be microscopic, like bacteria and fungi, or large enough to see, like earthworms and millipedes. As these organisms chew, rip and consume the organic materials, nutrients like carbon and nitrogen are released back into the environment. Collecting organic materials in a compost pile simply organizes and speeds up the process of decomposition by providing the right mix of organic materials, air and water.



Decomposers, like snails, earthworms and millipedes, break down organic material and release nutrients back into soil.

Citywide composting works in the same way. When Denver picks up the green bins of food scraps and yard waste from residents who participate in the compost collection program, the compostable material goes to A1 Organics, an industrial composting facility in Keenesburg, Colorado.

There, these materials are put into giant piles that heat up, thanks to the work of bacteria. This “cooks” the organic materials at temperatures of up to 150 degrees, breaking down plant matter, bones and meat. The heat also destroys disease-causing bacteria. The result is a nutrient-rich soil amendment called compost, which is sold to local farms, garden centers and residents. Within four months, your leftover food can be returned to our local soils to feed your plants and grow healthy food.

Citywide compost collection works in conjunction with and complements backyard composting bins. Industrial composting facilities, like the one Denver uses, operate their compost piles at higher temperatures and under more closely monitored conditions than backyard composting bins. This allows them to accept meat, bones and dairy products, as well as weeds, that are not suitable for backyard composting. Their process also destroys pathogens, making it safe to compost paper towels, tissues and raw meat. Compost collection service also gives residents the extra space to compost larger quantities of yard trimmings during spring and fall cleanup.



COMPOST

A dark, crumbly, earthy-smelling material produced by the natural decomposition of organic materials. Compost is applied to soils to enhance plant growth, conserve water and help prevent soil erosion.



COMPOSTING

The aerobic decomposition of organic materials by micro- and macro-organisms, under controlled conditions that include oxygen. Composting transforms leftover food and yard debris into a valuable soil amendment.



COMPOSTABLES

Food scraps, yard trimmings, paper products, wood and other living organic materials that naturally decompose into compost.



These tips will help make curbside composting easy and eliminate the “yuck” factor.

Having the right INDOOR container to collect your kitchen scraps is essential to making composting a habit and not a chore.

We recommend a ceramic or steel container with a tight-fitting lid. You can also use a reusable plastic bucket like a large margarine or potato salad tub. Or try using a compostable box/container, such as a:

- Cereal box without the inside liner bag
- Compostable PLA from take-out food or boxed lettuce, etc.
- Bagasse container from take-out food (make sure you are NOT using a container that is plastic-coated; avoid a shiny take-out box).
- Cardboard box, waxed ok
- Paper bag

How to minimize flies and pests from your OUTDOOR curbside compost cart:

- Mix it:** Layer your food scraps with your yard debris to absorb odors and moisture.
- Cool it:** Keep your bin inside the garage or at least out of the sun.
- Close it:** Make sure the lid is clicked shut. Keep a cinder block or other weight on top to deter smaller animals. Or hook a bungee cord across the top of the lid.
- Rinse it:** Give your bin a good rinse from time to time and let the water seep into your yard.

CURBSIDE COMPOSTING TIPS

Some people get a little squeamish about separating food scraps for composting, but, done right, it can be easy, clean and simple. For starters, you're not dealing with anything new. It's the same food you're already scraping into the trash. Now it just goes into a different bin. Check out these recommended steps to keep your composting containers odor and pest-free.

If you're finding that warm weather is making your INDOOR compost collection container stinky or a fly attractant, try these tips:

- Empty it:** Empty your indoor compost bin daily or every other day.
- Line it:** Place a small amount of shredded paper, newspaper or a paper towel on the bottom of the container to absorb moisture. Or use a paper bag or compostable plastic bag to line your bin.
- Wrap it:** Wrap meat or fish scraps in their original butcher paper or newspaper before placing them in the bin. Wrap vegetable scraps in used newspaper or paper towels.
- Clean it:** Rinse off any visible mold or stuck-on food scraps after emptying. Clean your bin with dish soap once a week. Sprinkle in some baking soda to absorb odors.
- Chill it:** Refrigerate or freeze food scraps until your collection day, especially meat or fish scraps.
- Protect it:** Fruit flies love citrus and melon scraps and banana peels. Empty these from your bin daily. Rub vinegar on the rim of your bin to guard against fruit flies. If they've already arrived, create a simple trap—find instructions at www.ecocycle.org/compost.
- Skip it:** For the really moldy, unknown container from the back of your refrigerator, empty it directly into your outdoor bin or use your garbage disposal.

CAN YOU ONLY COMPOST “ORGANIC” MATERIALS?

Organic has a few different meanings that can be confusing when it comes to composting. When we talk about what is compostable, we talk about organic materials like food scraps and yard debris. In this way, organic means any material that was once alive or came from a living source.

When we talk about organic food, this means food grown without the use of synthetic pesticides and fertilizers and without genetically modified organisms (GMOs). Food doesn't have to be grown organically to go in your compost bin.

BENEFITS OF COMPOSTING

With all this food and yard debris piling up in our landfills, we're missing big opportunities to improve our environment, our health and our economy. Let's explore these top reasons why Denver needs more composting:

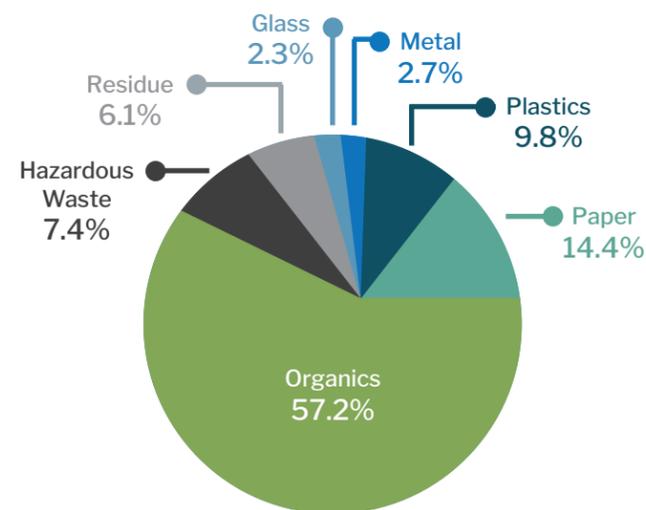
- Best opportunity to reduce waste
- Fight climate change
- Soil and water conservation
- Healthy food
- Green jobs and economic benefits

Composting is the Best Opportunity to Reduce Waste

Composting is the best strategy to reduce the more than 190,000 tons of trash Denver residents send to landfills every year. Organic materials make up more than half of Denver's trash and add up to nearly 500 pounds per person per year!

By rolling out compost collection service for all residents, Denver could keep nearly 80,000 tons a year out of Denver's landfill. This is enough yard debris and food scraps every year to fill the entire Mile High stadium nearly nine feet deep.

FIGURE 6 WHAT'S IN DENVER'S TRASH?



Organic materials make up more than half of Denver's trash and add up to nearly 500 pounds per person per year!

MYTH

It's okay to throw apples, grass clippings and other biodegradable materials in the landfill because they break down.

FACT

When these organic materials break down in a landfill, they produce methane gas, a greenhouse gas that traps 84 times more heat in our atmosphere than carbon dioxide in the short term. Organic materials also contribute to landfill leachate that can pollute groundwater if it leaks out of the landfill, which is not uncommon. This makes organic materials some of the most hazardous things we put in our landfills. When organic materials are composted instead, they play a big role in reducing our carbon footprint and creating healthy soils and ecosystems.



From Carbon Problem to Climate Solution: Composting Fights Climate Change

Composting is a win-win for reducing climate pollution. First, we can reduce greenhouse gas emissions from landfills. Then, when using finished compost, we can pull carbon down from the atmosphere and store it in our soil. This makes composting one of the easiest actions a community can take to reduce its climate impacts.

Let's look first at what happens at the landfill. Because there is no oxygen in the landfill once it's covered, biodegradable materials, such as leftover food, cardboard boxes and grass clippings, decompose anaerobically. This process creates methane, a greenhouse gas that traps 84 times more heat in our atmosphere than carbon dioxide in the short term.

By contrast, composting breaks down biodegradable materials with oxygen and water, just like happens in nature, and doesn't produce potent methane emissions.

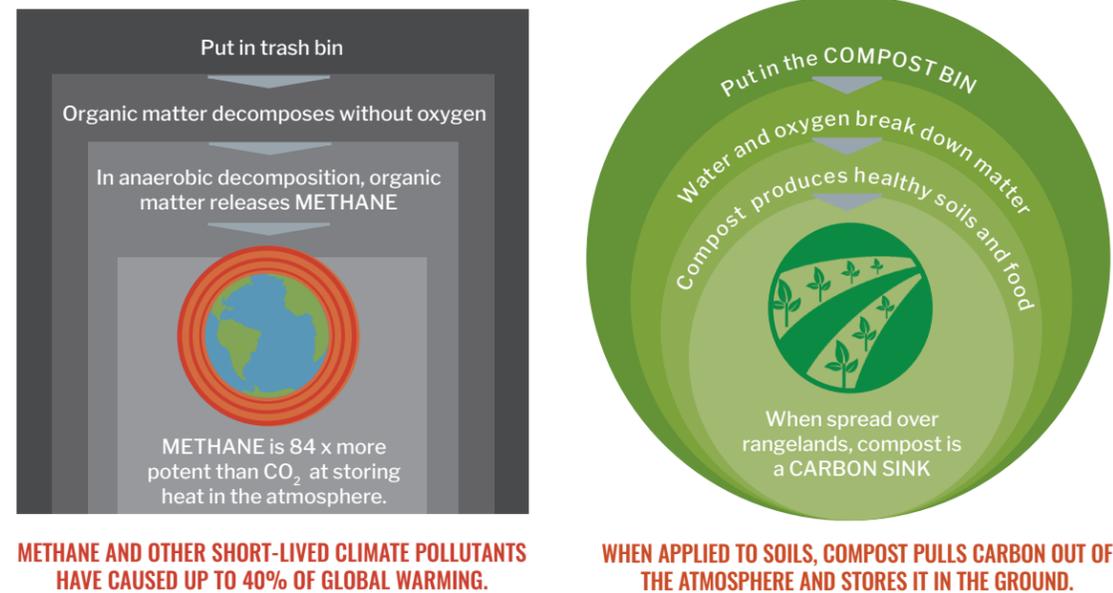
Landfills are the third largest source of methane emissions in the U.S. and emit nearly 390 MMT-CO₂e every year when measured over the short term. That's the equivalent annual greenhouse gas emissions of 124 coal-fired power plants. Reducing methane emissions from landfills represents a huge opportunity to fight climate change, and the timing couldn't be more important. There is global consensus that we need to rapidly reduce climate emissions by 80 percent by 2050. We need fast solutions to meet this rapidly approaching deadline, and methane has been flagged as a critical focus area in the next decade.

Methane is one of three special greenhouse gases called Short-Lived Climate Pollutants (SLCPs). True to their name, these gases are very short-lived, but they have an out-sized impact on our climate—SLCPs are responsible for 30-40 percent of global warming to date. The good news is that if we can reduce SLCPs like methane soon, we can see rapid results. Aggressive actions to reduce SLCPs emissions could reduce by half the amount of warming that would occur over the next few decades.

Reducing methane is one of the top priorities for reducing SLCPs. Methane only lasts in our atmosphere for 12 years, but it packs a powerful punch by trapping 84 times more heat than carbon

FIGURE 7 THE CLIMATE CHANGE BENEFITS OF COMPOSTING

WHERE YOU CHOOSE TO PUT YOUR FOOD SCRAPS, YARD DEBRIS AND OTHER ORGANIC MATTER HAS A BIG IMPACT ON OUR CLIMATE:



dioxide in the short term. The best way to cut methane emissions from landfills is straightforward: Keep organics OUT of landfills through better recycling of paper, composting leftover food and yard debris, and reducing food waste.

ONE STEP FURTHER: CARBON SOLUTION

Not only does composting keep organic materials out of the landfill and avoid the powerful climate impact of methane, but composting also reduces climate pollution when it is applied to our soils by pulling carbon out of the atmosphere and storing it in the ground. Composting is an incredible carbon sink. Soils store three times more carbon than plants. That means applying compost to our soils can help pull carbon out of the atmosphere and fight climate change. This carbon storage happens in three ways:

- Compost itself is about 50% carbon and adds carbon to the soil
- Increased plant growth leads to more organic matter decaying into the soil, which adds carbon
- Increased photosynthesis, because increased plant growth converts carbon dioxide from the atmosphere into starches and fibers that are used by plant roots for nutrients

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 take 28 million tons of carbon from the atmosphere and store it in soils—that's the equivalent of taking six million cars off the road each year. There is a pilot project underway in northern Colorado to explore how our state can use compost to reduce climate pollution.

This dual benefit of reducing greenhouse gas emissions and pulling carbon dioxide down from the atmosphere makes composting one of the most important, immediate actions a community can take to reduce its climate impacts.

COMPOST: GOOD FOR OUR SOIL AND FOR WATER CONSERVATION

Adding compost is one of the best things you can do for your soil and, with that, our planet. Dirt is everywhere, but healthy soil isn't. It can take 500 years to build one inch of good topsoil, which is the soil that grows nearly all the plants and food we need to survive. It's no exaggeration to say soil is the foundation of life.

The problem is we're losing our topsoil—through overgrazing, intensive farming and more urban development. Nearly one-third of the world's cropland has been abandoned because of soil erosion and degradation over the past 40 years. In the United States, 28 percent of cropland is losing soil faster than it can regenerate.

Locally, our soils in Denver and throughout Colorado are high in clay. Applying compost can open up clay soils and let the air and water move through the soil to the plant's roots. It also improves drainage.

There's no special place to apply compost—any patch of dirt, from your backyard to a highway median to a large farm—is a great place to apply compost. Here's how compost improves our plain old dirt:

- **Compost improves soil structure and porosity:** Compost physically loosens soil and helps create a better plant root environment. Plants are only as healthy as their root systems allow them to be!
- **Compost builds organic matter in soil:** It's the organic matter that holds the nutrients and water in the soil. Organic matter also aids in reducing compaction and surface crusting, and increases water infiltration into the soil.
- **Compost supplies beneficial microorganisms to soil:** Compost is a living product. Healthy soil is a living material, ideally filled with beneficial microorganisms. This "living-soil-life" helps keep your soil healthy, decompose organic matter, replenish soil nutrients, form humus, promote root growth, increase nutrient uptake, and breakdown herbicides and pesticides.
- **Composting reduces the use of synthetic pesticides and fertilizers:** Synthetic fertilizers are toxic to the environment and people, and they are energy-intensive to produce. They are a leading cause of water pollution because they are commonly overapplied, which means the plants cannot absorb all the nutrients at once and the excess ends up washing away into rivers and streams. Natural lawn care, including using compost as a soil amendment and replacing synthetic pesticides with natural alternatives, has measurable economic value to our communities by reducing water usage, reducing health risks from toxic pesticides, protecting our waterways and cutting greenhouse gas emissions.

MYTH

Driving trucks to collect compost creates more carbon emissions than you save from composting.

FACT

A standard garbage truck would need to drive 7,600 miles to emit as much greenhouse gas emissions from diesel fuel as would come from dumping that food waste in a landfill.





Conserving Water with Compost

Adding compost to your soil increases the amount of organic matter in the soil, which greatly increases the amount of water soil can hold—something that’s sorely needed in our drought-prone region. According to Denver Water, for every pound of compost you mix into 100 pounds of soil, your soil can hold an additional four gallons of water. This helps your plants grow healthier by making more water available to their roots in our hot, dry weather.

That’s why compost is already a big part of the city’s water conservation plan. If you’re installing a new lawn or landscape in Denver, you are required to add compost to your soil to help conserve water. Residents and landscapers are required to add four cubic yards of compost per 1,000 square feet—or about an inch of compost—to any outdoor growing area before installing plants or grass. This is required in other Colorado communities as well, including Boulder, Greeley, Castle Rock, Colorado Springs, Fort Collins, and Westminster.

COMPOSTING SUPPORTS HEALTHY FOOD

Denver residents should be able to live in communities that have convenient, affordable and healthy food options. To produce healthy food for our communities, we need to invest in building healthy, productive soils that support local agriculture—everything from backyard gardens to industrial crops.

Each year growing plants pull nutrients out of the soil, and we then, in turn, digest those nutrients, leaving the soil depleted. Composting recycles nutrients back into the soil for future plants. We need to put those nutrients right back into the soil, so they can be used to grow next year’s crop of healthy food. We need to build upon the farm-to-table movement and close the loop to create a farm-to-table-to-farm system. To complete this cycle, the City of Denver has identified residential and commercial composting as key strategies in its newly released plan to support a healthy regional food system, the “Denver Food Vision.”

ECONOMIC BENEFITS OF COMPOSTING

On a per-ton basis, producing and using compost sustains almost five times more jobs than landfilling our yard debris and food scraps. Compost production and use are local industries that cannot be outsourced abroad and are a great investment for Colorado. Composting is already estimated to be a \$3 billion industry nationwide, including jobs in composting collection such as truck drivers, jobs in compost processing such as equipment operators, and jobs in using compost such as landscapers, construction crews and land remediation, as well as jobs in administration, product and market development and communications for all these industries.

By expanding Denver’s curbside composting program, Denver could create an estimated 70 new jobs in compost production and use.

Nationwide, for every one million tons of food scraps and yard trimmings converted into compost and used locally, composting can create 1,400 new jobs. These jobs could pay \$23-\$57 million in combined wages. By expanding Denver’s compost collection program, Denver could create an estimated 70 new jobs in compost production and use, with total employee wages adding up to \$1.1 to \$2.85 million per year. Additionally, Denver can be a market leader in helping to drive the development of composting infrastructure in the larger Metro Denver area. This may enable Denver suburbs to start compost collection programs and greatly improve regional diversion efforts.

DENVER RESIDENTS WANT MORE COMPOSTING

There is widespread support for more recycling and composting in Denver—more than 88 percent of residents support increased recycling. Residents want to reduce their waste and reduce their climate footprint, and composting is one of the simplest ways for residents to take action. More than 70 percent of residents want the city to help them lead more sustainable lives, and a compost collection program makes it easy and convenient for everyone to do the right thing.

This strong support for composting in Denver is reciprocated in many U.S. cities:

- 77 percent of Americans say they understand the importance of recovering food/yard organic material instead of disposing of it with household waste.
- 79 percent of Americans with gardens would be willing to use gardening fertilizers, mulch and other products made from food waste compost.



COMPOSTING ENTREPRENEUR: WASTE FARMERS

Denver and Colorado in general are already seeing new jobs and entrepreneurs in composting. Colorado native John-Paul Maxfield started his composting business by pulling organic waste out of Denver dumpsters; his company was the first to bring commercial composting to Denver. Before long, Waste Farmers was regularly collecting compostable materials from many of the city’s restaurants and large institutions. The company eventually sold its composting business to Alpine Waste & Recycling, and today focuses on the other side of composting: producing all-natural soil amendments that support sustainable agriculture.



CURRENT STATE OF COMPOSTING IN DENVER

With all the benefits of composting, from waste reduction to water conservation to job creation, Denver should be doing its best to encourage residents to compost. Unfortunately, Denver's current trash system does the opposite—it creates financial and physical barriers that discourage residents from composting.

Denver launched its compost collection service back in 2009, but seven years later the city still only has five composting routes and only serves six percent of city households, about 11,000 homes. If you don't have service, you could drive your food scraps and yard debris to the Cherry Creek drop-off center, but that's just not convenient, accessible or affordable for everyone.

Denver residents who are composting are doing a great job—composting increased 45% between 2015 and 2016 to more than 5,500 tons of food scraps and yard debris. But this still only amounts to two percent of the city's total residential waste generated.

Participation in the composting program has been very low for two main reasons:

- First, compost collection has only been available in select neighborhoods in the city. By the end of 2017, the city plans to offer composting service to all single-family residents.
- Second, composting costs an additional fee. Residents pay nearly \$10 per month for composting service, while trash service is seen as “free” because residents don't receive a direct bill for their trash and recycling service. Trash service is actually paid for through the general fund from sales and property taxes.

Compost collection offers huge opportunities to reduce Denver's waste. Currently, each participating household composts an average of 22 pounds of organics each week. If Denver extended composting to the entire city, it can keep more than three million pounds of compostable materials out of the landfill every week. That's enough to fill 3½ Olympic-sized swimming pools every week.

Compost collection service makes it easy and convenient to compost leaves and yard debris year-round, instead of relying on seasonal collections. It can be used for leftover food all year as well. Composting offers tremendous benefits to the city as a whole, and Denver should deliver this



DENVER'S COMPOSTING CHAMPIONS

valuable service to all residents.

The slow growth in household composting isn't holding back businesses, schools and city buildings from launching their own composting programs. Here are a few budding leaders in Denver's compost scene:

Snooze A.M. Eatery

This popular modern diner composts and recycles 90 percent of its waste. Some keys to their success are ongoing education sessions for employees and monthly newsletters that share the restaurant's progress. Snooze aims to be a “Zero Waste to landfill kitchen” by 2020.

Fire on the Mountain

Located in Denver's Highlands, this Denver restaurant specializing in chicken wings composts 65 percent of their waste. To-go containers and sauce cups are compostable, too, and the restaurant's used fryer oil gets recycled into biodiesel.

Red Rocks Amphitheater

Red Rocks Amphitheater's three-bin waste collection system means that every trash can is accompanied by bins for composting and recycling. All concessions stands use compostable serviceware to reduce trash and increase composting. Housekeeping staff is trained to sort out compostable and recyclable materials after events.

The City of Denver

The City of Denver is leading by example and composting at eleven municipal buildings including the Webb Building, Wastewater Building, Price Building, Hampden Library, McNichols Building, Denver Environmental Health and the City and County Building. In addition, more than 23 Denver public schools are composting.

WHY ISN'T COMPOSTING FREE?

Landfill prices along the Front Range are less than half of the national average. This means the cost of composting is often greater than the price of landfilling because of the costs of transporting and processing the materials. This is why composting is not provided for free. However, the City of Denver can provide an incentive to compost by including compost collection in the total price for all trash services, not as an additional fee.

RECOMMENDATIONS: WHAT DENVER NEEDS TO GROW COMPOSTING

Composting builds a better future for Denver through green jobs, reduced climate pollution, less waste and healthy soils, so what's standing in the way of progress? Below are five key recommendations focused on:

- Expanding single-family composting
- Providing equitable services to apartment residents
- Implementing restaurant composting
- Using compost for city operations
- Reducing food waste

Residential Composting

Composting needs to be convenient for residents to do the right thing, which means every home in Denver should have a green cart provided automatically to collect yard debris, food scraps, and other compostable materials. The price of composting should be included in the overall cost of trash and recycling services, so residents are rewarded for composting and not penalized with higher rates, as they are now.

City Council and the Mayor need to hear from residents that composting is important and that you want the city to break down the barriers to doing the right thing. Speak up for a green cart for all residents.

RECOMMENDATION: Provide all single-family homes with a green composting cart alongside trash and recycling. Include composting in the total price of trash service, not as an additional fee.

Apartment Composting

Residents who live in apartments and condos, known as multi-family units (MFUs), are treated like second-class citizens when it comes to recycling and composting in Denver. More than one-third of Denver's housing is MFUs, yet these properties commonly lack recycling bins and there is no opportunity for composting. Denver Recycles, which is Denver's waste management arm, only serves single-family residential homes and multi-family buildings with seven or fewer units.

While MFU property owners can choose to offer recycling services to their residents, most do not. Worse yet, when it comes to composting, there are no services even being offered—none of the trash and recycling companies currently offer composting services at MFUs.

Denver needs to address this social inequity and give MFU residents the same equal access to recycling and composting. The city can start by requiring property owners to provide recycling services alongside trash services by 2020. By 2025, this should be expanded to include composting as well. The city can provide additional technical assistance to MFU property owners to help provide these services, and work with properties that are already doing a good job at recycling to pilot composting programs.

RECOMMENDATION: Require multi-family property owners to provide recycling and composting services to all residents. Expand help to MFU property owners on how to implement programs.

Business Composting

Denver's restaurants throw away more than 50 million pounds of wasted food every year. That's more than 75 pounds per resident per year. This makes the restaurant sector a smart place to start to expand composting to businesses. In addition to recycling a large amount of materials, restaurant composting is also a great way to increase community awareness about composting both by training employees and through public advertising to customers.

If every large restaurant with more than 10 employees started to compost, Denver could recover more than 30 million pounds of food waste every year. That's why restaurant composting was flagged as a priority strategy in Denver's 2010 Solid Waste Plan.

RECOMMENDATION: Require food waste composting at large restaurants, as recommended in the city's 2010 Solid Waste Master Plan.



In Lincoln, Nebraska, the City Parks Department incorporates local compost, called LinGRO, in all public gardens.

Denver Leading By Example

Composting isn't just about putting your leftover food and leaves in the green bin. It's about returning these valuable nutrients to the soil by using compost in our gardens, our parks, our street projects—basically everywhere you see dirt. Denver Recycles promotes the use of compost by selling discounted compost at their annual Mulch Giveaway and offering compost program participants a coupon. In 2016 the city sold 2,160 bags of compost and 90 cubic yards of bulk compost.

Denver is a national leader in its requirement that residents apply compost to their soils when renovating their landscape, but Denver can do more to stimulate compost markets and build healthy soils. Denver Parks can commit to using city-produced compost in its gardens and Denver Public Works can use compost in its road remediation projects. For example, Lincoln, Nebraska, uses their local LinGRO compost in all public gardens. Boulder's Parks & Recreation department uses compost from its local facility, Western Disposal, in all of its landscape projects, including for soil amendments during the construction phase of development, turf top-dressing and garden soil amendments.

RECOMMENDATION: Require use of local compost in city projects and departments, including parks and transportation.

Address Food Waste

A family of four spends **\$1,500** a year on food they don't eat.

A staggering 40 percent of food in the United States goes uneaten. Growing this wasted food consumes 21 percent of all freshwater use, 19 percent of all fertilizer use and 18 percent of cropland. This isn't just an environmental issue—it has a large economic cost: The average American family spends \$1,500 per year on food it does not eat. If residents are separating their food scraps for composting, they become more conscious of the amount of food they are throwing out and this can lead to changes in behavior around shopping and meal preparation that reduce wasted food.

In 2016, Natural Resources Defense Council launched a food waste study in Denver to understand the amounts and types of food wasted in different sectors in the city and the potential for expanding donation of wholesome foods that currently go to waste. The project includes two elements:

1. a baseline assessment of the amount and types of food wasted in both the residential and business sectors; and
2. a rescue-and-recovery analysis to assess how much of this surplus food could potentially be directed to people, along with the infrastructure necessary to redistribute this food.

A preliminary report will be available in summer 2017 and more information can be found at www.nrdc.org/issues/food-waste.

RECOMMENDATION: Support local organizations and their efforts to reduce food waste, and support the national goal to reduce wasted food 50 percent by 2030.

FIGURE 8 WASTED FOOD, WASTED RESOURCES

40% OF FOOD IN THE U.S. IS WASTED

It's not only food that is wasted, but also the valuable resources that are used to produce it.



21% OF FRESHWATER USE



19% OF FERTILIZER USE



18% OF CROPLAND

ONE IN SIX DENVER RESIDENTS SUFFERS FROM FOOD INSECURITY OR HUNGER



Denver Food Rescue is a nonprofit that partners with grocery stores and farmers' markets to redistribute food to local community centers, all done using volunteers and bikes. Denver Food Rescue provided 200,000 pounds of fresh produce to underserved neighborhoods in 2016.

CALL TO ACTION: WHAT YOU CAN DO TO BRING COMPOSTING TO DENVER

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.



RESIDENTS: SINGLE FAMILY HOME

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 just \$10/month, you will be making a huge, positive impact on our future. Call Denver Recycles at (720) 913-1311 to get your carts.

Start using compost

You can use compost anywhere you have dirt, whether it's simply in a potted plant or for your entire landscape. Find places to buy local compost at <http://www.denverwater.org/Conservation/SoilAmendmentProgram/ProductList/>



RESIDENTS: APARTMENTS AND CONDOS

Demand equal services from your property manager

If you live in an apartment building that does not have recycling, talk to your landlord and ask for recycling. Getting recycling is the first step toward bringing composting to your building as well.

Contact your City Council member and the Mayor

Tell them you feel you are being left behind without convenient access to recycling and composting.



BUSINESSES

Sign up for services

Composting services are available for businesses throughout Denver. See list of companies that offer services at www.denvergov.org/content/denvergov/en/trash-and-recycling/recycling/business-and-multi-family-recycling.html.

Reach out to Certifiably Green Denver

Their team of sustainability advisors is there to help you green your business and reduce waste. Get started at www.denvergov.org/content/denvergov/en/environmental-health/environmental-quality/certifiably-green-denver.html.



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

CONCLUSION

With all this food and yard debris piling up in our landfills, we're missing big opportunities to reduce climate pollution, build healthy soils that grow healthy food, save water, reduce waste and create local jobs by composting!

Residents want to do the right thing, but composting needs to be convenient, accessible and affordable for everyone. Denver City Council and the Mayor need to hear from you that composting is important to you as a proud resident of Denver and that you want better services for everyone.

Speak up! Let's turn Denver around from a waste hog to a sustainability leader.

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