

# Moving Cooler

## *Moving Cooler*

### *An Analysis of Transportation Strategies for Reducing Greenhouse Gas Emissions*

#### Key Findings

#### Overview

Transportation contributes about 28 percent of the United States' total Greenhouse Gas Emissions (GHG) — and emissions from transportation are growing faster than other sectors, representing almost half of the increase in total GHGs between 1990 and 2006. The *Moving Cooler* study is unique in providing information about the potential contribution of transportation actions to reduce the amount of vehicle travel that occurs by inducing people to use less fuel-intensive means of transportation *or* by reducing the amount of fuel consumed during travel by making transportation system improvements.

#### Reducing greenhouse gases

- An integrated, multi-strategy approach that combines techniques such as travel activity, local and regional pricing, operational and efficiency strategies can contribute to significant GHG reductions.
- Strategies that contribute the most to GHG reductions are:
  - local and regional pricing and regulatory strategies that increase the cost of single occupancy vehicle travel;
  - regulatory strategies that reduce and enforce speed limits;
  - educational strategies to encourage eco-driving behavior that achieves better fuel efficiency;
  - land use and smart growth strategies that reduce travel distances; and
  - multimodal strategies that expand travel options.
- *Combinations* of strategies create synergies that enhance the potential reductions from individual measures. Implementing various “bundles” of transportation efficiency strategies could achieve annual GHG emission reductions of up to 24% less than expected Baseline levels in 2050, by changing current transportation systems and operations, travel behavior, land use patterns, and public policy and regulations. In particular, land use changes combined with expanded transit services achieve stronger GHG reductions than when only one option is implemented.
- Strong economy-wide pricing measures, beyond local and regional pricing strategies, generate additional GHG reductions. For example, an additional fee (in current dollars) starting at the equivalent of \$0.60 per gallon in 2015 and increasing to \$1.25 per gallon in 2050 could result in an additional 17 percent reduction in GHG emissions in 2050 from the baseline — reductions in vehicle miles traveled and more rapid technology advances would drive this.

#### Reducing fuel/oil consumption

- The approaches examined in the study realize significant national reduced fuel consumption that translates to a savings of at least 110 barrels of oil a year. At maximum levels of deployment that savings could go up to 660 million barrels. When evaluated individually, almost all *Moving Cooler* strategies could achieve some GHG reductions, but measures that reinforce efficient driving — either

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through regulation (speed limit reductions) or education (eco-driving) are especially effective. Integrated land use strategies and transit capital investments, such as urban transit expansion and intercity and high-speed rail, would also reduce fuel consumption, leading to a reduction in GHG emissions from the baseline.

#### **Saving money at the pump**

- For five of the six “bundled” strategies examined, the estimated average annual savings in direct vehicle costs (i.e., ownership, maintenance and repair, and fuel) exceed estimated implementation costs up to \$112 billion at the maximum level of deployment during a 40-year timeframe.

#### **Meeting Social, Economic, and Environmental Goals**

- Many individual strategies achieve other important societal objectives such as expanding travel options, reducing congestion, providing greater accessibility, improving livability in urban areas, improving equity and environmental quality, and enhancing public health and safety.
- Without mitigating policies, certain pricing strategies would potentially create serious equity issues, because of their disproportionate effect on lower income groups — a problem that could be addressed by targeted investments.

#### **Next steps**

- Many of the strategies analyzed in *Moving Cooler*, such as lowering speed limits, using congestion pricing, expanding transit service and making operational improvements, could actually be implemented within a few years and begin to generate reductions in GHGs prior to 2020.
- Strategies that involve development and land use patterns and improved transit and transportation options take a longer time to implement. The notable reductions for these strategies are realized in 2030 and beyond, but achieve meaningful reductions of between 9 and 15 percent by 2050.
- More research is needed. The interactions of land use, urban form, and transportation are complex, particularly when attempting to project the long-range effects of investment choices on travel behavior.

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