# DEPARTMENT OF TRANSPORTATION

## Principal Areas of Focus

DOT utilizes existing science to improve decisionmaking tools in three primary areas: (1) impact of climate variability and change on transportation (research to examine the effects that climate change and variability may have on transportation infrastructure and services, and to identify potential adaptation strategies for use by transportation decisionmakers, operators, state and local planners, and infrastructure builders); (2) increasing energy efficiency and reducing greenhouse gases (research on reducing energy use to mitigate transportation's environmental impacts both through conservation and through the application of new technology); and (3) modeling (research to develop and improve analytical tools for transportation energy use to support decisionmaking throughout government and in the private sector).

## Program Highlights for FY 2004 and FY 2005

The U.S. Department of Transportation's virtual Center for Climate Change and Environmental Forecasting plans to complete research in four areas in FY 2004-2005, including 'Measuring the Greenhouse Gas Intensity of the Transportation Sector;' 'Stock Modeling for Selected Transportation Equipment;' 'Characterization of Power Plant Emissions and Fuel Quality;' and 'Consumption Rates of the U.S. Waterborne Fleet.' DOT also will complete an evaluation of the New York State Energy Plan.

As a synthesis and assessment project under the President's Climate Change Research Initiative, the Department will continue research on 'The Potential Impacts of Climate Change on Transportation Systems' through a case study of transportation infrastructure in the Gulf Coast. Phase I of the project will formally begin in FY 2004 through joint research with the U.S. Geological Survey. The first phase will provide an integrated overview of climate and weather trends and projections in the Gulf Coast region with other relevant environmental, economic, and demographic data; assess the potential implications of these changes for transportation infrastructure and facilities; and conduct an initial assessment of relative infrastructure sensitivities in the region.

The Center has already completed research on five topics in FY 2003-2004 that address the links between transportation and climate change, including the potential impacts of climate change on transportation. Copies of the reports are available on-line at <http://www.dot.gov/climate>.

- *Fuel Options for Reducing Greenhouse Gas Emissions from Motor Vehicles*—Assesses the potential of gasoline substitutes to reduce emissions of carbon dioxide and other greenhouse gases by automobiles and light-duty trucks.
- *Modeling of Advanced Technology Vehicles*—Reviews some methods for representing advanced technology vehicles in engineering and market simulation models.
- *Passenger Ferries, Air Quality, and Greenhouse Gases: Can System Expansion Result in Fewer Emissions in the San Francisco Bay Area?*—Evaluates the potential greenhouse gas benefits achievable through better integration of passenger ferries under several ferry technology and fueling options.
- *The Potential Impacts of Climate Change on Transportation: Workshop Summary and Proceedings*—Summarizes and provides 18 discussion papers from DOT's Center for Climate Change and Environmental Forecasting October 2002 workshop exploring the potential impacts of climate change on transportation systems and services.
- *Greenhouse Gas Reduction through State and Local Transportation Planning*—Evaluates how and why states, metropolitan planning organizations, cities, and transportation providers are pursuing greenhouse gas emission reductions, with a focus on transportation planning.