

## MUNICIPAL FLEET EFFICIENCY

Local governments in California own and operate hundreds of thousands of vehicles. By increasing the fuel efficiency of individual vehicles, operating them more efficiently, and improving overall fleet management, cities and counties can save significant amounts of energy and money while helping to address the risks associated with air pollution and climate change.

### General Plan Language Ideas

- » The city/county shall adopt a policy to purchase and/or lease the most fuel-efficient vehicles for the tasks they will perform.
- » The city/county shall operate its vehicle fleet to improve fuel efficiency and reduce costs. Within one year, the fleet manager shall develop an energy-conserving fleet management plan. The council/board shall provide the support necessary to implement the plan, which will then serve as a model for private fleet operators in the community.

### Implementation Ideas

- » **Put in place a management information system.** Document the impact of fleet activities by carefully inventorying all of your vehicles. Include the types of vehicles, how many of each type you have, and the kind and amount of fuel they use. By closely tracking maintenance schedules, fuel consumption, mileage, and other information, the

fleet manager can identify problems and develop solutions to reduce costs and fuel consumption.

- » **Purchase fuel-efficient and appropriately sized vehicles.** By analyzing the needs of their fleet, managers may be able to “downsize” it – substituting smaller vehicles for larger, less efficient ones when making new purchases. In all purchasing decisions, fuel efficiency should be a major criterion. Include minimum fuel efficiency in procurement specifications. Use life-cycle costing, including the cost of fuel, to fairly compare one vehicle purchase against another.
- » **Assign vehicles appropriate to the task.** Often larger, more powerful vehicles are used when smaller, more efficient ones would perform the task just as effectively. The fleet manager should have the authority to analyze how vehicles are used and assign those that are the most appropriate for the task. Using a powerful pickup truck for a trip that does not require hauling large or heavy items is not energy-efficient.



San Mateo County's hybrid fleet.  
Photo credit: San Mateo County Fleet and Facility Operations.

- » **Reduce the fleet size.** If some vehicles are used infrequently, consider reducing the overall fleet size. If more vehicles are used at certain times, mid-week versus Mondays and Fridays for example, consider ways to level out the peak to allow for reducing the number of vehicles. Reducing fleet size will lower maintenance and insurance costs and may reduce the practice of using vehicles for personal business.
- » **Practice preventive maintenance.** Keeping tires properly inflated and performing regular tune-ups will improve fuel efficiency. In addition, regular preventive maintenance may avoid costly and time-consuming repairs.
- » **Train maintenance staff.** Make sure maintenance staff is aware of practices to improve fuel economy. Staff should also recycle used oil, tires, and batteries, and use non-toxic or low-toxic cleaning materials.
- » **Inform drivers of fuel-efficient driving techniques.** Excessive idling, quick starts, and speeding increase gasoline consumption. Make sure drivers are well-versed in ways to cut fuel use.
- » **Rental rates should reflect all costs.** If departments are charged for vehicle use, the rates should reflect the true cost of owning, operating, and replacing the vehicle. If charges are too low, departments receive the wrong price signals, and fleets may not operate efficiently. For some trips, it may be less expensive and more energy-efficient to use local transit or intercity trains.
- » **Centralize fleet operations.** Many cities and counties have several departments that operate fleets independently and, as a result, inefficiently. By centralizing fleet operations under one management system, economies of scale can reduce costs, and fuel efficiency programs can be implemented more effectively.
- » **Automate the fueling station.** Automated fueling stations can accurately keep track of how

much fuel each vehicle uses. This can be used to track fuel efficiency, schedule preventive maintenance, and discourage excessive personal use of fleet vehicles.

### Energy Savings

Fixing a car that is noticeably out of tune or has failed an emissions test can improve its gas mileage by an average of 4 percent, though results will vary based on the kind of repair and how well it is done. Fixing a serious maintenance problem, such as a faulty oxygen sensor, can improve mileage by as much as 40 percent.<sup>1</sup>

Keeping tires inflated to the proper pressure can improve gas mileage by around 3.3 percent. Underinflated tires can lower gas mileage by 0.3 percent for every one pound per square inch (psi) drop in pressure of all four tires. Properly inflated tires are safer and last longer.<sup>2</sup>

Using the manufacturer's recommended grade of motor oil can improve gas mileage by 1 to 2 percent. For example, using 10W-30 motor oil in an engine designed to use 5W-30 can lower gas mileage by 1 to 2 percent. Using 5W-30 in an engine designed for 5W-20 can lower gas mileage by 1-1.5 percent. Look for motor oil that says "Energy Conserving" on the API performance symbol to be sure it contains friction-reducing additives.<sup>3</sup>

Aggressive driving wastes gas. Speeding, rapid acceleration, and quick braking can lower gas mileage by 33 percent at highway speeds and by 5 percent around town.<sup>4</sup>

While each vehicle reaches its optimal fuel economy at a different speed (or range of speeds), gas mileage usually decreases rapidly at speeds above 60 mph.<sup>5</sup>

Combining errands into one trip saves time and money. Several short trips taken from a cold start can use twice as much fuel as a longer multipurpose trip covering the same distance when the engine is warm. Trip planning ensures that traveling is done when the engine is warmed-up and efficient and can reduce the distance traveled.<sup>6</sup>

The amount of energy saved from downsizing a fleet will depend upon the efficiency of the existing fleet and the

rate that vehicles are replaced. For example, replacing 20 percent of the fleet with vehicles that average 30 mpg instead of 25 mpg would reduce overall fuel consumption by 4 percent, assuming that the new vehicles are driven the same amount as the vehicles they replaced.

### Environmental Benefits

Reducing fuel consumption through improving efficiency directly reduces carbon dioxide and other air pollutant emissions. For every gallon of gasoline saved, about 25 fewer pounds of carbon dioxide (CO<sub>2</sub>) are emitted. (See Appendix A.)

### Economics

Reducing fuel consumption in city/county fleets results in direct economic savings. Reducing fuel consumption by just 10 percent through regular maintenance, proper tire inflation, and downsizing a portion of the fleet would reduce fuel costs by a comparable percentage. In addition,



Plug-in hybrids and charging stations.  
Photo credit: Sonoma County Fleet and Facility Operations.

regular maintenance to improve fuel efficiency can eliminate costly repairs. In most cases, the costs of providing regular maintenance can be absorbed in the existing budget and will be offset by avoided repair work.

The cost of computer software for an information management system will depend upon a department's needs and its computer hardware. Public domain software is available. Magazines aimed at fleet managers often list available software.

### Programs in Operation

On Earth Day, 1993, **Denver, Colorado**, created the first Green Fleets program in the nation. The Green Fleets executive order requires the managers of both Denver's

city vehicles and the fleet at the Denver International Airport to purchase the most cost-effective and lowest emission vehicles possible and to include fuel-efficiency standards in their procurement specifications. The Green Fleets review process also includes "right-sizing" fleets by reducing vehicle size and eliminating old and underused vehicles. The effectiveness of the program is measured by fleet energy use and CO<sub>2</sub> emissions. In 2008, alternatively fueled or powered vehicles made up 43 percent of the city's total fleet of 3,533 vehicles. Switching to more fuel-efficient vehicles, as well as ones that use cleaner biofuels, is helping Denver to reach its goal to reduce per-capita greenhouse gas emissions by 10 percent below 1990 levels by 2012. <http://www.greenfleets.org>

In 2007, the city of **San Jose** adopted a Green Fleet Policy to make every effort to purchase and use the lowest emission vehicle or equipment item possible, while taking into account the vehicle's life-cycle costs and the ability to support city operations and services. Through implementation of this policy, the city sought to decrease total vehicle emissions by 25 percent by fiscal year 2012-13, using 2002-03 as a baseline year. San Jose's Green Fleet Strategies include:

- » Optimizing fleet size.
- » Decreasing vehicle emissions.
- » Reducing vehicle size.
- » Increasing use of alternate fuel vehicles and equipment.
- » Implementing best practices to minimize vehicle miles traveled (VMT).

[http://sanjoseca.gov/esd/PDFs/GreenFleetPolicy\\_091707.pdf](http://sanjoseca.gov/esd/PDFs/GreenFleetPolicy_091707.pdf)

The city of **Berkeley** partnered with City CarShare, a San Francisco Bay Area carsharing organization, to replace municipal fleet vehicles with carsharing vehicles. This has allowed the city to quickly transition to using new, super fuel-efficient hybrid Toyota Prius vehicles without additional costs. [http://www.mayorsinnovation.org/pdf/park\\_june05.pdf](http://www.mayorsinnovation.org/pdf/park_june05.pdf)

## Resources

The Sierra Club developed the website [coolfleets.com](http://coolfleets.com) to help commercial, government, and municipal fleets to model vehicle alternatives and to better understand carbon outputs and lifecycle costs. Car and truck fleets are significant contributors to greenhouse gases, and the selection of vehicles that are more fuel-efficient can not only reduce CO<sub>2</sub>, but can also lower the total cost of fleet operations. <http://coolfleets.com>

The Puget Sound Clean Air Agency and Puget Sound Clean Cities Coalition have developed a comprehensive step-by-step guide to greening public and private vehicle fleets. Their website includes a process for developing a green fleets plan and an emissions calculator. <http://psgreenfleets.org/reduction-strategies/develop-a-plan>

The U.S. Department of Energy Alternative Fuels and Advanced Vehicles Data Center (AFDC, formerly known as the Alternative Fuels Data Center) provides a wide range of information and resources about using alternative fuels. It also explains other petroleum reduction options such as advanced vehicles, fuel blends, idle reduction, and fuel economy. The site is sponsored by the U.S. Department of Energy's Clean Cities initiative. <http://www.afdc.energy.gov/afdc>



City CarShare vehicles used by City of Berkeley staff on weekdays, and by the public on evenings and weekends.

Photo credit: Cambridge Systematics, Inc.

## Endnotes

1. U.S. DOE & US EPA. Accessed August 2009. US Department of Energy & US Environmental Protection Agency, [fueleconomy.gov](http://www.fueleconomy.gov/feg/maintain.shtml). <http://www.fueleconomy.gov/feg/maintain.shtml>.
2. Ibid.
3. Ibid.
4. Ibid.
5. Ibid.
6. Ibid.



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CEC-600-2009-013-F-VI-E.2.C.5.3 • FEBRUARY 2011