

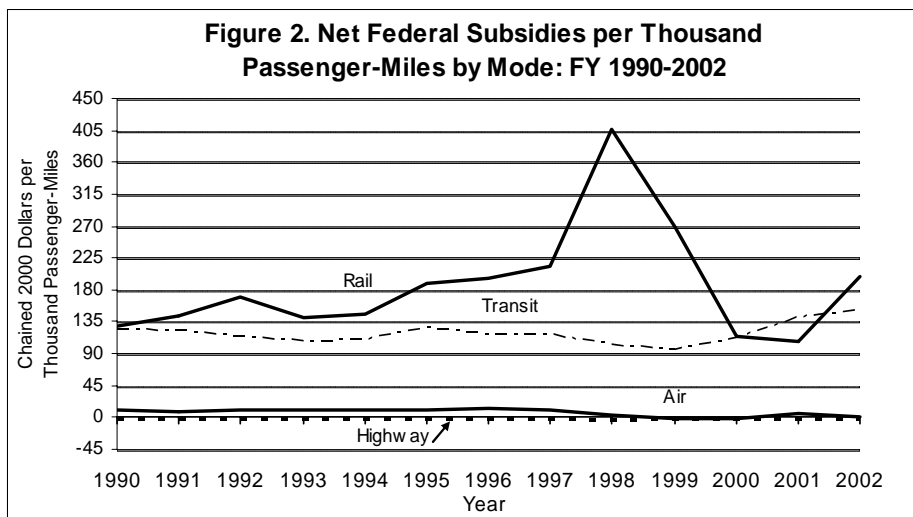
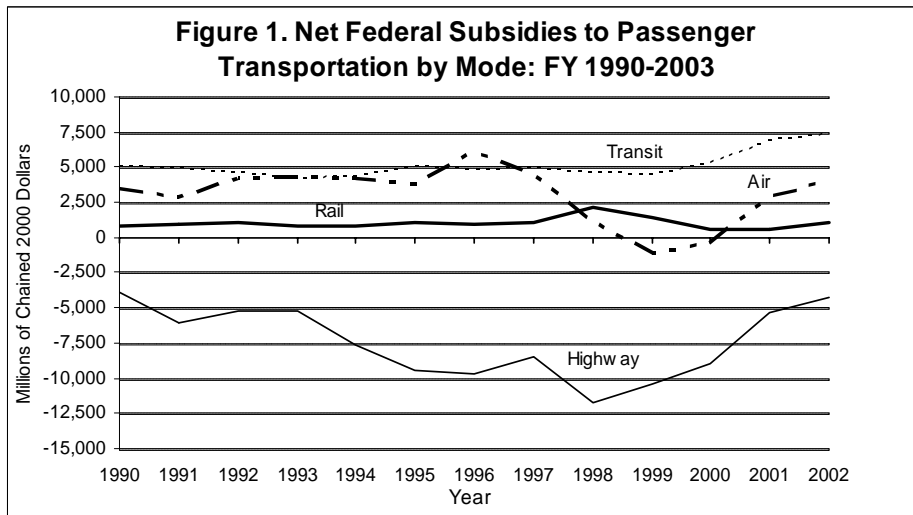




# Federal Subsidies to Passenger Transportation

## Executive Summary

Recent work in the private sector and current policy debates have refocused attention on Federal subsidies to passenger transportation modes. To provide the Department of Transportation with an independent analysis of this issue, BTS developed data on federal transportation revenues, expenditures, and net subsidies, by mode. Subsidy, for the purpose of this analysis, represents a simple accounting calculation of the net flow of funds to or from the federal government for individual transportation modes. The excess of expenditures over revenues is the net subsidy. To show the amount of subsidy relative to the level of use of transportation infrastructure, we normalized the data by dividing the absolute net subsidy values by passenger-miles.



## Highways

- Users of the highway passenger transportation system paid significantly greater amounts of money to the federal government than their allocated costs in 1994-2000. This was a result of the increase in the deficit reduction motor fuel tax rates

between October 1993 and September 1997, and the increase in Highway Trust Fund fuel tax rates starting in October 1997.

- School and transit buses received positive net federal subsidies over the 1990-2002 period, but autos, motorcycles, pickups and vans, and intercity buses paid more than their allocated cost to the federal government.
- On average, highway users paid \$1.91 per thousand passenger-miles to the federal government over their highway allocated cost during 1990-2002 (Figure 2).

### **Passenger Rail**

- The net federal subsidy to passenger railroads was the third largest, except for the years 1998-2000 (Figure 1), when it was second. The Taxpayer Relief Act of 1997 provided Amtrak with a tax credit in the amount of \$2.18 billion in current dollars that caused the net federal subsidy to increase dramatically in 1998 and 1999.
- Passenger rail received the largest subsidy per thousand passenger-miles, averaging \$186.35 per thousand passenger-miles during 1990-2002 (Figure 2).

### **Transit**

- Between 1990 and 2002, transit received the largest amount of net federal subsidy, increasing from \$5.09 billion to \$7.31 billion (Figure 1), an increase of 3% per year. Next to passenger rail, transit received the next highest net federal subsidy per thousand passenger-miles for the period, averaging \$118.26 in year 2000 chained dollars (Figure 2).

### **Air**

- After transit, air transportation received the second largest net federal subsidy, except for the period from 1998 to 2000 (Figure 1), when rail was second. Subsidies declined in 1998-2000 as a result of the increase in federal receipts from aviation users associated with the Taxpayer Relief Act of 1997, which increased existing aviation excise tax rates and introduced new taxes as of October 1, 1997.
- Net federal subsidy per thousand passenger-miles for air increased between 1990 and 1996 and then declined from 1997 to 2000, before rising again in 2001 and 2002 (Figure 2). The decline during 1997-2000 was caused by the increase in federal receipts from aviation users as a result of the increase in the existing excise tax rates and the introduction of new taxes in 1997, which preceded increases in expenditures.

## **I. Introduction**

Recent work in the private sector and current policy debates have refocused attention on Federal subsidies to passenger transportation modes. To provide the Department of Transportation with an independent analysis of this issue, BTS developed data on federal transportation revenues, expenditures, and net subsidies, by mode. We have also included discussions of cost allocation formulas with respect to federal trust funds, and of normalization metrics, both of which are important issues for such calculations. In addition we have discussed the role of social costs and benefits analysis of modal subsidies.

### **Calculating Subsidies – What’s Included**

Subsidy, for the purpose of this analysis, represents a simple accounting calculation of the net flow of funds to or from the federal government for individual transportation modes. We calculate federal government transportation expenditures for each mode, including direct payments to carriers (both private companies and public agencies) and government expenditures on supporting infrastructure, minus revenues the federal government collects from that mode. These revenues include fuel taxes, fees, and other payments to the federal government specific to transportation, paid by companies, public agencies, or individual transportation system users. The fuel tax revenues dedicated to mass transit, to the extent they derive from non-transit vehicles, are considered highway revenues<sup>1</sup>. We do not include such items as corporate income taxes paid by transportation companies to support general government functioning, because such taxes are paid by all companies. The excess of expenditures over revenues is the net subsidy.

### **Allocation Formulas for Infrastructure Expenditures**

Many federal government transportation expenditures are not direct payments to transportation carriers, but instead involve funding repairs, improvements, and expansions of infrastructure shared by multiple modes. These expenditures are allocated among the modes sharing the infrastructure in question. Section IV discusses the allocation formulas used and issues surrounding their use.

### **Normalization Measures**

While net subsidy is of interest to policymakers and others, additional insight may be gained by normalizing the subsidy, dividing it by an indicator of the size of the passenger transportation activity being subsidized (for example per passenger-mile). This makes it easier to directly compare levels of subsidy among modes that vary dramatically in their extent and utilization. The issues involved with different normalization measures such as passengers and passenger-miles are discussed in Section V.

### **Federal vs. State and Local**

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<sup>1</sup>These funds represent highway user fuel taxes that are transferred to the Mass Transit Account by Congressional mandate. Though originating with highway users, they are dedicated to supporting mass transit for public policy reasons. If they were considered mass transit revenues, a different set of results would be generated.

The current analysis reflects federal revenue and expenditure data only. An analysis including state and local revenue and expenditure data may show different results and would raise different issues of revenue and expenditure definition.

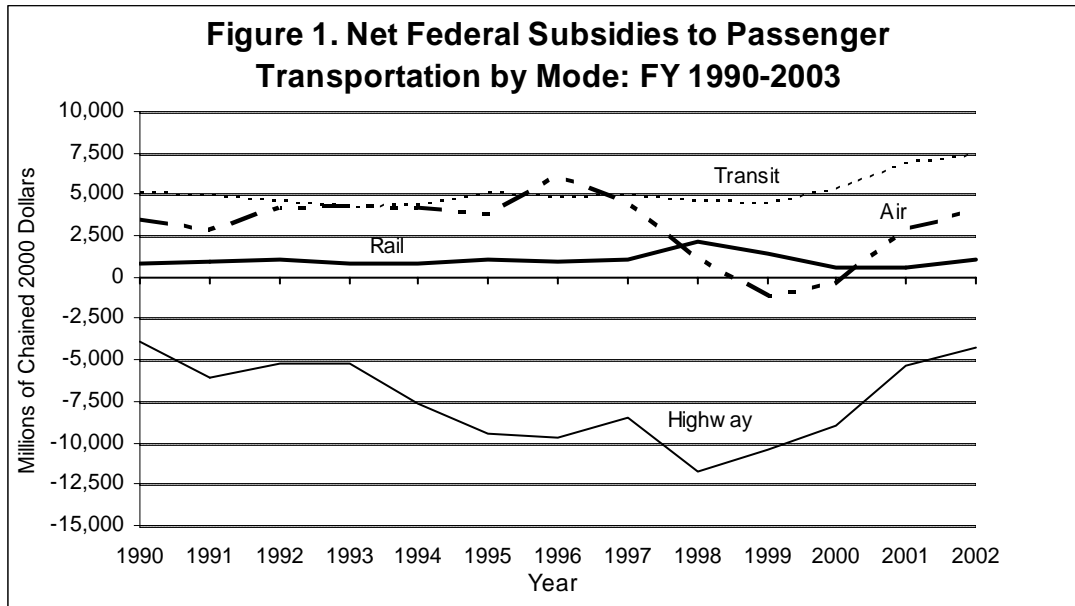
### **Social Costs and Benefits**

The result of the above calculations is a net federal subsidy (reflecting allocations of common infrastructure among modes) per unit (such as per passenger-mile). While this is useful information, it incorporates only the amount of cash subsidies – it does not reflect other aspects of full social costs and benefits, such as externalities, for example environmental pollution and excessive energy use. The issues involved in full social cost calculation are considered in Section VI.

## II. Federal Subsidies to Passenger Transportation

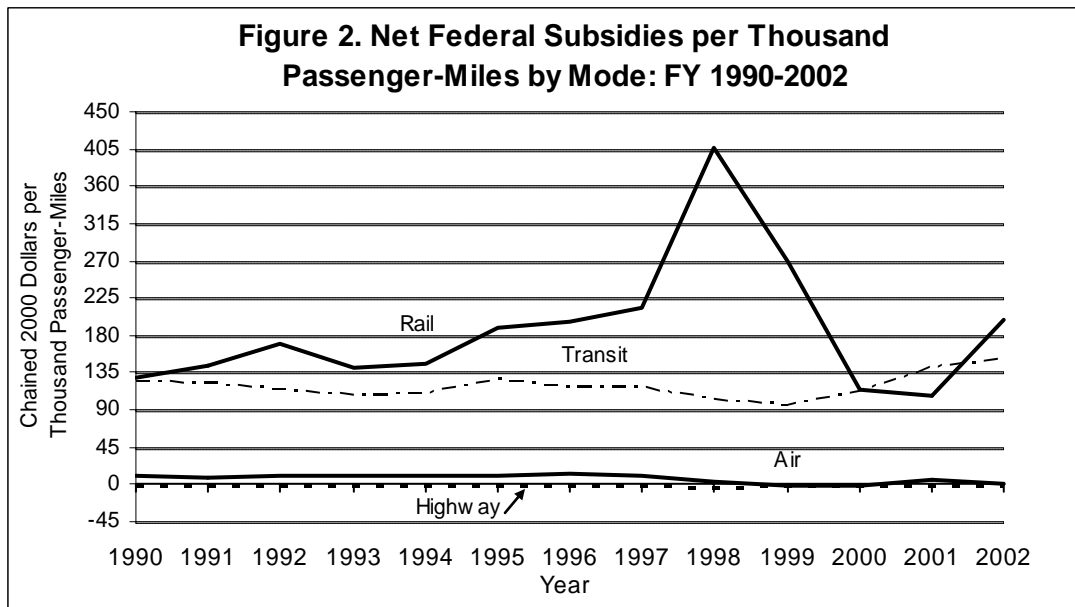
The federal government spends billions of dollars every year on the passenger transportation system. Net federal subsidies (spending minus revenues) vary across different modes of transportation.

Net Federal subsidies have varied over time as well, as shown in Figure 1.



Sources: See Table 2.

The pattern of Net Federal Subsidies changes when we look at subsidies per Thousand Passenger-Miles, as shown in Figure 2.



Sources: See Table 4.

## Highways

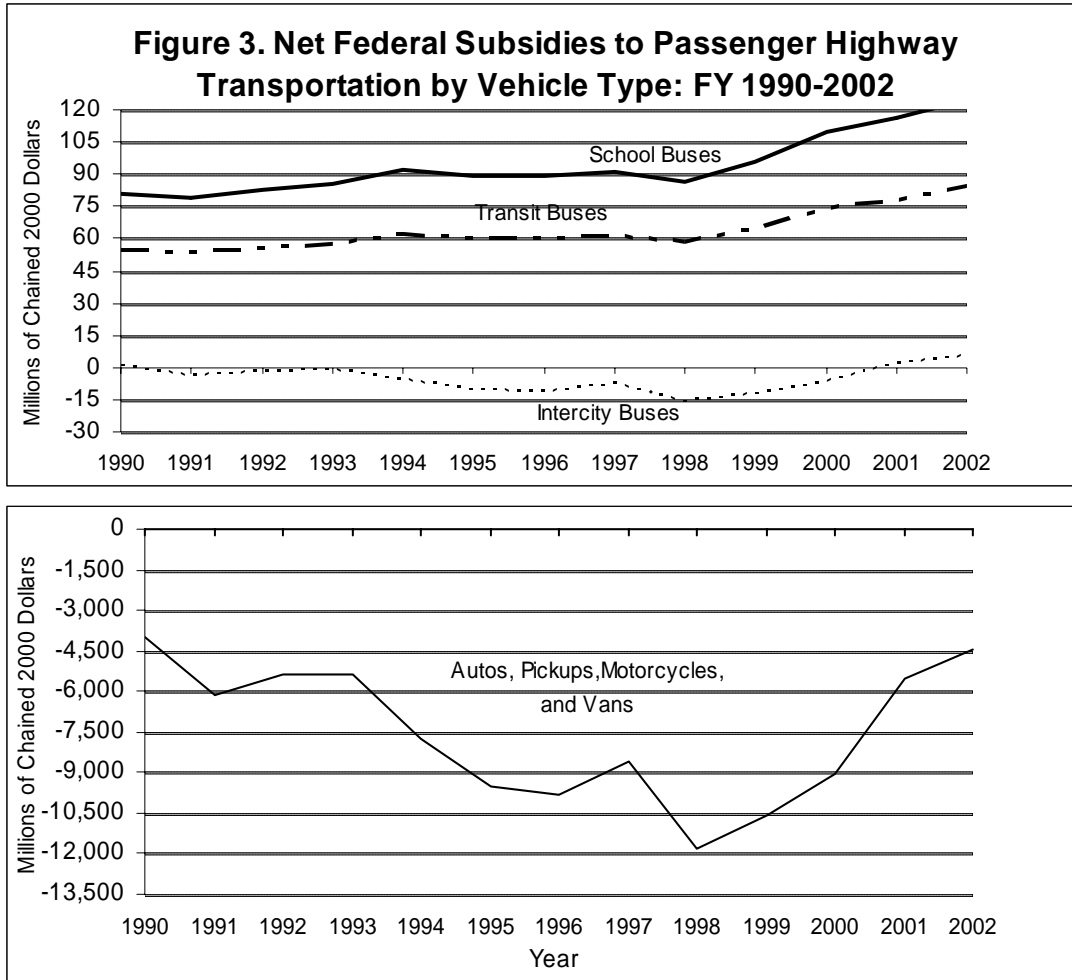
- The net federal subsidy to highway passenger transportation shows negative values for the entire period, indicating excess user charge payments (e.g., fuel taxes) by highway users over their allocated cost (Figure 1)<sup>2</sup>. Users of the highway passenger transportation system paid significantly greater amounts of money to the federal government than their allocated costs in 1994-2000. This was a result of the increase in the deficit reduction motor fuel tax rates between October 1993 and September 1997, and the increase in Highway Trust Fund fuel tax rates starting in October 1997<sup>3</sup>.
- In discussing highways, it should be borne in mind that the Highway Trust Fund is governed by the Byrd amendment, which mandates a long term zero balance in the fund (i.e. that any unfunded authorizations at the end of a fiscal year must be less than the revenues anticipated to be earned in the following 24 months). This means that, apart from the funds transferred from the Highway Trust Fund to mass transit, any positive or negative subsidies for the highway mode should be short term, primarily reflecting fluctuations in revenue patterns to which expenditures adjust only after a time lag<sup>4</sup>.
- Not all users of the highway passenger transportation system have had negative federal subsidies during the period under consideration. School and transit buses received positive net federal subsidies over the 1990-2002 period, but autos, motorcycles, pickups and vans, and intercity buses paid more than their allocated cost (in the form of user charges) to the federal government (Figure 3).

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<sup>2</sup> Tables at the end of this report provide detailed subsidy data.

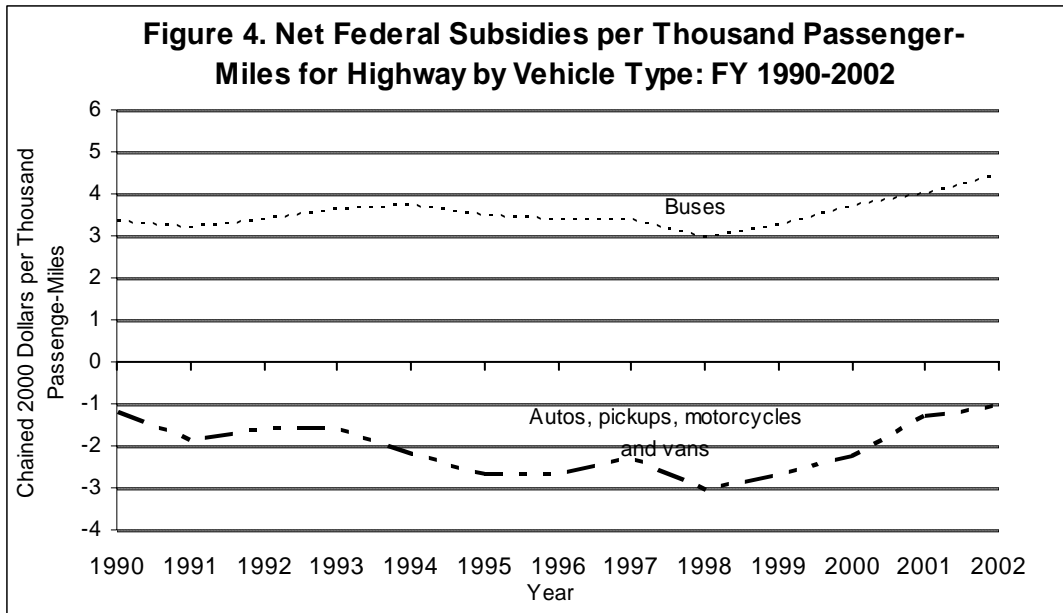
<sup>3</sup> Congressional Research Service (CRS), "Transportation Fuel Taxes, Legislative Issues, and the Transportation Equity Act," CRS Report for Congress, June 17, 1998.; and U.S. DOT, Federal Highway Administration (FHWA) "Highway Statistics 2002," Table FE-21B, available at <http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.htm>, as of August 2004.

<sup>4</sup> Since the current study looks only at passenger revenues and expenditures, it is possible that it could show a positive or negative subsidy for passenger users of highways, even while the overall highway trust fund cash flows were in balance. This would depend on the allocations among the freight and passenger users of the highway system.



**Sources:** See Table 2.

- On average, highway users paid \$1.91 per thousand passenger-miles to the federal government over their highway allocated cost during 1990-2002 (Figure 2). While net federal subsidy per thousand passenger-miles for buses (including school, transit, and intercity buses) has been positive during 1990-2002, it has been negative for autos, pickups, and vans (Figure 4). Autos, pickups, and vans paid on average about \$2.03 per thousand passenger-miles more each year than their allocated cost.



Sources: See Table 4.

### Passenger Rail

- The net federal subsidy to passenger railroads was the third largest, except for the years 1998-2000 (Figure 1), when it was second. The Taxpayer Relief Act of 1997 provided Amtrak with a tax credit in the amount of \$2.18 billion in current dollars that caused the net federal subsidy to increase dramatically in 1998 and 1999<sup>5</sup>.
- On average, passenger rail received the largest subsidy per thousand passenger-miles, averaging \$186.35 (in year 2000 chained dollars) per thousand passenger-miles during 1990-2002 (Figure 2).

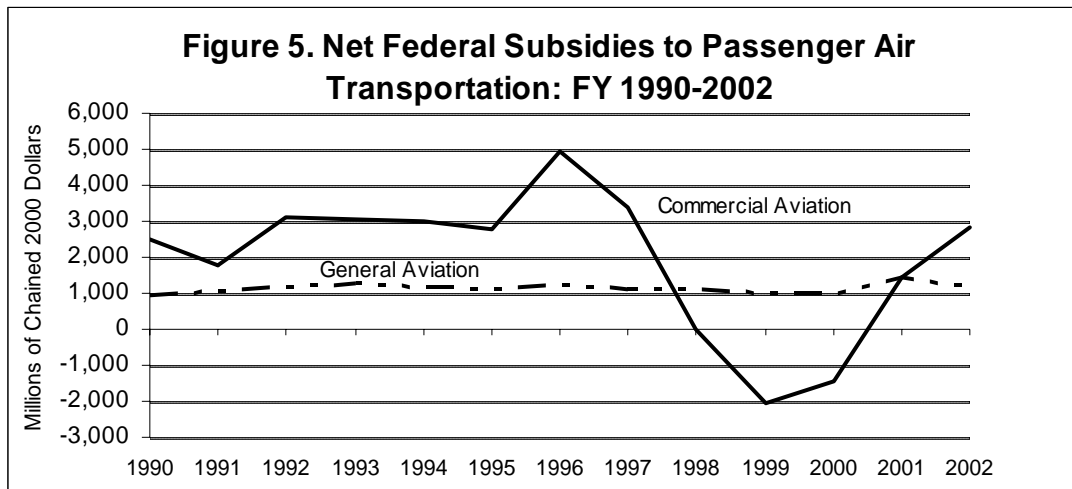
### Transit

- Between 1990 and 2002, transit received the largest amount of net federal subsidy, increasing from \$5.09 billion to \$7.31 billion in chained 2000 dollars (Figure 1), an increase of 3% per year.
- On a per thousand passenger-miles basis, transit received the second highest net federal subsidy, second to passenger rail, averaging \$118.26 in year 2000 chained dollars (Figure 2).

<sup>5</sup> AMTRAK, "1999 Annual Report," Washington, DC, Pages 32 and 42.

## Air

- After transit, air transportation received the next largest net federal subsidy, except for the period from 1998 to 2000 (Figure 1). The amount of net subsidy to air transportation was greater in 1996 and 1997 than in any other year because of an interruption in tax collections from aviation users. Tax collections were interrupted from January to July 1996 and from January to March 1997 due to delays in reenacting the authority of the FAA to collect aviation taxes<sup>6</sup>. The FAA estimated that about \$5.6 billion in tax revenue was lost due to the lapse in tax collections in these years. Net federal subsidies declined in 1998-2000 as a result of the increase in federal receipts from aviation users. The higher federal receipts from aviation users in those years were due to the Taxpayer Relief Act of 1997, which increased existing aviation excise tax rates and introduced new taxes as of October 1, 1997<sup>7</sup>.
- A large proportion of the federal subsidy to passenger air transportation was directed to the commercial aviation system in most of the years of the analysis period (Figure 5). However, subsidies for general aviation exceeded those for commercial aviation during the three-year period from 1998 to 2000 when increased excise taxes on commercial aviation took effect.



**Sources:** See Table 2.

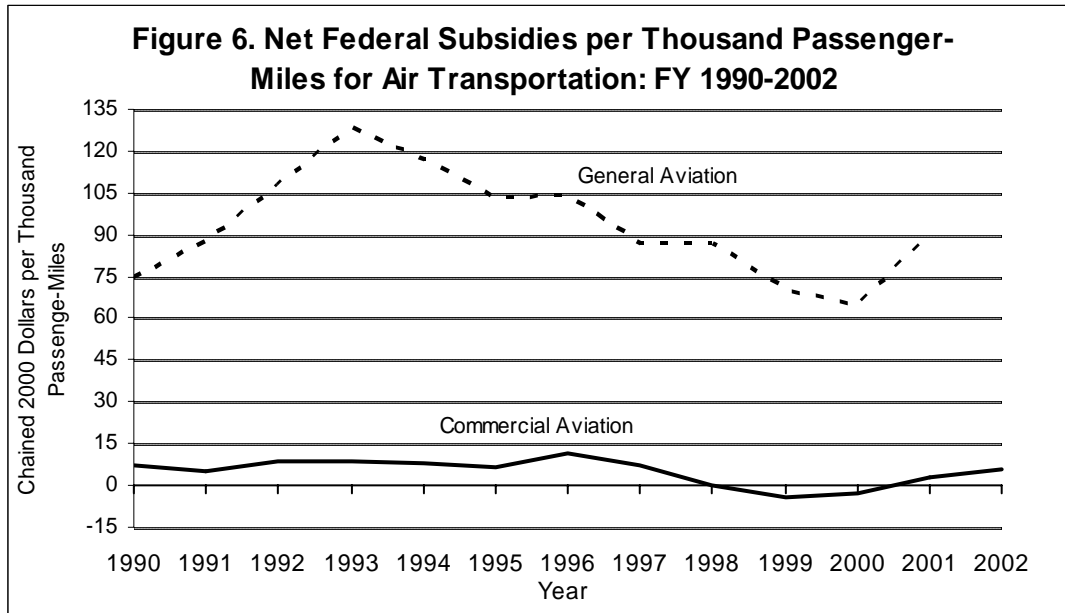
- Net federal subsidy per thousand passenger-miles for air increased between 1990 and 1996 and then declined from 1997 to 2000, before rising again in 2001 and 2002 (Figure 2). As indicated above, the decline during 1997-2000 was caused by the increase in federal receipts from aviation users as a result of the increase in the

<sup>6</sup>U.S. DOT, Federal Aviation Administration (FAA) “Budget in Brief – Fiscal Year 1997,” Washington, DC, Page 5; and “Budget in Brief – Fiscal Year 1998,” Washington, DC, Page 5.

<sup>7</sup> U.S. DOT, Federal Aviation Administration (FAA) “Budget in Brief – Fiscal Year 1999,” Washington, DC, Page 4

existing excise tax rates and the introduction of new taxes in 1997, which preceded increases in expenditures.

- The federal government provided more subsidies to the general aviation system per thousand passenger-miles than for commercial aviation for the entire period 1990-2002 (Figure 6). Federal subsidy per thousand passenger-miles for general aviation grew rapidly between 1990 and 1993 and then fell between 1994 and 2000, before rising afterwards.



Sources: See Table 4.

### III. Definition and Coverage

Federal subsidy can be broadly defined as any financial assistance provided to particular transportation modes, transportation activities, or specific groups of transportation infrastructure users. This definition includes both direct monetary transfers as well as indirect subsidies<sup>8</sup>. In this report, net federal subsidies are estimated as the difference between federal outlays for passenger transportation and receipts collected from users of the passenger transportation system. Thus, the value of net federal subsidies can be either positive or negative. Negative numbers show user fee payments to the federal government in excess of allocated cost. Detailed data on federal subsidies such as service-specific or vehicle-type-specific estimates are calculated using allocation formulas that estimate the cost responsibilities and revenue contributions of specific services or types of vehicles. It should be noted that not all types of federal subsidies will be captured using this method. Some of the indirect subsidies, such as federal tax exemptions, favorable tax treatment, or favorable laws and regulations that can create money transfers through market mechanisms, are not covered. Tax credits for Amtrak under the Taxpayer Relief Act of 1997, which were specifically designed for that transportation company, have been included.

The estimates in this report include net federal subsidies to passenger transportation for highway, air, transit, and intercity railroad transportation. Subsidies to passenger transportation by state and local government are not included. The data for highway are further subdivided into net federal subsidies to autos, motorcycles, pickups and vans; school buses; transit buses; and intercity buses. Subsidies to air transportation are also presented separately for commercial air carriers and general aviation. All data are compiled in current and chained 2000 dollars<sup>9</sup>. The more heavily traveled modes will tend to have larger subsidies. Thus, to show the amount of subsidy relative to the level of use of transportation infrastructure, we normalized the data by dividing the absolute net subsidy values by passenger-miles.

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<sup>8</sup>Indirect subsidies include the provision of transportation infrastructure to users at less than its full cost, federal tax exemptions, tax credits, preferential tax treatments, and provision of favorable laws and regulations that create transfers through market mechanisms.

<sup>9</sup>The chained 2000 dollar values are computed by deflating the current net subsidy values by the GDP deflator for federal non-defense expenditures, which is obtained from the National Income and Product Account tables of the Bureau of Economic Analysis.



## IV. Allocation Formulas

Because there are several forms of transportation of highway and air transportation, federal revenues and expenditures for the highway and air transportation systems are allocated to the various forms of transportation that share them. The allocation formulas for air and highway revenues and expenditures, especially the allocation of highway trust fund expenditures, are important to this subsidy analysis. While the cost studies these formulas were based on relating trust fund revenues and expenditures to major classes of system users, these classes do not necessarily correspond to different forms of transportation. The vehicle classes for example include numerous classes of trucks, all of which were considered one form of transportation and, being freight, were excluded from this analysis. In the 1997 Federal Highway Cost Allocation Study, there are 3 non-commercial passenger vehicle categories, autos, motorcycles, and other light vehicles, all of which we aggregated into the highway passenger vehicle form of transportation<sup>10</sup>. By contrast, the bus category, which is one vehicle category in the Allocation Study spans multiple forms of transportation. In the Allocation Study this category includes school buses, transit buses, and intercity buses. We use these same subcategories to allocate revenues and expenditures. We used bus registration and usage data to break the category into those subcategories, as the FHWA Allocation Study did not itself break down the bus category by subcategory.

A potential obstacle in using cost allocation estimates for calculating subsidies is the need to account for expenditures used in building and maintaining restricted use facilities, such as HOV lanes or exclusive bus lanes, whose cost should be assigned to the particular modes that are allowed to use them. These expenditures frequently are part of larger construction and maintenance projects, and are difficult to isolate. This study does not separately allocate the use of such pieces of infrastructure to multiple forms of transportation (e.g. buses and high-occupancy vehicles) because data on how many of each type of vehicle use such facilities are not available. Instead we allocated expenditures on these facilities using the general formulas for highway infrastructure.

A similar problem arises when looking at intermodal connections. For example, should part of the cost of an access road to an airport or a light-rail system stopping at the airport be allocated to the air passenger mode? These are issues that are not included in this analysis, but should be considered for future work in this area. In this study, costs for a highway or transit line leading to an airport are attributed to the highway and transit modes, respectively.

We have been able to make some minor changes and improvements to the current allocation estimates to refine the cost allocations for transit and intercity buses, using Vehicle Miles Traveled to break down vehicle types into ones relevant to our modal analysis.

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<sup>10</sup>Federal Highway Administration, 1997 Federal Highway Cost Allocation Study, August 1977.

We have also applied the FHWA allocation formulas to non-FHWA funded highways (Forest Service funded highways, for example.) While allocation formulas specific to these highways would be preferable, they have not been developed and would make a minor impact on the overall highway allocation.

The issue of allocation of air revenues and expenditures is less complicated. Costs and revenues are allocated among passenger and freight infrastructure and services (similar to the division between highway passenger vehicles and freight trucks) and general aviation. The detailed summaries of the airport and airway trust fund cash flow accounts do not separate out freight versus passenger revenue or expenditures. However, cost allocation studies were conducted in the past, the latest one completed in 1995. That study allocates Federal Aviation Administration costs into six commercial user categories, three general aviation categories, and two other public user categories<sup>11</sup>. The user categories are detailed enough to distinguish between passenger and freight services. The cost allocation estimates, converted to percentages, can be used to allocate aviation expenditures among commercial air passenger, commercial air freight, and general aviation users.

We have not used an allocation formula for railroads, because rail infrastructure is in most cases privately owned, and rail carriers make explicit payments to the owner of the rail infrastructure for the use of the infrastructure. Passenger railroads such as Amtrak pay for their use of freight railroad infrastructure, and freight railroads pay for their use of Amtrak infrastructure in the Northeast Corridor. We have assumed that these payments adequately reflect the value of the infrastructure usage.

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<sup>11</sup>GRA Incorporated, A Cost Allocation Study of FAA's 1995 Costs, FAA Office of Aviation Policy and Plans, U.S. Federal Aviation Administration, March 1997.

## V. Normalization Metrics

While total net subsidy may be of interest to policymakers, additional insight may be gained by normalizing the subsidy; that is, by dividing it by an indicator of the magnitude of the transportation activity being subsidized. This makes it easier to compare subsidies directly among modes that vary dramatically in their extent and utilization.

Normalization may be accomplished in several ways depending on the intended use.

### 1. Passenger-Miles

Passenger-miles are the most basic measure of passenger transportation mode usage. They take into account both the number of passengers using a mode and the number of miles each passenger travels on the mode. It is likely that most forms of user benefits, and even many non-user benefits, are proportionate to mileage, and thus it can be used as a proxy for total benefits. It is comparable across modes.

However it is still an imperfect proxy because across transportation markets there are generally diminishing returns to trip length – i.e. that revenues per mile are lower for longer distance trips, other things being equal. This would suggest that the same would hold for the benefits of a transportation mode relevant to evaluating a subsidy for that mode. Comparing modes that have dramatically different average trip lengths, subsidy per passenger-mile may overstate the subsidy for modes with short trip lengths and understate subsidy for modes with long trip lengths. Differences in circuitry among modes will also impact results, since measured trip length will differ among modes for the same origin-destination pair.

There are also problems with the availability of data for passenger-miles for some modes.

### 2. Passengers

The number of passengers can serve as a proxy for passenger-miles in cases where the number of miles per passenger (or per trip) are roughly similar for different passengers. The data are also generally more readily available. Because this measure does not reflect mileage, however, it does not distinguish between a short distance trip of little traveler value, with few social costs, and a long distance trip of larger traveler value and larger social costs. While subsidy per passenger-mile *overstates* the subsidy for modes with short trip lengths, subsidy per passenger *understates* the subsidy for such modes. The other major problem with this measure is that for some modes, like transit, only unlinked trips are generally available. Data on unlinked trips treat each leg of the trip as a separate trip, so that a single round trip may be represented in the data by four or five unlinked trips. This may overstate ridership for such modes.

### 3. Seat Miles

Seat miles do not measure actual transportation usage, but instead measure transportation availability. The argument for this approach is that government subsidies to carriers essentially purchase availability, and the utilization of that availability is determined by private carrier pricing and other market conditions beyond the government's control. While this measure cannot be used now, due to data limitations among the modes, it could be a helpful additional metric when the data become available. It would still be limited as a basis for broad comparisons, since most government expenditures on transportation do not go to carriers, but to infrastructure, and it's not clear what meaning subsidy per seat mile would have for personal vehicles, for example.

### 4. Route Miles

Another way of looking at subsidies could be relative to route miles. Some subsidies are used to add incremental infrastructure, and arguably what is being purchased in that instance is not so much usage as access, and access is measured by the extent of routes over which service is available. There are inherent limitations to this approach, especially for modes like air and bus where competing companies run parallel routes on the same infrastructure (i.e., do two companies on a route count as one route or two.) Vehicle miles could represent another approach to measuring access.

### 5. Hours

All of the mileage-based metrics assume that transportation between two points is the goal of the activity. Some forms of transportation, such as general aviation and boating, are heavily used for recreational purposes, where the objective is to enjoy the transportation activity and then return to the starting point. In these cases, passenger hours might be more suitable for normalization than mileage-based metrics.

### 6. Conclusion

While passenger-miles are used in this analysis, future work could explore the implications and data issues of using passengers, seat-miles, and other measures. This study uses passenger-miles because of their numerous strengths, as indicated above.

## **VI. Full Social Costs and Benefits**

The major reason that some modes of transportation are subsidized is that they are perceived as providing social benefits in addition to the benefits provided to passengers using these modes. These benefits can take several forms.

First, some modes of transportation can impose social costs on society as a whole, such as environmental pollution and excessive energy use. Modes which produce less pollution or use less energy may produce social benefits by diverting traffic from more polluting, less energy-efficient modes. The impact of different modes on metropolitan development patterns is also an issue.

Second, as certain modes become congested, it may be less costly to expand capacity in less-congested modes than it is to expand capacity in the modes that are already congested. Subsidies to passengers in less-congested modes can provide benefits to passengers in more-congested modes by reducing the traffic congestion they face.

Third, subsidies may produce more economically efficient use of a transportation mode. Economic theory argues that the economically efficient price, which maximizes consumer welfare, is the price that just covers the marginal costs of transportation usage. If a transportation mode has high fixed costs, but low variable costs of operation, charging a fare that covers all of the fixed costs may discourage usage to the point that the infrastructure is underused and consumer benefits are reduced.

In addition to helping to understand the rationale for subsidies, social costs and benefits may provide a better way of normalizing the magnitude of subsidies. A strong case can be made that comparing the magnitude of the subsidies to the magnitude of net social benefits, by mode, provides a better view of the relative subsidy than does normalizing by a physical measure such as passengers or passenger-miles.

We have not included analysis of the social costs and benefits of different transportation modes because of the difficulty of providing a value of these costs and benefits.



## **VII. Tables**



**Table 1. Net Federal Subsidies to Passenger Transportation by Mode: FY 1990-2003**

(Millions of Current Dollars)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
<b>All Modes, total</b>	4,113	2,122	3,740	3,485	1,531	499	2,132	1,900	-3,628	-5,480	-3,392	5,205	8,621	N/A
Highway	-2,906	-4,775	-4,184	-4,394	-6,558	-8,391	-8,798	-7,866	-11,022	-10,085	-8,909	-5,398	-4,459	N/A
Autos, Pickups & Vans	-3,010	-4,877	-4,294	-4,513	-6,686	-8,515	-8,925	-8,000	-11,144	-10,229	-9,086	-5,598	-4,684	N/A
School Buses	61	63	66	72	79	79	82	84	82	93	109	118	131	N/A
Transit Buses	41	42	45	48	54	54	55	57	55	63	74	80	89	N/A
Intercity Buses	1	-3	-1	-1	-5	-9	-10	-8	-15	-12	-7	2	6	N/A
Air	2,605	2,262	3,420	3,633	3,578	3,478	5,648	4,159	1,056	-1,049	-446	2,953	4,235	N/A
Commercial Aviation	1,876	1,426	2,486	2,566	2,585	2,479	4,510	3,143	-17	-2,009	-1,433	1,500	2,979	N/A
General Aviation	729	836	935	1,067	993	999	1,139	1,016	1,074	960	987	1,454	1,257	N/A
Transit	3,832	3,917	3,675	3,517	3,770	4,474	4,375	4,583	4,302	4,265	5,334	7,048	7,695	4,922
Railroad	582	717	829	730	741	938	907	1,024	2,036	1,389	629	602	1,150	1,051

**KEY:** N/A = Data not available

**NOTES:** Net federal subsidy is estimated as federal outlays minus federal receipts from transportation taxes and user fees. Actual outlays and receipts are used in the calculation. Negative numbers show user charge payments to the federal government in excess of cost responsibility.

The Taxpayer Relief Act of 1997 allowed motor fuel taxpayers to delay until October 5, 1998, the payment of fuel taxes that otherwise would be due in August and September of 1998. This provision effectively shifted about \$6 billion in Highway Trust Fund receipts from 1998 to 1999. We have included these funds in FY 1998, when they were actually paid by highway users.

**SOURCES:** BTS estimations based on data from the following sources:

Executive Office of the President of the United States, Office of Management and Budget, "Budget of the United States Government – Appendix," Washington, D.C.: Annual publication.

U.S. Department of Transportation, Federal Highway Administration, "Highway Statistics," Washington, D.C.: Annual publication.

Executive Office of the President of the United States, Office of Management and Budget, "Budget of the United States Government FY 2005 – Public Budget Database," Washington, D.C.

National Aeronautics and Space Administration, "Aeronautics and Space Report of the President," Washington, D.C.: Annual issue, available at: <http://www.hq.nasa.gov/hq/nasrepts.htm>, as of July 2004.

U.S. Department of Transportation, Federal Aviation Administration, "Budget in Brief," Washington, D.C.: Annual publication, available at: [http://www.faa.gov/aba/html\\_budget/index.html](http://www.faa.gov/aba/html_budget/index.html), as of July 2004.

U.S. Department of Transportation, Federal Highway Administration, "Addendum to the 1997 Federal Highway Cost Allocation Study," Final Report, May 2000.

Gellman Research Associates, Inc (GRA), "Cost Allocation Study of FAA's FY 1995 Costs," March 1997.

Congressional Research Service (CRS), "Transportation Fuel Taxes, Legislative Issues, and the Transportation Equity Act," CRS Report for Congress, June 17, 1998; and \_\_\_\_\_ "Transportation Fuel Taxes After the 1993 Budget Act: How Much? For What? And for How Long?" CRS Report for Congress, October 7, 1993.

**Table 2. Net Federal Subsidies to Passenger Transportation by Mode: FY 1990-2003**

(Millions of Chained 2000 Dollars)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
<b>All Modes, total</b>	5,465	2,682	4,651	4,162	1,773	558	2,338	2,039	-3,849	-5,657	-3,392	5,108	8,195	N/A
Highway	-3,862	-6,036	-5,204	-5,248	-7,592	-9,391	-9,645	-8,441	-11,693	-10,410	-8,909	-5,297	-4,238	N/A
Autos, Pickups & Vans	-3,999	-6,165	-5,340	-5,390	-7,740	-9,530	-9,784	-8,584	-11,822	-10,558	-9,086	-5,494	-4,452	N/A
School Buses	81	79	83	85	92	89	89	91	87	96	109	116	125	N/A
Transit Buses	55	54	56	58	62	60	60	61	59	65	74	78	84	N/A
Intercity Buses	1	-4	-2	-2	-6	-10	-11	-8	-16	-12	-7	2	5	N/A
Air	3,462	2,860	4,253	4,338	4,143	3,893	6,192	4,463	1,120	-1,083	-446	2,898	4,026	N/A
Commercial Aviation	2,493	1,803	3,091	3,065	2,993	2,774	4,944	3,373	-19	-2,073	-1,433	1,472	2,831	N/A
General Aviation	969	1,057	1,162	1,274	1,150	1,119	1,248	1,090	1,139	991	987	1,427	1,194	N/A
Transit	5,091	4,952	4,570	4,200	4,364	5,007	4,796	4,918	4,564	4,402	5,334	6,917	7,314	4,572
Railroad	774	906	1,031	872	858	1,049	994	1,099	2,160	1,434	629	591	1,093	976

**KEY:** N/A = Data not available

**NOTES:** Net federal subsidy is estimated as federal outlays minus federal receipts from transportation taxes and user fees. Actual outlays and receipts are used in the calculation. Negative numbers show user charge payments to the federal government in excess of cost responsibility.

The Taxpayer Relief Act of 1997 allowed motor fuel taxpayers to delay until October 5, 1998, the payment of fuel taxes that otherwise would be due in August and September of 1998. This provision effectively shifted about \$6 billion in Highway Trust Fund receipts from 1998 to 1999. We have included these funds in FY 1998, when they were actually paid by highway users.

**SOURCES:** BTS estimations based on data from the following sources:

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U.S. Department of Transportation, Federal Highway Administration, "Highway Statistics," Washington, D.C.: Annual publication.

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**Table 3. Net Federal Subsidies per Thousand Passenger-Miles by Mode: FY 1990-2002**

(Dollars per Thousand Passenger-Miles)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
<b>All Modes, total</b>	1.08	0.55	0.95	0.87	0.37	0.12	0.50	0.43	-0.80	-1.18	-0.71	1.05	1.72
Highway	-0.85	-1.38	-1.18	-1.22	-1.79	-2.27	-2.32	-2.02	-2.75	-2.46	-2.13	-1.23	-1.00
Autos, Pickups & Vans	-1.31	-2.20	-1.93	-2.03	-2.96	-3.71	-3.80	-3.33	-4.50	-4.08	-3.55	-2.18	-1.79
Buses	2.51	2.51	2.73	3.01	3.23	3.11	3.06	3.17	2.77	3.14	3.70	4.08	4.66
Air	7.26	6.46	9.36	9.76	8.99	8.39	12.65	8.98	2.22	-2.09	-0.84	5.88	N/A
Commercial Aviation	5.42	4.22	7.01	7.08	6.66	6.14	10.38	6.97	-0.04	-4.11	-2.78	3.08	6.18
General Aviation	56.09	69.09	86.53	107.73	101.36	92.54	94.90	81.30	81.95	68.07	64.93	91.42	N/A
Transit	93.13	96.24	91.32	89.29	95.23	112.39	105.73	108.25	97.49	93.01	111.90	143.63	159.24
Railroad	96.17	114.25	136.14	117.72	125.22	169.07	179.62	198.19	383.82	260.57	114.36	108.25	210.31

**KEY:** N/A = Data not available

**NOTES:** Net federal subsidy is estimated as federal outlays minus federal receipts from transportation taxes and user fees. Actual outlays and receipts are used in the calculation. Negative numbers show user charge payments to the federal government in excess of cost responsibility.

The Taxpayer Relief Act of 1997 allowed motor fuel taxpayers to delay until October 5, 1998, the payment of fuel taxes that otherwise would be due in August and September of 1998. This provision effectively shifted about \$6 billion in Highway Trust Fund receipts from 1998 to 1999. We have included these funds in FY 1998, when they were actually paid by highway users.

Buses are not broken down into different types, because there is no passenger mile data by type of bus.

There is some double counting of bus passenger-miles in the highway and transit modes. However, no adjustments are made since data are not available to reliably estimate the magnitude of the double counting.

**SOURCES:** BTS estimations based on data from the following sources:

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U.S. Department of Transportation, Bureau of Transportation Statistics, "National Transportation Statistics," Washington, DC, annual issues.

**Table 4. Net Federal Subsidies per Thousand Passenger-Miles by Mode: FY 1990-2002**

(Chained 2000 Dollars per Thousand Passenger-Miles)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
<b>All Modes, total</b>	1.43	0.70	1.18	1.03	0.43	0.13	0.55	0.46	-0.85	-1.22	-0.71	1.03	1.63
Highway	-1.13	-1.75	-1.47	-1.45	-2.07	-2.55	-2.55	-2.17	-2.92	-2.54	-2.13	-1.20	-0.95
Autos, Pickups & Vans	-1.21	-1.85	-1.56	-1.55	-2.19	-2.68	-2.68	-2.29	-3.07	-2.68	-2.26	-1.29	-1.03
Buses	3.34	3.17	3.39	3.60	3.74	3.48	3.36	3.40	2.93	3.25	3.70	4.00	4.43
Air	9.65	8.17	11.63	11.66	10.40	9.39	13.86	9.64	2.35	-2.15	-0.84	5.77	N/A
Commercial Aviation	7.21	5.33	8.71	8.46	7.70	6.87	11.37	7.48	-0.04	-4.25	-2.78	3.03	5.87
General Aviation	74.53	87.34	107.61	128.67	117.35	103.57	104.04	87.24	86.93	70.26	64.93	89.72	N/A
Transit	123.74	121.67	113.56	106.64	110.25	125.78	115.91	116.15	103.42	96.00	111.90	140.95	151.36
Railroad	127.78	144.44	169.30	140.60	144.97	189.22	196.91	212.67	407.16	268.96	114.36	106.23	199.90

**KEY:** N/A = Data not available

**NOTES:** Net federal subsidy is estimated as federal outlays minus federal receipts from transportation taxes and user fees. Actual outlays and receipts are used in the calculation. Negative numbers show user charge payments to the federal government in excess of cost responsibility.

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