

Transportation: On the Road to Cleaner Air



Opposite and above – State transportation officials are urging commuters to use mass transit, carpool, ride a bike, or to telecommute, in a campaign to help communities get cleaner air. Cities are also turning to alternative fueled vehicles as means of transportation.

Did you know?

Air pollution has decreased significantly over the past 30 years—with the greatest success coming from on-road vehicles.

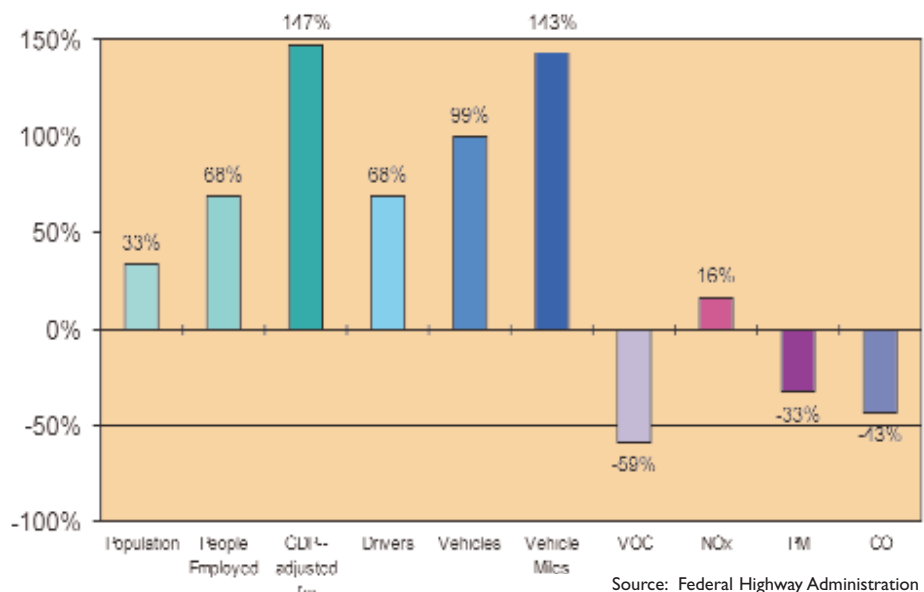
While more Americans are driving more miles than ever before, few realize that the transportation sector has contributed to a significant reduction in air pollution over the past 30 years.

The transportation sector has achieved a 77 percent drop in on-road motor vehicle emissions of so-called “criteria” pollutants, while at the same time ensuring the safety and mobility needs of a growing population.⁷

Thirty-eight percent more people—and 68 percent more drivers—clocked 143 percent more miles on their vehicles from 1970 to 1999. At the same time, cleaner vehicles, clearing of traffic-congestion bottlenecks, and strong emissions inspection and enforcement—often administered through state DOTs—have had a positive impact.

From 1970 to 1999, over 80 percent of the drop in emissions of the six major pollutants was attributed to cars and other on-road vehicles, according to U.S. Environmental Protection Agency data. Motor vehicles

Percentage of Change in Motor Vehicle Emissions, Demographics, and Travel from 1970–1999



emissions of carbon monoxide were reduced by 43 percent, particulate matter emissions were down 33 percent, and volatile organic chemical emissions dropped 59 percent. And, while nitrogen oxide (NOx) emissions have increased, NOx emissions from automobiles actually decreased by 31 percent.

And engines and fuel are expected to become even cleaner under recent EPA-issued emissions standards and cleaner fuel requirements. These new standards require all passenger vehicles sold after the 2004–2007 period to be 77 to 95 percent cleaner than those on the road today. Standards that will begin to take effect in model year 2007 will require each new truck and bus to be more than 90 percent cleaner than current models.⁸

The steep decline in NOx and VOC emissions suggests that the impact of vehicle travel on emissions is substantially less than it was in the 1970s through the 1990s.⁹

Billions in Funding Targeted to Transportation Projects That Reduce Emissions

Transportation programs are funneling billions of dollars into efforts to clean up the nation's most polluted areas.

From 1998 through 2003, over \$8.1 billion was targeted for transportation-related projects that will reduce pollutant emissions in areas not meeting air quality standards for ozone, carbon monoxide and particulate matter. These funds—provided through the Congestion Mitigation and Air Quality Improvement (CMAQ) Program—allow state transportation agencies and local governments to fund innovative strategies to clean up the air.¹⁰

Communities in so-called “non-attainment areas” have been able to increase public awareness concerning the links between transportation choices and air pollution, provide technological applications to improve transportation system efficiency, increase transit services, or implement ozone action programs.

Clean-air benefits from CMAQ transportation funding include transit and traffic flow improvements, shared-ride programs, demand management, automobile inspection and maintenance programs, and bicycle and pedestrian improvements.

These transportation funds also are being used for programs to retrofit heavy-duty diesel engines to reduce emissions from trucks or buses as well as for a variety of freight projects—such as truck stop electrification equipment to reduce idling.

Alternatives to Driving

Many transportation agencies are supporting alternatives to driving—including telecommuting, parking buy-out, and commuter choice programs—as a way to demonstrate emissions reductions. To ensure that transportation activities do not worsen air quality, federal law requires that all transportation plans and programs in areas that are out of compliance

Right – The New York Department of Transportation (NYSDOT) has been promoting an Ozone Action Day Program for several years, working with the state’s air quality agency, which provides air-quality forecasts. In larger the urban areas of New York City, Buffalo, Rochester, and Syracuse, NYSDOT has partnered with local and regional transportation agencies to get the message out to the public. The program utilizes outreach to employers, use of variable message signs and other ITS technology, and public visibility.



with air quality standards conform to the state’s air quality plan. Programs that encourage alternatives to driving are helping agencies achieve “transportation conformity.”

Highway programs also are important supporters of transit, providing the needed infrastructure for expansion of commuter bus service and other public transportation options that reduce auto emissions.

The American Public Transportation Association reports that through 2001, over \$1.2 billion of flexible highway funding has been transferred to public transportation.¹¹

Highway investments that benefit air quality can be seen around the country in construction of park-and-ride facilities for buses and carpools; funding of carpool programs; building high-occupancy vehicle lanes; providing rail transit in the highway median in areas including Virginia, Baltimore, and Chicago; and highway/transit interchanges that provide freeway access to transit stations.

Ozone Action Days: Transportation Doing Its Share

An effective and visible way for transportation to do its share to clean up the air is to participate and lead Ozone Action Day Programs.

These programs alert the public when ozone levels are expected to be unhealthy and seek their cooperation to change their travel and other behaviors to reduce emissions on those days. Messages are broadcast by media, through employer organizations, and by roadside variable message signs.

Actions the public can take to reduce emissions include:

- ▶ Carpooling, biking, walking, or taking transit to work;
- ▶ Trip chaining (combining trips and errands into one trip so the catalytic converter does not cool off);
- ▶ Avoiding drive-through lanes, and excessive idling;
- ▶ Re-fueling after 6:00 p.m., and not topping off when fueling;
- ▶ Mowing the lawn in the evening; and
- ▶ Allowing employees to telecommute or use flex time.



A clean air hybrid-electric bus operating in New York City is part of a larger effort to improve air quality within the state of New York. Many transportation agencies are supporting alternative fueled vehicles (AFVs) and the infrastructure associated with them.

Photos courtesy of New York State DOT

Alternative Fueled Vehicles: Independence and Clean Air

The transportation sector is finding innovative ways to advance new vehicle technologies to benefit air quality. Many transportation agencies are supporting alternative-fueled vehicles (AFVs) and the technology and infrastructure associated with them.

Applicable not only to light-duty vehicles—such as fleet vehicles—but also to transit buses, school buses, delivery vehicles, and station/commuter cars, AFVs are leading to improved energy efficiency and air quality and less reliance on imported energy.

New York has been a leader in adopting AFV vehicles and technologies in a wide variety of applications:

- ▶ The state has committed to alternative-fueled vehicles and technology in its own fleet of vehicles. As of July 1, 2001, New York has acquired over 1,400 AFVs. Since 1998, New York has exceeded its vehicle acquisition requirements under the federal Energy Policy Act.
- ▶ New York is installing compressed natural gas (CNG) fueling stations across the state at locations owned and operated by various state agencies including DOT. Low-volume sites are available to state vehicles only; fast-fill sites are commercially operated and are open to the public. A number of electric vehicle charging stations also have been installed.
- ▶ In the New York City metropolitan area, a Clean Commute commuter station car program has been launched. The public is offered an opportunity to lease a small electric vehicle for the commute between their homes and the rail station. Charging stations are provided at the rail stations. To date, over 100 vehicles have been leased with plans to expand the program to 400 vehicles.
- ▶ The New York City Transit Authority has made a significant commitment to using hybrid-electric buses. It has steadily increased alternative-fueled buses into its fleet, with over 2,300 programmed by 2004. All of its standard size bus purchases after 2004 will be of buses as clean as AFVs. In addition, bus depots are being converted to facilities that can store and refuel these buses.

New York is committed to investigating and testing the economic, energy, and environmental factors for all emerging alternative-fueled technologies, and to advance the most appropriate technologies—or combination of technologies—that address and support the state's needs.

Public Education: *It All Adds Up to Cleaner Air*

A key to continued progress in cleaning the nation's air is public education. Transportation and environmental officials are partners in an ongoing program dubbed, *It All Adds Up to Cleaner Air*. Officials are working to educate the public on causes of transportation related air pollution and simple steps the average citizen can take to improve air quality.¹²

Through these public education efforts, transportation officials are urging commuters to use mass transit, carpool, ride a bike, or telecommute—and are encouraging common-sense strategies, like regular auto maintenance and filling up the gas tank on cool days. The program provides a range of advertising spots, check lists, marketing kits, television and radio spots, and other tools to help communities get out the word on cleaner air.

At the beginning of the 1999 ozone season, *It All Adds Up to Cleaner Air* was introduced in 14 demonstration communities across the country. Those areas are sharing their lessons with communities that face similar air quality and congestion issues and demographics.

The Georgia Department of Transportation conducted a statewide kickoff of the media campaign to increase awareness of HOV lanes under construction in Gwinnett County, and to increase use of the existing HOV lanes and metro rail. The event attracted significant media coverage, including three Atlanta television stations. They also ran radio ads on several stations throughout the year. To draw attention to the campaign, GDOT is using the HOV BUG, a 1999 Volkswagen Beetle that was donated. The BUG travels the Atlanta metro area highlighting the need for and benefits of carpooling.

Intelligent Transportation Systems: A Smart Way to Keep Traffic Moving

Development of new transportation technologies holds significant promise for future improvements in air quality. Intelligent Transportation Systems (ITS) is a national program aimed at using modern computers and communications to make travel smarter, faster, safer, and more convenient.

According to federal highway officials, over the past 11 years, the federal government has invested over \$2 billion on ITS research, development, testing, and demonstrations, as well as other activities designed to accelerate the adoption and commercialization of ITS applications.

Promising technologies offer many benefits:

- ▶ Intelligent traffic control systems reduce the time spent stopped at red lights or waiting on freeways when an accident occurs.
- ▶ Automatic toll collection moves vehicles more quickly through tollbooths, reducing congestion, and pollution.
- ▶ Traveler information systems provide current, multi-modal information on travel conditions allowing citizens to make smarter choices about how, when, and where to travel.
- ▶ In-vehicle systems will provide in-vehicle maps and improve safety by automatically notifying emergency services when a serious accident occurs and exactly where the accident is located.
- ▶ Advanced transit systems help transit agencies operate more efficiently and provide travelers with real-time information that makes using transit easier and more attractive.
- ▶ Intelligent commercial vehicle systems will help commercial vehicle operators process the paperwork associated with moving goods. These systems also will help public agencies improve safety by inspecting the vehicles that need it the most.¹³