City of Fort Collins

05 AIR QUALITY REPORT

VISION | CONTINUALLY IMPROVE FORT COLLINS' AIR QUALITY AS THE CITY GROWS.

To accomplish this vision, the City of Fort Collins adopted an Air Quality Plan based on several guiding objectives and on prominent citizen concerns. The following report examines the diversity and effectiveness of the City's air quality programs, which are designed to address the items below:

OBJECTIVE | Reduce greenhouse gas emissions 30% below predicted worst case 2010 levels, by 2010.

OBJECTIVE | Reduce motor vehicle emissions by focusing on both technology (tailpipe emissions) and behavior (driving patterns).

OBJECTIVE | Reduce residential emissions of priority pollutants by educating citizens and providing incentives.

OBJECTIVE | Educate and encourage residents to reduce their exposure to indoor air pollution.

CITIZEN EXPECTATIONS*

- Do more to reduce the brown cloud
- Improve traffic light timing to reduce vehicle idling
- Promote alternative fuels

THE FOLLOWING PROGRAMS AND ACCOMPLISHMENTS ADDRESS THE OBJECTIVES ABOVE.

* 2004 Fort Collins Air Quality Survey

climatewise

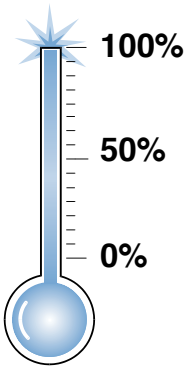
CLIMATE WISE ASSESSMENT AT EUROPEAN MOTOR CARS.

CLIMATE WISE, BUSINESS SMART

The City of Fort Collins Climate Wise program combines smart business practices with protecting the environment. Partnering businesses voluntarily reduce their greenhouse gases through waste reduction, energy efficiency, water conservation and transportation reduction. Participating partners benefit by implementing projects that support the environment and their bottom line. In exchange for participation in the program, partners receive public recognition, technical assistance and peer networking.

CLIMATE WISE ACCOMPLISHMENTS:

- **REDUCED CARBON DIOXIDE**. The Climate Wise program surpassed its 2010 goal and reduced carbon dioxide by more than 95,000 tons per year, equivalent to removing more than 1.4 million round –trips from Fort Collins to Denver.
- **SAVED BUSINESSES MONEY.** Cumulative cost savings from projects compiled by Climate Wise partners are $1,743,034 for 2005.
- **EXPANDED PROGRAM.** Eight additional businesses joined, bringing the total number of partners to 40.
- **STRATEGIC PLANNING.** Staff developed a new business plan to address program expansion with a four-tiered approach to motivate organizations to continue to do more and strive for a more prestigious partnership level. Staff also formed a new partner Steering Committee to assist in planning for the program's future.



RESULTS TO DATE

(eCO2 tons/year)

2010 Climate Wise Goal:
Reduce Greenhouse Gas emissions by 93,390 tons/year eCO2

2004 Savings: 95,452 tons/year eCO2

greenhouse gas

CITYWIDE GREENHOUSE GAS REDUCTION

Since adopting the citywide greenhouse gas reduction target in 1999, Fort Collins has realized multiple benefits including air quality improvement, reduced waste in the local landfill, improved efficiency of municipal operations, and cost-savings for businesses and City government.

GREENHOUSE GAS REDUCTION ACCOMPLISHMENTS:

- **REDUCTION IN EMISSIONS.** In 2004, nine percent of citywide emissions (241,000 tons of carbon dioxide equivalent) were reduced through the combined efforts of businesses, citizens, and the City government.
- **BIODIESEL PILOT.** In 2005, 25% of City fleet vehicles used biodiesel fuel.
- **RECYCLING.** 13,650 tons of recyclables were collected in Fort Collins in 2005, including 3,970 tons of cardboard, reducing CO2 emissions by approximately 11,350 tons.
- **EDUCATION.** a LEED (Leadership in Energy and Environmental Design) workshop was organized by the City for regional stakeholders.
- **ANALYSIS.** An interdepartmental team analyzed the potential for energy savings at City buildings, and set the stage for a performance contract to enhance energy efficiency of existing buildings.
- **EDUCATION.** Presented "Climate Change & Colorado's Business Environment" at the Business Environmental Program Series.

electric energy

ELECTRIC ENERGY SUPPLY POLICY

The primary goals of the Energy Policy are to maintain high system reliability, maintain competitive electric rates and reduce the environmental impact of electricity generation. Electricity savings from demand side management (DSM) programs and the use of renewable energy result in reduced power plant emissions of primary pollutants (sulfur dioxide, nitrogen oxides and mercury) and carbon dioxide.

ACCOMPLISHMENTS:

- Energy efficiency savings from DSM programs **reduce electricity consumption by over 8,700 megawatt–hours per year**, or 0.6% of Fort Collins Utilities 2005 purchased electricity.
- The new Residential Lighting Program resulted in the **sale of over 70,000 compact fluorescent light bulbs** through local retailers.
- The Refrigerator and Freezer Recycling Program captured and destroyed over 4500 pounds of foam insulation, which contains CFC-11, thus preventing **453 pounds of CFC–11 from escaping into the atmosphere**, equivalent to 1060 tons of carbon dioxide emissions.
- 2005 per capita **electric consumption was 3.6% lower** than the 2002 baseline;
- **Renewable energy comprised 2.2% of total electrical energy purchases** in 2005.
- The Wind Program has over **1,200 residential customers and over 70 commercial customers**.

(ABOVE) CITIZENS EXHANGE INEFFICIENT HALOGEN TORCHIERES FOR CFL LAMPS. (BELOW) INDUSTRIAL FREE COOLING SYSTEM SAVES 1,680,000 KILOWATT-HOURS PER YEAR

energy codes

BUILDING ENERGY CODES

The City Council approved new residential, mechanical, gas and energy codes that significantly improved energy efficiency of new home construction. The new code will reduce energy use in homes and associated air pollution and greenhouse gas emissions, as well as saving homeowners money. In 2005, 678 single-family detached and 58 single family attached home building permits were issued to build more energy efficient homes.

action plan

ACTION PLAN FOR SUSTAINABILITY

AN INTERDEPARTMENTAL TEAM BEGAN IMPLEMENTING THE CITY'S ACTION PLAN FOR SUSTAINABILITY TO ACHIEVE THE CITY'S POLICY:

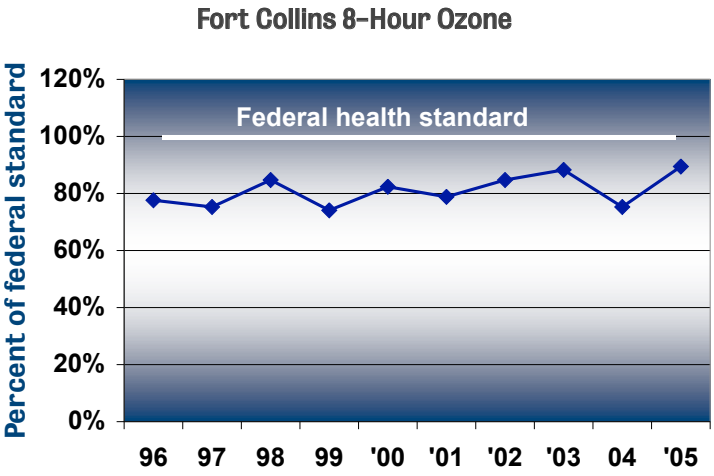
The City of Fort Collins will serve as a community leader in sustainability by conducting daily operations through balanced stewardship of human, financial, and environmental resources for present and future generations.

ozone reduction

OZONE REDUCTION

Ground level ozone has been an increasing concern along the Front Range over the past few years. Fort Collins' ozone levels are very close to the federal health standard, and Fort Collins is part of the EPA's ozone region of concern.

Emission from cars, local industry, and even lawn and garden equipment contribute to ozone formation. City education and incentive programs play an important role in helping the region reduce volatile organic compounds (VOC) from gasoline evaporation and combustion.



EDUCATION AND INCENTIVE PROGRAMS:

LAWN MOWER REBATE

Lawn and garden equipment produce 8% of regional ozone. The City teamed up with local mower retailers and provided 110 rebates for electric or reel mower purchases. 36 old gas mowers were recycled too, reducing more than 2 tons of carbon monoxide and more than 550 pounds of VOCs.

GAS CAP REPLACEMENT

A faulty or missing gas caps can emit up to one gallon of gas every two weeks. The City partnered with eight Climate Wise businesses, tested 321 caps and replaced 19 to reduce 675 pounds of VOCs.

OZONE AWARENESS

The City provided articles for City News, Larimer County Compass, as well as posted billboards, ozone displays, and Web information to raise awareness and change behavior.

emissions testing

COLORADO EMISSIONS TESTING PROGRAM

Colorado's emissions testing program has played an important role in decreasing air pollution.

EMISSIONS TESTING ACCOMPLISHMENTS:

- **6% Reduction.** In 2005, the City of Fort Collins successfully lobbied the state to extend this testing program by a year to achieve 6% reductions in hydrocarbons (that contribute to ozone) and carbon monoxide.

RESPONDING TO CITIZEN EXPECTATIONS

In December 2004, the Natural Resources Department asked citizens what they thought City government should do to protect air quality. Here's a sample of how City departments are working together to respond.

IMPROVE TRAFFIC LIGHT TIMING TO REDUCE VEHICLE IDLING (95%)

The City of Fort Collins Traffic Operations has completely updated the traffic management system to optimize flow.

Idling Accomplishments:

- **9 % fewer accidents** on the streets of Fort Collins
- **10 % decreased travel time** for drivers
- **Reduced tailpipe emissions** up to 23% on certain streets

PROMOTE ALTERNATIVE FUELS (83%)

- Operations Services successfully piloted use of biodiesel (B20) in 25% of the diesel municipal fleet.
- A compressed natural gas (CNG) fueling station was completed at Transfort, providing a fueling location of the City's six CNG busses vehicles.
- The City is building a hydrogen fueling station alongside the Transfort CNG fueling station, planned for completion in 2006.

DO MORE TO REDUCE THE BROWN CLOUD (82%)

- Lawn mower rebate program
- Gas cap replacement program
- Smoking vehicle hotline
- Support emissions testing program
- Clean Air Track to Win Campaign

CLEAN AIR – TRACK TO WIN

The City's first annual **Clean Air – Track** to Win campaign took advantage of the findings from a recent survey that most Fort Collins citizens know about small things they can do to improve air quality (86%) and feel a personal obligation to help improve air quality (91%). Natural Resources and SmartTrips teamed up on a campaign to help residents save gas money, protect air quality and reduce traffic congestion by 'tracking' their environmentally friendly actions such as parking once and walking, keeping tires inflated, riding their bike or bus, carpooling, trip chaining, turning off their engine when waiting for a train to pass, etc.

Track to Win Accomplishments

- **725 Participants.** In the campaign's inaugural year, 725 residents participated over six weeks and tracked measurable air pollution reductions!
- **Carbon Dioxide Reduction.** Participants removed over 96,000 miles driven and eliminated over 89,000 pounds of carbon dioxide from the air.

smarttrips

SMARTTRIPS

In 2005, SmartTrips continued to offer carpool, vanpool, and schoolpool services with great success.

SMARTTRIPS ACCOMPLISHMENTS:

- **Reduced 4.7 million miles of travel** in Fort Collins
- Kept over **140 tons of carbon monoxide out of our air**.
- SmartTrips 2005 **VMT reductions increased 35 % above 2004 levels**. Particular highlights included the five fold increase in miles reduced from both the Van Pool and the Library Clean Air campaigns and a doubling of miles reduced by the Drive Less Challenge over 2004 levels.

transportation planning

TRANSPORTATION PLANNING

MASON TRANSPORTATION CORRIDOR

MTC is a bicycle/pedestrian trail system that will offer a convenient north/south route for cyclists and pedestrians and reduce the need for driving. Construction of the bicycle/pedestrian trail from the Fossil Creek Trail to the Spring Creek Trail began in November 2005 and is planned for completion in the summer of 2006.

SAFE ROUTES TO SCHOOL

Transportation Planning began development of a Web site that will contain information for parents and teachers about traveling safely to school. The Web site will also feature a Route Builder that will allow the user to select a school destination and a mode and receive a map outlining the optimal route to school via that mode.

PEDESTRIAN PLAN

In 2005, the Transportation Services Area conducted a study to explore the means to improve pedestrian safety in our community. As a result, staff has begun developing alternatives and recommending strategies to increase pedestrian safety and driver awareness at intersections and crosswalks in Fort Collins. The City continues to make improvements to pedestrian facilities through the Building on Basics funding.

LUTRAQ

LAND USE, TRANSPORTATION AND AIR QUALITY

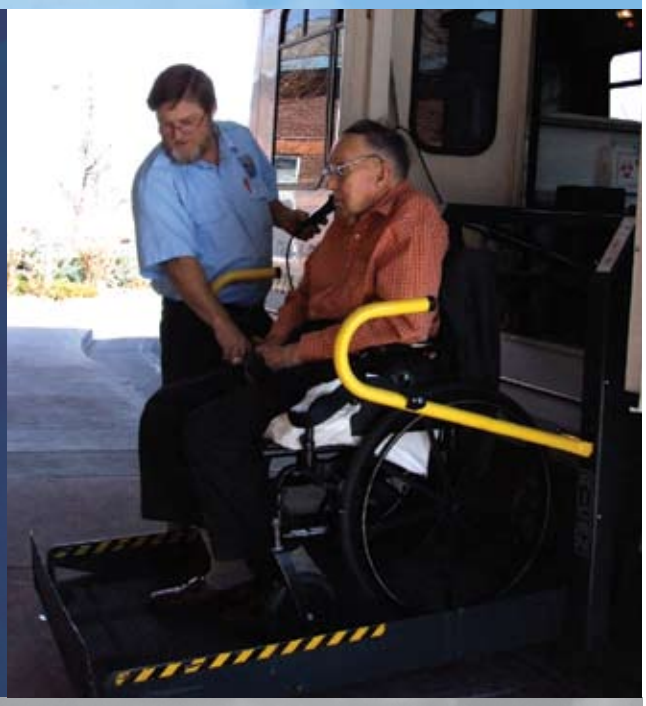
Motor vehicles create most of the air pollution in Fort Collins, and vehicle miles traveled [VMT] is growing faster than population. The City has a number of programs that help reduce automobile dependency and lower the VMT growth rate, which are important goals for land use, transportation, air quality, and livability. Eight departments in two service areas each play a role. It begins with good planning. Coordinated land use and transportation plans, along with innovative development and street design standards, assure that walking, bicycling, and public transit will grow more attractive, and vehicle travel less necessary, than they are today. Continuing investment in improved sidewalks, bikeways, and Transfort services will enable more people to leave their cars at home more of the time. And the SmartTrips program helps employers, commuters and parents to find workable travel options that are easy, safe, fast, and affordable.

TRANSFORT

The City of Fort Collins is served by Transfort, which operates 12 fixed bus routes in the city. In addition, a regional route provides service between Fort Collins and Loveland, through a cooperative agreement between the City of Fort Collins, City of Loveland, and Larimer County.

ACCOMPLISHMENTS:

- 1,481,472 trips were taken on Transfort in 2005, with more than 4 million vehicle miles traveled savings.
- All youth under 17 rode free in 2005, thanks to a grant from the Bohemian Foundation. Youth accounted for over 361,000 trips, yielding more than a million vehicle miles traveled savings.
- Transfort has seen a 14.2% increase in ridership since 1997.
- Dial-A-Ride operates 3 compressed natural gas vehicles for paratransit service.



RADON

Indoor radon gas is the second leading cause of lung cancer. Because Fort Collins is in a high radon area, a person residing his/her whole life in an average home has one chance in a hundred of contracting lung cancer. The City offers low-cost test kits to encourage residents to test for radon and to reduce high levels if found. Beginning in 2005, the Building Code requires a radon-reduction system in new single-family homes and duplexes. The Building Department provided training on how to install radon systems and issued permits for over 700 units with radon systems in 2005. Because Fort Collins is recognized as a leader in reducing radon risks, staff made three invited presentations to national audiences in 2005.

URBAN FORESTRY

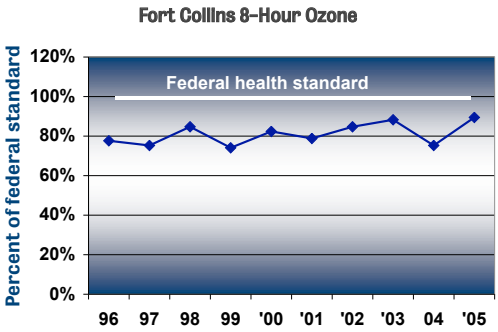
The urban forest provides a variety of benefits to citizens, including the ability to filter air pollution from the air and reduce the amount of energy used for home heating and cooling. In 2005, 860 trees were planted in City-owned property, enhancing energy efficiency and filtering air pollutants.

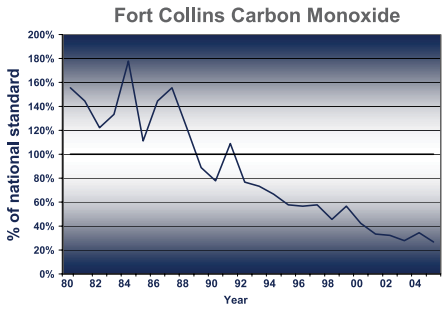
The Natural Resources Department has the lead for air quality planning in Fort Collins and compiled this report with assistance from numerous City departments. For more information, contact (970) 221-6600.

2005 FORT COLLINS AIR QUALITY TRENDS

OZONE IN FORT COLLINS IS ONLY 11% BETTER THAN THE FEDERAL 8–HOUR STANDARD.

Ozone is formed when nitrogen oxides and hydrocarbons emitted by motor vehicles and industry react in sunlight. 8-hour ozone concentrations in Fort Collins are near the federal standard. Fort Collins is included in Colorado's "deferred" ozone non-attainment area defined by EPA.



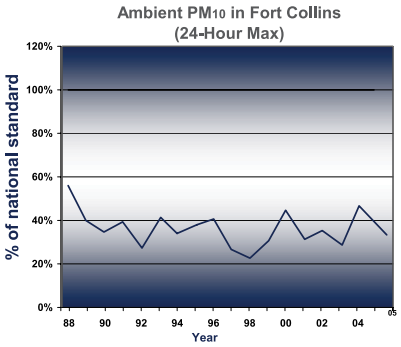


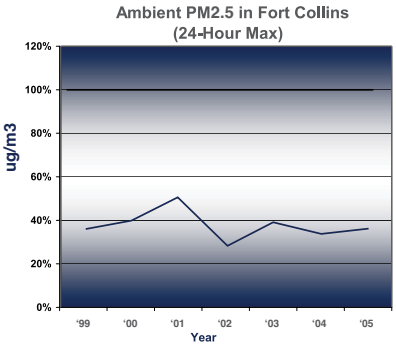
CARBON MONOXIDE LEVELS IN FORT COLLINS HAVE IMPROVED SIGNIFICANTLY SINCE THE 1980'S.

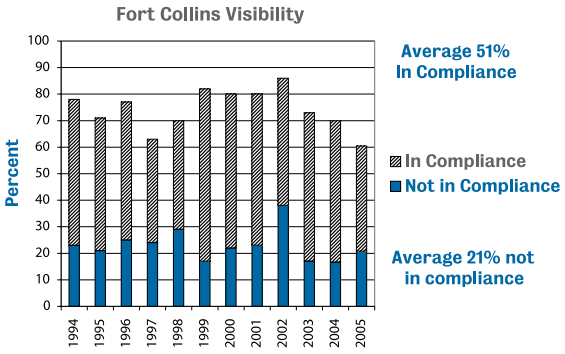
Carbon Monoxide is emitted mainly by motor vehicles. Emissions continue to decrease nation-wide, mainly due to new car standards. Carbon monoxide concentrations in Fort Collins are now well below the federal standard.

PARTICULATE MATTER CONCENTRATIONS IN FORT COLLINS ARE BETTER THAN FEDERAL STANDARDS.

Particles (PM10) are mainly dust from roads, fields, and construction sites. Fine particles (PM2.5) typically form when reactions occur between certain pollutants in the atmosphere. Fine particles are a major factor in poor visibility.







ON AVERAGE, FORT COLLINS VIOLATES THE STATE'S VISIBILITY STANDARD 21% OF THE TIME.

Visibility is a measure of how the air looks. On average, Fort Collins violates Colorado's guideline visibility standard 21% of the time, nearly one in four days each year. Data not shown are "missing", which occurs most commonly when humidity is >70 percent.