

## Chapter 8: TRANSPORTATION & MOBILITY

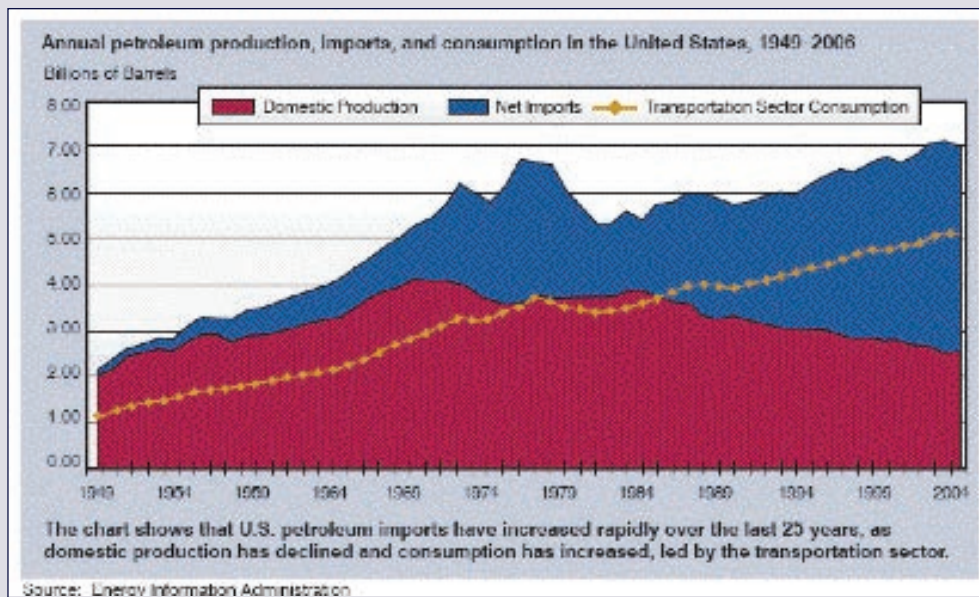
### BACKGROUND

- The United States' transportation sector – comprised of motorcycles, passenger vehicles, light- and heavy-duty trucks, buses, airplanes, boats, ships and locomotives – is responsible for 28 percent of the nation's total greenhouse gas emissions.<sup>1</sup>
- An estimated 95 percent of the sector's emissions are carbon dioxide (CO<sub>2</sub>), making it the largest end-use contributor to total national CO<sub>2</sub> emissions. Nearly 1,900 million metric tons of CO<sub>2</sub> emissions came from fossil fuel combustion in the U.S. transportation sector in 2005.
- The transportation sector uses about two-thirds of all the oil consumed in the United States.
- Within the sector, the largest source of CO<sub>2</sub> emissions is passenger vehicle travel. In 2005, passenger vehicles in the United States traveled 2.6 trillion miles, generated 62 percent of transportation-related CO<sub>2</sub> and used 135 billion gallons of gasoline, averaging 19.6 miles per gallon. Under business-as-usual scenarios developed by the U.S. Energy Information Administration (EIA), the miles traveled by passenger vehicles are expected to grow 2 percent annually between now and 2030.
- Urban development patterns have a major impact on vehicle miles traveled and therefore energy use and greenhouse gas emissions attributed to transportation. The Center for Clean Air Policy estimates that for every 1 percent in population increase, developed land increases 1.3 percent and vehicle miles traveled increase 2.3 percent.
- Due to these factors as well as the rising cost of fuel, U.S. households experienced an 8.8 percent increase in transportation spending as a proportion of all household expenses from 1992 to 2003, according to the Center for Neighborhood Technology.<sup>2</sup>
- Freight is another significant source of greenhouse gas emissions. On a typical day in the United States, about 53 million tons of goods move nearly 12 billion ton-miles through the nation's transportation system. Heavy-duty trucks are responsible for 60 percent of CO<sub>2</sub> emissions related to freight; water-borne freight contributes 13 percent of emissions; rail contributes 6 percent and pipelines 16 percent. Using technologies and strategies that are currently available, or likely to be available near-term, U.S. emissions of CO<sub>2</sub> from passenger vehicles, freight movement and intercity travel can be reduced as much as 31 percent from 1990 levels and as much as 67 percent from business as usual.
- Nearly 90 percent of intercity travel in the United States (trips of more than 50 miles) is by automobile. Air travel accounts for 7.4 percent. Intercity buses produce less CO<sub>2</sub> than regional jets, suggesting that more use of bus terminals at airports could cut emissions by reducing the number of short regional trips by air. In 2003, there were only 21 air-bus terminals in the United States.
- Current federal transportation funding under the [Safe, Accountable, Flexible and Efficient Transportation Equity Act – A Legacy for Users](#) (SAFETEA-LU) is based largely on number of lane miles, number of vehicle miles traveled and amount of fuel consumed. These criteria skew federal funding toward more roads and more driving, resulting in more fuel use and greenhouse gas emissions.
- The next significant opportunity for the president and Congress to change these criteria is the reauthorization of SAFETEA-LU, scheduled for 2009.

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## BACKGROUND *(continued)*

- A large number of strategies exist to substantially reduce the nation's oil imports and greenhouse gas emissions from the transportation sector. To give just a few examples:
  - a) **Passenger vehicles:** transit-oriented urban development, smart growth planning strategies, brownfield and infill development, better transit services, congestion pricing, pay-as-you-drive insurance, car sharing, more efficient vehicles and clean non-petroleum fuels;
  - b) **Heavy trucks:** improvements in trailer aerodynamics, reduced weight, low friction tires and lubricants, reductions in speed and idling time and alternative fuels;
  - c) **Rail freight:** reduced idling and weight, improved rolling resistance and increased use of biodiesel;
  - d) **Air freight:** improved aerodynamics for aircraft, reduced weight, improvements in engines, better air traffic management and improved ground support equipment;
  - e) **General freight:** buy-local initiatives, just-in-time delivery, more freight shifted to water modes (their energy intensity is less than that of trucks or trains) and reduced distribution chain distances.
- Even before rising gasoline prices led to major increases in the use of mass transit during 2008, ridership on public transit systems had increased 23 percent since 1995, surpassing the growth of highway travel according to the [American Public Transportation Association](#). In 2004, more than 10 billion transit rides saved 1.4 billion gallons of gasoline and 32 million tons of CO<sub>2</sub> emissions. Nevertheless, public transit is not a readily available option for most Americans. Only 15.7 million people in the United States live within a quarter mile of fixed transit systems.
- The American Public Transportation Association estimates that a family in which two adults use mass transit rather than owning and operating two cars saves \$6,250 each year.



[http://www.mtc.ca.gov/news/NSTPRSC/nstprsc\\_exec\\_summ.pdf](http://www.mtc.ca.gov/news/NSTPRSC/nstprsc_exec_summ.pdf)

## FRAMEWORK FOR FEDERAL POLICY

- In addition to providing opportunities for significant reductions in petroleum consumption and greenhouse gas emissions, improved mobility choices are important to the economic health of families and cities. State-of-the-art transit systems and other measures to reduce vehicle miles traveled cut the cost of living, increase real-estate values and improve metropolitan productivity by reducing traffic congestion, road maintenance, vehicle accidents and land area dedicated to parking and other infrastructure for passenger vehicles.
  - a) 84 percent of U.S. households reside in one of 363 metropolitan areas and a similar portion of wealth is generated there.
  - b) Transportation can cost working families (those earning under \$50,000) as much as or more than shelter.
  - c) With higher densities and sophisticated transportation networks, energy use and travel demand per capita and per employee in metropolitan areas is much lower than in the nation as a whole. The most impressive and persistent gains in emissions reduction have occurred in these areas.
  - d) Actions to create and sustain these gains have resulted in a reduction in the cost of living and the creation of new taxable value.
- Congress has expressed concern that the Department of Housing and Urban Development (HUD) and the Department of Transportation (DOT) need to work harder toward a strategy for creating sustained energy and economic benefits for travelers and communities. Such a strategy is undermined by rules and practices that simplistically equate economic development with travel time reduction.
- Transportation policy and investment strategy is delegated not only to states but, under statute, to metropolitan planning organizations and mass transit operators, making multi-jurisdictional coordination essential to coherent transportation planning.
- Reductions in vehicle miles traveled are as important to reducing transportation carbon emissions as new fuels and vehicle technologies. Vehicle-miles-traveled reduction should be given equal stature in federal policy to alternative fuels; vehicle and road construction should not be given favored treatment over mass transit, high-speed rail and other options to reduce vehicle miles.
- Improved mobility is an equity as well as an environmental and prosperity issue. Car-centered cities deny the non-driving population, including the old, the young and those with disabilities, equal access to essential services.
- The allocation of federal transportation funding should be based on performance standards linked to reductions in greenhouse gas emissions, rather than to miles traveled and fuel consumed.
- Because transit-oriented development can improve household cash-flow, it should be considered a factor in the ability of homeowners to meet mortgage payments and other housing costs. The federal government's involvement with the mortgage industry as a result of the financial assistance package approved by Congress provides new opportunities to condition federal assistance on state and local action to improve urban and suburban mobility options and to reduce vehicle miles traveled.

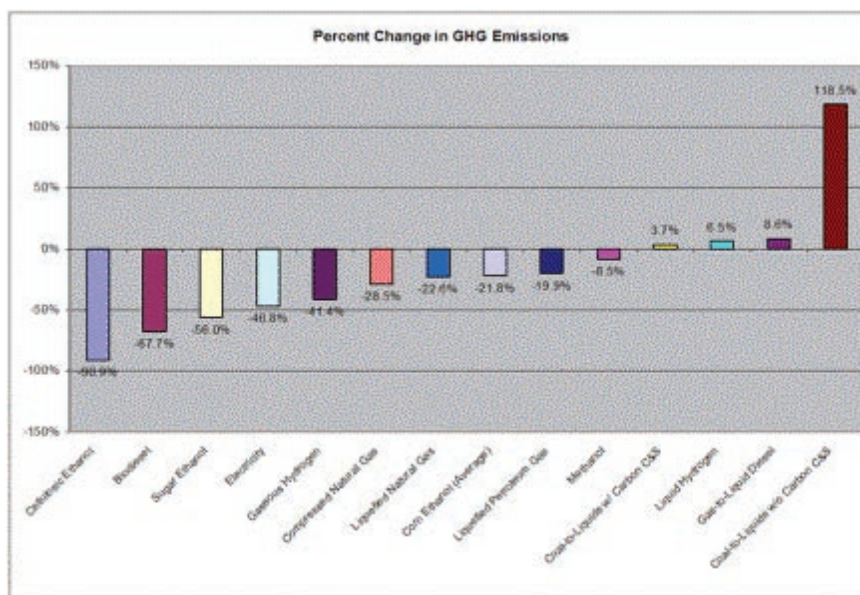
## EXECUTIVE ACTIONS

1. Direct the National Highway Traffic Safety Administration to **increase the CAFE standard** for passenger vehicles and light trucks to 50 miles per gallon by 2025.
2. **Remove the 54-cents per gallon tariff** on sugar-ethanol from Brazil, on the condition that the U.S. Environmental Protection Agency (EPA) certifies Brazil is taking [adequate steps](#) to prevent environmental degradation due to sugar cane production.
3. Use the new authority granted under the [Housing and Economic Recovery Act](#), the takeover of Fannie May and Freddie Mac and other related legislation to ensure that mortgage refinancing, regulatory reform and federal funds for financial stabilization are structured to support the national goal of reducing greenhouse gas emissions. New federal authority under the Housing and Economic Recovery Act should be used to advance the use of energy-efficient and location-efficient mortgages at substantial scale.
4. As the nation invests in repairing and modernizing its infrastructure, instruct federal agencies to encourage projects that increase mobility options, reduce vehicle miles traveled, and ensure that the DOT functional classification is not used to justify traffic capacity investments.
5. Instruct the Federal Housing Finance Agency to remove arbitrary barriers in the secondary mortgage market to purchasing multi-family housing and mixed-used development debt.
6. Direct the DOT to remove barriers to federal, regional, state and local [financing partnerships](#) for surface transportation projects, insofar as current law permits.
7. Direct all cabinet secretaries and independent agency directors to report on their commitments to reducing the use of fossil fuels in transportation and vehicle miles traveled as part of the annual budget process, management plans and reports to Congress required by the [Government Performance and Results Act](#).
8. Direct HUD and the Federal Transit Administration (FTA) to implement the [joint actions](#) they have identified to facilitate investments in housing and urban development near mass transit. (HUD and the FTA identified these improvements in a [report](#) they prepared at the direction of the Subcommittee on Transportation, Housing and Urban Development Appropriations.)
9. Use the State of the Union address and the president's weekly radio addresses to **educate the American people** about the impact of their transportation habits on national security, economic stability and military spending and to promote public support for low-carbon mobility choices.
10. Create a **Transportation Advisory Task Force** with representation from federal, state and local agencies, and to also include experts on industry, science and the environment,<sup>3</sup> to provide recommendations to the administration on the following issues:
  - a) reforms needed in the reauthorization of SAFETEA-LU to dramatically reduce the nation's greenhouse gas emissions and reliance on petroleum fuels;
  - b) resources for and barriers to accelerated investments in inter-modal transportation systems;
  - c) affirmative commitments for multi agency federal-state-local-private partnerships for inter-modal intercity travel;
  - d) immediate actions that can be taken under executive authority and new authorities that should be sought from Congress to sustain sufficient funding for mobility projects in view of the fact that Congress has not yet authorized the Vision 100 Act (the statutory framework for the Federal Aviation Administration), the Aviation Airport and Airways Trust Fund or SAFETEA-LU;

- e) strategic direction to the Secretary of Transportation on how best to maximize leverage and develop scalable investments under the Passenger Rail Safety Act, which reauthorized Amtrak for five more years, provided capital funding for improving the existing intercity passenger rail network and provided resources to advance high speed rail in the United States; and
  - f) how federal data produced by different agencies, such as the EIA, EPA and the Bureau of Transportation Statistics, can be made **more uniform** with clearly defined objectives so that data can be better compared and aggregated. (The EPA and EIA currently do not use the same categories for reporting data related to transportation emissions.)
- 11.** Through the appointment and hiring process, ensure that federal agencies with transportation-related responsibilities acquire expertise in transit-oriented urban design; advanced low-carbon transit options; mixed-use development; pedestrian access; and other methods to reduce vehicle miles traveled.
  - 12.** Include specific targets for greenhouse gas reductions in **federal fleets and military vehicles** and direct agencies to consider location efficiency in choosing sites for federally owned or leased buildings. (See the Federal Energy and Carbon Management chapter for specific proposals.)
  - 13.** Direct the Secretary of Transportation to develop a strategy for replicating at national scale, experimental projects that have been cost-shared by the federal government and that have successfully demonstrated innovative approaches to enhancing mobility while reducing energy use and greenhouse gas emissions. These innovations include:
    - a) demand-response systems such as car sharing for non-work trips and van pooling to supplement scheduled transit services. Car sharing in Chicago is resulting in increased transit use, significant sales of passenger vehicles to car-sharing and van-pool users and the net removal of 17 vehicles from private use for each vehicle shared;
    - b) the redesign of public right of way areas to create complete streets that safely accommodate pedestrians, bicycles, persons with disabilities and children walking to and from schools;
    - c) asset management approaches that extend the life and/or the use of existing systems before investing in new ones, or that use state and local access management authority to indirectly calm traffic and shape land use;
    - d) peak and variable pricing to shift or lower transportation demand on toll highways, transit systems and intercity rail. (A Federal Aviation Administration experiment at O'Hare International Airport in Chicago capped total flights at peak demand periods to address congestion problems at virtually no cost compared to the cost of new runways. A similar experiment is scheduled for all three airports in the New York City area, using auctioning of landing rights); and,
    - e) transit systems that: bundle scheduled transit and car sharing with a single smart card (a practice recently approved by the Chicago Transit Authority); that tie system expansion to wind electric power; or, that marry electric transit to electric distribution utilities and "smart grid" transmission systems, providing both a dedicated source of authorized revenue for rapid expansion of transit systems.
  - 14.** Direct federal agencies to increase the use of **telework, teleconferencing, webinars** and other remote work arrangements for federal employees and to report the impact of these alternatives on the vehicle miles traveled and CO<sub>2</sub> emissions of the federal workforce.
  - 15.** Direct agencies to implement [e-government](#) – the practice of providing federal services online – to the maximum extent possible, and to provide technical assistance to state and local government agencies to do the same. According to a study by the [Pew Internet and American](#)

[Life Project](#), more than half of all Americans contact the government in a given year, and 30 percent of those contacts are to transact business with the government, ranging from paying taxes, registering vehicles, paying parking tickets and taxes to applying for government services. Many of these services can be performed online.

16. Direct the Department of Education to work with the nonprofit [Federal Government Distance Learning Association](#) to provide technical assistance to the nation's educational institutions on **distance learning**.
17. Direct agencies to develop and collect **better data** on transportation energy use and greenhouse gas emissions – including data that links travel demand and emissions at the local level – emphasizing real-time, place-based data that helps inform local, regional, state and federal transportation planning.
18. Direct the DOT to promote the new [standards for urban boulevards](#) developed by the Congress for a New Urbanism and the Institute for Transportation Engineers.
19. Direct the EPA and DOT to analyze the potential reductions in greenhouse gases and petroleum consumption that would result if a portion of federal revenues from carbon pricing were used to **invest in new mass transit systems** in the United States, including [high-speed rail](#) connecting the nation's major metropolitan areas.
20. Direct the FTA to change the funding formula and rating process in the [New Starts program](#) to eliminate time-consuming or prohibitive administrative measures for mass transit systems. Currently, the agency requires more rigorous environmental impact assessments for public transportation projects than for highways.
21. Direct the FTA to begin evaluating the benefits of reducing traffic congestion, wear and tear on highways and savings of CO<sub>2</sub> emissions on fuels when it evaluates the cost-effectiveness of public transportation projects.
22. Direct the DOT to include lifecycle greenhouse gas emission reductions (see chart) as a performance standard for awarding federal funds to states under the [Surface Transportation Program](#).



The chart depicts an estimate for the percent change in lifecycle greenhouse gas emissions, relative to the petroleum fuel that is displaced, of a range of alternative and renewable fuels. The fuels are compared on an energy equivalent or BTU basis. For instance, for every BTU of gasoline that is replaced by corn ethanol, the total lifecycle greenhouse gas emissions that would have been produced from that BTU of gasoline would be reduced by 21.8 percent. These emissions account not only for CO<sub>2</sub>, but also methane and nitrous oxide. Source: U.S. Environmental Protection Agency.

23. Direct the Internal Revenue Service (IRS) to equalize transit and parking benefits. Currently, employers can receive a federal tax deduction for covering up to \$200 for employee parking, but only \$105 per month for employee transit expenses.
24. Direct federal agencies to incorporate “location efficiency” – convenient access to public transit – in decisions regarding where to locate federal offices, hold meetings or provide public services.
25. Direct the Secretary of Transportation to report unobligated fund balances on a real time basis. (Federal highway funds are extremely flexible, but that flexibility has been largely hidden from public view.)
26. Direct the Secretary of Transportation to work with Congress to make rapid completion of emission-reducing mobility projects a condition of funding in order to maximize their environmental and local economic benefits.
27. Direct the Secretary of Transportation to update federal regulations to reflect new funding mechanisms states and localities are using to compensate for the decline in motor fuel tax revenues.
  - a) Make clear that federal authority and actions to reduce transportation-related greenhouse gas emissions govern projects supported by unconventional sources of funding such as public debt and local options taxes.
  - b) Remove barriers to flexible approaches for providing matching federal funds.
  - c) Clarify that such sources as Passenger Facility Charges levied on airline tickets can be used for groundside access such as regional mass transit air-rail connections and intercity passenger rail connections at airports.
28. Direct the DOT to clarify its requirements related to cost-reimbursement for local projects that replace aging highways in densely populated areas – including limited-access, elevated and depressed expressways – with urban boulevards backed up by existing street grids, local traffic calming and local transit system enhancements.

Such replacements have already occurred in Milwaukee; San Francisco; New York; Portland, Oregon; and are being pursued in at least a dozen other cities. These efforts result in significant emissions reduction, but they are occurring in a confused regulatory environment in which it has been claimed that cities and states need to repay original cost to the federal government. The President should direct the DOT to: give priority for rebuilding these highways in their original configurations ONLY when there are structural deficiencies that the original designs can best address, as opposed to basing such decisions on “functional” deficiency criteria weighted toward traffic capacity increases (lane widening and ramp widening) and against reductions in vehicle miles traveled; use principles of life cycle costing and least cost planning when considering the economics of substituting one form of transportation for another; and, allow flexibility and encourage states to support substitutions of “at-grade” or surface roads and transit for limited-access elevated or depressed roadways, without penalty.

29. To better recognize the full economic benefits of transportation investments, the President should:
  - a) Direct agencies to define economic development in cost of living and community benefits terms. Federal assistance should achieve a multiple bottom line outcome of better transportation choices, reduced greenhouse gas emissions and better economic outcomes for households and communities.
  - b) Direct HUD to include transportation costs when indexing housing affordability.

- c) Direct other agencies such as the IRS to do the same with tax expenditures made in the name of affordability. Examples include Qualifying Assistance Plans for allocating Low Income Housing Investment Tax Credits, and Treasury and the new Federal Housing Finance Agency in lending, granting or investing funds in the name of financial stability.
- 30.** Direct the Treasury Department to consider providing credit enhancement to transit providers affected by the failure of the American International Group and at risk to pay default premiums.
- 31.** Direct agencies to apply these principles and recommendations to any future emergency assistance, such as the investment component of the proposed stimulus package, and any assistance devoted to disaster recovery.

## LEGISLATIVE ACTIONS

- 32.** Reform federal transportation funding so that it is allocated based on reductions in greenhouse gas emissions and petroleum consumption rather than miles traveled, miles of lanes and amount of fuel consumed.
- 33.** Provide the same federal share of funding for public transportation investment as for highway projects. Currently, the federal share of capital investments in new highway projects is 80 percent, while the federal share in public transportation projects is only 50 percent.
- 34.** Require the recipients of federal transportation funding to submit spending reports that track greenhouse gas emission reductions per dollar spent. This requirement will help federal, state and local officials determine the most cost-effective approaches to providing citizens with low-carbon mobility options.
- 35.** Require that new roads and highways include safe accommodations for bicycle and pedestrian travel.
- 36.** Require that states create statewide [transit oriented development](#) plans in order to qualify for federal transportation funding. According to the National Household Transportation Survey, 87 percent of daily household travel in the United States takes place in automobiles. Transit-oriented development reduces fuel consumption and greenhouse gas emissions, while providing greater mobility opportunities that allow people to live with fewer vehicles and to save part of the 16 percent of household income currently spent on transportation.
- 37.** Require that in order to deduct advertising expenses from federal income taxes, automakers and auto dealers must dedicate 10 percent of their advertising expenditures to educating consumers about how they can help reduce America's dependence on oil and greenhouse gas emissions, with options ranging from ride-sharing and greater reliance on public transportation, to better vehicle maintenance, slower driving and the use of more fuel-efficient vehicles and non-petroleum fuels. By [one estimate](#), automakers and dealers spent nearly \$740 million on web advertising and more than \$10 billion on television advertising in 2007.
- 38.** Expand the Department of Energy's [Clean Cities](#) program. Established in 1993 but underfunded, the program builds local collaborations between fuel providers, fleet managers and others to facilitate the use of alternative vehicles and fuels. The program's current goal is to displace 2.5 billion gallons of petroleum annually by 2020.
- 39.** Increase funding for the EPA's efforts to test and promote anti-idling technology for freight-hauling trucks through its [SmartWay Transport Partnership](#) program. According to the Center for Clean Air Policy, 22.7 percent of CO<sub>2</sub> emissions from freight trucks can be cut with technologies and operational changes that reducing idling.

- 40.** Provide tax incentives for the manufacture and use of [wide-base tires](#) for freight trucks. According to the EPA, wide-base tires on a new combination truck can save \$1,000 initially and reduce annual greenhouse gas emissions by 4 metric tons per year.
- 41.** Create low-emission options for intercity travel in the United States by increasing funding for high speed rail and intermodal connections. Today, passenger vehicles are used 95 percent of the time for travel of between 50 and 499 miles. According to Sen. Kay Bailey Hutchison, the nation invests less than \$600 million on its rail infrastructure while spending \$80 billion annually on highways and \$19 billion annually on aviation. More money is spent to clear road kill (\$1 billion annually) and salt icy roads (\$1.4 billion) in the United States than is spent on improving the nation's rail infrastructure. Yet, high speed rail can reduce petroleum use, greenhouse gas emissions, traffic congestion, airport delays, aircraft operating costs and the number of traffic accidents. The cost to build high-speed rail is one-tenth the cost of highway construction per mile. Congress should dedicate a portion of revenues from carbon pricing to improving the nation's passenger rail system, and should create an **Intermodal Connections Program** that provides grants, loans or loan guarantees to create more convenient and accessible linkages for travelers between airports, rail and bus terminals.

## ADDITIONAL RESOURCES

Air-rail and inter-modal systems: *Missed Connections*, Center for Neighborhood Technology and Reconnecting America, 2003, 2004 and 2006, <http://www.CNT.org> and <http://www.reconnectingamerica.org>.

Financing: *Financing Intermodal Transportation*, by William D. Ankner, CNT and Reconnecting America, 2006; and working papers from Eno Transportation Foundation, <http://www.enotrans.com>, Surface Transportation Policy Partnership, <http://www.transact.org>, and America 2050, <http://www.America2050.org>.

Intergovernmental coordination: Working papers of the Metropolitan Initiative and the Partnership for Regional Livability, 1996- 2002, both available through <http://www.CNT.org> or from Scott Bernstein at [Scott@CNT.org](mailto:Scott@CNT.org); reports and working papers of the White House Task Force on Livable Communities, and the President's Council on Sustainable Development, available through <http://www.nara.org>; Sarah Campbell, Michael Meyer et al., *Guidelines and Best Practices for Effective Multi Modal Decision Making*, Transportation Research Board of the National Academies of Science, 2004 and 2006, <http://www.trb.org>, summary at <http://www.transmanagement.com>.

<sup>1</sup> Most of the data in this chapter come from the transportation [white paper](#) written for the Presidential Climate Action Plan by Center for Neighborhood Technology.

<sup>2</sup> This number is expected to have increased substantially since 2003 due to the rapidly rising costs of petroleum, which reached nearly \$150 per barrel in mid-2008.

<sup>3</sup> Among the participants should be the Secretary of Transportation, the modal administrators of the Federal Aviation Administration, the Federal Highway Administration, the Federal Railroad Administration, the Federal Transit Administration, the Maritime Administration and the chief executive of the National Passenger Rail Corporation.