

Vehicle fleet report:
Baseline information to enable cities to reduce GHG emissions and save money
GHG Inventory Project, Sonoma County, California
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Purpose

Vehicles have become an integral part of society. Government agencies and local municipalities use them to support vital city functions. However, operating a vehicle fleet is costly. Aside from monetary expenses, for every gallon of fuel burned, 22 pounds of carbon dioxide (CO₂) are released into the atmosphere causing global warming.¹

Since vehicle fleets play an important role in reducing global warming and air pollution emissions, it is beneficial to conduct an inventory of fleet vehicles. Once characterized, goals and targets can be explored to manage and reduce emissions.

During the spring of 2003, six Sonoma State University interns collected fleet information from seven cities. A staff member collected information for an eighth city. Staff liaisons from the cities guided and supported interns' efforts to acquire relevant information. Their involvement positively affected expediency and data integrity. Data origins are explained in the notes field section of each city's software used to record data and calculate emissions.

To estimate GHG emissions from city-operated vehicles, we considered types of vehicles, how many there were of each type, how many miles they traveled, and the type and amount of fuel that they used for fiscal years 2000 and 2001². Where records were unavailable or missing, approximations were substituted. For example, if a city had fuel records for two months, a two-month average was computed and multiplied by twelve to estimate annual fuel consumption. This step not only provided helpful information, it also allowed city-by-city comparisons. Once totaled, figures were entered into software provided by the International Council for Local Environmental Initiatives (ICLEI) and Torrie Smith Associates that converted fuel use into various GHG emissions statistics based on nationwide coefficients.

City Results

Chart #1 shows each city's contribution of CO₂ (in tons) for a period of 24 months. This is the equivalent of 722,814 gallons of fuel.³ That's roughly 90 gasoline tankers!⁴ Some cities reduced their emissions during fiscal 01-02 year while others were unchanged or

¹ Bill Drumheller, Green Fleets: Green Your Fleet (Berkeley: International Council for Local Environmental Initiatives, 2000) 1.

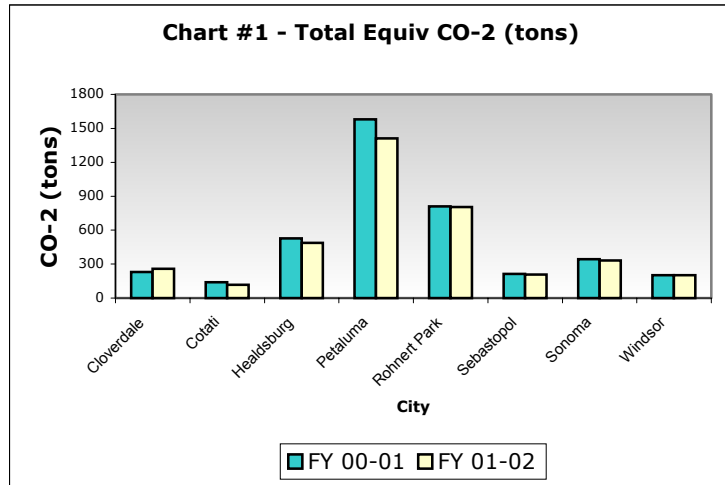
² Fiscal Years run from July 2000 thru June 2001 and July 2001 thru June 2002

³ Figures used in this study cannot claim 100% accuracy. However, a fair amount of investigation has gone into determine whether are reliable enough to show larger trends and the consensus is yes.

⁴ Typical tanker carries roughly 8,000 US gallons. Transportation Fuels Office
<<http://www.energy.ca.gov/gasoline/>> 23 Aug 03.

maintained a slight increase. It's conceivable that the general trend downward could be related to a downturn in the economy. As growth wanes, driving does too. Or, cost for gasoline went up and driving was discouraged. Either way, this is a significant trend and beckons further study.

The need to manage greenhouse gases goes beyond environmental concerns (see Table #1). There are direct costs associated with burning fossil fuels. Without considering the cost to clean up the environment in the future, cities spent a total of \$1,015,351 in two years.



Cities required an estimated 90,189 (Million Btu) during fiscal years 00-01 and 00-02.⁵ Compared with cities similar in size throughout the United States, Sonoma County cities are analogous. This could be viewed as an opportunity for Sonoma County to significantly reduce emissions, and thereby distinguish itself locally and worldwide.

Fleet fuel costs

Table #1	Cloverdale	Cotati	Healdsburg	Petaluma	Rohnert Park	Sebastopol	Sonoma	Windsor
FY 00-01	\$ 31,450	\$ 24,178	\$ 66,800	\$ 226,846	\$ 112,650	\$ 26,862	\$ 51,447	\$ 25,442
FY 01-02	\$ 31,866	\$ 16,821	\$ 61,660	\$ 172,753	\$ 102,062	N/A	\$ 39,292	\$ 23,361

The percentages of cities' overall emissions originating from vehicles are shown in Chart #2 (below). Comparative information such as this can help cities determine how best to focus their efforts, for example, on egregious categories like wastewater treatment and solid waste (shown in other reports) instead of vehicle fleets. Larger sources of pollution offer cities greater opportunities for reducing overall emissions.

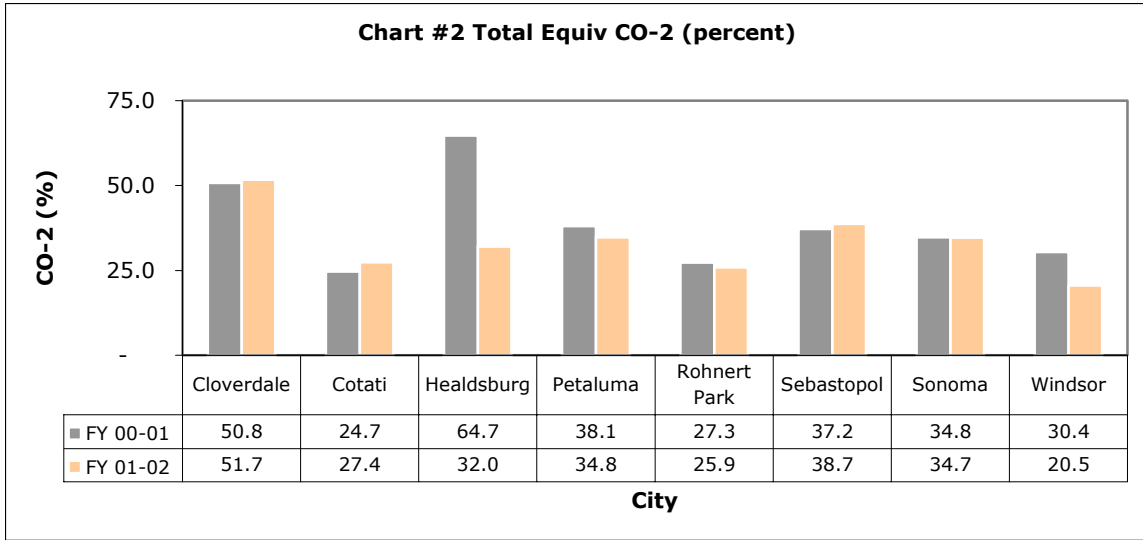
Another benefit of comparing results either between cities or between years is to reveal anomalies that may reflect errors in data collection, entry, or analysis. Necessary information may not have been collected. Data may have been entered into the software incorrectly. Improper coefficients may have been used. Figures for other sectors of city emissions may be incorrect, rendering a city's emission percentages invalid.

There may also exist good reasons for seeming incongruous results, e.g., Windsor's comparatively low fleet emissions are likely because the town contracts for police

⁵ Some cities were able to provide a limited amount of data. In other words, not all months were accounted for. Therefore, an average of available months was taken and multiplied by twelve to reflect what might have been spent for a period of 12 months.

services with the County Sheriff Department. In Petaluma’s case, a larger population calls for more buses, fire engines, and ambulances to carry out city functions.

We employed various methods to ensure data accuracy. We performed city-to-city and year-to-year comparisons. Several people reviewed our work including Ryan Bell, technical advisor for Cities for Climate Protection®.



Improving fleet efficiency and reducing GHG emissions

Many cities are already taking measures to lower costs and improve efficiency of their fleets. Nonetheless, budget constraints and the desire to lower greenhouse gas emissions may compel fleet managers to seek greater improvements.

The following recommendations are given in “Green Your Fleet.”⁶

- Downsize vehicles
- Optimize vehicle use
- Incorporate efficiency into bid specifications
- Maximize efficiency
- Eliminate fleet vehicles
- Buy vehicles that run on alternative fuels
- Use public transit, bike, walk, and telecommute
- Pass an ordinance or enact an executive order that formalizes the Green Fleets process

⁶ “Green Your Fleet,” from the International Council of Local Environmental Initiatives, Bill Drumheller, c. 2000

A winning approach is to choose complementary strategies. That is, strategies that work well with each other and can be adopted or integrated into the current government framework.

The GHG Inventory Project represents the first step of a noble and essential undertaking to reduce greenhouse gas pollution, improve air quality, and save money. The statistics in this report should be taken to show the potential and the tools. City officials and the public at large now are equipped with to address the impending challenges that lie ahead in the 21st century.

For more information, please visit www.skymetrics.us or email simon@skymetrics.us or call Ann Hancock, Project Coordinator, at (707) 829-1224.

This report has been produced in collaboration with the International Council for Local Environmental Initiatives (ICLEI) using software created by Torrie Smith Associates. ICLEI is a worldwide membership organization of local governments and their associations working to achieve tangible improvements in global environmental and sustainable development conditions located on the web at www.iclei.org .