Fort Collins
Climate Status Report

2012

Fort Collins Commitment to Climate Protection

City of Fort Collins

We must become the change we want to see.

Mahatma Gandhi

Table of contents

Fort Collins community greenhouse gas emissions were 9% below 2005 levels in 2012. This reports summarizes progress on community goals and 2012 action highlights.

Printed on recycled paper with soy-based ink

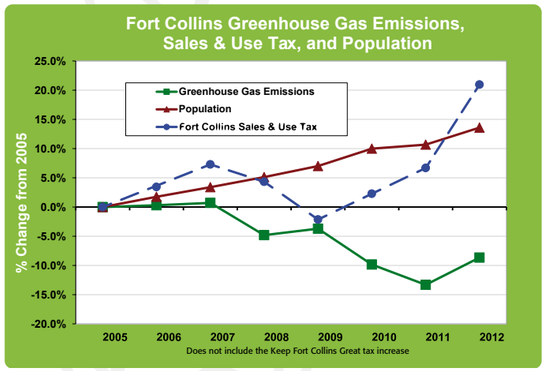
EXECUTIVE SUMMARY

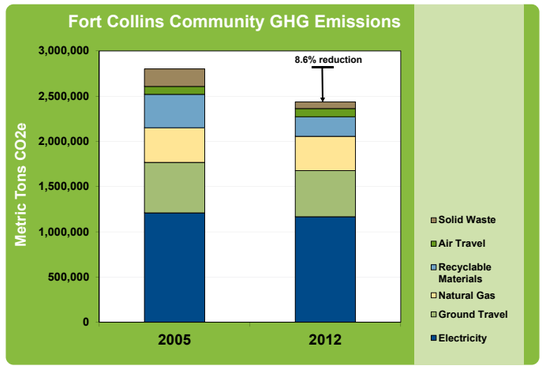
OVERVIEW
Fort Collins Commitment to Climate Protection 2
Our Changing Climate 3
Local Attitudes 4

COMMUNITY PROGRESS
Emissions Reductions 7
Indicators 7
Action Highlights 9
Community Leadership
City of Fort Collins 10
Poudre School District 10
Colorado State University 11
ClimateWise 12
Waste Reduction and Diversion Programs
Initatives 14
Waste Reduction and Recycling
Assistance Program 15
Landfill Gas Capture 15
Energy
Energy Efficiency Programs 16
Renewable Energy Program 17
Adanced Meter Fort Collins 18
FortZED 19
Green Building *20*
Transportation Programs
Transportation Planning 21
Transfort 21
Mason Corridor 21
Bicycling 22
Many Goals, Many Benefits
Air Pollution Reduction 22
Economic Impacts 23
Adapting to a Changing Climate 23
Challenges 24
Next Steps 25
Appendix A 2012 Community GHG Inventory 26
Appendix B 2005 Baseline Community GHG Inventory . . . 30

Executive Summary

Climate change poses a real and serious threat to the world at large and to the quality of life that we value in Fort Collins. Climate change can affect us locally by contributing to more frequent and severe storms, increased drought and risk of forest fires, and changes in the timing and amount of spring runoff. We have all witnessed or been directly impacted by wildfires raging in our county and state. Climate change adds to wildfire risk through the proliferation of pine beetle-killed trees and vulnerability to extreme weather events such as heat waves and drought. Scientific findings continue to underscore the importance of reducing emissions and increasing our resiliency in the face of a changing climate.





Fort Collins Stewardship

In 2008, City Council adopted greenhouse gas (GHG) reduction goals for the Fort Collins community.

- **Reduce communitywide emissions 20% below 2005 levels by 2020**
- **Reduce communitywide emissions 80% below 2005 levels by 2050**

Through community engagement in energy efficiency and renewable energy programs, green building, and waste and transportation reduction efforts outlined in the 2008 Climate Action Plan, community emissions are now 8.7 % below 2005, despite a population growth of 13.6 % and an increase in City Sales and Use Tax revenue of 21% between 2005 and 2012.

Executive Summary

Good News by the Numbers

The Fort Collins community collectively avoided almost 425,000 metric tons of CO_2e in 2012.

Community Reductions Project name	2012 Metric tons CO_2e/yr
CLIMATEWISE PROGRAM	
Electric Energy Efficiency projects	18,167
Renewable Energy Projects**	4,583
Natural Gas Projects	30,605
Recycling/Waste Diversion	104,417
Transportation	5,892
Water	0
ClimateWise Total	**163,663**
ENERGY	
Electric Efficiency Program Savings (2002 - 2012)	
Electricity Savings	94,708
Natural Gas Savings	561
RFR Program CFC-11 Destruction	10,534
Metered Renewable Energy	18,751
On-site Renewable Energy	1,644
Renewable Energy Certificates**	35,437
Energy Total	**161,634**
WASTE REDUCTION	
Communitywide Recycling	149,626
Concrete and Asphalt Recycling	7,347
Landfill Methane Gas System	8,934
WasteWater Treatment Methane Flare/Boiler	18,028
Waste Reduction Total	**183,935**
TRANSPORTATION	
Transfort Bus Ridership	1,422
Transfort CNG Fuel benefit	1,463
Transportation Total	**2,886**
TOTAL QUANTIFIED REDUCTIONS*	**424,894**

**Total is corrected for double-counting across programs.*
*** These GHG reductions are calculated according to Green-E protocols for reporting carbon equivalents.*

These estimated reductions are comparable to avoiding:

- Annual GHG emissions of over **88,000 passenger cars**
- Emissions from the energy used in **21,000 homes** for one year
- GHG emissions avoided by recycling over **159,000 tons of material** each year

Several major indicators are showing good progress as well. Between 2005 and 2012:

Total community GHG emissions **dropped by 8.7%.**

Core community emissions (electricity, natural gas and vehicle travel) **dropped by 4%.**

Per capita GHG emissions **dropped by 22%.**

Energy efficiency programs avoided more than **161,000 metric tons** of CO_2e in 2012.

Per capita electricity use **dropped by 7%.**

5.2% of our electricity investments provide clean, renewable energy.

Tons of waste sent to the landfill **dropped by 42%.**

The Non-Industrial **Community Waste Diversion Rate rose to 42%.**

ClimateWise partners **avoided over 163,000 metric tons** of CO_2e while saving more than **$14M** in 2012.

Transfort saw **more than 2.2 million riders** in 2012, a **53% increase** from 2005.

2012 climate mitigation actions also **reduced air pollution** in Fort Collins:
237 tons nitrogen oxides avoided
194 tons sulfur oxides avoided
28 tons of carbon monoxide avoided

Executive Summary

Next Steps

While Fort Collins is making good progress in reducing GHG emissions, key challenges lie ahead to continuing progress at the recent rate. Construction activity in Fort Collins is picking up significantly, with over a billion dollars of construction activity anticipated in Fort Collins within the next 10 years. New requirements and incentives are needed to enable existing and future buildings to be as efficient as possible. Electricity use now represents 48% of community emissions and natural gas represents 16%. Fundamental changes in the sources of energy will be needed if Fort Collins is to meet existing GHG goals. Capital funding is needed to build out Fort Collins Transportation Master Plan and to implement major waste reduction project such as a local composting facility.

Fortunately, several major initiatives are underway that will advance Fort Collins ability to reduce GHG emissions. These include completion of Advanced Meter Fort Collins', implementation of FortZED projects, progress on the Mason MAX BRT, and implementation of the Fort Collins Solar Power Purchase Program that will encourage installation of up to 5 megawatts of new local solar systems.

In addition, several major 2013 planning initiatives will offer pathways to increased carbon reduction for Fort Collins, including updates to the 2007 Roadmap for Green Building and the 2009 Energy Policy, and completion of a new Road to Zero Waste plan. These efforts will inform an update to the Climate Action Plan and be integrated into the upcoming Sustainably Strategic Plan that will be developed for Fort Collins in 2014.

Overview

Over fifteen years ago, Fort Collins was among the first wave of communities in the nation to commit to reducing local greenhouse gas (GHG) emissions and adopted its first climate action plan in 1999.

Goals for the Fort Collins community

Reduce communitywide emissions **20% below** 2005 levels by 2020
Reduce communitywide emissions **80% below** 2005 levels by 2050

Fort Collins
Climate Commitment

Fort Collins has long been committed to reducing the community's carbon footprint. In 1997 the City joined the ICLEI- Local Governments for Sustainability's Cities for Climate Protection Campaign, followed by adoption of the 1999 and 2008 Climate Action Plans, and adoption of the 2003 and 2009 Energy Policy. In January 2012 the City created a new Sustainability Services Area dedicated to optimizing economic health, social well-being, and environmental stewardship.

All City departments, businesses, citizens, educational institutions, non-profits and other stakeholders play a critical role in achieving the community greenhouse gas reduction goals.

Fortunately, multiple benefits are realized from greenhouse gas reduction. These often include costs savings, growing green jobs and associated business retention, expansion or attraction, reduced air pollution and other environmental emissions, less trash filling our landfills, increased transportation choices, and more efficient buildings.

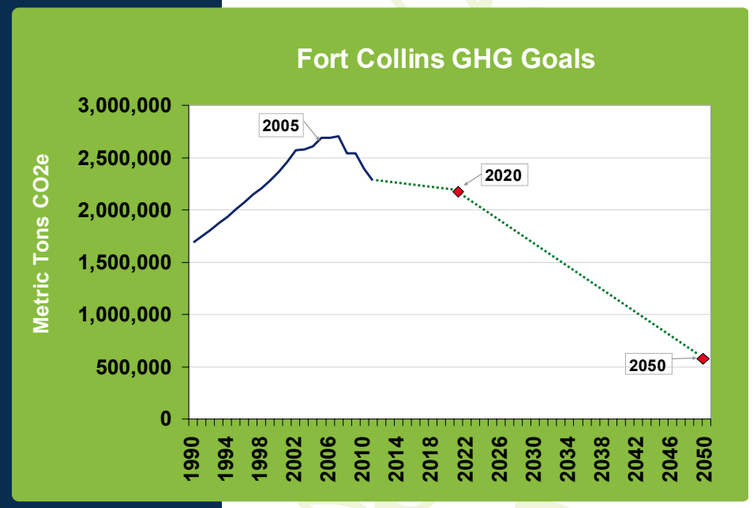


Figure 1. Fort Collins Community Greenhouse Gas Reduction Goals

The 2020 and 2050 goals depicted in Figure 1 also align with goals established for the state of Colorado.

Our Changing Climate

New data continues to confirm that our Earth's climate is changing rapidly, causing costly and harmful impacts and reinforcing the need for communities to take action.

Carbon Dioxide Concentrations Peaked at 400 PPM in May 2013

On May 9, measured concentrations of carbon dioxide at the Mauna Loa Observatory surpassed 400 parts per million (ppm) for the first time since record-keeping began there several decades ago. Before the Industrial Revolution, atmospheric carbon dioxide concentrations were approximately 280 ppm.

Why It Matters:

Higher CO_2 levels increase the greenhouse effect and cause more warming of the planet. The Earth's average temperature has risen by 1.4°F over the past century, and is projected to rise another 2 to 11.5°F over the next hundred years. Rising global temperatures have been accompanied by changes in weather and climate including changes in rainfall, more floods, droughts, or intensity of rain, as well as more frequent and severe heat waves.

Highest Global Greenhouse Gas Emissions

The world's energy-related carbon dioxide emissions rose 1.4 percent in 2012 to a record high of 31.6 billion tons.

Why It Matters:

The social cost of mitigating economic and environmental damages associated with an incremental increase in carbon dioxide emissions continues to climb. Although there are many natural sources of GHGs, man-made sources can be reduced or controlled through effective strategies and decrease the impacts of climate change.

2012 Hottest Year on Record

2012 was the hottest year on record for the contiguous United States. One third of the nation's population experienced 10 or more days above 100° F in 2012. 2012 also ranks as the warmest calendar year in the 124 year record for the Fort Collins, CO weather station on CSU campus.

Why It Matters:

Health care costs associated with extreme weather events in the US between 2006 and 2009 exceeded $14 Billion. In the U.S., 2012 alone saw eleven weather disasters that cost a billion dollars or more. (NOAA)

Record Low Sea Ice

The lowest sea ice in the Arctic since records began over 30 years ago occurred in 2012, at 49% below the 1979 average.

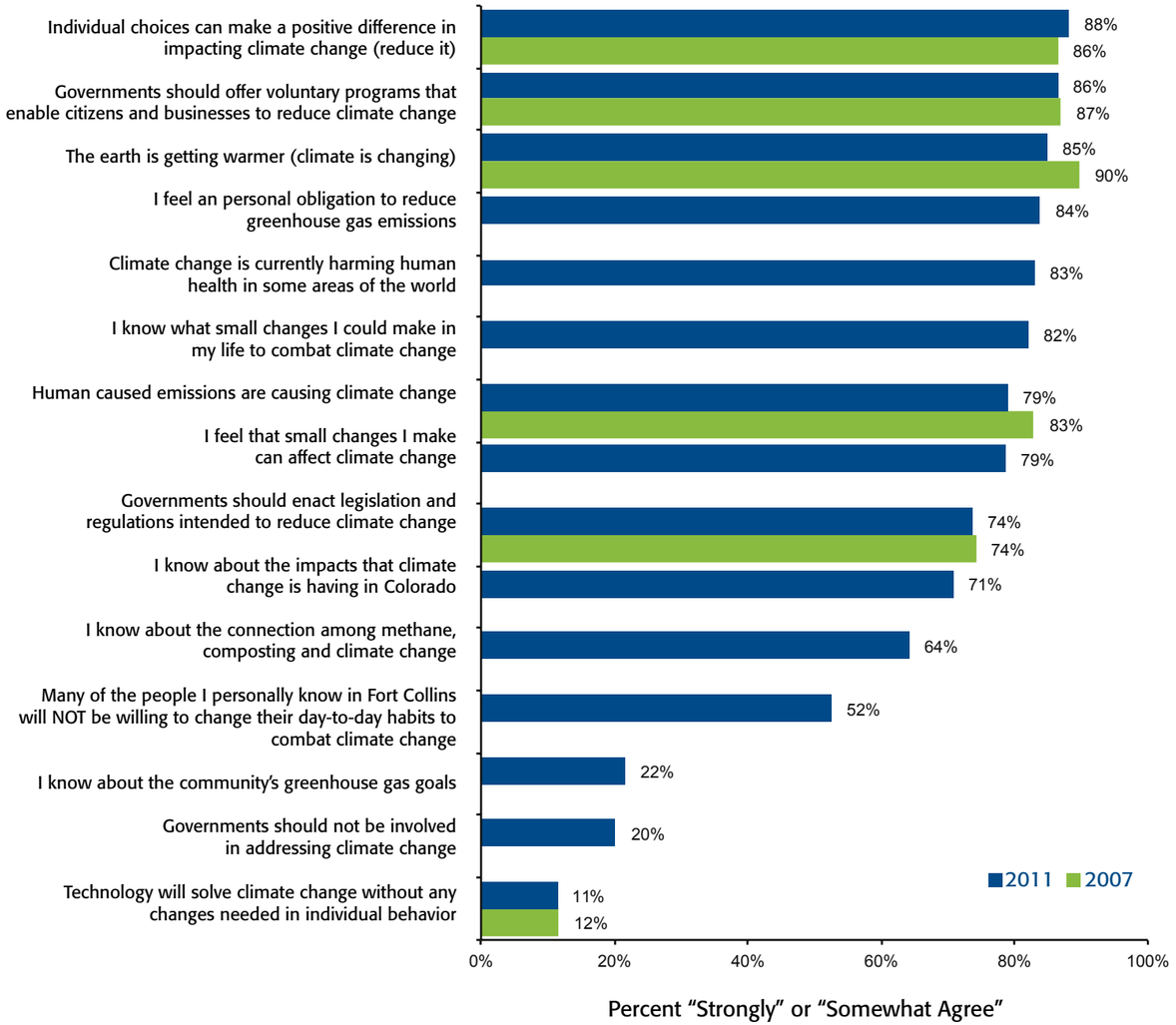
Why It Matters:

What happens in the Arctic doesn't stay in the Arctic. The loss of summer sea ice has led to unusual warming of the Arctic atmosphere, that in turn impacts weather patterns in the Northern Hemisphere, that can result in persistent extreme weather such as droughts, heat waves and flooding.

Local Attitudes about Climate Change

A 2011 statistically valid survey of Fort Collins residents revealed the following attitudes and beliefs about climate change. (See fcgov.com/airquality for complete survey results.)

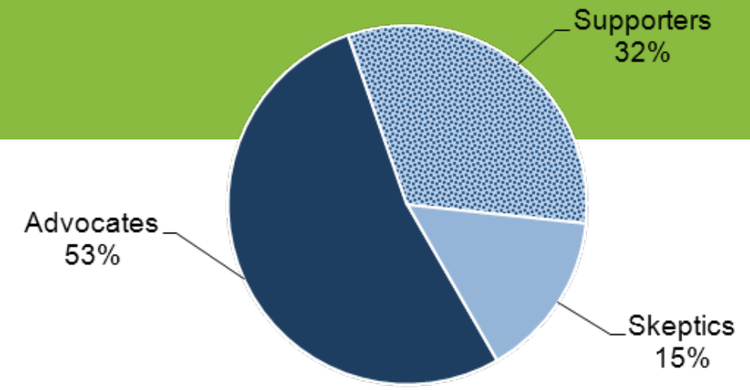
Figure 2. 2011 Fort Collins' Citizen Survey Responses



Note: Several categories were added in 2011, if 2007 data is missing it is because the category was not included in 2007.

To better understand the profile and belief systems of Fort Collins residents, the 2011 survey data were analyzed using a technique referred to as cluster analysis, based on similarity of responses to 40 survey statements related to climate change, air pollution and recycling. Three groups emerged from the cluster analysis: Advocates, Supporters and Skeptics.

Figure 3. Environmental Cluster Groups



Advocates: On average, this group

- **Strongly agreed** that the earth is getting warmer
- Were the **least likely to think** technology could solve this problem.
- **Strongly believed** that they personally had responsibility to change their own behaviors to reduce pollution and GHG
- **Strongly believed** that the government should intervene to try to improve environmental outcomes.

Supporters: On average, this group

- **Somewhat agreed** that the earth is getting warmer
- **Somewhat disagreed** that technology could solve this problem
- **Believed** they personally had a responsibility to change their own behaviors to reduce pollution and GHG
- **Somewhat believed** that the government should intervene to try to improve environmental outcomes.

Skeptics: On average, this group

- **Disagreed** that climate change was human caused
- **Somewhat disagreed** that the earth was getting warmer
- **Somewhat disagreed** that technology could solve this problem
- **Somewhat disagreed** that they had a personal obligation to reduce greenhouse gas emissions
- **Were a little more supportive** of the idea that they should help improve air quality.
- **Not convinced** that small changes they make could reduce greenhouse gas emissions or air pollution
- **Did not think** that government should intervene to try to improve environmental .

Community Progress

Fort Collins 2012 Community Greenhouse Gas Emissions 9% Below 2005 Levels

The Fort Collins community has made good progress in lowering its greenhouse gas emissions. Through community engagement in energy efficiency and renewable energy programs, green building, and waste and transportation reduction efforts outlined in the 2008 Climate Action Plan, community emissions are now 8.7% below 2005 despite a population growth of 13.6% and an increase in City Sales and Use Tax revenue of 21% between 2005 and 2012.

Communitywide GHG emissions ticked up 5% in 2012 over 2011 levels. This increase is primarily attributed to increased electricity use and increased carbon intensity of electricity generation in 2012 (less hydro power was available) as well as increased volumes of trash to the landfill and associated GHG emissions. However, community emissions still show a statistically significant drop from 2005 to 2012.

Progress on the community GHG reduction goal is tracked through changes in total emission levels, not by estimated annual GHG reductions.

Footnote: *The inventory is measured in metric tons carbon dioxide equivalent ($MTCO_2e$). Each greenhouse gas has a "global warming potential" which refers to its heat-trapping ability relative to carbon dioxide. Methane is at least 21 times more potent that CO2, and nitrous oxide is 310 times more potent. CO2e refers to the summed impact of gases quantified, in terms of carbon dioxide.*

Figure 4. Fort Collins GHG Emissions and Population and Sales and Use Tax Revenue

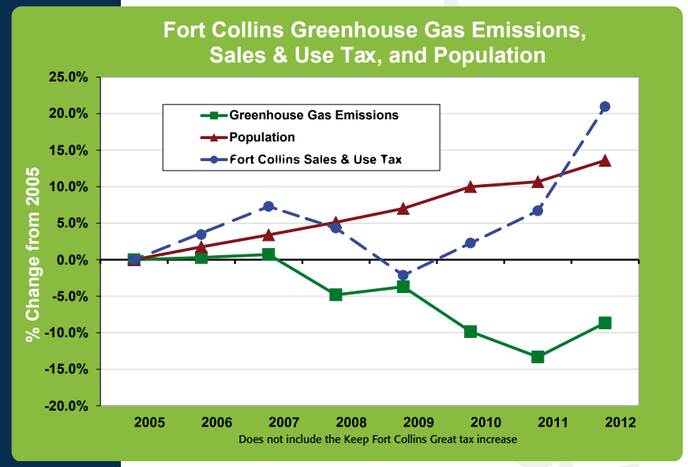
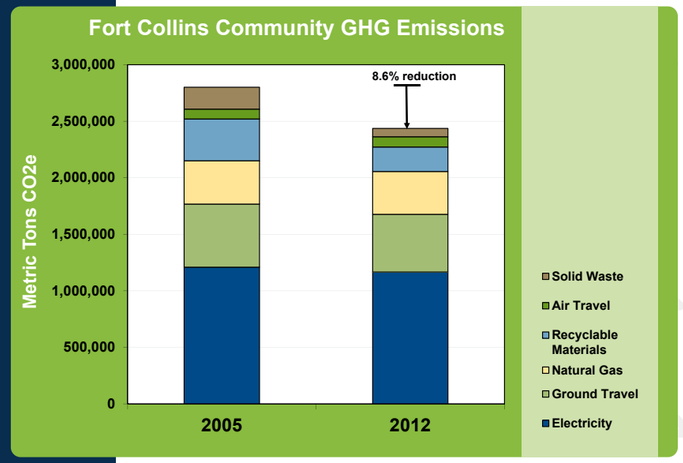


Figure 5. Fort Collins GHG Emissions, by Source



Major Greenhouse Gas Reduction Programs

Nearly 425,000 $MTCO_2e$ were estimated to have been avoided in 2012 through the communitywide projects listed below. Although numerous other projects no doubt occurred during 2012, they were not evaluated for their potential carbon reduction benefits in this report because this report focuses on major reduction efforts.

Table 1. Fort Collins Community GHG Reductions

Community Reductions Project name	2012 Metric tons CO_2e/yr
CLIMATEWISE PROGRAM	
Electric Energy Efficiency projects	18,167
Renewable Energy Projects**	4,583
Natural Gas Projects	30,605
Recycling/Waste Diversion	104,417
Transportation	5,892
Water	0
ClimateWise Total	**163,663**
ENERGY	
Electric Efficiency Program Savings (2002 - 2012)	
Electricity Savings	94,708
Natural Gas Savings	561
RFR Program CFC-11 Destruction	10,534
Metered Renewable Energy	18,751
On-site Renewable Energy	1,644
Renewable Energy Certificates**	35,437
Energy Total	**161,634**
WASTE REDUCTION	
Communitywide Recycling	149,626
Concrete and Asphalt Recycling	7,347
Landfill Methane Gas System	8,934
WasteWater Treatment Methane Flare/Boiler	18,028
Waste Reduction Total	**183,935**
TRANSPORTATION	
Transfort Bus Ridership	1,422
Transfort CNG Fuel benefit	1,463
Transportation Total	**2,886**
TOTAL QUANTIFIED REDUCTIONS*	**424,894**

**Total is corrected for double-counting across programs.*
*** These GHG reductions are calculated according to Green-E protocols for reporting carbon equivalents.*

These estimated reductions are comparable to avoiding:

- Annual GHG emissions of over **88,000 passenger cars**
- Emissions from the energy used in **21,000 homes** for one year
- GHG emissions avoided by recycling over **159,000 tons of material** each year

Good News by the Numbers

Between 2005 and 2012:

Total community GHG emissions **dropped by 8.7%.**

Core community emissions (electricity, natural gas and vehicle travel) **dropped by 4%.**

Per capita GHG emissions **dropped by 22%.**

Energy efficiency programs avoided more than **161,000 metric tons** of CO2e in 2012.

Per capita electricity use **dropped by 7%.**

5.2% of our electricity investments provide clean, renewable energy.

Tons of waste sent to the landfill **dropped by 42%.**

The Non-Industrial **Community Waste Diversion Rate rose to 42%.**

ClimateWise partners **avoided over 163,000 metric tons** of CO2e while saving more than **$14M** in 2012.

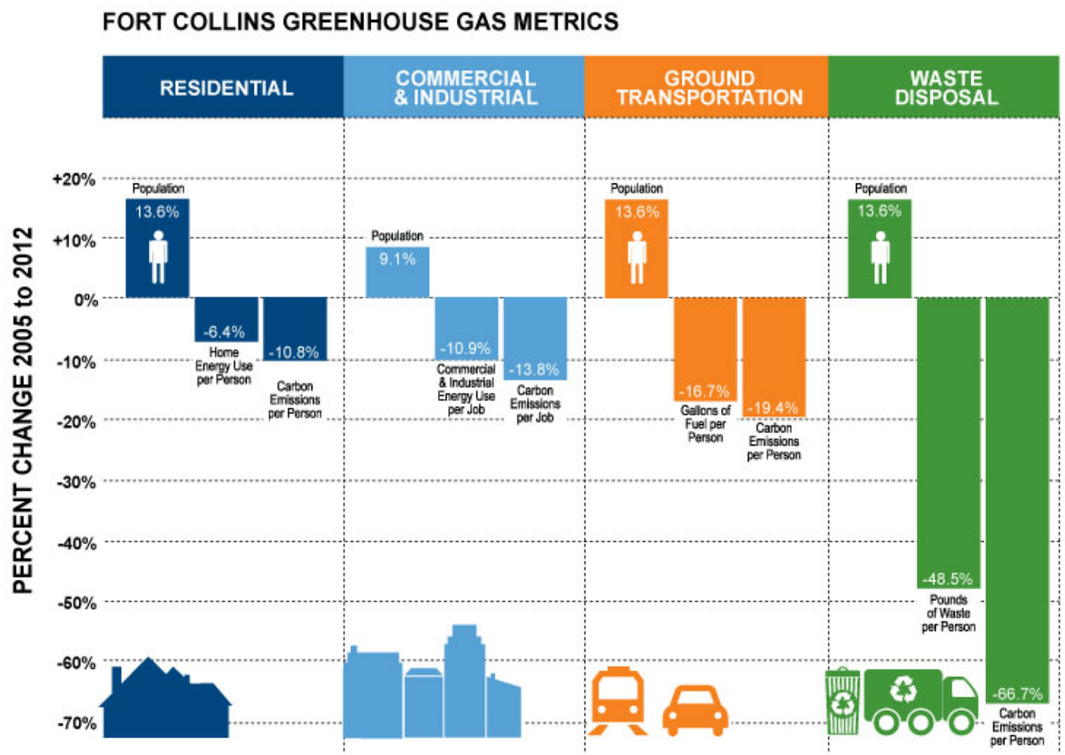
Transfort saw **more than 2.2 million riders** in 2012, a **53% increase** from 2005.

Indicators

Figure 6 below illustrates progress on additional indicators. Fort Collins population increased 13.6 percent from 2005 to 2012, yet home energy use per person declined by 6.4 percent. This reflects improvements in the energy efficiency of homes, heating systems and appliances. Overall per person carbon emissions in the residential sector dropped 10.8 percent from 2005. While the number of jobs in Fort Collins increased by 9.1 percent from 2005 to 2012, energy use per job decreased by 10.9 percent and the carbon intensity of the energy used fell by 14 percent. Carbon intensity is a measure of how much CO2 is produced per unit of energy generated for different types of fuels.

For transportation and waste disposal, population growth is used as a primary factor, as with the residential sector. Gallons of fuel used per person dropped 16.7 percent while the associated carbon emissions dropped even more (19.4 percent from 2005) because of slight improvements in overall fleet fuel efficiency from 2005. Pounds of trash generated per person dropped by almost half (48.5 percent) from 2005 levels. This can be attributed to increases in waste reduction services and requirements. The largest percentage decrease in per person emissions occurred in the waste sector, which saw a 66.7 % drop in per person carbon emissions from trash generated. This can be attributed to less trash generated per person and a change in trash composition from 2005, plus the installation of a landfill gas capture and flare system at the Larimer County landfill in 2009.

Figure 6. Fort Collins Community Greenhouse Gas Metrics



Action Highlights

+ The 2008 Climate Action Plan calls for reduction activities in several areas including Community Leadership, which referred to multi-media carbon reduction initiatives, as well as leadership in individual areas of recycling, energy, green building, and transportation. This section discusses 2012 carbon reduction highlights in each area.

City of Fort Collins

The City of Fort Collins' 2013 internal Sustainability Management Plan contains 11 internal sustainability goals including a goal to reduce annual GHG emissions 20% below 2005 by 2020. Progress is reported annually at *fcgov.com/sustainability*.

2012 Highlights

Changes since the baseline year of 2005:

- Total carbon emissions are down 6.3%
- Carbon emissions from electricity are down 11.4%
- Carbon emission per square foot of City buildings was down 17%
- Conventional fuel use is down 6%
- 38% drop in electricity used for traffic signals
- Electricity use for water and wastewater production is down 11%
- Tons office waste sent to the landfill is down 17%
- City of Fort Collins achieved a Platinum level ClimateWise award for the fourth year in a row.

Looking Ahead:

- New City buildings will meet goals established by the Architecture 2030 Challenge.
- Increase sustainable purchasing policies, procurement and reporting.
- Increase percent of local food (grown within 50 miles or prepared by local business) purchased by City for events.
- Install soil drying and recovery capability to reduce waste to the landfill.
- Expand municipal energy goals to include a building energy intensity goal and an on site renewable energy goal.

>>Electric vehicle charging stations at City Hall

>>Solid Waste Management Station at Fossil Ridge High School

Poudre School District

As a member of the City of Fort Collins ClimateWise program, Poudre School District (PSD) is committed to minimizing greenhouse gas emissions. PSD will continue to embrace energy conservation, recognizing that reduction in energy consumption has the largest impact on the district's GHG emissions. Of note, the district is close to achieving its 2020 reduction goal to reduce greenhouse gas emissions 20% compared to the 2005 benchmark year.

2012 Highlights

Changes since the baseline year of 2005:

- Wellington Middle School was one of 78 schools named a National Green Ribbon School by the U.S. Department of Education during the award's inaugural year and students participated on a panel with U.S. senators and the Surgeon General on how to influence public schools to be more "green."
- Physics students at Fossil Ridge High School partnered with CSU to develop a bicycle charging station where power is generated while riding a stationary bicycle and used to charge electronic devices.
- PSD completed lighting retrofits at 9 district buildings, converting nearly 400 high intensity discharge (HID) fixtures to light-emitting diode (LED) or T8 fluorescent fixtures, saving 122,182 watts and over $7,330 annually.
- Theatrical dimming systems were replaced at Rocky Mountain HS and Fort Collins HS with new 95% efficient units.
- PSD installed a building automation system at Fullana that resulted in annual utility cost savings of over 20%.

Poudre School District Looking Ahead:

- PSD will identify areas in which technology can improve utility efficiency, such as building automation and power management shutdown scripts for computer hibernation during nights and weekends.
- Bacon Elementary School will install data loggers to monitor electrical usage, aid in establishing baselines and set ting goals, and finding areas of improvement.

Colorado State University

Colorado State continues to implement energy efficiency, conservation and renewable energy projects to reduce GHG emissions. Challenges arise as the campus grows both in building and population; however the university is still on track to meet their 2050 goal to become climate neutral.

2012 Highlights

- GHG emissions dropped 6% from FY11 to FY12.
- Over 1 million gross square feet of lighting retrofits during FY12 completed; expected to reduce energy by 3.7 million kWh/year.
- Six PV systems on campus produced 333,000 kWh in 2012.
- Building tune up (retrocommisioning) yields 23% reduced electric usage savings in pilot program.
- Received sponsorship from the Arbor Day Foundation and Toyota to plant 27 American Elm trees around the historic Oval.

Looking Ahead:

- CSU is investigating the feasibility of additional renewable energy projects including: wind power, solar PV, biomass, and geo-exchange.
- CSU has established an Energy Reserve Fund and has committed $624,000 for energy efficiency projects in FY14.
- CSU has partnered with Drive Electric Northern Colorado to accelerate the adoption of electric vehicles in northern Colorado.

Colorado State University continues to implement energy efficiency, conservation and renewable energy projects

>> Electric vehicle charging station at CSU

ClimateWise's emissions reduction goal has been exceeded four times in the last five years.

Community Leadership

ClimateWise

In 2012, the ClimateWise program grew by more than 43 organizations, bringing the number of currently active business partners to 325. Partners in the program employ nearly 36,000 employees ranging from small one-employee businesses to Colorado State University, the largest employer in Northern Colorado. With 66% of partners reporting, the number of greenhouse gas (GHG) reduction projects implemented by ClimateWise partners grew to more than 1,200 in 2012. This resulted in ClimateWise partners avoiding over 163,000 $MTCO_2e$. The projects saved the partners $14 million in 2012 alone, and over $73 million since the program began in 2000. The program's emissions reduction goal has been exceeded four times in the last five years. Along with the valuable ongoing assistance to help partners reduce GHG emissions and meet program levels, ClimateWise also provides partner recognition, peer networking opportunities to share best practices, technical assistance, ongoing business support, and seminars, tools and resources for savings. See *fcgov.com/climatewise/progress* for more information.

2012 Highlights

- Partner volunteers and students logged over 782 hours valued at $17,040.
- Partners contributed more than $12,374 to the program through sponsorship, service and in-kind donations.
- ClimateWise staff and its partners held 53 events and added new workshops as a result of partner survey feedback. Partner sponsorships and in-kind contributions reduced event venue costs by 72%.
- Many agencies around the country explored the ClimateWise model including:
  - — town managers and city administrators of western ski towns,
  - — Governor's Energy Office Main Street Energy Initiative (MSEI)
  - — The City/County of Boulder;
  - — CORE Businesses in Sustainability (Denver)

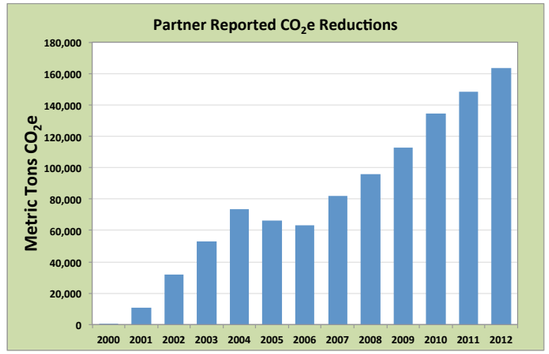


Figure 7. ClimateWise Partner GHG Reductions

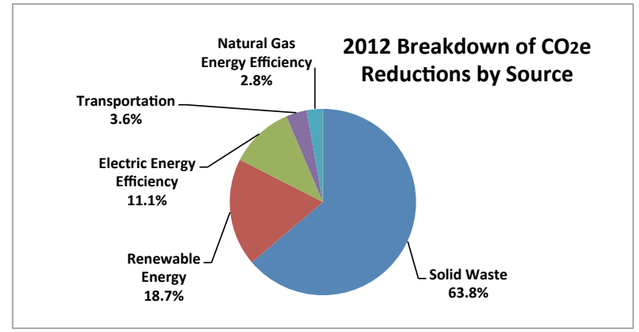


Figure 8. ClimateWise 2012 GHG Reductions by Source

Looking Ahead:

- A ClimateWise Business Plan will be developed from information gathered during a 2013 visioning session with 35 new and seasoned Advisory Committee members. Participants discussed what they'd like to Achieve, Avoid and Preserve from now through 2023.
- Staff will also be looking to 2020 for the new GHG reduction goal, as aligned with the Climate Action Plan. During the program's annual mid-year survey, staff will be adding new questions to define World-Class and learn how partners want to be recognized, and more. The answers will assist staff in planning for 2013 and future years.

>> ClimateWise 2012 EnvirOvation

Waste Reduction Initiatives

During 2012, the community's municipal solid waste (MSW) diversion rate was calculated to have dropped several percentage points, as anticipated; the change - from 47.4% in 2011, to 42.4% in 2012 – amply demonstrates the magnitude of two winter storm events that occurred in 2011, which created a 20,000 ton "bump" in woody tree material that was diverted from landfill disposal through grinding and mulching efforts. However, when combined totals for MSW and industrial sources of trash and recycling were aggregated, Fort Collins registered at 57.7% waste diversion in 2012, about the same as it had been in 2011. Numerous data points in the City's reports from trash haulers help illustrate activities in 2012 that enabled community efforts to offset the tree branches anomaly from 2011.

2012 Highlights

- City Streets Department recovered over 110,000 tons of asphalt, concrete, and aggregates at the crushing facility, to be made into new road-base materials.
- Higher volumes of wood waste were diverted from landfills from construction sites, reflecting 2012's new green building code requirements for recycling at construction sites.
- Overall volumes of recycling rose over 16% due in part to more involvement by businesses and multi-family generators, the focus of programs such as Waste Reduction and Recycling Assistance Program and ClimateWise.

>> City crushing operation at Hoffman Mill Road

>> Campaign signs being hung to announce new carton recycling option

- Cartons (beverage containers, shelf-stable packaging for soups, etc.) were added to the single-stream recycling program in 2012. At Poudre School District facilities alone, this means 2.5 million milk/juice cartons per school year are being recovered from the waste stream.
- Partnering with Catalog Choice, the City helped register 1,608 new participants who opted out of junk mail, preventing an estimated 20 tons of unwanted mail from being delivered in Fort Collins.

Looking Ahead:

- In March 2013, City Council amended the Municipal Code to prohibit the disposal of cardboard in Fort Collins' waste stream; the volume of cardboard buried in local landfill is anticipated to drop significantly from current levels (12,000 tons per year).
- A community involvement process in 2013 is likely to help the City Council set new goals for waste diversion and recycling; the "Road to Zero Waste" plan is aimed at setting a course for the next 10-20 years.

Waste Reduction and Recycling Assistance Program (WRAP)

The WRAP program was initiated in 2012 to provide assistance to Fort Collins businesses and apartment complexes for starting or improving recycling programs. WRAP also provides rebates for locations starting a new recycling program. Free guidelines posters, signs, and other communications tools, as well as on-site waste assessments are also provided through WRAP.

2012 Highlights

- 8 multi-family facilities participated in 2012
  - — 6 to start recycling
  - — 2 to improve recycling
- 18 businesses participated in 2012
  - — 6 to start recycling
  - — 12 to improve recycling
- Created a new, graphics-based guidelines poster, which was made available to WRAP partners and the Fort Collins community as a whole.

Looking Ahead:

- WRAP will be a significant part of helping implement the recently-passed cardboard ordinance, by providing location specific assistance and troubleshooting, as well as rebates and help to locations starting new recycling programs.
- New assistance is being developed to aid the community in construction site recycling, recycling enclosure capital costs, and recycling bins.

Larimer County Landfill Methane Capture Project

Municipal solid waste landfills are the second largest source of human-related methane emissions in the United States, accounting for approximately 22 percent of these emissions in 2008. Methane, a potent greenhouse gas, is produced when bacteria breaks down wastes buried in the landfill. This gas escapes into the atmosphere unless it is captured in a collection system and combusted or used for other purposes. In 2009, a gas collection system was installed at the Larimer County Landfill. The captured methane gas is flared, reducing GHG emissions from the landfill.

>> New recycling enclosure at Heatheridge Lakes Condos

WRAP provides rebates for locations starting a new recycling program

Energy Efficiency Programs

Fort Collins Energy Policy includes a goal to achieve annual energy efficiency savings equivalent to 1.5% of the community's electric use, while maintaining high-system reliability and contributing to the community's climate protection goals and economic health. Fort Collins Utilities implements a comprehensive set of programs to serve its residential, commercial and industrial customers. These programs provide solutions, such as technical assistance and incentives, that relate to every facet of energy use, including retrofit and remodel, new construction, equipment replacement, consumer products, and behavior change.

>>Fort Collins Museum of Discovery is seeking LEED Platinum Certification

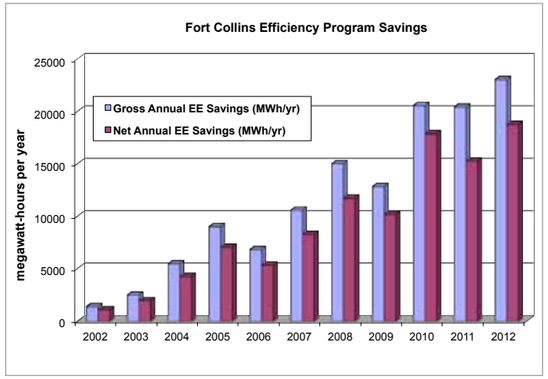


Figure 9. Electricity Savings from Fort Collins Energy Efficiency Programs

2012 Highlights

- Avoided annual estimated carbon emissions of over 161,000 metric tons from Energy Policy efficiency and renewables programs (7% of 2012 total emissions).
- Customer electricity savings efficiency programs totaled over 23,000 megawatt-hours (MWh) in annual electricity use, or 1.5% of the community's electric use (Figure 9). This is equivalent to the annual electric use of over 2,500 typical Fort Collins homes.
- Efficiency programs saved electricity with a lifecycle cost of-conserved energy of 2.3 cents per kilowatt-hour (kWh), compared to an average wholesale electricity cost of 5.0 cents per kWh.
- Efficiency programs generated over $20 million in local economic benefits through reduced utility bills, incentives, leveraged investment and other economic activity.
- Fort Collins was the only utility highlighted in a new study on the benefits and potential savings of energy efficiency programs, published by the Southwest Energy Efficiency Project (SWEEP). The report notes that "Fort Collins is a leader in energy efficiency," and that "Fort Collins Utilities serves as a successful model for smaller public utilities throughout the region."

Looking Ahead:

- Development of efficiency programs targeting the multi-family sector.
- Update of the Energy Policy with the Fort Collins Energy Board.

Renewable Energy Program

Fort Collins Energy Policy includes a goal to meet or exceed the community's commitments under the Colorado Renewable Energy Standard (RES), while contributing to the community's climate protection goals and economic health. A portfolio of programs supports increasing the proportion of renewable energy, customers who voluntarily subscribe for additional renewable energy and those who want to install on-site renewable energy systems.

2012 Highlights

- Renewable energy comprised 5.2% of total electrical energy purchases in 2012 (78,057 MWh). 3.5% of the energy counted towards the RES commitments, while customer voluntary green energy purchases contributed an additional 1.7% to the overall total.
- Photovoltaic (PV) capacity additions totaled 350 kW (130 kW residential and 220 kW commercial).
- City Council approved a pilot Fort Collins Solar Power Purchase Program (FCSP3) in November 2012. The pilot program will help meet Utilities' renewable energy commitments under the RES with installation of approximately 5 megawatts of new locally installed solar systems.
- City Council approved funding for a Community Solar Garden in November 2012. The intent of this program will be to expand small-scale renewables options for customers who do not have favorable sites for roof-top solar.

Looking Ahead:

- Development of Fort Collins Solar Power Purchase Program and Community Solar Garden.

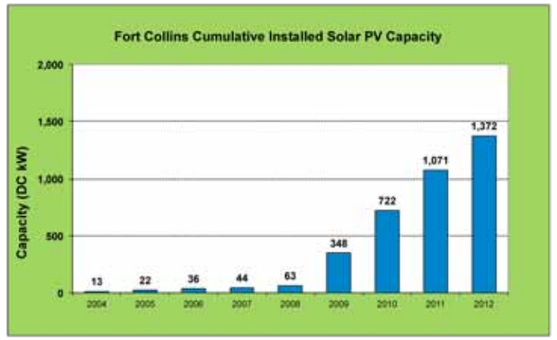


Figure 10. Growth in Installed PV Capacity in Fort Collins

>> Solar PV array on the roof of the Larimer County Courthouse Office

City Council approved a pilot Fort Collins Solar Power Purchase Program

Advanced Meter Fort Collins (AMFC)

Through the Advanced Meter Fort Collins project, Fort Collins Utilities is upgrading mechanical, electric, and water meters in homes, schools and businesses throughout the community with electronic meters that will enable two-way digital communication between the meter and the utility. Benefits include providing timelier customer service solutions, preparing Fort Collins Utilities and the community for the future, using information to maintain high system reliability, and making utility operations more cost-effective.

2012 Highlights

- Meter installation and system testing was completed in an Initial deployment Area (IDA) in the first and second quarters of 2012. Operational testing included collecting data from meters, transferring data automatically and creating accurate customer bills.
- Based on the successful test installations, full scale deployment of the electric meters and water modules began in the third quarter of 2012. Deployment is scheduled for completion in the first half of 2013.

Looking Ahead:

- Completion of the meter installation phase and roll-out of the customer web portal. The web portal will enable customers to more easily manage their utility account, pay bills and have access to their home or business' electric and water usage information.

Electronic meters that will enable two-way digital communication between the meter and the utility for timelier customer service

>> Installation of new Advanced Meters

FortZED (Fort Collins Zero Energy District)

FortZED is a collaborative project between the City of Fort Collins, Colorado State University (CSU) and the Colorado Clean Energy Cluster (CCEC) to create a zero energy district in Fort Collins. The district will achieve this vision by generating as much energy as it uses through strategies that improve energy efficiency and conservation, implementation of renewable energy sources, reduction of peak energy use, the use of energy storage and use of smart grid technologies. The district's boundaries are currently a 2.5 mile section of Fort Collins including the main campus of CSU, Old Town and the Poudre River corridor.

2012 Highlights

- FortZED partners collaborated with the Rocky Mountain Institute (RMI) to host a strategic planning charrette with participants from all over the U.S. This charrette identified multiple strategies to advance the FortZED vision, including innovative funding mechanisms and developing a strong collaborative relationship with RMI.
- FortZED added CSU as a partner and is currently formalizing this partnership through a cooperative agreement and modified governance structure.
- The Renewable Distributed Systems Integration (RDSI) project completed its first phased study in 2011 and submitted findings to the Department of Energy in 2012. DOE lauded the Fort Collins RDSI project for its results of reducing 20 percent or more in peak energy demand using distributed sources, efficient project management, timeliness and collaboration.
- FortZED was formally funded through the City's Budgeting for Outcomes process to administer and support projects, community engagement and grant development.

Looking Ahead:

- The FortZED Steering Committee is currently identifying projects that will advance FortZED, implementation to begin in late 2013.
- Completion of the FortZED cooperative agreement and addition of two community members to the FortZED Steering Committee.

FortZED is a collaborative project that creates a zero energy district within Fort Collins.

>> Solar PV on New Belgium Brewing

Performance of the built environment is a key element of the community's emissions footprint.

Green Building

Green Building

Performance of the built environment is a key element of the community's emissions footprint. A range of voluntary and regulatory approaches target improving the performance of the built environment. Many of the voluntary incentives and rebate programs which contribute to energy efficiency savings described above also support the greening of Fort Collins buildings. In March 2011, City Council adopted an updated building code that went into effect in January 2012. Updates to the code addressed construction waste management, resource efficiency, energy efficiency, water efficiency, indoor and outdoor environmental quality, and building operation, maintenance, and commissioning.

2012 Highlights

- The Home Efficiency Program continued to provide strong results for improving existing homes, with 592 audits and 289 efficiency improvement projects completed in 2012.
- The Business Efficiency Program supported 251 energy efficiency projects with rebates and technical assistance.
- Building Department and Utilities staff collaborated on training for contractors and the development of new tools for effective code implementation.
- 28 commercial building efficiency assessments were completed in compliance with a new code requirement for remodeling and tenant finish projects.

Looking Ahead:

- The residential and commercial building codes are being evaluated and will be updated in 2013.
- The Integrated Design Assistance Program is being redesigned with a performance based approach in alignment with the Architecture 2030 Challenge.
- The Roadmap for Green Building is being updated in 2013.

Transportation Programs

Transportation Planning

The City of Fort Collins City Plan and Transportation Master Plan (2011) include action items to reshape and/or develop green streets. "Green streets" are alternative street designs that support active modes of travel such as bicycling and walking. Fort Collins has many streets that are wider than the current standard. Green Streets is a demonstration project that will test a variety methods to reshape a street.

2012 Highlights

A Green Streets project was funded in the 2013-2014 budget process specifically to implement a bike boulevard concept on Remington Street. The budget for final design and construction is $450,000 and is allocated in 2014.

Looking Ahead:

The 2013 College Avenue Corridor Master Plan project will support multiple modes of sustainable transportation options and thus support the City's sustainability policy to systemically, creatively, and thoughtfully utilize environmental, human, and economic resources to meet our present needs and those of future generations without compromising the ecosystems upon which we depend. This study will look at opportunities to increase mode shifts away from single use vehicles.

Transfort

Transfort is a municipal transit agency that provides bus service in Fort Collins and the region along 20 local and one regional route. Transfort's mission is to provide exceptional, customer focused service that meets our community's present and future transit needs. The Transfort Strategic Operating Plan sets forth phased transit improvements with the following six system goals:

1. Develop an expanded transit system focused on productivity and performance to meet the Transportation Master Plan and City Plan Policies.

2. Meet and exceed the 2008 Climate Action Plan Goal for Transportation CO2 reductions by 2020.

3. Provide enhanced mobility for seniors, youth, disabled, and transit dependent.

4. Develop a public transportation system that reduces roadway related costs for maintenance, right-of-way acquisitions and construction.

>>Compressed Natural Gas Powered Transfort Bus

5. Provide funding recommendations to fully implement the Transit Strategic Operating Plan.

6. Stimulate the local economy through investment in public transportation infrastructure and operations.

2012 Highlights

- Ridership levels in 2012 reached over 2.2 million trips, a 53% increase from 2005.
- Transit trips on the Transfort system reduced vehicles miles traveled by over 3 million miles in 2012, resulting in fuel cost savings and road wear and tear as well as reducing GHG emissions by over 1,400 MTCO2.
- Thirteen new compressed natural gas (CNG) buses were ordered in 2012.
- Construction began on the North Front Range's first Bus Rapid Transit line known as the MAX.

Mason Corridor

A major element of the City's transit system is the development of the multi-modal Mason Corridor, a five mile north-south byway within Fort Collins which extends from Cherry Street on the north to south of Harmony Road. The corridor is located adjacent to the Burlington Northern Santa Fe Railway property, a few hundred feet west of College Avenue (U.S. 287). The Mason Corridor Plan was initially approved by voters in 1997. The Plan envisioned a multi-modal corridor that included a bicycle/pedestrian trail, now nearly built out as the Mason Trail, and a Bus Rapid Transit system, for which construction began in 2012. By pursuing many different funding sources for the Mason Corridor, Fort Collins has been able to leverage limited local dollars with state and federal grants for the Mason Corridor project.

Transportation Programs

The Mason Corridor includes a new bicycle and pedestrian trail as well as a planned Bus Rapid Transit (BRT) system in a fixed guideway for the majority of the corridor. The transit and trail components of the Mason Corridor will have significant impacts on the environment. As people utilize alternative modes, congestion and pollution levels in our City will decrease, and GHG emissions will decrease.

2012 Highlights

- MAX guideway construction gets underway.
- Troutman underpass construction began in July 2012.
- Mason Street in downtown was converted to two-way traffic.

>> Future Look of MAX

Bicycling

Almost ten percent (9.9%) of Fort Collins' work force cycles to their jobs each day, making it the third highest bike commuter city in the nation according to the U.S. Census Bureau's 2009 American Community Survey. Bicycling is promoted locally through a strong network of 280+ miles of bike lanes, 32+ miles of multi-use trails, 18 local bicycle retailers, and 14 local bicycle manufacturers. In addition, the Fort Collins Bike Co-op collects and refurbishes bicycles locally, and the FC Bike Library offers free bike check-outs for residents and visitors. To date, over 4,000 residents, students, and visitors have become members of the FC Bike Library.

>>Bicyclists in Old Town Fort Collins

Looking Ahead for Transportation Programs

- MAX BRT service is scheduled to begin in May 2014.
- Transfort will be re-routing several current route alignments to better coordinate with the new MAX BRT route in May 2014.
- Continual expansion of transit services in accordance with the Transfort Strategic Operating Plan.
- FC Moves will provide transportation planning that includes active living/multi-modal programs encouraging bicycles, pedestrians, and transit use.

Many Goals, Many Benefits

Air Pollution Reduction

Community efforts to reduce GHG emissions also provide a wide range of other community benefits. Reducing energy use reduces air pollution emissions. The carbon reduction efforts identified in this report are estimated to have avoided over 211,000 MWh of electricity and over 10,300 decatherms of natural gas. In addition to reducing greenhouse gas emissions, these improvements helped prevent emissions of other air pollutants that are harmful to human health and the environment. Nitrogen oxides contribute to ground level ozone formation. And Fort Collins is part of the Front Range region that is out of compliance with the national health standards for ground level ozone.

Pollutant	Avoided in 2012 from GHG Reduction Actions in Fort Collins
Nitrogen Oxides*	273 tons
Sulfur Oxides*	194 tons
Carbon Monoxide**	58 tons
Particulates **	7.4 tons

* Calculated using regional marginal emission factors
** Calculated using regional average emission factors

Economic Impacts

Actions to reduce local greenhouse gas emissions can boost the local economy as well.

- City Energy Policy programs saved $20M annual benefit (2012) from bill savings, incentives, leveraged investment and indirect effects.
- ClimateWise partners saved $14 million in 2012 alone, and over $73 million since the program began in 2000 from projects that reduced GHG emissions.
- According to the Institute for Local Self-Reliance, for every 10,000 tons of municipal discards, recycling supports 10 jobs and reuse supports 75-250 jobs, while landfilling the same material only supports one job.
- FortZED provides technological and economic benefits to the local community that include testing and demonstrating new technologies, supporting innovative businesses, and securing outside grant funding.

Adapting to a Changing Climate

Fort Collins has been committed to reducing (mitigating) community GHG emissions since 1999. In 2011, City Council added a new policy goal on climate adaptation, recognizing that while we continue to reduce emissions it is also our responsibility to prepare for the impacts of a changing climate.

Principle ENV 12:"The City will plan and integrate strategies to adapt to a changing climate into City operations, and will promote climate adaptation actions in the community."

>> 1999 Flooding at Mulberry and Lemay

>> Wildfire near Fort Collins

Since 2008, the City has been evaluating the potential adverse impacts to City operations and infrastructure due to climate change. While modeling climate change in this region is complex, City staff are actively following the evolving climate change science to monitor potential impacts. Fort Collins Utilities completed a vulnerability and risk assessment to Utilities infrastructure and operations in 2011 and continue to participate in a regional peer learning group with other Front Range water utilities. Additionally, the City is a member of a regional group of cities called the Western Adaptation Alliance, which shares knowledge, regional approaches and solutions to climate change adaptation.

Looking ahead

- A Climate Change Adaptation study was funded through Budgeting for Outcomes for 2013 to provide vulnerability and risk assessments for multiple city departments.
- Planning workshops will be facilitated in late 2013. As part of the risk and vulnerability assessments, City departments will examine potential climate change scenarios that may affect their operations and services. Participating departments will include: Parks, Planning, Forestry, Streets, Natural Areas and others.
- The planning workshops will be opened to include other local entities including Larimer County, the City of Loveland and other potential partners to raise the level of awareness and identify potential adaptation strategies.

Challenges

While Fort Collins' progress in reducing GHG emissions is measurable, key challenges lie ahead to continuing progress at the recent rate.

Built Environment
Construction activity in Fort Collins is picking up significantly following the 2008 recession. Over a billion dollars of construction activity is anticipated in Fort Collins within the next 10 years. The built environment is a major contributor to Fort Collins GHG emissions and will continue to be in the future, as the life span of a building is typically 50 years or more. New requirements must be developed to enable future buildings to be as efficient as possible and to enable continuous improvement in existing building efficiency. Expanded participation in existing and new incentive programs is needed as well.

Transportation Sector
Transportation has long been the most challenging sector to reduce local emissions, in part because major aspects of transport emissions (fuels and vehicle fuel efficiency) are regulated at the federal level. In addition, Fort Collins is not a high density urban area, making it difficult to build a high density transit system. The coming of the Mason Corridor MAX BRT will launch a new area of transportation in Fort Collins. In order to capitalize on MAX, significant funding support is needed to build the Enhanced Travel Corridors envisioned in the City's Transportation Master Plan. Capital is also needed to expand bike lanes and trail networks, sidewalks, and green streets that optimize mobility efficiency and to facilitate a transition to cleaner fuels such as electric vehicles.

Energy Supply
Electricity use now represents 48% of community emissions and natural gas represents 16%. As Fort Collins moves down the pathway towards 80% reduction below 2005 levels by 2050, fundamental changes in the sources of energy will be needed. While efficiency will continue to help reduce energy use, it will not alone enable Fort Collins to meet its current goals. Fort Collins must work closely with Platte River Power Authority to expand clean sources of electricity and find ways to fund additional onsite renewable energy capacity.

Solid Waste Sector
Finding ways to fund and implement a comprehensive composting system for Fort Collins' organics waste offers both an important challenge and opportunity to reduce waste in Fort Collins.

Next Steps

2013 MAJOR PLANNINIG INITIATIVES

Several major planning initiatives will occur in 2013 that will offer pathways to increased carbon reduction for Fort Collins.

Next Steps

Energy Policy Update
In 2013, the Fort Collins Energy Board, along with Utilities and other City staff, will assess the 2009 Energy Policy and recommend updates to it.

Road to Zero Waste
The 1999 goal to divert 50% of Fort Collins' waste from landfills will be revisited, updated to reflect community aspirations, and submitted to the City Council for adoption in 2013. City staff, along with a stakeholder Working Group and extensive public input, will recommend a new course for managing the local waste stream that is aimed at reducing waste disposal in landfills.

Green Building Roadmap Update
In 2007, the City of Fort Collins worked closely with community stakeholders to develop the Roadmap for Coordinated and Enhanced Green Building Services to unify green building efforts into a coordinated program and enhance green building in Fort Collins. In 2013, the Roadmap will be updated to prioritize next steps for Fort Collins, especially in areas of above-code, market-driven approaches and other aspects of the built environment, such as land use planning, access to transit, green streets, etc.

Community GHG Goal Review
The state of scientific knowledge and discourse has advanced significantly since 2008 when Fort Collins' greenhouse gas goals and Climate Action Plan were adopted. In light of the ever-increasing urgency to reduce GHG emissions and the opportunity to explore GHG goals alongside the Energy Policy update, the City of Fort Collins intends to undertake a review of community GHG goals in 2013. Stakeholders and the public will be engaged in this discussion before recommendations are presented to City Council.

Climate Action Plan Update
Once the review of the community greenhouse gas goal is conducted, the 2008 Climate Action Plan (CAP) will be updated. Several new opportunities have emerged since the adoption of the 2008 CAP including advancements in energy technologies, vehicle electrification opportunities, changes in the price of energy solutions, and new waste reduction strategies, that warrant a fresh look at reduction strategies. The CAP update will be integrated with the development of a Community Sustainability Plan. Again, stakeholders and the public will be actively engaged in this process.

2013 Major Action Initiatives

Fort Collins Solar Power Purchase Program
Fort Collins Utilities' Solar Power Purchase Program (FCSP3) encourages the installation of up to 5 megawatts of new local solar systems through a fixed-price, 20-year Power Purchase Agreement (PPA) between Fort Collins Utilities and photovoltaic system owners for solar energy generation.

Drive Electric Northern Colorado A partnership between the City of Fort Collins, City of Loveland, and CSU, called Drive Electric Northern Colorado, was formed in 2013 to promote the use of electric vehicles in northern Colorado.

FortZED FortZED will select and seek to implement four major projects in the areas of energy efficiency, renewable energy, load management and financing to move the initiative more rapidly towards achieving net zero.

Mason MAX Construction of the Bus Rapid Transit system will be all but complete by the end of 2013, with the full opening of the MAX transit system planned for May 2014.

Waste to Clean Energy The feasibility of using the landfill gas as a transportation fuel is being evaluated. The proposal involves using the methane that is currently captured and flared at the Larimer County Landfill by building a new gas processing, compression and transport system for the compressed natural gas (CNG) and then selling it to local CNG users including Transfort and others. In addition, roundtable discussions will occur periodically involving the City of Fort Collins, City of Loveland, CSU, Platte River Power Authority and others, to discuss potential collaboration on combining feedstocks for waste to clean energy processes.

Appendix A
2012 Community GHG Inventory

GHG emissions inventories are calculated using the City's Greenhouse Gas Emissions Management System (GEMS) database system. The Quality Management Plan (QMP) for community inventory is available at fcgov.com/climateprotection. The 2012 community GHG inventory was calculated using the same approach as the 2005 baseline, with updated methodologies applied retroactively back to the baseline year.

2012 Community GHG Report

Scope 1 - Direct GHG Emission	Usage		Metric tons of CO_2e
Natural Gas, Residential:	3,201,407	Dth	170,174
Natural Gas, Commercial:	1,208,027	Dth	64,214
Natural Gas, Industrial and Transportation:	2,733,880	Dth	145,322
Natural Gas Subtotal	*7,143,314*	*Dth*	*379,710*
Gas Car (assumes 22.1 mpg):	26,171,343	gal.	229,784
Gas Light Truck (assumes 17.7 mpg):	29,213,934	gal.	256,498
Gas Heavy Truck (assumes 13.9 mpg):	642,634	gal.	5,642
Diesel Car (assumes 19.378 mpg):	46,097	gal.	471
Diesel Light Truck (assumes 16.859 mpg):	119,215	gal.	1,217
Diesel Heavy Truck (assumes 5.634 mpg):	1,625,120	gal.	16,592
Water Reclamation Facility Emissions:	95,479	ft3/day	1,301
Scope 1 Subtotal			**891,215**

Scope 2 - Energy Indirect GHG Emissions	Usage		Metric tons of CO_2e
Electricity, Residential:	489,623,227	kWh	371,337
Electricity, Commercial:	507,604,045	kWh	384,974
Electricity, Industrial:	461,480,570	kWh	349,993
Electricity, Street Lights:	8,526,396	kWh	6,467
Electricity, Traffic Signals:	575,314	kWh	436
Elec., Distribution and Transmission Losses:	69,857,402	kWh	52,981
Electricity Usage Subtotal:	*1,537,666,954*	*kWh*	*1,166,188*
Scope 2 Subtotal			**1,166,188**

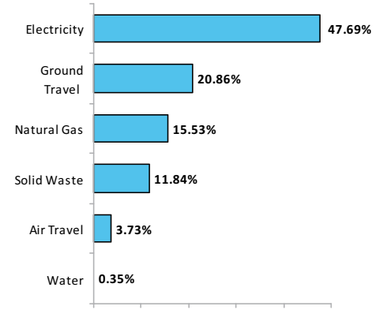
Scope 3 - Other Indirect GHG Emissions	Usage		Metric tons of CO_2e
Solid Waste	139,060	tons	73,476
Community Air Travel	9,471,755	gal.	91,279
Water Reclamation Disgester Gas	95,479	ft3/day	1,527
Water Treatment and Distribution	8,955,457,500	gal.	5,841
Scope 3 Subtotal			**172,123**

Total Metric Tons of CO_2e:			**2,229,526**
Benefit of RECs:			-37,251
Benefit of Known Offsets:			-308
Revised Total Metric Tons of CO_2e:			**2,191,967**
Recyclable Waste Embodied Emissions	44,221	tons	215,952

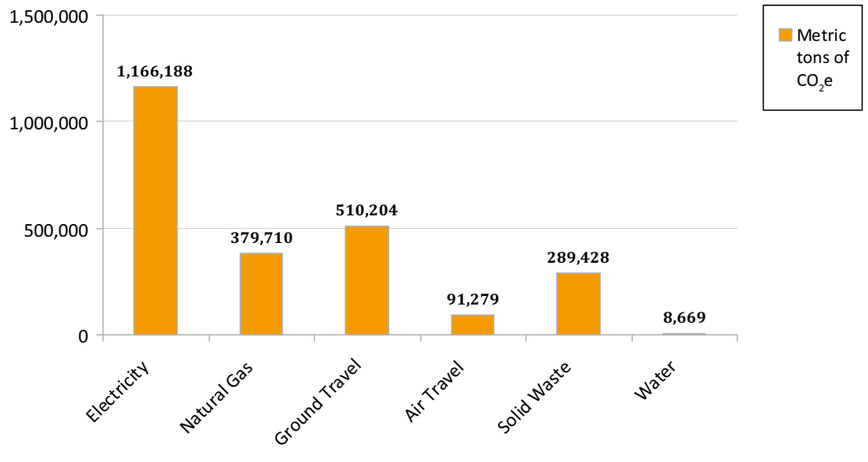
2012 Community GHG Report

Community GHG by Source

Source	Metric Tons CO_2e	%
Electricity:	1,166,188	47.69%
Natural Gas:	379,710	15.53%
Ground Travel:	510,204	20.86%
Air Travel:	91,279	3.73%
Water:	8,669	0.35%
Solid Waste:	289,428	11.84%
Total:	**2,445,479**	**100.00%**



Community GHG Emissions by Source

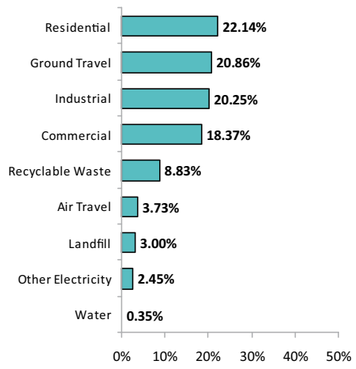


Appendix A
2012 Community GHG Inventory

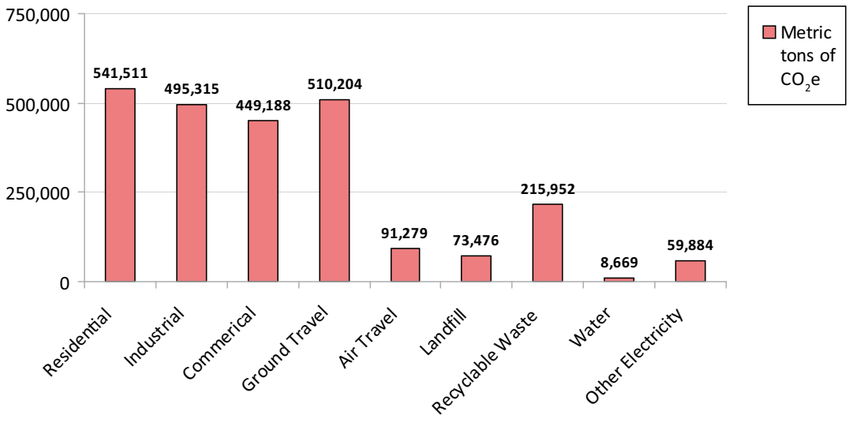
2012 Community GHG Report

Community GHG by Sector

Sector	Metric Tons CO_2e	%
Residential:	541,511	22.14%
Commercial:	449,188	18.37%
Industrial:	495,315	20.25%
Ground Travel:	510,204	20.86%
Air Travel:	91,279	3.73%
Recyclable Waste:	215,952	8.83%
Landfill Waste:	73,476	3.00%
Other Electricity:	59,884	2.45%
Water:	8,669	0.35%
Total:	**2,445,478**	**100.00%**



Community GHG Emissions by Sector



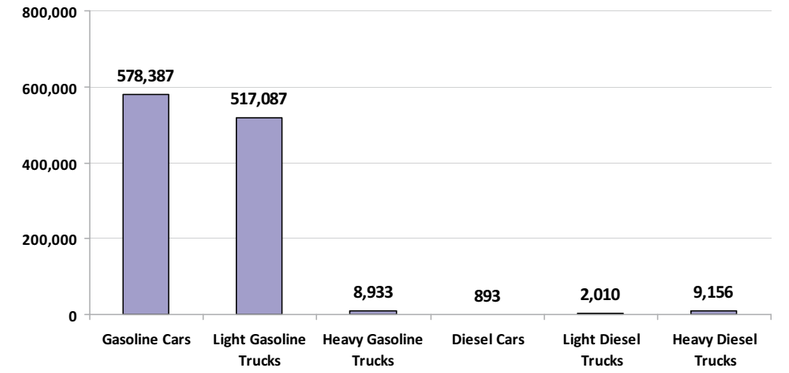
2012 Community GHG Report

Community GHG by Indicators

Indicators		Metric Tons CO_2e Generated Per Indicator	
Population of Fort Collins	148,700	Per Capita	15 $mtCO_2e$
Number of Households	61,728	Per Household	36 $mtCO_2e$
Vehicle Miles Traveled	1,116,576,611	Per 1,000 Miles Traveled**	0.46 $mtCO_2e$
% Renewable Energy	5.2%		
Annual Transit Ridership	2,271,732		
Sales and Use Tax collected:	$259,900,000		

**Only takes into account GHG Emissions from vehicular travel.

Miles Traveled By Vehicle Type



Appendix B
2005 Baseline Community GHG Inventory

2005 Community GHG Report

Scope 1 - Direct GHG Emission	Usage		Metric tons of CO_2e
Natural Gas, Residential:	2,968,669	Dth	157,803
Natural Gas, Commercial:	1,207,770	Dth	64,200
Natural Gas, Industrial and Transportation:	3,051,712	Dth	162,217
Natural Gas Subtotal	*7,228,151*	*Dth*	*384,220*
Gas Car (assumes 22.1 mpg):	22,579,612	gal.	198,249
Gas Light Truck (assumes 17.7 mpg):	21,402,275	gal.	187,912
Gas Heavy Truck (assumes 13.9 mpg):	2,561,720	gal.	22,492
Diesel Car (assumes 19.378 mpg):	61,766	gal.	631
Diesel Light Truck (assumes 16.859 mpg):	94,660	gal.	966
Diesel Heavy Truck (assumes 5.634 mpg):	14,410,724	gal.	147,133
Water Reclamation Facility Emissions:	111,419	ft3/day	1,153
Scope 1 Subtotal			**942,756**

Scope 2 - Energy Indirect GHG Emissions	Usage		Metric tons of CO_2e
Electricity, Residential:	454,070,392	kWh	376,298
Electricity, Commercial:	474,176,147	kWh	392,960
Electricity, Industrial:	464,277,920	kWh	384,757
Electricity, Street Lights:	8,123,199	kWh	6,732
Electricity, Traffic Signals:	907,818	kWh	752
Elec., Distribution and Transmission Losses:	57,766,526	kWh	47,872
Electricity Usage Subtotal:	*1,459,322,001*	*kWh*	*1,209,371*
Scope 2 Subtotal			**1,209,371**

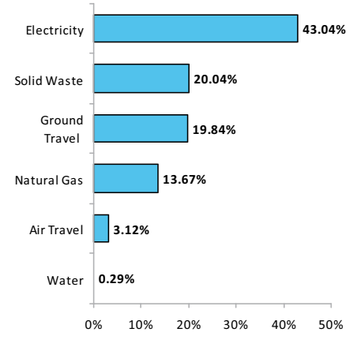
Scope 3 - Other Indirect GHG Emissions	Usage		Metric tons of CO_2e
Solid Waste	237,747	tons	194,027
Community Air Travel	9,083,951	gal.	87,542
Water Reclamation Disgester Gas	111,419	ft3/day	1,782
Water Treatment and Distribution	7,405,780,650	gal.	5,278
Scope 3 Subtotal			**288,630**

Total Metric Tons of CO2e:			**2,440,757**
Benefit of RECs:			-11,050
Benefit of Known Offsets:			0
Revised Total Metric Tons of CO2e:			**2,429,707**
Recyclable Waste Embodied Emissions	75,604	tons	369,208

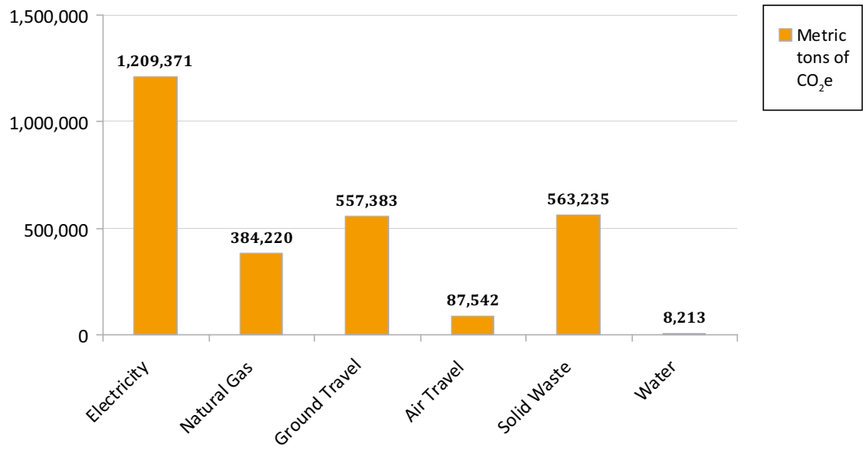
2005 Community GHG Report

Community GHG by Source

Source	Metric Tons CO_2e	%
Electricity:	1,209,371	43.04%
Natural Gas:	384,220	13.67%
Ground Travel:	557,383	19.84%
Air Travel:	87,542	3.12%
Water:	8,213	0.29%
Solid Waste:	563,235	20.04%
Total:	**2,809,965**	**100.00%**



Community GHG Emissions by Source

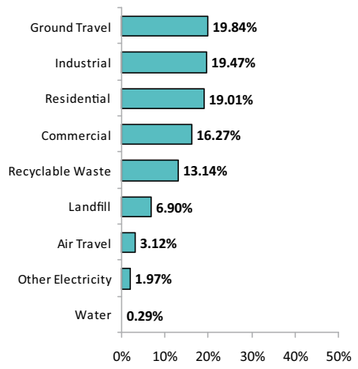


Appendix B
2005 Baseline Community GHG Inventory

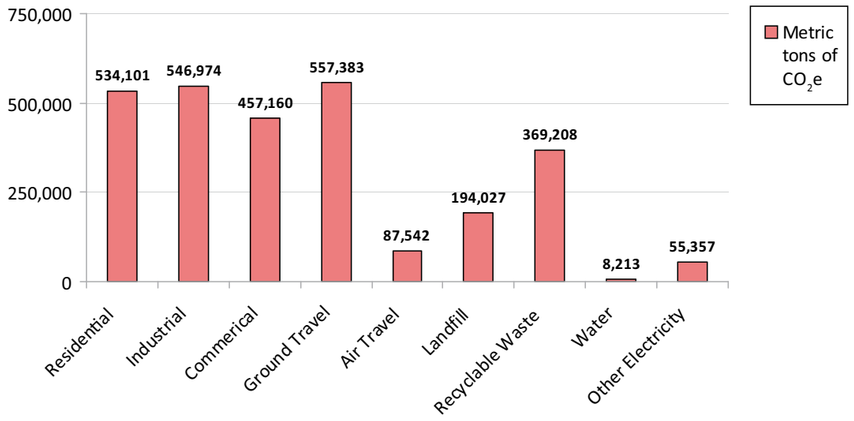
2005 Community GHG Report

Community GHG by Sector

Sector	Metric Tons CO_2e	%
Residential:	534,101	19.01%
Commercial:	457,160	16.27%
Industrial:	546,974	19.47%
Ground Travel:	557,383	19.84%
Air Travel:	87,542	3.12%
Recyclable Waste:	369,208	13.14%
Landfill Waste:	194,027	6.90%
Other Electricity:	55,357	1.97%
Water:	8,213	0.29%
Total:	**2,809,966**	**100.00%**



Community GHG Emissions by Sector



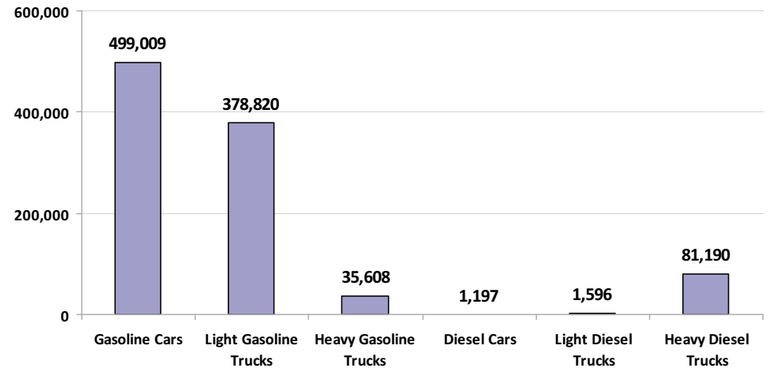
2005 Community GHG Report

Community GHG by Indicators

Indicators		Metric Tons CO_2e Generated Per Indicator	
Population of Fort Collins	130,902	Per Capita	19 $mtCO_2e$
Number of Households	51,074	Per Household	48 $mtCO_2e$
Vehicle Miles Traveled	997,420,380	Per 1,000 Miles Traveled**	0.56 $mtCO_2e$
% Renewable Energy	2.2%		
Annual Transit Ridership	1,481,000		
Sales and Use Tax collected:	$72,371,625		

**Only takes into account GHG Emissions from vehicular travel.

Miles Traveled By Vehicle Type



City of Fort Collins

970.221.6600
fcgov.com/climateprotection