

# 2016 Community Carbon Inventory





**“It makes financial, social and environmental sense for us to increase our energy efficiency, diversify our energy portfolio for resilience, reduce waste, capitalize on valuable discarded resources for a circular economy and expand multi-modal transportation options for our workforce and community.**

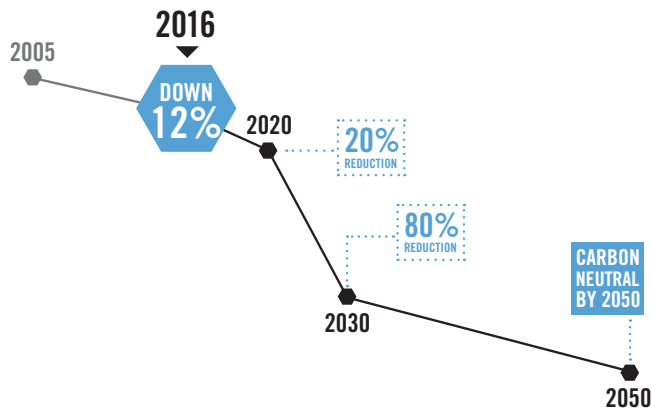
Increased efficiency requires public-private investments that will require leveraging our role as a municipal utility and large consumer of energy. Cities can be the best practitioners of ‘leading by example’ and scaling up practical solutions.”

– Mayor Wade Troxell

## Key 2016 Accomplishments

- Energy efficiency investments in 2016 achieved the savings equivalent to removing 3,750 homes’ electricity needs.
- Businesses are saving more than \$9.5M annually from investments they’ve made in energy efficiency alone.
- The community has increased locally-installed solar capacity by almost 3.5X from 2014 to 2016, which not only supports cleaner air but helps to avoid future development of additional electricity generation sources.
- Transfort ridership increased by 26% between 2015 and 2016.
- City Council unanimously adopted opt-in curbside yard waste pickup.
- The City partnered with GRID Alternatives and the Colorado Energy Office to develop a 64 kilowatt solar system which, combined with efficiency improvements, will reduce the energy bills of 20 families annually for 25 years – impacting over 500 low-income households over its lifetime.

We are more than halfway to our 2020 goal while also growing our population and economy.



## 2005 to 2016

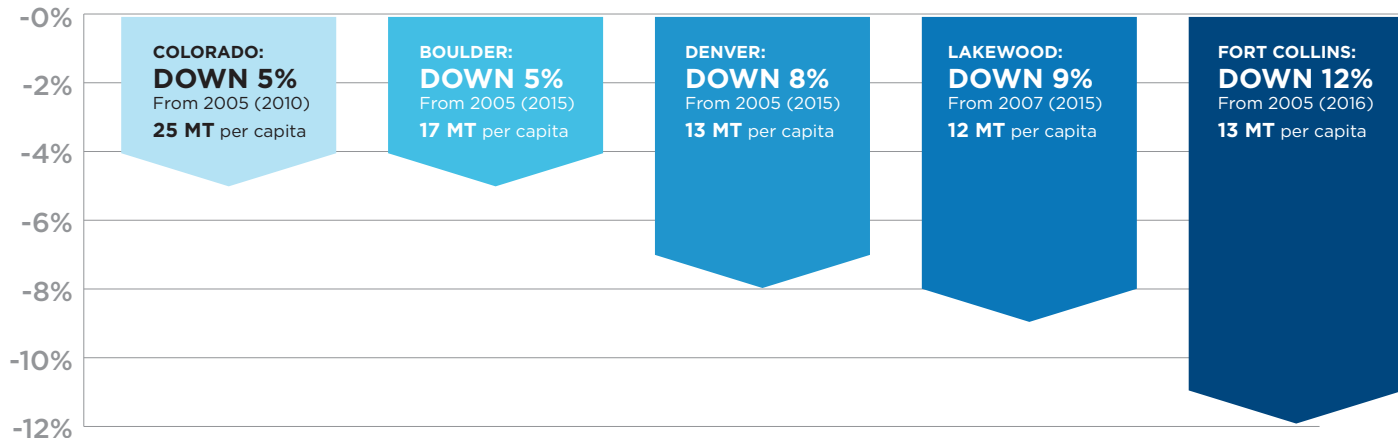
Look how far we've come with more than a decade of efforts

|  | 2005                                      | 2016                                      |
|--|---|---|
| <b>COMMUNITY CARBON INVENTORY</b>          | 2.3 Million Metric Tons CO <sub>2</sub> e | 2.1 Million Metric Tons CO <sub>2</sub> e |
| Net reductions: 275,813 Metric Tons (-12%) |   |   |

|                             | 2005  | 2016  |
|-----------------------------|---|---|
| <b>PER CAPITA EMISSIONS</b> | 18 Metric Tons CO <sub>2</sub> e per person | 13 Metric Tons CO <sub>2</sub> e per person |

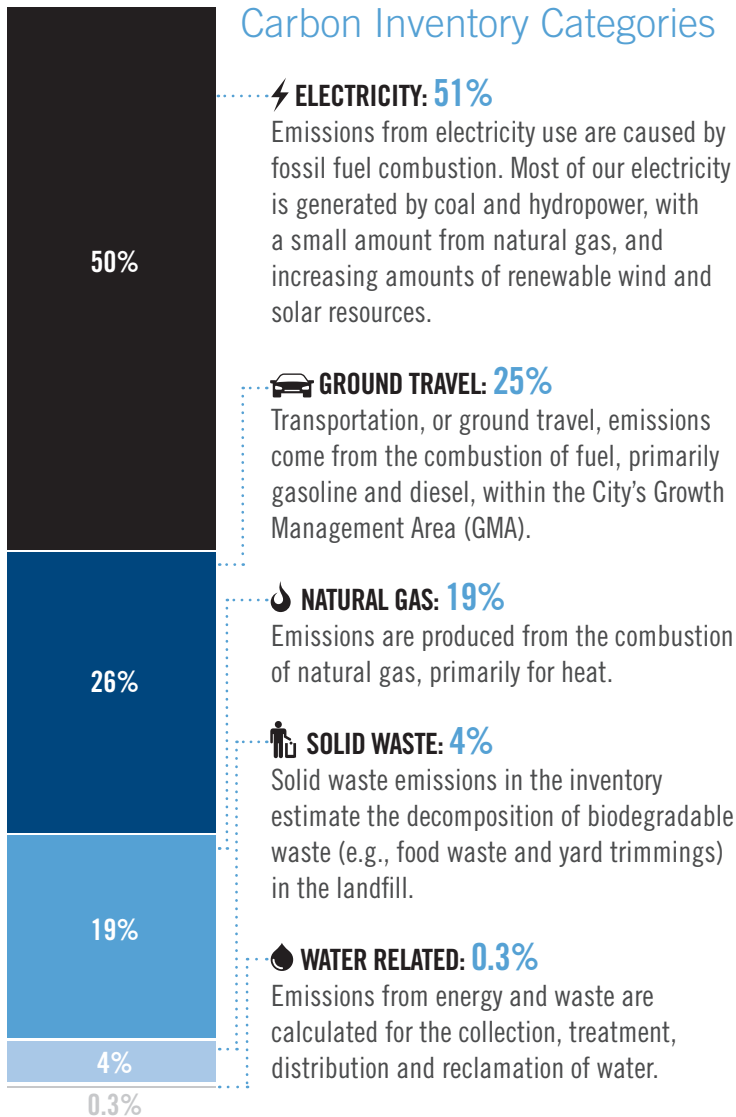
Per capita reductions: 5 Metric Tons per person (-28%)

### COLORADO COMMUNITIES ARE MAKING PROGRESS\*



\*Community carbon accounting practices differ; efforts were made to align the data shown here to the extent possible.

## Carbon Inventory Categories



**⚡ ELECTRICITY: 51%**  
Emissions from electricity use are caused by fossil fuel combustion. Most of our electricity is generated by coal and hydropower, with a small amount from natural gas, and increasing amounts of renewable wind and solar resources.

**🚗 GROUND TRAVEL: 25%**  
Transportation, or ground travel, emissions come from the combustion of fuel, primarily gasoline and diesel, within the City's Growth Management Area (GMA).

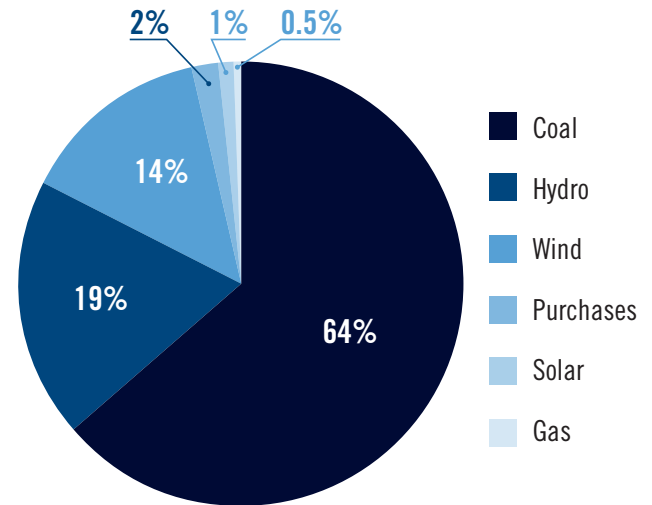
**🔥 NATURAL GAS: 19%**  
Emissions are produced from the combustion of natural gas, primarily for heat.

**🗑️ SOLID WASTE: 4%**  
Solid waste emissions in the inventory estimate the decomposition of biodegradable waste (e.g., food waste and yard trimmings) in the landfill.

**💧 WATER RELATED: 0.3%**  
Emissions from energy and waste are calculated for the collection, treatment, distribution and reclamation of water.

About 95% of the community's emissions come from electricity, natural gas, and transportation activities

## 2016 Fort Collins Electricity Resource Mix



The City's Energy Policy is aiming for 20% of our energy to be produced from wind and solar resources (up from 15% in 2016) and to limit coal resources to no more than 60% by 2020.



## What is a community carbon inventory?

A community carbon inventory follows a standard protocol to quantify a city's greenhouse gas (GHG) emissions, including CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O. Carbon inventories are iterative, meaning they fluctuate year-to-year as we experience the impacts of weather, get access to better data, or learn something new about how GHGs impact the atmosphere.

## Why Measure?

**CITIES ARE RESPONSIBLE FOR MORE THAN 70% OF GLOBAL CARBON EMISSIONS.**

**By Fort Collins committing to carbon neutrality by 2050, our community is signaling to the rest of the world we are part of the solution.** Fort Collins can have an impact by reducing more than 2 million tons of CO<sub>2</sub>e from the atmosphere, and we have joined with 500 other communities, through the Compact of Mayors, to illustrate the capacity that municipalities have to significantly impact their future. Our commitment to climate is about more than the environment – it's about our quality of life, protecting community health and clean air, and our transition to a clean-energy economy.

## What are GHGs?

**GREENHOUSE GASES** (GHG) are gases in the atmosphere that can absorb and emit heat. Science attributes a warming of the Earth's atmosphere to an increase in GHGs.

## What is CO<sub>2</sub>e?

**CARBON DIOXIDE** (CO<sub>2</sub>) is a GHG emitted naturally and from fossil fuel combustion for energy and heat (e.g., coal, natural gas, gasoline and diesel). Global warming contributions from other greenhouse gases (such as methane) are referred to in terms of "carbon dioxide equivalent" or CO<sub>2</sub>e, which represents the amount of CO<sub>2</sub> that would have the same global warming potential as other GHGs. Community carbon inventory goals are tracked in terms of tons of CO<sub>2</sub>e.



## 2016 Progress

### ⚡ Electricity (51% of inventory) ▼

**EMISSIONS HAVE DECREASED 12% SINCE 2005.**

Electricity emissions have decreased since 2005 due to increasing generation of renewable energy and City-led programs to help residents and businesses reduce their electricity consumption. With the inclusion of renewable energy credits, the community is down an additional 2% below the 2005 baseline. The community can help reduce electricity emissions by conserving electricity in their homes and offices.

#### HIGHLIGHTS:

- The Rawhide Flats Solar Project came online, providing additional clean energy to Fort Collins.
- 2016 saw unprecedented uptake of energy efficiency rebates.

### 🚗 Ground Travel (25% of inventory) ▼

**EMISSIONS HAVE DECREASED BY 6% SINCE 2005.**

The ground travel portion of the inventory is influenced by miles driven, the types of vehicles on the road and their fuel economy. The community can impact ground travel emissions by taking mass transit, biking, or walking whenever possible, as well as by driving more efficient or alternative fuel vehicles.

#### HIGHLIGHTS:

- Looking forward, the new City Plan and Transportation Master Plan will help shape Fort Collins' growth in a way that reduces the amount of miles driven, further reducing emissions.
- Northern Colorado had the 2nd fastest growing market for electric vehicles in the country in 2015.



## Natural Gas

(19% of inventory)



**EMISSIONS HAVE INCREASED BY 5% SINCE 2005.**

In Fort Collins, natural gas is primarily used for heating homes and businesses.

Natural gas burns cleaner than other fossil fuels, but it still contributes to greenhouse gases, and production and processing contributes to emissions outside of our community. Growth in natural gas emissions has increased more slowly than the community's population, one indicator of per capita conservation. Community members can help reduce their natural gas emissions by lowering their thermostat in the winter and raising it in the summer.

**Fort Collins may not be able to solve climate change as one community, but we can be part of the solution.**



## Solid Waste

(4% of inventory)



**EMISSIONS HAVE DECREASED BY 60% SINCE 2005.**

Solid waste emissions have decreased significantly since the 2005 baseline due to recycling and diversion programs. Further steps are being taken to achieve the Fort Collins' 2030 zero waste goal, including efforts to manage organic wastes (yard trimmings and food waste) for composting. The community can help lower waste emissions by choosing optional curbside yard waste pick-up.

### HIGHLIGHTS:

- The Community Recycling Ordinance was adopted, extending curbside recycling to all businesses and multi-family residents by 2020.
- The Timberline Recycling Center opened in 2016, helping keep hard-to-recycle materials out of the landfill.



## Water Related

(0.3% of inventory)



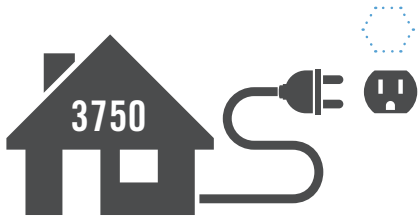
**EMISSIONS HAVE INCREASED BY 5% SINCE 2005.**

Water-related emissions account for less than 1% of overall greenhouse gas emissions. Water use and conservation have a low impact on our inventory but are important to ecosystem services essential to our community. Water conservation is an important component of long-term climate resiliency. Community members can help reduce emissions and conserve water by carefully monitoring their irrigation systems for leaks.

### HIGHLIGHT:

- Total system wide water use over the last 10 years is 10% lower than the prior 10 years.

Good news!



Energy efficiency investments in 2016 alone have achieved a savings equivalent to **reducing the electricity consumption of 3750 homes.**



### CITY & COMMUNITY



The City's 2016 investments were leveraged on an almost 1:1 basis, turning **\$5.9M of city dollars into over \$11M of total investments.**

\*Represents new dollars invested



**ALL FOUR PLATTE RIVER POWER AUTHORITY COMMUNITIES** invested in a 30MW solar installation at the Rawhide Energy Station, which went online in October 2016, increasing the City's clean energy portfolio by 2%, equating to a full 1% decrease in emissions. **The energy output is equivalent to ~3,500 households with clean energy in Fort Collins alone.**

## 2016



## Highlights

- Partners reduced energy use by 4.3M kWh - the equivalent of 542 homes worth of energy savings.
- 92% of partners earned the Waste badge and diverted over 85,000 tons of material from the landfill.
- Partners also made significant contributions to the benefit of the larger community through the Social Responsibility Badge, donating over \$3.3M for community benefit and contributing 63,213 volunteer hours.



# Fort Collins: A Community Making a Difference

---

## Electricity

---

### Trinity Church

The sun shone a bit more brightly on the roof of Trinity Lutheran Church just in time for the 2016 holiday season. While that glare could have been divine intervention, it was more likely the 198-panel, 53.5 kW roof-mounted photovoltaic system, installed last fall as part of the church's longstanding commitment to energy efficiency and sustainability.

The project supplies about 70 percent of the church's power.

"It's part of our faith to do this," said Wally Jacobson, a member of the church at 301 E. Stuart St., a ClimateWise partner since 2005. The church obtained assistance from the City's solar rebate program. Namasté Solar installed the panels.

## Solid Waste

---

### Evelyn Carpenter

Fort Collins resident Evelyn Carpenter has found it convenient for her family to get curbside yard waste pickup from her trash hauler.

City Council in 2016 adopted a new Community Recycling Ordinance that included a new requirement for all trash haulers licensed in the city to offer optional curbside yard trimmings pickup at an additional cost. The service is available annually between April and November.

"I like using the service because I really feel good about keeping materials out of the landfill that can otherwise be diverted and used."

## Natural Gas

---

### Revive

Homeowners in the new Revive development on the north side of Fort Collins have been amazed that they can produce more energy than they use in their homes and earn money on their monthly utility bills.

The Fort Collins developer, Revive Properties, earned the Grand Prize from the 2016 DOE Housing Innovation Award for the three-story townhomes and the 2016 Housing Innovation Award for their production homes. These homes take advantage of the earth's underground constant temperature to heat and cool their homes through geothermal heat pumps, reducing emissions typically associated with natural gas, said Susan McFaddin, the development consultant.

## Ground Travel

---

### Kerry Miller

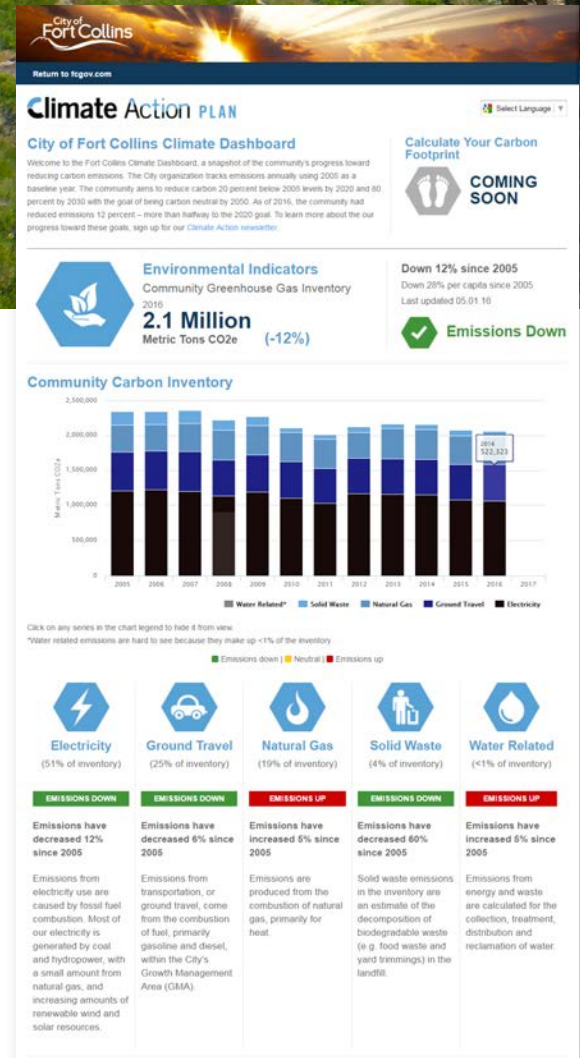
Kerry Miller and her husband, Peter, are committed to helping the community with its climate action goals, but they thought an electric car was out of their reach. Rebates from the state and federal government and their car dealer helped them, particularly since 90 percent of their car travel is within the City limits.

"You can do really small things by planting a tree in your yard to riding a bike to turning down your hot water heater... It strengthens us as a community because it shows that we care."

# Where we are HEADING IN 2017

In addition to existing programs, key activities in 2017 will also include:

- An update to the City's comprehensive plan, the Transportation Master Plan, and the Transit Plan, which will integrate the community's climate action goals into these broader planning efforts.
- Development of the Climate Economy Action Plan, which identifies potential private-sector tools and financing strategies in support of CAP objectives.
- Continued emphasis on community engagement to involve as many community members as possible to achieve the goals.
- Options for additional composting for residents and restaurants are being explored through the community recycling ordinance.
- Innovate Fort Collins Challenge – We're also engaging the private, public and academic sectors to help reach our goals through this challenge, which will fund projects up to \$250,000 capable of achieving carbon reductions in energy, transportation, and waste. The community responded by submitting over 60 applications worth \$5.5 million! More at [www.fcgov.com/innovate](http://www.fcgov.com/innovate).
- Addition of over 6 megawatts (over 6500 metric tons of CO2e) of enhanced solar development via expansion of residential and commercial rebates, a new round of Solar Power Purchase Program projects and a joint community solar project with Platte River Power Authority.



Increased transparency of data via the CAP Dashboard, which highlights community progress.  
[ftcollinscap.clearpointstrategy.com](http://ftcollinscap.clearpointstrategy.com)



## It Takes a Community

### How can you help?

Here in Fort Collins, we are fortunate to have a community that embraces conservation, active lifestyles and innovative solutions. **We have ambitious goals, and as a community, we can work together to get there.**

- Sign up for local 2020 related **news and events** at [www.fcgov.com/climateaction](http://www.fcgov.com/climateaction).

### How can you get engaged?

- Learn more at [www.fcgov.com/climateaction](http://www.fcgov.com/climateaction).

## City Contacts

### City Council/City Manager

- Wade Troxell, Mayor
- Gerry Horak, Mayor Pro Tem, District 6
- Bob Overbeck, District 1
- Ray Martinez, District 2
- Ken Summers, District 3
- Kristin Stephens, District 4
- Ross Cunniff, District 5
- Darin Atteberry, City Manager

### CAP Executive Team

- Jeff Mihelich, Deputy City Manager
- Kelly DiMartino, Assistant City Manager
- Mike Beckstead, Chief Financial Officer
- Kevin Gertig, Utilities Executive Director
- Laurie Kadrich, Director of Planning, Development, and Transportation
- Jackie Kozak Thiel, Chief Sustainability Officer
- Lucinda Smith, Environmental Services Department Director
- Lindsay Ex, Climate Program Manager

## Program Contacts

### Lindsay Ex

lex@fcgov.com  
970-224-6143

### Molly Saylor

msaylor@fcgov.com  
970-224-6143





[www.fcgov.com/climateaction](http://www.fcgov.com/climateaction)

