

Merge Lanes Ahead

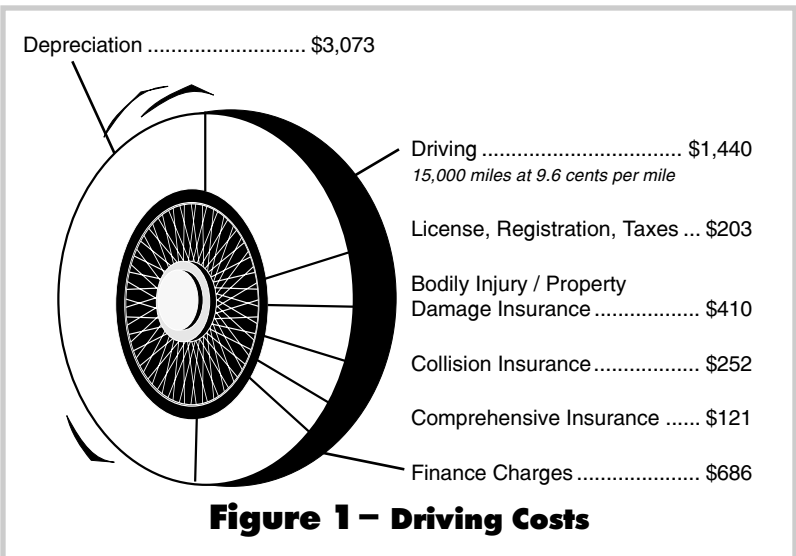
////////// *Conserving energy through land use and transportation planning.* //////////

The Economics of Driving Your Car: Direct Costs, Hidden Costs and Subsidies

The cost of owning and operating a car is probably much higher than you think. While the average motorist may consider the out-of-pocket costs of driving, few of us think about the hidden, or indirect, costs or the subsidies from government and other sources. Since our perception of how much it costs to drive has a direct bearing on how much driving we do, our inability — or unwillingness — to consider these “hidden” costs and subsidies distorts the true cost of driving and encourages us to drive more.

Direct Costs

There are two types of direct or out-of-pocket



This fact sheet is one of a series examining the relationships between transportation, land use and energy.

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costs associated with driving a vehicle — the cost to own it and the cost to operate it.

The American Automobile Association (AAA) calculates annual driving costs for a range of vehicle types. The average costs are shown in Figure 1.

Ownership costs include insurance, license, registration, depreciation and finance charges. These costs are fixed. They don't depend on how many miles the vehicle is driven each year. The AAA estimates that the average cost of owning a car in 1995 was \$4,745 per year, or 31.6 cents a mile (assuming the car is driven 15,000 miles a year.)

Operating costs include gasoline, oil, tires and maintenance. These costs are variable. They change depending upon how many miles you drive. For a car that is driven 15,000 miles annually, operating costs come to \$1,440, or an average of 9.6 cents per mile.

So the total direct (operating and ownership) cost for a car that is driven 15,000 miles a year, is \$6,185, or 41.2 cents per mile.



**Table 1:
Hidden costs**

of driving

1989 estimates	(billions)
Air pollution	\$10
Leaking underground storage tanks	1
Noise pollution (reduced property values)	9
Motor vehicle accidents	55
Total hidden costs	\$75

That is a significant portion of most family budgets. In fact, in the average household, transportation costs are the second largest expenditure, following housing. Most families spend more for transportation than they do for food, insurance, health care or entertainment. And most of that is spent on personal vehicles. Public transportation makes up only 6 percent of

the total transportation expenditures.

Patrick Hare (1993), a Washington DC transportation consultant, suggests that reducing second car ownership could make housing more affordable. Assuming that the cost of operating a second car is \$4,000 a year, the sale of that car

would save \$3,000 even after subtracting \$1,000 for transit costs (\$4/day for 250 days/year). That additional \$3,000 a year could make payments on a \$25,000 mortgage (assuming an 8 percent mortgage for 30 years.) Thus if a family decides to get rid of their second car they could pay \$25,000 more than they originally could have afforded for housing.

Indirect and Hidden Costs

There are a number of “hidden” transportation costs that drivers don’t pay directly. (The truth is, of course, that we all end up paying indirectly.) Hidden costs include environmental costs, personal injury costs, property damage and lost wages due to automobile accidents, and the cost of lost land-use opportunities. These costs are summarized in Table 1.

The environmental costs of driving include air, water, visual and noise pollution.

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One-third of the carbon dioxide in our atmosphere, which is the principle cause of the greenhouse effect, comes from automobiles. It is estimated that each 15-gallon tank of gasoline burned releases 300 pounds of carbon dioxide. Motor vehicles are the largest source of air pollution, contributing 47 percent of the nitrogen oxides, 39 percent of the hydrocarbons, and 66 percent of the carbon monoxides in our air. These pollutants result in illnesses and premature death, reduced agricultural productivity, damage to materials (buildings, statues, etc.) and reduced visibility. Taken together, these damages have been estimated to be at least \$10 billion per year (Sperling and DeLuchi 1989) and this does not include damages related to greenhouse warming.

Automobiles also affect the nation’s water quality. The largest impact is from stormwater runoff. When it rains, pollutants from roads, parking lots and other impervious surfaces are washed into storm sewers, streams and lakes. This pollution is particularly serious because it is a mixture of chemicals resulting from tire and brake wear, and oil, gas and antifreeze deposits that ends up in our aquifers. Unfortunately, there are no damage estimates for stormwater runoff.

Other sources of water pollution caused by our nation’s cars are leaking underground gasoline storage tanks and marine oil spills from tankers transporting crude oil. It’s estimated that more than \$1 billion is spent each year to clean up leaking underground fuel tanks (Thorpe 1996).

Noise is often overlooked as a pollution source, but it can have significant impacts on health and property values. One response to noise pollution has been the installation of noise barriers along busy freeways. However, even with the barriers, it’s estimated that noise damage to property in urban areas cost \$9 billion in lower property values in 1989 (MacKenzie, Dower & Chen 1992).

Motor vehicle accidents are another large cost not acknowledged by the average motorist. The Federal Highway Administration estimates that the total cost of motor vehicle accidents in

1988 was \$358 billion. These costs included lost wages and household productivity, property damage, pain, suffering and lost quality of life, travel delay, and medical, legal and administrative costs. MacKenzie, Dower & Chen (1992) estimated that \$55 billion of the total \$358 billion was not directly borne by drivers, but showed up in higher insurance premiums and higher taxes for everyone.

The last hidden cost involves the loss of land. It's estimated that more than 60,000 square miles of U.S. land is paved (Mitigation Panel 1991.) The automobile culture has created long avenues of "junk" architecture, billboards, endless roads, electric posts and cables. Some researchers estimate that almost half the land in a typical U.S. city is used to accommodate cars. While land costs are reflected in the right-of-way costs for highways, they do not reflect the land's full social, environmental or historical value.

Subsidies

One reason motorists don't see the true cost of driving is that the highway system is heavily subsidized. A summary of these costs is shown in Table 2. These subsidies fall into five areas:

Highway construction. It's estimated that the costs of highway construction, improvement and repair totaled \$33.3 billion in 1989 (MacKenzie, Dower & Chen 1992.) About 60 percent of these costs were paid directly by drivers in the form of gas taxes, tolls and other user fees. The remaining 40 percent, or \$13 billion, was subsidized — predominantly from state and local government property and sales taxes.

There are also inequities in who pays user fees and gas taxes. It has been estimated that 95 percent of all highway damage is attributable to heavy trucks (Ketcham 1991.) But truck owners pay only 32 percent of national highway costs.

Maintenance. The second subsidized area is roadway maintenance, which includes routine patching, bridge painting, pavement marking, and litter removal. It's estimated that user fees and gas taxes pay for approximately 60 percent

of the \$20 billion spent each year for these services. The remaining \$8 billion is paid for by state and local taxpayers through income, sales and property taxes.

Highway services. Highway services are also subsidized, including highway patrols, traffic management, emergency responses to traffic accidents by police, fire fighters and paramedics, investigations of traffic accidents, traffic and road engineering, and parking enforcement. Hart (1986) estimates that user fees and gas taxes pay for only about 25 percent of these services and that motorists receive a subsidy of \$68 billion annually.

Parking subsidies. Employers and merchants subsidize automobile use by providing free parking. It's estimated that the value of employer-provided parking amounts to \$85 billion a year (MacKenzie, Dower & Chen 1992.) Employers are encouraged to provide this benefit and employees are glad to accept it because it is not subject to federal income tax.

Security costs. The U.S. maintains a sizable military presence in the Middle East to protect the region and ensure a dependable flow of imported oil. The U.S. also maintains the strategic petroleum reserve in case of a supply disruption.

Estimates place the value of these security costs at about \$25 billion per year (MacKenzie, Dower & Chen 1992.)



**Table 2:
Subsidies to drivers**

1989 estimates	(billions)
Highway construction.....	\$13
Highway maintenance.....	8
Highway services.....	68
Parking subsidies.....	85
Security.....	25
Total subsidies to drivers.....	\$199

Perceptions of Driving Costs

How do these subsidies and direct, indirect and hidden costs affect the amount of driving we do? The general perception is that driving is cheap. The cost for gas, oil, tires and maintenance usually comes to less than 10 cents a mile. And the cost of car ownership doesn't depend on how much driving is done — it's the same whether the car is driven one mile per year or 100,000



The subsidies and hidden costs associated with automobile driving have created distortions in the law of supply and demand. The perceived cost of driving is very low and – as with any good that has a low cost – the demand is high. The only effective constraint on driving is congestion.

miles per year. Very few drivers consider the indirect or hidden costs of driving, since we don't pay directly for air, water, visual or noise pollution damage, for motor vehicle accidents, or for the loss of land. Not only that, the federal, state and local governments provide massive subsidies to ensure that we have plenty of highways, traffic police and supplies of oil.

So why should we worry about the cost of driving when it seems so low? Because this perception is not reality. The truth is, our driving habits are very expensive — not just for our personal budgets, but for the nation as a whole — and they're getting worse. We spend billions of dollars a year trying to ensure that every American has cheap, convenient, personal transportation — a lofty but unattainable goal, because about half the population is under the driving age or has disabilities that restrict their ability to drive.

Stanley Hart, a transportation consultant, has summed up the situation. "In most American cities we have the worst of all worlds. We have two unsatisfactory transportation

systems: a failed and abusive automobile/freeway system on the one hand, and an inadequate and bankrupt bus transit system on the other. The freeway system fails because of too much demand; the transit system because of too little. The subsidies for both systems, competing for the same patron, come from the taxpayers' pockets." (Hart 1996)

What You Can Do

If you are interested in changing the current economics of driving, there are a number of policies which can be pursued. One of these is the pay-as-you-drive insurance program —

payments would be based on how much the car is driven. This would decrease the amount of driving because it would raise the perceived cost of driving. California, Arizona and Hawaii are considering such a program. Another idea is to require employers who provide free parking to offer employees a cash payment in lieu of the parking benefit. This would encourage more employees to get to work without driving alone in their cars. A third innovative idea is the location efficient mortgage. This would allow households to borrow more money for housing if they purchased a house that was close to transit, jobs and shopping and reduced the need for that household to own a car. This idea is being promoted by the Center for Neighborhood Technology in Chicago.

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