

The Citizens' Guide to Transportation Reauthorization

by Randal O'Toole

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Executive Summary

Sometime in 2010 or 2011, Congress expects to decide how to spend the \$250 billion or more of federal gas taxes and other highway user fees that will be collected over the next six years. The process of doing so is called *surface transportation reauthorization*. A major point of contention in this law is how much of our transportation system should be centrally planned and how much should be built and operated in response to the needs of actual transportation users.

Advocates of top-down planning want to reduce per capita driving by providing disincentives to automobiles, such as increased congestion and driving costs, and funding expensive alternatives such as high-speed rail and rail tran-

sit. Even if you believe in the goal of reducing per capita driving, the evidence indicates that these tools have minimal effect on driving and may even be environmentally counterproductive.

Advocates of *customer-driven transportation* want to fund transportation out of user fees, not taxes, and make transportation providers—whether public agencies or private parties—responsive to the needs and desires of those users. Decades of experience have proven that the best way of reducing the environmental costs of transportation is to use new technologies to reduce the impacts per mile of mobility, not to reduce mobility itself. This citizens' guide presents the basic facts behind these two views.

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The debate is between those who want to reduce mobility by coercing people out of their cars and those who want to support mobility while reducing the environmental impacts of that mobility.

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Whenever you buy gasoline, you pay 18.4 cents per gallon to the federal government. About every six years, Congress decides how to spend this money in a process called *surface transportation reauthorization*. The next reauthorization was scheduled for 2009 but may not happen until 2011.

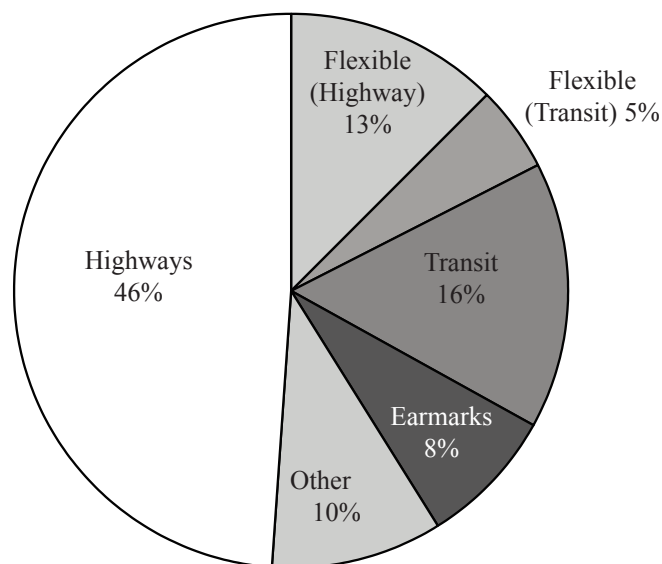
Much of the debate over the next reauthorization is between two conflicting views of transportation. One holds that auto driving is bad and that the goal of federal transportation policy should be to reduce per capita driving both by creating disincentives to driving (such as more congestion) and by spending highway user fees on alternatives to driving (such as rail transit and bike paths).¹ This is the view of Secretary of Transportation Ray LaHood, who admits that Obama administration policies are designed to “coerce people out of their cars.”²

The other view is that mobility is valuable, and that the goal of federal and state transportation policies should be to enable the kinds of mobility that people will support through user fees while cost-effectively reducing the environmental impacts of that mobility. As opposed to the top-down planning of the previous view, this view could be called *customer-driven transportation*.

Until recently most transportation has been customer driven. Historically, Congress gave most of your federal gas taxes to states and metropolitan areas for highway projects, thus insuring that users paid for what they used. From 1956 to 1982, Congress dedicated 100 percent of gas taxes and other federal road user fees to highways. The 1982 reauthorization began diverting some of these funds to mass transit. Also in 1982, Congress inserted the first *earmarks*, or requirements that states spend money on projects that they might not consider high priorities.³

By the 2005 reauthorization, Congress dedicated less than half of your gas taxes to highways, while dedicating nearly 16 percent to

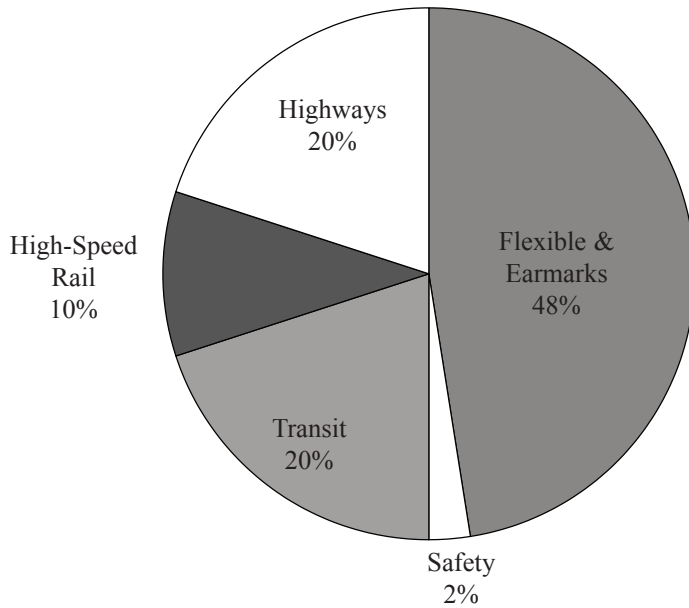
Figure 1
Where Your Federal Gas Taxes Are Going Now



Source: The Safe, Accountable, Flexible, Efficient Transportation Equity Act, Public Law 109-59.

Note: Less than half of federal gas taxes are currently dedicated to highways, though highways also get some earmarks and flexible funds.

Figure 2
House Transportation Committee Proposal



Source: “The Surface Transportation Authorization Act of 2009: A Blueprint for Investment and Reform,” House Committee on Transportation and Infrastructure, June 18, 2009, tinyurl.com/lldocdn.

Note: The House Transportation Committee’s proposal would dedicate only 20 percent of federal surface transportation funds to highways.

transit (Figure 1). Another 18 percent was “flexible,” meaning states and metropolitan areas could spend it on either highways or transit; they actually spent about 5 percent on transit, for a total of more than 20 percent going for transit systems that carry less than 1 percent of passenger travel. About 8 percent was earmarked, some of which went for highways and some for transit, and another 10 percent went for administration, planning, off-road vehicle trails, and a variety of nontransportation programs.⁴

For the 2009 reauthorization, the House Transportation and Infrastructure Committee has proposed a \$500 billion package—far more than anticipated gas tax revenues—that dedicates only 20 percent to highways, plus 20 percent for transit and 10 percent for high-speed rail (Figure 2). After setting some aside for safety, administration, and research, nearly all the remaining money would be either earmarks or flexible funds.⁵

To pay for the bill, some on the committee would like to raise gas taxes, but the Obama

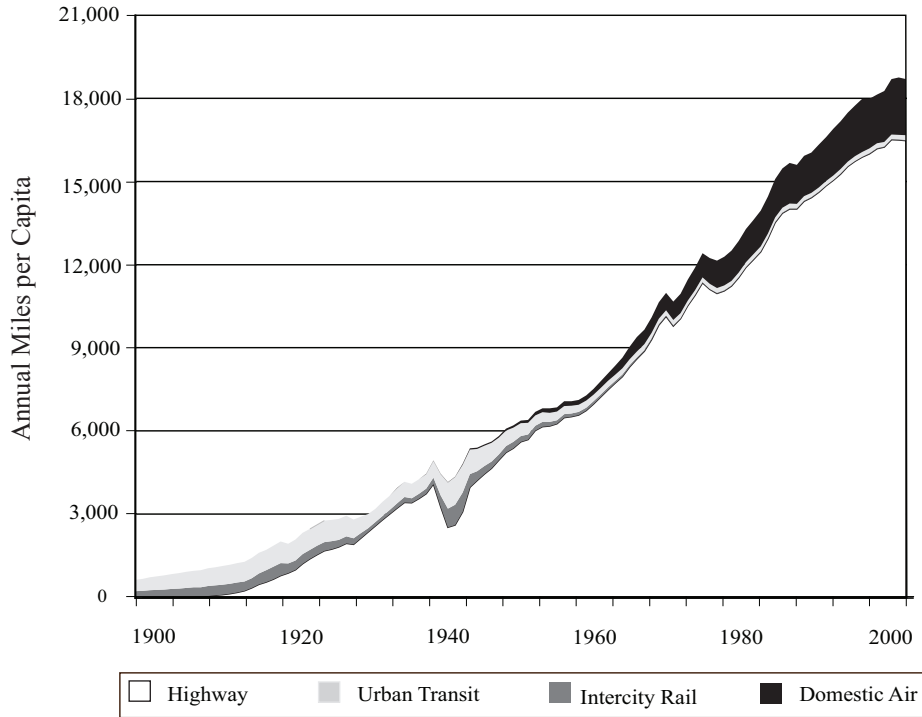
administration does not want to increase taxes in a recession. Another proposal is to tax oil futures trades. Either way, auto drivers would end up paying nearly all of the costs even though they would get only a small share of the benefits.

In proposing to “get drivers out of their cars,” people often forget that automobiles and highways have produced enormous benefits. As far back as 1923, they provided Americans with more mobility than all other forms of transportation combined (Figure 3). At their peaks in 1920, intercity passenger trains and urban transit provided less than 7.5 percent of the mobility that Americans get from the automobile today, and most rail mobility was enjoyed by the wealthy.⁶

Unlike some forms of transportation, automobiles serve almost all members of American society. The 2000 census found that well over 9 out of 10 households have access to at least one car.⁷ People in households with incomes of more than \$100,000 travel only about 75 percent more miles each year than people in

Even though highways carry a hundred times as many passenger miles as transit, and far more freight, the House Transportation Committee proposes to dedicate as much federal money to transit as to highways.

Figure 3
Mobility in the United States



Sources: *Historical Statistics of the United States: Colonial Times to 1970* (Washington: Census Bureau, 1975), pp. 711, 729; *Highway Statistics Summary to 1995* (Washington: Federal Highway Administration, 1996), Table VM-201; *2008 Public Transportation Fact Book* (Washington: American Public Transportation Association, 2008), Part 2, p. 1. Note: Automobiles barely existed in 1910, yet by 1923 they provided more mobility than all other forms of American transportation combined.

households with incomes of less than \$20,000 (Figure 4).⁸ Since wealthier households are five times more likely to fly on long trips than low-income households, the distribution of auto travel is more evenly spread than indicated in Figure 4.⁹

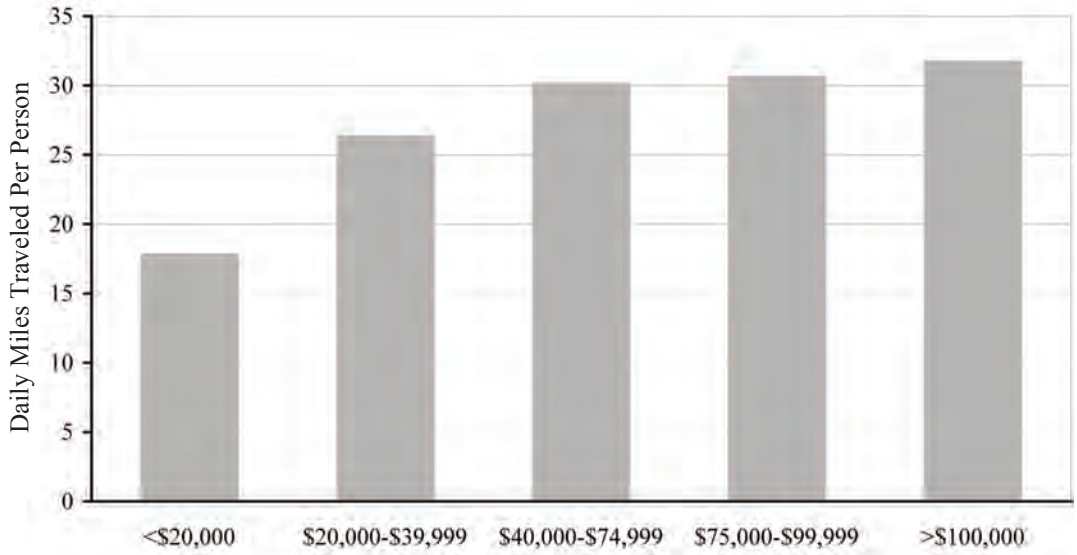
Thanks to our automobiles and highways, Americans are the most mobile people on earth (Figure 5). Though the automobile is the dominant form of travel throughout the developed world, other developed nations have discouraged mobility by imposing fuel taxes that average around \$4 a gallon, compared with combined federal and state taxes of less than 50 cents per gallon here. Despite large subsidies to high-speed rail and urban transit, European bus and train ridership makes up for only about 8 percent of the loss in mobility resulting from high fuel taxes and other disincentives to driving. For example, Europe has

far more cities with rail transit than the United States. Yet the average western European rides rail transit only 96 miles a year, just 8 miles more than the American average of 88 miles a year. France and Japan have each spent many tens and even hundreds of billions of dollars on high-speed rail, yet the average residents of those countries ride high-speed rail less than 400 miles per year.¹⁰

Automobiles are popular because they are an inexpensive way of reaching work, school, retail shops, and social and recreational opportunities that would not be available to most people without cars. Studies show that increased mobility means higher worker productivities and incomes because employers have access to a larger pool of workers, and lower-cost consumer goods because retailers know that unhappy customers can simply drive somewhere else.¹¹

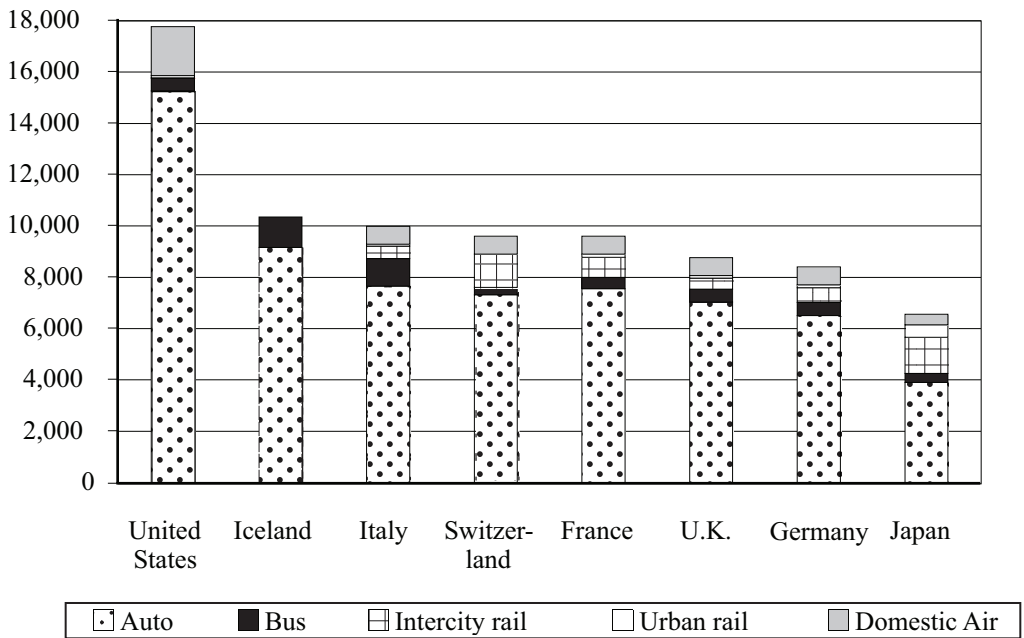
Though Europe has far more cities with rail transit than the United States, the average western European rides rail transit just 9 percent more than the average American.

Figure 4
Mobility by Household Income



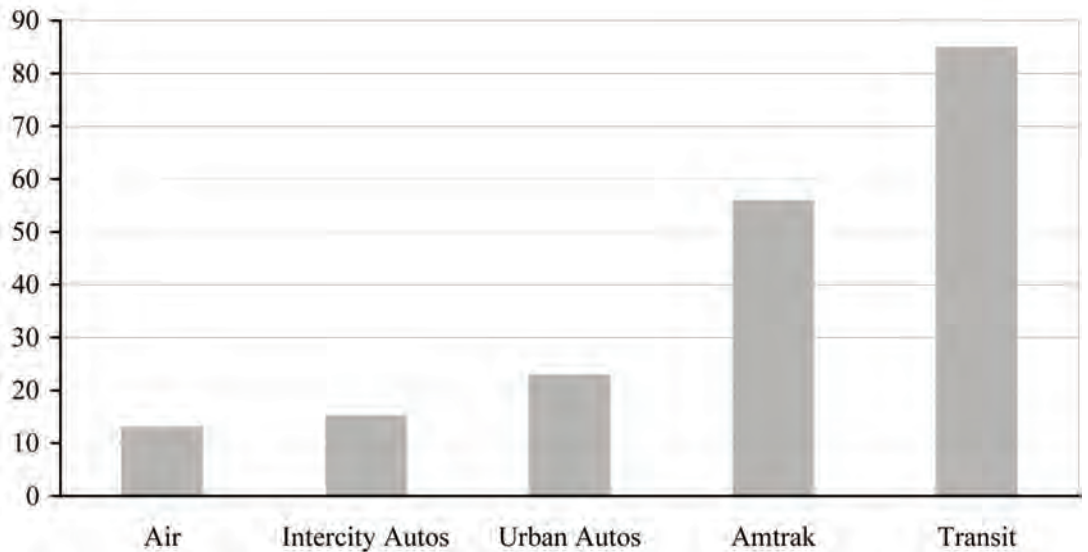
Source: John Pucher and John L. Renne, "Socioeconomics of Urban Travel: Evidence from the 2001 NHTS," *Transportation Quarterly* 57, no. 3 (Summer, 2003): 55.
 Note: The wealthiest Americans are only about 75 percent more mobile than the poorest, and much of that additional mobility is in the form of air travel. The automobile is the most egalitarian form of mechanized travel ever developed.

Figure 5
Per Capita Mobility (miles per person in 2004)



Source: *Panorama of Transport* (Brussels: European Commission, 2007), pp. 103, 108–111; "Summary of Transportation Statistics," Ministry of Land, Infrastructure and Transport, 2008, tinyurl.com/mqkjq8.
 Note: The average American is almost twice as mobile as the average European and nearly three times as mobile as the average Japanese. But even in Europe and Japan automobiles are the main source of personal mobility.

Figure 6
Total Cost in Cents per Passenger Mile



Sources: *Highway Statistics 2007* (Washington: Federal Highway Administration, 2008), Table HF-10; *National Transportation Statistics 2008* (Washington: Bureau of Transportation Statistics, 2008), Tables 3-07, 3-27a, and 3-27b; *2006 Annual Report* (Washington: Amtrak, 2007), p. 20; *2006 National Transit Database* (Washington: Federal Transit Administration, 2007), “Capital Use,” “Operating Expenses,” and “Service” spreadsheets; *California High-Speed Rail Final Program EIR/EIS* (Sacramento, CA: California High-Speed Rail Authority, 2005), Appendix 2-F, p. 2-F-1.

Note: Air and auto travel are both far less expensive than urban transit or intercity rail.

Autos are far less expensive than other modes of travel (Figure 6). Counting costs to both users and taxpayers, Americans spend about 24 cents per passenger mile on driving compared with 56 cents on Amtrak and 85 cents on public transit.¹² Intercity auto trips have an average of 2.4 people per car, which makes the cost comparable to air travel, while urban autos have an average of 1.6 people per car.¹³

Because most of the costs of highways are paid out of gas taxes, subsidies to driving are very low and are mainly by local governments for local roads, not interstate or state highways (Figure 7). Air travelers also pay most airport costs through ticket taxes and fees. So subsidies to both autos and air travel average a penny or less per passenger mile, whereas subsidies to Amtrak are more than 20 cents per passenger mile and subsidies to transit are more than 60 cents per passenger mile.¹⁴ Even counting social costs such as pollution,

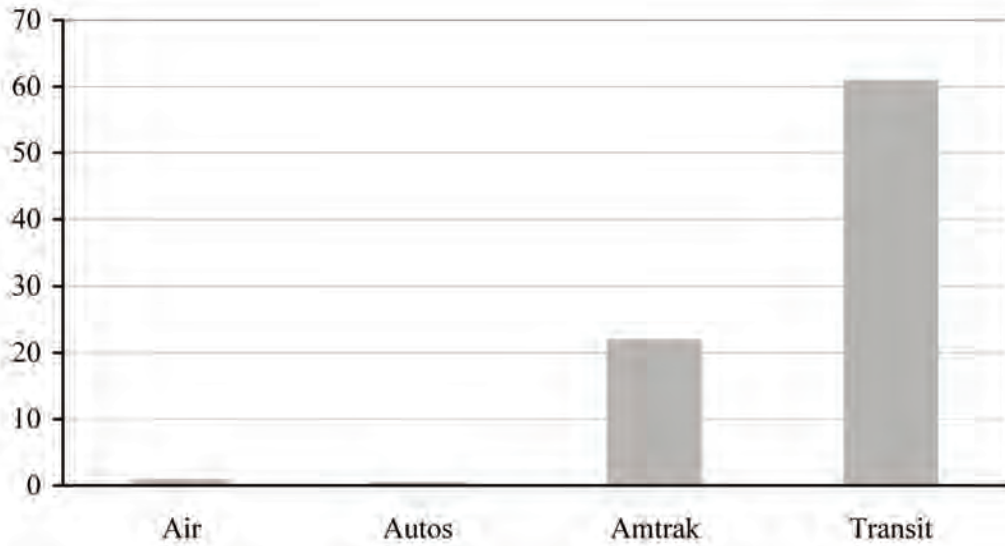
says University of California economist Mark DeLucchi, autos are far less expensive than transit.¹⁵

Although the gas tax paid for most of our highways, it is a crude proxy for a true user fee in many ways. For one thing, a cents-per-gallon tax does not keep up with inflation or shifts to more fuel-efficient cars. As a result, the average road user today pays little more than half as much inflation-adjusted federal gas tax for every mile driven as did motorists in 1961 (Figure 8).¹⁶

Even more important, gas taxes do not give either users or highway managers the right price signals. A true user fee would tell users what roads are more expensive and tell managers what roads people most want to use. Tolls provide more customer-driven transportation than taxes, but in 1956, Congress restricted the use of most tolls because of the high costs of collection and delays at the toll-booths. Electronic tolling has solved both of

Counting subsidies, Amtrak costs more than twice as much and public transit more than three times as much, per passenger mile, as auto driving.

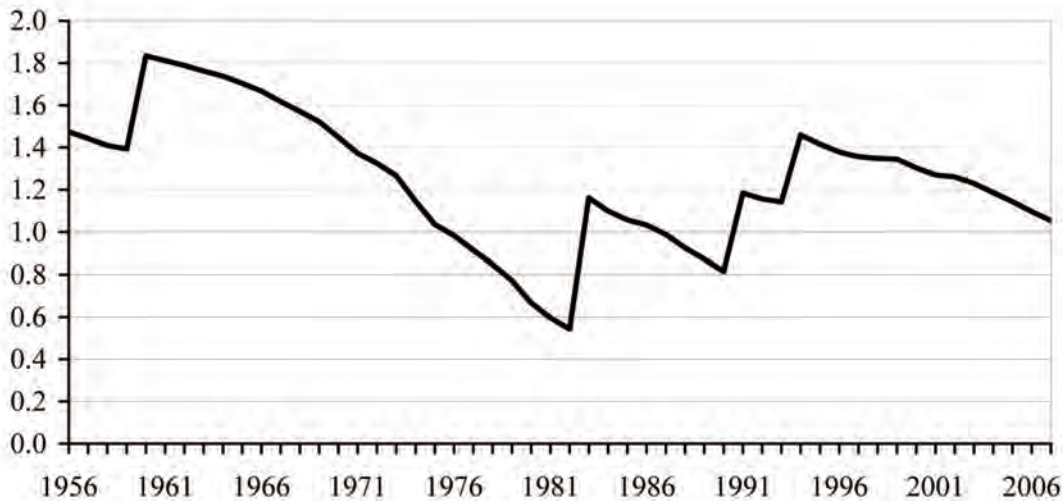
Figure 7
Subsidies in Cents per Passenger Mile



Sources: *Highway Statistics 2007* (Washington: Federal Highway Administration, 2008), Table HF-10; *National Transportation Statistics 2008* (Washington: Bureau of Transportation Statistics, 2008), Tables 3-07, 3-27a, and 3-27b; *2006 Annual Report* (Washington: Amtrak, 2007), p. 20; *2006 National Transit Database* (Washington: Federal Transit Administration, 2007), “Capital Use,” “Operating Expenses,” and “Service” spreadsheets; *California High-Speed Rail Final Program EIR/EIS* (Sacramento, CA: California High-Speed Rail Authority, 2005), Appendix 2-F, p. 2-F-1.

Note: Subsidies to air and auto travel are negligible compared with subsidies to Amtrak and urban transit.

Figure 8
Gas Tax Paid in 2007 Cents per Mile



Sources: *Highway Statistics 2005* (Washington: Federal Highway Administration, 2006), Table FE-101A; adjusted for inflation using “National Income and Product Accounts Table,” Bureau of Economic Analysis, Washington, 2009, Table 1.1.9, “Implicit Price Deflators for Gross Domestic Product,” tinyurl.com/nobpf9.

Note: After adjusting for inflation, drivers pay little more than half the federal gas taxes per mile of driving they did in 1961.

According to University of California planning professor Robert Cervero, the idea that new roads “induce” demand is largely a myth.

those problems, and Congress has lifted some of the restrictions, but it needs to remove the rest if user fees are to function properly.

One of the major problems with highways is traffic congestion. The Texas Transportation Institute estimates that since 1982, when Congress began diverting highway fees into transit and earmarks, the costs of urban congestion have increased by more than five times (Figure 9).¹⁷ Some places have attempted to deal with congestion with a reverse *Field of Dreams* philosophy: if we don’t build it, they won’t come. But this hasn’t worked. Almost everywhere, driving has increased far more than the growth of highway miles (Figure 10). According to University of California planning professor Robert Cervero, the idea that new roads “induce” demand is largely a myth.¹⁸

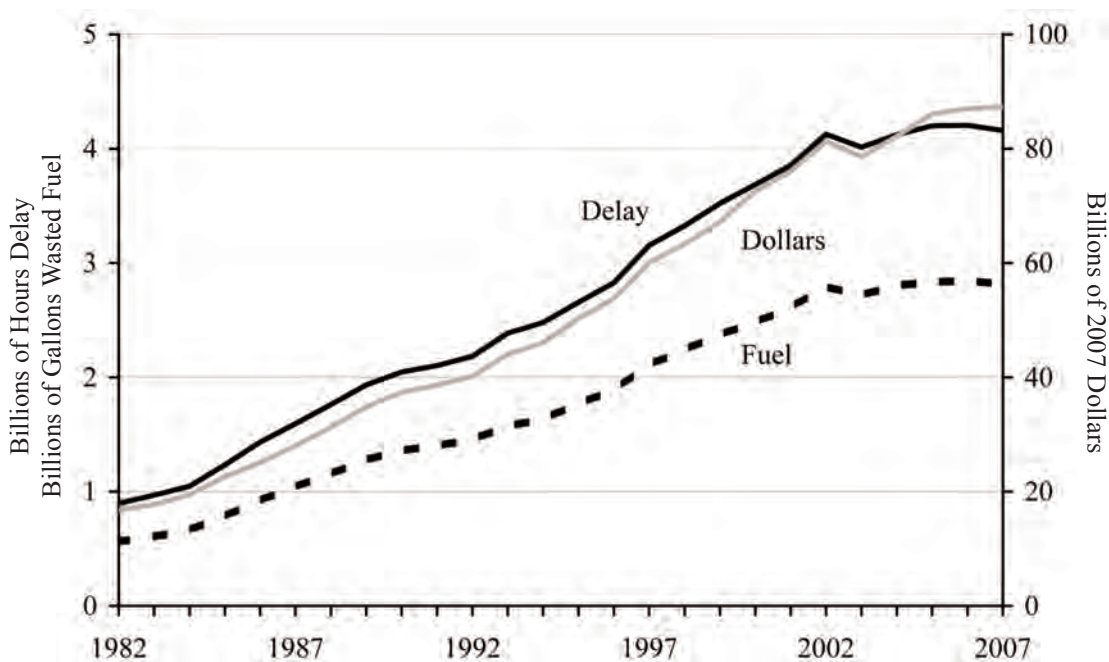
Tolling can help solve congestion while producing revenue to maintain and improve roads. More than half the vehicles on the road during rush hours are noncommuters, so tolls that vary by the amount of traffic can

relieve congestion by encouraging some people to drive at other times. Other low-cost solutions to congestion include traffic signal coordination and new technologies such as adaptive cruise control that can increase the capacities of our existing highways.

The 2007 collapse of the I-35W bridge in Minneapolis led many people to worry about the state of the nation’s highways and bridges. It turned out that the Minnesota bridge suffered from a construction flaw, not a maintenance problem.¹⁹ In fact, the number of bridges that are “structurally deficient” has been steadily declining (Figure 11).²⁰ These should be distinguished from bridges that are “functionally obsolete,” meaning they may have narrow lanes or low overhead clearances but are not in any danger of falling down.²¹

This is not to say there are no infrastructure problems relating to highways and bridges. But the problems that exist are more due to misallocations of resources than to an actual shortage of funds. For example, Port-

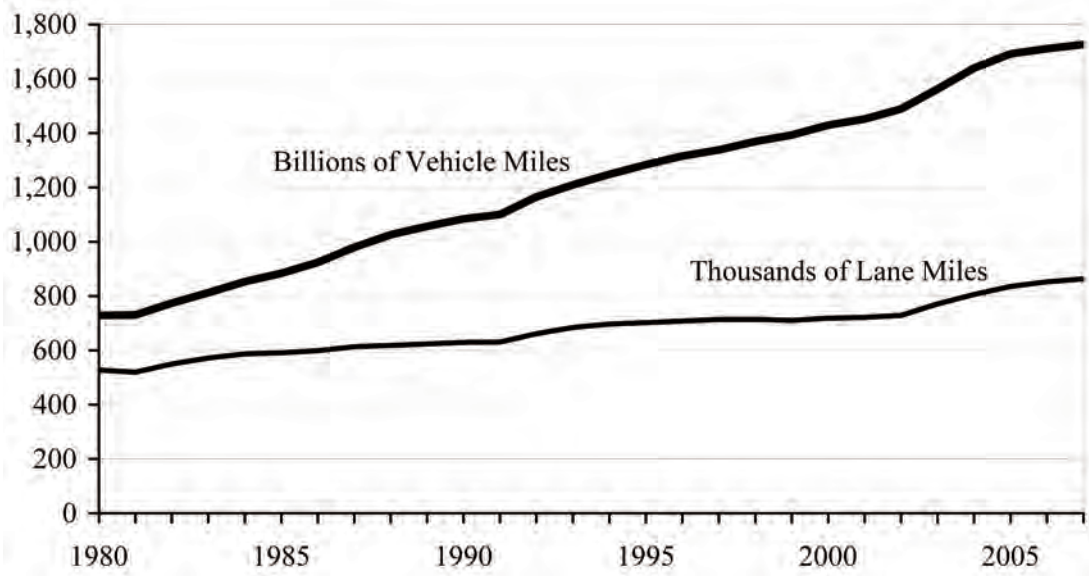
**Figure 9
Costs of Congestion**



Source: David Schrank and Tim Lomax, *The 2009 Urban Mobility Report* (College Station, TX: Texas Transportation Institute, 2009), “Complete Data” spreadsheet.

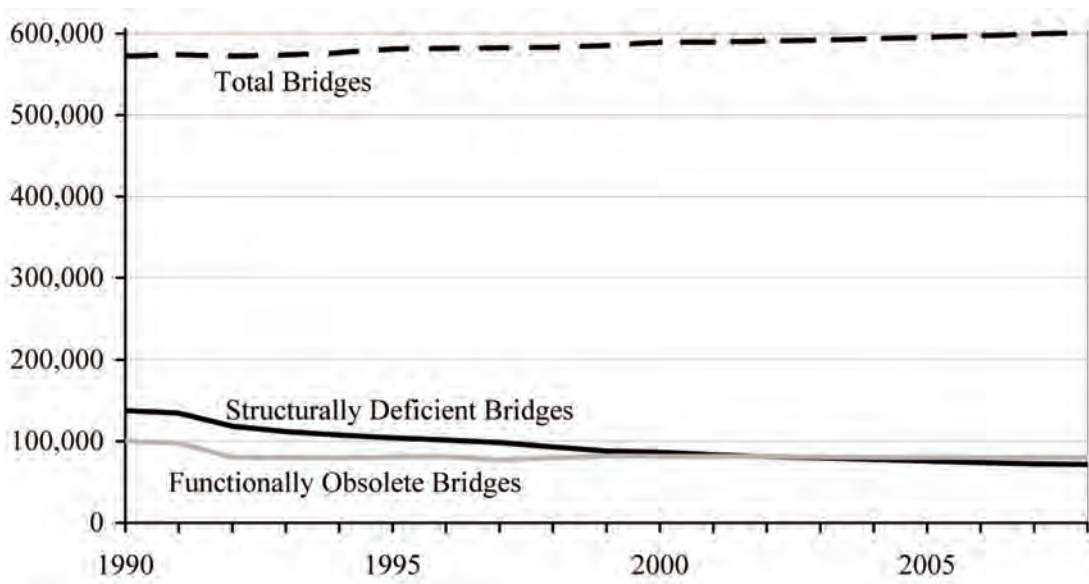
Note: The costs of congestion have quintupled since Congress began diverting gas taxes to transit and other nonhighway programs.

Figure 10
Urban Driving vs. Urban Lane Miles



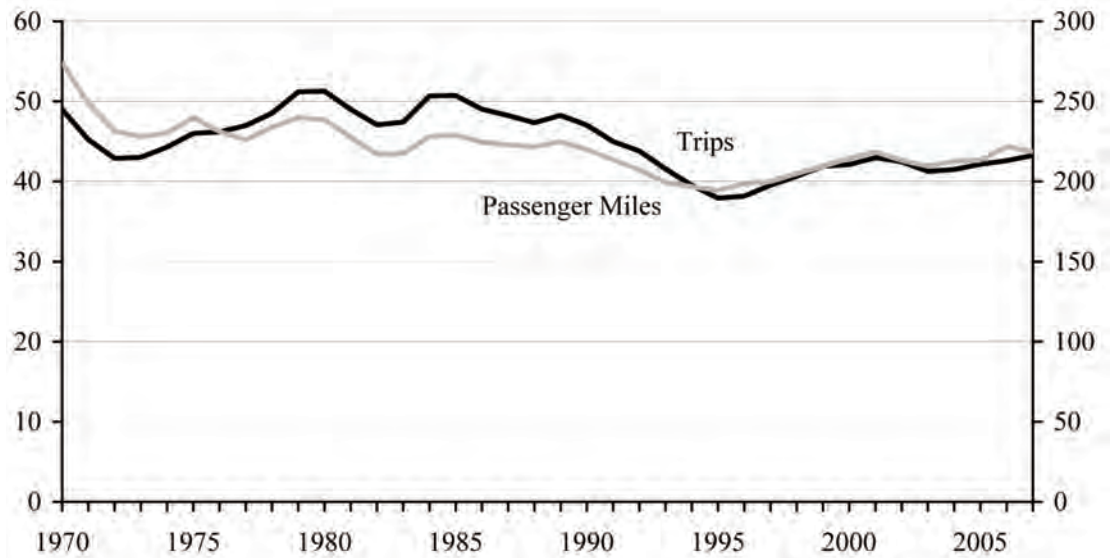
Source: *Highway Statistics Summary to 1995* (Washington: Federal Highway Administration, 1996), Tables HM-260 and VM-201; *Highway Statistics* annual reports since 1995, Tables HM-60 and VM-1.
 Note: Though the miles of urban driving on freeways, arterials, and collector roads have grown by 137 percent since 1980, the lane miles of such roads have grown by only 64 percent.

Figure 11
Status of U.S. Highway Bridges



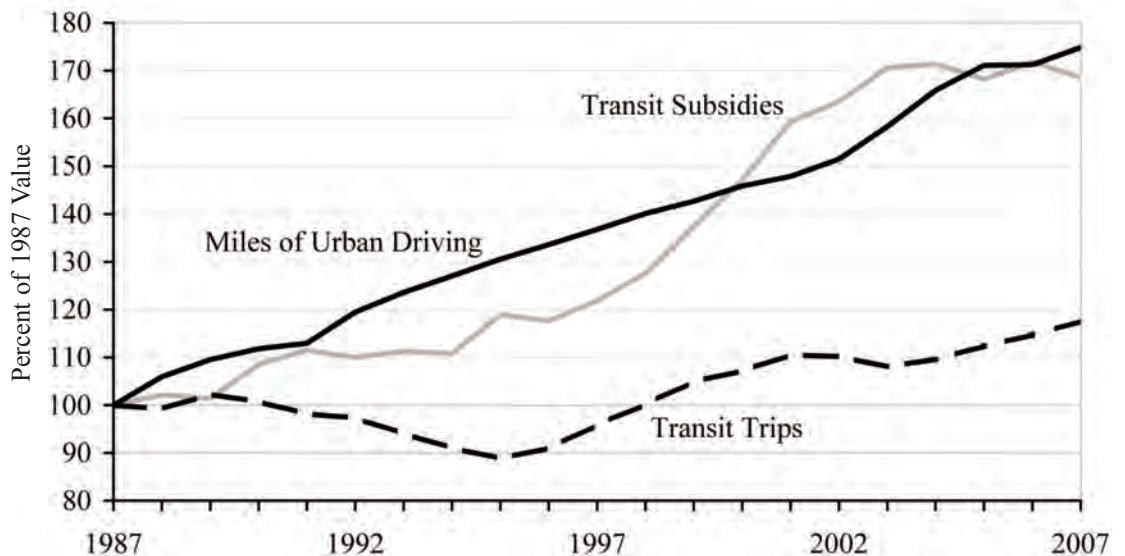
Source: *2006 Status of the Nation's Highways, Bridges, and Transit: Conditions and Performance* (Washington: Federal Highway Administration, 2007), pp. 3–15, tinyurl.com/brvl62.
 Note: Though the total number of bridges has grown since 1990, the number considered structurally deficient has steadily declined. Bridges that are both structurally deficient and functionally obsolete are counted in the structurally deficient category alone.

Figure 12
Transit Trips and Miles per Urban Resident



Source: *2008 Public Transportation Fact Book* (Washington: American Public Transportation Association, 2008), Part 2, Tables 1 and 2; “Historical National Population Estimates, 1900 to 1999,” Census Bureau, 2000, tinyurl.com/pw9e6; “Annual Population Estimates, 2000 to 2007,” Census Bureau, 2008, tinyurl.com/lzyg2h.
 Note: Despite huge subsidies to transit in the past 40 years, per capita transit ridership has declined.

Figure 13
Transit Subsidies, Ridership, and Driving



Sources: *2008 Public Transportation Fact Book* (Washington: American Public Transportation Association, 2008), Part 2, Tables 1, 33, 35, 36, and 40; *Highway Statistics Summary to 1995* (Washington: Federal Highway Administration, 1996), Table VM-201; *Highway Statistics 2007* (Washington: Federal Highway Administration, 2008), Table VM-1.
 Note: Though both transit subsidies and driving have increased by 70 percent or more, transit ridership has grown by less than 20 percent since 1987 (the earliest year for which complete data are available).

land, Oregon’s, Sellwood Bridge—the busiest two-lane bridge in Oregon—has a National Bridge Inventory sufficiency rating of 2 out of 100 and has been closed to trucks and buses for many years.²² Yet rather than use transportation or stimulus funds to replace it, the city is building new light-rail and streetcar lines.

One of the biggest misallocations of funds has been to rail transit construction. Transit is important for those who lack access to an automobile or prefer not to drive. But the idea that spending billions of dollars replacing inexpensive bus routes with expensive new rail transit lines will significantly relieve congestion or save energy has been disproved by decades of experience.

Since 1970, federal, state, and local governments have spent well over \$750 billion subsidizing transit, yet per capita transit ridership has actually declined (Figure 12).²³ In the past two decades, urban driving increased by 75

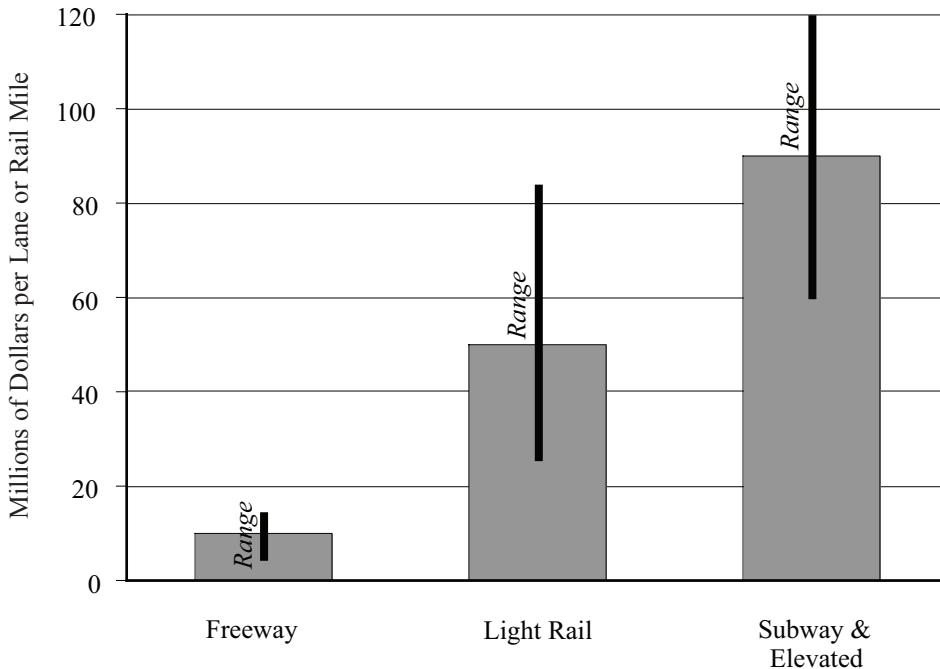
percent, and annual, inflation-adjusted subsidies to transit increased by nearly 70 percent. But total transit ridership increased by less than 20 percent, so transit’s share of urban travel declined from 4.0 percent in 1970 to 1.7 percent in 2007 (Figure 13).²⁴

“It’s uncommon to find such a rapid productivity decline in any industry,” observed the late University of California economist Charles Lave about transit.²⁵ A major reason for this decline is that dozens of transit agencies have been bedazzled by the allure of “free” federal money for rail transit and have spent hundreds of millions or billions of dollars on costly projects that have done little to increase transit ridership or improve regional mobility.

The current federal funding process gives transit agencies perverse incentives to select high-cost solutions to transit problems. This is financially unsustainable because it requires more and more subsidies to move hardly any more people. Since transit carries less than 1

The federal funding process gives transit agencies perverse incentives to select high-cost solutions to transit problems, which is financially unsustainable because it requires huge subsidies to move few people.

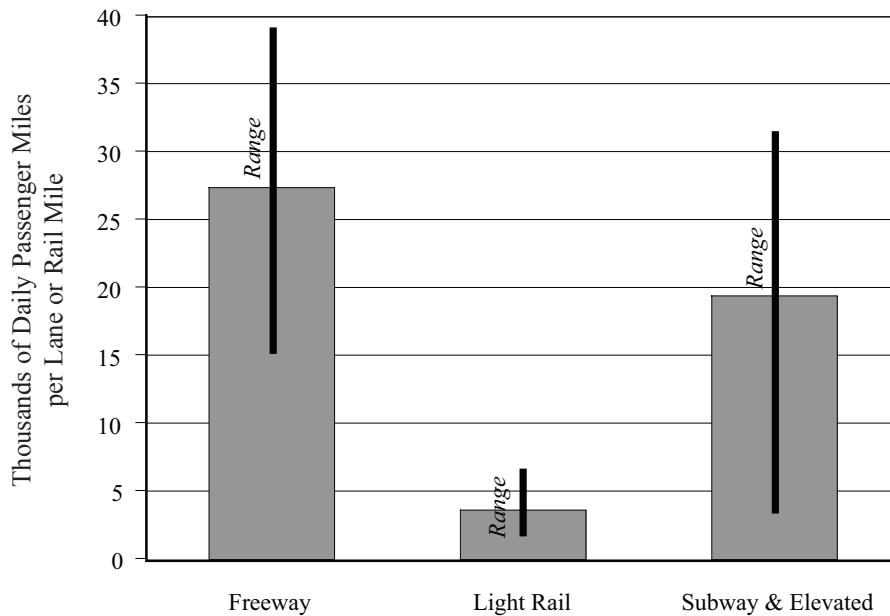
Figure 14
Typical Construction Costs



Sources: *New Starts, Small Starts, and Paul S. Sarbanes Transit in Parks Program Annual Report on Funding Recommendations, Fiscal Year 2010* (Washington: Federal Transit Administration, 2009), Appendix A; “Are WSDOT’s Highway Construction Costs in Line with National Experience?” Washington State Department of Transportation, Olympia, 2003, tinyurl.com/lmhehg.

Note: Rail lines cost far more to build than highways.

Figure 15
Daily Passenger Miles per Rail or Lane Mile



Sources: *Highway Statistics 2007* (Washington: Federal Highway Administration, 2008), Table HM-72; *2007 National Transit Database* (Washington: Federal Transit Administration, 2008), “Transit Way Mileage” and “Service” spreadsheets.

percent of passenger travel, and virtually no freight, it seems unfair and inefficient for it to receive more than 20 percent of federal transportation funds.

Rail transit is far more expensive than alternatives, although the service it provides is often inferior to that of buses. The typical light-rail line costs five times as much to build per mile as the typical freeway lane (Figure 14), yet a mile of the most heavily used light-rail lines in the country (those in Boston and Los Angeles) carry less than a quarter as many people per day as the average freeway lane-mile in major urban areas (Figure 15). The only rail transit system in the nation that carries more people than an urban freeway lane is the New York City subway; outside of New York, a mile of the average subway/elevated line moves fewer than half as many passenger miles as an urban freeway lane-mile.²⁶ This makes freeways 10 to 20 times more cost effective at moving people as subways/elevateds and 20 to 30 or more times more cost effective than light rail.

On top of the high construction costs, rail lines cost at least as much to operate per pas-

senger mile as buses running in similar corridors. Rail lines must also be completely rebuilt about every 30 years. The June 2009 accident that tragically killed nine people on the Washington MetroRail system, which is just over 30 years old, was a direct result of inadequate maintenance.²⁷

The truth is that, outside of a few very dense cities that already have rail transit, such as New York and Chicago, buses can do almost anything rail transit can do at a far lower cost. Buses are more flexible and can more easily provide neighborhood-to-neighborhood or even door-to-door services than trains that require the support of a feeder bus system. For safety reasons, trains must operate several minutes apart, while buses on a highway can safely operate only seconds apart. This means buses in exclusive bus lanes can move far more people per hour than any light-rail line and almost as many people as a subway/elevated line. Further, when there are too few buses to fill a highway lane, the spare capacity can accommodate other high-capacity or toll-paying vehicles.

The 2009 accident that tragically killed nine people on the Washington MetroRail system was a direct result of inadequate maintenance.

Cities that want to improve transit and relieve congestion could build high-occupancy/toll lanes in existing highway corridors. Express buses, bus-rapid transit (buses that operate on rail schedules with frequent service but infrequent stops), and other buses could use the lanes, whereas low-occupancy vehicles could pay a toll to use them. Electronically collected variable tolls could ensure that the lanes would almost never get congested, so the buses could be as fast or faster than light rail (whose speeds average about 20 mph) or subway/elevated lines (whose speeds average about 35 mph). The tolls would offset at least part of the cost of construction, so the cost to taxpayers would be far lower than for a rail line, yet the lanes would both relieve congestion and improve transit service.

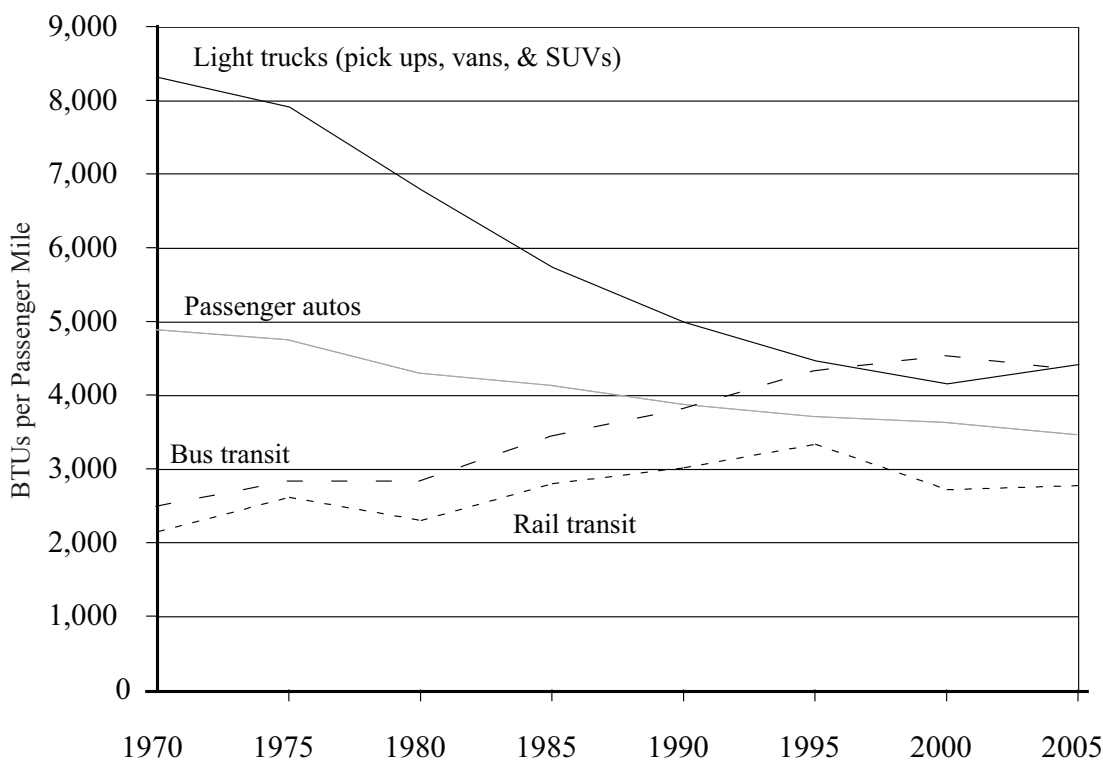
Portland, Oregon, is often cited as an example of a city with a successful rail system, yet

the truth is that construction of Portland's light rail was accompanied by a huge decline in the share of commuters who take transit to work. In 1980, before Portland began building light rail, the Census Bureau reported that 9.8 percent of Portland-area commuters took transit to work. By 2000, Portland had two major light-rail lines, yet the census found that only 7.7 percent of the region's commuters took transit to work.²⁸ By 2007, Portland had opened two more light-rail lines and a streetcar, and the Census Bureau found that only 6.5 percent of commuters took transit to work.²⁹

Despite the new streetcar and light-rail lines, the number of people taking transit to work actually declined between 2000 and 2007. Meanwhile, Portland-area employment growth added more than 60,000 new daily commuter cars to the road—more *new* cars

Despite a new streetcar and two new light-rail lines, the number of Portland-area commuters taking transit to work actually declined between 2000 and 2007.

Figure 16
Energy Trends for Passenger Transport



Source: Stacy C. Davis and Susan W. Diegel, *Transportation Energy Data Book*, 27th ed. (Oak Ridge, TN: Department of Energy, 2008), Tables 2.13 and 2.14.

Note: While cars are becoming more fuel efficient, transit's fuel efficiency has declined.

Under Obama’s fuel-economy standards, the average car on the road in 2025 will be more energy-efficient than the most energy-efficient transit systems in the nation.

than the *total* number of transit commuters. Even in downtown Portland, the heart of transit commuting, the number of workers who commute by transit declined.³⁰ The ‘build-it-and-they-will-come’ notion is as wrong for rail transit as it is for highways.

Even if investments in rail transit could get people out of their cars, doing so would not do much to reduce energy consumption, pollution, or greenhouse gas emissions. The Department of Energy reports that the energy efficiency of the average car on the road has improved enormously in the last 40 years, whereas the energy efficiency of public transit has actually declined (Figure 16).³¹ Moreover, under Obama’s fuel economy standards, the average car on the road will be more energy-efficient in 2025 than the most energy-efficient transit systems in the nation (Figure 17).³²

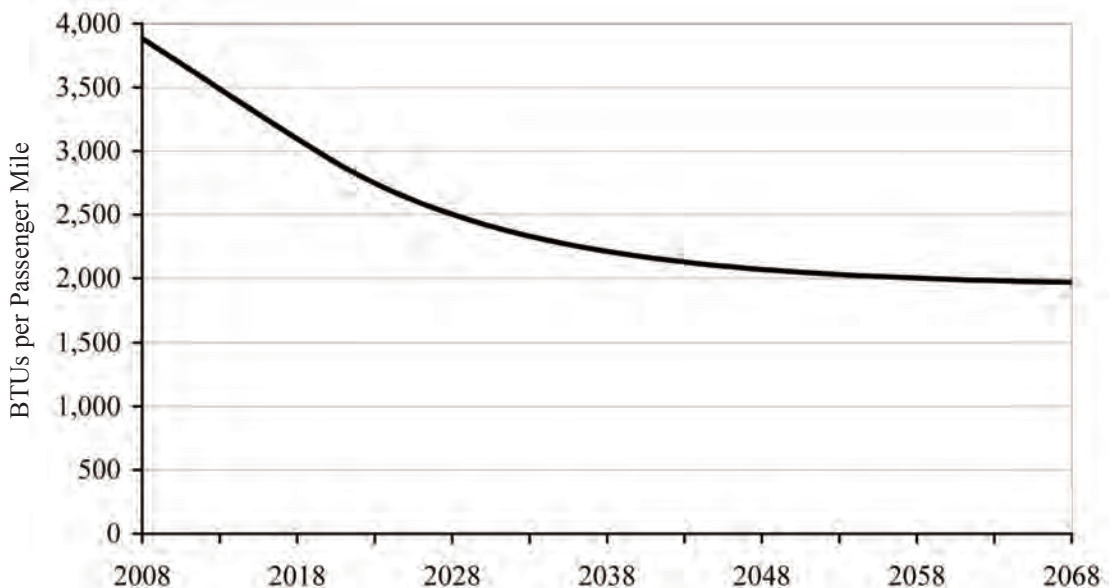
Rail transit has low greenhouse gas emissions when the electricity used to power it is

generated from renewable sources. But most electricity comes from burning fossil fuels, so rail systems in Dallas, Denver, Salt Lake City, Washington, and many other cities actually emit more greenhouse gases per passenger mile than the average car on the road (Figure 18).³³ By 2025, cars will generate far less greenhouse gases than they do today, yet, once built, rail technologies are locked in for many decades.

In regions that get most of their power from renewable sources, it makes more sense to encourage people to use electric cars or plug-in hybrids that can be recharged overnight, when the demand for electricity is low. This will free up the renewable energy for nontransportation purposes during the day, when demand for those uses is higher.

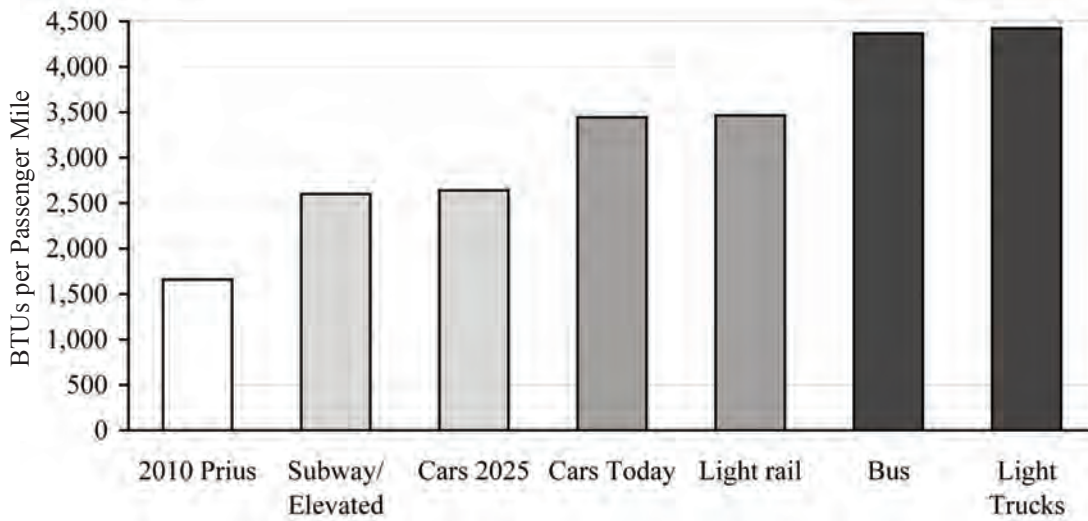
The same considerations apply to high-speed rail. Amtrak says that its trains are more energy efficient than cars, but it presumes that cars carry an average of 1.6 people, which is

**Figure 17
Future Auto Energy Efficiencies**



Source: Calculations assuming auto manufacturers meet Obama’s standard of 35.5 mpg by 2016 and make no further improvements after that, and that the auto fleet continues to turn over at the rate of once every 18 years.
Note: President Obama’s fuel-efficiency standards will reduce the energy required to move America’s auto fleet to 2,600 BTUs per passenger mile by 2025.

Figure 18
Energy Consumption by Urban Transport



Source: Stacy C. Davis and Susan W. Diegel, *Transportation Energy Data Book*, 27th ed. (Oak Ridge, TN: Department of Energy, 2008), Tables 2.13 and 2.14; cars in 2025 based on data in Figure 17; Prius based on EPA mileage estimates.

Note: Though some transit systems are more energy efficient than today’s average auto, few if any will be as fuel efficient as the average auto in 2025.

only appropriate for urban travel.³⁴ In intercity travel, cars carry an average of 2.4 people.³⁵ Recognizing this, the Department of Energy estimates that intercity autos are already as energy efficient as Amtrak (Figure 19). Boosting trains to higher speeds, the department adds, will require lots of energy and probably reduce the energy efficiency of those trains below that of the average intercity auto.³⁶

If we really want to save energy using mass transportation, it is worth noting that intercity buses use far less energy per passenger mile than trains.³⁷ Intercity buses do much better than urban buses because private bus owners have an incentive to fill seats, while public transit agencies are politically obligated to serve neighborhoods whose residents pay transit taxes but rarely ride transit. The solution is not to subsidize more intercity buses but to make public transit more competitive and customer driven, meaning less reliant on taxes.

One reason rail transit works so poorly in most American cities is that, at least since 1920, our cities have been built for auto users

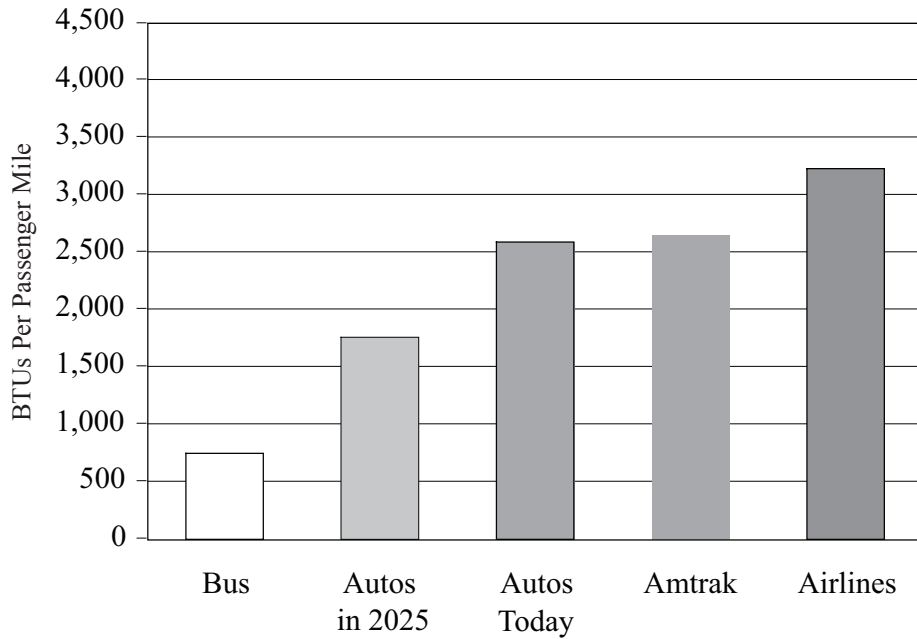
with both housing and jobs increasingly spread out. So some people argue that the way to save energy and reduce greenhouse gas emissions is to completely rebuild our cities to higher densities that can be served by rail transit. While such compact cities can significantly increase congestion, there is little evidence that they will greatly reduce auto driving.

Data from the 2000 census reveal that the densest urban area in the United States is seven times denser than the least-dense areas, yet the percentage of people who use autos to get to work in the densest area is only about 8 percent less than the least-dense areas (Figure 20).³⁸ Some urban areas do have low rates of auto commuting, but these are due more to age (many are university towns) or concentration of downtown jobs (such as in Manhattan or San Francisco) than to residential densities.

Advocates of high-density transit-oriented developments rarely mention that most of them have been supported by tax breaks or other subsidies to developers and that vacan-

Private intercity buses are far more energy-efficient than trains because the bus operators have an incentive to fill seats, while Amtrak and public transit are politically obligated to routes that get little use.

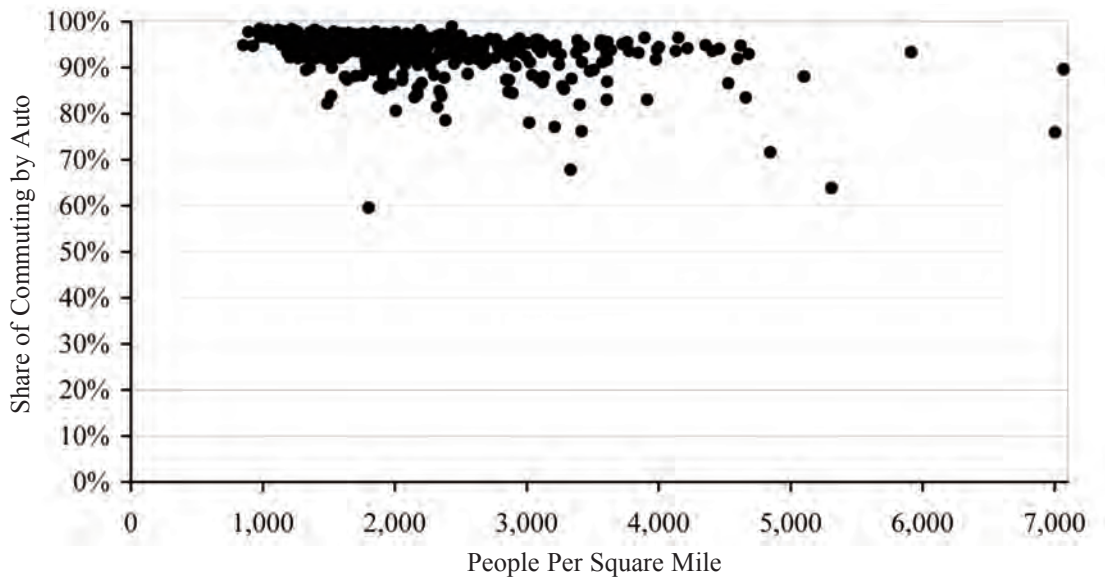
Figure 19
Energy Consumption by Intercity Transportation



Source: Stacy C. Davis and Susan W. Diegel, *Transportation Energy Data Book*, 27th ed. (Oak Ridge, TN: Department of Energy, 2008), Tables 2.13 and 2.14; “Comparison of Energy Use and CO2 Emissions from Different Transportation Modes,” M. J. Bradley and Associates, Manchester, NH, 2007, p. 4.

Note: Those who want to save energy should promote private transportation, as private intercity buses do far better than Amtrak, largely because bus companies have an incentive to fill as many seats as possible.

Figure 20
Urban Area Density and Auto Commuting



Source: *2000 Census* (Washington: Census Bureau, 2002), Table P30, “Means of Transportation to Work for Workers 16+ Years,” Urbanized Areas.

Note: The idea that higher population densities automatically mean less driving is belied by data from the 2000 census showing, at best, a weak relationship between density and driving.

cy rates tend to be high unless they provide plenty of parking—suggesting that they are not really transit oriented.³⁹

The debate over the best way to reduce greenhouse gas emissions from cars repeats a similar debate that took place 40 years ago over the best way to reduce toxic emissions from cars. Some people advocated behavioral tools to reduce driving, such as disincentives to driving and more investments in transit. Others advocated technical solutions that would reduce the impacts of driving without reducing mobility itself. After four decades, the results are clear: the behavioral efforts failed completely—urban driving increased 250 percent since 1970. Despite the increase in driving, the technical solutions reduced total vehicle pollutants by 56 to 74 percent—and nearly 100 percent for lead (Figure 21).⁴⁰

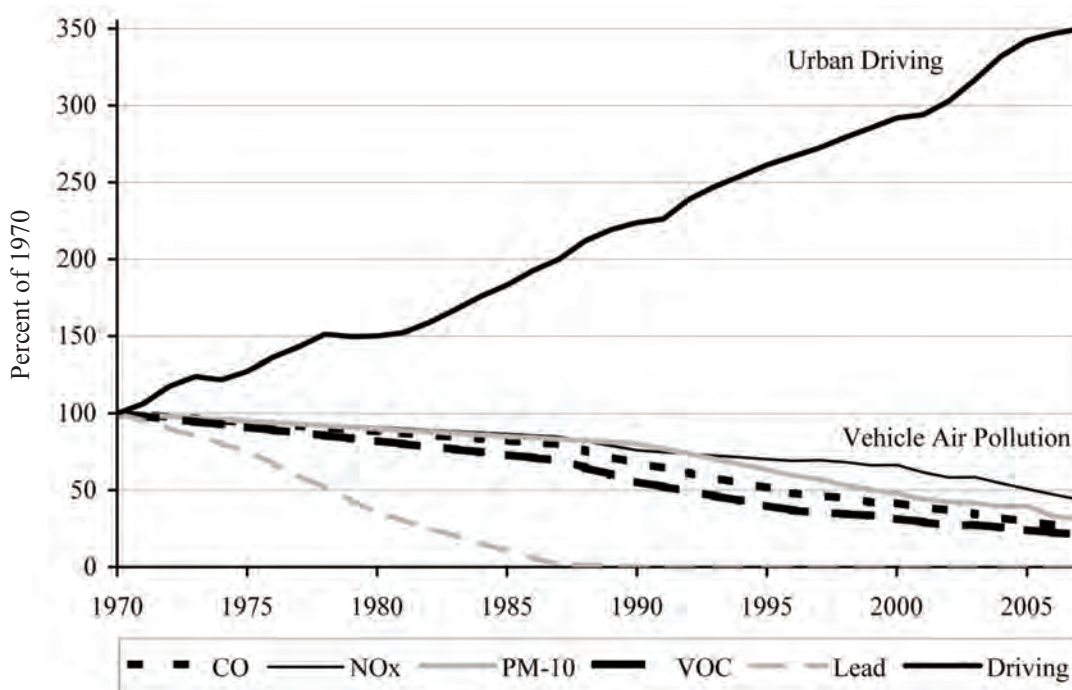
If the United States is to significantly reduce greenhouse gas emissions, it must do it

in a cost-effective manner. McKinsey & Company estimates that the nation can cut its emissions in half by 2030 by spending no more than \$50 per ton of reduced greenhouse emissions.⁴¹ Traffic signal coordination and lighter automobiles will both reduce emissions and save consumers money. But rail transit and compact development, if they reduce emissions at all, would do so only at a cost of thousands or tens of thousands of dollars per ton. Spending \$5,000 to reduce one ton of emissions would mean foregoing reducing 99 more tons at a cost of \$50 a ton.

In general, then, technical solutions—solutions aimed at reducing the impacts of mobility rather than reducing mobility itself—tend to be less expensive and more successful than behavioral solutions. Reauthorization should focus on such solutions to environmental problems and avoid efforts to reduce driving.

Technical solutions aimed at reducing the environmental impacts of mobility tend to be less expensive and more successful than behavioral solutions aimed at coercing people out of their cars.

Figure 21
Air Pollution and Driving Trends



Sources: “1970–2008 Average Annual Emissions, All Criteria Pollutants” in MS Excel, Environmental Protection Agency, 2009, tinyurl.com/nkhgad; *Highway Statistics Summary to 1995*, Table VM-201; *Highway Statistics for 1996 through 2007*, Table VM-2.

Note: Though driving has more than tripled since 1970, total highway-related air pollution has fallen by more than 50 percent.

Congress should recognize that mobility is a valuable social goal and discourage states and metropolitan areas from spending money on things that reduce mobility.

Questions to Ask

Here are some questions to ask about proposals related to reauthorizing federal transportation funding.

- Is the proposal fair? Who benefits and who pays?
- Is the proposal efficient? What is its cost per passenger-mile, hour of reduced congestion, ton of reduced greenhouse gas emissions, or other objectives compared with the cost of a full range of alternative projects?
- What share of the total cost is paid by users, and what benefits do other taxpayers get from their share of the costs?
- Are proponents using realistic values, or best-possible-situation estimates? What is the track record of cost/use estimates for similar projects?
- Is the public sector doing something the private sector should be doing?
- Is this project part of a slippery slope leading to further needs and expenditures?
- Is this a nice-to-do expenditure that detracts from the ability to meet must-do needs?
- For capital projects, is there funding to support the operations, maintenance, and periodic reconstruction that will be required to keep the project going?
- What share of available resources are being used to address what share of our problem?
- Does a plan depend on coercing a large segment of the population to accept a costly change in their behavior? Is such a behavioral change likely? Would technical solutions solve the problem at a lower cost than efforts to modify behavior?

Recommendations

When Congress created the highway trust fund in 1956, it planned for it to expire when

the Interstate Highway System was completed. Today, Congress continues to charge a federal gas tax and other road user fees and spends that money on increasingly political grounds that have little to do with mobility or even, in some cases, transportation. Federal grants to states and metropolitan areas come with numerous strings attached, many of which make transportation more expensive.

To fix these problems, in 2007 New Jersey representative Scott Garrett introduced H.R. 3497, which would let states take over federal transportation programs by reducing federal gas taxes by any amount that the states increase their gas taxes. In 2008, Texas senator Kay Bailey Hutchison and Arizona representative Jeff Flake introduced the Highway Fairness and Reform Act, which would allow states to opt out of paying into the federal highway fund and take over transportation programs.

If Congress is unwilling to devolve transportation policies and funding to the states, it should incorporate three important principles in the next reauthorization:

- **Mobility:** Congress should recognize that mobility is a valuable social goal and discourage states and metropolitan areas from spending money on things that reduce mobility.
- **Efficiency:** Resources are limited and should be spent on the most cost-effective means of providing mobility and reaching other social goals such as safety and a quality environment. The best way of ensuring efficiency is to create a customer-driven system funded out of user fees, not taxes.
- **Equity:** Those who get the benefits of transportation facilities should be the ones to pay for those facilities. Since transportation users get nearly all of the benefits of transportation, equity also requires a customer-driven system.

To achieve these principles, Congress should:

- Replace the many apportionments and

complicated formulas for distributing federal funds with a simple and transparent formula based on the population and land areas of each state and the user fees collected from transportation users in each state. States could spend their share of federal money on highways, transit, high-speed rail, or other surface transportation projects with the knowledge that their future shares of federal funds would depend on the user fees they collect. “User fees” would be defined to include gas taxes, tolls, transit fares, or any other fees collected from transportation users that are dedicated to those users. Gas taxes diverted to transit or transit fares spent on highways would not count as user fees.

- Distribute federal transit funds in particular to states and metropolitan areas strictly on a formula basis, with no “open bucket” funds like New Starts, Small Starts, and Congestion Mitigation/Air Quality (CMAQ) funds.
- Eliminate earmarks, as they reduce the efficiency of transportation spending.
- Encourage states to adopt quantifiable performance standards that transportation programs should meet and to require state auditors to audit state and metropolitan transportation programs to ensure that they meet the adopted standards.
- Encourage state and local governments to ensure that transportation user fees cover all costs of transport and that people get the facilities they are prepared to pay for.
- Eliminate all constraints on toll roads, reject proposals to create a federal overseer over toll authorities, and promote toll roads with private concessions or regional toll road authorities.
- Reform public transit by encouraging states and metropolitan areas to open up transit to private competition. State and local transit subsidies should be targeted to people who, for reasons of income, age, or disabilities, lack access to automobiles.
- Provide incentives for states and metro-

politan areas to cost-effectively meet environmental goals, such as policies or projects that save energy or reduce emissions at the lowest cost per gallon of fuel or ton of emissions saved.

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