City of Fort Collins

Municipal Climate Protection Plan

June 2001

Prepared by

City of Fort Collins
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Cover page legend
(Clockwise from top left)

"Green " New City Administration Building – The new City Administration Building, to be completed in June 2001, features daylighting, an extensive energy management system, energy efficient transformers, T8 lights, a clean power energy generator, a real-time energy recording device, 33% construction waste recycling, and use of building commissioning.

Renewable Wind Energy. Fort Collins Utilities was the first utility in Colorado, and among the first in the nation, to provide clean, 100 % renewable wind power to its customers. As of March, 2001, wind energy from all of Fort Collins' 4.5 turbines is fully subscribed to by 718 residential subscribers and 23 commercial subscribers. As of February 2001, these turbines had produced more than 14,745 million kilowatt-hours of wind energy.

Toyota Prius. The City has adopted a goal that by 2008, 75% of all City light-duty vehicles will meet 1998 Ultra Low Emission Vehicle (ULEV) standards. By 2000, the City had 11 ULEV (or better) vehicles, including two of Toyota's hybrid electric vehicle, Prius.

LED Traffic Signals. Retrofitting traffic signals to light-emitting diodes (LEDs) was rated as the City's highest priority greenhouse gas reduction measure. By May, 2001, the City had retrofit of more than 160 traffic signal intersections. This project cost the City $370,000 but is expected to save $110,000 per year in reduced energy and maintenance costs, reduce over 3,000 tons of CO_2 each year, as well as improve intersection safety.

Table of Contents

List of Tables

List of Figures

Figure **Page**

Appendices

Acknowledgements

The plan was developed with funding support from the International Council for Local Environmental Initiatives, Cities for Climate Protection – U.S. Office.

1.0 Background

The City of Fort Collins joined the Cities for Climate Protection Campaign in 1997 and developed a citywide local action plan to reduce greenhouse gas emissions in 1999. While the local action plan contained a number of measures that reduced greenhouse gases from City operations, the City felt it would be appropriate to develop a plan specific only to municipal operations. In 2000, the City received funding from the International Council for Local Environmental Initiatives to develop this Municipal Climate Protection Plan. This plan documents the program structure, current initiatives, and future plans for the City to reduce greenhouse gas emissions that result from its energy consumption and waste generation. The City's Municipal Climate Protection Plan was approved by City administrators on May xx, 2001.

In the future, all municipal climate protection activities will be evaluated and quantified, and recommendations for future activities made in conjunction with the biennial climate protection update and called for called in City Council Resolution 99-137. However, municipal activities will be separately addressed in that report.

1.1 City Organization

The City of Fort Collins employs approximately currently 1,208 full-time and 800 seasonal/part-time people across a range of departments as shown in Figure 1. All departments generate solid waste and consume energy and water normal to occupying office space.

1.2 Climate Protection Activities

1.2.1 Cities for Climate Protection

The City of Fort Collins has shown a strong interest in climate protection dating back to 1996, when the intent to join the international Cities for Climate Protection Campaign was identified in the City's Air Quality Action Plan.

In 1997, Fort Collins joined over 300 cities (now over 400) in the international Cities for Climate Protection Campaign. In doing so, the City made a commitment to conduct a greenhouse gas inventory for the baseline year of 1990, set a greenhouse gas reduction target, and develop a plan for meeting the target. A Staff Technical Team and a Citizen Advisory Committee spent over 18 months developing a climate protection plan for the city.

In 1999, Fort Collins City Council adopted the Fort Collins Local Action Plan to Reduce Greenhouse Gas Emissions. The citywide greenhouse gas reduction target was established as "30 percent reduction of predicted 2010 levels". The City Council also called for formation of an Energy Management Team to facilitate implementation of the Local Action Plan, and biennial reporting to evaluate the progress of City staff's greenhouse gas reduction efforts and recommend future climate protection actions.

1.2.2 Municipal Energy Management Team

The City of Fort Collins' Energy Management Team is led by the City Utilities and the Natural Resources Department and includes representation from all major City departments that consume energy and generate waste. With a few exceptions, this team is an extension of the Staff Technical Team that

worked to develop the City's Local Action Plan to Reduce Greenhouse Gas Emissions. Members of the Energy Management Team are listed in Table 1.

Figure 1. City of Fort Collins Organizational Chart

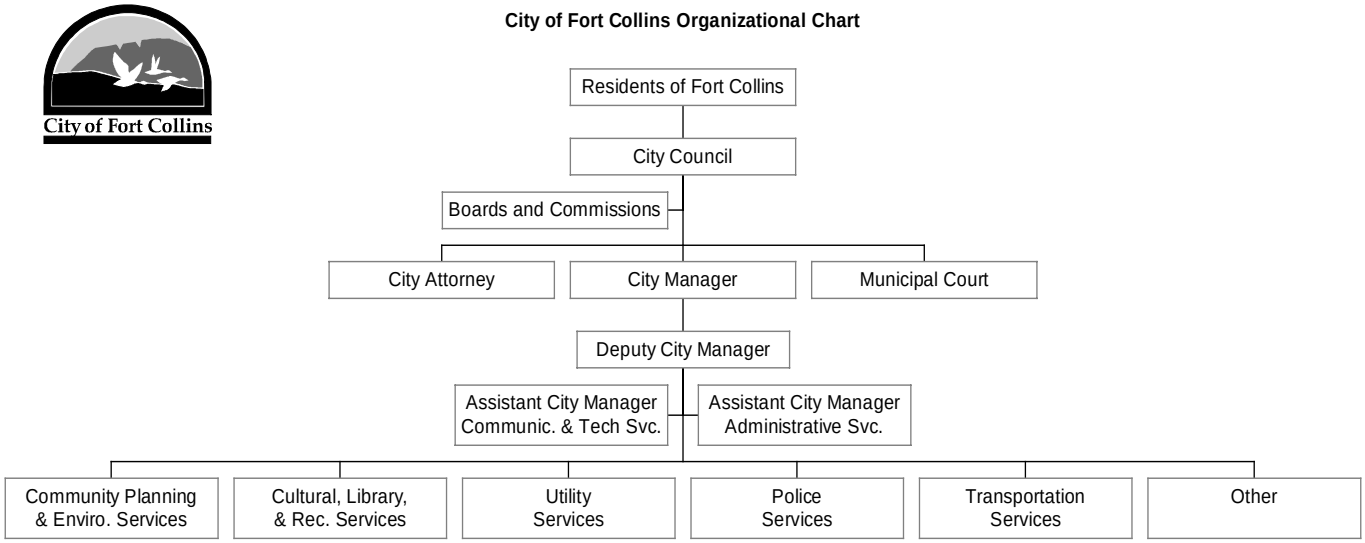

Table 1. Energy Management Team Members

Name	Department	Title
Wendy Williams	Utilities	Utilities Deputy General Manager
Gary Schroeder	Utilities	Energy Service Engineer
Susie Gordon	Natural Resources	Air Quality & Solid Waste Program Manager
Lucinda Smith	Natural Resources	Senior Environmental Planner
Sarah Fox	Natural Resources	Environmental Planner / AQ Outreach Coordinator
Ken Mannon	Operation Services	Director
Jared Interholtzinger	Operations Services	Facilities Manager
Tracy Ochsner	Operations Services	Fleet Analyst
Felix Lee	Building and Zoning	Director
Jim O'Neill	Finance	Director of Purchasing and Risk Management
Tim Buchanan	Forestry	City Forester
Randy Hensley	Transportation Services	Transportation Planning and Parking Manager
Sylvia Cranmer	Transportation Demand Management	Marketing Analyst

The Energy Management Team's scope of work, as approved by the City Manager, is listed below:

I. Develop an implementation schedule for measures contained in the Local Action Plan.
II. Develop budget recommendations for measures contained in the Local Action Plan, beginning with the mid-course evaluation in 2001.
III. Oversee preparation of the biennial report to Council on greenhouse gas reduction. The report will:
- Assess effectiveness of past greenhouse gas reducing actions,
- Make budget recommendations for future greenhouse gas reducing actions,
- Recommend future actions for consideration beyond those already contained in the Plan,
- Report on energy efficiency activities as required by Resolution 97-51 covering energy efficient design and construction of City facilities, energy efficient operation of City vehicles, development of measurable energy demand management goals, and prioritization of energy demand management opportunities.

IV. Identify and seek appropriate additional funding sources, such as grants, to implement measures contained in the Local Action Plan.
V. Evaluate and recommend ways for the City to improve its energy efficiency. This could include the following activities already identified in the Local Action Plan:
- Evaluate the costs and benefits of incentives for increasing energy efficiency in departments,
- Consider joining Energy Star Buildings or EPA's Green Lights,
- Evaluate a City policy to replace old motors with high efficiency new ones,
- Evaluate the cost and benefits of hiring an HVAC Control Technician.

VI. Serve as a resource to Utilities Services in their leadership role developing a City energy policy per the Council Policy Agenda.
VII. Share information with other Team members on energy-related City projects.
VIII. Continue to monitor and update City Council on scientific conclusions and national and international efforts with respect to greenhouse gases and global warming.
IX. Communicate with the City organization and the community regarding climate change and the City's role in reducing emissions.
X. Provide a central point for responding to information requests and for identifying opportunities to participate in ad hoc groups, task forces, intergovernmental partnerships, etc. that the City receives related to greenhouse gases.
XI. Obtain prior approval from the City Manager for all intergovernmental efforts.

1.3 Pollution Prevention Activities

Pollution prevention is high priority for the City of Fort Collins. The City's comprehensive master plan, *City Plan*, contains policies supporting pollution prevention, and the City's Air Quality Action Plan identifies pollution prevention as an important method of reducing air pollution.

Municipal pollution prevention activities are coordinated by the City's Environmental Management Team. This team is led by the Environmental Compliance Specialist in the Natural Resources Department. The team is involved in ensuring compliance with environmental regulations applicable to the City and promoting best management practices within City operations. The Environmental Management Team is working on developing a comprehensive EMS (Environmental Management System) for City operations. As part of that activity, a Pollution Prevention Plan was drafted in 1999. This Plan is still awaiting finalization under the full EMS program.

The P2 program identified in the Plan is designed to systematically locate and implement processes or process changes which reduce the volume of materials consumed (including energy) or wastes produced. This will be achieved by first conducting a baseline P2 assessment during the development phases of the program, followed by periodic follow-up assessments.

The following general steps will be employed during the assessment process:

1) Choose priority areas to focus on for the current year based on the analysis.

2) For each priority area, tour relevant city facilities. Identify potential initiatives or measures to reduce the generation of waste using input from staff and suggestions from pollution prevention resources. Create a list of Pollution Prevention Opportunities (P2O) to be investigated further.

3) Where appropriate, estimate the implementation cost and expected waste reduction and cost savings from implementation.

4) Choose the P2Os that will be implemented and add them to a prioritized list of projects.

1.3.1 Current Pollution Prevention Initiatives

In 1999, the City of Fort Collins conducted pollution prevention assessments of five city departments: Facilities, Streets, Parks, Fleet Services, and Transfort. The assessments examined waste generation rates, documented existing waste minimization initiatives, and provided a list of recommendations for further investigation and possible implementation. As a follow-up to the assessments, the City's Environmental Management Team will monitor the implementation status and results of recommendations. The assessment process identified over 75 existing pollution prevention and recycling practices in place within city operations.

Based on the results of the 1999 assessments of five city departments, Table 2 highlights the current list of pollution prevention projects being considered by the Environmental Management Team.

Table 2. Recommended Pollution Prevention Projects

SOURCE REDUCTION				
Recommendation	**Facility**	**Estimated Waste Reduction**	**Estimated Cost Savings**	**Pay Back Period**
Reduce residual losses from paint totes	Streets	347 gallons/yr	$2,478/yr	NC
Waste oil heater for shop	Parks	295 MMBtu/yr (natural gas)	$ 1,570/yr	4.3 yrs
Integrated Pest Management	Parks	75 to 135 gals/yr (herbicide only)	$4,250 to $7,650/yr	Immediate
Bathroom cleaner substitution	Parks	NC	NC	NA
Reduce emissions on weed whips and 2 stroke push mowers (replace current oil w/ canola oil)	Parks	NC	NC	NA
Laundry service for shop rags	Facilities, Streets, Fleets, Transfort	48,050 rags/yr	$ 280/yr	Immediate
Replace absorbent purchases with sawdust	Fleets, Transfort	10 bags absorbent/yr	$30	Immediate
Reduce frequency of bus washing	Transfort	14,845 kWh/yr (electricity) 246,740 gal/yr (water)	$ 2,965 /yr	Immediate
Replace petroleum based oil used on under-carriage w/ vegetable based oil	Streets	20 gal/yr (petroleum based oil)	NC	NA
Green design and construction practices	Facilities	NC	NC	NC

RECYCLING				
Recommendation	**Facility**	**Estimated Waste Reduction**	**Estimated Cost Savings**	**Pay Back Period**
Construction Site Recycling	Facilities	1,569 yd3/yr	$3,138/yr	Immediate
Alternatives to landfilling sawdust	Facilities	100 lbs/yr	NC	NA
Leasing carpet squares	Facilities	NC	NC	NA
Recycling in Parks	Parks	837 yd^3/yr	$0	NA
Cardboard recycling	Parks, Fleets	NC	NC	NA
Waste oil heater for shop	Parks	4,214 gal/yr (used oil)	$ 421.40/yr	4.3 yrs
Tire and belt recycling	All	445 tires/yr	$0	NA
Aerosol can recycling	All	NC	NC	NA
DISPOSAL				
Recommendation	**Facility**	**Estimated Waste Reduction**	**Estimated Cost Savings**	**Pay Back Period**
Grease Management	Streets, Fleets, Transfort	NC	NC	NA

Several of the measures identified above have the potential to reduce greenhouse gas emissions, and have therefore been incorporated into Section 3 of this Municipal Climate Protection Plan.

2.0 Municipal Greenhouse Gas Audit

In order to gain an understanding of greenhouse gas emissions resulting from municipal operations, an audit of greenhouse gas emissions was conducted for 1990, 1995 and 1999. Because the city government does not track all the information needed to prepare the audit, a number of assumptions were made to arrive at CO_2 emissions estimates.

2.1 Buildings

Information on natural gas and electricity consumption from all major City buildings was provided by Facility Services. Energy use and costs are tracked in the FASER database maintained by Facility Services.

Table 3. Building Energy Use

Year	Electricity (kWh)	Natural Gas (ccf)	Total Square Foot	Tons CO_2
1990	7,943,306	57,856	680,000	9,316
1995	10,107,753	59,804	784,846	11,014
1999	11,100,639	61,345	" " + 2 new office spaces	11,833

2.2 Lighting (Streetlights and Traffic Signals)

Table 4. Lighting Energy Use (Data provided by Fort Collins Utility)

What	Year	KWh	Million BTU
Streetlights	1990	5,920,661	20,501
Streetlights	1995	6,598,489	22,514
Streetlights	1999	7,251,946	24,744
Traffic Signals	1990	1,577,714	5,383
Traffic Signals	1995	2,117,602	7,225
Traffic Signals	1999	2,406,112	8,210

2.3 Water and Wastewater Treatment

Table 5. Water and Wastewater Treatment Energy Use (Data provided by Fort Collins Utility)

What	Year	Electricity (kWh)	Natural Gas (ccf)
Water Treatment	1990	2,414,990	82,188
Water Treatment	1995	3,404,585	85,156
Water Treatment	1999	3,538,852	67,684
Waste water	1990	9,523,280	105,067
Wastewater	1995*	13,604,848	54,752
Wastewater	1999	13,444,800	63,158

* Wastewater plant #1 was down for 1995 due to construction; 1994 numbers were used.

2.4 Fleets

Table 6. Fleets Energy Use (Data provided by Fleet Services)

Year	Unleaded Gasoline (gal)	Diesel (gal)	Propane (GGE)	CNG (GGE)
1990	201,488	97,181	13,035	
1995	187,544	80,115	45,875	
1999	446,106	419,834	113,768	1,192

2.5 Solid Waste

The City's Purchasing Department provided the estimate that 21,416 cubic yards of waste were removed from City dumpsters in 1995. This estimate assumes that the dumpsters were full. Here, we have assumed that the dumpsters are only ¾ full, resulting in 16,062 cubic yards of waste in 1995. A per capita employee waste generation rate was calculated for 1995 of 12.9 cubic yards per person. This was applied to the known number of City employees in 1990 to estimate the amount of waste generated in 1990 as 12,950 cubic yards.

The CO_2 emissions from the waste were estimated with the Cities for Climate Protection software, using the following waste characterization.

Table 7. 1998 Larimer County Landfill -Commercial Waste Characterization

	Percent of Waste
Material	**1998**
Paper	13.5
Food Waste	3.0
Plant Debris	11.6
Wood/Textiles	24.5
All Other	47.5
Total	100.0

Table 8. Municipal Waste Estimates

	1990	1995	1999
Waste removed (full) yd3		21,416	24,540
Waste removed (3/4 full) yd3	12,950	16,062	18,405
# City employees	1,003	1,244	1,308
Per capita yd3	12.9	12.9	18.8
Tons (If 3/4 full) @ 300#/yd3	1,943	2,409	2761
Tons CO_2	203	252	290

2.6 1990 Municipal Greenhouse Gas Emissions

The emissions inventory for The City of Fort Collins municipal activities includes buildings, streetlights, water treatment processes, fleet fuel consumption, and waste generation. In 1990, city government operations were responsible for the consumption of 212,180 million BTU's, disposal of 1,943 tons of waste, and 35,536 tons CO_2e. This represents 2.9% of Fort Collins' total citywide CO_2 emissions.

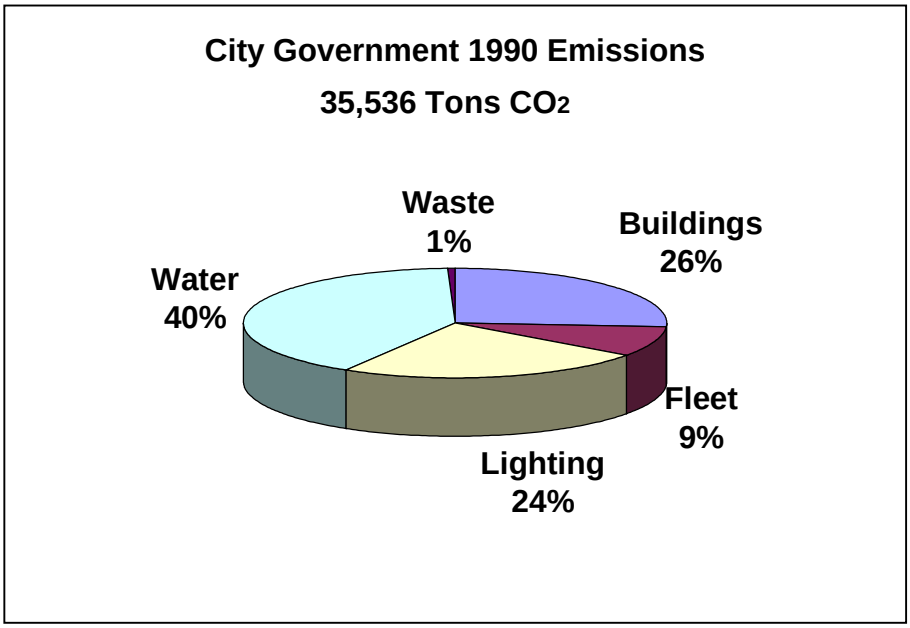

Figure 2. 1990 City Government CO_2 Emissions

Table 9. 1990 Fort Collins City Government CO_2 Emissions

	Tons CO2 (e)	Percent CO2(e)	Energy Million BTU's
Buildings	9,3167	26.2 %	86,695
Vehicle Fleet	3,167	8.9 %	39,880
Streetlights	8,376	23.6 %	25,584
Water Treatment and Reclamation	14,743	40.7 %	60,021
Waste	203	.6 %	
TOTAL	35,536	100 %	212,180

2.7 1999 Municipal Greenhouse Gas Emissions

An emissions inventory for Fort Collins city government was conducted for the year 1999. This inventory also includes buildings, streetlights, water treatment processes, and fleets.

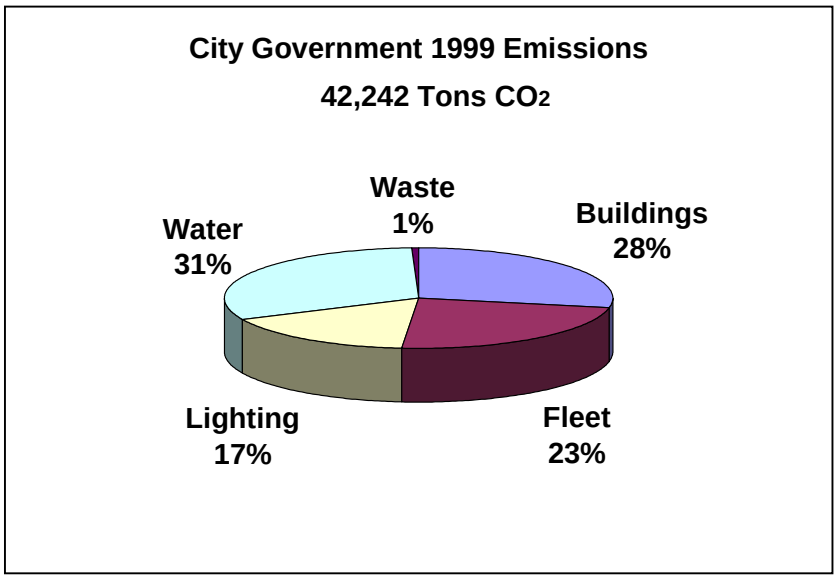

Figure 3. 1999 City Government CO_2 Emissions

Table 10. 1999 Fort Collins City Government CO_2 Emissions

	Tons CO2 (e)	Percent CO2(e)	Energy Million BTU's
Buildings	11,833	28.0 %	101,061
Vehicle Fleet	9,863	23.3 %	124,582
Streetlights	7,059	16.7 %	32,987
Water Treatment and Reclamation	13,196	31.2 %	71,425
Waste	290	0.7 %	
TOTAL	42,242	100 %	330,055

3.0 Municipal Actions to Reduce Greenhouse Gas Emissions

City Council Resolution 97-97, which authorizes work on this campaign, expresses the intent for the City government to set a good example:

> "The Council intends for the City to take a leadership role in increasing energy efficiency and reducing greenhouse gas emissions from municipal operations."

The City of Fort Collins has long been carrying out actions that have the secondary benefit of reducing greenhouse gas emissions. It is only in the past few years, however, that efforts have been made to quantify the climate protection benefit of those actions. In mid-April 2001, the Energy Management Team submitted a draft Climate Protection Status Report for the year 2000 to the City Manager. Table 11 summarizes the greenhouse gas reduction benefit of all municipal actions that could be quantified for the year 2000. In total, 48,000 tons of CO_2e were reduced during the year 2000 from municipal operations.

Table 11. Municipal GHG Reduction Measures for 2000

Quantifiable Measures	Tons CO_2e Reduced in 2000
TRANSPORTATION	
City Employee Teleworking	3
Alternative Fueled City Fleet Vehicles	382
Fuel Consumption by City Departments	47
ENERGY	
FC Electricity Distribution	14,639
Wind Power for City Facilities	1,944
Replace Traffic Signals with LEDs	405
Lighting Upgrades – City Buildings: '90-'98	237
City Convert to Variable Freq. Drives(thru '98)	45
SOLID WASTE	
Methane Flaring and Heat Recovery	29,925
Internal City Recycling Program	373
VEGETATION	
Increase Citywide Tree Planting	482
PURCHASING	
Distribute Bids and Proposals Electronically	5
TOTAL	**48,487**

The next section of this plan addresses City actions that are directly related to the operation of City government. It describes, by City department, future actions (both continuing and new) that are recommended to reduce municipal greenhouse gas emissions. It is very important to note that this Municipal Climate Protection Plan does not discuss the numerous City programs and activities that are geared towards citizens or businesses, but only addresses City actions that are directly related to city operations.

3.1 Utilities

3.1.1 Utilities Goal Statement

The City of Fort Collins Utilities strives to serve their customers through an environmentally friendly operation. We are dedicated to serving the community by balancing service operations through quality and economic products.

3.1.2 Utilities Existing Actions

- **Optimization of City's Wastewater Treatment System**

Estimated Equivalent CO2 Savings in 2010: 961 tons/yr

Description:
Water distribution is often the largest single component of energy use by local governments. Across the United States, energy consumption accounts for 50 to 75% of the costs of operating municipal water systems. Of this, water pumping often consumes 80% or more of the electricity used in water distribution and treatment, and therefore represents a prime opportunity for local governments to save energy and money. Many cities, including Fort Collins, are using Supervisory Control and Data Acquisition (SCADA) systems to dramatically reduce their energy costs.

The Fort Collins Utility has suggested that an evaluation of motors at its water treatment facilities would be useful for increasing energy savings. By upgrading to high efficiency motors and pumps, the water reclamation and water treatment plants would reduce electrical load. This reduction in electrical energy translates into CO2 savings from reduced coal consumption by power suppliers.

In 1997, Colorado State University's Industrial Assessment Center (IAC) completed an audit of the East Drake Water Reclamation Facility which conducts a significant portion of wastewater treatment for Fort Collins. Seven assessment recommendations were made. Four recommendation had a payback of 2.7 years or less and would result in real energy savings (not just rate reductions). These four actions would result in a combined energy reduction of 486,000 kWhr/yr in electricity and 69,000 ccf/yr in natural gas. The Utility intends to have an energy engineer evaluate the IAC report and develop recommendations for implementation.

(NOTE: If this type of assessment is conducted at the City's other water treatment facilities, further opportunities for energy savings and greenhouse gas reduction might be identified, beyond the savings estimated here.)

Four Recommendations with 2.7 year payback or less:

Estimated Implementation Cost: $ 83,960

Estimated Annual Operating Cost: Likely to be offset by energy cost savings

Potential Funding Source(s): Grants, General Fund, Utility

Annual Cost Savings: $ 37,450/year (2.2 year simple payback)

Other Benefits:

- Energy cost savings can be used to implement other conservation or service programs.
- This measure would reduce other air pollution emissions:

Reduce 0.1 tons volatile organic compounds/year
Reduce 0.2 tons carbon monoxide /year
Reduce 1.4 tons sulfur oxides/ year

♦ Continue Methane Flaring and Heat Recovery at the Wastewater Treatment Plant

The City's main wastewater treatment plant currently uses a significant amount of the methane produced from its water treatment processes to power boilers located at the facility. The remaining gas is flared off, emitting carbon dioxide but eliminating potent methane emissions. This practice of using the heat energy generated by methane combustion for power generation, and flaring off the remaining gas, is currently estimated to reduce nearly 30,00 tons of CO_2e in 2000.

A fourth anaerobic digester was built at the East Drake Water Reclamation Facility and is scheduled to go on line in May 2001. As part of this project, a third boiler was added to the system. The total system will include four digesters with gas storage lids and three boilers. Gas production is not expected to increase much, although there may be a slight increase due to longer detention times in the digesters. Methane gas usage, however, will likely be similar to the previous usage of 85 to 90 % due to the increased efficiency of the new boiler.

♦ Continue Fort Collins Electricity Distribution System Improvements

Fort Collins has made substantial investments to keep its distribution losses low, even as population growth necessitates system expansion. Fort Collins' entire system uses oversized conductors to reduce normal operating losses, and to provide enough system capacity to allow backfeeds in the event of system failures. GHG benefits are quantified by comparing Fort Collins' distribution system losses against a national average of 5.0%, taking credit for "reductions" when losses are lower than the national average. In 2000, these activities saved 35,300 MWh of energy, with a corresponding CO_2 reduction of 14,639 tons. Since 1990, these activities have saved over 137,000 tons of CO_2.

♦ Continue Purchasing Wind Power for City Facilities

The City of Fort Collins has demonstrated willingness to lead by example by making the commitment to purchase wind energy from one 660 kW turbine to cover a portion of its own municipal electricity needs. The City facility turbine was installed at Platte River Power Authority's wind site in 2000. Fort Collins Utilities handles the billing for the City turbine. The cost is prorated between the General Fund and the Utilities' funds, based on the energy used by electric accounts in each fund. City departments experience an increase of approximately 3.97 % in electric costs.

❖ Continue Utilities Design Assistance

Design Assistance – During 2000, the Utilities Design Assistance program offered design assistance for the new City office building and the Community Horticultural Center to be built in 2002. Energy Services staff played advocacy and education roles, provided technical support, and reviewed plans at several stages.

Lighting Demonstration - Utilities' Energy Services staff were also involved with a lighting retrofit project at the Old Town Parking Garage. A lighting design was achieved that substantially increases the amount, quality, and distribution of light in the garage, with no significant energy penalty. Without the new induction lights, power consumption for a comparable lighting upgrade would have doubled the existing load by adding 140,000 kWh/year, or 160 tons CO2. The new induction lights have a rated life of 100,000 hours (vs. 16,000 for conventional lighting) which will greatly reduce maintenance requirements. It is significant to note that this is the first large-scale installation of induction lighting technology in Colorado.

- **Hydrogen Task Force**

In September 2000, a "Forum for Converting to a Hydrogen Economy" was held in Fort Collins. This workshop featured presentations by international technical and policy experts on hydrogen-based energy. Following the forum, the City's Electric Advisory Board requested that a task force be established to evaluate the City's potential role in promoting the use of hydrogen energy. In early 2001, the City Manager convened a Hydrogen Task Force with representatives from relevant City advisory boards and staff departments. The task force intends to make recommendations to the City Manager by mid-2001.

3.2 Transportation Services

3.2.1 Transportation Goals

Transportation Services strives to 1) insure adequate and timely delivery of day-to-day transportation services through operations and projects; and 2) plan the acquisition and implementation of future transportation requirements in accordance with the City Council's policy agenda. Specific emphasis is given to enhancing multi-modal transportation opportunities to lessen traffic congestion and improve air quality, and to secure permanent funding to meet the objectives of adopted service plans and standards.

3.2.2 Transportation Actions

- **Promote Teleworking for City Employees**

The telework manual for City employees was completed in 2000, providing all City departments with a uniform, formalized procedure to implement teleworking. City employee teleworking in 2000 is estimated to have reduced three tons of CO_2e. The new City telework policy will be officially introduced in 2001. A survey of City employees' transportation habits will be conducted in 2001 to establish a baseline against which to measure success of the teleworking program.

- **Replace Incandescent Traffic Signals with LEDs**

Retrofitting traffic signals to light-emitting diodes (LEDs) was rated as the Fort Collins' highest priority greenhouse gas reduction measure, receiving the # 1 rating from both the Staff Technical Team and the Citizen Advisory Committee in the City's Local Action Plan to reduce GHGs. In November 2000, the City Council adopted Ordinance 160, approving a lease-purchase agreement to purchase the LED bulbs. Retrofit of more than 160 traffic signal intersections will be completed by May 2001. This project will cost the City $370,000 but is expected to save $110,000 per year in reduced energy and maintenance costs, reduce over 3,000 tons of CO_2, as well as improve intersection safety. In 2001, Traffic Operations plans to meter each intersection to provide accurate data on energy savings. All new traffic signals will be installed with LEDs in the future.

♦ Continue LUTRAQ (Land Use, Transportation, and Air Quality) Team

In 2000, the City LUTRAQ (**L**and **U**se, **Tr**ansportation, and **A**ir **Q**uality) Team of 1996 was reconvened with members from eight departments in two service areas. The mission of the LUTRAQ Team is to develop a comprehensive program to reduce the growth of vehicle miles traveled (VMT), and see that it is carried out. The Team has prioritized eight projects, three of which are directly applicable at the municipal level. These three projects are discussed in Table 12 below.

Table 12. City LUTRAQ Projects

PROJECT	*OBJECTIVE*	*STATUS*
Transportation Funding	Secure the needed long-term funding for all travel modes, especially transit, cycling, and walking, which are farther behind than streets.	Capital projects list has been prioritized from a VMT reduction perspective.
Staff Awareness	Conduct an information campaign to re-ground City staff and board & commission members on *City Plan* and Transportation Plan philosophy, and how the plans are supposed to work, etc.	Outreach materials are being finalized. Staff training to begin summer 2001.
Internal Policy Conflicts	Identify policy conflicts that interfere with VMT reduction efforts and bring them forward for resolution by the appropriate authorities.	Resolution process set up. Initial list of conflicts identified.

3.3 Operations Services

3.3.1 Operation Services Goals

The City of Fort Collins' Operations Services will work to maintain City buildings in an energy efficient manner consistent with budget and funding availability. Additionally, Facility Services constructed buildings will encompass the Department's newly established green building criteria to the maximum extent possible.

The City of Fort Collins Operations Services has established a goal that by the year 2008, 75% of light duty vehicles in the City fleet exceed the 1998 ULEV (ultra low emission vehicle) standards. In addition, Fleet Services will work with the Purchasing Department and the Equipment Board to ensure that information about fuel efficient vehicles and equipment is available and has been considered by departments making purchases.

3.3.2 Operation Services Actions

♦ Reduce City Building Energy Use 15% below 1990 levels (per s.f.)

Estimated CO2 Savings in 2010: 3,129 tons

Description: The goal of 15% reduction per gross square foot can be achieved through implementation of numerous short-tem and long-range strategies, outlined below.

Conduct energy audits of City government buildings using expertise that exists at the Fort Collins Utilities and Platte River Power Authority, and implement recommended actions.

The Fort Collins Utilities and Platte River Power Authority will conduct energy audits of major City-owned buildings and review recommendations from the 1997 HVAC and Lighting Audit for City Buildings.

Energy efficiency actions recommend by the audits will be implemented. If the City budget lacks funds to implement energy saving recommendations, performance contracting could be considered. In performance contracting, an energy firm conducts energy audits, provides capital, and implements efficiency measures. In return, the client agrees to pay a portion of the energy savings to the contractor for a specified number of years. This approach would allow the City to implement energy conservation measures with no initial capital investment.

Ensure that City buildings constructed by Facilities Services use Green Building Criteria.

In December 1998, Facility Services developed the *Facility Services Green Building Criteria*. The criteria are a local adaptation of the US Green Building Council's Leadership in Energy and Environmental Design (LEED) Green Building Rating System Criteria. The Green Building Criteria contain ten prerequisites, followed by a total of 40 possible credits for additional green design features. Designers may choose which credits to earn, based on the total credit target specified for an individual project. Most notable among the prerequisites is a 25% reduction in annual energy costs compared to a base building that meets city code.

A new goal should be set for all new buildings constructed through Facility Services to use the Green Building Criteria. The City expects to build several new buildings over the next decade, including a performing arts center, library, community center, and horticulture center. Applying Green Building Criteria would result in a 25% reduction in annual energy costs, compared to buildings constructed under Fort Collins' existing energy code. This would set an excellent example for the City as a leader in energy efficiency, and establish a good precedent for future municipal construction. By using Green Building Criteria in its future construction, the City will avoid emitting 1,222 tons of CO2 in 2010, and achieve nearly 40% of its overall goal of 15% per sq. ft. reduction.

The new City Administration Building was built using the Green Building Criteria. It incorporates many of the environmental design features including:

- Use of daylighting,
- Energy saving technology, including an extensive energy management system to optimize the HVAC system and lighting, energy efficient transformers, T8 lights, a clean power energy generator, a real-time energy recording device (to track use), under-floor cabling, and universal space planning,
- Use of building commissioning to insure that the specified efficiency levels are really achieved by the contractors,
- Use of natural materials that are locally obtained,
- Natural cleaning of site water runoff,
- Alternative transportation modes optimization (by close proximity to the transit center), and
- Implementation of a construction debris recycling program (33% diversion)

Establish a purchasing guideline or policy to replace old motors with high efficiency new motors.
Currently, many City departments choose to rewind old motors that have failed, rather than purchase high efficiency new ones, due to higher initial costs. However, it is fairly common for motors to be damaged during the rewinding process and to suffer efficiency losses of 1-2%, which can translate into higher energy costs. Working in conjunction with the Purchasing Department, a guideline for purchasing new, high efficiency motors will be developed.

Consider joining "Energy Star Buildings"

The City's Operations Services is currently not planning to join the federal Energy Star program. However, Operations Services staff met with representatives from the *ReBuild Colorado* program and heard a presentation on performance contracting by Peter Otmann, from Econergy International Corporation in Boulder. The City is considering working with this company to complete energy audits on five major City buildings: Mulberry Pool, City Hall, Lincoln Center, EPIC, and the downtown library.

Fund new position for an HVAC Control Technician

Facility Services created a new staff position, HVAC Control Technician, which was filled in July 2000.

15% per sq. ft. energy reduction in City Buildings:

Estimated Implementation Cost: Unknown. Energy audits of major City facilities are being conducted in '99 – 2000.

Estimated Annual Operating Cost: $60,000 (for HVAC Control Technician)

Potential Funding Source(s): General fund;
Performance contracting

Annual Cost Savings: A 15% reduction of both electricity and natural gas will result in a cost savings of $185,101/yr in 2010.

Other Benefits:

- City leads by example.
- Reduces air pollution emissions that contribute to visibility degradation and health problems:
  - Reduce 0.3 tons nitrogen oxides/year
  - Reduce 0.4 tons sulfur oxides/ year

♦ Municipal Construction Waste Recycling

The City's Green Building Criteria do not address the reduction of waste generated during construction. Estimates vary, but a commonly accepted figure is that between 15 and 20% of citywide municipal solid waste comes from construction and demolition projects. Based on the trash hauling schedule for all City departments, solid waste generation for City operations is approximately 22,253 yd3/yr. If the 15% estimate is applied to City operations, the current amount of construction waste being generated by the City is 3,338 yd3/yr. Furthermore, it is estimated that up to 90% of construction waste is recyclable. The City of Portland reported diverting 47% of its construction and demolition waste from the landfill in 1993. Assuming a similar rate could be achieved locally, the potential for waste reduction is 1,569 yd3/yr. Applying an average waste-hauling fee of $2/yd3, the potential cost savings from construction and demolition waste recycling in City operations is $3,138/yr.

♦ Alternatives to Landfilling Sawdust

The Facility Services Department, through a variety of building maintenance projects generates approximately 100 pounds of sawdust each year. Currently this sawdust is collected and added to the Facility dumpster for disposal. Despite the small volume generated, the sawdust is a useful product with many feasible City applications.

It is recommended that sawdust generated by Facilities be utilized within other City departments (e.g., Parks or Fleets), as opposed to disposal in the landfill. Alternative uses include additive to Parks composting operation; soil conditioner; and absorbent material in shops.

It is not anticipated that the annual volume of sawdust generated will result in a significant reduction in the total solid waste disposal volume. However, an atmosphere of continued waste reduction, reuse, and recycling has the potential of generating a heightened awareness from which quantifiable reductions will be realized. For instance, the Transfort facility purchased 10 bags of absorbent at a cost of approximately $30.00 and the reuse of sawdust in place of this absorbent will eliminate this purchase as well as eliminate the disposal of both sawdust and Transfort absorbent. Direct environmental benefit is realized when landfill volumes can be reduced, especially in situations where deferred items can offset the acquisition of other raw products.

♦ Investigate Leasing Carpet Squares

Investigate the cost and environmental benefits of leasing carpet squares rather than purchasing. This would eliminate the disposal of used carpet and could promote the use of recycled content/refurbished carpet.

The Green Building Criteria already require that carpet squares be specified as first choice unless other considerations dictate broadloom use. Carpet squares are widely used throughout City buildings and rotated regularly to maintain regular wear, extending the life of the product

Several carpet manufacturers and distributors have created leasing programs. Leased carpets can generally be cleansed, rejuvenated, and reinstalled as fresh carpet instead of being discarded in the landfill. Many carpet manufacturers have the capability of recycling their own worn carpet. If the carpet cannot be recycled, it can be used to produce a large variety of byproducts ranging from auto parts to an alternative aggregate used in concrete.

♦ Alternative Fueled City Fleet Vehicles

In 2000, the City's Fleets Department was awarded Congestion Mitigation and Air Quality funding to construct a compressed natural gas fueling station with two time-fill CNG fuel makers. Plans are underway to add fueling capacity for ethanol as well. This should make it easier to use existing alternative fueled vehicles and to purchase more of them in the future.

♦ Fuel Consumption by City Departments

Plans are underway to develop a Municipal Fuel Use Reduction Program that considers vehicle idling, cold-starts and clean vehicle purchases. This action was included in the March 2001 update to the City's Air Quality Action Plan.

- **ULEV/ZEV Vehicles for City Fleet**

The City has adopted a goal that by 2008, 75% of all City light-duty vehicles will meet 1998 Ultra Low Emission Vehicle (ULEV) standards. In 1999, the City had two ULEV vehicles out of a total of 1,561 vehicles. By 2000, the City had 11 ULEV (or better) vehicles, including two of Toyota's hybrid electric vehicle, the Prius.

3.4 Natural Resources Department

3.4.1 Natural Resources Department Goals

The City of Fort Collins' Natural Resources Department takes a lead role in developing and implementing programs that conserve the natural resources and environmental quality of Fort Collins.

The City will apply efforts both internally (as an organization) and externally, to the community, to help meet publicly adopted goals for reducing the amount of solid waste generated in Fort Collins and sent to landfills for disposal, and for increasing the amount of waste material that is recycled or reused.

3.4.2 Natural Resources Department Actions

- **New Source Review Project**

A voluntary New Source Review Project was designed in 1998 to offer new businesses in Fort Collins assistance with multi-media pollution prevention. An information packet was compiled that could aid interested businesses with sustainable building design. The new source review process, which is now being finalized, will identify and work with businesses through the City's development review process.

- **Natural Areas Shrub and Tree Planting**

The Natural Resources Department (NRD) manages more than 5,000 acres of land as natural areas. The City is committed to restoring and enhancing these lands in order to provide habitat for native plants and animals. These efforts include eradicating weeds, picking up trash, and planting native species. Since 1991, NRD has planted an estimated 28,500 native shrubs and 525 native trees in City-owned natural areas. Much of this vegetation was planted in an effort to restore the area's native vegetation. Recently, many of the shrub planting have been intended to create barriers to discourage the movement of prairie dogs onto private property. It has been roughly estimated that this vegetation can sequester (store) between 15 and 100 tons of CO2 in 2010.

- **Climate Change Education and Outreach to City Employees**

In 2000, City Council approved a one–year position for a half-time Environmental Planner to conduct business outreach and promote pollution prevention. This position is jointly funded by the Utilities and the Natural Resources Department. The new planner will continue outreach to local businesses through the Climate Wise program, which aims to reduce emissions of greenhouse gases through the use of energy conservation, waste reduction, pollution prevention, and alternative transportation measures. The planner will work directly with partner businesses on the completion, implementation, monitoring and reporting associated with their greenhouse gas reduction Action Plans. The new planner will also provide assistance to the City's Energy Management Team by performing education and public

involvement tasks, and will help with implementation of the greenhouse gas reduction plan for City operations. Three specific outreach efforts for City employees are defined in that plan.

Provide an education campaign with City staff about energy usage.
This education campaign will focus on encouraging City staff to reduce their personal energy usage. Data on current departmental energy usage will be provided to educate employees about their energy use practices. It is important for City employees to take the first step in reducing energy usage. There are many simple things that would have a large impact – such as turning off hallway and office lights at the end of the day, or allowing computers to return to energy saving mode.

Conduct an interdepartmental (or interbuilding) energy challenge.

Along with the education campaign to City employees about energy waste, a year-long contest will be initiated to get the spirit of the campaign rolling. The challenge will encourage employees to reduce their departmental energy consumption by some percentage,(e.g., 10%), by waging the service areas, departments, or buildings against one another. The winner will be provided with a prize as well as recognition through various outlets, such as the Coloradoan, so that citizens of Fort Collins learn about the efforts that are being made by the City to reduce energy consumption.

Educate City departments about fuel-efficient purchases.
This program will provide an aggressive education campaign to City departments that purchase vehicles on a regular basis. Fleet Services will encourage departments to only purchase cars that are fuel-efficient and best suited to their needs. They will discourage purchasing larger automobiles when they are not necessary for the jobs being performed. In addition, Fleets would provide each department with a summary of their fuel consumption, and publicize the information to encourage departments to be more conscientious about vehicle usage.

♦ City Government Solid Waste Reduction

The City developed the following goals for its internal operations, many of which have been met or initiated.

Waste Prevention and Reduction

1. Increase yard waste composting. Identify three main sources of yard waste and take measures to increase composting by 25% in three years.
2. Institute a construction debris recycling program for on-site contractors of City government projects.
3. Decrease the use of hazardous solvents in vehicle maintenance shops city-wide.
4. Encourage use of electronic communication (email, telephone, etc.) instead of paper by City employees and contractors whenever appropriate
5. Require use of duplex copying when available
6. Encourage use of once-used (clean scrap) paper for internal use.

Recycling

1. Use electronic mail system for employee education.
2. Develop an internal policy for recycling and waste reduction.
3. Begin paper board recycling (contingent on market reception).
4. Institute a contest between City departments to improve recycling volumes by 10%.
5. Continue to implement/expand, the City's internal recycling program.
6. Discourage use of non-recyclable products and materials by City employees and contractors.

7. Require incorporation of adequate recycling facilities in construction or remodeling of City facilities.
8. Encourage cardboard recycling at Parks, Fleets, and Streets.

Buy Recycled Products
1. Purchase 30% recycled content paper and encourage adoption of this guideline.
2. Incorporate contract language with outside vendors to encourage the use of recycled content products.

Purchasing
1. Implement policies to continuously update recycled-content specifications to maximum feasible levels for all products, e.g., printer paper.
2. Adopt policy of purchasing duplex-capable copiers and computers. Encourage City vendors to adopt similar policies.
3. Include salvage and recycling requirements in all contracts with demolition or removal firms.

Promotion, Education
1. Implement/expand ongoing comprehensive waste reduction program for City employees and contractors, e.g., informational flyers, volunteer coordinators, contests.

Internal Office Recycling Program
The City has operated a successful internal recycling program since the early 1980's. Employees are encouraged to recycle catalogues, magazines, blueprints, phone books, junk mail, office paper, cardboard, and aluminum, steel, glass, and plastic containers. Each employee is responsible for depositing recycled material into special collection containers centrally located in each building. The City contracts with a private vendor for recycling collection pick-up. Each department or building is charged a monthly fee based on the frequency of pick-up service. Table 13 shows recent greenhouse gas benefits from the internal City recycling program.

Table 13. Internal City Recycling Program

	1998	1999	2000
Tons Recycled Materials	70	75	90
Tons CO_2 reduced	294	314	373

3.5 Building and Zoning

3.5.1 Building and Zoning Goals

The City of Fort Collins Building and Zoning Department strives to be environmentally responsible within the residential and commercial development contexts of the City by the enforcement of energy standards and encouraged "green building" practices.

3.5.2 Building and Zoning Actions

- **Green Building Program**

In March 2001, the City Council approved an update to the City's Air Quality Action Plan that adds an action to "Explore adoption of a Green Building Program during the regular review of the Municipal

Building Code." The Building and Zoning Department has indicated that a good place to start is to evaluate green building program models used in other communities to determine which hold the most promise for Fort Collins. This evaluation is likely to be carried out during 2001.

3.6 Parks Division

3.6.1 Parks Actions

- **Parks Satellite Shop**

The City Parks Division is still refining its long-range plan. One segment of the plan will address satellite maintenance shops, which have the potential to substantially reduce both personnel hours and vehicle miles in driving to park sites. Several community parks have been identified as locations for future satellite shops. The first building and storage yard will be at Fossil Creek Park, scheduled for development in 2003, which will give Parks a location in the southeast part of the city. The second proposed satellite shop will be located at Southwest Park, to be developed about 2006. Further projections include a community park development in the northern part of the city somewhere around 2012. City Council recently approved an increase in the parkland fee, a portion of which will go toward funding these future maintenance buildings.

- **Emissions from Weed Whips and 2-Stroke Mowers**

Currently, the emissions from weed-whips and lawnmowers contain heavy pollutants such as hydrocarbons. Two-stroke engines such as these cannot easily be altered to reduce harmful emissions. Parks should research ways to reduce air emissions from 2 stroke equipment.

One opportunity for improvement would be to change what is being put in the motors. A CSU professor, Dr. Duane Johnson, has been developing a vegetable based oil that can be used in place of mineral oil. The vegetable oil is reported to improve emissions. Another alternative would be to investigate using commercially available four-stroke engines for weed whips. Local stores currently carry a Riobi model weed-whip with a four-stroke engine.

3.7 Forestry

3.7.1 Forestry Goals

The City of Fort Collins Forestry Department will strive to increase the health, stability, and diversity of the urban forest through the maintenance of, at least, the same stocking level with the encouragement to increase the level; increasing average age of trees through tree stewardship, and increased plantings in strategic locations to provide assistance to building heating and cooling as well as wind speed reduction.

3.7.2 Existing Actions

Increase Mortality Age of Trees on City-owned Property

The City's Forestry and Horticulture Program has responsibility for the care, maintenance, and perpetuation of all City property trees (streets, parks, golf courses, cemeteries, drainage areas, parkways, and other City-owned areas) and the planting and maintenance of City gardens. One of the division's

major objectives is a planting program that ensures the future existence of the City's trees by the annual planting of as many or more trees than must be removed due to death or hazardous conditions.

Recommendations:

- Expand funding for urban tree maintenance activities that extend the life of trees.
- Focus on planting in open planting sites.
- Work to ensure that appropriate, adaptable species (e.g., those suited to existing rainfall levels and soil types, and which don't need external applications of fertilizer) are planted in appropriate locations on City property.

Other Benefits:

- Reduces noise.
- Older trees are more aesthetically appealing
- Air quality benefits by trapping air borne dust particles, and temporarily filtering out nitrogen oxides and ammonium.
- Creates and maintains wildlife habitat.
- Reduce needs for energy to heat and cool buildings

3.8 Purchasing

3.8.1 Purchasing Goals

The City of Fort Collins has already a number of adopted policies that support environmentally responsible purchasing. In 1990, the City's Purchasing Department drafted an Affirmative Procurement Plan for recycled products that is guided by three general principles;

> 1) Products made from recycled materials will be preferred over those made from virgin materials when the following conditions are met: (a) the product is suited for its intended end use; (b) the quality of the product is equal to products made from virgin materials; (c) the product is available in sufficient quantities within an acceptable period of time; and (d) the recycled product is reasonably cost-competitive.
>
> 2) "Reasonably cost-competitive" will be defined on a case-by-case basis. Price preference may be established, but only if allowances are made in program budgets to cover the additional costs.
>
> 3) As with any purchase of a new product, recycled products will be tested in small quantities before larger orders are placed, or purchasing preferences are established.

The Affirmative Procurement Plan for recycled products includes seven components in addition to this policy statement. These include:

- a recycled products database,
- an education and outreach program,
- a review of City purchasing specifications,
- pilot investigations to test recycled products,
- specific purchasing policies,
- a promotional program, and

- periodic review and monitoring.

In 1993, the City pledged its support of President Clinton's Executive Order on Recycling by purchasing the items cited in the order; 20% post-consumer printing and writing paper, re-refined oil, and retreated tires. This pledge required the City to begin purchasing these products by the end of 1994. In 1998, the federal standard for post-consumer waste in paper increased from 20% to 30%.

3.8.2 Purchasing Actions

♦ **Distribute Bids and Proposals Electronically**

In the year 2000, approximately 100 bids and RFPs (average length = 50 pages) were posted to the City's Web site. Making these documents available electronically prevented consumption of 500 reams of paper, which resulted in the reduction of five tons of CO_2e emissions in 2000.

In 2001, City departments are being encouraged to use a City purchasing card, rather than using the paper-intensive "Mini Order" system. This action is expected to reduce nearly 40 reams of office paper, or nearly one-half ton of CO_2e emissions.

♦ **Pilot Environmentally Preferable Products**

In accordance with the City's Affirmative Procurement Plan, the City is interested in piloting environmentally preferable products. The Purchasing Department plans to include information in the next City budget manual on purchasing options for duplexing printers, as not all departments currently have them.

♦ **Purchasing Guidelines for Low Emission Construction Equipment**

The City's recently updated Air Quality Action Plan includes the following action to develop purchasing guidelines that give preference to low emission equipment.

> "Where technically and economically feasible, implement municipal purchasing/contracting guidelines that give preference to providers who use low-emission equipment, including construction and lawn maintenance equipment. Explore incentives to increase use of clean equipment in all municipal contracts."

APPENDIX A – Supporting City Policies

CITY ENERGY POLICIES

With passage of the City's comprehensive management plan, *City Plan*, in 1997, a clear commitment to energy conservation was stated in the following policies:

> **ENV-1.23 Global Climate**. The City will employ strategies to increase energy efficiency and the use of renewable energy sources (except residential woodburning), in order to reduce the impact of the Fort Collins community on global warming.
>
> **ENV-4.** Energy efficiency and use of renewable energy resources will be encouraged, facilitated, and regulated in both the public and private sector through information and educational services, financial incentive programs, requirements and incentives in the planning process, and enforcement of regulations such as the Energy Code.
>
> **ENV-4.1. Renewable Energy.** The use of solar energy and other renewable resources are recommended energy sources.
>
> **ENV- 4.6 Remove barriers to renewable energy use.** The City will eliminate unnecessary barriers to utilization of renewable energy resources in new and existing buildings, which arise through application, and enforcement of, City Codes.
>
> **ENV-4.7 Renewable energy in new development.** The use of renewable energy resources should be considered in the layout and construction of new development.
>
> **ENV-4.9 Additional policy development.** Comprehensive policies will be developed to encourage the use of alternative forms of energy, such as wind-generated power and solar energy.

In addition, sustainability is one of four core community values articulated in *City Plan.* Sustainability is defined as the long-term social, economic, and environmental health of the community. Energy efficient building practices are cited as one of the approaches that will help make Fort Collins a sustainable community.

In 1997, Fort Collins City Council passed Resolution 97-51, outlining the Utility's role as energy provider, user, and educator. This resolution states:

> "**That as a user of energy,** the City administration shall, in design and construction of all City facilities, emphasize and utilize the latest, available, proven technologies to provide energy efficient and cost effective heating, cooling, lighting and hot water services in buildings owned, co-owned or leased by the City for municipal purposes. In particular, the City will utilize in the construction and remodeling of City facilities the most current solar heating technologies for hot water heating that are suitable for such facilities, using the expertise and resources of the City's electric utility staff in identifying and/or developing such technologies. The City shall also regularly evaluate the latest technologies utilizing alternative fuels for transportation and, to the greatest extent practicable, apply such technologies to the operation of City vehicles in order to provide energy efficient transportation.

That as a supplier of electrical energy, the City shall seek to encourage among its customers the wise, efficient, and conservative use of electricity. Accordingly, electric utility rates shall be designed not only to be non-discriminatory and to cover the costs of service, but also to provide, to the extent authorized by law, pricing structures that encourage use patterns that will conserve energy and result in the most efficient and economical use of the City's electric supply system.

That as community leader, the City should also regularly evaluate means by which City-wide demand and usage of fossil fuels can be reduced and should attempt to develop means by which it can further such goals, through the City's role as educator, promoter and regulator. Accordingly, the City's energy-related work plans should address:
(1) the identification of total energy usage by fuel type and by end usage type,
(2) the development and adoption of measurable energy demand management goals,
(3) the identification and prioritization of demand management opportunities in the areas of education, promotion and regulation, and
(4) the implementation of selected demand management strategies not only for City facilities but also for the City as a whole.

Sec. 6. That the City Manager shall annually evaluate the progress of City staff and City Boards and Commissions in implementing the policies established under provisions of this Chapter and to submit to the City Council a report and recommendation regarding the same no later than December 31 of each calendar year. "

CITY TRANSPORTATION POLICIES

The City has adopted numerous principles and polices for transportation that support greenhouse gas reduction.

T-1. The physical organization of the city will be supported by a framework of transportation alternatives that maximizes access and mobility throughout the City while reducing dependence upon the private automobile.

T-2. Mass transit will be an integral part of the city's overall transportation system.

T-3.1 Demand Management. The City will promote travel demand reduction measures that reduce automobile trips, such as telecommuting and in-home businesses, electronic communications, variable work weeks, and flextime.

T-4. Bicycling will serve as a viable alternative to automobile use for trip purposes.

T-5. The City will acknowledge pedestrian travel as a viable transportation mode, and will elevate it in importance to be in balance with all other modes. Direct pedestrian connections will be provided and encouraged from place of residence to transit, schools, activity centers, work, and public facilities.

ENV 1.1 **Air Quality Objective 1** – Reduce the rate of growth of total vehicle miles of travel in the Fort Collins Community Growth Management Area.

ENV 1.5 The City will seek to continuously reduce total motor vehicle emissions by employing strategies both to slow the growth of VMT, by providing alternatives to motor vehicle travel in single occupant vehicles, and to reduce tailpipe emissions per mile of travel.

ENV 1.10 The City will use price mechanisms of the free market to help shift citizen and business choices toward actions that reduce air pollution, including removing the hidden cost subsidies of motor vehicle users, employing economic incentives and disincentives, and other market approaches.

ECON 1.3 The City will ensure easy access to employment centers and will also develop efficient transit networks and trip reduction programs, such as telecommuting, to reduce SOV trips.

CITY WASTE REDUCTION POLICIES

Resolution 95-63 was passed with a policy to reduce Fort Collins' total waste stream by 20% (based on 1993 figures), and specific targets:

a. 70-80% diversion of compostable material currently being landfilled, and conversion into a useable product.
b. Increased participation in residential curbside recycling to 80-90%.
c. 35% reduction of paper products from commercial waste customers.
d. Increased participation in commercial recycling services (for all recyclable materials) to 50%.

Resolution 99-139 increased the City's waste diversion goal from 20% to 35% by 2004, and to 50% by 2010.

ENV-2.3 Coordination. The City will participate with private businesses and local, state, and federal agencies to consistently support and foster pollution prevention and recycling efforts, strengthen market conditions for recycling industries, and to enforce environmental legislation.

CITY VEGETATION POLICIES

CAD-1.3 Streetscape Design. All new streets will be functional, safe, and visually appealing. Shade trees, landscaped medians and parkways, public art, and other amenities will be included in the streetscape.

CAD-1.4 Street Tree Design. Street trees should be used in formal architectural fashion to reinforce, define, and connect the spaces and corridors created by buildings and other features along a street. Canopy shade trees shall constitute the majority of tree plantings, and a mixture of tree types shall be included, arranged to establish partial urban tree canopy cover. Existing trees shall be preserved to the maximum extent feasible.

NOL-1.8. Ecosystem Management. The City will manage, maintain and enhance public natural areas to ensure the ongoing conservation of desirable plants and animals and their associated ecosystems; control the invasion and spread of undesirable non-native plants and animals; improve aesthetics; and provide opportunities for public use.

PRC-2. The City will protect, enhance, and restore the wildlife habitats, native riparian plant communities, aquatic habitats, and other natural area values of the Poudre River Corridor.