

**GREENHOUSE GAS INVENTORY FOR ALACHUA COUNTY  
GOVERNMENTAL OPERATIONS AND THE ALACHUA COUNTY  
COMMUNITY**

**June 2001**



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## **I. INTRODUCTION**

### **CITIES FOR CLIMATE PROTECTION**

In April 1999, the Alachua County Commission adopted a resolution (Appendix 1) allowing the county to join the Cities for Climate Protection (CCP) campaign. The CCP program is a global campaign to reduce greenhouse gases. As part of the county's participation in the campaign, the county has voluntarily committed to undertake the five following tasks:

1. Conduct an energy and emissions inventory and forecast
2. Establish an emissions target
3. Develop and obtain approval for the Local Action Plan
4. Implement policies and measures
5. Monitor and verify results

The aim of these activities is to provide municipal and county government an understanding of how local decisions effect energy use and how their decisions can be used to mitigate global climate change while improving community quality of life. The CCP methodology provides a standardized way of acting to reduce greenhouse gas emissions and of monitoring, measuring, and reporting performance.

As part of its participation, Alachua County used CCP developed software that calculates greenhouse gas emissions based on energy inputs such as electricity consumption and vehicle miles traveled. The software has allowed the county and other participants to organize, measure, and track their greenhouse gases. It also allows for quantitative comparisons among different communities across the globe. Although there are many greenhouse gases, the software focuses on two major greenhouse gases, carbon dioxide and methane. These gases are by far the most significant contributors to greenhouse gas emissions in urban areas, such as Alachua County.

Appendix 2 provides a brief overview of the greenhouse gas effect and climate change.

## **II. EMISSIONS FROM ALACHUA COUNTY GOVERNMENT OPERATIONS**

The Alachua County Environmental Protection Department (EPD) has developed a greenhouse gas inventory for Alachua County governmental operations. The purpose of the inventory is three-fold. First, the inventory highlights where the bulk of emissions are coming from - whether it's from vehicles, commercial electricity use, residential heating or landfilled waste. Secondly, it allows for the development of targeted projects and specific programs to reduce emissions effectively. Thirdly, the baseline inventory serves as a reference against which to measure greenhouse gas reduction achievements.

Now that this inventory is complete, the county's next step is to develop a greenhouse gas reduction strategy for its own operations. Included in this strategy will be schedules, budgets, identification of funding sources, assignment of responsibility to agencies and staff, monitoring and evaluation, and so on.

The overall purpose of Alachua County government's greenhouse gas inventory is to identify and target main greenhouse gas producers within county government run facilities, improve the efficiency of these operations, and set an example to the rest of the community. The county's inventory pinpoints the quantity of greenhouse gas emissions from the following areas:

- Energy consumption from county operated buildings and facilities
- Vehicle miles traveled by county vehicle fleet
- Landfill gas released from county waste

In order to be consistent with CCP guidelines, EPD used 1990 as the base-year for both greenhouse gas inventories. However, energy consumption data for 1990 was not easily attainable. Furthermore, the 1990 data provided little insight into current operations, which would be needed to develop emission reduction strategies for current 2000 operations. Therefore, EPD used the most current data available, which was for 1998 and 1999. To determine the inventory for 1990, assumptions were made based on various factors and 1990 results were estimated from the 1998 inventory. The primary purpose of using 1990 for a base-year is to be in accordance with the CCP so that comparisons can be made with communities across the world.

### 1998 ENERGY CONSUMPTION FROM COUNTY OPERATED BUILDINGS & FACILITIES

Figure 1 presents the 1998 annual electric energy consumption for county government maintained buildings. A review of the data reveals that the county's four largest energy consumers are the correctional facility, courthouse, public works compound and the county administration building.

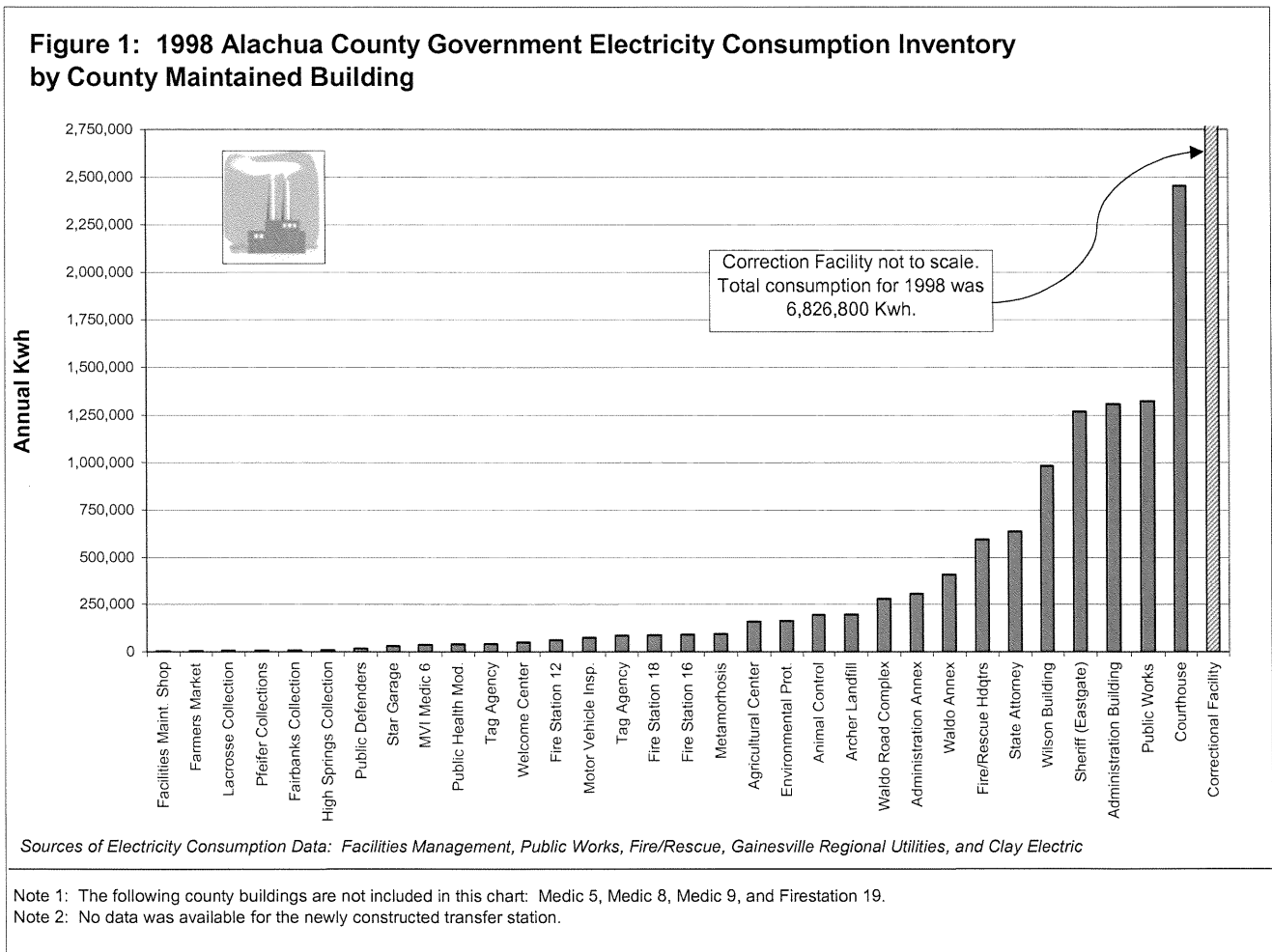
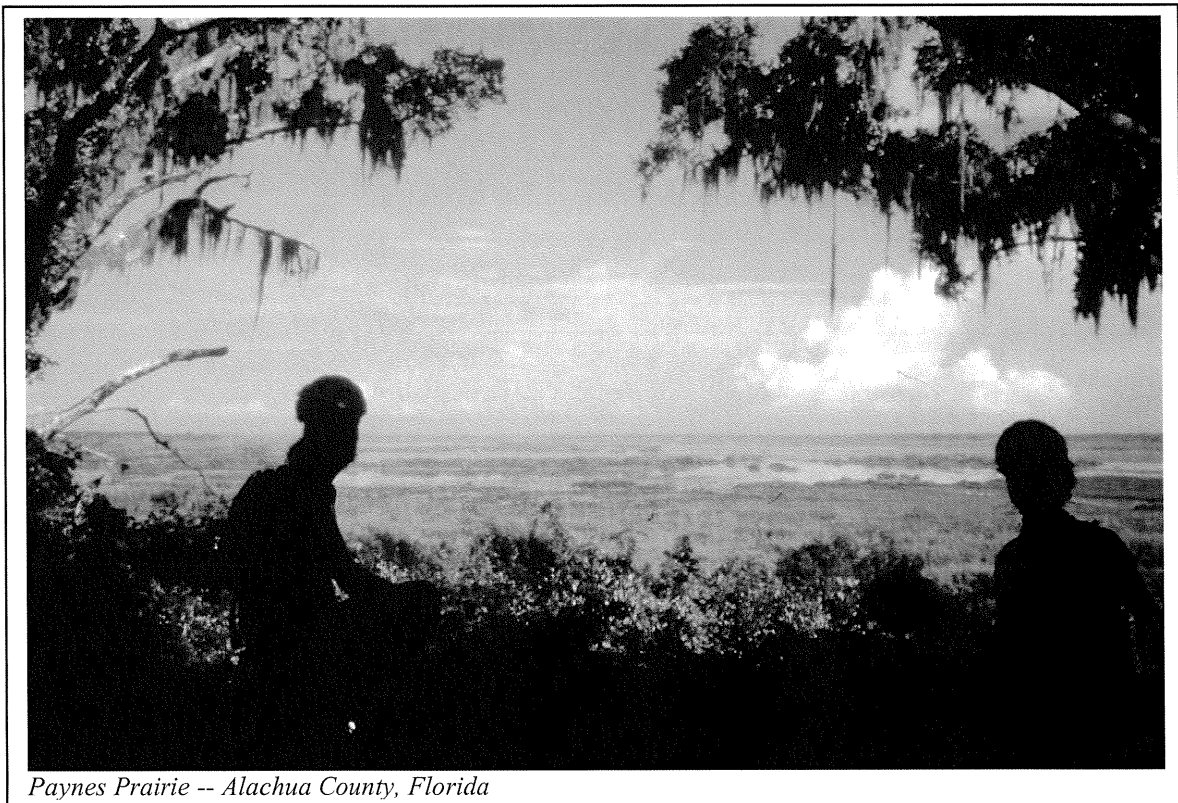
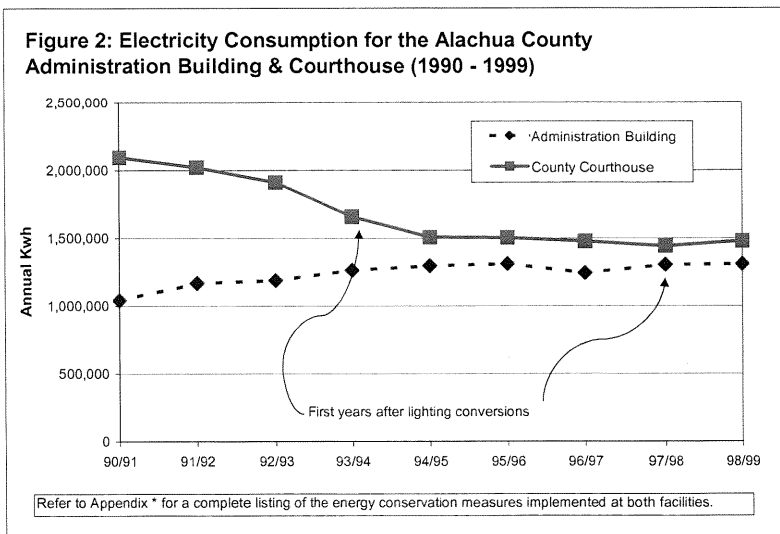


Figure 2 focuses on the electric consumption over a nine-year period from two county facilities, the courthouse and the administration building. It is interesting to note that the electric consumption has actually held steady or decreased over this period even though the electrical demands on these facilities has increased. The energy savings from these buildings, plus many other county buildings, are due to the county's energy conservation initiative headed by Charlie Balanis of the Facilities Management Department. As Figure 2 shows, energy consumption at the courthouse has decreased over 33 % since 1990. This dramatic reduction in energy-use was primarily due to the installation of energy efficient lighting in 1993. Other improvements include the installation of a solar hot-water heater, replacement of inefficient boilers, a complete overall of the cooling system, and installation of solar window screens. Beginning in 1998, the county administration building underwent similar improvements and because of those improvements energy use has remained fairly constant.

Although not included in the figure, another successful energy reduction project occurred at the Alachua County State Attorney's Office in 1998. An innovative light load-shedding network has dramatically dropped energy consumption by 76 % or by 270,300 kWh annually, while producing a 34 % or \$20,000 in annual energy savings. The system cost about \$49,000 and is expected to pay for itself in two years. An article about the project is included in Appendix 3.

All told, the County's energy conservation improvements have saved the county an estimated \$1,399,086 in energy costs over the past nine years. For an itemized list of the county's energy conservation measures to date, see Appendix 4.



Paynes Prairie -- Alachua County, Florida

## 1998 VEHICLE MILES TRAVELED BY COUNTY VEHICLE FLEET

Compiled by the county's fleet management department, Table 1 presents county vehicle fleet information for 1998. Of the five vehicular categories presented, emergency vehicles and heavy trucks traveled the most vehicular miles. The majority of the miles traveled from emergency vehicles are attributable to ambulances. The majority of the miles traveled from heavy trucks are attributable to Dump truck and pick-up. As for the trucks or vans under one-ton, the majority of vehicular miles are from pick-up trucks.

Developed by the county's Sustainable County Operations Team, the County Commission has recently adopted a "Fleet Management Policy" see Appendix 5. The policy seeks to ensure that the county fleet's assets are "selected, acquired, and utilized in a manner that provides for the best possible support of county operations through environmental responsible management." This policy has lead to the purchase of four electric/gas hybrid vehicles as the county fleet begins a transition to alternative fuels and low- pollution vehicles.

Future plans of the fleet management division and the county's Sustainable Operations Team are to develop firm guidelines for the policy. These guidelines are likely to address fuel efficiency, optimal fleet size, and matching the appropriate size vehicle to the assessed need.

**Table 1: 1998 Alachua County Government Vehicle Fleet and associated Miles Traveled and County Fuel Purchased**

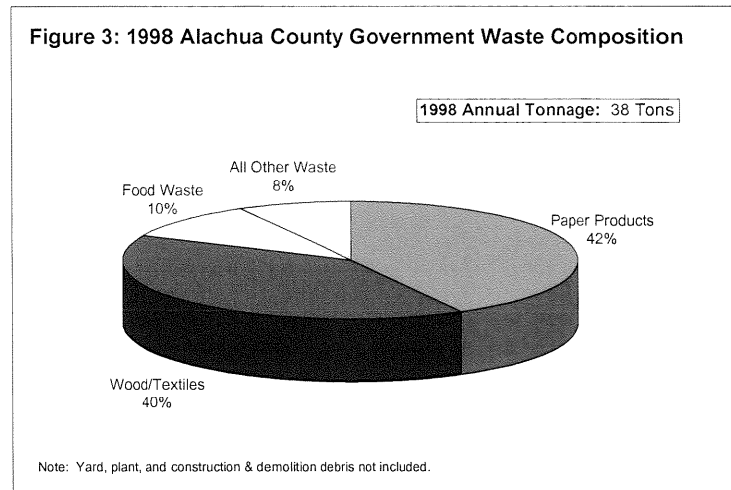
Vehicle Code	Vehicle Type	Number of Vehicles	Miles Traveled In 1998	Ave Miles Per Vehicle
<b>Passenger Cars</b>				
AAMA	Auto-med size standard use- unleaded	19	142,379	7,494
AAFA	Auto- full size standard use- unleaded	3	5,371	1,790
<b>Vans or Trucks Under one Ton</b>				
BAHA	Pick-up- 1/2 / 3/4 ton standard use- unlead	32	479,975	14,999
BANA	Utility- 1/2 ton standard use- unlead	30	423,351	14,112
BAQA	Pick-up 3/4 & 1 ton standard use- unlead	20	367,335	18,367
CADA	Van- Cargo 1/2 ton standard use- unlead	11	42,526	3,866
CAFA	Van- Passenger 1/2 ton standard - unlead	11	35,177	3,198
<b>Emergency Vehicles</b>				
BANE	Utility- 1/2 ton emergency use- unlead	7	103,930	14,847
BANL	Van- 1/2 ton emergency use- unlead	3	22,180	7,393
CAFÉ	Van- 1/2 ton passenger emergency- unlead	2	8,000	4,000
DFBE	Ambulance- heavy duty- diesel	17	840,973	49,469
7F1A	Fire Heavy rescue, platform	14	271,283	19,377
7FTE	tanker- diesel	n/a	n/a	n/a
AAFE	Auto full size emergency use- unlead	6	63,078	10,513
<b>Heavy Trucks (one ton or larger)</b>				
8ACA	Truck herbicide - unlead	1	2,145	2,145
8F2A	Truck water- diesel	1	2,272	2,272
8F31	Truck Vacuum Sweeper- diesel	1	2,637	2,637
8F4A	Truck Diesel Roll-off	2	45,501	22,751
8F99	Spotting Tractor	1	n/a	n/a
8FAA	Truck- Aerial lift	1	5,867	5,867
8FFA	Truck- Dump > 10 yd <sup>3</sup> standard- diesel	7	126,000	18,000
8FGA	Truck- Semi tractor 8 ton standard- diesel	16	281,486	17,593
8FH1	Truck- dump-crew cab	7	210,472	30,067
8FBA	Truck- pincher standard	n/a	11,048	n/a
BA3A	Pick-up crew cab 1 ton - unlead	n/a	8,830	n/a
BA3M	Pick-up crew 1 ton- unlead/diesel motor pool	2	5,802	2,901
8FDA	Truck- dump < 6 yd <sup>3</sup> standard- diesel	1	22,373	22,373
BA4A	Pick-up flatbed 1 ton standard use- unlead	1	27,910	27,910
<b>Specialized Heavy Equipment</b>				
LA9A	Field Service Truck standard use- unlead	2	1,355	678
GFAA	Bulldozer- diesel	4	1,426*	hours
NAGD	Mower- rotary riding- unlead	17	90	5
GGHA	Excavator standard use- diesel	36	386*	hours
MAUA	Vehicle utility cart standard use- unlead	3	210	70
LFEA	Forklift self propel- diesel	1	96*	hours
LABA	Field Service Truck - diesel	2	3,663	1,832
JFBA	Tractor 51-100 HP- diesel	19	27,386*	hours
JFFA	Tractor 0-50 HP- diesel	2	194*	hours
IFZA	Water wagon standard- diesel	1	671	671
IFWA	Distributor asphalt- diesel	1	3,420	3,420
IFNA	Roller- steel wheel standard- diesel	2	30*	hours
IFEA	Motor grader 6x4 standard- diesel	6	25,654*	hours
IF1A	Excavator self loading pan- diesel	3	7*	hours
GGJA	Loader- front end standard- diesel	2	997*	hours
GGIA	Excavator telescopic boom- diesel	3	22,553*	hours
GGAA	Backhoe loader standard use- diesel	3	5,569*	hours

\* Reported as hours operated, not as miles driven

Source: Alachua County Public Works Fleet Management

## 1998 LANDFILL GAS RELEASED FROM COUNTY WASTE

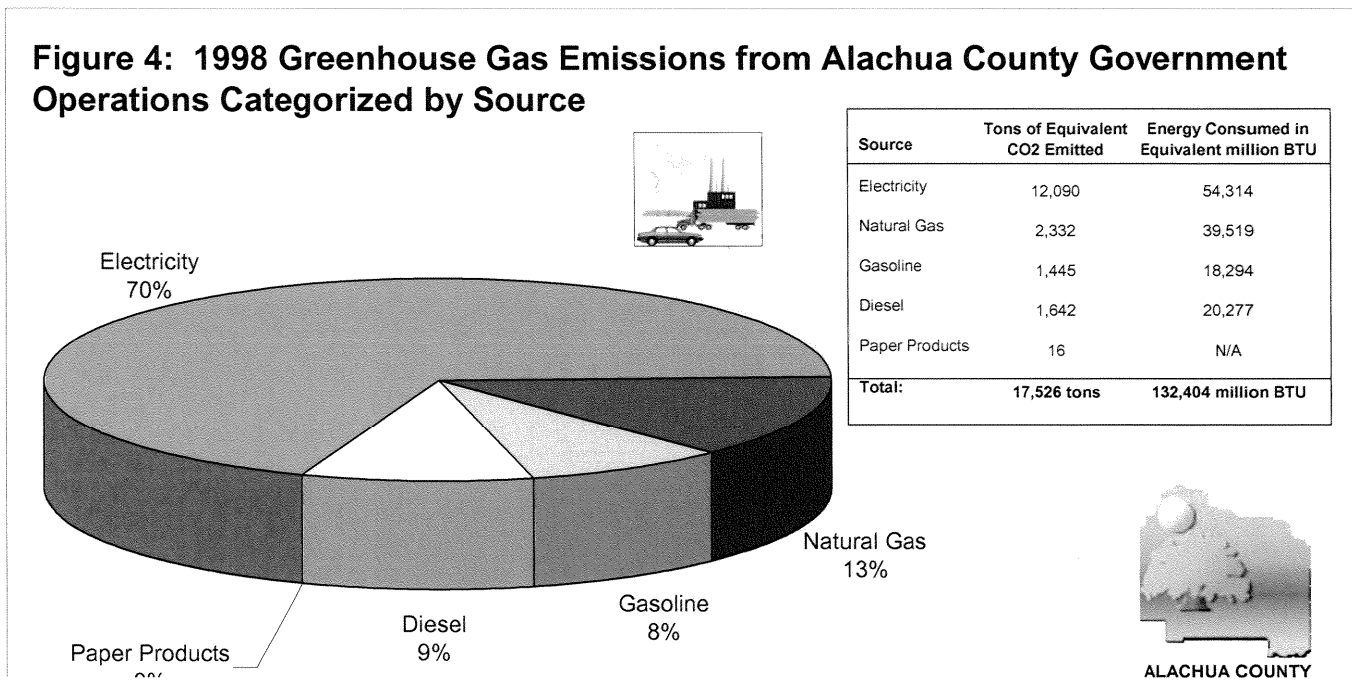
Figure 3 shows the type and volume of waste in the county government waste stream for 1998. The majority of the county's 38 tons of waste was composed of paper products and wood textiles. The county's Office of Waste Alternatives sponsors many waste reduction programs across the community. The Office of Waste Alternatives also spearheads waste reduction efforts within county government see Appendix 6. Current efforts include mandatory paper recycling, mandatory two-sided copying, and steel and aluminum recycling. The County's Environmental Protection Department is also planning a Pollution Prevention project to minimize utilization and generation of hazardous waste in County operations, see Appendix 7.



The methane and carbon dioxide gas emission rate estimates from the landfill are 2,259,000 Kg/year and 6,199,000 Kg/year respectively for year 1990. The county installed a landfill gas collection system with 75% gas collection efficiency and flare with a destruction efficiency of 95% in 1992. This has reduced the methane gas emission rate to 1,143,000 Kg/year for year 1999. However, the carbon dioxide gas emission rate increased to 10,940,000 Kg/year.

## 1998 GREENHOUSE GASES FROM ALACHUA COUNTY GOVERNMENT OPERATIONS

The Alachua County government energy consumption and waste data described in the previous sections was converted into units of equivalent tons of carbon dioxide (CO<sub>2</sub>) by the CCP software. The results are shown in Figure 4 and a detailed analysis is provided in Appendix 8. As shown in Figure 4, electricity consumption is by far the largest producer of greenhouse gases emitting 69 % of the 17,526 equivalent tons of CO<sub>2</sub> in 1998. Although not presented in the previous sections, natural gas consumption, which is typically used for heating and hot water heating, is also a large emitter of greenhouse gases. Combining the greenhouse gases from electricity and natural gas, the total energy consumption from county facilities composes a whopping 83 % of the county's total greenhouse gas emissions. The remaining 17 % are from gasoline and diesel powered vehicles. Greenhouse gas emissions from the waste stream are negligible in comparison to the overall total.

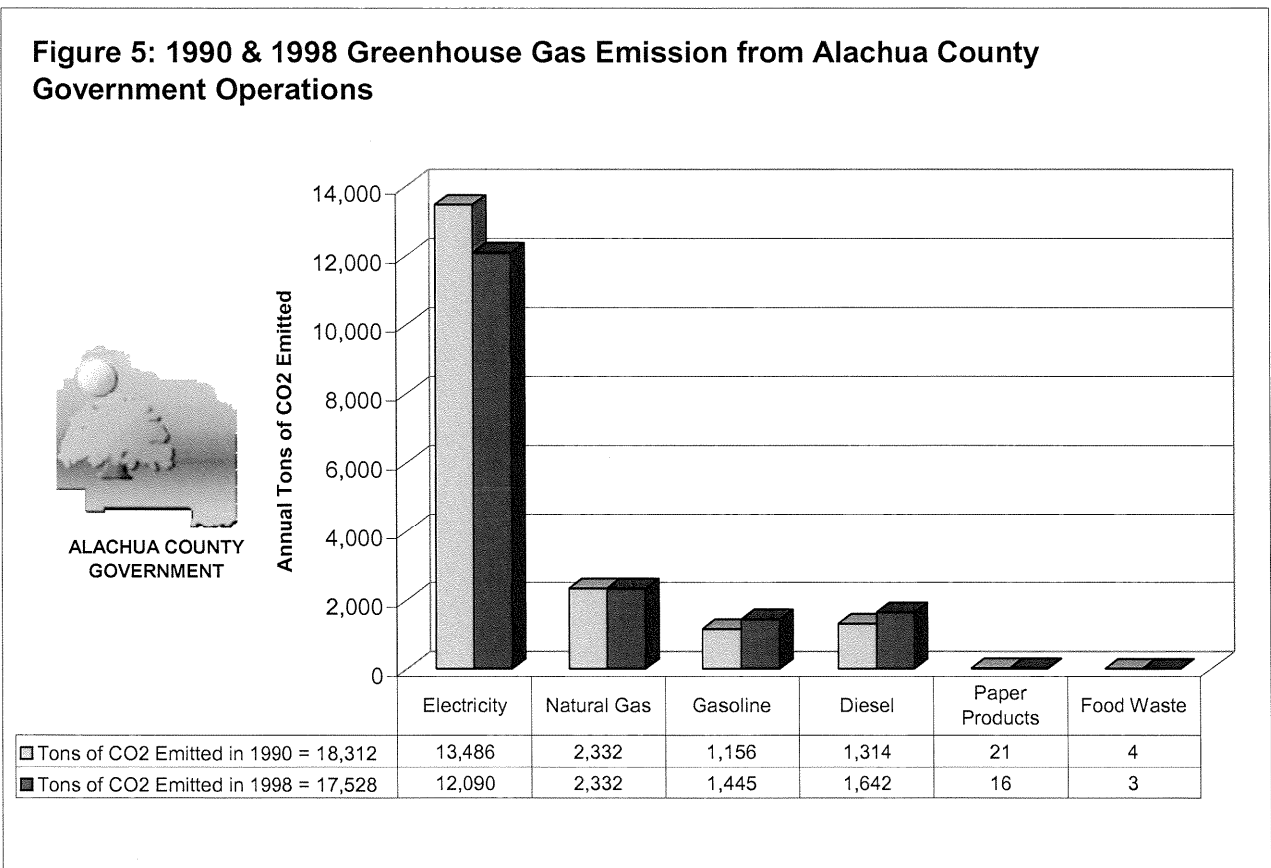


## 1990 VERSUS 1998 ALACHUA COUNTY GOVERNMENT GREENHOUSE GAS EMISSIONS

In order to be consistent with CCP guidelines and to compare with communities across the world, EPD also developed a greenhouse gas inventory for 1990. However, data for 1990 was not easily attainable. Where specific data was not available, such as with the vehicle fleet and waste composition, assumptions were made (20% lower vehicular fleet for 1990 versus 1998) and the resulting data was extrapolated from the 1998 inventory. But in some cases, actual data from 1990 was available and inputted in the CCP software, such as with the electricity consumption for some county operated facilities.

Figure 5 shows the results of the 1990 inventory and compares it to the results of the 1998 inventory. Overall, the tons of equivalent CO<sub>2</sub> emissions in 1998 were slightly lower than 1990. This reduction is primarily due to the electricity energy conservation measures that the county began to implement in 1993. Although not as dramatic in terms of reductions in CO<sub>2</sub> emissions, the county experienced a 29% reduction from 1990 to 1998 in waste disposed. However, these reductions in emissions from 1990 to 1998 were offset by the additional miles traveled by the county's vehicle fleet, which was estimated to have increased by almost 20 % since 1990.

**Figure 5: 1990 & 1998 Greenhouse Gas Emission from Alachua County Government Operations**



## EMISSION REDUCTION STRATEGY FOR ALACHUA COUNTY GOVERNMENT OPERATIONS

The county's newly formed Sustainable County Operations Team is charged with making county operations more economically, environmentally, and socially sustainable. As part of their charge, the Team will assist EPD in developing a greenhouse gas reduction strategic plan. Although yet to be decided, the strategic plan will likely propose a greenhouse reduction goal of 10 to 20 % by 2020. The measures likely to be included to achieve this goal will be consistent with current activities of the Team, such as the recent development of the county's green fleet policy. Other likely measures may include expanding the county's energy conservation efforts and waste reduction programs.



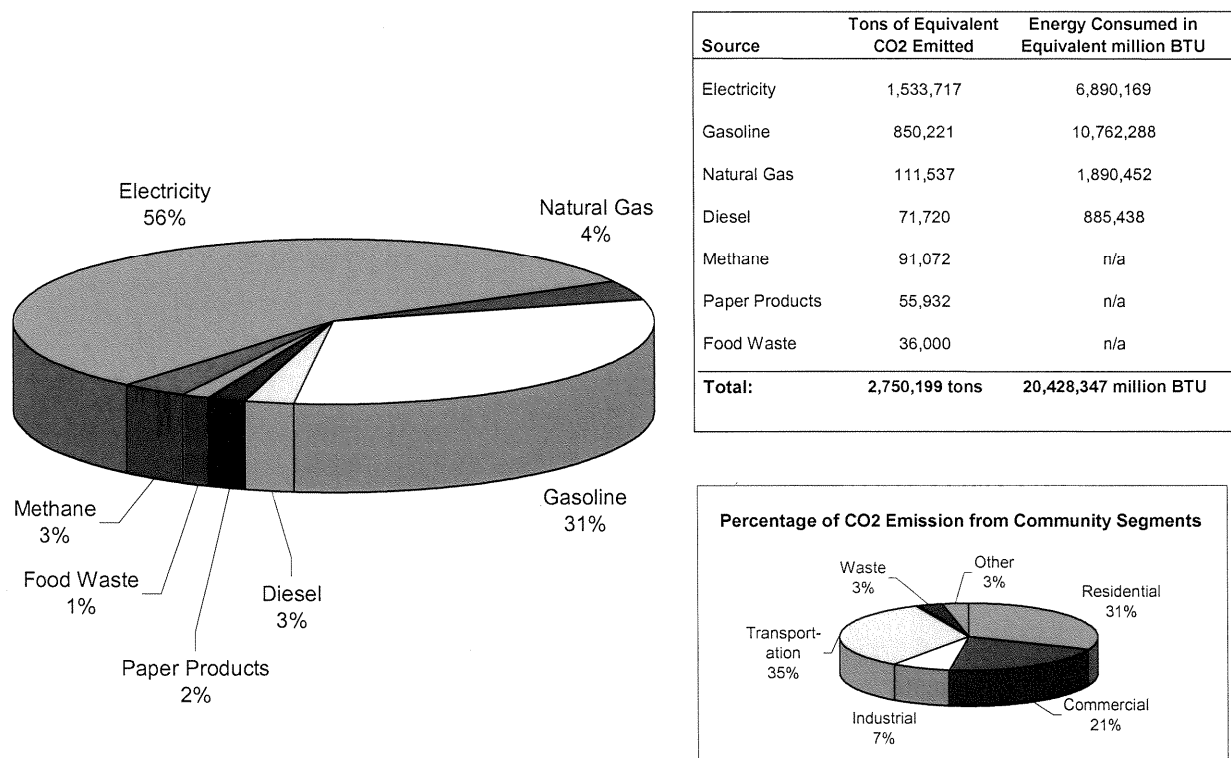
### III. Emissions from the Alachua County Community

As part of its participation in the CCP, Alachua County also volunteered to develop a greenhouse gas inventory for the entire Alachua County community. Before the inventory is discussed, a brief overview of Alachua County is provided below.

In 1999, Alachua County's population was over 208,000. The largest city in Alachua County is the City of Gainesville, which was voted the most livable city in America by Money Magazine in 1995. Much of the county's economy is dependent on the University of Florida and its many medical facilities. In addition to the City of Gainesville, Alachua County has many unique smaller cities, which over the years have transformed from being farm centers to havens for local artists.

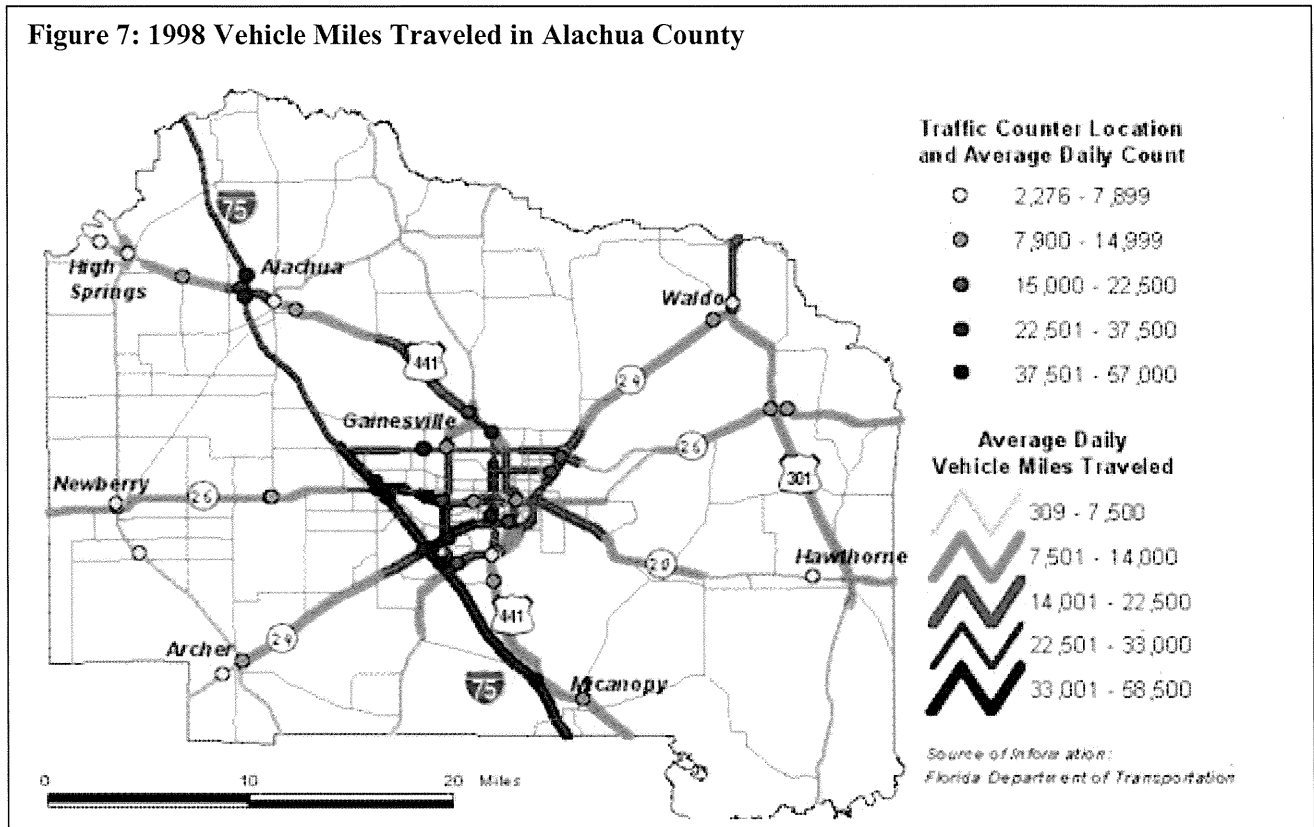
Similar to county government operations, the community's greatest greenhouse gas emissions are from electricity production followed by transportation. Figure 6 and Appendix 9 presents the community's greenhouse gas emission inventory by source and community segment. The largest community segment emitting greenhouse gas emissions is from transportation, which is followed by residential and commercial electricity customers. The remainder of this section focuses on the county's two largest sources of greenhouse gas emissions, electricity production and transportation.

**Figure 6: 1998 Alachua County Community Greenhouse Gas Emission Inventory by Source & Community Segment**



## 1999 VEHICLE MILES TRAVELED FROM THE ALACHUA COUNTY COMMUNITY

Figure 7 shows the location of the traffic counters and vehicle miles traveled for certain roadways in Alachua County. The largest volume of traffic is on Interstate-75 (I-75). Interestingly, the vehicular miles traveled increase on I-75 as it moves south and away from Gainesville. Other points of interest include changes in traffic along the same roadway and at intersections. The total daily vehicle miles traveled for the community in 1998 was estimated to be 6,442,759 miles/day. Similar to the rest of the nation, vehicle miles traveled are expected to increase in Alachua County in the coming years. Additional information on vehicle miles traveled in Alachua County, including an estimate of criteria air pollutant emissions can be found in Appendix 10.

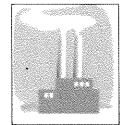
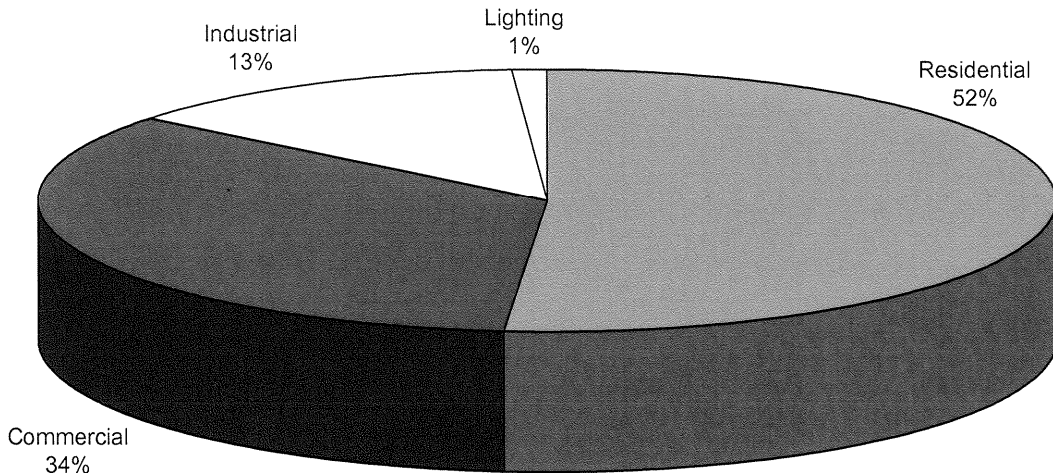


## 1998 ELECTRICITY CONSUMPTION IN ALACHUA COUNTY

Alachua County's electric customers are serviced by at least four providers, with Gainesville Regional Utilities being the largest supplier. The majority of the electricity is produced from coal-fired power plants, with a small percentage generated from natural gas and fuel oil. Collectively, these electric utilities generated at least 2,07,498,019 Kilowatts per hour (Kwh) in 1998. As shown in Figure 8, residential customers or the county's 208,125 residents were the largest consumer of electricity at 52%, with commercial activities consuming 34%. Street lighting for the City of Gainesville required over 21,000,000 Kwh in 1998 or 1% of the total consumed electricity in Alachua County.

**Figure 8: 1998 Electricity Consumption in Alachua County by Community Segment**

1998 Total Electric Production for Alachua County: 2,017,498,013 kwh\*



### **EMISSION REDUCTION STRATEGY FOR THE ALACHUA COUNTY COMMUNITY**

After the Alachua County Government greenhouse gas reduction strategic plan is complete and implementation is underway, a second reduction plan for the entire Alachua County community will need to be developed. Because the plan is aimed at the community, the plan's development must include the major stakeholders in the community, such as the City of Gainesville, Gainesville Regional Utilities, and the University of Florida. Alachua County Government hopes that its efforts in reducing greenhouse gases will appeal both environmentally and economically to these stakeholders and that they will join us and conduct similar efforts.

RESOLUTION 99- 48

A RESOLUTION BY THE BOARD OF COUNTY COMMISSIONERS OF ALACHUA COUNTY, FLORIDA, TO PARTICIPATE IN THE CITIES FOR CLIMATE PROTECTION CAMPAIGN BY CONDUCTING AN INVENTORY OF GREENHOUSE GAS EMISSION SOURCES AND DEVELOPING AN ACTION PLAN TO REDUCE LOCAL SOURCES OF GREENHOUSE GAS AND OTHER AIR POLLUTION EMISSIONS; PROVIDING AN EFFECTIVE DATE.

WHEREAS, the Alachua County Commission has initiated an air quality protection program including the adoption of an Air Quality Work Plan to inventory air emission sources and evaluate ambient air quality, the establishment of the Alachua County Air Quality Commission, and the authorization of a one year study of local ambient air fine particulate levels; and

WHEREAS, based on scientific evidence that Carbon Dioxide (CO<sub>2</sub>) and other greenhouse gases (GHG) released into the atmosphere will have a profound effect on the Earth's climate, the United States joined with 160 countries and signed the United Nations Framework Convention on Climate Change which calls on industrialized nations to reduce greenhouse gas emissions to 1990 levels by the year 2000; and

WHEREAS, energy consumption, specifically the burning of fossil fuels, e.g.: coal, oil and gas, accounts for more than 85% of U.S. greenhouse gas emissions; and

WHEREAS local governments greatly influence their community's energy usage by exercising key powers over land use, transportation, building construction, waste management, and, in many cases, energy supply and management; and

WHEREAS, local government actions taken to reduce greenhouse gas emissions and increase energy efficiency provide multiple local benefits by decreasing air pollution, creating jobs, reducing energy expenditures, and saving money for the County government, its businesses and its

citizens; and

WHEREAS, the Cities for Climate Protection Campaign, sponsored by the International Council for Local Environmental Initiatives and the U.S. Environmental Protection Agency has invited Alachua County to become a partner in the Campaign; and

NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF COUNTY COMMISSIONERS OF ALACHUA COUNTY, FLORIDA:

Section 1. That the Alachua County Board of County Commissioners hereby pledges to join with other jurisdictions in Florida, in the United States, and all over the world in the Cities for Climate Protection Campaign and as a participant in the Cities for Climate Protection Campaign, Alachua County pledges to:

A. Take a leadership role in increasing energy efficiency and reducing greenhouse gas emissions from County operations;

B. Develop a local action plan to be implemented over a three year period which describes the steps Alachua County will take to reduce both greenhouse gas and air pollution emissions. The plan will include: a greenhouse gas emission analysis and forecast to determine the source and quantity of GHG emissions within the jurisdiction; a CO2 or greenhouse gas emission reduction target; and a strategy for meeting the jurisdiction's GHG reduction target, consisting of new and existing measures and policies that when implemented will achieve the GHG reduction target.

Section 2. This Resolution shall become effective immediately upon adoption. DULY ADOPTED in regular session, this 27 day of April, 1999.

BOARD OF COUNTY COMMISSIONERS OF  
ALACHUA COUNTY, FLORIDA

By: Chuck Clemons  
Chuck Clemons, Chair

ATTEST:  
J.K. "Buddy" Irby  
J.K. "Buddy" Irby, Clerk

(SEAL)

APPROVED AS TO FORM

D. Wagoner  
Alachua County Attorney

## GREENHOUSE GASES & THE GREENHOUSE EFFECT

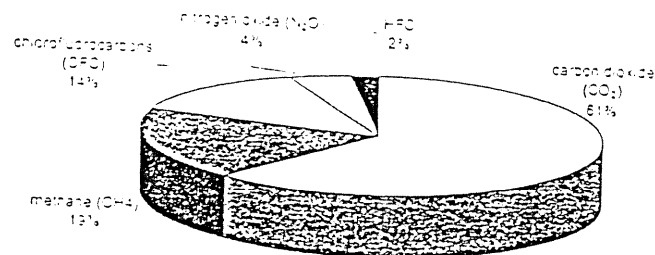
Energy from the sun drives the earth's weather and climate, and heats the earth's surface. In turn, the earth radiates energy back into space. Atmospheric greenhouse gases trap some of the outgoing energy, retaining heat somewhat like the glass panels of a greenhouse. Without this natural greenhouse effect, temperatures would be much lower than they are now, and life as known today would not be possible. Instead, thanks to greenhouse gases, the earth's average temperature is a more hospitable. However, problems may arise when the atmospheric concentration of greenhouse gases increases.

The earth's climate is predicted to change because human activities are altering the chemical composition of the atmosphere through the buildup of greenhouse gases – primarily carbon dioxide, methane, and nitrous oxide. The heat-trapping property of these gases is undisputed. Although uncertainty exists about exactly how earth's climate responds to these gases, global temperatures are rising.

Since the beginning of the industrial revolution, atmospheric concentrations of greenhouse gases have increased. These increases have enhanced the heat-trapping capability of the earth's atmosphere. Most of the atmosphere's greenhouse gases are emitted from natural sources, while additional greenhouse gases, such as listed below, result from human activities.

- *Carbon dioxide (CO<sub>2</sub>)* is released to the atmosphere when solid waste, fossil fuels (oil, natural gas, and coal), and wood and wood products are burned.
- *Methane (CH<sub>4</sub>)* is emitted during the production and transport of coal, natural gas, and oil. Methane emissions also result from the decomposition of organic wastes in municipal solid waste landfills, and the raising of livestock.
- *Nitrous oxide (N<sub>2</sub>O)* is emitted during agricultural and industrial activities, as well as during combustion of solid waste and fossil fuels.
- Greenhouse gases that are not naturally occurring include byproducts of refrigeration, and air conditioning called *chlorofluorocarbons (CFCs)* and *hydrofluorocarbons (HFCs)* generated by industrial processes.

Greenhouse Gases Emissions from Human Activities



Source: ICLEI Web site ([www.iclei.org](http://www.iclei.org))

Energy burned to run cars, heat homes, and power factories is responsible for about 80% of society's carbon dioxide emissions, about 25% of U.S. methane emissions, and about 20% of global nitrous oxide emissions. Since the industrial revolution, carbon dioxide levels have increased nearly 30%, methane concentrations have more than doubled, and nitrous oxide concentrations have risen by about 15%. Each greenhouse gas differs in its ability to absorb heat in the atmosphere. Methane traps over 21 times more heat than carbon dioxide, and nitrous oxide absorbs 270 times more heat than carbon dioxide.

The most abundant greenhouse gas, carbon dioxide, is produced from both natural and man-made sources. Plant respiration and decomposition of organic matter are estimated to release more than ten

times the carbon dioxide released by human activities, such as from the combustion of fossil fuels. Deforestation has also indirectly lead to increased carbon dioxide concentrations in the atmosphere, because there is less trees and vegetation to absorb excess carbon dioxide.

## CLIMATE CHANGE

Global mean surface temperatures have increased 0.6-1.2°F since the late 19<sup>th</sup> century. The 20<sup>th</sup> century's 10 warmest years all occurred within the last 15 years. Of these, 1998 was the warmest year on record. The snow cover in the Northern Hemisphere and floating ice in the Arctic Ocean have decreased. Globally, sea level has risen 4-10 inches over the past century. Worldwide precipitation over land has increased by about one percent. The frequency of extreme rainfall events has increased throughout much of the United States.

Less than 200 years since human beings began making major emissions, greenhouse gas concentrations are rising to levels higher than any yet seen while humans have existed on this planet - and they will rise much further in the years ahead. Increasing concentrations of greenhouse gases are likely to accelerate the rate of climate change. If this occurs, evaporation will increase as the climate warms, which, in turn, will increase average global precipitation. Soil moisture is likely to decline in many regions, and intense rainstorms are likely to become more frequent. Sea level is likely to rise two feet along most of the U.S. coast.

There is a growing body of evidence that the additional greenhouse gases produced from man-made activities have enhanced the heat-trapping capability of the earth's atmosphere, thus contributing to an increase in temperature. However, uncertainty remains as to how the earth's climate responds to additional greenhouse gases or how these gases act in conjunction with other atmospheric constituents. Recent studies suggest that fine particles, such as sulfate aerosols, cool the atmosphere by reflecting light back into space. Nonetheless, several global campaigns are underway to reduce greenhouse gas production, because even a slight average temperature increase could produce extreme outcomes such as draught, flood, sea-level rise and tropical disease spreading.



## Improved energy efficiency reduces costs

County office buildings typically keep lights on 24 hours a day for security. The costs for that safeguard usually are extravagant, but they can be avoided through different means of conservation.

In Alachua County, Fla., light load shedding, light management and "daylight harvesting" have cut

thought about turning the lights off."

Computerized load management historically has focused on interruptible loads such as air conditioners and hot water heaters. But, when applied to lighting, the tool allows facility managers to monitor energy demand, gradually dim the lights by

implemented several new mechanisms — occupancy sensing, manual turning and daylight harvesting — in the building. Additionally, the county completed a building-wide retrofit, replacing 406 drop-ceiling lighting fixtures containing standard magnetic ballasts with controllable electronic ballasts. The new fixtures reduced the wattage from the 155- to-174 range to 58 watts per fixture.

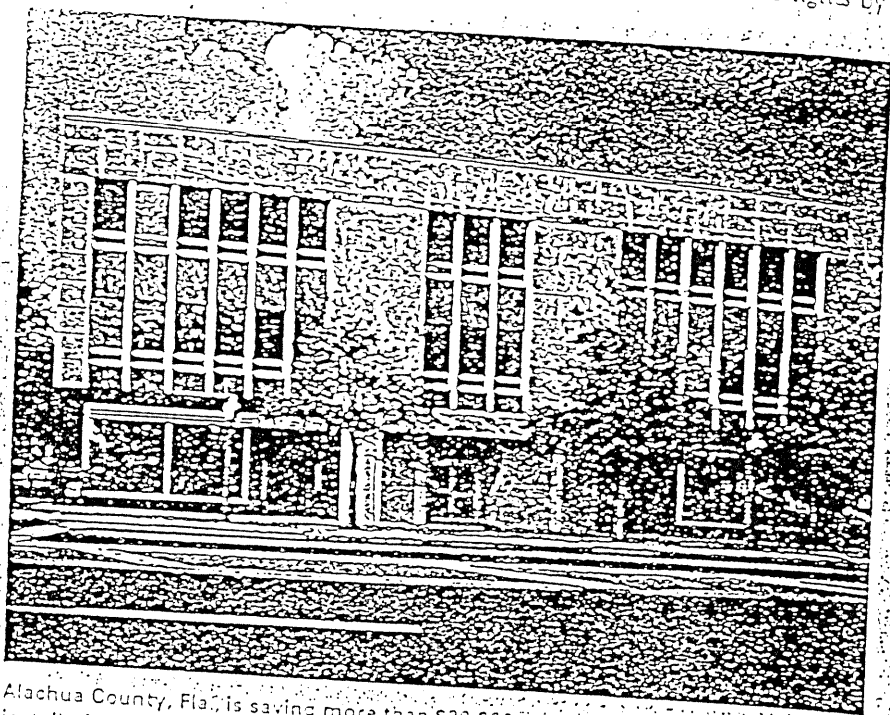
Occupancy sensors for on/off control were installed in wall switches in every office and in the ceiling above open offices and cubicles. Some of the offices were fitted with manual dimmers, and the perimeter offices with windows received photosensors for daylight harvesting (the dimming of lights as daylight increases).

All of the components are connected to the light management system that gradually dims lights when the local demand exceeds 65 kilowatts and restores them when load drops below 60 kilowatts. Cost savings rapidly accumulate, since, in a typical building, lighting represents 30 to 50 percent of the total electric load.

"It's working. We're seeing tremendous drops in kilowatt-hour (kwh) consumption," Balanis says. "People are completely unaware the lights are gradually dimming, and I get to watch the energy savings."

Savings on the project were immediately evident. Consumption dropped 21,600 kwh the first month over the same period the previous year. And an even more dramatic reduction of 32,000 kwh was recorded the month following implementation of the lighting management system in May. Energy reduction now totals 270,300 kwh annually.

Balanis says he plans to use lighting management systems in other county buildings in the future. "I reap the savings by regulating the load on demand, and I don't have to worry about employee complaints," he says. ☆



Alachua County, Fla., is saving more than \$20,000 a year in energy costs after the installation of a computerized lighting load management system.

costs at a downtown building. Through gradual dimming, a ballast retrofit and computerized light management, the county has saved more than \$20,000 a year in energy costs.

The 20-year-old, three-story, 34,000-square-foot brick building originally a bank, houses 70 county employees. Business hours are 8 a.m. to 5 p.m. Monday through Friday, with up to six hours of occupancy during the weekend. However, prior to 1993, at least 80 percent of the lighting had been running 24 hours a day.

"We didn't have a management system on the lighting," says Charles Balanis, energy management specialist for 40 county buildings. "I don't think building managers even

up to 50 percent, increase lighting when needed, and control and track the entire process by computer. The changes typically remain unnoticeable to the occupants.

Chem Light Plus, Gainesville, Fla., and Electronic Lighting, Newark, Calif., partnered last year to design and install Alachua County's new load management system. Since the project's completion, the building's electrical energy consumption has dropped 76 percent, producing a 34 percent savings on the facility's total electric bill. The system, which cost \$49,000, is expected to pay for itself in two and a half years.

Prior to computerizing its load management system, the county

First day of Alachua County Energy Management Program was December 16th 1991  
 The following is a list of all buildings converted and the energy conservation implementations of each.

### Courthouse--

- ◆ electronic ballast/T-8 relamp, reflectorised delamping
- ◆ motion sensors
- ◆ compact fluorescent exit signs
- ◆ photocells on exterior lights, stairwell lights
- ◆ Energy Management System
- ◆ supplemental solar hot water
- ◆ natural gas boiler
- ◆ new chiller
- ◆ waste water credit meters
- ◆ gas hot water heater
- ◆ group relamping

### Annex Building--

- ◆ electronic ballasts and T-8 reflectorised relamping
- ◆ motion sensors
- ◆ compact fluorescent exit signs
- ◆ Energy Management System
- ◆ group relamping

### Wilson Building--

- ◆ electronic ballasts and T-8 lamps
- ◆ motion sensors
- ◆ compact fluorescent exit signs
- ◆ Energy Management System
- ◆ group relamping

### Administration Building--

- ◆ electronic ballasts and T-8 lamps
- ◆ motion sensors
- ◆ LED (light-emitting diode) exit signs
- ◆ (Energy Management System slated for FY 1998)

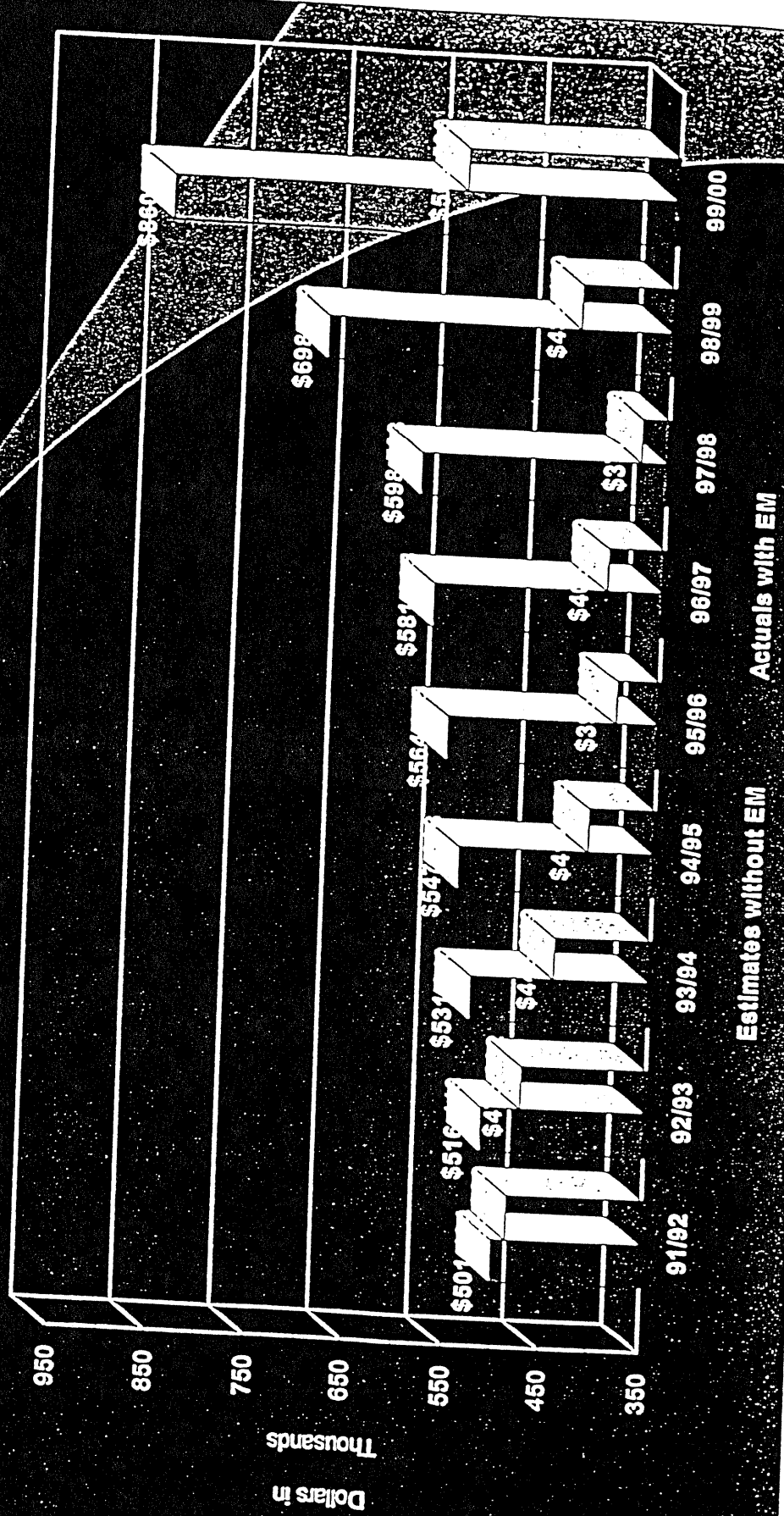
### Corrections--

- ◆ electronic ballasts and T-8 lamps
- ◆ daylight harvesting utilizing sunlight to dim fluorescent lighting
- ◆ motion sensors
- ◆ LED exit signs
- ◆ monitor misers
- ◆ recreation yard photocell lighting controls

### State Attorney's--

- ◆ load shed devices dim fluorescent lighting based on building consumption
- ◆ daylight harvesting utilizing sunlight to dim fluorescent lighting
- ◆ motion sensors
- ◆ LED exit signs

**Projected Utilities Costs without Energy Mgmt, Compared to Actuals with Energy Mgmt  
Savings to date \$1,399,086**



# FLEET MANAGEMENT POLICY

## BACKGROUND

In meeting operational needs, County staff must consider energy consumption, emissions and waste generation as part of the decision making process in the management of fleet assets. Saving fuel means saving money. Judicious maintenance and recycling resources add value by extending fleet life and reducing adverse environmental effects.

### Policy Objective

To ensure that Alachua County's fleet assets are selected, acquired and utilized in a manner that provides for the best possible support of County operations through environmentally responsible Fleet Management.

### County Staff Actions

#### A. Planning

- Carefully assess needs to minimize fleet size
- Carefully plan vehicle and equipment use to maximize efficiency and minimize mileage driven

#### B. Acquisition

- Purchase fleet vehicles and equipment of appropriate size according to assessed needs
- When specifying vehicles and equipment, consider fuel efficiency and cost effectiveness
- Reduce harmful emissions through fleet vehicle and equipment down-sizing, and use alternative fuel whenever cost effective and operationally feasible.
- Purchase ecological products such as coolants and re-refined oils where available and cost effective.
- Purchase retreaded tires for large wheeled or slow-moving vehicles.

### C. Maintenance and Operations

- Perform preventative maintenance regularly and on time to ensure optimal vehicle and equipment operations.
- Recycle engine fluids, antifreeze, batteries and tires.
- Monitor fuel consumption and vehicle maintenance records regularly to ensure optimal vehicle operation.
- Inspect vehicles weekly and prior to extended use to ensure correct tire pressure, oil and coolant levels, and to identify possible signs of other fluid leaks.
- Re-enforce vehicle and equipment operator awareness to:
  - Reduce idling time.
  - Adopt conservative driving habits such as gradual acceleration and strict adherence to speed limits.

### D. Disposal

- Dispose of hazardous materials such as waste oil, lubricants, antifreeze and batteries safely through environmentally responsible practices.

AFTER HOURS TIRE REPAIR/TOWING SERVICE:

The Fleet Manager will provide after hours tire repair and towing service to departments that provide 24 hour county service. The Fleet Manager will provide the Department Directors with the phone numbers needed to request these after hours services.

**VEHICLE POOLS**

The Fleet Management office shall provide vehicle pool services to all county departments on a rental vehicle basis.

Each Director shall encourage vehicle pool assignments over individual vehicle assignments. Pools are a proven strategy in reducing fleet size and cost reduction.

DEFINITIONS

EQUIPMENT MODIFICATION:

Adding, changing, deleting parts, accessories or specific capacities to fleet vehicles and equipment other than as delivered to Alachua County Board of County Commissioners.

EQUIPMENT MISUSE AND ABUSE:

The use of equipment for other than its intended purpose; use of equipment with low or high fluid levels (fuel, oils, water, and tire pressure). Damage to equipment where reasonable care to prevent damage was not taken. Not having vehicle/equipment PMS performed timely.

QUICK FIX REPAIRS/PREVENTATIVE MAINTENANCE

Repairs and preventative maintenance that can be properly completed within one hour.

EMERGENCY CONDITIONS

When there exists a threat to public health, welfare, safety or the operation of a department or division would be seriously impaired if immediate action were not taken.

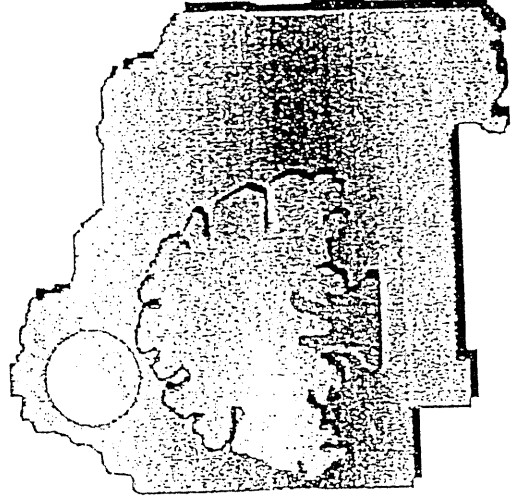
**ALACHUA COUNTY**

**FLEET MANAGEMENT**

**OPERATING**

**POLICIES & PROCEDURES**

**MANUAL**



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The Fleet Maintenance Supervisor will dispatch a Fleet Technician to accomplish repair or arrange for towing of the vehicle.

### QUICK FIX REPAIRS/PREVENTATIVE MAINTENANCE:

For vehicles/motORIZED equipment in need of quick fix repairs/preventative maintenance, the operator will deliver the vehicle to Alachua County Fleet Management and provide the Fleet Management Office personnel with the following information:

- Vehicle Number
- Mileage/hours
- Quick Fix Repair Required

The Fleet Management Office personnel will prepare a vehicle work order with the information provided and notify the Fleet Maintenance Supervisor of the quick fix/preventative maintenance request. The Fleet Maintenance Supervisor will assign a Fleet Technician to perform the requested quick fix repairs/preventative maintenance.

### REPAIRS COMPLETE NOTIFICATION:

The Fleet Management Office will notify the Department upon completion of repairs. This notification will be within one hour of the completion of work.

### ISSUING OF PARTS:

Under normal circumstances, the Fleet Management Office will only issue repair parts for vehicles that are undergoing repairs or preventative maintenance. Under special circumstances, the Fleet Manager can approve issuing of minor parts to be held and installed on a self-help basis by the requesting Department. In these cases, parts will be issued utilizing a Fleet Management Work Order with the appropriate signature.

### EMERGENCY FLEET SUPPORT:

During emergency conditions, Department Directors requiring emergency fleet support will contact the Fleet Manager. The Fleet Manager will provide the requested Fleet Support within county policies and procedures.

### AFTER HOURS FLEET SUPPORT:

After hours fleet support will be provided for emergencies only. Department Directors or personnel requiring emergency fleet support will contact the Fleet Manager. If the Fleet Manager cannot be contacted, the requesting department will contact the Fleet Maintenance Supervisor or any fleet employee using the Fleet Management Emergency recall list.

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VEHICLES/MOTORIZED EQUIPMENT MAINTENANCE REPAIR PROCEDURES

**GENERAL:** Vehicle maintenance includes inspection, lubrication, adjustment, cleaning, testing and replacing vehicle components which have failed or are on the verge of failure. These actions will be performed in one of two ways:

- On a scheduled, periodic basis, which is called preventative maintenance (PM) cycle or;
- On an unscheduled basis, which is referred to as breakdown or unscheduled maintenance.

**PRIORITY:** Maintenance of Alachua County Board of County Commissioners fleet vehicles and motorized equipment in the maintenance cycle will be prioritized as follows:

<u>PRIORITY</u>	<u>VEHICLE EQUIPMENT</u>
1	Public safety (Fire/Rescue) etc.
2	Essential Services (Transfer Station) etc.
3	Preventative Maintenance (On time)
4	Unscheduled Maintenance
5	Preventative Maintenance (Not on Time)
6	Modifications

VEHICLES REQUIRING PREVENTATIVE MAINTENANCE OR IN DISREPAIR BUT OPERATIONAL:

Vehicles/motorized equipment requiring preventative maintenance or in disrepair but safely operational will be delivered to Alachua County Fleet Management by the operator. The operator will provide Fleet Management Office personnel with the following information:

- Vehicle Number
- Mileage/hours
- Repairs required/symptoms

The Fleet Management Office personnel will prepare a vehicle work order and enter the vehicle into the maintenance cycle.

VEHICLES IN DISREPAIR AND NOT OPERATIONAL:

For Vehicles/motorized equipment in disrepair and not operational the operator will call the Fleet Management Office and provide the following information:

- Operator Name
- Vehicle Number
- Location of Vehicle
- Repairs required/symptoms



## PURPOSE

The purpose of this manual is to establish procedures and policies to ensure that the Alachua County Board of County Commissioner's vehicles and motorized equipment are selected, acquired, utilized and maintained in a manner that provides the best possible support to county operations through economical and environmentally responsible fleet management.

## GUIDING POLICIES

Alachua County Board of County Commissioners will provide for central management of its fleet of vehicles and motorized equipment, including their purchase, ownership, maintenance, repair, replacement, disposal and providing fleet fuels.

Alachua County Board of County Commissioners vehicles and motorized equipment shall be provided and utilized only when required to conduct county business.

The Alachua County Board of County Commissioners fleet assets shall be managed in accordance with the life cycle approach to material management and with the principles of economy, prudence and probity, while minimizing any negative environmental impact.

At the time Alachua County Board of County Commissioners fleet assets are scheduled for replacement, it will be viewed as an opportune time to evaluate vehicle need and size requirements.

No smoking is permitted in Alachua County Board of County Commissioners fleet vehicles and motorized equipment.

No vehicle/equipment will be operated with a known safety deficiency.

## FINANCIAL PROCEDURES

### Internal Service Fund

Fleet Management will be funded using two internal service funds. One fund will be for the management and recovery of direct costs including fuel, parts, labor, subcontract work and other similar fleet vehicle operations costs. The second fund will be used to recover the costs of vehicles purchased from the vehicle replacement fund. Administrative management and overhead costs will be included in fund charges to reflect all costs.

### Funding Replacement Vehicles

The funding for a replacement vehicle should be from the same fund used to purchase the vehicle. For example, if the vehicle being replaced was purchased from the vehicle replacement fund, then that fund will fund its replacement. If the vehicle being replaced was purchased from a fund other than the vehicle replacement fund, the department to which the vehicle is assigned shall budget for the replacement. The vehicle may be added to the Vehicle Replacement Fund. (See Fleet Manager)

### Funding Additions to the Fleet

Additions to the fleet shall normally be requested by individual departments during the budget process. Long term funding for future replacements shall either be included in the department budget, or in the vehicle replacement fund budget. Vehicles added to the fleet shall be initially funded and justified in the requesting departments budget request.

### Funding Upgrades to the Fleet

Upgrades to fleet vehicles shall also to be requested during the budget process. Upgrades or changes in the type or size of fleet vehicles require advanced approval by the County Manager.

## VEHICLE ACQUISITION PROCEDURES

The Fleet Manager shall have responsibility for acquiring Alachua County Board of County Commissioners fleet vehicles and equipment by a method that complies with Alachua County Purchasing Policies and with approval of the Public Works Director.

The Fleet Manager shall be responsible for determining the most cost efficient purchase of all fleet vehicles and equipment considering purchase price, maintenance, repair, operating costs and resale value. Acquisition of fleet assets shall be selected, acquired and utilized providing the best possible support of County operations and be environmentally responsible in accordance with the fleet "Green" Management Policy.

The using department shall conduct a needs analysis to determine the minimum size vehicle or equipment needed to meet departmental requirements based upon demonstrated need in the conduct of official business.

## GENERAL PROCEDURES

### VEHICLE USAGE:

All vehicle and motorized equipment usage will be in compliance with the Alachua County Vehicle Usage Policy.

### VEHICLE IDENTIFICATION:

The County Fleet Manager will insure the Alachua County Board of County Commissioner's fleet is properly identified and uniform. All of Alachua County Board of County Commissioners fleet vehicles and motorized equipment will be identified using the county signature (logo) and a vehicle number. Exceptions will be:

1. Motorized equipment that is too small for the county signature.
2. All Fire/Rescue Department vehicles which will be identified using the Alachua County Fire/Rescue Department signature.
3. Those vehicles approved by the County Manager

### VEHICLE MODIFICATION:

All requests for vehicle/motorized equipment modifications shall be approved by the appropriate Department Director and transmitted to the county Fleet Manager in writing.

### VEHICLE MISUSE AND ABUSE:

The County Fleet Manager will notify the appropriate Department Director and the Public Works Director of any suspected vehicle/motorized equipment misuse and/or abuse. The Department Director will investigate and make a determination if any vehicle misuse or abuse has occurred and take appropriate action(s).

### VEHICLE ACCIDENT REPORTING AND REPAIR:

Fleet vehicle and motorized equipment accidents will be reported and repaired in accordance with the Alachua County Safety Policy.

### VEHICLE CLEANING:

Each department is responsible for maintaining the cleanliness of the vehicle/motorized equipment assigned. Vehicles shall be cleaned at regularly scheduled intervals. The Fleet Management Office will provide for a local vendor to perform cleaning services for on the road vehicles (sedans, vans, pickup trucks etc.) at the vendors place of business.

### VEHICLE LICENSING:

The County Fleet Manager will apply for all county vehicle and motorized equipment licenses and titles as required by Federal and State laws and maintain all required records.

### VEHICLE/EQUIPMENT OPERATORS SHALL:

- Maintain the proper operator license
- Comply with all Federal, State and local laws relating to the operation of assigned vehicle equipment.
- Inspect assigned vehicle/equipment prior to operation. The inspection will include, but not be limited to the following safety items depending upon vehicle/equipment type:
  1. Water and oil levels
  2. Foot and emergency brake
  3. Head, tail and brake lights
  4. Turn signals
  5. Tire pressure and tire condition
  6. Windshield wipers
  7. Mirrors
  8. Visual damage (dents, large scratches, cracked windows, etc.)
- Report deficiencies discovered through operator's inspection, which are beyond the operators capability, to the immediate supervisor for referral to the Fleet Management Office for repairs.
- Not put vehicle/equipment in motion until all occupants are restrained by seat belts.
- Not install, nor allow to be installed, any additional electrical or electronic equipment such as stereo, CB's, light, light chargers and radio chargers in any county vehicle/equipment. Equipment of this type will be installed by the Office of Fleet Management or an approved county vendor. Radar detectors are strictly prohibited in county vehicles.
- Report all accidents in accordance with the Alachua County Safety Policy.

## RESPONSIBILITIES

### PUBLIC WORKS DIRECTOR SHALL:

Be responsible for planning, directing, managing, coordinating and supervising programs for the acquisition, assignment, utilization, maintenance, repair, replacement, disposal, and providing fleet fuels for the vehicles and motorized equipment fleet of Alachua County Board of County Commissioners.

Delegate the responsibility for implementing and complying with the provisions of this policy to the County Fleet Manager.

### DEPARTMENT DIRECTORS SHALL:

Carefully assess department needs to minimize fleet size.

Carefully plan vehicle and equipment usage to maximize efficiency and minimize mileage driven.

Ensure that vehicles and motorized equipment requested for acquisition and use within their department are of the appropriate size and have only those items/accessories that are operationally required.

Re-enforce vehicle and equipment operator awareness to:

- Reduce vehicle and equipment idling time
- Conservative driving habits such as gradual acceleration and strict adherence to speed limits
- Tire pressure, coolant and oils at the proper levels.
- Maintain the proper operator license and comply with all Federal, State and local laws relating to the operation of motor vehicles and equipment.

Ensure that fleet vehicles and equipment are made available for preventative maintenance at the scheduled mileage/time.

Ensure that department employees inspect their assigned vehicles prior to operation. Inspections will include, but not be limited to the following safety items: foot and emergency brakes, head and tail lights, turn signals, windshield wipers, tire condition, mirrors, water and oil levels. The inspection will also include a check for vehicle damage, such as dents, scratches, window cracks, etc. Deficiencies discovered, beyond the operator's capability to correct, will be reported to the immediate supervisor and referred to the Alachua County Fleet Management Office for repair.

### FLEET MANAGER SHALL:

Monitor and evaluate the condition of Alachua County Board of County Commissioners fleet vehicles and equipment. Be the principal advisor to the Public Works Director on all county fleet matters.

Develop replacement criterion for each vehicle/class of vehicles and appropriate replacement schedule. All county vehicles and fleet equipment acquired and maintained by Fleet Management shall be targeted for replacement according to industry standard. The guidelines shall be used as a basis for developing the useful life of equipment for charge back purposes and programming future departmental vehicle and motorized equipment requirements. The guidelines shall be based on time and/or mileage, and measured against actual fleet usage.

Assist departments in developing specifications for new or replacement vehicles and fleet equipment.

Review with the Public Works Director all fleet purchasing and specification issues that require additional clarification or conflict resolution.

Acquire all of Alachua County Board of County Commissioner's fleet vehicles and equipment by a method that complies with Alachua County Purchasing Policies.

Ensure that all county vehicles and motorized equipment are properly titled and licensed to Alachua County Board of County Commissioners.

Conduct an annual fleet utilization review. Using the break-even point for vehicle usage, the Fleet Manager shall recommend reassignment, rotation, removal from service or other actions to the Public Works Director, as appropriate.

Dispose of a fleet vehicle or equipment when it becomes uneconomical to maintain. As vehicles and equipment reach target miles or time for replacement, they will receive a technical and cost evaluation, including repair/replace analysis to determine if they are to be retained, disposed of or in some situations, be reassigned.

Establish a preventative maintenance (PM) program that incorporates:

- Scheduling PMs that ensure minimum vehicle downtime.
- Manufacturers maintenance standards
- PM tasks directed towards energy, efficiency, including regular filter changes, proper tire pressures, a tune up program that insures the engine is operating at peak efficiency.
- Designed for each vehicle or class of vehicles depending on its operating environment.

Monthly, notify each department of vehicles past due for its scheduled preventative maintenance.

# Waste Alternatives Plan

Public Works Department

## Best Management Practice

To reduce the amount of garbage produced by County offices through source reduction, reuse and recycling.

### Procedure

This initiative will be accomplished through a series of tasks identified below:

- 1) Conduct annual waste surveys of all County operated facilities.
- 2) Analyze results and compile recommended strategies for each department.
- 3) Hold quarterly meetings with representatives from each department (Waste Watcher Coordinators).
- 4) Update appropriate signage regarding source reduction and recycling in employee work and break areas as a tool to educate employees.
- 5) Attend monthly new employee orientation and present the Waste Watchers at Work program.
- 6) Create an on line waste exchange for County departments to redistribute excess or unused supplies.
- 7) Create recycling stations in public area of County facilities.

12/1/00

ACTIVITY	Percent Complete	Q1	Q2	Q3	Q4
Conduct annual waste surveys of all county operated facilities, review and create recommended strategies for each department	0%				
Hold quarterly WWW meetings with WW coordinators	0%				
Update signage in employee work and break areas	0%				
Attend monthly new employee orientation and present WWW program	0%				
Create Online Waste Exchange	0%				
Create recycling and information stations in public areas of County operated facilities	0%				

# Pollution Prevention Plan for County Operations

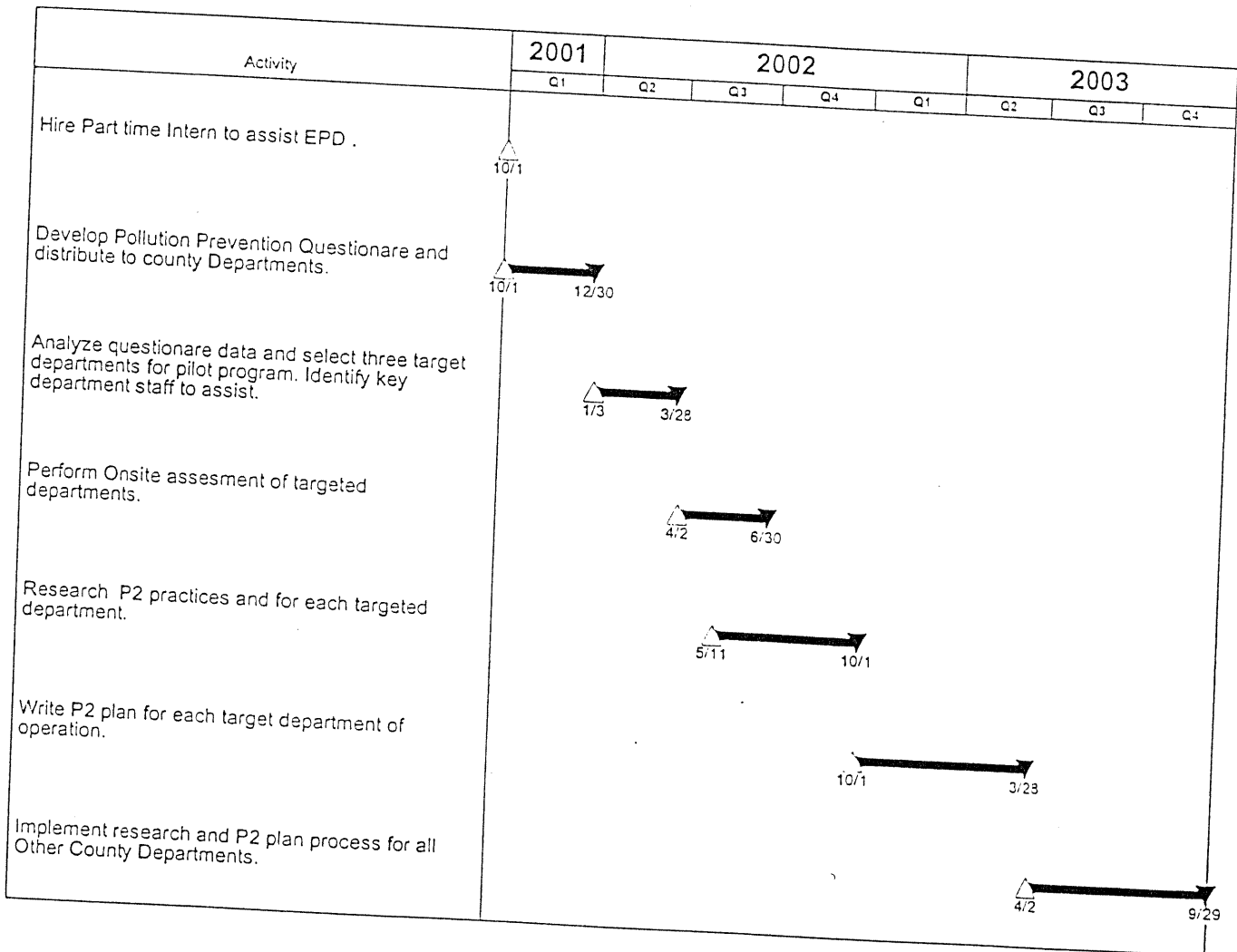
Environmental Protection Department

## Best Management Practice

To reduce the usage of hazardous materials and the generation of hazardous waste in County operations and to reduce the exposure of County employees to hazardous materials through pollution prevention practices including product substitution, waste minimization and changes in operational procedures.

## Procedure

This initiative will be implemented through a process that includes the following components: 1) develop a hazardous materials usage questionnaire to be distributed to each county department, 2) based on responses to the questionnaire, select initial County departments or sections for implementation of this initiative, 3) identify internal department/section contacts to assist in plan development, 4) conduct on-site assessments, research and discussions with department staff, 5) develop a department specific Pollution Prevention plan and 6) extend this plan development process to other County departments and 7) monitor the implementation of the Pollution Prevention Plan with assistance from targeted department staff.



# Alachua County

## Corporate Greenhouse Gas Emissions in 1998 Base Year Detailed Report

	Equiv CO <sub>2</sub> (tons)	Equiv CO <sub>2</sub> (%)	Energy (million BTU)	Cost (\$)
<b>Buildings</b>				
<i>Administration building</i>				
Electricity	990	5.6	4,447	47,247
Natural Gas	115	0.7	1,955	11,404
<i>Subtotal</i>	1,105	6.3	6,401	58,651
<i>Agricultural Center</i>				
Electricity	120	0.7	540	14,106
<i>Subtotal</i>	120	0.7	540	14,106
<i>Alachua FS</i>				
<i>Subtotal</i>	0	0.0	0	0
<i>Animal Control</i>				
Electricity	148	0.8	664	13,303
Natural Gas	47	0.3	789	3,823
<i>Subtotal</i>	194	1.1	1,453	17,126
<i>Annex</i>				
Electricity	105	0.6	473	5,315
<i>Subtotal</i>	105	0.6	473	5,315
<i>Archer Landfill</i>				
Electricity	149	0.9	669	16,233
<i>Subtotal</i>	149	0.9	669	16,233
<i>Correctional Facility</i>				
Electricity	5,185	29.6	23,293	333,051
Natural Gas	1,967	11.2	33,343	145,651
<i>Subtotal</i>	7,152	40.8	56,636	513,901
<i>Courthouse</i>				
Electricity	1,092	6.2	4,905	49,071
Natural Gas	63	0.4	1,069	5,321
<i>Subtotal</i>	1,155	6.6	5,974	54,391
<i>Environmental Prot.</i>				
Electricity	123	0.7	551	9,811
Natural Gas	8	0.0	139	811

# Alachua County

## Corporate Greenhouse Gas Emissions in 1998

### Base Year Detailed Report

	Equiv CO <sub>2</sub> (tons)	Equiv CO <sub>2</sub> (%)	Energy (million BTU)	Cost (\$)
<i>Subtotal</i>	131	0.7	689	10,693
<i>Facilities Maint. Shop</i>				
Electricity	3	0.0	12	376
<i>Subtotal</i>	3	0.0	12	376
<i>Fairbanks Collection**</i>				
Electricity	6	0.0	26	723
<i>Subtotal</i>	6	0.0	26	723
<i>Farmers Market</i>				
Electricity	4	0.0	16	475
<i>Subtotal</i>	4	0.0	16	475
<i>Fire Rescue Headquarters*</i>				
Electricity	453	2.6	2,034	39,169
Natural Gas	1	0.0	11	234
<i>Subtotal</i>	453	2.6	2,045	39,403
<i>Fire Station 12</i>				
Electricity	46	0.3	208	4,645
<i>Subtotal</i>	46	0.3	208	4,645
<i>Fire Station 16</i>				
Electricity	69	0.4	309	6,905
<i>Subtotal</i>	69	0.4	309	6,905
<i>Fire Station 17 (Jonesville)</i>				
Electricity	27	0.2	120	2,651
<i>Subtotal</i>	27	0.2	120	2,651
<i>Fire Station 18</i>				
Electricity	66	0.4	297	6,657
<i>Subtotal</i>	66	0.4	297	6,657
<i>High Springs Collection</i>				
Electricity	7	0.0	32	877
<i>Subtotal</i>	7	0.0	32	877
<i>Lacrosse Collection</i>				

# Alachua County

## Corporate Greenhouse Gas Emissions in 1998

### Base Year Detailed Report

	Equiv CO <sub>2</sub> (tons)	Equiv CO <sub>2</sub> (%)	Energy (million BTU)	Cost (\$)
Electricity	4	0.0	19	596
<i>Subtotal</i>	4	0.0	19	596
<i>MVI Medic 6</i>				
Electricity	28	0.2	127	2,630
<i>Subtotal</i>	28	0.2	127	2,630
<i>Medic 5</i>				
Electricity	16	0.1	71	1,622
<i>Subtotal</i>	16	0.1	71	1,622
<i>Medic 7</i>				
Electricity	11	0.1	49	1,236
<i>Subtotal</i>	11	0.1	49	1,236
<i>Medic 8</i>				
Electricity	13	0.1	59	1,332
<i>Subtotal</i>	13	0.1	59	1,332
<i>Medic 9</i>				
Electricity	15	0.1	67	1,630
<i>Subtotal</i>	15	0.1	67	1,630
<i>Metamorphosis</i>				
Electricity	71	0.4	320	6,946
<i>Subtotal</i>	71	0.4	320	6,946
<i>Motor Vehicle Insp.</i>				
Electricity	57	0.3	256	6,181
<i>Subtotal</i>	57	0.3	256	6,181
<i>Pfeifer Collections</i>				
Electricity	5	0.0	21	57
<i>Subtotal</i>	5	0.0	21	57
<i>Public Defenders</i>				
Electricity	14	0.1	61	1,441
<i>Subtotal</i>	14	0.1	61	1,441
<i>Public Health Mod.</i>				



# Alachua County

## Corporate Greenhouse Gas Emissions in 1998 Base Year Detailed Report

	Equiv CO <sub>2</sub> (tons)	Equiv CO <sub>2</sub> (%)	Energy (million BTU)	Cost (S)
Electricity	13	0.1		
<i>Subtotal</i>	13	0.1	58	3,060
<i>Public Works</i>			58	3,060
Electricity	365	2.1		
<i>Subtotal</i>	365	2.1	1,640	33,393
<i>Sheriff</i>			1,640	33,393
Electricity	912	5.2		
Natural Gas	119	0.7		
<i>Subtotal</i>	1,031	5.9	4,097	53,040
<i>Star Garage</i>			2,024	7,678
			6,121	65,718
Electricity	23	0.1		
<i>Subtotal</i>	23	0.1	104	2,410
<i>State Attorney Office</i>			104	2,410
Electricity	546	3.1		
<i>Subtotal</i>	546	3.1	2,454	21,576
<i>Tag Agency</i>			2,454	21,576
Electricity	65	0.4		
<i>Subtotal</i>	65	0.4	294	7,490
<i>Tag Agency</i>			294	7,490
Electricity	32	0.2		
<i>Subtotal</i>	32	0.2	145	3,290
<i>Waldo Annex</i>			145	3,290
Electricity	212	1.2		
Natural Gas	2	0.0		
<i>Subtotal</i>	214	1.2	952	19,148
<i>Waldo Road Complex</i>			37	348
			989	19,494
Electricity	312	1.8		
Natural Gas	3	0.0		
<i>Subtotal</i>	315	1.8	1,402	27,396
<i>Welcome Center</i>			44	381
			1,446	27,777
Electricity	37	0.2		
<i>Subtotal</i>	37	0.2	168	3,826

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2/21/01

# Alachua County

## Corporate Greenhouse Gas Emissions in 1998

### Base Year Detailed Report

	Equiv CO <sub>2</sub> (tons)	Equiv CO <sub>2</sub> (%)	Energy (million BTU)	Cost (\$)
Natural Gas	6	0.0	107	675
<i>Subtotal</i>	44	0.3	276	4,503
<i>Wilson</i>				
Electricity	746	4.3	3,352	36,397
<i>Subtotal</i>	746	4.3	3,352	36,397
<b>Subtotal Buildings</b>	<b>14,422</b>	<b>82.3</b>	<b>93,633</b>	<b>1,007,723</b>
<i>Vehicle Fleet</i>				
<i>Ambulance- truck conversion he</i>				
Gasoline	0	0.0	0	43,234
Diesel	510	2.9	6,297	0
<i>Subtotal</i>	510	2.9	6,297	43,234
<i>Auto full size emergency use-</i>				
Gasoline	25	0.1	317	2,478
<i>Subtotal</i>	25	0.1	317	2,478
<i>Auto- full size standard use-</i>				
Gasoline	2	0.0	29	626
<i>Subtotal</i>	2	0.0	29	626
<i>Auto-med size standard use- un</i>				
Gasoline	33	0.2	483	3,704
<i>Subtotal</i>	38	0.2	483	3,704
<i>Backhoe loader standard use- d</i>				
Diesel	16	0.1	199	1,378
<i>Subtotal</i>	16	0.1	199	1,378
<i>Bulldozer- diesel</i>				
Gasoline	0	0.0	0	6,522
Diesel	77	0.4	946	0
<i>Subtotal</i>	77	0.4	946	6,522
<i>Distributor asphalt- diesel</i>				
Diesel	2	0.0	25	17-
<i>Subtotal</i>	2	0.0	25	17-

# Alachua County

## Corporate Greenhouse Gas Emissions in 1998

### Base Year Detailed Report

	Equiv CO <sub>2</sub> (tons)	Equiv CO <sub>2</sub> (%)	Energy (million BTU)	Cost (\$)
<i>Excavator self loading pan- di</i>				
Diesel	1	0.0	9	70
<i>Subtotal</i>	1	0.0	9	70
<i>Excavator standard use- diesel</i>				
Diesel	16	0.1	198	1,437
<i>Subtotal</i>	16	0.1	198	1,437
<i>Excavator telescopic boom- die</i>				
Diesel	47	0.3	581	4,067
<i>Subtotal</i>	47	0.3	581	4,067
<i>Field Service Truck - diesel</i>				
Diesel	4	0.0	54	358
<i>Subtotal</i>	4	0.0	54	358
<i>Field Service Truck standard u</i>				
Gasoline	2	0.0	25	688
<i>Subtotal</i>	2	0.0	25	688
<i>Fire Heavy rescuse, platform,</i>				
Gasoline	186	1.1	2,355	17,979
<i>Subtotal</i>	186	1.1	2,355	17,979
<i>Forklift self propel- diesel</i>				
Diesel	1	0.0	9	62
<i>Subtotal</i>	1	0.0	9	62
<i>Loader- frontend standard- die</i>				
Diesel	16	0.1	198	1,317
<i>Subtotal</i>	16	0.1	198	1,317
<i>Motorgrader 6x4 standard- dies</i>				
Diesel	227	1.3	2,803	19,095
<i>Subtotal</i>	227	1.3	2,803	19,095
<i>Mower- rotary riding- unlead</i>				
Gasoline	1	0.0	14	550
<i>Subtotal</i>	1	0.0	14	550

# Alachua County

## Corporate Greenhouse Gas Emissions in 1998 Base Year Detailed Report

	Equiv CO <sub>2</sub> (tons)	Equiv CO <sub>2</sub> (%)	Energy (million BTU)	Cost (\$)
<i>Pick-up 3/4 &amp; 1 ton standard u</i>				
Gasoline	305	1.7	3,855	29,550
<i>Subtotal</i>	305	1.7	3,855	29,550
<i>Pick-up crew cab 1 ton standar</i>				
Gasoline	9	0.1	116	890
<i>Subtotal</i>	9	0.1	116	890
<i>Pick-up crew cab 1 ton- unlead</i>				
Gasoline	5	0.0	68	523
<i>Subtotal</i>	5	0.0	68	523
<i>Pick-up flatbed 1 ton standard</i>				
Gasoline	29	0.2	367	2,822
<i>Subtotal</i>	29	0.2	367	2,822
<i>Pick-up- 1/2 / 3/4 ton standar</i>				
Gasoline	237	1.4	2,997	23,028
<i>Subtotal</i>	237	1.4	2,997	23,028
<i>Roller- steel/wheel standard- d</i>				
Diesel	1	0.0	8	57
<i>Subtotal</i>	1	0.0	8	57
<i>Spotting Tractor</i>				
Gasoline	0	0.0	4	28
<i>Subtotal</i>	0	0.0	4	28
<i>Terrain vehicle utility carts</i>				
Gasoline	0	0.0	2	1
<i>Subtotal</i>	0	0.0	2	1
<i>Tractor w/wo attachments 0-50</i>				
Diesel	1	0.0	11	7
<i>Subtotal</i>	1	0.0	11	7
<i>Tractor w/wo attachments 51-10</i>				
Diesel	101	0.6	1,252	8,54
<i>Subtotal</i>	101	0.6	1,252	8,54

# Alachua County

## Corporate Greenhouse Gas Emissions in 1998

### Base Year Detailed Report

	Equiv CO <sub>2</sub> (tons)	Equiv CO <sub>2</sub> (%)	Energy (million BTU)	Cost (\$)
<i>Truck Diesel Rolloff</i>				
Gasoline	69	0.4		
<i>Subtotal</i>	69	0.4	874	6,644
<i>Truck Vacuum Sweeper- diesel</i>				
Diesel	11	0.1		
<i>Subtotal</i>	11	0.1	140	925
<i>Truck hericide- unlead</i>				
Gasoline	3	0.0		
<i>Subtotal</i>	3	0.0	43	325
<i>Truck water- diesel</i>				
Gasoline	0	0.0		
Diesel	5	0.0	61	424
<i>Subtotal</i>	5	0.0	61	0
<i>Truck- Aerial lift</i>				
Gasoline	9	0.1		
<i>Subtotal</i>	9	0.1	115	892
<i>Truck- Dump &gt; 10 yd<sup>3</sup> standard</i>				
Diesel	343	2.0		
<i>Subtotal</i>	343	2.0	4,240	29,807
<i>Truck- Semi tractor 8 ton stan</i>				
Diesel	234	1.3		
<i>Subtotal</i>	234	1.3	2,837	23,071
<i>Truck- dump &lt; 6 yd<sup>3</sup> standard-</i>				
Diesel	24	0.1		
<i>Subtotal</i>	24	0.1	300	2,101
<i>Truck- dumpcrew cab</i>				
Gasoline	121	0.7		
<i>Subtotal</i>	121	0.7	1,530	11,869
<i>Truck- pincher standard</i>				
Gasoline	17	0.1		
			215	1,635

# Alachua County

## Corporate Greenhouse Gas Emissions in 1998

### Base Year Detailed Report

	Equiv CO <sub>2</sub> (tons)	Equiv CO <sub>2</sub> (%)	Energy (million BTU)	Cost (\$)
<i>Subtotal</i>	17	0.1	215	1,635
<i>Utility- 1/2 ton emergency use</i>				
Gasoline	69	0.4	873	6,992
<i>Subtotal</i>	69	0.4	873	6,992
<i>Utility- 1/2 ton standard use-</i>				
Gasoline	241	1.4	3,052	23,372
<i>Subtotal</i>	241	1.4	3,052	23,372
<i>Van- 1/2 ton emergency use- un</i>				
Gasoline	14	0.1	179	1,375
<i>Subtotal</i>	14	0.1	179	1,375
<i>Van- 1/2 ton passenger emergen</i>				
Gasoline	6	0.0	75	531
<i>Subtotal</i>	6	0.0	75	531
<i>Van- Cargo 1/2 ton standard us</i>				
Gasoline	32	0.2	405	3,092
<i>Subtotal</i>	32	0.2	405	3,092
<i>Van- Passenger 1/2 ton standar</i>				
Gasoline	24	0.1	302	2,339
<i>Subtotal</i>	24	0.1	302	2,339
<i>Water wagon standard- diesel</i>				
Diesel	5	0.0	61	432
<i>Subtotal</i>	5	0.0	61	432
<b>Subtotal Vehicle Fleet</b>	<b>3,038</b>	<b>17.6</b>	<b>38,571</b>	<b>285,213</b>
<b>Streetlights</b>				
<i>Untitled</i>				
<i>Subtotal</i>	0	0.0	0	0
<b>Subtotal Streetlights</b>	<b>0</b>	<b>0.0</b>	<b>0</b>	<b>0</b>
<b>Water/Sewage</b>				
<i>Untitled</i>				

# Alachua County

## Corporate Greenhouse Gas Emissions in 1998 Base Year Detailed Report

	Equiv CO <sub>2</sub> (tons)	Equiv CO <sub>2</sub> (%)	Energy (million BTU)	Cost (\$)
<i>Subtotal</i>	0	0.0	0	0
Subtotal Water/Sewage	0	0.0	0	0
Waste				
<i>Untitled</i>				
Paper Products	16	0.1		0
Food Waste	3	0.0		0
Wood/Textiles	-3	0.0		0
<i>Subtotal</i>	17	0.1		0
Subtotal Waste	17	0.1		0
Other				
<i>Untitled</i>				
<i>Subtotal</i>	0	0.0	0	0
Subtotal Other	0	0.0	0	0
<b>Total</b>	<b>17,526</b>	<b>100.0</b>	<b>132,404</b>	<b>1,292,941</b>

# Alachua County

## Community Greenhouse Gas Emissions in 1998

### Detailed Report

	Equiv CO <sub>2</sub> (tons)	Equiv CO <sub>2</sub> (%)	Energy (million BTU)
<b>Residential</b>			
Electricity	797,902	29.0	3,584,547
Natural Gas	56,691	2.1	960,860
<b>Subtotal</b>	<b>854,593</b>	<b>31.1</b>	<b>4,545,407</b>
<b>Commercial</b>			
Electricity	532,934	19.4	2,394,185
Natural Gas	54,846	2.0	929,592
<b>Subtotal</b>	<b>587,780</b>	<b>21.4</b>	<b>3,323,777</b>
<b>Industrial</b>			
Electricity	202,881	7.4	911,436
<b>Subtotal</b>	<b>202,881</b>	<b>7.4</b>	<b>911,436</b>
<b>Transportation</b>			
<i>Commercial Vehicle</i>			
<b>Subtotal</b>	<b>0</b>	<b>0.0</b>	<b>0</b>
<i>Pass. Bus (Transit)</i>			
<b>Subtotal</b>	<b>0</b>	<b>0.0</b>	<b>0</b>
<i>Personal Vehicle</i>			
Gasoline	850,221	30.9	10,762,283
Diesel	71,720	2.6	835,438
<b>Subtotal</b>	<b>921,941</b>	<b>33.5</b>	<b>11,647,726</b>
<i>Rail (Transit)</i>			
<b>Subtotal</b>	<b>0</b>	<b>0.0</b>	<b>0</b>
<i>Unclassified</i>			
<b>Subtotal</b>	<b>0</b>	<b>0.0</b>	<b>0</b>
<b>Subtotal Transportation</b>	<b>921,941</b>	<b>33.5</b>	<b>11,647,726</b>
<b>Waste</b>			
Paper Products	55,932	2.0	
Food Waste	36,000	1.3	
<b>Subtotal</b>	<b>91,932</b>	<b>3.3</b>	
<b>Other</b>			

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# Alachua County

## Community Greenhouse Gas Emissions in 1998

### Detailed Report

	Equiv CO <sub>2</sub> (tons)	Equiv CO <sub>2</sub> (%)	Energy (million BTU)
<i>Southwest Landfill</i>			
Methane	940	0.0	
<i>Subtotal</i>	940	0.0	
<i>Untitled</i>			
Methane	90,132	3.3	
<i>Subtotal</i>	90,132	3.3	
Subtotal Other	91,072	3.3	
Total	2,750,199	100.0	20,423,347