



Photo: Peter Gibbons

A long-exposure photograph of a night sky filled with star trails, creating a sense of motion and time. The trails are curved, following the path of the stars as they appear to move across the sky. In the foreground, the dark silhouette of a bicycle is visible, perched on a rock or ledge. The overall scene is dark and atmospheric, with a deep blue and purple hue to the star trails.

2014-2015 MUNICIPAL SUSTAINABILITY REPORT

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CITY COUNCIL/CITY MANAGER

Wade Troxell, Mayor
 Gerry Horak, Mayor Pro Tem, District 6
 Bob Overbeck, District 1
 Ray Martinez, District 2
 Gino Campana, District 3
 Kristin Stephens, District 4
 Ross Cunniff, District 5
 Darin Atteberry, City Manager
 Jeff Mihelich, Deputy City Manager



HIGHLIGHTS

In regards to climate leadership, 2014 marked an amazing year for the municipal government. Each year the Sustainability Team sets the course toward realizing a healthy, prosperous, and resilient future while concentrating on three salient goals. 2014 centered on innovation, active and low-carbon transportation, and social sustainability.

Not only have we achieved a 12% carbon reduction, additionally we are designing the infrastructure that will contribute to future reductions for years to come and serve as case studies for developers, contractors, and residents. The Natural Areas new administrative building is one of the most energy efficient buildings in the City's 75 building inventory, and the 19,000 square foot renovation at the Senior Center was a net-zero energy project that earned the international Leadership in Energy and Environmental Design (LEED) Gold Award for evaluating green building designs.

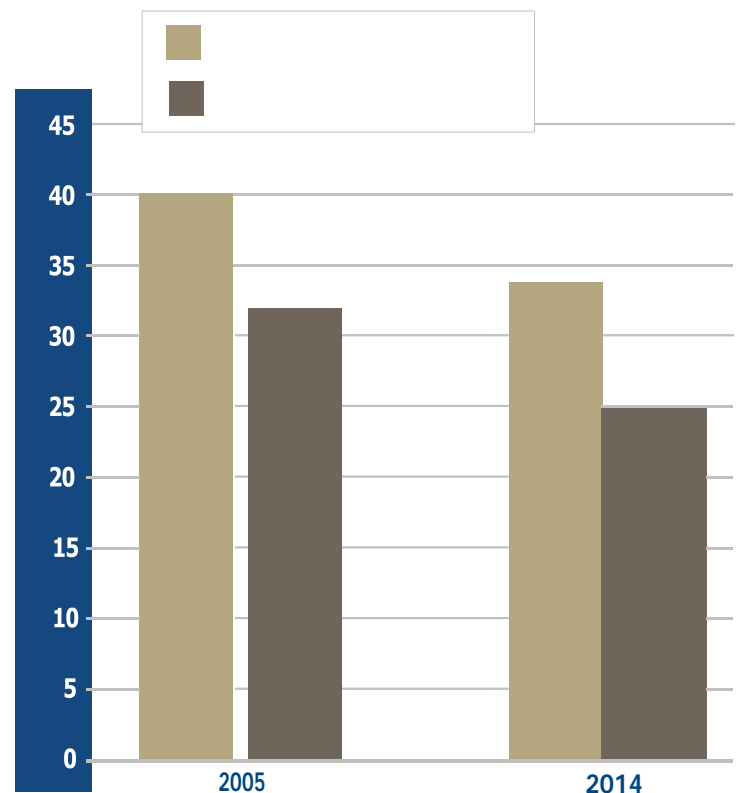
With the addition of our new Sustainability Chief Officer and the alignment and development of Strategic Plans for each of the departments within Sustainability Services, the City is in the position to make remarkable progress. As such, the City organization plans to adopt the aspirational carbon reduction goals that City Council approved for the community on March 3, 2015.

Our success at taking decisive action and implementing innovative solutions, given the climate uncertainty and challenges facing the organization in managing City-run buildings, facilities, and operations and social challenges, has resulted in a vibrant, livable City. The organization has continued to reduce carbon emissions while providing reliable energy and water services. Since the baseline year of 2005, the City's population has increased by 19%. Yet, the per capita greenhouse gas (GHG) emissions have decreased from 18 to 15 metric tons (MT). The US average is 17 MT.¹ The municipal operations have increased relative to square footage and number of employees, yet the absolute growth as well as per capita emissions per employee and square footage has been reduced.

The Sustainability Team continues to provide solutions, including technical assistance, building audits, and information on incentives related to retrofits, remodels, equipment replacements, purchases and behavior change to City departments, ClimateWise partners, the business community, and residents.

LEADING BY EXAMPLE

- Mentored Climate Wise (CW) Partners and collectively achieved 178,148 MT CO₂e reductions. (Carbon dioxide equivalent).
- Constructed a net-zero energy remodel at the Senior Center.
- Opened a new LEED-Gold Level South Transit Center.
- Replaced Edora ballpark light fixtures with energy-efficient LED lights and installed automatic controls to adjust hours of operations.
- Installed de-stratification fans and LED lighting at the Streets Facility.
- Replaced 1,500 watt space heaters with 11 watt chair and mat warmers at 281 N College.
- Replaced inefficient 2-stroke engine outdoor equipment, saving fuel and eliminating engine exhaust.



PLACE MATTERS

- Designed a living wall, in collaboration with Colorado State University's (CSU) Urban Lab, to assess which plants are best suited to vertical growth in our climate.
- Built a Habitat for Humanity home for a City staff member at Rigden Farm.
- Temporarily created a car-free environment for the Open Streets event to encourage community members to enjoy their streets. Participants engaged with 40+ partners who hosted activities along the route.

SHARED PROSPERITY

- Installed 14 solar tubes in Natural Areas shop, saving approximately 16,626 kWh/year.
- Recycled 513,679 pounds of office materials and 655,914 pounds of scrap metal generating revenue of \$151,302 and reducing GHG emission by 2,988 metric tons.
- Implemented a new collaborative and regional energy efficiency program model, Efficiency Works, in collaboration with Platte River Power Authority and the cities of Loveland, Longmont, and Estes Park for efficiency rebates and services.

CLIMATE ECONOMY

- In a 7-0 vote City Council approved a Climate Action Plan Framework to accelerate the community's GHG Goals to 80 percent reductions by 2030 and carbon neutrality by 2050.
- Proclaimed September 15-21, 2014, Electric Vehicle Awareness Week and hosted eight test-drive events in conjunction with Drive Electric Northern Colorado

2014 Emission Reduction Highlights



PROGRESS INDICATORS

HOW DOES FORT COLLINS COMPARE?

There is some debate about the usefulness of ranking cities and the methods and expense used to determine sustainability rankings. However, it's important to know how the City government and community-at large stacks up against other municipalities as we learn to build more prosperous, healthy, and green cities. The City government has reduced our GHG emissions by 11.5%.

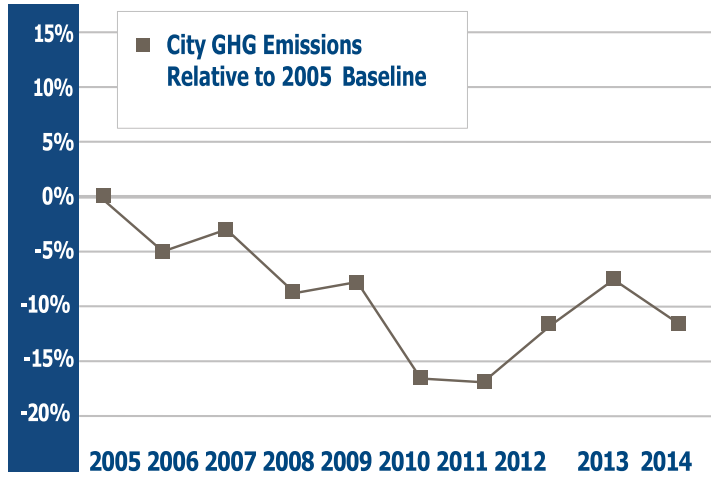
Fort Collins does well on national rankings that relate to the sustainable City goals. Our efforts to be greener, more livable, and more resilient are showing up through bicycle, innovation, and livability awards (see back cover).

MEASURES THAT MATTER

CHANGES FROM 2005 BASELINE TO 2014:

- ^ Total GHG emissions is down 11.5%
- ^ Total electricity usage is down 7.1%
- ^ Total electricity emissions are down 14.9%
- ^ Water-related electricity usage is down 25%
- ^ Municipal fleet used a mix of 57% conventional fuels and 43% alternative fuels
- ^ Solid waste tonnage is down 61%
- ^ Office material waste diversion rate is 28%
- ^ Industrial waste diversion rate is 95%
- ^ Fleet fuel GHG emissions decreased
- ^ GHG emissions from solid waste decreased





Given 51% of the City’s emissions come from buildings, while 22% from water and wastewater facility emissions, the priority projects implemented address reducing electricity and natural gas use. By emphasizing the alignment between programs, the City implements actions that benefit multiple programs simultaneously. The City reviews and replicates top projects across the organization and community and pilots new innovative projects each year.

GAME CHANGING PROJECTS

PROJECT	SOCIAL BENEFITS	ENVIRONMENTAL BENEFITS	CARBON SAVINGS (MT CO2e)*	FINANCIAL SAVINGS
Asphalt, Concrete, & Porcelain Recycling	Rebates to community members and lower cost of City services	212,212 tons	25,528	\$1,002,925
Metal Recycling	Increased local jobs	655,914 lbs.	2,988	\$151,302
Skyspark Mulberry Pool	Lower cost for City services	136,400 kWh	104	\$18,015
Carpooling	Less air pollution - Increased community health	8,400 miles	74	\$1,000
Parks - Heater Retrofit	Worker comfort	3,235 CCF	18	\$2,557
Police Services Exterior Lighting	Lower energy bills for residents	21,784 kWh	17	\$1,532
North Side Aztlan - Exterior Lighting	Increased safety	16,180 kWh	12	\$2,400
Former Museum Interior Lighting	Increased productivity	11,025 kWh	8	\$913
215 North Mason - Exterior Lighting	Less light pollution	8,480 kWh	6	\$5,300
Gardens on Spring Creek - Exterior Lighting	Less light pollution	6,825 kWh	5	\$1,000
Senior Center - Gym Lighting	Increased safety for community members and staff	4,175 kWh	3	\$292
Operation Services - Ice Machine	Lower cost for city services	3,000 kWh	2	\$192
City Park Pool - Urinal and Showers	Lower cost for city services	30,000 gallons	0	\$171
Totals			27,406	\$1,187,599

* Calculations based on Energy at Risk and EPA WARM calculator annual estimations

The Sustainability Program estimates the costs and annual savings of select sustainability projects and reports on them annually. Noteworthy projects annual benefit rankings include:

TOP CARBON SAVING PROJECTS SINCE 2009		
YEAR	PROJECT	CARBON SAVINGS (MT CO2E)
2014	Asphalt, Concrete and Porcelain Recycling*	25,528
2013	Asphalt, Concrete and Porcelain Recycling	17,361
2010	Asphalt, Concrete and Porcelain Recycling	14,127
2009	Asphalt, Concrete and Porcelain Recycling	11,656
2011	Asphalt, Concrete and Porcelain Recycling	10,748
2010	Water Treatment Plant Tree Planting	4,000
2013	Metal Recycling**	3,935
2013	Forestry Inventory & Mulch**	3,073
2010	Natural Areas Tree Planting - 169 Trees	1,690
2011	Metal Recycling	1,629
2010	Alternative Fuels (compared to traditional fuel)	1,369
2010	City Green Energy Purchases	1,366
2013	Wastewater New Blowers	1,216
2013	Single-stream Recycling*	772
2012	Metal Recycling	559
2010	Wastewater Load Shedding	544
2014	Metal Recycling	104

INNOVATION CORNER

- Installed non-carbon emitting solar tubes in the Nix Facility shop to decrease use of lights.
- Collaborated with North Poudre Irrigation Company and Colorado Parks and Wildlife (CPW) to install a fish ladder on the Fossil Creek Reservoir Inlet Diversion structure within the Cache la Poudre River as part of the Fossil Creek Stream Restoration project.
- Planted nearly 40,000 annuals in the downtown area and 2,800 perennials that were grown in-house at the Gardens on Spring Creek.
- Assisted on bill HB-1269 to reintroduce the endangered black-footed ferret that was signed into law at the Fort Collins Museum of Discovery in May. In September, the first ferrets were reintroduced at Soapstone Prairie during a public event.
- Used an innovative fiberglass paving liner on McClelland Drive to reduce pavement depth, thus lowering the carbon footprint from Streets operations.
- Participated in the Transforming Local Governments (TLG) Innovation Academy - one of 10 municipal participants.
- Constructed a Turf Demonstration Site to educate homeowners on watering amounts for five of the most common types of turf in northern Colorado.
- Brewed and distributed Trellis Garden Ale in collaboration with Odell Brewing, with \$1 for every bottle sold benefiting the Gardens on Spring Creek.
- Provided free entry to Northside Aztlan Community Center for low-income and/or Hispanic/Latino community members.
- Opened a 60-unit Permanent Supportive Housing facility at Red Tail Ponds.
- Provided energy efficient windows to Coachlight Plaza residents through the City's Affordable Housing Fund.
- Lincoln Center established composting services with A-1 Organics; several buildings, including 215 N Mason, continue to compost organics by bicycle courier to the Earth Vessel. The Earth Vessel provides rich soil from the waste for planters throughout the community.
- MAX had over 10,000 riders on opening day. MAX ridership has exceeded projections.
- Transfort launched several technological improvements in 2014 including:
 - Innovative real-time bus arrival technology and information through numerous rider tools, including a new bus time mobile application (Ride Transfort).
 - Outfitting entire fleet with ITS hardware, and Wi-Fi on MAX and FLEX.
- Fort Collins Solar Power (FCSP) secured 19 projects, with approximately 4.2 megawatt (MW), of new locally installed solar capacity to help meet the community's commitments under the Colorado Renewable Energy Standard (CRES).
- The former Dreher Pickle Plant site northeast of the intersection of Riverside and Mulberry was selected for the Community Garden.

2015 PROJECTS & PROGRAMS

ENERGY EFFICIENCY INFRASTRUCTURE COMPLETED

- 215 N Mason exterior pole lighting retrofit.
- North Side Aztlan exterior pole lighting retrofit.
- Gardens on Spring Creek exterior pole lighting retrofit.
- North Side Aztlan install eGauge PV monitoring system.
- Mulberry Pool SkySpark continuous commissioning tool and energy conservation measures.
- Energy reports for 35 largest City facilities.
- Completed ENERGY STAR benchmarking of major City facilities.

ENERGY EFFICIENCY & RENEWABLES INFRASTRUCTURE IN PROGRESS

- City temperature set point guidelines and energy conservation procedures.
- Drake Water Reclamation Facility ENERGY STAR benchmarking
- Senior Center major HVAC remodel
- 214 N Howes RTU retrofit
- Fossil Creek Park exterior lighting retrofit
- Museum of Discovery humidification improvements
- Utilities Service Center major remodel
- Utilities Administration Building Construction
- Edora exterior lighting
- Park - BAS and RTU's
- UAB Skyspark
- DWRF - Cogeneration Project



INNOVATION PROJECTS

IN PROGRESS

- Dog Waste Biodigester
- Living Wall
- Water Stations
- Tree Canopy

BEHAVIOR CHANGE AND OUTREACH

ENERGY: GEORGETOWN CHALLENGE

Building Occupant Comfort Surveys
Monitor My Use
WorkWise Challenge

TRANSPORTATION: DRIVE ELECTRIC NORTHERN COLORADO

Workplace Charging Challenge
Employee EV Test Drives (10% - 200)
Drive Leadership
EV Policy
National Bike Challenge
Spin Wheel - EV FAQs

FOOD: RESILIENCE

CSA Program
Local Food Rewards

1

GGH Totals: Reduce greenhouse gas (GHG) emissions from municipal operations at least 2 percent per year starting in 2009, in order to achieve a reduction of 20% below 2005 levels by December 31, 2020; 80% by 2030 and ultimately to achieve carbon neutrality for the municipal organization in 2050 (relative to 2005 emissions).

2

Energy: Reduce municipal energy consumption by 20% of the 2005 baseline by 2020, reduce demand peak use by 15% by 2020, and achieve a 20% kBtu/sq. ft. reduction in all City facilities from 2005 baseline levels. If funding is available, purchase 20% of energy from renewable sources by 2020 with 10% provided by onsite distributive energy.

3

Fuel: Reduce traditional fuel use by the City's vehicle fleet by 20% by 2020 and reach a 1.5 AVR by 2020 for City employees.

4

Solid Waste: Reduce solid waste from public access facilities by 5% each year; municipal workplace and office by 10% by weight each year; and each industrial byproduct at least 10% each year.

5

Education and Outreach: Information about the municipal sustainability program will be available to all levels of the community – students in grades K-12 and university, the general public - as well as internal customers.

6

Funding: In addition to reporting on annual GHG inventory, cost savings that directly result from energy and waste conservation will be tracked, and possibly deposited into a Sustainability account to invest in appropriate projects.

7

Biodiversity: Maintain a 30% forest canopy density in suitable areas of City Parks and in 27% of urban Natural Areas.

8

Water: Reduce municipal operations water irrigation use and increase efficiency per acre. Reduce building water use (normalized to account for weather conditions), by 20% by 2020.

9

Purchasing: Implement environmentally preferable purchasing practices throughout the City organization and establish means to verify departments' compliance with purchasing policy.

10

Safety, Wellness, and Health: Foster culture of health and safety by increasing the number of employees that participate in the Wellness Program from 45% to 75% and the number of employees that earn their first Well Day from 414 to 500 by 2020.

11

Local Food: 20% of food purchased by staff for City functions will be grown within 50 miles or prepared by a local business by 2020, beginning in 2013.

For more information contact
Rosemarie Russo at russo@fcgov.com.



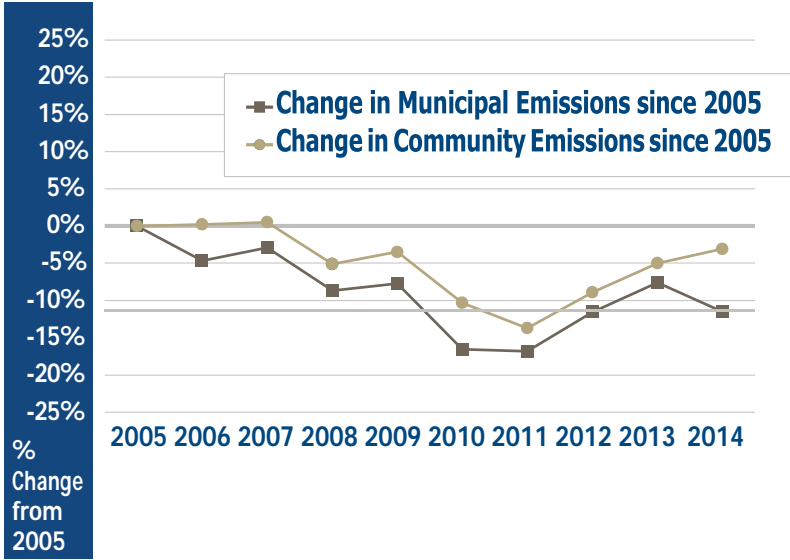
GOAL #1:

CARBON

Reduce greenhouse gas (carbon) emissions from municipal operations at least 2% per year starting in 2010, in order to achieve a reduction of 20% below 2005 levels by December 31, 2020; and ultimately to achieve carbon neutrality for the municipal organization.

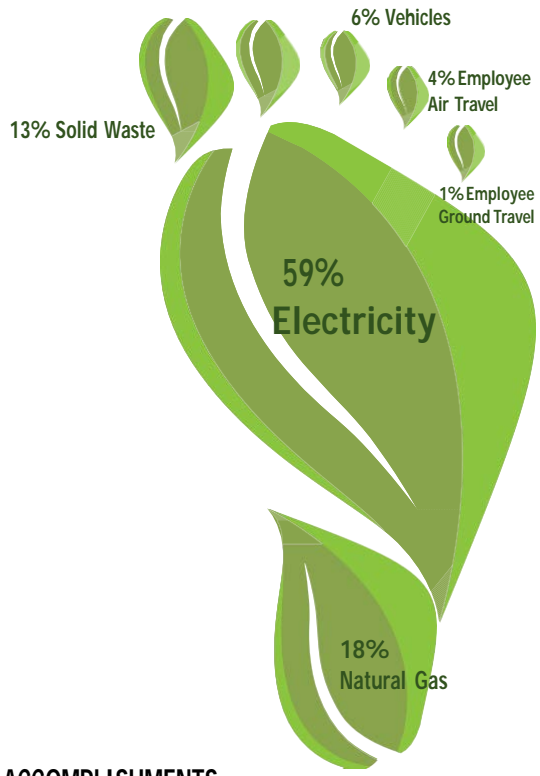
2005 – 2014 EMISSION DECREASE:

11.5% (6,968 MT CO2E)



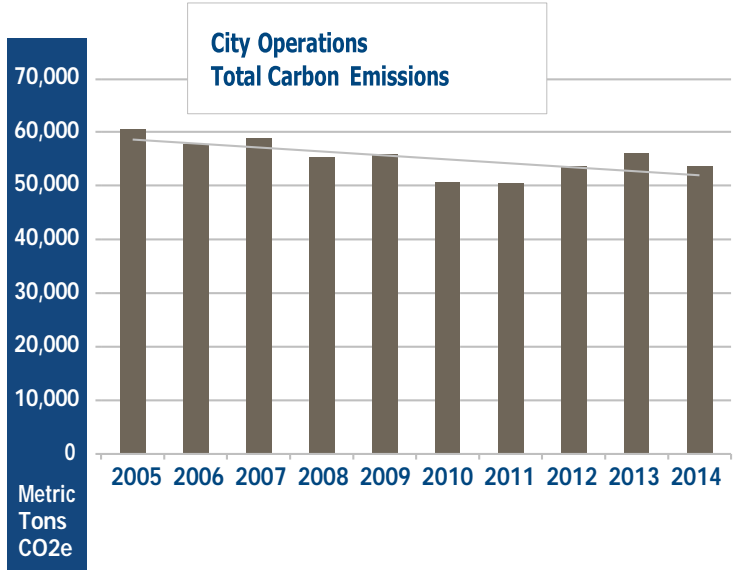
SIGNIFICANCE

The global concentration of greenhouse gases, including carbon dioxide and methane, has increased over the last 200 years at a greater rate than the natural system can absorb. This traps heat in the atmosphere, causing a slow, gradual rise in temperature and climate changes. In our region, climate changes include extreme weather events such as more days above 90 degrees, flooding, and increases in wildfire severity and frequency. As a City organization this affects our ability to provide water and emergency services. Thus, the Sustainability Team leads the work within the organization that supports the municipal over-arching sustainability principle "to systematically, creatively and thoughtfully utilize environmental, human, and economic resources to meet our present needs and those of future generations without compromising the ecosystems on which we depend."



ACCOMPLISHMENTS

- Mindful Movies set a record of 350 community members at the screening of Chasing Ice to discuss climate change engagement strategies.
- Met LEED Certified Gold Standards with construction of the new NIX office building, including installing solar panels, using solar tubes to increase natural lighting, and constructing a geothermal system for heating and cooling.
- Completed the LEED Gold certified Senior Center Net Zero Energy Expansion project, including 18,500 square feet of new building space, a 25 KW solar photovoltaic (PV) system, and two electric charging stations, as well as the renovation of many areas in the existing building.

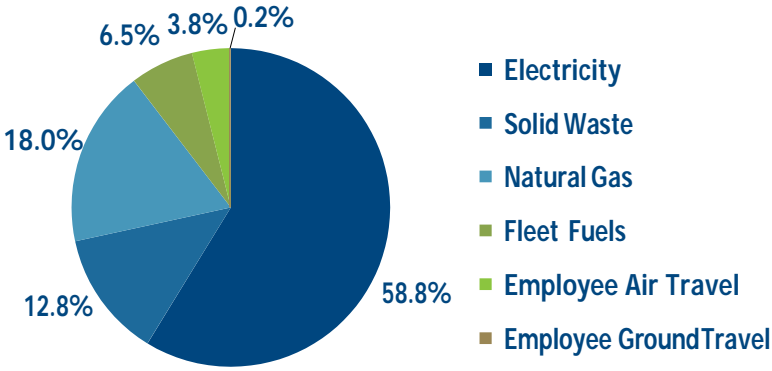


GOAL #2: ENERGY: ELECTRICITY AND NATURAL GAS

Reduce municipal energy consumption by 20% of the 2005 baseline by 2020, reduce demand peak use by 15% by 2020, and achieve a 20% kBtu/sq. ft. reduction in all City facilities from 2005 baseline levels. If funding is available, purchase 20% of energy from renewable sources by 2020 with 10% provided by onsite distributive energy.

2005 – 2014 EMISSION DECREASE:
14% (2,855 MT CO2E)

2014 Municipal GHG Inventory
Percent Emissions per Source



SIGNIFICANCE
In 2014, electricity accounted for 58.8% of total municipal GHG emissions and natural gas accounted for 18%. The emissions and energy cost directly relate, so reduced energy use and emissions results in a corresponding decrease in energy costs.

The City government consumed 41,475,627 kWh at a cost of \$2,281,636. Lowering utility cost through conservation and efficiency reduces the environmental impact and frees funding for municipal services like police and fire protection. The City has become a leader in energy efficiency by piloting new technologies and educating the community about the process. Efficiency programs saved electricity with a lifecycle cost-of-conserved energy of less than 3¢ per kilowatt-hour (kWh), compared to an average wholesale electricity cost of 6¢ per kWh.

The City's overall electricity use is down. However, natural gas use has increased. The natural gas use increase is partially due to additional CNG buses being added to the fleet. Adjusting set points and piloting Skyspark, a software system that provides notification of use beyond a prescribed range, address building natural gas use increases. Additionally, natural gas is a much cleaner and cheaper fuel than the current power mix and the diesel it replaced.

ACCOMPLISHMENTS

- Utilities launched a customer web portal allowing residential and business customers to view their water and electricity consumption.
- Completed the Electric Cart Storage for the City Park Nine golf facility.
- Completed energy efficient lighting upgrades at Police Services parking lot, Spring Creek underpass, Northside Aztlan exterior, 215 N Mason exterior, Gardens at Spring Creek exterior, Senior Center gym, and former Museum interior.

2014 Project Reduction Results

 **30,000**
Gallons of Water Saved

181,384
kWh Electricity Avoided 

GOAL #3:

FUEL AND FLEETS

Reduce traditional fuel use by the City's vehicle fleet by 20% by 2020 and reach a 1.5 average vehicle ridership by 2020 for City employees.

2005 – 2014 ALTERNATIVE FUEL USE INCREASED 43%

2005 – 2014 EMISSION DECREASED 25% (1,306 MT CO2E)

SIGNIFICANCE

Fostering alternative transportation options has multiple benefits such as lowering emissions, cutting fuel expenditures, extending vehicle life, reducing reliance on foreign oil, and creating US jobs by alternate fleet manufacturing and sales.

ACCOMPLISHMENTS

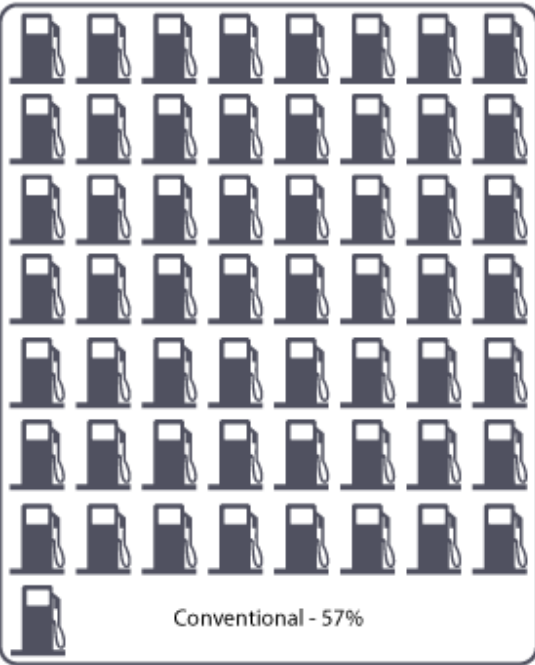
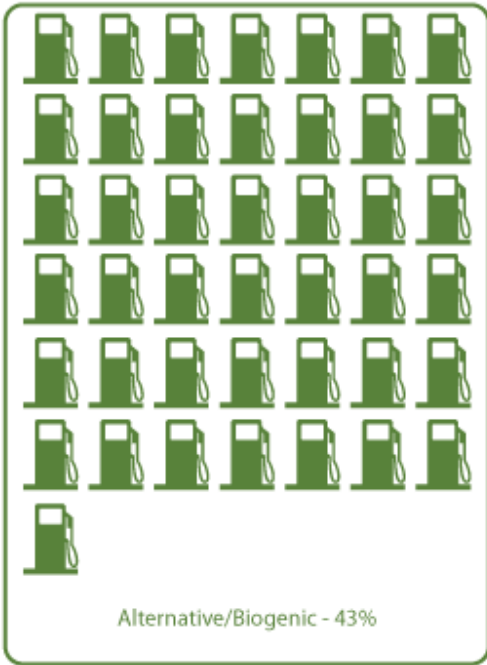
ALTERNATIVE FUEL AND PUBLIC TRANSIT

- Purchased 12 new Compressed Natural Gas (CNG) buses.
- Installed 9 public-use charging stations in addition to 9 stations dedicated to charging city fleet vehicles.
- Added 18 "Trucksters" for utility work, 8 full battery electric vehicles for City employees, and 37 Plug-in hybrid electric vehicles, bringing the fleet electric vehicle total to 67.



Council member Bob Overbeck - Drive Leadership Program

Fleet Fuel Use





- Hosted and supported EV Ride and Drive events with DriveElectric Northern Colorado (DENC), allowing 366 test drives and distributing 188 brochures, flyers, and tax rebate information. The 2014 QR tax education campaign led to the highest EV sales in Colorado January 2015 - 1.7%. The national average is 0.5%.²
- Launched the Neighborhood Ride and Drive for EV owners to host private test drives for their friends, families, and neighbors.
- Implemented the Faster database resulting in greater data resolution and increased accuracy for all fuels data.
- City staff utilized MAX 4,948 times in 2014.

BIKING


- Constructed a bike shelter addition at the South Transit Center.
- Relocated the Bike Library to the Downtown Transit Center to increase multi-modal transportation options.





Mayor Wade Troxell - Drive Leadership Program

City Hall 300 W LaPorte	3 - Level II	Fleet	Parks 413 Bryan St.	2 - Level II	Fleet
Civic Center Parking 144 N. Mason	2 - Level II	Public	Platte River Power Auth. 2000 E Horsetooth Rd.	2 - Level II	Public
EPIC 1801 Riverside Ave	2 - Level II	Public	Police 2221 S Timberline Rd.	1 - Level II	Fleet
Fleets 835 Wood St.	2 - Level II	Fleet	Senior Center 1200 Raintree Dr.	2 - Level II	Public
Museum of Discovery 408 Mason Ct.	1 - Level I 1 - Level III	Public	South Transit Center 4915 Fossil Blvd.	2 - Level II	Fleet
Mulberry Pool 424 W Mulberry St	2 - Level II	Public	Trolley Barn Parking 110 Howes St.	2 - Level II	Fleet
Natural Areas 1745 Hoffman Mill Rd.	2 - Level II	Fleet	Utilities 700 Wood St.	2 - Level II *	Fleet
Parking Services 220 Howes St.	1 - Level II	Fleet	* Personal Vehicle: Under Construction		



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ELECTRIC VEHICLE INNOVATIONS

In partnership with DENC and the Electric Vehicle Coalition, the City concentrated on leading by example in national EV adoption. Strategies include:

- Increase the number of employees that drive EVs
- Increase awareness of the new policy, City charging stations, and that EVs will help the City meet its alternative fuel use and carbon goals.
- Eliminate barriers - EVs costs, range anxiety and charging concerns.
- Increase awareness of different types of vehicles available in Northern Colorado: Nissan LEAF, Mitsubishi iMiEV, Chevrolet Volt, Cadillac ELR, Ford Fusion Energy, Ford C-Max Energi, BMW i3, BMW i8, and the Tesla Model S.
- Increase awareness of apps (i.e. Plug Share, Next Charge) available to find stations and tax rebates.

TYPES OF CHARGING EQUIPMENT

Staff researched and provided information to departments and citizens regarding charging stations and operating costs. Charging stations are categorized according to the rate at which they charge a vehicle's battery. There are three levels of charge most commonly used—Level 1, Level 2, and Direct Current (DC) Fast Charging.

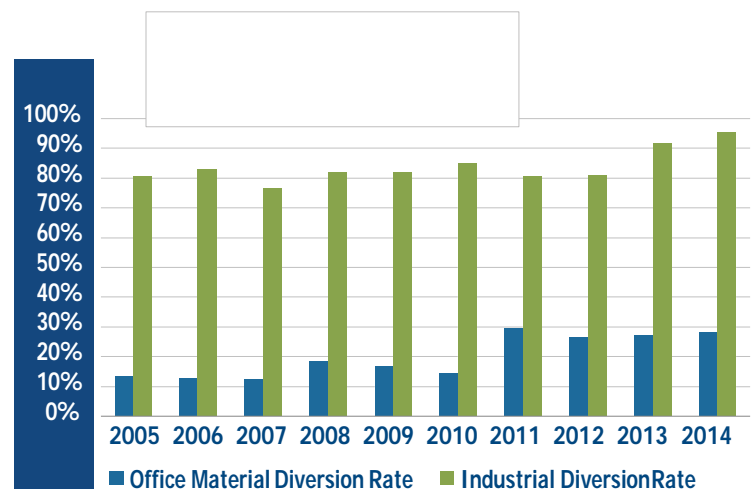
Depending on the distance of their commute, employees will likely require minimal charging, resulting in very little electricity usage. The average commute in Fort Collins and Loveland is roughly 5 miles.

Costs for operating Level 1 and Level 2 charging stations will be equal to running a hair dryer or clothes dryer, respectively.

GOAL #4:

WASTE MINIMIZATION AND DIVERSION

Reduce solid waste from: public access facilities by 5% each year; municipal workplace and office by 10% by weight each year; and each industrial byproduct at least 10% each year.



SIGNIFICANCE

The City routinely assesses new opportunities for reducing waste materials generated by municipal operations; by reducing solid waste, methane emissions from the landfill are lowered and landfill space is preserved. And by engaging in recycling, upstream emissions of pollutants generated during manufacture of new products are avoided, the

environmental impacts from natural resources extraction are reduced, and less energy is consumed. For two decades, the City has operated the Hoffman Mill a Crushing Facility to repurpose asphalt, concrete, and other aggregates as road base material. The site was leased until 2014, when the City invested in this important recycling service by purchasing the land. Ownership allows the City to further enhance best management practices, to optimize soil screening/recovery and large-scale grinding operations to process Forestry's wood debris into mulch and generating savings for the City's Streets operations. A major initiative that will be developed in 2015-16 is aimed at obtaining permission from State regulators to allow the City to set up small-scale composting sites for landscape trimmings generated by Parks, Cemetery, and Golf and leaves from Streets' fall sweeping programs.

ACCOMPLISHMENTS

- Diverted 2,586 tons of wood from grinding operations. The wood mulch is used for various landscaping applications both by the City and Poudre School District, and is made available free to citizens; mulching helps reduce watering and suppresses weeds.
- Continued the Utility's Soil Screening/Recovery Project, which decreased the amount of material taken to the landfill by 50% between 2012 and 2014.
- Set a 1:1 recycling-to-trash-container goal. Parks significantly increased the number of recycling cans at larger parks and started to install recycling cans at smaller pocket parks. Current levels are 156 recycling and 601 trash containers at 65 park locations. Only 16 sites need recycling containers to reach the 1:1 goal and these will be purchased in 2015.
- Placed 180 pet waste collection stations, with six different signs, throughout the community. The "Call of Doodie" pet-waste campaign earned national recognition.
- Distributed an additional 300 desk-side recycling stations at employees' workstations. Developed guidelines for recycling to incorporate into new building designs. Placed another 75 Waste Watcher units (dual recycling/trash containers mounted with graphics) in eleven different City facilities.
- Swept 9,500 lane miles and collected approximately 8,000 cubic yards of waste after the "Operation Clean Sweep" campaign.
- Piloted the Bokashi Composting Unit, a kitchen composting unit safely kept inside the home that transforms solid food waste - including meat, fish, and cheese - into a special nutrient-rich compost, with several apartment residents and local restaurants. ESD plans to expand the pilot.

GOAL # 5:

EDUCATION AND OUTREACH

Information about the municipal sustainability program will be available to all levels of the community — students in grades K-12 and university, the general public — as well as internal customers.

Hosted over 400 training seminars, activities and events by Gardens on Spring Creek, Natural Areas, Utilities, and ESD.

SIGNIFICANCE

Based on extensive research and training, several staff members have begun to apply community-based social marketing (CBSM) to promote positive change within the community through simultaneously reducing barriers and enhancing benefits. CBSM shows that a key to changing behavior is identifying barriers and benefits of the target behavior. A leading benefit is a person's belief about the positive outcomes associated with the behavior such as saving money, protecting the environment, or receiving recognition. New challenges implemented with staff and ClimateWise partners educate participants about multiple benefits of select behavior. In addition to the economic and environmental benefits, social benefits were identified to appeal to the largest base of participants.

In the area of barriers, research shows making pro-environment behavior the default can lead to larger changes. With this in mind, Parks and ESD has developed a one to one recycling system for all parks and significantly increased the signs and pet waste collection systems throughout the community after conducting baseline studies at the Parks. Barriers to the pet waste collection were a lack of knowledge of the health and water quality impacts and the lack of disposal containers.

ACCOMPLISHMENTS

- Visited 27 local elementary schools and distributed over 2,170 seedlings to Poudre School District (PSD) fifth graders for Arbor Day, increasing program total to over 49,000 seedlings since inception.

- FC Bikes coordinated numerous community activities, trainings, and other opportunities aimed at educating and encouraging safe bicycling in the community.
 - Launched the “Women on a Roll” campaign aimed at increasing the number of female cyclists.
 - Partnered with 114 businesses to host the City’s largest Bike to Work Day in 26 years, with a record 4,483 individuals participating in the event. FC Bikes hosts the annual Bike to Work Day event in order to attract new cyclists, reward existing cyclists, encourage the habit of cycling, and highlight businesses that support bicycling.
 - Completed a Bike Share Business Plan in 2014, building upon an alternatives analysis effort begun in 2012.
- The Gardens on Spring Creek held a variety of educational opportunities for community members of all ages.
 - Raised more than \$15,000 for the Gardens on Spring Creek at The High Plains Landscape Workshop in February with 250+ attendees.
 - Conducted 28 adult education programs with 593 class participants.
 - Served 5,488 children in youth education programs on local plants and water use, including 1,764 on school tours.
- ESD staff distributed Sustainability Assessment Tool (i.e. formerly TBLAM and TBL material) and provided 13 presentations for staff.
- ESD supported and hosted 34 events and activities (New Employee Orientation, Earth Day Fair, Sustainable Living Fair and Health Fair), Mindful Movies & More panel discussions, and seminars for City staff, citizens and ClimateWise partners with an average participation rate of 53, reaching 1,803 community members, businesses and staff.
- Brought departments, businesses, and community members together for the National Bike Challenge. The City ranked #10 nationally by riding 185,698 miles – 7 times around the perimeter of the equator.
- Developed educational brochures including Community Garden and Community Supported Agriculture Guidelines, GMO and Organic Buying Guidelines, Local Restaurant Sustainability Guides, and sustainability games.

- Designed, implemented and participated in both national and local challenges with 7,477 participants across ten challenges. The three key challenges were the “Chasing Ice”, “No Impact”, and the “National Bike Challenge.” Behavior changes resulted in reductions of 1,083 MT CO₂e.
- Natural Areas provided 381 activities and events reaching more than 17,600 people. One highlight was Lindenmeier: Ancient Lives, Ancient Dreams, a 4-day symposium focused on Soapstone Prairie Natural Areas’ famous archeological site.

2014 CHALLENGE	PARTICIPANTS
Chasing Ice Pledges	360
No Impact Pledges	171
Audit Innovations	132
EV Test Drives	39
Water Festival Challenge	41
Bike Share Program	44
BTW Day - Summer	4,483
BTW Day - Winter	1,664
CSA Share	21
BTW National Challenge (522 -community)	522
TOTALS	7,477

BEHAVIOR CHANGE CHALLENGES

2014 CUMULATIVE SAVINGS							
CHALLENGE	WATER (GALLONS)	FUEL (GALLONS)	ENERGY (KWH)	CARBON (LBS)	CARBON (MT)	FINANCIAL SAVINGS	SOCIAL BENEFITS
ChasingIcePrizes					71	671	Fostering great connection to community
Chasing Ice					325	157,000	Promotes employee and community engagement
No Impact ChallengePrizes			13,820		12	4,414	Less air pollution = better community health
No Impact Pledges	14				26	1,218	Camaraderie
Audit Innovations					9	2,448	Teamwork
EV Test Drives					9	9,177	Promotes innovation
Water Festival Challenge	12,454					71	Community enagement
Bike Share Program					0.6	1,296	Lead by Example - overall health
BTWDay - Summer					173	46,592	Balance life/work
BTW Day - Winter					373	125,524	Reduction in obesity levels
CSA Share						1,500	Less chemical exposure
BTW National Challenge				167,128	84	104,919	10,066,114 calories were burned. Team achievement.
Totals	12,468	0	13,820	167,128	1082.6	297,159	

*Challenge - devices assume yearly savings / transportation assumes trial period

GOAL #6:

FUNDING

Foster a culture of sustainability in the organization and advance municipal goals through various funding mechanisms (i.e., Innovation Fund, grants). Identify and implement innovative improvements to the City's physical plant and operational procedures that are not otherwise funded.

SIGNIFICANCE

Establishing a secure source of funding is imperative to advancing the sustainability program. The Municipal Government Sustainability Management Plan contains 11 goals. The Innovation Fund is a mechanism used with increased frequency and success across the City as a way to seed efficiencies, encourage innovation, and leverage savings into more efficiencies. Innovation Funds promote collaboration across departments, enhance the City's culture of innovation, actively supports the sharing of best practices, and lowers the environmental footprint of our municipal operations. Innovative projects support and enhance the City's application of sustainable thinking and decision-making.

ACCOMPLISHMENTS

- Used \$100,000 in "Keep Fort Collins Great" funding to identify and implement innovative improvements. The Selection Committee awarded funds to twelve projects focused on water and energy conservation, transportation, education, local food, greenhouse-gas accounting, restoration, and installation of refillable water bottle stations and solar tubes.
- Received \$12,177 from a Charge Ahead Colorado grant for three fleet vehicle charging stations and \$67,920 from an Alternative Fuels Colorado grant for the incremental cost of two natural gas dump trucks.
- Partnered with Ward Petroleum for a fast Compressed Natural Gas Fueling Station at a site in north Fort Collins - \$500,000.

GOAL #7:

BIODIVERSITY: NATURAL AREAS AND PARKS

Maintain a 30% forest canopy density in suitable areas of City Parks and 27% of urban Natural Areas with 75% native vegetation.

SIGNIFICANCE

Forest canopies aid in carbon dioxide absorption; create shade and reduced air conditioning needs; increase property values; absorb storm water; calm traffic along streets and buffer pedestrians from vehicles; and provide habitat for wildlife. Forests are expected to become less productive due to climate change conditions such as lower soil moisture during the growing season, temperature stress, increased insect and disease outbreak, escalation of invasive species, and wildfires. Healthy and productive forests are important for economic and recreation reasons and also support clean-air, wildlife habitat, and water quality.

Natural Areas supports maintaining a native species cover to promote and restore biodiversity.

ACCOMPLISHMENTS

- Conserved 246 acres, in six parcels, of the ecologically important Poudre River corridor.
- Recognized for "Ecological Stewardship" for three major river and floodplain projects that together represent 1.5 river miles of improvements, creation of 11 acres of new wetlands, and restoration of 28 acres of cottonwood forest within the river's floodplain.
- Completed the Poudre River Ecosystem Response Model that fosters a better understanding of current and future conditions of key indicators of river health, such as aquatic life and riverside vegetation.

- Initiated 150 acres of new grassland restoration in the Fort Collins-Loveland community separator.
- Furthered a GIS-based tree inventory system begun in 2013 resulting in approximately 85% of the total number of trees estimated to be on City property to be inventoried for more efficient maintenance. The co-benefits of maintaining a healthy forest system include enhanced aesthetics, reduction of the heat island effect, building cooling and reduced irrigation demand from shading.

- Achieved full Audubon certification at SouthRidge Golf Course. Collindale Golf Course continued towards full certification by working on water quality and public outreach.
- Researched and published PSA on the benefits of bats as part of an Integrated Pest Management (IPM) strategy to proactively address the increased transmission of climate sensitive diseases such as West Nile.
- Natural Areas acquired a conservation easement of approximately 25 acres to preserve biodiversity.

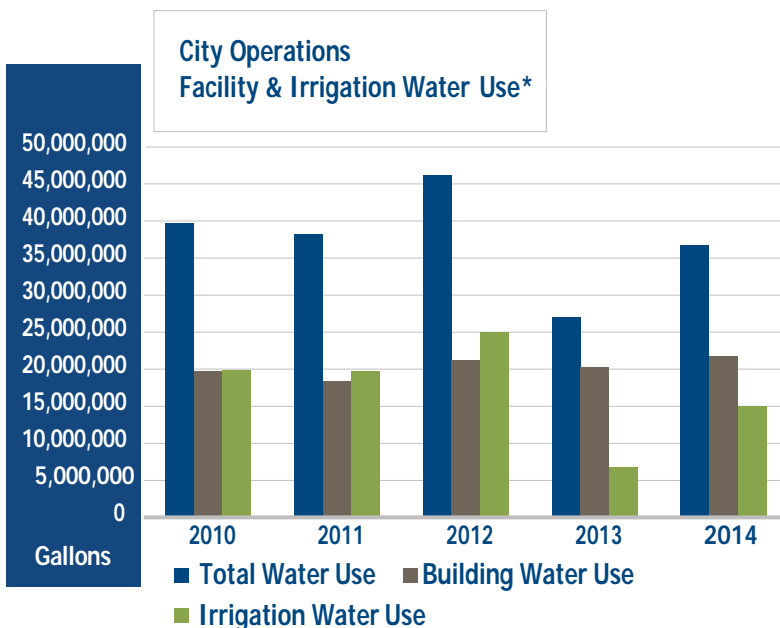
GOAL #8:

WATER CONSERVATION

Reduce municipal operations' water irrigation use and increase efficiency per acre. Reduce building water use by 20% by 2020.

2010* – 2014 TOTAL DECREASE IN WATER USE: 7% (2,970,225 GALLONS)

*(2005 data is not available.)



*Does not include irrigation raw water for Parks, Golf Courses, Natural Areas or Cemeteries

SIGNIFICANCE

As the climate changes and population increases, the current water resources may not be adequate. Conservation will continue to be a key management strategy.

ACCOMPLISHMENTS

- Watered all irrigated areas in parks, golf courses and cemeteries in accordance with the Water Supply Response Plan prepared in 2013 at 90% of plant evapotranspiration rates.
- Implemented a new Stream Rehabilitation program on Spring Creek through Edora Park from the diversion structure downstream to the railroad bridge.
- Stormwater, Utilities, and Natural Areas worked with landowners to purchase approximately 12 acres of land for a stormwater channel on west Vine.
- Began the Fossil Creek Stream Restoration Project that will implement energy improvements, including a hydrogeneration project on the Horsetooth raw water pipeline.
- Staff acquired 165 acres for a water storage pit located north of Horsetooth Road and east of Zeigler Road.



GOAL #9:

SUSTAINABLE PURCHASING

Implement sustainable purchasing practices throughout the City organization, and establish means to verify departments' compliance with revised purchasing policy. Establish quantifiable goals of 2% increase in office and industrial sustainable purchases annually starting in 2013.

SIGNIFICANCE

The City's purchasing strategy can drive change in the broader marketplace through its purchasing power. As the City reduces the amount of products purchased, costs will be reduced and other organizations can adopt best practices based on the City's experiences. Sustainable procurement is needed to avoid pitfalls such as choosing energy-intensive vending machines or hazardous cleaning supplies when better choices are readily available.

ACCOMPLISHMENTS

- Purchasing and IT selected a managed print services vendor, Professional Document Systems (PDS), to create a comprehensive, data-driven system that will reduce costs while increasing efficiency, security and sustainability. Estimated savings are \$180,000 per year.
- Purchasing Department received a Silver Level Award for their success in the State Electronic Challenge (SEC). The statewide electronic challenge focuses on the procurement and life cycle analysis of select office electronics. See benefits below.
- Initiated a new contract with Goodwill Industries for end-of-life e-waste disposal. Goodwill Industries is R2:2013 Certified by Sustainable Electronics Recycling International (SERI), which is dedicated to advancing the safe and sustainable reuse and recycling of used electronics.
- 72% of paper purchased was between 30%-100% post consumer recycled and an additional 3% was Forest Stewardship Council (FSC) certified.
- Signed a contract to responsibly recycle printer and toner cartridges. Nineteen collection containers have been deployed. The City receives a nominal reimbursement based on the prevailing market pricing.

STATE ELECTRONIC CHALLENGE RESULTS					
	PURCHASING EPEAT® PRODUCTS	USE	REUSE & RECYCLING	TOTAL BENEFITS	
REDUCTION IN	HOW MUCH?			HOW MUCH?	EQUIVALENT TO
ENERGY USE	5.4 million kWh	56 million kWh	51 million kWh	112 million kWh	Electricity to power 8,728 U.S. households/ year
GREENHOUSE GAS EMISSIONS	916 metric tons of carbon equivalents	10,708 metric			
TONS OF CARBON EQUIVALENTS	7,483 metric				
TONS OF CARBON EQUIVALENT	19,107 metric tons of carbon equivalents				Removing 13,600 cars from the road/ year
TOXIC MATERIALS, INCLUDING LEAD & MERCURY	1,208 lbs.	2,157 lbs.	892 lbs.	4,257 lbs.	Weight of 936 bricks
MUNICIPAL SOLID WASTE	138,241 lbs.	594,477 lbs.	1,687,003 lbs.	2,419,721 lbs.	Waste generated by 1,284 households annually
HAZARDOUS WASTE	33,967 lbs.	57,422 lbs.	303,225 lbs.	394,614 lbs.	Weight of 1,436 refrigerators

GOAL #10:

SAFETY, HEALTH, AND WELLNESS

Incorporate a program fostering a culture of health and safety. Increase the number of employees that participate in the Wellness Program from 45% to 75% by 2020. Decrease accident frequency and severity.

Approximately 56% of eligible employees participated in the Wellness Program.

SIGNIFICANCE

The City's Wellness Program goal is to provide all City employees and their families with exceptional services to motivate them toward healthy lifestyle choices and, ultimately, healthier and more productive lives. Well Days Program participants continue to have lower health claims cost than non-Well Days participants. To date, they are 38% lower.

The Safety Team consistently looks for ways to improve operations and minimize the risks our employees and citizens are exposed to in their daily activities.

ACCOMPLISHMENTS

- 1,408 employees (a 9.5% increase over 2013) and 235 spouses took the Mayo Clinic Health Assessment.
- Offered incentive programs focused on the top three health risk factors of physical activity, nutrition, and emotional health.
- Continued donation of edible leftovers from Sustainability events to the Open Door Mission.
- Administered a total of 97 trainings to 2,694 employees in Utilities.
- Completed the National League of Cities (NLC) Let's Move! Cities, Towns and Counties (LMCTC) program application and has been recognized as #1 of 454 participating communities.
- Continued Strength, Weakness, Opportunity, Threat (SWOT) Analysis Process and Safety, Security and Risk Management (SSRM) organization development.
- Assessed high hazard vulnerabilities such as Police Station snow removal, Wastewater Treatment Plant activity, and pool chlorine gas exposure.
- Enhanced medical monitoring with respirators and tracking of blood borne pathogens.
- Assigned safety professionals to specific departments and provided skill base so that they will be more effective liaisons.
- Prepared non-DEET mosquito repellent kits for City field crews, homeless populations at Catholic Charities and Open Door Mission, and posted the recipes for community members and staff.
- Made over 100 windshield covers for various departments to reduce the time staff were idling trucks to defrost windows. The improved visibility increased safety of pedestrians and staff.



GOAL # 11:

LOCAL FOOD PRODUCTION & DISTRIBUTION

20% of food purchased by staff for City functions will be grown within 50 miles or prepared by a local business, beginning in 2013.

Food purchased locally increased by over 20% from 2013 to 2014.

SIGNIFICANCE

Food matters, especially the affordability and accessibility of food for all residents. It also can be a daily reminder of our interconnection with the earth's natural systems and with each other.

Food systems—the way we grow, process, transport, and consume food—have been central to the sustainability of communities. For example, the fossil fuels used to transport food 1,500 miles to our dinner plates, the energy used in cooling systems for food storage, and the amount of land used to graze animals and produce meat and dairy products all consume resources and produce waste. In fact, food

represents one of the largest sources of our consumption-based greenhouse gas emissions.

A stronger local food system reduces the size of our ecological footprint by cutting down on the use of fossil fuels as well as protecting food-producing lands and related biodiversity.

ACCOMPLISHMENTS

- Donated 5,697 pounds of produce from the Garden of Eatin' to the Food Bank for Larimer County.
- Donated over 26,000 pounds of produce from Plant It Forward. A grant from the Bohemian Foundation has helped to increase the marketing and impact of this program.
- Filled all garden plots in the new community gardens, and wait lists were created for 2015.
- Staff held five Garden Network meetings to provide relevant opportunities for community-wide participation in growing food for low-income populations.
- Educated CSU fraternities and sororities about the benefits of sourcing food locally.
- Created volunteer days at local CSAs for CSU Greek Life.
- Developed Grow Your Own Medicine Cabinet, a list of medicinal herbs, plants and supplements that can be grown in the local climate.
- A portion of 225 Maple Street was leased to Feeding Our Community Ourselves ("FoCo"), a restaurant to help feed citizens in need.
- The City Clerk conducted a canned fruit drive to benefit the Catholic Charities Mission.
- Partnered with Red Tail Coffee Shop to manage a coffee shop at South Transit Center using labor from the Red Tail Ponds Supportive Housing Project when MAX launched.



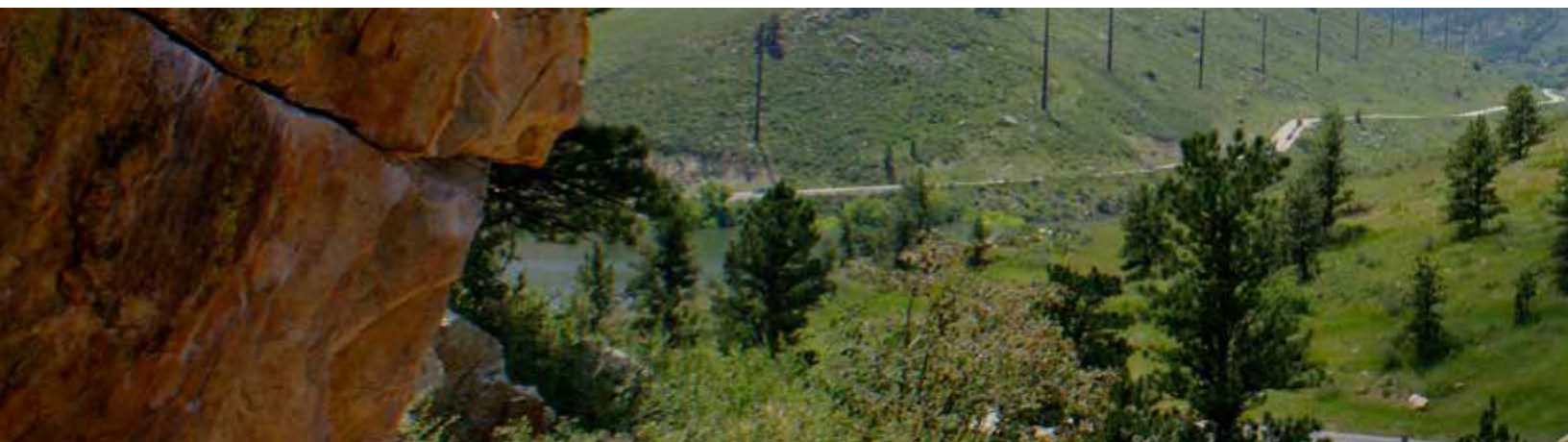
SPECIAL PROJECTS, SOCIAL SUPERSTARS, & SYSTEMS THINKING

The internal sustainability success in a carbon reduction of 11.5% relative to 2005 levels provides an opportunity to showcase programs, policies and projects that can be replicated by the business community and residents. A few highlights:

- As part of an integrated pest management (IPM) strategy to combat the health effects associated with West Nile and the negative reactions to spraying, numerous bat houses were made from local pine beetle kill wood. They were placed at various locations throughout the community including CSAs, near standing water bodies, along the Poudre, and at select Natural Areas sites. Brown bats can reduce the number of mosquitoes by 1,000 daily, thus lowering the level of spray needed to combat the West Nile virus.
- The Social Superstar Program, which the City is a member of, logged more than 21,370 hours and provided more than \$156,000 in cash and \$103,000 in non-cash services.
- Hired Brendle Group and Geos Institute to conduct a Vulnerability Assessment with various City departments that addressed exposure, sensitivity, and adaptive capacity to climate change.
- Initiated a community challenge in conjunction with the Water Festival that included transforming landscaping to be more drought tolerant and increasing the number

of plants that attract pollinators. Every third bite of food we eat is due to pollinators. Due to factors such as habitat loss – pollinators are declining. This project helped educate PSD teachers and students about the importance of pollinators and raised their awareness about the importance of native vegetation. Approximately 80 packets were provided to students. The transformation of water intensive grass to natives serves numerous environmental roles while helping children develop a connection to nature. Plants included: *Helianthus annuus*, *Lupinus perennis*, *Cosmos bipinnatus*, *Zinnia elegans*, *Echinacea purpurea*, *Linum grandiflorum rubrum*, *Calendula officinalis*, *Gypsophila elegans*, *Eshscholzia californica*, *Ratibida columnifera*, *Linum perenne*, *Asclepias tuberosa*, *Asclepias incarnata*, *Rudbeckia hirta*, *Coreopsis tinctoria*, *Delphinium consolida*, *Lobularia maritima*, *Monarda fistulosa*, and *Aster Novae Angliae*.

- ClimateWise regionalized the Business Innovation Fair, bringing together Front Range business professionals and community members.
- Piloted adaptation strategies to increase carbon storage in native vegetation to increase shade, reduce greenhouse gas emissions, strengthen biodiversity, and lower water consumption by planting Niwot hybrid trees and raspberries at CSA's and along the Spring Creek Bike Trail.



PET WASTE CAMPAIGN:

Improved water quality and reduced health issues for staff and residents through a coordinated pet waste campaign. Council members expressed a concern about the amount of pet waste in City Parks. In response, staff members worked on innovative solutions including applying CBSM to outreach and enforcement efforts. A key CBSM strategy is to incorporate the desired behavior and avoid negative messaging. For example, signs were installed at Park stations that showed a resident picking up waste. CBSM includes using different messaging to reflect participant's values. Messages published by CPIO received national recognition. The survey showed three main reasons that residents do not pick up after their pets:

- Lack of knowledge of health effects and water degradation effects
- Distance to collection bins and distance to bag dispensing sites.

Residents did not understand the negative health effects of pet waste and associated pet waste with manure, which can be used as a fertilizer. In contrast, pet waste contains parasites that degrade water quality and can be harmful to workers or residents that come in contact with the waste.

- Published a Coloradoan article about the health risks associated with pet waste.
- Released a public service announcement about the importance of pet waste collection.
- Posted signs with six different messages to increase awareness and engagement.
- Tested various designs at Spring Creek Canyon Park, Mountain View HOA, Westfield Park, and Edora Park.
- Piloted in-place biogas digesters that work to minimize transportation and anaerobic conditions by keeping the waste at the disposal location.
- Piloted different container bags, including in place disposal bins.

OTHER PROJECTS:

- Piloted new Skyspark software on underperforming and high-energy use City buildings - resulting in a 37 percent reduction in energy use at the Museum of Discovery during the past year.
- Held special agency court sessions to break the cycle of homelessness.
- Hosted first Open Streets event.
- Constructed buffered bike lanes on Shields Street, Lockwood Drive, McMurry Street, W. Stuart Street, and Oakridge Drive in collaboration with FC Moves.
- Installed 1,600 feet of green bike lane on Harmony Road to gauge the effectiveness and durability of green markings.
- Installed a green bike lane on Mason at Laurel to help bicyclists navigate that unusual intersection.

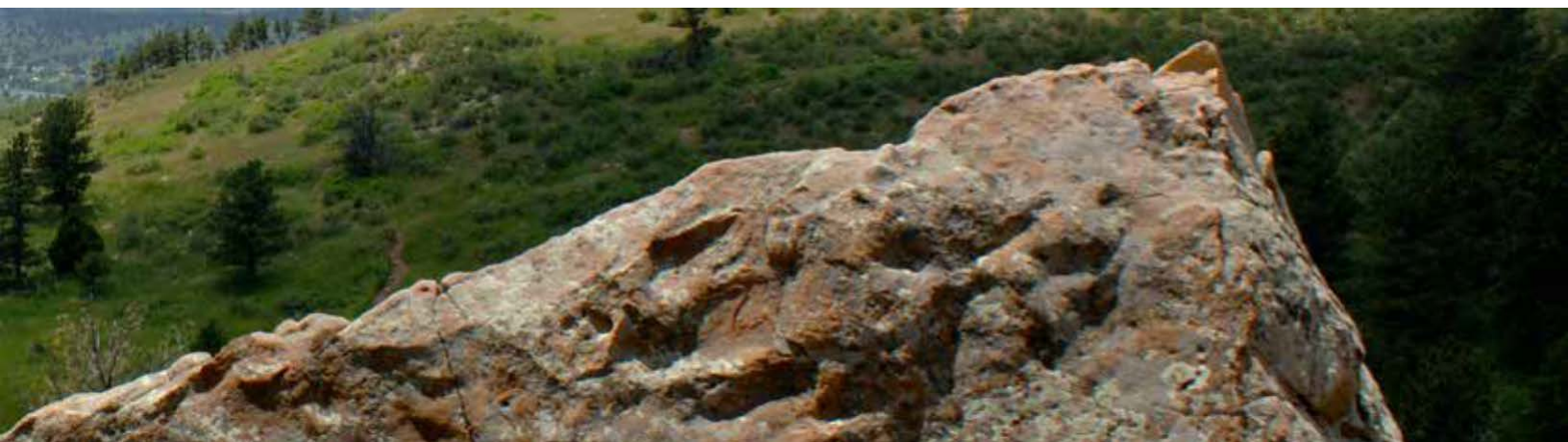


PET WASTE POLLUTES

An ounce of pet waste is home to millions of unhealthy bacteria. Pick up after your pet. Keep our parks, natural areas, streams, rivers and lakes free from dog waste.



fcgov.com/PetWaste



2015 PROGRESS

The City needs to continue to be a credible and understandable resource for citizens and business owners to depend on for resiliency planning. A few projects underway include:

- Continuing to create a highly efficient workplace at the existing Utility Service Center (USC) building, as well as construct a Leadership in Energy and Environmental Design (LEED)-certified/Net Zero building downtown. The Utilities Administrative Building (UAB) will be one of the first AC/DC hybrid government buildings in Colorado.
- Designing a Southeast Community Park.
- Preparing a lighting plan for the Northside Aztlan Center skate park.
- Installing more charging stations to integrate more EVs into the City's fleet, as it is seeing large cost savings from vehicles already in use.
- Restoring Fossil Creek Stream site.



ADAPTATION & RESILIENCY

COMMUNITY CAPACITY BUILDING

The Climate Action 2020 strategic plan aims for aggressive greenhouse gas reduction goals, which will necessitate a significant shift in travel from single occupancy vehicles to other modes and a significant transition of our energy supply away from fossil fuels.

EMERALD ASHBORER

Emerald Ash Borer (EAB) is a threat to the urban forest. In anticipation of this pest arriving, Forestry is currently preparing management strategies to minimize impacts, which include pro-actively sampling trees for the presence of EAB; preparing budget offer submittals for inventory and monitoring trees on private property and a larger wood recycling site; finalizing a management plan and training, placing, maintaining, and monitoring using traps designed to detect EAB.

FIRE AND FLOOD RECOVERY WATERSHED MONITORING

The organization will continue to face watershed-monitoring challenges. All mulching, seeding, and tree felling work was completed in 2014. In total, 1,830 acres of wood shred mulch and 48,000 linear feet of directional felling were completed. Remaining areas in need of restoration are being prioritized.

BIODIVERSITY

Participate in the President's National Pollinator Initiatives that serves to protect the health of our nation's food security and keep bees, birds, and butterflies flying. The goal is to have one million citizens join the Bee and Butterfly Brigade.

CONCLUSION

In the coming years, the city, community and ultimately the nation and world will need to enhance full cost accounting capabilities for climate change strategies and integrate the social aspects of new energy and environmental policies. For example, each stage in the lifecycle of coal extraction, transport, processing and combustion generates a waste stream and carries multiple health hazards. These externalities cost the US public approximately half a trillion dollars annually³. Accounting for these damages conservatively doubles the price of electricity from coal per kilowatt-hour generated, making and other forms of non-fossil fuel power generation, along with conservation economically competitive.⁴ The vast majority of economic studies on renewables and coal powered generation do not consider emissions from coal mines or transport⁵. Plus, 70% of rail traffic in the United States is dedicated to shipping coal. Therefore, the City should increase the percentage of on-site renewable energy for City-owned property.

Staff in conjunction with Larimer County and local health care providers will need to prepare for the health and environmental risks of climate change since the increases of heat waves, clusters of illnesses after heavy rain events and intense storms, and the distribution of infectious diseases are already apparent regionally.⁶

- Climate change contributes to asthma by lengthening the allergy season and raises pollen counts. While extreme rainfall and dampness encourages the growth of indoor fungi and mold. Another climate change health effect is lung damage due to the spread of wildfires.
- Record heat causes lung and kidney problems especially in the elderly and sick, while solutions like air-conditioning can reduce some of the issues the poor and homeless are left extremely vulnerable.
- Heavy rain, flooding, and rapid snowmelt can lead to water contamination from sewage chemicals and pollutants. The flooding that hit Colorado in 2013 resulted in elevated levels of E. coli in the water.
- Insects carrying diseases (i.e. West Nile virus) thrive in habitats with hotter temperatures, heavy precipitation, and higher humidity.
- Recent studies have linked mental stress from flooding, wildfires, heat waves, and extreme weather to child development problems including low birth weight and pregnancy complications.



NEXT STEPS

- Communicate a comparative analysis of lifecycle cost of all electricity generation technologies and practices to guide the development of climate action and energy policies.
- Phase in cleanly powered smart grid energy using place appropriate alternatives.
- Increase electric vehicles that can improve the storage capacity for the smart grids.
- Expand healthy City initiatives such as Local Food Cluster support.
- Fund public transport and smart growth projects.
- Stimulate manufacturing of and markets for clean and efficient energy system.
- Amend codes to increase percentage of recycled material in road base from 20% to 25%.
- Align road fill standards between the City and County.
- Staff needs to design challenges, publish information and provide training opportunities that provide strategic options for managing and conserving natural resources.
- As City documents are updated apply sustainability principles, including but not limited to:

GREENHOUSE GAS GOALS

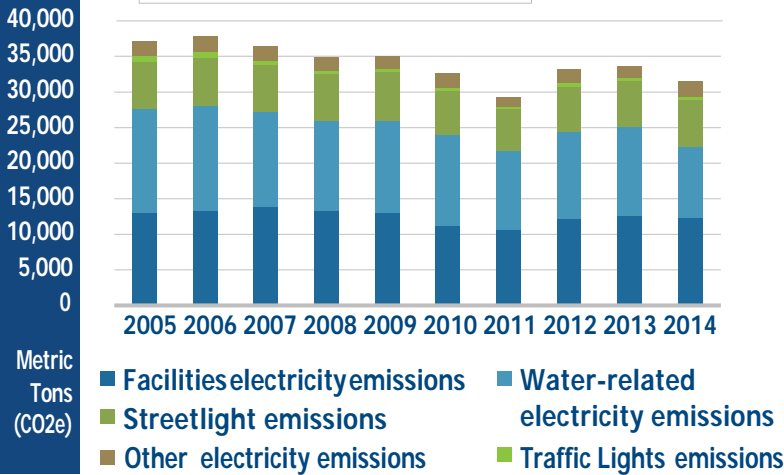
New conservation and greenhouse gas reduction goals will be challenging as occupied building hours continue to expand and new buildings are added. These initiatives will require innovative solutions and close partnering between departments or service areas.

APPENDIX A - 2014 REDUCTIONS

GOAL #1 CARBON BENCHMARKS

2005 Municipal Emissions: 60,565 MT CO₂e
 2014 Municipal Emissions: 53,597 MT CO₂e
 Total Decrease: 6,968 MT CO₂e

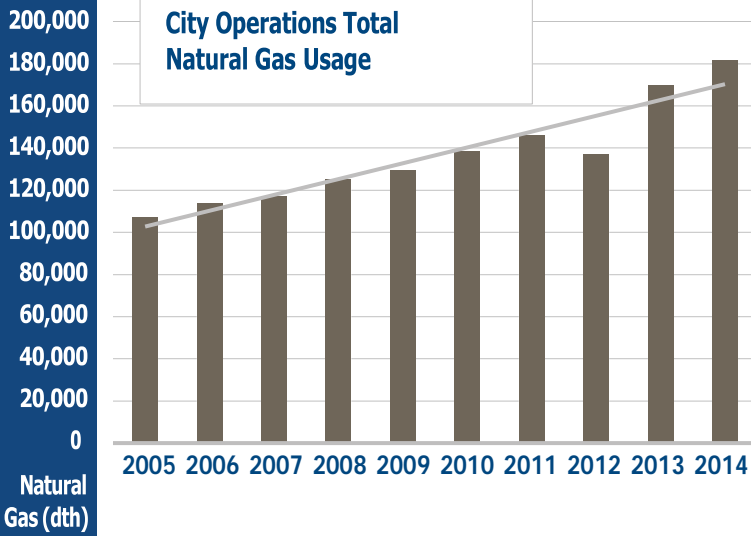
City Operations
Electricity Emissions



Emission Changes:

Electricity: -5,515 MT CO₂e
 Natural Gas: 3,967 MT CO₂e
 Total Decrease: 1,548 MT CO₂e

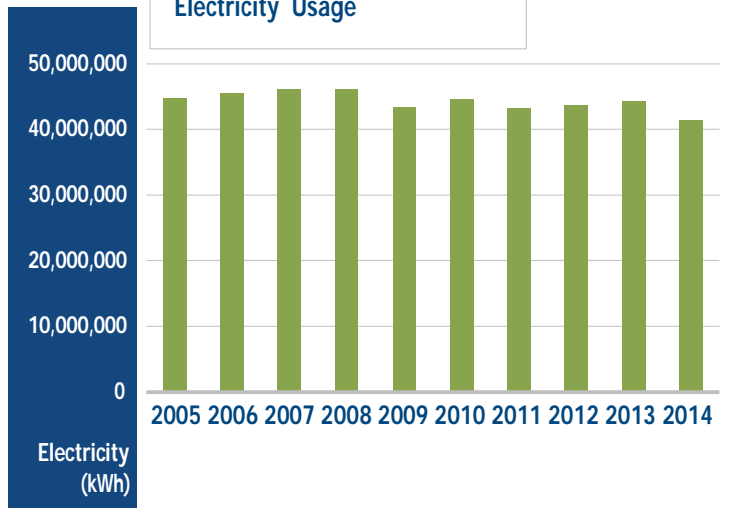
City Operations Total
Natural Gas Usage



GOAL #2 ELECTRICITY AND NATURAL GAS BENCHMARKS

2005 Electricity: 44,657,098 kWh
 Natural Gas: 107,133 dTh
 2014 Electricity: 41,475,627 kWh
 Natural Gas: 181,758 dTh
 Total Decrease in Electricity Use: 3,181,471 kWh
 Total Increase in Natural Gas Use: 74,625 dTh

City Operations Total
Electricity Usage



GOAL #3 FUEL REDUCTION BENCHMARKS

2005 Conventional: 498,671 gallons
 Alternative: 34,017 gallons
 Total Fuel Use: 532,688 gallons
 2014 Conventional: 371,800 gallons
 Alternative: 284,846 gallons
 Total Fuel Use: 656,646 gallons
 MT CO₂e: 4,767 → 3,461 = 1,306 MT CO₂e emission decrease

GOAL #4 SOLID WASTE REDUCTION BENCHMARKS

2005
 Office Waste: 826 tons
 Industrial Waste: 29,180 tons
 Public Waste: Data was not collected in 2005
 Office Recycling: 126 tons
 Industrial Recycling: 122,404 tons
2014
 Office Waste: 653 tons
 Industrial Waste: 10,768 tons
 Public Waste: 325 tons
 Office Recycling: 257 tons
 Industrial Recycling: 215,149 tons

GOAL #7 NATURAL AREAS AND PARKS BENCHMARKS

Forest Canopy/Native Vegetation

2005 Data not available

2014 30% forest canopy in suitable areas of City Parks
27% of urban Natural Areas exceeds 75% native vegetation

GOAL #8 WATER BENCHMARKS

2010* Building Water: 19,773,000 gallons

Outdoor Water: 19,904,000 gallons

Total Use: 39,677,000 gallons

*(2005 data is not available,)

2014 Building Water: 21,718,362 gallons

Outdoor Water: 14,988,413 gallons

Total Use: 36,706,775 gallons

GOAL #10 SAFETY, HEALTH, AND WELLNESS BENCHMARKS

SAFETY

2013 Recordable Accident Frequency 7.1

Days, Away, Restricted or Transferred 3.6

2014 Recordable Accident Frequency 6.9

Days, Away, Restricted or Transferred 4.6

WELLNESS

2012 435 City employees earned 982 Well Days

2014 845 City employees earned 2,550 Well Days

GOAL #11 LOCAL FOOD

2013 8% locally purchased food

2014 > 20% locally purchased food



APPENDIX B - 2015 IMPLEMENTATION PLANNING SCHEDULE

#1 CARBON

- Adopt new carbon emission goal of 80% by 2030 and carbon neutrality by 2050.
- Identify carbon reduction projects per return on investment.
- Identify and implement at least one top priority project for each sustainability goal annually.

#2 ELECTRICITY AND NATURAL GAS

- Complete retrofit outdoor lighting at Senior Center.
- Provide instructions so that all employees use the EPA and ENERGY STAR power settings on computers.
- Adjust additional building hours for coincident afternoon peak energy use.

#3 FUEL

- Increase number of electric vehicle charging stations for public, fleet and personal vehicle use.
- Participate in EV Drive Leadership and EV WorkWise Charging Challenge.
- Develop EV Employee Policy.
- Track TBL impacts of National Bike Challenge.

#4 WASTE REDUCTION AND RECYCLING

- Maintain periodic meetings with the City's solid waste and recycling contractor to identify recycling opportunities.
- Increase focus on reducing waste at the source.
- Ensure equal opportunity for participation in resource stewardship.
- Offer greater opportunities to recycle in public access areas.
- Invest in infrastructure, when feasible, to process waste materials into new products.

#5 EDUCATION AND OUTREACH

- Develop Workplace Charging Challenge and Drive Leadership outreach material.
- Implement employee challenges as part of ClimateWise Program for the Platinum level.
- Host corporate training and Mindful Movies in conjunction with CSU for business community and City employees (5 sessions).
- Expand and coordinate One Planet Incentive Program with Sustainability and Well Days Program.
- Promote leadership by participating in community initiatives such as Fort ZED, Georgetown Competition, Residential Environmental Series, Business Outreach, and Master Naturalist.
- The Customer Outreach Team will continue to meet monthly to coordinate outreach to local businesses.
- Utilize community based social marketing to promote positive change within the organizations and throughout the community.
- Review and communicate new badge requirements as part of ClimateWise Program for the Platinum level.
- Continue LEED, contractor, residential, and business training in conjunction with CSU, County CW partners, City staff, CGBG, Poudre School District, Homeowner Associations (HOAs), and religious organizations.
- Promote Georgetown WorkWise Challenge.
- Promote Monitor My Use Challenge.

#6 FUNDING

- Track cost savings that directly result from energy and waste conservation in addition to reporting on annual carbon inventory.
- Develop BFO offer(s) to fund projects to support CAP and accelerated municipal carbon goals.
- The Innovation Team and MEEF will identify and rank projects based on TBL and ROI principles.

#7 PARKS AND NATURAL AREAS

- Maintain Parks as designated and build with an emphasis on periodically replacing landscaping to more drought tolerant species.
- Expand the City's tree inventory to include wildlife habitat.
- Parks will replace select water pumps to a more efficient model to decrease the energy use for irrigation as part of the life-cycle program.

#8 WATER

- Research new vortex water treatment approaches at EPIC.
- Reduce municipal operations water irrigation use and increase efficiency per acre.
- Invest in more energy efficient pumps and use low-application MP rotators on slopes.
- Install additional irrigation sub-metering and weather based controllers.
- Align City departments' mowing procedures to increase tall grass areas and create more diversity.

#9 SUSTAINABLE PURCHASING

- Increase sustainable spend by refining Sustainable Purchasing spend analytics to target new opportunities to redirect spend to sustainable alternatives.
- Continue to collaborate with IT to address the total life cycle of print devices.
- Execute roadmap to achieve State Electronics Challenge Gold level for 2015.

#10 EMPLOYEE SAFETY AND HEALTH

- Increase the yearly percentage of employees participating in the annual health assessment by 5% annually.
- Decrease the percentage of employees having five or more risk factors as measured by the health assessment survey. Create an intervention strategy that helps employee's lower risk factors.
- Increase the number of eligible employees that participate in the Well Days Incentive Program to 75% by 2020.
- Continue to host and resource a comprehensive Wellness Program for all employees.
- The City will participate in the Social Superstar Program that draws attention to businesses that create a positive social impact.

#11 LOCAL FOOD

- Review best management practices from other municipal governments.
- Expand the number of existing community gardens.
- Revise community garden resource list and distribute internally and externally.
- Host educational event for City staff and vendors about local resources.
- Write City guidelines to increase local food purchases.
- Review existing contracts with City vendors and incorporate new goal.
- Develop list of restaurants using local produce and products. Distribute internally.



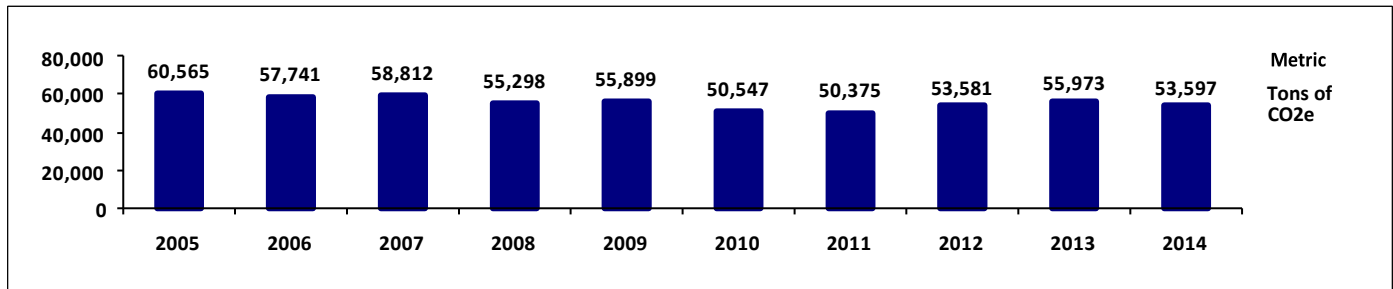


Comparative Municipal GHG Report

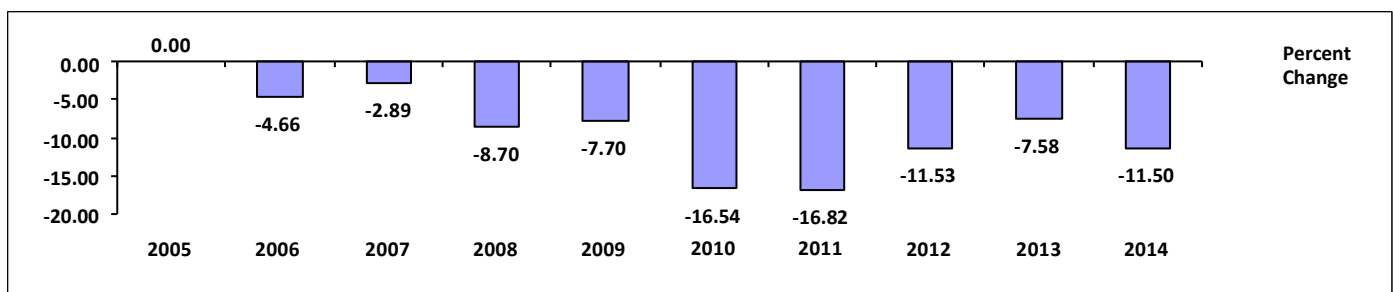
Total Municipal GHG Emissions By Year

Year	Total GHG Emissions (mt CO2e)	Yearly % Change	% Change Since Baseline 2005
2005	60,565		0.0%
2006	57,741	-4.7%	-4.7%
2007	58,812	1.9%	-2.9%
2008	55,298	-6.0%	-8.7%
2009	55,899	1.1%	-7.7%
2010	50,547	-9.6%	-16.5%
2011	50,375	-0.3%	-16.8%
2012	53,581	6.4%	-11.5%
2013	55,973	4.5%	-7.6%
2014	53,597	-4.2%	-11.5%

Metric Tons of CO2e Emissions by Year



Percent Change in GHG Emissions from 2005 Baseline



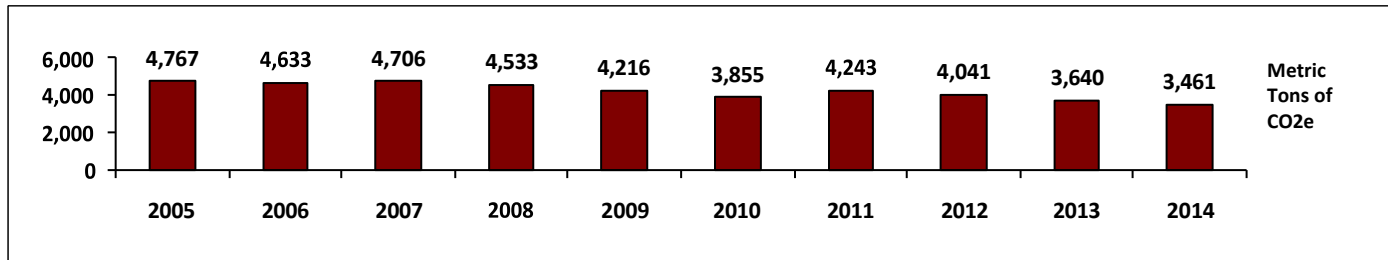


Comparative Municipal GHG Report

Municipal Scope 1- Direct GHG Emissions

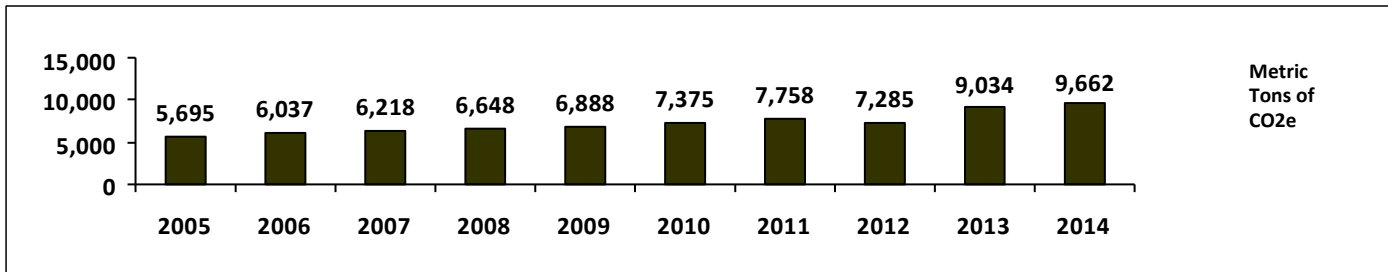
Total Municipal Fleet GHG Emissions By Year

Year	Total GHG Emissions (mt CO2e)	Yearly % Change	% Change Since Baseline 2005
2005	4,767		0.0%
2006	4,633	-2.8%	-2.8%
2007	4,706	1.6%	-1.3%
2008	4,533	-3.7%	-4.9%
2009	4,216	-7.0%	-11.6%
2010	3,855	-8.5%	-19.1%
2011	4,243	10.0%	-11.0%
2012	4,041	-4.8%	-15.2%
2013	3,640	-9.9%	-23.6%
2014	3,461	-4.9%	-27.4%



Total Municipal Natural Gas GHG Emissions By Year

Year	Total GHG Emissions (mt CO2e)	Yearly % Change	% Change Since Baseline 2005
2005	5,695		0.0%
2006	6,037	6.0%	6.0%
2007	6,218	3.0%	9.2%
2008	6,648	6.9%	16.7%
2009	6,888	3.6%	21.0%
2010	7,375	7.1%	29.5%
2011	7,758	5.2%	36.2%
2012	7,285	-6.1%	27.9%
2013	9,034	24.0%	58.6%
2014	9,662	7.0%	69.7%



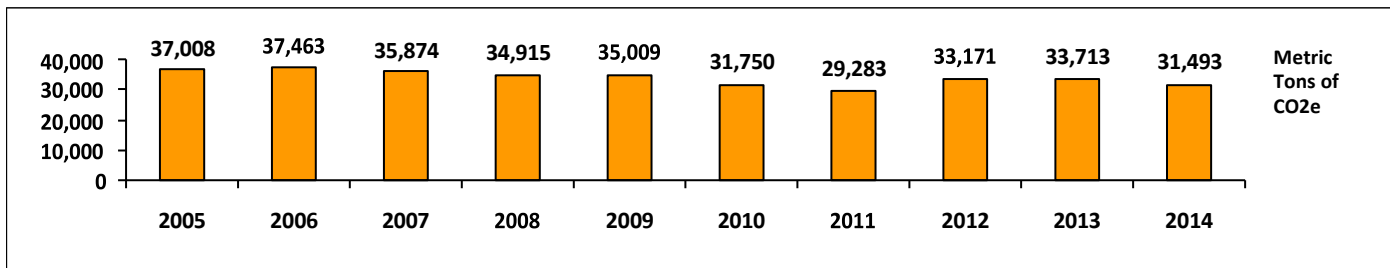


Comparative Municipal GHG Report

Municipal Scope 2- Electrical Indirect GHG Emissions

Total Municipal Electrical GHG Emissions By Year

Year	Total GHG Emissions (mt CO2e)	Yearly % Change	% Change Since Baseline 2005
2005	37,008		0.0%
2006	37,463	1.2%	1.2%
2007	35,874	-4.2%	-3.1%
2008	34,915	-2.7%	-5.7%
2009	35,009	0.3%	-5.4%
2010	31,750	-9.3%	-14.2%
2011	29,283	-7.8%	-20.9%
2012	33,171	13.3%	-10.4%
2013	33,713	1.6%	-8.9%
2014	31,493	-6.6%	-14.9%

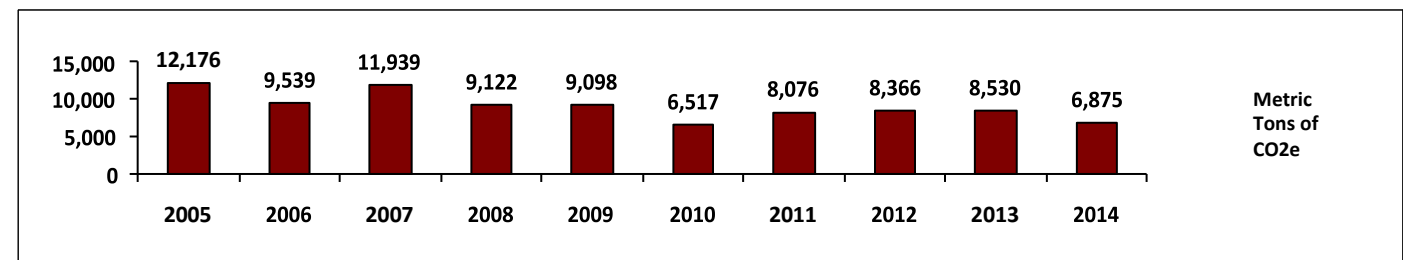


Comparative Municipal GHG Report

Municipal Scope 3- Other Indirect GHG Emissions

Total Municipal Solid Waste GHG Emissions By Year

Year	Total GHG Emissions (mt CO2e)	Yearly % Change	% Change Since Baseline 2005
2005	12,176		



2005 Municipal

GHG Report



Scope 1- Direct GHG Emissions

GHG Source	Quantity Used		Cost	MT of CO2e
Fleet- Gasoline Consumption	298,983	gallons	\$0	2,625.07
Fleet- LPG Consumption	177,530	gallons	\$0	102.79
Fleet- CNG Consumption	4,562	gallons	\$0	0.25
Fleet- Diesel Consumption	152,881	gallons	\$0	1,560.92
	Biogenic	Conventional	<i>*emissions from conventional fuel only</i>	
Fleet- E50	0	0 gallons	\$0	0.00*
Fleet- E85	0	0 gallons	\$0	0.00*
Fleet- B10	0	0 gallons	\$0	0.00*
Fleet- B15	0	0 gallons	\$0	0.00*
Fleet- B20	11,702	46,807 gallons	\$0	477.90*
<i>Transportation Subtotal</i>		<i>680,763 gallons</i>	<i>\$0</i>	<i>4,766.93</i>
Facilities Natural Gas Consumption		86,190 dTh	\$696,798	4,581.53
Water-related Natural Gas Consumption		20,942 dTh	\$0	1,113.21
<i>Natural Gas Subtotal</i>		<i>107,133 dTh</i>	<i>\$696,798</i>	<i>5,694.74</i>
Scope 1 Subtotal			\$696,798	10,461.67

Scope 2- Energy Indirect GHG Emissions

GHG Source	Quantity Used		Cost	MT of CO2e
Facilities Electrical Consumption	15,760,580	kWh	\$416,164	13,061.14
Water-related Electrical Consumption	17,514,981	kWh	\$0	14,515.05
Streetlight Electrical Consumption	8,123,199	kWh	\$0	6,731.87
Traffic Signal Electrical Consumption	907,818	kWh	\$0	752.33
"Other" Electrical Consumption	2,350,520	kWh	\$0	1,947.93
Scope 2 Subtotal	44,657,098	kWh	\$416,164	37,008.32

Scope 3- Other Indirect GHG Emissions

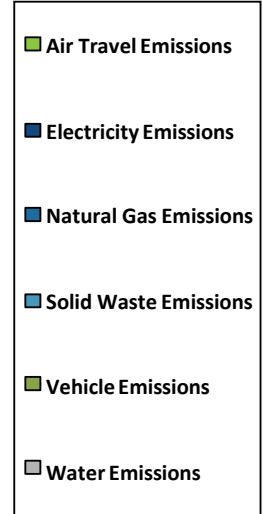
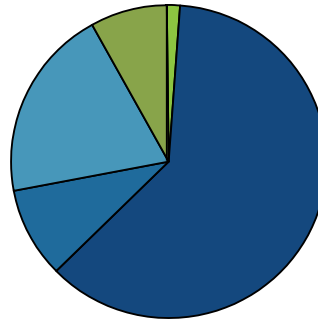
GHG Source	Quantity Used		Cost	MT of CO2e
Travel in Personal Vehicle (Reimbursed)	133,553	miles	\$50,817	66.25
Air Travel (Reimbursed)	311,146	miles	\$0	852.08
Office Waste from Municipal Facilities	826.00	tons	-	594.79
Industrial Waste from Municipal Facilities	29,180.00	tons	-	11,581.54
Public Waste	0.00	tons	-	0.00
Scope 3 Subtotal			\$50,817	13,094.67

Total Metric Tons of CO2e: 60,564.66

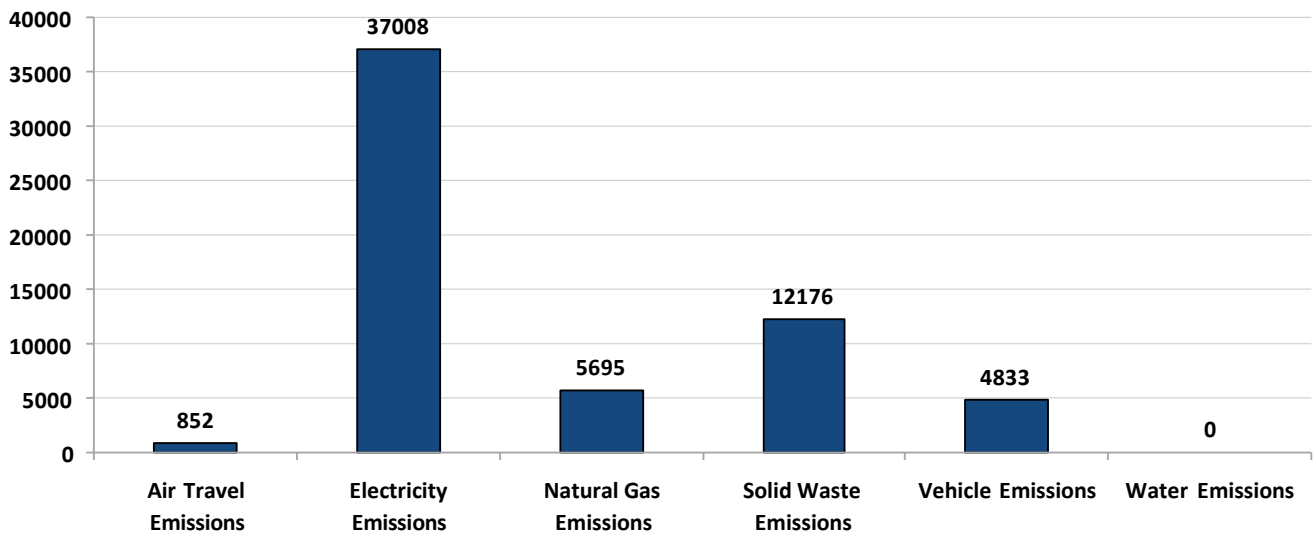


Municipal CO2e Emissions by Source

Emission Source:	Metric Tons CO2e:	%
Electricity Emissions	37,008.32	61.1%
Solid Waste Emissions	12,176.34	20.1%
Vehicle Emissions	4,833.17	8.0%
Natural Gas Emissions	5,694.74	9.4%
Air Travel Emissions	852.08	1.4%
Total	60,564.65	100.0%



Metric Tons of CO2e by Emission Source



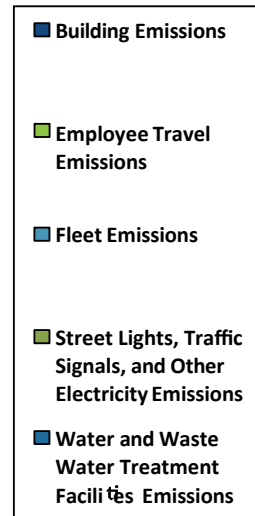
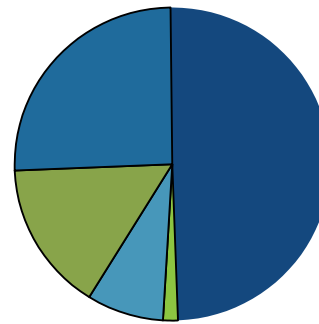
2005 Municipal

GHG Report

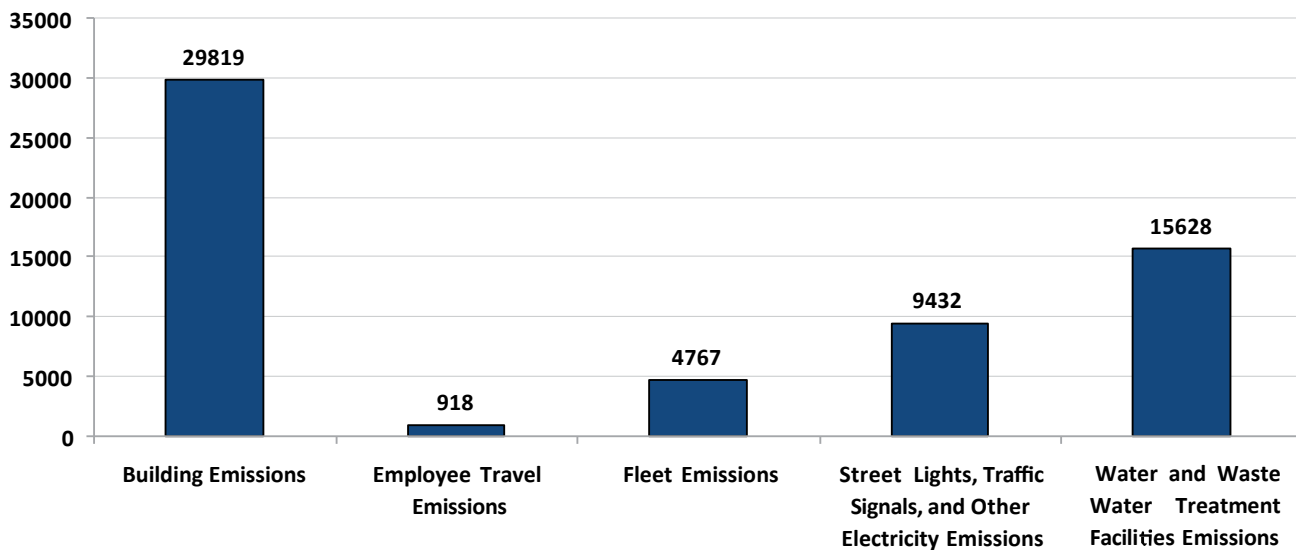


Municipal CO2e Emissions by Sector

Municipal Sector:	Metric Tons CO2e:	%
Buildings Emissions	29,819.01	49.2%
Water and Waste Water Treatment Facility Emissions	15,628.26	25.8%
Street Lights, Traffic, Signals, and Other Electricity Emissions	9,432.13	15.6%
Fleet Emissions	4,766.92	7.9%
Employee Travel Emissions	918.33	1.5%
Total	60,564.65	100.0%



Metric Tons of CO2e by Municipal Sector



2005 Municipal

GHG Report



Detailed Recycling Breakdown

Recycling

Material	Quantity	Cost	MT of CO2e
Cardboard	48,880.28 lbs	-	-63.41
Aluminum	59.48 lbs	-	-0.45
Plastic	5,310.32 lbs	-	-3.93
Newsprint	45,951.03 lbs	-	-79.85
Mixed Office Paper	122,651.72 lbs	-	-186.93
Magazines	6,012.15 lbs	-	-6.76
Commingled	23,087.03 lbs	-	-34.77
Residue	0.00 lbs **	-	-
Office Recycling Total	251,952.00 lbs		-376.09

** included in Landfilled waste - Scope 3

Scrap Metal

Material	Quantity	Cost	MT of CO2e
Aluminum	0.00 lbs	\$0.00	0.00
Copper	0.00 lbs	\$0.00	0.00
Brass	0.00 lbs	\$0.00	0.00
Steel	0.00 lbs	\$0.00	0.00
Mixed Metal	0.00 lbs	\$0.00	0.00
	0.00 lbs	\$0.00	0.00

Crushing Facility

Material	Quantity	Cost	MT of CO2e
1.25 inch crushed concrete	18,303.59 tons	\$0.00	-
1.25 inch dirt and rock road base	0.00 tons	\$0.00	-
1.25 inch recycled asphalt	103,544.23 tons	\$0.00	-
	121,847.82 tons	\$0.00	

Other

Material	Quantity	Cost	MT of CO2e
Wood mulching	232.00 tons	\$2.00	-
Electronics	111.00 tons	\$12.00	-
Yard trimmings	213.00 tons	\$233.00	-
	556.00 tons	\$247.00	MT of CO2e
Industrial Recycling Total	122,403.82 tons	\$247.00	0.00

2005 Municipal

GHG Report



Biogenic emissions from biofuels

	<i>Conventional</i>	Biogenic	Cost	MT of CO2e
Fleet- E50	0	0 gallons	\$0	0.00
Fleet- E85	0	0 gallons	\$0	0.00
Fleet - B10	0	0 gallons	\$0	0.00
Fleet - B15	0	0 gallons	\$0	0.00
Fleet - B20	46,807	11,702 gallons	\$0	110.58
Fleet- B100		0 gallons	\$0	0.00
Fleet - Biofuel Total		11,702.00 gallons	\$0.00	110.58

Indicator Breakdown

Indicators	Annual Metric Tons CO2e Generated Per Indicator		
Number of City of Fort Collins Employees	1,898	Per Employee	31.90972
Square Footage of Municipal Buildings	1,495,847	Per 1,000 Square Ft.	40.48854
Number of Fleet Vehicles	917	Per Fleet Vehicle*	5.19840
City of Fort Collins Annual Budget	\$465,400,000	Per \$100 of Budget	0.01301

*Only takes into account GHG Emissions from Fleet fuel use.

Additional Data

Total Water Use	93,190,475.00 gallons
Per Employee Water Use	49,099 gallons
Summer High Temperature (Fahrenheit)	103 degrees
Winter Low Temperature (Fahrenheit)	-10 degrees

2014 Municipal

GHG Report



Scope 1- Direct GHG Emissions

GHG Source	Quantity Used		Cost	MT of CO2e
Fleet- Gasoline Consumption	262,688	gallons	\$817,536	2,306.40
Fleet- LPG Consumption	4,686	gallons	\$9,673	27.13
Fleet- CNG Consumption	251,575	gallons	\$569,884	13.59
Fleet- Diesel Consumption	33	gallons	\$120	0.34
	Biogenic	Conventional	<i>*emissions from conventional fuel only</i>	
Fleet- E50	0	0 gallons	\$0	0.00 *
Fleet- E85	1,376	243 gallons	\$4,799	2.13 *
Fleet- B10	0	0 gallons	\$0	0.00 *
Fleet- B15	0	0 gallons	\$0	0.00 *
Fleet- B20	27,209	108,836 gallons	\$0	1,111.22 *
<i>Transportation Subtotal</i>		<i>628,061 gallons</i>	<i>\$1,402,012</i>	<i>3,460.81</i>
Facilities Natural Gas Consumption		151,896 dTh	\$842,509	8,074.18
Water-related Natural Gas Consumption		29,862 dTh	\$187,965	1,587.34
<i>Natural Gas Subtotal</i>		<i>181,758 dTh</i>	<i>\$1,030,475</i>	<i>9,661.52</i>
Scope 1 Subtotal			\$2,432,487	13,122.33

Scope 2- Energy Indirect GHG Emissions

GHG Source	Quantity Used		Cost	MT of CO2e
Facilities Electrical Consumption	16,224,839	kWh	\$779,828	12,319.86
Water-related Electrical Consumption	13,212,389	kWh	\$715,853	10,032.44
Streetlight Electrical Consumption	8,542,765	kWh	\$0	6,486.70
Traffic Signal Electrical Consumption	575,346	kWh	\$38,710	436.87
"Other" Electrical Consumption	2,920,288	kWh	\$747,246	2,217.44
Scope 2 Subtotal	41,475,627	kWh	\$2,281,636	31,493.31

Scope 3- Other Indirect GHG Emissions

GHG Source	Quantity Used		Cost	MT of CO2e
Travel in Personal Vehicle (Reimbursed)	189,187	miles	\$105,958	93.85
Air Travel (Reimbursed)	734,997	miles	\$0	2,012.81
Office Waste from Municipal Facilities	653.20	tons	-	628.13
Industrial Waste from Municipal Facilities	10,767.60	tons	-	6,034.41
Public Waste	325.18	tons	-	212.36
Scope 3 Subtotal			\$105,958	8,981.56

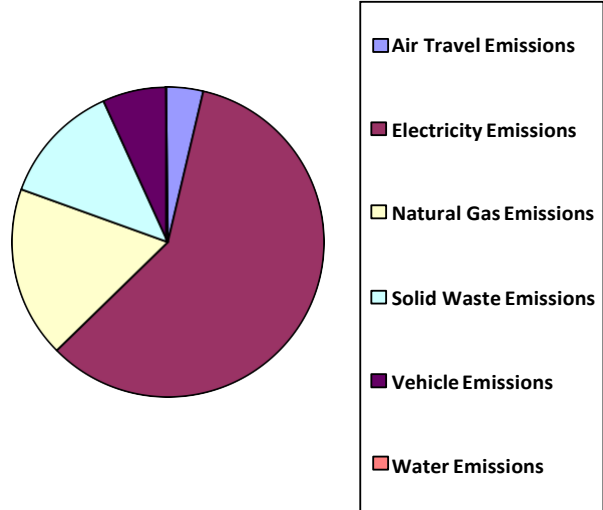
Total Metric Tons of CO2e:

53,597.21

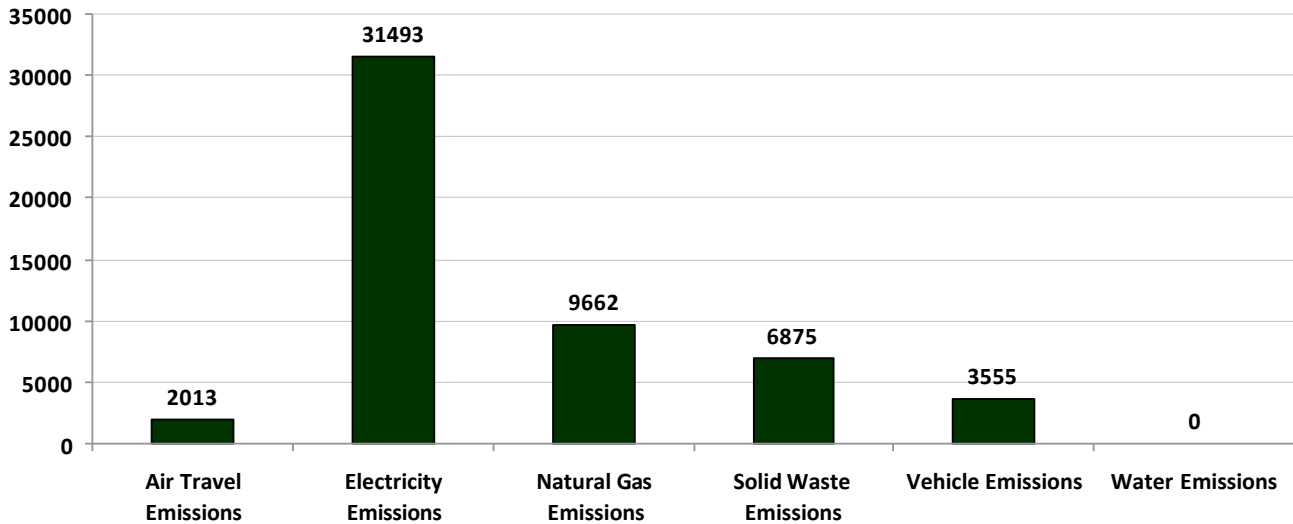


Municipal CO₂e Emissions by Source

Emission Source:	Metric Tons CO ₂ e:	%
Electricity Emissions	31,493.31	58.8%
Solid Waste Emissions	6,874.90	12.8%
Vehicle Emissions	3,554.66	6.6%
Natural Gas Emissions	9,661.52	18.0%
Air Travel Emissions	2,012.81	3.8%
Total	53,597.21	100.0%



Metric Tons of CO₂e by Emission Source



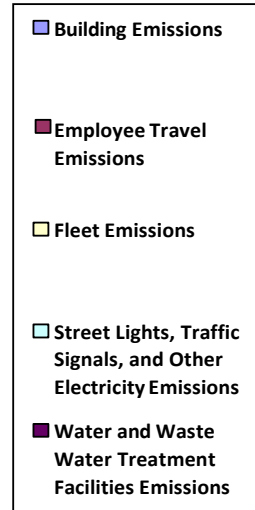
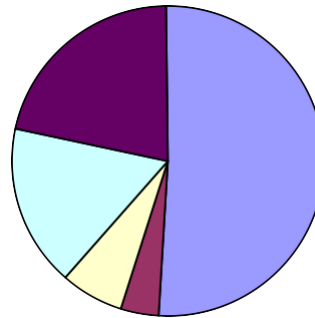
2014 Municipal

GHG Report

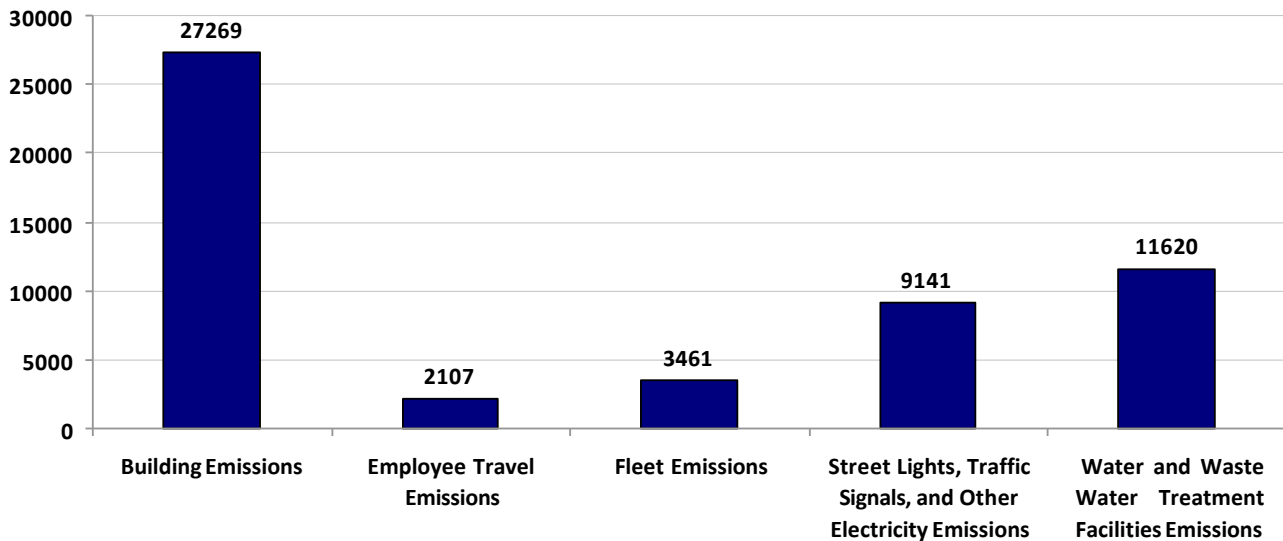


Municipal CO2e Emissions by Sector

Municipal Sector:	Metric Tons CO2e:	%
Buildings Emissions	27,268.94	50.9%
Water and Waste Water Treatment Facility Emissions	11,619.79	21.7%
Street Lights, Traffic, Signals, and Other Electricity Emissions	9,141.01	17.1%
Fleet Emissions	3,460.81	6.5%
Employee Travel Emissions	2,106.66	3.9%
Total	53,597.21	100.0%



Metric Tons of CO2e by Municipal Sector



2014 Municipal

GHG Report



Detailed Recycling Breakdown

Recycling

Material	Quantity	Cost	MT of CO2e
Cardboard	223,963.83 lbs	-	-290.53
Aluminum	1,541.04 lbs	-	-11.63
Plastic	17,978.75 lbs	-	-13.30
Newsprint	61,127.74 lbs	-	-106.22
Mixed Office Paper	139,206.87 lbs	-	-212.16
Magazines	0.00 lbs	-	0.00
Commingled	69,860.28 lbs	-	-105.20
Residue	0.00 lbs **	-	-
Office Recycling Total	513,678.50 lbs		-739.04

** included in Landfilled waste - Scope 3

Scrap Metal

Material	Quantity	Cost	MT of CO2e
Aluminum	288,201.00 lbs	\$102,165.83	-1,312.76
Copper	10,463.00 lbs	\$9,438.05	-47.66
Brass	26,714.00 lbs	\$8,155.65	-121.68
Steel	327,609.00 lbs	\$26,514.92	-1,492.26
Mixed Metal	2,927.00 lbs	\$5,027.75	-13.33
	655,914.00 lbs	\$151,302.20	-2,987.69

Crushing Facility

Material	Quantity	Cost	MT of CO2e
1.25 inch crushed concrete	30,587.74 tons	\$0.00	-
1.25 inch dirt and rock road base	48,373.81 tons	\$0.00	-
1.25 inch recycled asphalt	133,255.66 tons	\$0.00	-
	212,217.21 tons	\$0.00	

Other

Material	Quantity	Cost	MT of CO2e
Wood mulching	2,586.45 tons	\$0.00	-
Electronics	5.84 tons	\$0.00	-
Yard trimmings	11.10 tons	\$0.00	-
	2,603.39 tons	\$0.00	MT of CO2e
Industrial Recycling Total	215,148.56 tons	\$151,302.20	-2,987.69



Biogenic emissions from biofuels

	<i>Conventional</i>	Biogenic	Cost	MT of CO2e
Fleet- E50	0	0 gallons	\$0	0.00
Fleet- E85	243	1,376 gallons	\$4,799	7.91
Fleet - B10	0	0 gallons	\$0	0.00
Fleet - B15	0	0 gallons	\$0	0.00
Fleet - B20	108,836	27,209 gallons	\$436,330	257.13
Fleet- B100		0 gallons	\$0	0.00
Fleet - Biofuel Total		28,585.00 gallons	\$441,129.00	265.04

Indicator Breakdown

Indicators	Annual Metric Tons CO2e Generated Per Indicator		
Number of City of Fort Collins Employees	2,124	Per Employee	25.23409
Square Footage of Municipal Buildings	1,587,006	Per 1,000 Square Ft.	33.77253
Number of Fleet Vehicles	902	Per Fleet Vehicle*	3.83682
City of Fort Collins Annual Budget	\$504,000,000	Per \$100 of Budget	0.01063

*Only takes into account GHG Emissions from Fleet fuel use.

Additional Data

Total Water Use	36,706,775.00 gallons
Per Employee Water Use	17,282 gallons
Summer High Temperature (Fahrenheit)	99 degrees
Winter Low Temperature (Fahrenheit)	-14 degrees

APPENDIX F - PROJECT CO-BENEFITS: ENVIRONMENTAL AND FISCAL



TOP FINANCIAL SAVING PROJECTS SINCE 2009

YEAR	PROJECT	ANNUAL FINANCIAL SAVINGS
2014	Asphalt, Concrete and Porcelain Recycling	\$1,096,000
2013	Asphalt, Concrete and Porcelain Recycling	\$779,792
2010	Asphalt, Concrete and Porcelain Recycling	\$595,790
2012	Asphalt, Concrete and Porcelain Recycling	\$540,175
2009	Asphalt, Concrete and Porcelain Recycling	\$498,145
2011	Asphalt, Concrete and Porcelain Recycling	\$426,664
2013	Metal Recycling	\$168,797
2014	Metal Recycling	\$151,302
2013	Wastewater New Blowers	\$144,000
2012	Metal Recycling	\$142,077
2012	2012 Employee, Citizen, and ClimateWise Challenges	\$111,057
2013	Electronic Plan Review	\$87,000
2009	Water, electricity and trash bill auditing	\$80,000
2009	Energy Challenge	\$79,820
2009	Metal Recycling	\$69,000
2010	Wastewater Load Shedding	\$54,000

TOP CARBON SAVING PROJECTS SINCE 2009

YEAR	PROJECT	CARBON SAVINGS (MT CO2E)
2014	Asphalt, Concrete and Porcelain Recycling	25,528
2013	Asphalt, Concrete and Porcelain Recycling	17,361
2010	Asphalt, Concrete and Porcelain Recycling	14,127
2009	Asphalt, Concrete and Porcelain Recycling	11,656
2011	Asphalt, Concrete and Porcelain Recycling	10,748
2010	Water Treatment Plant Tree Planting	4,000
2013	Metal Recycling	3,935
2013	Forestry Inventory & Mulch	3,073
2010	Natural Areas Tree Planting - 169 Trees	1,690
2011	Metal Recycling	1,629
2010	Alternative Fuels (compared to traditional fuel)	1,369
2010	City Green Energy Purchases	1,366
2013	Wastewater New Blowers	1,216
2013	Single-stream Recycling*	772
2012	Metal Recycling	559
2010	Wastewater Load Shedding	544
2014	Metal Recycling	104

2014

- Expanded One Planet Program. Completion rate was 87% and participation increased by 17% from 2012.
- Partnered with Drive Electric Northern Colorado (DENC) to increase knowledge of electric vehicle ownership and increase access to charging stations.
- Staff helped build a home for City employee, Laura Riley, and her family through Habitat for Humanity.
- Hosted the the first Open Streets event in the City promoting active transportation and improved neighbor relationships.
- Launched the “Call to Duty” campaign and piloted compostable waste bags and in-vessel composters to improve pet waste management and water quality.
- Hosted climate change scientific panel as part of Mindful Movie Series. 360 community members attended event.



APPENDIX H - PARKS RECYCLING DIRECTORY

Blue=Approved to recycle at work
 Black=Local recycling options
 Red=Landfill (no recycling options available)

\$ Cost for recycling
 * Limited hours of operation

Medical	Household
<p>Medications (prescription & over-the-counter)- place in drug kiosk in lobby of Fort Collins Police Services</p> <p>*Syringes/Sharps- (place sharps in approved bio-hazard container before transporting)- Larimer County Hazardous Waste Facility</p> <p>Eye Glasses (prescription, sunglasses, safety glasses, etc.)- Park Shop</p>	<p>Curbside Recycling (not offered at home)- Parks Recycling Row</p> <p>Oven, Dishwasher, Washer & Dryer, Water Heater- Working: Habitat for Humanity or Arc thrift store, Non-working: RMB</p> <p>Coffee Machine, Microwave, Toaster, Toaster Oven- Non-Working: Parks Recycling Row, Working: Goodwill</p> <p>\$ Air Conditioner, Freezer, Refrigerator (items with Freon)- Colorado Iron & Metal (\$15/item)</p>
<p>Electronics & Office Supplies</p> <p>E-Waste (Flat Screen TVs, printer, computer monitor, fax machines, VCR/DVD, radios, circuit boards, cords, computer mouse, keyboard, etc.)- Parks Recycling Row</p> <p>E-Waste (Tube TVs)- Best Buy</p> <p>Cell Phones and Chargers (not City owned)- Best Buy</p> <p>CFL and LED Light Bulbs –Ace Hardware</p> <p>Tube Lightbulbs</p> <p>Fire Extinguishers- Larimer County Hazardous Waste Facility</p> <p>Ink Cartridges & Laser Cartridges – Park Shop</p> <p>Batteries (alkaline, re-chargeable, & single use & button battery)- Ace Hardware (tape ends before disposal)</p> <p>Shredded Paper- City’s Recycling Facility</p> <p>Office Supplies (paper, notebooks, binders, etc.)- Goodwill</p> <p>American Flag- Ace Hardware</p> <p>Styrofoam-Packing Peanuts: mail service centers (Location Hotline #800-828-2214), #6 white block foam & rigid white foam insulation: Ecocycle in Boulder #303-444-6634</p>	<p>Toilet, Sink, Tile, Plates (porcelain items)- Parks Recycling Row or City Crushing Facility</p> <p>Furniture (chairs, tables, lamps, couches, etc.)- thrift store</p> <p>\$ Mattresses- A Bedder Word (\$49/trip+\$12/mattress)</p> <p>Workout Equipment- Working: thrift store, non-working: RMB</p> <p>Carpet- trash</p> <p>Carpet Padding (rebond foam and foam pads)- Northern Colorado Carpets or Brinkers</p>
<p>Food Scraps</p> <p>Garbage Disposal- ok to put food scraps down the disposal</p> <p>Vegetable Oil- Eco Thrift (deliver in clean sealed container)</p>	<p>Wood</p> <p>Wood Pallets- Park’s Recycling Row</p> <p>\$ Lumber, Pressboard, Particle Board, Plywood, OSB (can’t be painted or treated)- City of Loveland Recycling Center or A1 Organics</p> <p>Treated or Painted Wood- trash</p>
<p>Metal</p> <p>Aluminum Cans- Parks Recycling Row</p> <p>Copper, Aluminum, Steel- Parks Recycling Row</p> <p>Barbed Wire, T-Posts- Parks Recycling Row</p>	<p>Shop Items</p> <p>Aerosol Cans (empty & plastic tops removed)- Park Shop or Single Stream Recycling</p> <p>Shrink Wrap- Park Shop</p> <p>Plastic Film (Grocery bag, produce bag, newspaper bag, etc.)- Grocery Stores</p> <p>Fabric (clean rags, household textiles, clothing, & shoes)-Red Apple Recycling Bins at City Recycling Drop-off Facility</p> <p>City Clothing (Clean)- Park Shop</p> <p>Paint- Empty Metal Container: Parks metal recycling bin, Empty Plastic Bucket: Parks bulky plastic bin* Usable & Unusable Paint: Larimer County Hazardous Waste Facility</p> <p>Chemicals & Pesticides- Cleaning Products: rinse 3x & recycle, *Usable & Unusable Products: Larimer County Hazardous Waste Facility, Empty Pesticides: trash</p>
<p>Automotive</p> <p>Bikes & Bike Parts (tubes, wheels, seats, frames, etc.)- Parks Recycling Row or Bike Co-op</p> <p>\$ Tires-Discount Tires & most tire retailers</p> <p>Automotive, UPS, & Wet-Cell Batteries (lead acid batteries)- Interstate Battery and Larimer County Hazardous Waste Facility</p> <p>Transmission Fluid, Antifreeze, Contaminated Oil, & Other Automotive Fluids-Larimer County Hazardous Waste Facility</p> <p>Motor Oil (≤5 gallons)- Larimer County HW Facility</p> <p>Mixed Oil & Gas- Larimer County Hazardous Waste Facility</p> <p>Spill Kit Material- Gas: Keep in a closed container, label, & recycle at Larimer County Hazardous Waste Facility, Oil, Diesel, etc: once material is dry (Paint Filter Test), place items in trash</p>	<p>Construction and Yard Waste</p> <p>\$ Leaves, Grass Clippings, Garden debris- Hageman Earth Cycle</p> <p>\$ Wood Branches, Mulch & Trees- Hageman Earth Cycle</p> <p>Christmas Trees (seasonal)- check for city drop off locations</p> <p>Asphalt- Parks Recycling Row or City Crushing Facility</p> <p>Concrete (no wire or rebar)- Parks Recycling Row or City Crushing Facility</p> <p>Rock, Stone, or Pavers- Parks Recycling Row or City Crushing Facility</p> <p>Dirt, Sod, and Rock (can be mixed)- City Crushing Facility</p> <p>Plastic Pots- ≥2.5 Gallon: Parks Recycling Row, ≤2.5 Gallon- single stream recycling, Gardening Pots: return to nursery</p> <p>Plastic Flowers- Thrift Store</p>

Can’t figure out how to recycle an item? Call Caitlin May at #970-556-4349 or email cmay@fcgov.com

Blue=Approved to recycle at work
 Black=Local recycling options
 Red=Landfill (no recycling options available)

\$ Cost for recycling
 * Limited hours of operation

Location	Phone Number	Hours of Operation	Address
A Bedder World	720-375-1177	T-F 9am-4pm, Sa 9am-1pm	3051 Logic Drive, Longmont
A1 Organics	970-454-3492	M-F 7:30am-3:30pm	16350 County Road 76, Eaton
Brinkers	970-484-7200	M-F 8am-5:00pm, Sat 9am-12pm	1418 E. Magnolia
City Crushing Facility	970-482-1249	April-Oct: M-F 7am-5pm, Nov-Mar: M-F 7:30am-4pm weather permitting	1380 Hoffman Mill Rd, Fort Collins
City of Loveland Recycling Facility	970-962-2529 ext. 1, 3	T-Su 7:30am-4:30pm	400 N. Wilson Avenue
City Recycling Drop-Off Facility	970-221-6600	M-Su daylight hours	1702 Riverside Ave, Fort Collins
Colorado Iron & Metal	970-482-7707	M-F 8am-4:30pm, Sat 8am-12pm	903 Buckingham St, Fort Collins
Fort Collins Bike Co-Op	970-484-3804	W&F 2pm-5pm, Su 12pm-6pm	331 N. College Ave, Fort Collins
Fort Collins Police Services	970-221-6540	M-F 7am-10pm, Sat-Su 8am-6pm	2221 S. Timberline Rd, Fort Collins
Goodwill	970-223-1042	M-Sat 9am-9pm, Su 10am-6pm	315 Pavilion Ln, Fort Collins
Habitat for Humanity	970-223-9909	M-Sat 9am-5:30pm	4001 South Taft Hill Rd, Fort Collins
Hageman Earth Cycle	970-221-7173	M-Sat 8am-4:30pm	3501 E. Prospect Rd, Fort Collins
Interstate Battery	970-484-1307	M-F 9am-5pm, Sat 8am-12pm	300 Willow St, Fort Collins
Larimer County Landfill HW	970-498-5773	T, TH, F, Sat 9am-4pm	5887 S. Taft Hill Rd, Fort Collins
Northern Colorado Carpets	970-226-6800	M-F 8am-5:30pm, Sat 9am-4pm	5837 S. College Ave, Fort Collins
Red Apple Recycling	303-725-7171	Bin at City Recycling Facility	1702 Riverside Ave, Fort Collins
RMB	970-484-5384	M-F 8am-4:45pm, Sat 8am-3:30pm	1475 N. College Ave, Fort Collins

Resources	Website
City's Internal Recycling Page	http://citynet.fcgov.com/recycling/
City Recycling Facility	http://www.fcgov.com/recycling/dropoff.php
City's Recycling Page	http://www.fcgov.com/recycling/
Household Hazardous Wastes	http://www.larimer.org/solidwaste/Haz.htm
Internal Recycling Directory	http://citynet.fcgov.com/pdf-gateway.php/recycling/files/guide9214
Loveland Recycling Center	http://www.ci.loveland.co.us/index.aspx?page=188
Multi-Family Recycling	http://www.fcgov.com/recycling/apartment.php
Recycling Guideline Poster	http://www.fcgov.com/recycling/pdf/2012_RecyclingGuidelines_FINAL.pdf
Who recycles what	http://www.fcgov.com/recycling/centers.php



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APPENDIX I - LEED & ISO PROFESSIONALS

NAME	DEPARTMENT	CATEGORY	PROGRESS
Allison Becker	Utilities	ISO Certified	Current
Sarah Carter	Planning	LEED - Green Associate	In Progress
Kathy Collier	Utilities	LEED AP, BD & C	Current
Ethan Cozzen	Operations	LEED AP	Current
Elliot Dale	Purchasing	LEED AP, BD & C	Current
Lindsay Ex	Advanced Planning	LEED AP	Current
Michelle Finchum	Utilities	Sustainable Management Certificate	In Progress
Jason Graham	Utilities	ISO Certified	Current
Doug Groves	Utilities	ISO Certified	Current
Jennifer Harvey	Operation Services	LEED AP, BD & C	Current
Erin Hengoggeler	Utilities Operations	ISO Certified	Current
Brian Hergott	Operation Services	LEED AP, BD & C	Current
Ron Kechter	Advanced Planning	LEED AP	Current
Chad Mapp	Operation Services	LEED AP, BD & C	Current
Ken Morrison	Utilities	ISO Certified	Current
Jill Oropeza	Utilities	ISO Certified	Current
Tracy Ochsner	Operation Services	LEED AP	Current
Matt Parker	Utilities	ISO Certified	Current
Robyn Philips	Utilities	ISO Certified	Current
Tony Raeker	Environmental Services	LEED AP, BD & C	Current
Elisa Rivera	Environmental Services	LEED General Associate	Current
Rosemarie Russo	Environmental Services	ISO Certified, Green Associate, Sustainable Mgmt. Certified	Current
Jesse Schlam	Utilities	ISO Certified	Current
Don Skold	Utilities	ISO Certified	Current
Susan Strong	Utilities	ISO Certified	Current
Jason Stutzman	Purchasing	LEED AP	Current
Ali VanDeutekom	Zoning	LEED AP, BD & C	Current
Jennifer Ward	Utilities	ISO Certified	Current
Carol Webb	Utilities	ISO Certified	Current
Jerry Yakel	Utilities	ISO Certified	Current
Matt Zoccali	Utilities	ISO Certified	Current

2014 SUSTAINABILITY TEAM

Shane Armfield	Emma McArdle
Lori Bichler	Mary Miller
Ed Bonnette	Daniel Mogen
Treloar Bower	Lucas Mouttet
Peggy Bowers	Lance Murray
Kathy Collier	Gerry S. Paul
Mike Knox	Bonnie Pierce
Michelle Finchum	Stu Reeve
Susan Gordon	Lynn Sanchez
Brian Hergott	Lucinda Smith
Peter Iengo	Rachel Steeves
Barbara King	Sharon Thomas
Ken Mannon	Bill Whirty
Caitlin May	

2015 NEW MEMBERS
Hallie Adams
Kelly Bernish
Kim DeVoe
Rebecca Everette
Greg Stonecipher
Eric Olson
Lea Pace
Aaron Reed

KEY TERMS

LEVEL 1:

Level 1 charging can consist of a standalone or wall-mounted charging station or, more commonly, a simple household outlet. Studies have found that over 80% of EV owners could be served by Level 1 charging, which has minimal costs for installation, maintenance, and usage. Level 1 charging delivers 120 volts of alternating current (AC) to the vehicle's onboard charger, which converts the power to direct current (DC) to charge the battery. Every EV comes with its own charging cable capable of plugging into a standard outlet.

There are few to no costs associated with installing this equipment, and many outlets or charging ports can be installed cost-effectively. Level 1 charging is ideal for locations where vehicles are likely to be parked for extended periods of time (6+ hours). This level takes some time to fully charge a battery (approximately 2-5 miles of range per hour of charging time), but it can be perfectly suitable for workplaces or overnight charging.

LEVEL 2:

Like Level 1 charging, Level 2 charging delivers AC power, though at 240 volts. Level 2 charging will charge a car in approximately 2-4 hours for a vehicle that has depleted 40 miles of its range. Unlike Level 1 charging, Level 2 typically requires the installation of a charging station and a dedicated circuit of 20-80 amps, depending on requirements.

Level 2 charging stations can cost anywhere from \$500 to \$3,000 per unit, depending on networking capability and Internet connectivity. In an hour, it will give a vehicle 10-20 miles of additional range, making it an option for quicker top-offs. It is also well suited for overnight charging.

DC FAST CHARGING:

A DC Fast Charging station delivers 480 volts of electricity directly to the vehicle's battery. It will charge a fully depleted electric vehicle to 80 percent in as little as 20 minutes. This form of charging is ideal for public use, but could also be suitable for a hotel that may only have one charger but a need to circulate multiple vehicles.

REFERENCES

1. Energy Information Administration. 2010. Energy Information's Outlook Through 2035. From the Annual Energy Outlook 2010, Diane Kearney Energy Information Administration.
2. Fortune.com/2015/01/08/electric-vehicle-sales-2014/
3. Energy Information Administration. 2010. U.S. Energy Information Administration. www.eia.doe.gov [accessed December 9, 2010].
4. National Research Council. 2009. The Hidden Costs of Energy: Unpriced Consequences of Energy Production. Washington, DC.
5. World Green Building Council, "The Business Case for Green Buildings," March 2013.
6. Leber, R. (2014). *Climate Change is Already Causing Asthma*, New Republic

AWARDS & RECOGNITION

Our success in decarbonizing the community, while preserving and restoring the environment is evidenced through the growing number of awards and accolades the City is receiving.

- ClimateWise Platinum Level
- Colorado Association of State Transit Agencies (CASTA) award for Large Transit System of the Year in the state of Colorado: Transfort
- "Professionals Under 40" award from CASTA: Kurt Ravenschlag
- Bronze Recognition for Environmental Protection Agency (EPA) and the Water Environment Federation National's Biosolids Partnership Program: Utilities
- Colorado Open Space Alliance for "Ecological Stewardship" Achievement Award: Natural Areas' River Restoration
- Colorado Open Space Alliance award for Outstanding Achievement: Black-footed Ferret Restoration
- North American Alliance for Environmental Education: Natural Areas
- Green Fleet Magazine Sustainability All-Star: Tracy Ochsner
- North American Association for Environmental Education (NAAEE) Outstanding Service to Environmental Education
- Livability.com's No. 24 Best Place to Live
- National League of Cities' No. 1 In The Country By Let's Move! For Healthy Efforts
- Kiplinger's 10 Great College Towns to Retire To
- Bicycling Magazine's 9th Best Bike City
- Allstate's America's Safest Driving City
- Time's America's Most Satisfied City
- Bronze Level Walking Community