

2015 **Municipal** Carbon Inventory



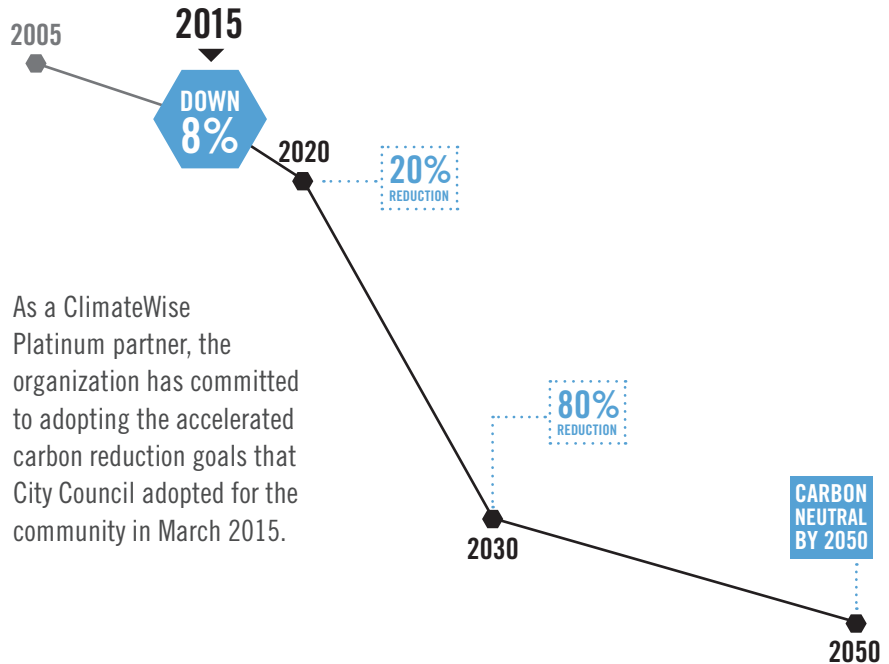
Road to 2020
Forging Our *Efficient* Future



Road to 2020

The City of Fort Collins as an organization has had a long history of promoting sustainability through a variety of innovative programs and policies to lead by example. The Sustainability Team annually examines the City's energy use, fuel mix, energy efficiency, and other municipal goals to achieve transformational progress.

Goals on the Road to 2020



As a ClimateWise Platinum partner, the organization has committed to adopting the accelerated carbon reduction goals that City Council adopted for the community in March 2015.

2005 to 2015

What's changed with a decade of efforts?

Between 2005 and 2015, the City has tracked decreases in several key indicators involving annual carbon emissions equivalents calculated per...

- Employee – 15%
- Square Footage – 11%
- Vehicle – 5%

Over the past five years, \$239,694 was invested in innovation projects through federal grant money and the employee Innovation Fund. The investments yielded \$2,191,245 in cumulative savings and carbon emissions reductions of 55,168 MT, nearly the entire carbon footprint of the municipal organization.

Leading By Example

The City set a LEED Gold Building standard for new municipal construction and remodeling projects over 5,000 square feet to promote energy efficiency and accelerate the adoption of renewables. Staff design buildings to exceed code requirements.



- ▶ **One example is the new NIX Administration building.** The 4,103-square-foot building is one of the most energy efficient buildings in the City's 75-building inventory. The energy modeling predicted 24.5 kBtu/ft²/year and in the first 12 months the facility is at 21.4 kBtu/ft²/year. Our best performing office facility (215 N Mason) was at approximately 40 kBtu/ft²/year in 2015.

NIX Farm Administration Building

RENEWABLE ENERGY PRODUCTION

- Photovoltaic: 6 kW system

PASSIVE CLIMATE CONTROL

- Southern orientation (optimizing the sun's energy)
- Daylighting
- High vertical windows
- Solar tubes
- HVAC: Geothermal

APPLIANCES & BUILDING MATERIAL

- All LED lighting
- Low-flow Toilets
- U-factor (efficient) windows
- VOC-free paints
- Electric Vehicle charging station
- R-value (efficient) insulation, walls and attic space:

LOCATION, LANDSCAPING & TRANSPORTATION

- Xeriscaping
- Southside deciduous trees: Netleaf Hackberries, Bigtooth
- Maples, Hoptrees, and Mountain Ash.

2015 Progress

Electricity (50% of inventory)

**EMISSIONS HAVE DECREASED
21% SINCE 2005.**

Reductions have been achieved in part due to energy efficiency programs and use of renewable energy.

HIGHLIGHTS:

- Electricity use per employee decreased by 8% over the 2005 baseline.
- Municipal photovoltaic production is estimated at roughly 200,000 kWh/yr, offsetting approximately 190 metric tons of CO₂e.
- The Senior Center completed a LEED certified net-zero expansion project including a 25 kW solar photovoltaic system.

Solid Waste (18% of inventory)

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

The municipal organization generates three waste streams: material deposited by the public in waste containers at parks, natural areas, and recreational facilities; industrial by-products from activities such as street sweeping, stormwater detention pond clean-outs, and repair/maintenance of water and sewer pipes; and discarded “office” material from administrative buildings, shops, warehouses, and utility plants.

2015 industrial diversion totaled 87%; office diversion rates reached 31%. Emission reductions from the Hoffman Mill crushing facility totaled 5,578 MT and the City earned a profit of \$297,192. The City earned \$92,140 from metal recycling, which reduced emissions by 3,000 MT.




Natural Gas

(16% of inventory)

**EMISSIONS HAVE INCREASED
38% SINCE 2005.**

Natural gas burns cleaner than other fossil fuels, but it still contributes to greenhouse gases, and production and processing contributes to emissions.

With MAX services, the organization's natural gas use has increased but mass transportation is a key factor for lowering the community's carbon emissions.




Ground Travel

(14% of inventory)

**EMISSIONS HAVE INCREASED
11% SINCE 2005.**

Transportation emissions include pollution from fleet vehicles such as snowplows, buses, utility service vehicles, Natural Areas and Parks maintenance. The organization will be increasing efforts to purchase alternative fuel vehicles including CNG buses and electric cars. Enhanced efforts will include a pilot Young Farmers Program and Carbon Sequestration projects.

HIGHLIGHTS:

- The City surpassed its 2020 alternative fuel goal.
- A new Bike Share Program was launched to increase community health and reduce air pollution.




Water Related

(1% of inventory)

**EMISSIONS HAVE DECREASED
46% SINCE 2005.**

Water-related sources account for only a small percentage (<1%) of total carbon emissions, but strategies related to water conservation are also important considerations for community resiliency.

Reductions have been achieved in part due to water efficiency programs.

Municipal Innovation, Carbon Reductions and 2015 Highlights

Municipal government carbon emissions have dropped by 3,851 metric tons equivalent of CO2 emissions. That's the equivalent of:



Energy supplying
407 homes



21 rail cars worth
of coal burned



433,330 gallons of
gasoline consumed



Looking Through a Triple-Bottom Line Lens



ENVIRONMENTAL BENEFITS

- Lower carbon footprint results in lower NOx, SOx and VOC levels



SOCIAL BENEFITS

- Includes improved air quality which reduces frequency of allergies and asthma events



ECONOMIC BENEFITS

- Higher property value and reduced utility bills.



Action Plan for Sustainability

The City developed the 2004 Action Plan for Sustainability that defines the path to demonstrate the organization's commitment to climate action planning and systematic sustainability. In 2009, numerical targets were set for the top Municipal Sustainability Goals.

The internal Sustainability Core Team and Technical Task Forces focus on key strategies that include:

- Carbon
- Electricity and natural gas
- Alternative fuel use
- Solid waste reduction
- Education, messaging and outreach
- Funding
- Biodiversity and forest canopy (carbon sequestration)
- Water
- Sustainable purchasing
- Employee safety and health
- Local food

Future Planning

Future planning will also include an expanded emphasis on:

- Efforts around **adaptation and resiliency**, to improve the resiliency of our community such as increases in wildfires, floods, and health-threatening heat waves.

A key effort in planning for our future is **ADAPTATION** and **RESILIENCY**.



City Contacts

City Council/City Manager

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