

2012

# Pocket Guide to Transportation



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# Pocket Guide to Transportation



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## ABOUT THE *POCKET GUIDE TO TRANSPORTATION*

The Bureau of Transportation Statistics (BTS) of the Research and Innovative Technology Administration produces the *Pocket Guide to Transportation* as a compact resource that provides snapshots of the U.S. transportation system and highlights major transportation trends. The *Pocket Guide* contains a wealth of information divided into five sections:

- Safety
- State of Good Repair
- System Use and Livable Communities
- Economic Competitiveness
- Environmental Sustainability

The *Pocket Guide to Transportation* supports the BTS mission to create, manage, and share transportation statistical knowledge. This contributes to data driven and evidence based decision making.

# CONTENTS

Safety.....	1
State of Good Repair .....	10
System Use and Livable Communities.....	14
Economic Competitiveness.....	30
Environmental Sustainability .....	47
Glossary.....	53

## A DYNAMIC SYSTEM

America's transportation system continues to change along with the population, labor force, and economy. The following table puts these changes in perspective.

### The American Landscape—Population, Labor Force, and Economy: 1990 and 2010

	1990	2010
Resident population (thousands)	248,791	308,745
Total area <sup>a</sup> (thousand sq. mi.)	3,718	3,797
Total civilian labor force (thousands)	125,840	153,889
Real gross domestic product <sup>b</sup> (trillions)	\$8.0	\$13.1
Median household income <sup>b,c</sup>	\$41,430	\$44,545
Average household income <sup>b,c</sup>	\$44,122	\$56,289
Average household expenditures <sup>b,c</sup>	\$39,320	\$43,298
Number of households (thousands)	94,312	118,682
Life expectancy at birth (years)	75.4	78.3 <sup>d</sup>

<sup>a</sup>Total area updated every 10 years. <sup>b</sup>Data are in 2005 chained dollars (see Glossary for definition). <sup>c</sup>Adjusted to chained dollars by BTS in October 2011. <sup>d</sup>Estimated by the Bureau of the Census as part of the 2008 National Population Projections.

**Sources: Population, Area, Households, Median income**—U.S. Department of Commerce, Bureau of the Census. **Average income, Labor force, Expenditures**—U.S. Department of Labor, Bureau of Labor Statistics. **GDP**—U.S. Department of Commerce, Bureau of Economic Analysis. **Life expectancy**—Department of Health and Human Services, Centers for Disease Control and Prevention and U.S. Department of Commerce, Bureau of the Census as of October 2011.

# 1 SAFETY

The U.S. Department of Transportation's number one concern is the safety of the traveling public. Highway fatalities account for roughly 94 percent of total U.S. transportation fatalities. U.S. DOT initiatives have helped to reduce highway fatalities by 26 percent between 1990 and 2010.

## 1-1 Transportation Fatalities by Mode: 1990, 2000, 2009, 2010

Mode	1990	2000	2009	2010
Air				
Large U.S. air carrier <sup>a</sup>	39	92	52	2
Commuter air carrier <sup>a</sup>	6	5	0	0
On-demand air taxi <sup>a</sup>	51	71	17	17
General aviation <sup>a</sup>	770	596	478	450
Highway <sup>b</sup>	44,599	41,945	33,883	32,885
Pipeline, gas and hazardous liquid	9	38	13	25
Railroad <sup>c</sup>	729	631	544	601
Transit <sup>d</sup>	235	208	224	215
Waterborne				
Vessel-related, commercial ship	85	53	49	41
Nonvessel-related <sup>e</sup> , commercial ship	101	69	58	43
Recreational boating	865	701	736	672
<b>Total</b>	<b>47,489</b>	<b>44,409</b>	<b>36,054</b>	<b>34,951</b>

<sup>a</sup>Aircraft and ground fatalities. <sup>b</sup>Motor vehicle occupant and nonoccupant fatalities, including at railroad crossings. <sup>c</sup>Train occupant and nonoccupant fatalities for incidents and accidents, not including those at public highway rail grade crossings involving motor vehicles. Includes commuter rail. <sup>d</sup>All reportable incident and accident fatalities. Includes heavy rail, light rail, motorbus, demand response, van pool, and automated guideway. <sup>e</sup>Fatalities unrelated to vessel accidents, e.g., individual falling overboard and drowning.

**Note:** Data for 2009 have been revised for general aviation, highway, railroad, transit, vessel-related commercial ship, and nonvessel-related commercial ship.

**Sources:** **Air**—National Transportation Safety Board. **Highway**—National Highway Traffic Safety Administration. **Pipeline**—Pipeline and Hazardous Materials Safety Administration. **Railroad**—Federal Railroad Administration. **Transit**—Federal Transit Administration and personal communication. **Water**—U.S. Coast Guard as cited in U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *National Transportation Statistics*, available at [http://www.bts.gov/publications/national\\_transportation\\_statistics/](http://www.bts.gov/publications/national_transportation_statistics/) as of December 2011.

## 1-2 Distribution of Transportation Fatalities: 2010

Category	Number	Percent
Passenger car occupants	12,435	36.50
Light-truck occupants	9,752	28.68
Motorcycle riders	4,502	12.44
Pedestrians struck by motor vehicles	4,280	11.41
Recreational boating	672	1.87
Pedalcyclists struck by motor vehicles	618	1.76
Other and unknown motor vehicle occupants	543	1.57
Large-truck occupants	529	1.40
General aviation	450	1.25
Railroad trespassers (excluding grade crossings) <sup>a</sup>	442	1.23
Other nonoccupants struck by motor vehicles <sup>b</sup>	182	0.42
Heavy rail transit (subway)	96	0.27
Grade crossings, not involving motor vehicles <sup>c</sup>	92	0.26
Transit buses (motorbus)	84	0.23
Waterborne transportation (nonvessel-related)	43	0.12
Waterborne transportation (vessel-related)	41	0.11
Private highway-rail grade crossings, rail with motor vehicles <sup>a</sup>	33	0.09
Bus occupants (school, intercity, transit)	44	0.07
Light rail transit	24	0.07
Rail employees on duty and contractors <sup>a</sup>	23	0.06
On-demand air taxi	17	0.05
Gas distribution pipelines	14	0.04
Demand response transit	10	0.03
Gas transmission pipelines	10	0.03
Railroad, other (off-duty and nontrespassers)	8	0.02
Passengers on railroad trains	3	0.01
Large U.S. air carriers	2	0.01
Hazardous liquid pipelines	1	<0.01
Automated guideway	1	<0.01
<b>Total, all modes<sup>d</sup></b>	<b>34,951</b>	<b>100.00</b>
Other counts, redundant with above		
Crashes involving large trucks <sup>d</sup>	3,675	
Public highway-rail grade crossings, rail with motor vehicles	135	
Commuter rail <sup>e</sup>	59	
Vanpool	1	

<sup>a</sup>Includes fatalities outside trains. <sup>b</sup>Includes nonoccupant fatalities in motor vehicle crashes, except pedalcyclists and pedestrians. <sup>c</sup>Public grade crossing fatalities involving motor vehicles are included in motor vehicle counts. <sup>d</sup>Unless otherwise noted, includes fatalities outside vehicles. <sup>e</sup>Includes fatalities on directly operated systems, excluding suicides.

**Note:** Fatality data are preliminary for air, rail, and transit.

**Sources:** **Air**—National Transportation Safety Board. **Highway**—National Highway Traffic Safety Administration. **Railroad**—Federal Railroad Administration. **Transit**—Federal Transit Administration and personal communication. **Waterborne**—U.S. Coast Guard. **Recreational boating**—U.S. Coast Guard, Office of Boating Safety. **Pipeline**—Pipeline and Hazardous Materials Safety Administration as cited in U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *National Transportation Statistics*, table 2-4, available at [http://www.bts.gov/publications/national\\_transportation\\_statistics/](http://www.bts.gov/publications/national_transportation_statistics/) as of December 2011.

### 1-3 Alcohol-Related Fatalities in Motor Vehicle Crashes by Person Type and Crash Type: 2010

Person type, crash category	Fatalities in category <sup>a</sup>	Alcohol involvement <sup>b</sup>	Percent alcohol involvement <sup>c</sup>
Occupants	27,805	11,087	39.9
Single-vehicle crashes	14,567	7,165	49.2
Two-vehicle crashes	11,197	3,313	29.6
More than two-vehicle crashes	2,041	608	29.8
Pedestrians	4,280	2,020	47.2
Single-vehicle crashes	3,682	1,731	47.0
Multiple-vehicle crashes	598	290	48.5
Pedalcyclists	618	209	33.8
Single-vehicle crashes	592	196	33.1
Multiple-vehicle crashes	26	13	50.0
Others/unknown	182	49	26.9
<b>Total</b>	<b>32,885</b>	<b>13,364</b>	<b>40.6</b>

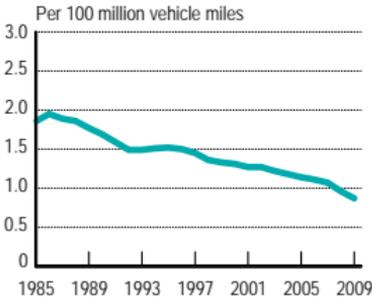
<sup>a</sup>Total fatalities. <sup>b</sup>Total alcohol-related fatalities. <sup>c</sup>Alcohol-related fatalities as a percentage of total fatalities.

**Notes:** Category numbers may not sum to totals due to rounding. A motor vehicle crash is considered alcohol-related if at least one driver or nonoccupant (e.g., a pedestrian or pedalcyclist) involved in the crash has a blood alcohol concentration of 0.01 grams per deciliter or greater. The National Highway Traffic Safety Administration estimates alcohol involvement when test results of alcohol concentration are unknown.

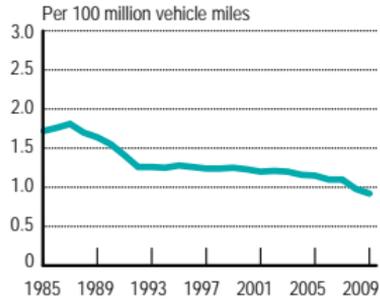
**Source:** U.S. Department of Transportation, National Highway Traffic Safety Administration, *Fatality Analysis Reporting System (FARS) Database*, personal communication, December 2011 as cited in USDOT, RITA, BTS, *National Transportation Statistics*, table 2-20, available at [http://www.bts.gov/publications/national\\_transportation\\_statistics/](http://www.bts.gov/publications/national_transportation_statistics/) as of December 2011.

## 1-4 Fatality Rates for Selected Modes: 1985–2009

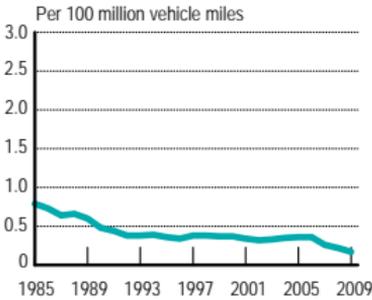
### Passenger car occupants



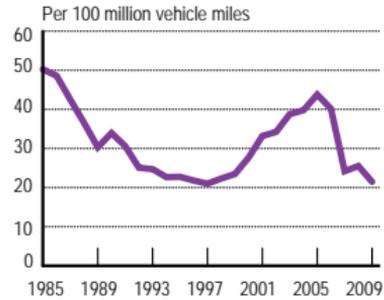
### Light-truck occupants



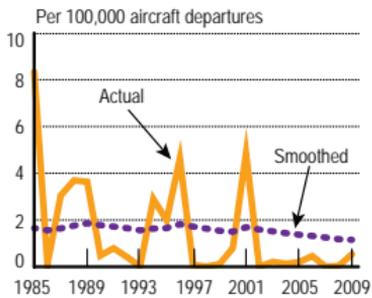
### Large-truck occupants



### Motorcycle riders



### Large air carriers (actual and smoothed fatality rates)



### General aviation



Notes: Not all graph scales are comparable. Air carrier data were smoothed using an exponential smoothing model with a weight of 0.945 to reduce the year-to-year fluctuations. Air carrier fatalities resulting from the Sept. 11, 2001, terrorist attacks include only onboard fatalities. Highway fatality rates for 1999 through 2008 are revised.

Sources: Passenger car occupants, Light-truck occupants, Large-truck occupants, and Motorcycle riders—U.S. Department of Transportation, National Highway Traffic Safety Administration, National Center for Statistics and Analysis, *Traffic Safety Facts*, annual issues, and *2010 Motor Vehicle Crashes: Overview*, available at <http://www-nrd.nhtsa.dot.gov> as of December 2011. Large air carriers and General aviation—National Transportation Safety Board, *Annual Review of Aircraft Accident Data—U.S. Air Carrier Operations and U.S. General Aviation*, available at <http://www.ntsb.gov/> as of October 2011 as reported in U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *National Transportation Statistics*, tables 2-9 and 2-14, available at [http://www.bts.gov/publications/national\\_transportation\\_statistics/](http://www.bts.gov/publications/national_transportation_statistics/) as of December 2011.

## 1-5 Injured Persons by Transportation Mode: 1990, 2000, 2009, 2010

Mode	1990	2000	2009	2010
Air				
Large U.S. air carrier <sup>a</sup>	29	29	23	15
Commuter air carrier <sup>a</sup>	11	7	1	2
On-demand air taxi <sup>a</sup>	36	12	4	6
General aviation <sup>a</sup>	409	309	273	256
Highway <sup>b</sup>	3,230,666	3,188,750	2,217,000	2,243,000
Pipeline, gas and hazardous liquid	76	81	67	111
Railroad <sup>c</sup>	22,736	10,424	7,227	7,376
Transit <sup>d</sup>	54,556	56,697	21,420	23,414
Waterborne				
Vessel-related, commercial ship	175	150	196	139
Nonvessel-related, commercial ship <sup>e</sup>	U	607	377	417
Recreational boating	3,822	4,355	3,358	3,153

<sup>a</sup>Includes serious injuries only. <sup>b</sup>Includes passenger car occupants, motorcyclists, light-duty and large-truck occupants, bus occupants, occupants of unknown vehicle types, pedestrians, pedalcyclists, and other nonmotorists. <sup>c</sup>Injuries resulting from train accidents, train and nontrain incidents, and occupational illness. Includes Amtrak. Also includes train occupants and nonoccupants except motor vehicle occupants at grade crossings. <sup>d</sup>Injuries resulting from all reportable incidents, not just from accidents. Includes commuter rail, heavy rail, light rail, motorbus, on-demand service, van pool, and automated guideway. The drop in the number of injuries in 2008 is due largely to a change in definitions by the Federal Transit Administration. Only injuries requiring immediate medical treatment away from the scene now qualify as reportable. Previously, any injury was reportable. <sup>e</sup>Injuries unrelated to vessel operations.

Key: U = unavailable.

Note: Reporting criteria and/or estimation methods for injuries are not standardized across modes.

Sources: **Air**—National Transportation Safety Board. **Highway**—National Highway Traffic Safety Administration. **Pipeline**—Pipeline and Hazardous Materials Safety Administration. **Railroad**—Federal Railroad Administration. **Transit**—Federal Transit Administration. **Waterborne**—United States Coast Guard as cited in U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *National Transportation Statistics*, table 2-2, available at [http://www.bts.gov/publications/national\\_transportation\\_statistics/](http://www.bts.gov/publications/national_transportation_statistics/) as of December 2011.



## 1-7 Percentage of Crashes Involving Distraction by Crash Severity: 2005-2009

Crash severity	2005	2006	2007	2008	2009
Fatal	10	14	14	16	16
Injury	22	19	18	19	20
Property damage only	21	16	16	16	16
<b>Total</b>	<b>21</b>	<b>17</b>	<b>17</b>	<b>17</b>	<b>17</b>

Source: U.S. Department of Transportation, National Highway Traffic Safety Administration, *Distracted Driving 2009*, available at <http://www.distraction.gov/download/research-pdf/Distracted-Driving-2009.pdf> as of Dec. 22, 2011.

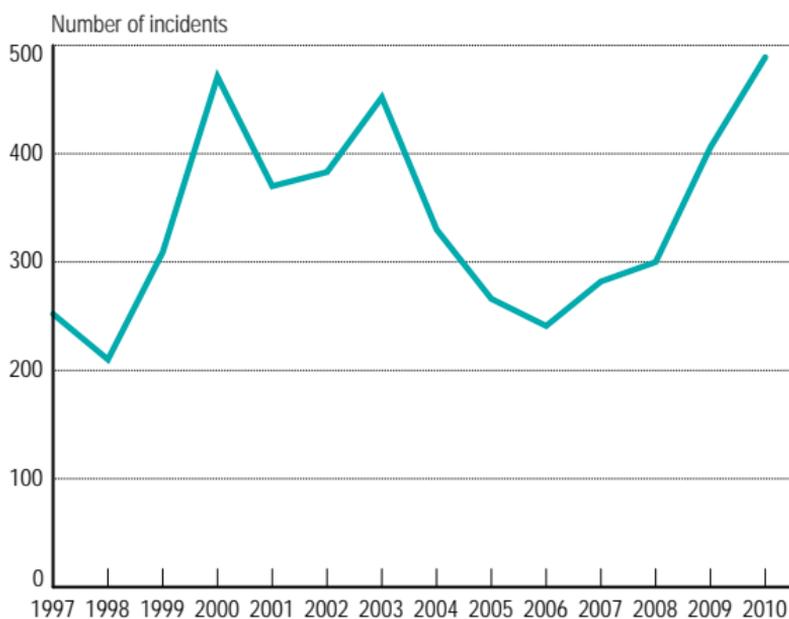
## 1-8 Hazardous Materials Transportation Incidents, Injuries, and Fatalities: 1990, 2000, 2009, 2010

Mode	1990	2000	2009	2010
Highway	7,297	15,063	12,730	12,644
Accident related	249	329	251	320
Injuries	311	164	153	153
Fatalities	8	16	11	8
Rail	1,279	1,058	643	750
Accident related	48	62	37	37
Injuries	73	82	38	13
Fatalities	0	0	1	0
Air	297	1,419	1,356	1,293
Accident related	0	3	2	2
Injuries	39	5	10	2
Fatalities	0	0	0	0
Water	7	17	90	105
Accident related	0	0	0	1
Injuries	0	0	0	2
Fatalities	0	0	0	0
Pipeline				
Natural gas distribution	110	154	158	122
Injuries	52	59	52	46
Fatalities	6	22	9	14
Natural gas transmission	89	80	129	118
Injuries	17	18	11	61
Fatalities	0	15	0	10
Liquid	180	146	338	345
Injuries	7	4	4	4
Fatalities	3	1	4	1

**Notes:** Data for 2009 are revised. Accident-related excludes human errors, package failures, and unreported cases. Water data are for incidents involving packaged materials only and do not include incidents where the vessel is the container (e.g., a barge or oil tanker). Nonpipeline reporting requirements changed in 2002. Pipeline data contain all incidents reported to PHMSA based on the reporting criteria in effect at the time of the incidents. Natural gas transmission includes gathering system.

**Sources:** Highway, Rail, Air, and Water—USDOT, Pipeline and Hazardous Materials Safety Administration (PHMSA), Office of Hazardous Material Safety, *Incident Statistics*, available at <http://www.phmsa.dot.gov/hazmat/library/data-stats> as of October 2011. Pipeline—USDOT, PHMSA, Office of Pipeline Safety, *Accident/Incident Summary Statistics*, available at <http://www.phmsa.dot.gov/pipeline/library/data-stats> as of October 2011.

## 1-9 International Piracy and Armed Robbery at Sea: 1997–2010



**Notes:** Incidents include attempts and threatening actions. The 2008 data are revised.

**Source:** International Maritime Organization, *Reports on Acts of Piracy and Armed Robbery Against Ships: Annual Report*, available at <http://www.imo.org> as of August 2011.

## 2 STATE OF GOOD REPAIR

The U.S. transportation system is an extensive, inter-related public and private network of roads, airports, railroads, transit routes, waterways, terminals, ports, and pipelines. Millions of people and businesses rely on this expanding system to get to work, conduct business, ship goods within the United States and abroad, and travel on vacations. The transportation system links regions, joins urban and rural areas, and connects the United States (people and goods) with the rest of the world.

### 2-1 The Transportation Network: 2010

Mode	Components
Highway <sup>a</sup>	Public roads 47,002 miles of Interstate highway (2009) 117,084 miles of other National Highway System roads (2008) 3,895,244 miles of other roads (2008)
Air	Total airports: 19,802 Public use: 5,175 Private use: 14,353 Military: 274
Rail	Miles of railroad operated 95,700 miles by Class I freight railroads in the United States <sup>b</sup> 12,000 miles by regional freight railroads 32,456 miles by local freight railroads 21,178 miles by Amtrak (passenger) <sup>c</sup>
Urban transit	Directional route-miles <sup>d</sup> Bus: 236,434 <sup>e</sup> Trolley bus: 451 <sup>e</sup> Commuter rail: 7,630 Heavy rail: 1,617 Light rail: 1,497

*continued next page*

2-1—continued

The Transportation Network: 2010

Mode	Components
(cont.)	
Urban transit	Stations Commuter rail: 1,225 Heavy rail: 1,041 Light rail: 848
Water	Navigable channels: 25,320 miles Ferry routes: 697 directional route-miles Commercial waterway facilities <sup>f</sup> Great Lakes: 647 Inland: 1,949 Ocean: 5,588 Lock chambers: 238
Pipeline	Miles of oil pipe Total oil: 176,271 Miles of gas pipe Transmission: 324,984 Distribution: 1,220,999

<sup>a</sup>Highway data are for years indicated. <sup>b</sup>There are also 561 miles of railroad operated within the U.S. Class I freight railroad system that are owned by Canadian railroads. <sup>c</sup>Approximately 97 percent of the trackage on which Amtrak operates is owned by other railroads. <sup>d</sup>Directional route-miles includes both directly operated and purchased transport service. <sup>e</sup>Includes directional route-miles on exclusive right-of-way, controlled right-of-way, and mixed traffic. <sup>f</sup>See Glossary for definitions.

**Sources:** **Highway**—USDOT, FHWA, *Highway Statistics 2009*, table HM-18. **Air**—Public-use airports: FAA as cited in USDOT, RITA, BTS, *National Transportation Statistics*, tables 1-3, as of October 2011. Airports serving large certificated carriers: USDOT, RITA, BTS, *Airport Activity Statistics of Certificated Air Carriers*, Summary Tables, October 2011. **Railroad**—Association of American Railroads, *Railroad Facts 2011*. **Transit**—USDOT, Federal Transit Administration, *National Transit Database 2010*, tables 21, 23, and 24 as of October 2011. **Water**—Commercial waterway facilities—U.S. Army Corps of Engineers, Institute for Water Resources, Navigation Data Center, The U.S. Waterway System Facts, November 2011. Navigable channels—U.S. Army Corps of Engineers as cited in USDOT, RITA, BTS, *National Transportation Statistics*, table 1-1 as of November 2011. **Pipeline**—PHMSA as cited in USDOT, RITA, BTS, *National Transportation Statistics*, tables 1-1 and 1-10 as of October 2011.

## 2-2 Number of Aircraft, Railcars, Vehicles, and Vessels: 1990, 2000, 2008, 2009

Mode	1990	2000	2008	2009
<b>Air</b>				
Air carrier	6,083	8,055	7,856	7,771
General aviation	198,000	217,533	228,663	223,877
<b>Highway</b>				
Light duty vehicles <sup>a</sup>	181,975,051	212,706,399	236,448,155	234,467,679
Buses <sup>b</sup>	626,987	746,125	R 843,308	841,993
Motorcycles	4,259,462	4,346,068	R 7,752,926	7,929,724
<b>Trucks</b>				
Single-unit <sup>c</sup>	4,486,981	5,926,030	R 8,288,046	8,356,097
Combination	1,708,895	2,096,619	R 2,585,229	2,617,118
<b>Rail—Passenger</b>				
Amtrak—Cars	1,863	1,894	1,177	1,214
Amtrak—Locomotives	318	378	278	274
Commuter railcars and locomotives	4,982	5,497	6,494	6,722
Transit <sup>d</sup>	11,477	11,617	13,325	13,520
<b>Rail—freight</b>				
Class I—Freight cars	658,902	560,154	450,297	416,180
Class I—Locomotives	18,835	20,028	24,003	24,045
Other freight cars <sup>e</sup>	553,359	820,642	942,675	947,253
<b>Waterborne</b>				
Non-self-propelled vessels (barges) <sup>f</sup>	31,209	33,152	31,238	31,008
Self-propelled vessels	8,236	8,202	9,063	9,101
Oceangoing ships (1,000 gross tons and over)	636	454	272	196
Recreational boats (numbered boats)	10,996,253	12,782,143	12,692,892	12,721,541

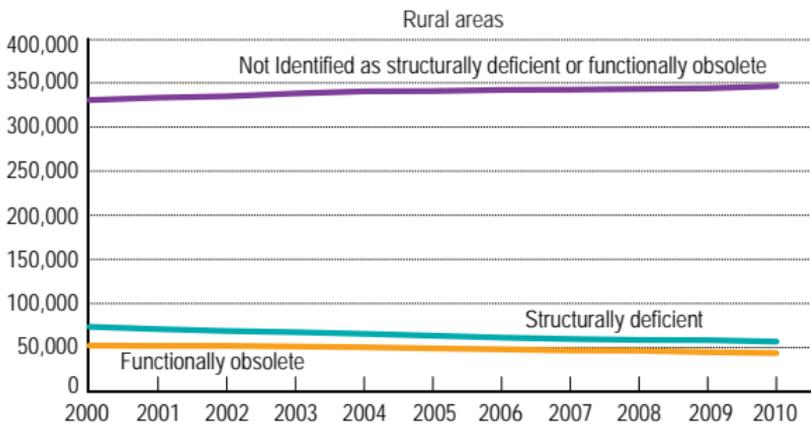
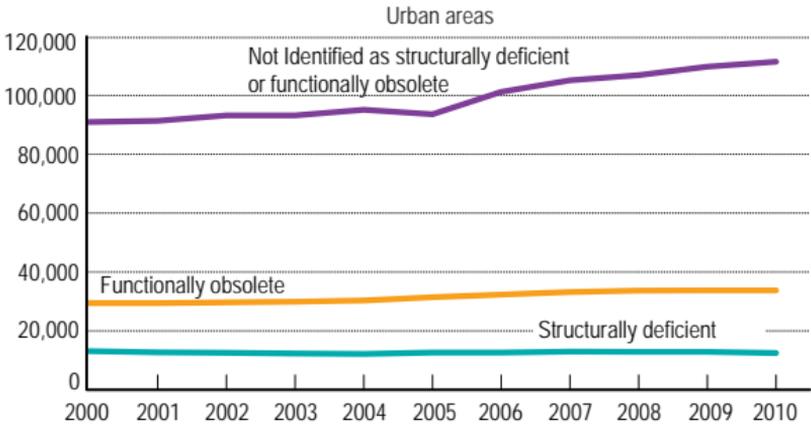
<sup>a</sup>Light duty vehicles include passenger cars, light trucks, vans and sport utility vehicles regardless of wheelbase. <sup>b</sup>Includes municipally owned transit and commercial, Federal, and school buses. <sup>c</sup>Single-unit trucks include single frame trucks that have two axles and at least six tires or a gross vehicle weight rating exceeding 10,000 lbs. <sup>d</sup>Includes light and heavy rail only. <sup>e</sup>Includes Non-class I and car companies' and shippers' freight cars only. <sup>f</sup>See Glossary for definitions.

Key: R = revised.

Notes: In 2011, FHWA revised highway data for 2007 through 2009 using a new methodology. Data for these years are based on new categories and are not comparable to previous years.

Sources: **Air**—Federal Aviation Administration, **Highway**—Federal Highway Administration, **Rail**—Amtrak and Association of American Railroads, **Transit**—American Public Transportation Association, **Waterborne**—U.S. Army, Corps of Engineers, U.S. Coast Guard, and Maritime Administration as cited in U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *National Transportation Statistics*, table 1-11, available at [http://www.bts.gov/publications/national\\_transportation\\_statistics/](http://www.bts.gov/publications/national_transportation_statistics/) as of December 2011.

## 2-3 Condition of U.S. Highway Bridges: 2000–2010



**Note:** *Structurally Deficient* and *Functionally Obsolete* are defined in Glossary.

**Sources:** 2000—U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics; based on data from Federal Highway Administration, Office of Bridge Technology, *National Bridge Inventory*, personal communication, Aug. 14, 2001. 2001–2010—U.S. Department of Transportation, Federal Highway Administration, Office of Bridge Technology, *National Bridge Inventory*, Count of Bridges by Highway System, available at <http://www.fhwa.dot.gov/bridge/britab.htm> as of Aug. 18, 2011.

### 3 SYSTEM USE AND LIVABLE COMMUNITIES

The U.S. transportation system makes possible a high degree of personal mobility and freight activity. This section presents data showing changes in passenger travel and freight shipments over time. Factors influencing these changes include vehicle availability, travel costs, population, congestion, the economy, and consumer income.

#### 3-1 Vehicle Miles: 1990, 2000, 2008, 2009 (millions)

Mode	1990	2000	2008	2009
Air				
Air carrier	3,963	5,662	6,446	5,936
Highway				
Light duty vehicles <sup>a</sup>	1,982,837	2,523,346	2,630,213	2,630,338
Motorcycles	9,557	10,469	20,811	20,800
Buses <sup>b</sup>	5,726	7,590	14,823	14,358
Trucks				
Single unit <sup>c</sup>	51,901	70,500	126,855	120,163
Combination	94,341	135,020	183,826	167,842
Total Highway	2,144,362	2,746,925	2,976,528	2,953,501
Rail <sup>d</sup>				
Transit <sup>e</sup>	561	647	762	775
Commuter	213	271	337	337
Intercity/Amtrak <sup>f</sup>	301	368	272	283
Class I freight	26,159	34,590	37,226	32,115
Other transit <sup>g</sup>	322	628	989	1,061

<sup>a</sup>Light duty vehicles include passenger cars, light trucks, vans and sport utility vehicles regardless of wheelbase. <sup>b</sup>Includes municipally owned transit and commercial, Federal, and school buses. <sup>c</sup>Single unit trucks include single frame trucks that have two axles and at least six tires or a gross vehicle weight rating exceeding 10,000 lbs. <sup>d</sup>Car-miles. <sup>e</sup>Includes light and heavy rail only. Fiscal year data. <sup>f</sup>Includes on-demand service and other unspecified forms of transit.

**Notes:** In 2011, FHWA revised highway data for 2007 through 2009 using a new methodology. Data for these years are based on new categories and are not comparable to previous years.

**Sources:** Air Carrier—Bureau of Transportation Statistics. Highway—Federal Highway Administration. Class I freight and Intercity/Amtrak—Association of American Railroads. Transit and Commuter Rail—American Public Transportation Association and Federal Transit Administration as cited in U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *National Transportation Statistics*, table 1-35, available at [http://www.bts.gov/publications/national\\_transportation\\_statistics/](http://www.bts.gov/publications/national_transportation_statistics/) as of October 2011.

### 3-2 Passenger Miles: 1990, 2000, 2008, 2009 (millions)

Mode	1990	2000	2008	2009
<b>Air</b>				
Air carrier	345,873	518,598	583,281	551,732
<b>Highway</b>				
Light duty vehicles <sup>a</sup>	3,281,144	4,012,121	4,248,783	3,621,589
Buses <sup>b</sup>	121,398	160,919	314,278	304,386
Motorcycles	12,424	11,516	26,430	22,404
<b>Rail</b>				
Transit <sup>c</sup>	12,046	15,183	18,931	19,001
Commuter	7,082	9,400	11,032	11,129
Intercity/Amtrak <sup>d</sup>	6,057	5,498	6,179	5,914
Other transit <sup>e</sup>	841	1,518	2,390	2,500

<sup>a</sup>Light duty vehicles include passenger cars, light trucks, vans and sport utility vehicles regardless of wheelbase. <sup>b</sup>Includes municipally owned transit and commercial, federal, and school buses. <sup>c</sup>Includes light and heavy rail only. <sup>d</sup>Fiscal year data. <sup>e</sup>Includes on-demand service, ferryboat, and other unspecified means of transit.

**Notes:** Highway data for 2007 through 2009 were revised in 2011 using a new methodology developed by FHWA. Data for these years are based on new categories and are not comparable to previous years.

**Sources:** **Air carrier**—Bureau of Transportation Statistics. **Highway**—Federal Highway Administration. **Intercity/Amtrak**—Association of American Railroads. **Transit and Commuter rail**—American Public Transportation Association as cited in U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *National Transportation Statistics*, table 1-40, available at [http://www.bts.gov/publications/national\\_transportation\\_statistics/](http://www.bts.gov/publications/national_transportation_statistics/) as of October 2011.

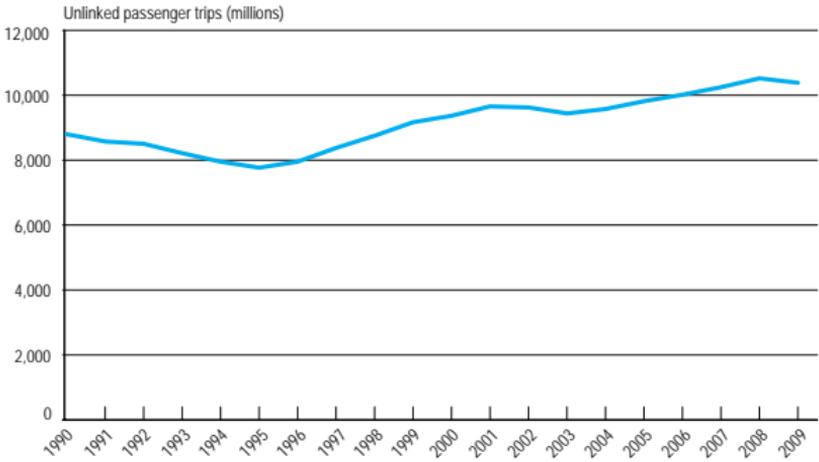
### 3-3 Annual Percent of Person Trips by Transportation Mode: 1990, 1995, 2001, 2009

	1990	1995	2001	2009
Private vehicle	87.8	89.3	86.3	83.4
Transit	1.8	1.8	1.6	1.9
Walk	7.2	5.4	8.6	10.4
Other	3.2	3.2	3.4	4.2
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

Notes: Totals may include some unreported characteristics. The 1990 person and vehicle trips were adjusted to account for survey collection method changes. Transit includes local bus, commuter bus, commuter train, subway, trolley, and streetcar.

Source: U.S. Department of Transportation, Federal Highway Administration, *2009 National Household Travel Survey*, available at <http://nhts.ornl.gov/> as of December 2011.

### 3-4 Trends in Transit Ridership: 1990–2009



Source: American Public Transportation Association, *Public Transportation Fact Book 2011*, available at <http://www.apta.com/resources/statistics/Pages/transit-stats.aspx> as of December 2011.

### 3-5 Passenger Travel and Freight Transportation Per Person: 2009

Passenger Transportation	Daily	Annual
Person trips per person	R 3.79	R 1,383.35
Person miles of travel per person	R 36.13	R 13,187.45
Vehicle trips per driver	3.02	1,102.30
Vehicle miles of travel per driver	28.97	10,574.05

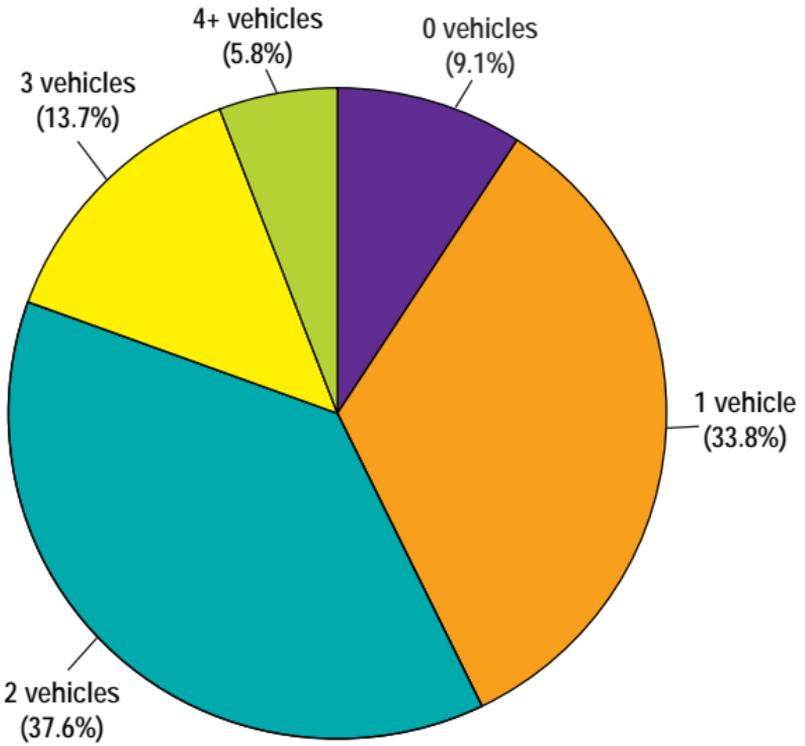
Domestic Freight Transportation (2007)	Annual
Tons per capita	41.6
Ton miles per capita	11,090

Key: R = revised.

Notes: Tons per capita is calculated with BTS methodology based on data from the *2007 Economic Census: Transportation Commodity Flow Survey*. Data based on the *National Household Travel Survey* presented here use the source frame population estimate, which does not include persons under five years of age.

Sources: **Passenger**—U.S. Department of Transportation (USDOT), Federal Highway Administration, *2009 National Household Travel Survey*, available at <http://nhts.ornl.gov/> as of September 2011. **Freight**—U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics and U.S. Department of Commerce, U.S. Census Bureau, *2007 Economic Census: Transportation Commodity Flow Survey*, December 2009. **Population**—U.S. Department of Commerce, U.S. Census Bureau, Population Division, *Annual Population Estimates*, December 2009, available at <http://www.census.gov/popest/estbygeo.html> as of September 2011.

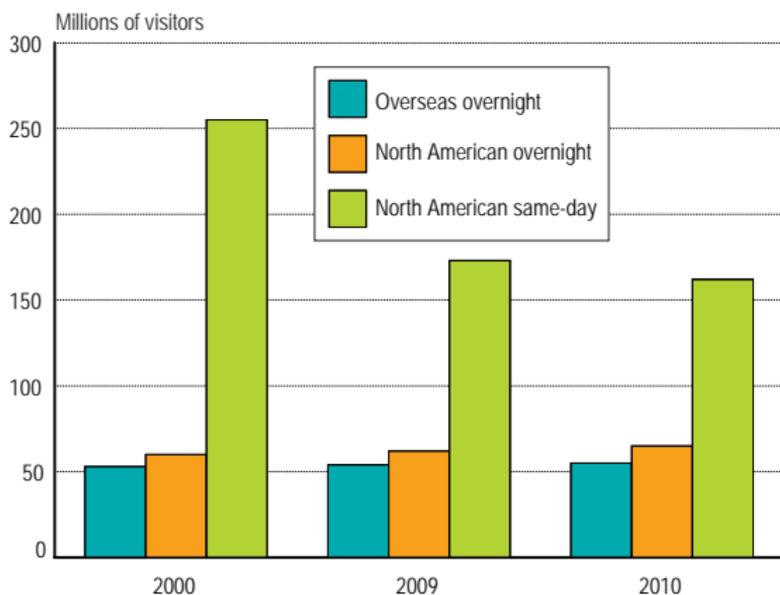
### 3-6 Households by Number of Motor Vehicles: 2010



Note: Data cover the household population and exclude the population living in institutions, college dormitories, and other group quarters.

Source: U.S. Department of Commerce, U.S. Census Bureau, *2010 American Community Survey*, table B25044, available at <http://www.census.gov/acs/www/index.html> as of October 2011.

### 3-7 Foreign Visitors to the United States: 2000, 2009, 2010



**Note:** North American visitors come from Canada and Mexico and overseas visitors come from all other countries.

**Sources:** Overseas overnight and North American overnight—U.S. Department of Commerce, International Trade Administration, Office of Travel and Tourism Industries, *International Visitation to the United States: A Statistical Summary of U.S. Visitation (2010)*, available at <http://tinet.ita.doc.gov> as of October 2011. North American same-day, Canada and North American same-day, Mexico—*North American Transportation Statistics Database*, tables 9-1b and 9-1c, available at <http://nats.sct.gob.mx> as of October 2011.

### 3-8 U.S.-Mexican Border Land-Passenger Entries: 2010 (thousands)

Entering the U.S.

Entering the U.S.	
Total for all U.S.-Mexico crossings	
Personal vehicles	64,045
Personal vehicle passengers	125,750
Buses	219
Bus passengers	2,680
Train passengers and crew	3
Pedestrians	39,915
Personal vehicles—top 5 gateways	
San Ysidro, CA	13,348
El Paso, TX	9,968
Hidalgo, TX	5,604
Laredo, TX	4,864
Brownsville, TX	4,640
Personal vehicle passengers—top 5 gateways	
San Ysidro, CA	23,601
El Paso, TX	17,920
Laredo, TX	10,858
Hidalgo, TX	10,692
Brownsville, TX	9,292
Buses—top 5 gateways	
San Ysidro, CA	71
Laredo, TX	44
Otay Mesa, CA	35
El Paso, TX	23
Hidalgo, TX	20
Bus passengers—top 5 gateways	
Laredo, TX	902
San Ysidro, CA	550
El Paso, TX	400
Hidalgo, TX	311
Nogales, AZ	167
Train passengers and crew—top 3 gateways <sup>a</sup>	
Nogales, AZ	2.4
Otay Mesa, CA	0.5
Calexico East, CA	0.4

*continued next page*

### 3-8—continued

## U.S.-Mexican Border Land-Passenger Entries: 2010 (thousands)

	Entering the U.S.
<hr/>	
Pedestrians—top 5 gateways	
El Paso, TX	6,930
San Ysidro, CA	6,440
Calexico, CA	4,587
Nogales, AZ	3,971
Laredo, TX	3,588

<sup>a</sup>There are eight total U.S.-Mexico Ports of Entry for rail. Train service across the Tecate, CA port was suspended in 2010 due to fire damage. Four ports are in Texas where train crews are exchanged at the border, resulting in no new entry of persons into the United States. Therefore, no persons are recorded as entering the country by train at Texas Ports of Entry. There is no regularly scheduled rail passenger service across the border.

**Note:** BTS obtains these data on a quarterly basis from U.S. Customs and Border Protection. BTS then assesses, analyzes, summarizes, and disseminates monthly and annual border crossing/entry data. Most data elements are available beginning in 1994.

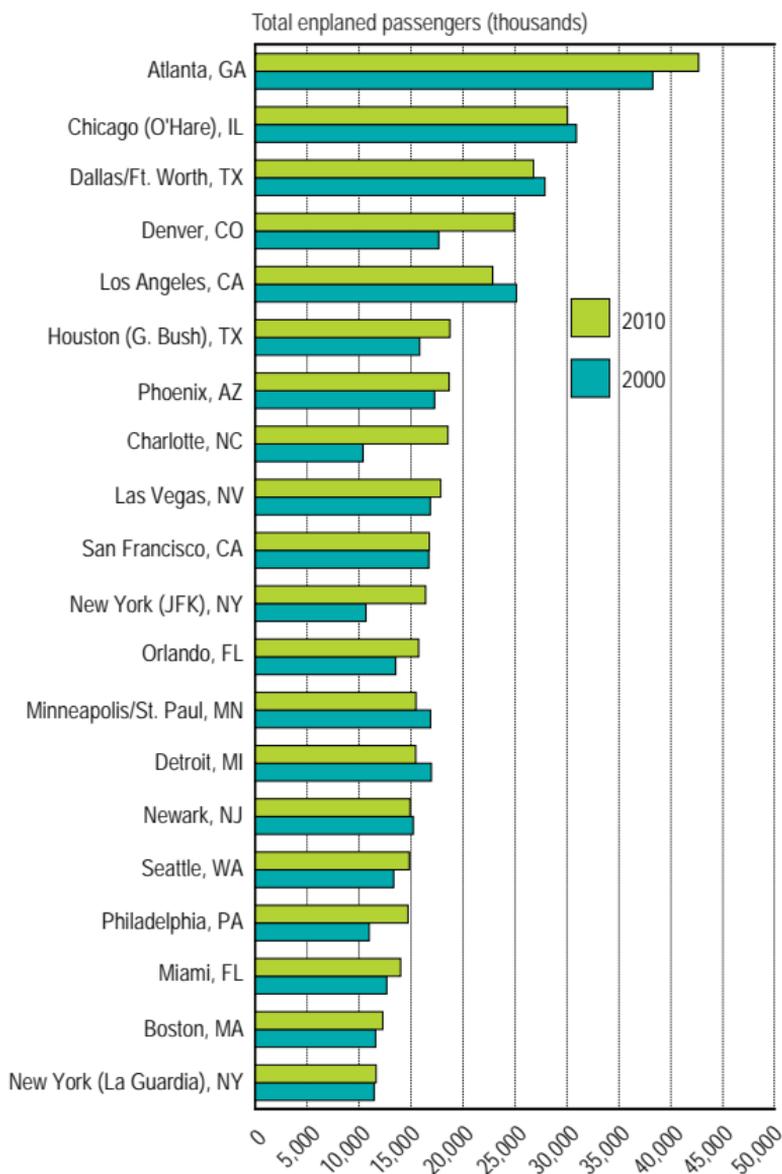
**Source:** U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *Border Crossing/Entry Data*, available at <http://www.bts.gov/programs/international/> as of July 2011 as reported in U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *National Transportation Statistics*, table 1-48, available at [http://www.bts.gov/publications/national\\_transportation\\_statistics/](http://www.bts.gov/publications/national_transportation_statistics/) as of September 2011.

### 3-9 U.S.-Canadian Border Land-Passenger Entries: 2010 (thousands)

	Entering the U.S.
<hr/>	
Total for all U.S.-Canada crossings	
Personal vehicles	28,884
Personal vehicle passengers	56,789
Buses	116
Bus passengers	2,451
Train passengers and crew	255
Pedestrians	395
Personal vehicles—top 5 gateways	
Buffalo-Niagara Falls, NY	5,478
Detroit, MI	4,051
Blaine, WA	3,366
Port Huron, MI	1,651
Calais, ME	1,055
Personal vehicle passengers—top 5 gateways	
Buffalo-Niagara Falls, NY	11,918
Detroit, MI	7,218
Blaine, WA	6,996
Port Huron, MI	3,443
Champlain-Rouses Point, NY	2,239
Buses—top 5 gateways	
Detroit, MI	29
Buffalo-Niagara Falls, NY	26
Blaine, WA	16
Skagway, AK	10
Champlain-Rouses Point, NY	9
Bus passengers—top 5 gateways	
Buffalo-Niagara Falls, NY	745
Champlain-Rouses Point, NY	369
Blaine, WA	332
Detroit, MI	269
Skagway, AK	145
Train passengers and crew—top 5 gateways	
Skagway, AK	72
Blaine, WA	61
Champlain-Rouses Point, NY	42
Buffalo-Niagara Falls, NY	31
Port Huron, MI	8
Pedestrians—top 5 gateways	
Buffalo-Niagara Falls, NY	259
Sumas, WA	28
International Falls, MN	22
Detroit, MI	17
Point Roberts, WA	14

Source: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *Border Crossing/Entry Data*, available at <http://www.bts.gov/programs/international/> as of July 2011 as reported in U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *National Transportation Statistics*, table 1-47, available at [http://www.bts.gov/publications/national\\_transportation\\_statistics/](http://www.bts.gov/publications/national_transportation_statistics/) as of September 2011.

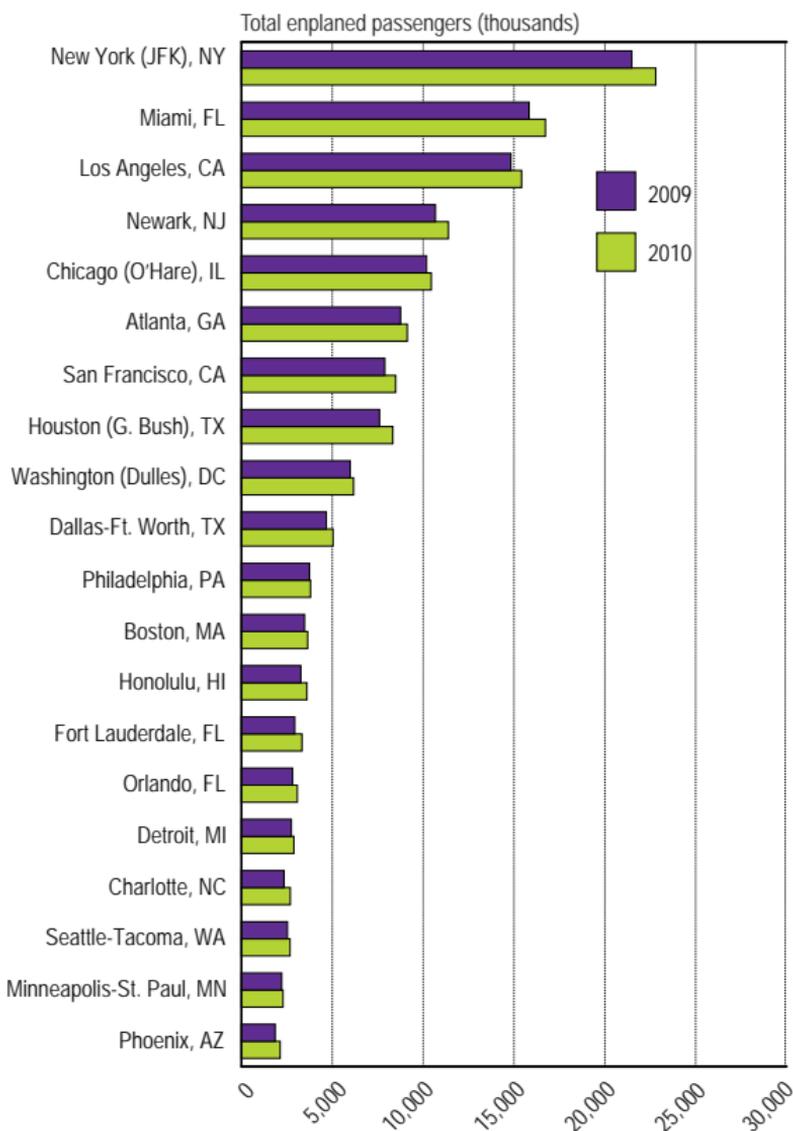
### 3-10 Top 20 U.S. Passenger Airports, Enplaned Passengers: 2000 and 2010



Notes: The 2000 top 20 airports total does not reflect the total of this table because some airports that appeared in the 2000 top 20 did not appear in the 2010 top 20. Charlotte, NC was not in the top 20 in 2000. St. Louis (STL), MO was in the top 20 in 2000 but not in 2010.

Source: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *Schedule T-3 Data*, special tabulation, April 2011 as reported in U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *National Transportation Statistics*, table 1-44, available at [http://www.bts.gov/publications/national\\_transportation\\_statistics/](http://www.bts.gov/publications/national_transportation_statistics/) as of September 2011.

### 3-11 Top 20 U.S. Gateways for Nonstop International Air Travel, Enplaned Passengers: 2009 and 2010



Notes: Ranked by 2010 passengers. International passengers are residents of any country traveling nonstop to and from the United States on U.S. and foreign carriers. Data cover all passengers arriving and departing from U.S. airports on nonstop commercial international flights with 60 seats or more.

Source: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, Office of Airline Information, *T-100 International Segment Data*, special calculation, September 2011.

### 3-12 Top 20 World Airports by Passenger Movements<sup>a</sup>: 2009 and 2010 (thousands of passengers enplaned, deplaned, and in-transit at airport)

2010 Rank	City (airport)	2009	2010	Percent change 2009–2010
1	<b>Atlanta, GA (Hartsfield)</b>	88,032	89,332	1.5
2	Beijing, China (Beijing Capital)	65,372	73,948	13.1
3	<b>Chicago, IL (O'Hare)</b>	<b>64,158</b>	<b>66,775</b>	4.1
4	London, England (Heathrow)	66,038	65,884	-0.2
5	Tokyo, Japan (Haneda)	61,904	64,211	3.7
6	<b>Los Angeles, CA (Los Angeles)</b>	<b>56,521</b>	<b>59,070</b>	4.5
7	Paris, France (Charles de Gaulle)	57,907	58,167	0.4
8	<b>Dallas/Ft Worth, TX (Dallas/Ft. Worth)</b>	<b>56,030</b>	<b>56,907</b>	1.6
9	Frankfurt, Germany (Frankfurt)	50,933	53,009	4.1
10	<b>Denver, CO (Denver)</b>	<b>50,167</b>	<b>52,209</b>	4.1
11	Hong Kong, China (Hong Kong)	45,559	50,349	10.5
12	Madrid, Spain (Barajas)	48,251	49,845	3.3
13	Dubai, United Arab Emirates (Dubai)	40,902	47,181	15.4
14	<b>New York, NY (JFK)</b>	<b>45,915</b>	<b>46,514</b>	1.3
15	Amsterdam, Netherlands (Schiphol)	43,570	45,212	3.8
16	Jakarta, Indonesia (Soekarno–Hatta)	37,144	44,356	19.4
17	Bangkok, Thailand (Suvarnabhumi)	40,500	42,785	5.6
18	Changi, Singapore (Singapore)	37,204	42,039	13.0
19	Guangzhou, China (Guangzhou Baiyun)	37,049	40,976	10.6
20	Shanghai, China (Shanghai Pudong)	32,103	40,579	26.4

<sup>a</sup>Passenger movements include enplanements and deplanements, with in-transit passengers counted once. Both domestic and international passenger movements are included. General aviation passengers are excluded.

Notes: Airports include those participating in the ACI annual traffic statistics collection as of Aug. 1, 2011. Airports are ranked based on 2010 data. The value in the third column is the percent change in passengers enplaned, deplaned, and in-transit from 2009 to 2010.

Source: Airports Council International, *Annual Traffic Data*, available at [http://www.airports.org/cda/aci\\_common/display/main/aci\\_content07\\_c.jsp?zn=aci&cp=1-5-54-55\\_666\\_2\\_\\_](http://www.airports.org/cda/aci_common/display/main/aci_content07_c.jsp?zn=aci&cp=1-5-54-55_666_2__) as of September 2011.

### 3-13 Percentage of On-time Arrivals at Major U.S. Airports: 2000 and 2010

#### Top five

1990			2010		
Rank	Airport	Percentage	Rank	Airport	Percentage
1	Washington, DC (IAD)	84.3	1	Seattle, WA (SEA)	85.1
2	Charlotte, NC (CLT)	83.5	2	Phoenix, AZ (PHX)	85.1
3	Las Vegas, NV (LAS)	82.6	3	Portland, OR (PDX)	83.7
4	Salt Lake City, UT (SLC)	82.5	4	Denver, CO (DEN)	83.6
5	Washington, DC (DCA)	82.1	5	Charlotte, NC (CLT)	82.9

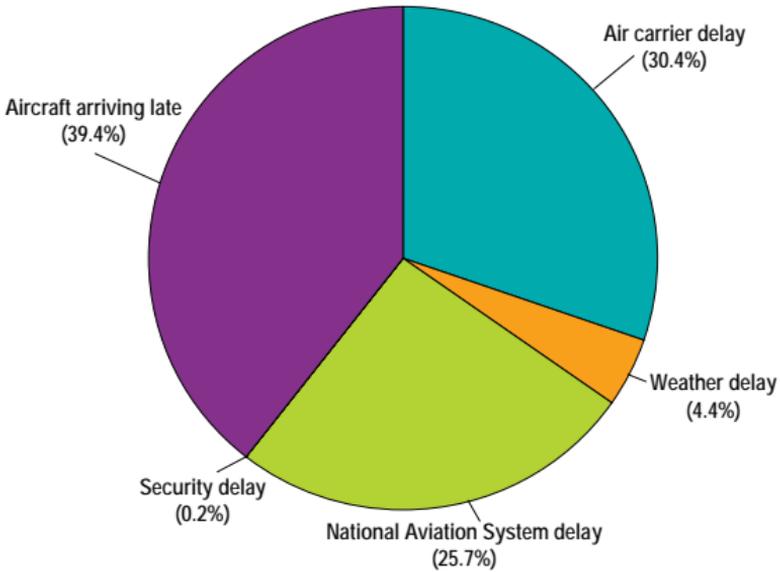
#### Bottom five

1990			2010		
Rank	Airport	Percentage	Rank	Airport	Percentage
5	New York, NY (LGA)	74.2	5	Boston, MA (BOS)	76.3
4	Philadelphia, PA (PHL)	73.8	4	New York, NY (JFK)	74.7
3	New York, NY (JFK)	73.6	3	New York, NY (LGA)	73.7
2	Newark, NJ (EWR)	72.3	2	Newark, NJ (EWR)	71.9
1	Seattle, WA (SEA)	72.2	1	San Francisco, CA (SFO)	71.3

Notes: On-time flights arrive within 15 minutes of scheduled arrival time. Major airports are airports that enplane one percent or more of scheduled-service passengers.

Source: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *Airline On-Time Performance Data (December Issues)*, table 4, available at [http://www.bts.gov/programs/airline\\_information/airline\\_ontime\\_tables](http://www.bts.gov/programs/airline_information/airline_ontime_tables) as of September 2011.

### 3-14 Percentage of Flight Delay Minutes by Cause: 2010



**Notes:** A flight is considered delayed when it arrives 15 or more minutes later than the scheduled arrival. Delayed minutes are calculated for delayed flights only. When multiple causes are assigned to one delayed flight, each cause is prorated based on delayed minutes it is responsible for; the displayed numbers are rounded and may not add up to the total.

**Source:** U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, Airline Service Quality Performance 234 as of December 2011.

### 3-15 Amtrak On-Time Performance Trends and Hours of Delay by Cause: 2008–2011

	2008	2009	2010	2011
<b>On-time performance</b>				
Total (weighted)	71.2%	80.4%	79.7%	78.1%
Short distance (<400 miles) <sup>a</sup>	73.6%	81.1%	80.5%	79.7%
Long distance (>400 miles)	52.0%	75.5%	73.7%	65.8%
<b>Hours of delay by cause</b>				
Total <sup>b</sup>	94,566	79,304	79,976	86,021
Amtrak <sup>c</sup>	23,223	21,813	23,404	26,121
Host railroad <sup>d</sup>	64,724	46,842	44,090	48,707
Other <sup>e</sup>	6,618	10,648	12,482	11,192

<sup>a</sup>Includes all Amtrak Northeast Corridor and Empire Service (New York State) trains. <sup>b</sup>Numbers may not add to totals due to rounding. <sup>c</sup>Includes all delays when operating on Amtrak-owned tracks and delays for equipment or engine failure, passenger handling, holding for connections, train servicing, and mail/baggage handling when on tracks of a host railroad. <sup>d</sup>Includes all operating delays not attributable to Amtrak when operating on tracks of a host railroad (e.g., track- and signal-related delays, power failures, freight and commuter train interference, routing delays). <sup>e</sup>Includes delays not attributable to Amtrak or host railroads (e.g., customs and immigration, law enforcement action, weather, or waiting for scheduled departure time).

**Notes:** All percentages are based on Amtrak's fiscal year. Host railroad is a freight or commuter railroad over which many Amtrak trains operate for all or part of their trips. Amtrak trains are considered on time if the actual arrival time at the endpoint is within the minutes of scheduled arrival time as shown on the following chart. Trip length is based on the total distance traveled by that train from origin to destination:

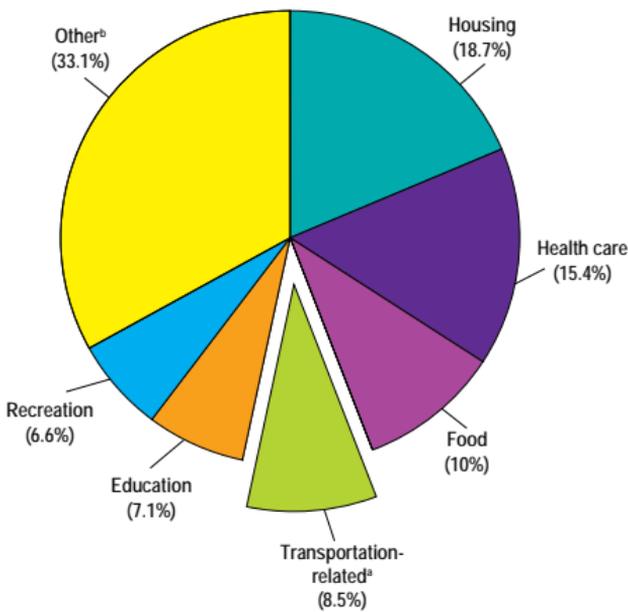
Trip length (miles)	Train is on-time at endpoint if within:
0–250	10 minutes or less
251–350	15 minutes or less
351–450	20 minutes or less
451–550	25 minutes or less
> 551	30 minutes or less

Source: National Railroad Passenger Corp. (Amtrak), personal communication, October 2011.

## 4 ECONOMIC COMPETITIVENESS

Transportation is a major sector of the U.S. economy. It moves people and goods, employs millions of workers, generates revenue, and consumes resources and services produced by other sectors of the economy. In 2010, transportation-related goods and services contributed \$1.3 trillion to the \$14.5 trillion U.S. Gross Domestic Product.

### 4-1 U.S. Gross Domestic Product by Major Spending Category: 2010



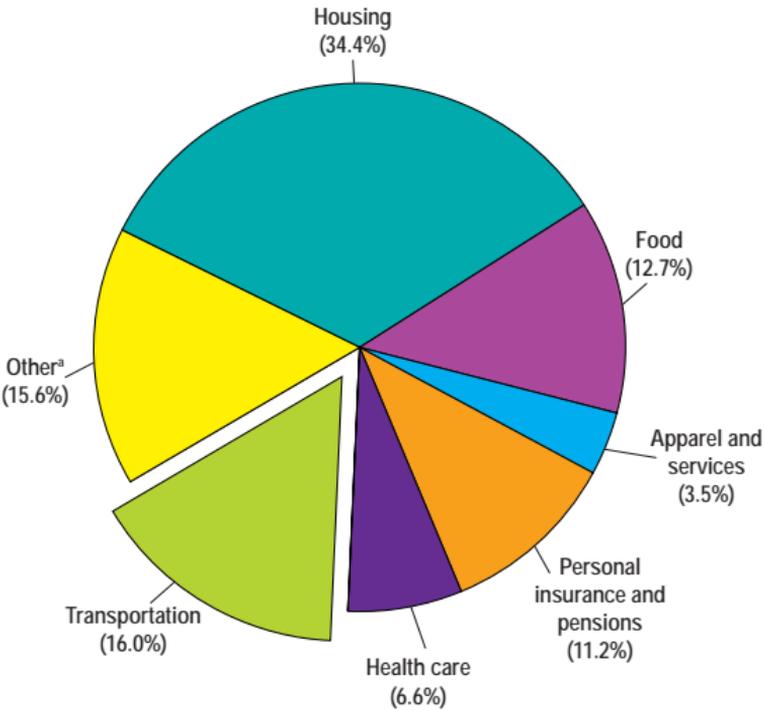
<sup>a</sup>Includes transportation-related goods (e.g., vehicles and fuel) and services (e.g., auto insurance), private investment in transportation-related structures and equipment, net exports related to transportation, and change in motor vehicles inventory.

<sup>b</sup>Includes all other categories.

**Note:** Percents do not sum to 100 due to rounding.

**Source:** U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, calculated based on data from U.S. Department of Commerce, Bureau of Economic Analysis, *National Income and Product Account Tables*, available at <http://www.bea.gov/national/nipaweb/Index.asp> as of October 2011 as reported in U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *National Transportation Statistics*, table 3-5, available at [http://www.bts.gov/publications/national\\_transportation\\_statistics/](http://www.bts.gov/publications/national_transportation_statistics/) as of October 2011.

## 4-2 Average Household Expenditures by Major Spending Category: 2010 (current dollars)



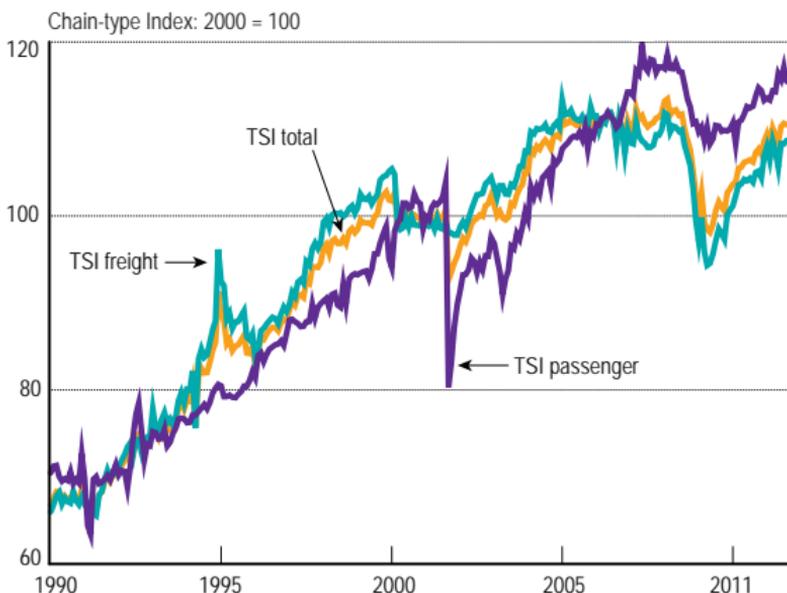
### Household Transportation Expenditures

Private vehicle expenditures	=	\$7,184
Vehicle purchases	=	\$2,588
Gasoline and motor oil	=	\$2,132
Other vehicle expenditures	=	\$2,464
Public transportation expenditures	=	\$493
Airline fares	=	\$325
Mass transit fares	=	\$67
Ship fares	=	\$39
Taxi fares	=	\$23
Intercity train fares	=	\$16
Local transportation on out-of-town trips	=	\$11
Intercity bus fares	=	\$10
School bus	=	\$2
<b>Total</b>	<b>=</b>	<b>\$7,677</b>

<sup>a</sup>Includes alcoholic beverages, entertainment, personal care products and services, reading, education, tobacco products and smoking, miscellaneous, and others.

Source: U.S. Department of Labor, Bureau of Labor Statistics, *Consumer Expenditure Survey, 2010*, personal communication, October 2011.

### 4-3 Transportation Services Index (TSI): January 1990–August 2011 (seasonally adjusted)



**Notes:** May–August 2011 data are preliminary. The TSI total is a monthly measure of the volume of services provided by for-hire transportation industries in the United States using 2000 as the base year.

**Source:** U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics (BTS), special calculation, available at <http://www.bts.gov/xml/tsi/src/index.xml> as of October 2011.

#### 4-4 Employment in Transportation and Selected Transportation-Related Industries<sup>a</sup>: 1990, 2000, 2009 and 2010 (thousands)

	1990	2000	2009	2010
Total U.S. labor force (Nonfarm)	109,487	131,785	130,807	129,818
Total transportation related labor force <sup>b</sup>	12,316	13,907	12,224	U
Transportation as a percent of U.S. total	11.2	10.6	9.3	U
For-hire transport & warehousing	3,476	4,410	4,236	4,184
Air	529	614	463	464
Water	57	56	63	63
Railroad	272	232	218	215
Transit/ground passenger transportation	274	372	422	432
Pipeline	60	46	43	42
Trucking	1,122	1,406	1,268	1,244
Support activities	364	537	549	540
Scenic/sightseeing transportation	16	28	28	27
Couriers/messengers	375	605	546	527
Warehousing/storage	407	514	637	628
Related services & construction	5,256	6,177	5,426	5,333
Automotive repair services/parking; automotive equipment rental/leasing; gasoline stations	1,800	2,125	1,910	1,890
Highway, street, bridge construction	289	340	291	289
Dealers or wholesalers of motor vehicles, parts, petroleum, supplies, equipment	1,993	2,360	2,082	2,060
Travel arrangement/reservation services	250	299	194	187
Ambulatory health care services	99	173	246	251
Postal service	825	880	703	656
Transportation-related manufacturing <sup>c</sup>	2,683	2,447	1,668	1,643
Government <sup>b</sup>	903	873	893	U

<sup>a</sup>Annual averages. Data are NAICS-based. See Glossary for definition. <sup>b</sup>Fiscal year data. Includes U.S. DOT and state and local personnel. State and local component of government employment includes highway, air, transit, and water modes. <sup>c</sup>Includes transportation equipment; petroleum products; tires; rubber; plastics; search, detection, navigation, guidance, aeronautical, and nautical systems; and instrument manufacturing.

Key: U = unavailable.

Notes: Data for 2009 are revised. Due to independent rounding, individual components may not add to total. U.S. Coast Guard employees are excluded from government for years 2003 and after. This table does not include in-house employment.

Sources: Total and transportation-related labor force—Bureau of Labor Statistics. Government—U.S. Census Bureau and U.S. Department of Transportation as cited in U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *National Transportation Statistics*, table 3-23, available at [http://www.bts.gov/publications/national\\_transportation\\_statistics/](http://www.bts.gov/publications/national_transportation_statistics/) as of October 2011.

#### 4-5 U.S. Trade in Transportation-Related Commodities: 2010 (millions of current U.S. dollars)

Commodity and HTS code	Exports	Imports	Total trade <sup>a</sup>	Trade balance <sup>b</sup>
Motor vehicles and parts (87)	98,997	182,925	281,922	-83,928
Aircraft, spacecraft, and parts (88)	79,266	18,949	98,215	60,318
Ships, boats, and floating structures (89)	2,618	1,589	4,206	1,029
Railway or tramway locomotives and parts (86)	2,487	1,405	3,892	1,082
Total, transportation commodities	183,368	204,867	388,235	-21,500
<b>Total, all commodities</b>	<b>1,277,504</b>	<b>1,912,092</b>	<b>3,189,596</b>	<b>-634,588</b>
Transportation commodities share of trade	14.4%	10.7%	12.2%	3.4%

<sup>a</sup>Total trade = exports plus imports. <sup>b</sup>Trade balance = exports minus imports.

Key: HTS = Harmonized Tariff Schedule.

Notes: The HTS codes are classification categories from the Harmonized Tariff Schedule and may not include all transportation-related commodities. Classification category (87) also includes bicycles, wheelchairs, and baby carriages.

Source: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics; special calculation based on data from U.S. Department of Commerce, *U.S. International Trade Commission, Interactive Tariff and Trade DataWeb*, available at <http://dataweb.usitc.gov> as of September 2011.

## 4-6 U.S. Domestic Freight Shipments by Mode: 2007

Mode	Value (\$ billions)	Tons (millions)	Ton-miles (billions)
<b>Total</b>	<b>11,685</b>	<b>12,543</b>	<b>3,345</b>
Single modes	9,539	11,698	2,894
Truck <sup>a</sup>	8,336	8,779	1,342
Rail	436	1,861	1,344
Water	115	404	157
Air (including truck and air)	252	4	5
Pipeline <sup>b</sup>	400	651	S
Multiple modes	1,867	574	417
Parcel, USPS, or courier	1,562	34	28
Truck and rail	187	226	197
Truck and water	58	146	98
Rail and water	14	55	47
Other multiple modes	45	114	46
Other and unknown modes	279	272	34

<sup>a</sup>Truck as a single mode includes any shipment made by private truck only, by for-hire truck only, or by a combination of private and for-hire truck. <sup>b</sup>Estimates for pipeline exclude shipments of crude petroleum.

**Key:** S = Estimate does not meet publication standards because of high sampling variability or poor response quality.

**Notes:** The data presented in this table exclude shipments from entities classified in forestry, fishing, utilities, construction, transportation, and most retail and services industries. Farms and government-owned entities were also excluded. Also excluded are most imports and commodities shipped from a foreign location to another foreign destination that pass through the United States. Other and unknown modes refers to shipments using modes not listed above or any shipment for which the mode of transportation could not be determined.

**Source:** U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics and U.S. Department of Commerce, U.S. Census Bureau, *2007 Economic Census: Transportation 2007 Commodity Flow Survey*, December 2009.

## 4-7 Value of U.S. International Merchandise Trade by Mode of Transportation: 2010 (millions of current U.S. dollars)

	Exports	Modal percentage	Imports	Modal percentage	Total trade	Total modal percentage
<b>Total</b>	<b>1,277,504</b>	<b>100.0</b>	<b>1,912,092</b>	<b>100.0</b>	<b>3,189,596</b>	<b>100.0</b>
Water	455,460	35.7	978,799	51.2	1,434,259	45.0
Air	392,634	30.7	444,319	23.2	836,953	26.2
Truck	284,698	22.3	272,186	14.2	556,884	17.5
Rail	45,748	3.6	85,480	4.5	131,228	4.1
Pipeline	5,189	0.4	57,744	3.0	62,933	2.0
Other, unknown & miscellaneous	93,774	7.3	73,564	3.8	167,337	5.2

**Notes:** Individual categories may not sum to totals due to rounding. Excludes intransit data (merchandise shipped from one foreign country to another via a U.S. port). **Imports**—excludes imports valued at less than \$1,250. Import value is based on U.S. general imports, customs value basis. **Exports**—excludes exports valued at less than \$2,500. Export value is FAS (free alongside ship) and represents the value of exports at the port of export, including the transaction price and inland freight, insurance, and other charges. The data for other, unknown & miscellaneous are derived by subtracting the sum of water, air, truck, rail, and pipeline from the total value of merchandise trade.

**Sources:** **Total, water and air**—U.S. Department of Commerce, U.S. Census Bureau, Foreign Trade Division, *FT920 U.S. Merchandise Trade: Selected Highlights*, December 2010, available at [http://www.census.gov/foreign-trade/Press-Release/ft920\\_index.html](http://www.census.gov/foreign-trade/Press-Release/ft920_index.html) as of September 2011. **Truck, rail, and pipeline**—U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *Transborder Freight Data*, available at <http://www.bts.gov/programs/international/transborder/> as of September 2011.

## 4-8 Weight of U.S.-International Merchandise Trade by Mode of Transportation: 2010 (thousands of short tons)

	Exports	Modal percent	Imports	Modal percent	Total trade	Total modal percent
<b>Total</b>	<b>755,626</b>	<b>100.0</b>	<b>1,127,282</b>	<b>100.0</b>	<b>1,882,908</b>	<b>100.0</b>
Water <sup>a</sup>	575,053	76.1	863,391	76.6	1,438,444	76.4
Air	3,775	0.5	4,431	0.4	8,206	0.4
Truck <sup>b</sup>	101,570	13.4	85,693	7.6	187,263	9.9
Rail <sup>b</sup>	59,968	7.9	74,292	6.6	134,260	7.1
Pipeline <sup>b</sup>	9,205	1.2	96,945	8.6	106,150	5.6
Other, unknown, & miscellaneous <sup>b</sup>	6,055	0.8	2,531	0.2	8,586	0.5

<sup>a</sup>The weight data for water transportation vary from those officially reported by the U.S. Army Corps of Engineers, because the data in this table exclude intransit shipments (merchandise shipped from one foreign country to another via a U.S. port but not part of U.S. official merchandise trade). BTS uses U.S. Census Bureau trade-based data to allow for a complete modal comparison among the different freight transportation modes. <sup>b</sup>BTS estimated the weight of exports for truck, rail, pipeline, mail and other and unknown modes based on the import weight-to-value ratios that vary by country, mode, and commodity. The import weight-to-value ratios at the four- and two-digit Harmonized Tariff Schedule code commodity detail are applied. Since the weight-to-value ratio of a given commodity drastically change from one year to another, BTS removed the irregular components (outliers) of the import ratios to produce a consistent and reliable export weight estimates.

**Notes:** Individual categories may not sum to totals due to rounding. Excludes intransit data (merchandise shipped from one foreign country to another via a U.S. port). Imports—excludes imports valued at less than \$1,250. Import value is based on U.S. general imports, customs value basis. Exports—excludes exports valued at less than \$2,500. Export value is FAS (free alongside ship) and represents the value of exports at the port of export, including the transaction price and inland freight, insurance, and other charges.

**Sources:** **Water and air**—U.S. Department of Commerce, U.S. Census Bureau, Foreign Trade Division, *FT920 U.S. Merchandise Trade: Selected Highlights* (December Issues), available at [http://www.census.gov/foreign-trade/Press-Release/ft920\\_index.html](http://www.census.gov/foreign-trade/Press-Release/ft920_index.html) as of September 2011. **Truck, rail, pipeline and other, unknown, and miscellaneous**—U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *TransBorder Freight Data*, available at <http://www.bts.gov/programs/international/transborder/> as of September 2011, and BTS special calculation, September 2011.

## 4-9 U.S. Merchandise Trade with Canada and Mexico by Mode Share: 2010

Mode	Value (percent)	Weight (percent)
<b>NAFTA trade, total</b>	<b>100.0</b>	<b>100.0</b>
Truck <sup>a</sup>	60.7	29.0
Rail <sup>a</sup>	14.3	20.8
Pipeline <sup>a</sup>	6.9	16.4
Air	4.9	0.1
Water	8.9	32.4
Other and unknown <sup>a</sup>	4.4	1.3
<b>U.S.-NAFTA imports, total</b>	<b>100.0</b>	<b>100.0</b>
Truck	53.8	21.1
Rail	16.9	18.3
Pipeline	11.4	23.9
Air	4.0	0.0
Water	11.5	36.0
Other and unknown	2.4	0.6
<b>U.S.-NAFTA exports, total</b>	<b>100.0</b>	<b>100.0</b>
Truck <sup>a</sup>	69.2	42.2
Rail <sup>a</sup>	11.1	24.9
Pipeline <sup>a</sup>	1.3	3.8
Air	6.0	0.1
Water	5.6	26.5
Other and unknown <sup>a</sup>	6.8	2.5

<sup>a</sup>Because export weights for surface modes are not currently reported, BTS estimated the export weight for truck, rail, pipeline, and other and unknown based on value-to-weight ratios from the import data.

**Note:** U.S. North American Free Trade Agreement (NAFTA) refers to U.S. trade with Canada and Mexico.

**Source:** U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *Transborder Freight Data*, available at <http://www.bts.gov/programs/international/transborder/> as of September 2011, and BTS special calculation, September 2011.

#### 4-10 Top 20 U.S.-International Trade Freight Gateways by Value of Shipments: 2010 (billions of current dollars)

Rank	Gateway	Exports	Imports	Total
1	Los Angeles, CA (w)	33.7	202.6	236.3
2	New York, NY and NJ (w)	46.3	125.1	171.3
3	JFK International Airport, NY (a)	81.9	77.7	159.6
4	Houston, TX (w)	70.7	60.2	130.9
5	Laredo, TX (l)	57.3	63.7	121.0
6	Detroit, MI (l)	62.8	48.2	111.0
7	Chicago, IL (a)	35.3	75.3	110.7
8	Long Beach, CA (w)	31.8	56.6	88.4
9	Los Angeles Intl. Airport, CA (a)	36.9	40.5	77.4
10	Port Huron, MI (l)	34.7	38.7	73.5
11	Buffalo-Niagara Falls, NY (l)	37.4	35.3	72.7
12	Savannah, GA (w)	24.2	34.4	58.6
13	New Orleans, LA (a)	22.7	35.0	57.7
14	El Paso, TX (l)	23.9	31.7	55.6
15	Charleston, SC (w)	19.4	30.8	50.2
16	San Francisco Int'l Airport, CA (a)	27.4	22.6	49.9
17	Miami Int'l Airport, FL (a)	34.5	15.3	49.9
18	Norfolk, VA (w)	20.3	26.3	46.6
19	Anchorage, AK (a)	9.8	34.9	44.7
20	Seattle, WA (w)	10.0	32.7	42.8

Key: a = airport; l = land port; w = water port.

**Notes:** Air gateways include a low level (generally less than 3 percent of the total value) of freight shipped through small user-fee airports located in the same area as the gateways listed. Air gateways not identified by airport name (e.g., Chicago, IL) include major airport(s) in that area and small regional airports. Due to Census Bureau confidentiality regulations, courier operations are included in airport totals for only New York (JFK), Los Angeles, Chicago, and Anchorage.

**Sources:** **Air and Water**—calculations based on data from U.S. Department of Commerce, U.S. Census Bureau, Foreign Trade Division, *USA Trade Online*, available at <http://data.usatradeonline.gov/> as of September 2011. **Land**—U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *TransBorder Freight Data* as cited in U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *National Transportation Statistics*, table 1-51, available at [http://www.bts.gov/publications/national\\_transportation\\_statistics/](http://www.bts.gov/publications/national_transportation_statistics/) as of September 2011.

## 4-11 Top 20 U.S. Water Ports by Shipment Weight & Top 20 U.S. Water Ports by Container TEUs: 2009

Port by shipment weight	Short tons (millions)	Port by container TEUs	Full TEUs (thousands)
South Louisiana, LA	212.6	Los Angeles, CA	4,919
Houston, TX	211.3	Long Beach, CA	4,064
New York, NY and NJ	144.7	New York, NY and NJ	3,761
Long Beach, CA	72.5	Savannah, GA	1,899
Corpus Christi, TX	68.2	Oakland, CA	1,543
New Orleans, LA	68.1	Norfolk Harbor, VA	1,413
Beaumont, TX	67.7	Houston, TX	1,263
Huntington, KY, OH, WV	59.2	Seattle, WA	1,219
Mobile, AL	58.4	Tacoma, WA	1,151
Texas City, TX	52.6	Charleston, SC	941
Lake Charles, LA	52.3	San Juan, PR	809
Mobile, AL	52.2	Honolulu, HI	686
Baton Rouge, LA	51.9	Jacksonville, FL	631
Plaquemines, LA	50.9	Miami, FL	623
Norfolk Harbor, VA	40.3	Port Everglades, FL	532
Pascagoula, MS	36.6	Baltimore, MD	453
Tampa, FL	34.9	Anchorage, AK	254
Valdez, AK	34.5	New Orleans, LA	232
Port Arthur, TX	33.8	Wilmington, NC	184
Pittsburgh, PA	32.9	Wilmington, DE	164
<b>Total, top 20</b>	<b>1,436</b>		<b>26,741</b>
<b>Total, all ports</b>	<b>2,211</b>		<b>28,467</b>

Notes: Includes exports, imports, and domestic shipments. See table 4-10 for top 20 freight gateways by value of shipments. TEUs = 20-foot equivalent units. One 20-foot container equals one TEU.

Sources: U.S. Army Corps of Engineers, *Waterborne Commerce of the United States*, Part 5, National Summaries, tables 1-1 and 5-2, available at <http://www.iwr.usace.army.mil/ndc/wcsc/wcsc.htm> as of September 2011 as cited in USDOT, RITA, BTS, *National Transportation Statistics*, table 1-57, available at [http://www.bts.gov/publications/national\\_transportation\\_statistics/](http://www.bts.gov/publications/national_transportation_statistics/) as of September 2011. U.S. Army Corps of Engineers, *Waterborne Container Traffic for U.S. Ports and all 50 States and U.S. Territories*, Port TEUs, available at <http://www.iwr.usace.army.mil/ndc/wcsc/wcsc.htm> as of September 2011.

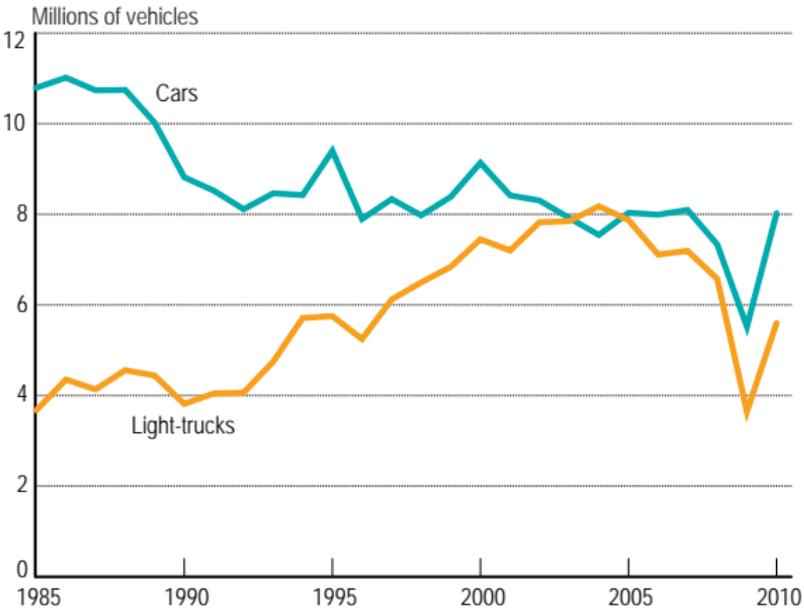
#### 4-12 Top 20 World Container Ports: 2008 and 2009 (thousands of full and empty TEUs)

Rank (2008)	Rank (2009)	Port	Country	TEUs
1	1	Singapore	Singapore	25,867
2	2	Shanghai	China	25,002
3	3	Hong Kong	China	21,040
4	4	Shenzhen	China	18,250
5	5	Busan	South Korea	11,955
8	6	Guangzhou	China	11,190
6	7	Dubai Ports	United Arab Emirates	11,124
7	8	Ningbo	China	10,503
10	9	Qingdao	China	10,280
9	10	Rotterdam	Netherlands	9,743
14	11	Tianjin	China	8,700
12	12	Kaohsiung	Taiwan	8,581
15	13	Port Kelang	Malaysia	7,310
13	14	Antwerp	Belgium	7,310
11	15	Hamburg	Germany	7,008
<b>16</b>	<b>16</b>	<b>Los Angeles</b>	<b>United States</b>	<b>6,749</b>
19	17	Tanjung Pelepas	Malaysia	5,835
<b>17</b>	<b>18</b>	<b>Long Beach</b>	<b>United States</b>	<b>5,068</b>
22	19	Xiamen	China	4,680
18	20	Bremen/ Bremerhaven	Germany	4,579

Note: TEUs = 20-foot equivalent units. One 20-foot container equals one TEU.

Source: American Association of Port Authorities (AAPA), *Port Industry Statistics, World Port Rankings (Container Traffic)*, available at <http://www.aapa-ports.org/> as of September 2011.

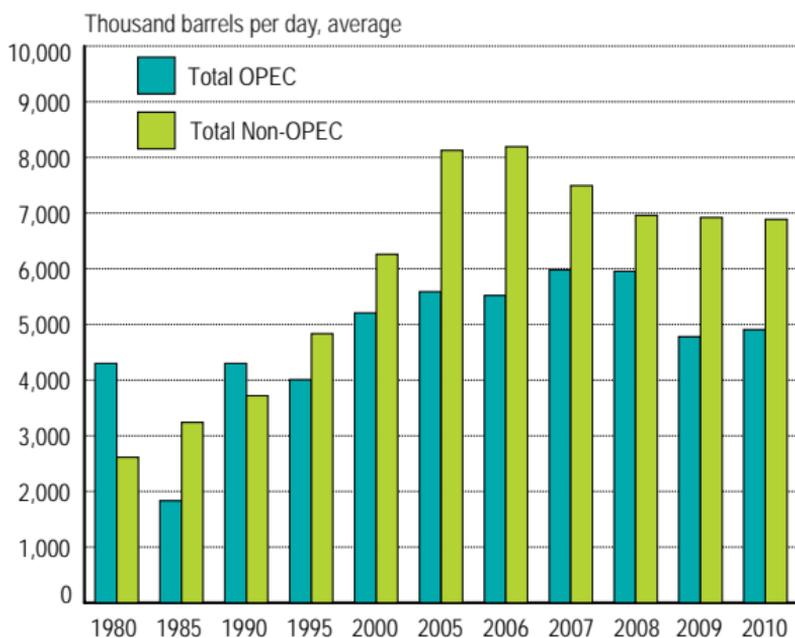
## 4-13 New Passenger Car and Light-Truck Production: Model Years 1985–2010



Notes: Data are based on Environmental Protection Agency (EPA) definitions of light-trucks (gross vehicle weight of 8,500 pounds or less). Car and light-truck data for 2003, 2008, and 2009 are revised.

Source: U.S. Environmental Protection Agency, *Light-Duty Automotive Technology, Carbon Dioxide Emissions, and Fuel Economy Trends: 1975 Through 2010*, appendix E, available at <http://www.epa.gov/oms/fetrends.htm> as of October 2011.

## 4-14 U.S. Oil Imports: 1980–2010



**Notes:** OPEC (Organization of Petroleum Exporting Countries) members are Algeria, Angola, Ecuador, Iran, Iraq, Kuwait, Libya, Nigeria, Qatar, Saudi Arabia, the United Arab Emirates, and Venezuela. Angola joined OPEC in January 2007. Ecuador was a member of OPEC from 1973-1992, and rejoined OPEC in November 2007. Gabon was a member from 1975-1994. Indonesia withdrew from OPEC in May 2008.

**Source:** U.S. Department of Energy, Energy Information Administration, *Monthly Energy Review* (Washington, DC: August 2011), tables 3.3c and 3.3d, available at <http://www.eia.doe.gov/emeu/mer/petro.html> as of September 2011.

#### 4-15 Major Suppliers of U.S. Imported Crude Oil and Petroleum Products: 1990, 2000, 2009, 2010 (thousands of barrels per day, average)

	Rank (2010)	1990	2000	2009	2010
Canada	1	934	1,807	2,479	2,535
Mexico	2	755	1,373	1,210	1,284
Saudi Arabia (OPEC)	3	1,339	1,572	1,004	1,096
Nigeria (OPEC)	4	800	896	809	1,023
Venezuela (OPEC)	5	1,025	1,546	1,063	988
Russia	6	45	72	563	612
Algeria (OPEC)	7	280	225	493	510
Iraq (OPEC)	8	518	620	450	415
Angola (OPEC)	9	NR	NR	460	393
Colombia	10	182	342	276	365
Brazil	11	49	51	309	272
United Kingdom	12	189	366	245	256
U.S. Virgin Islands	13	282	291	277	253
Ecuador (OPEC)	14	49	NR	185	212
Kuwait (OPEC)	15	86	272	182	197
Netherlands	16	55	30	140	108
Norway	17	102	343	108	89
Libya (OPEC)	18	0	0	79	70
<b>Total, major suppliers</b>		<b>6,690</b>	<b>9,806</b>	<b>10,333</b>	<b>10,678</b>
<b>Total, all U.S. imports</b>		<b>8,018</b>	<b>11,459</b>	<b>11,691</b>	<b>11,793</b>

Key: OPEC = Organization of Petroleum Exporting Countries. NR = Not reported.

Notes: The country of origin for petroleum products may not be the country of origin for the crude oil used to produce the products. For example, refined products imported from western European refineries may have been produced from Middle Eastern crude oil. Angola joined OPEC in January 2007. Ecuador was a member of OPEC from 1973-1992, and rejoined OPEC in November 2007. Data for Angola for 1973-2006, and Ecuador for 1993-2007 are included in Total Non-OPEC in Energy Information Administration, *Monthly Energy Review*, table 3.3d.

Source: U.S. Department of Energy, Energy Information Administration, *Monthly Energy Review* (Washington, DC: August 2011), tables 3.1, 3.3c-d, available at <http://www.eia.doe.gov/emeu/mer/petro.html> as of September 2011.

**4-16 Government Transportation Revenues by Mode and Level of Government: 1995, 2000, 2007, 2008**  
(millions of current dollars)

	R <sup>1</sup> 1995	R <sup>2</sup> 2000	R <sup>3</sup> 2007	2008
Highway total	67,544	90,981	114,396	111,980
Federal: Highway Trust Fund <sup>a</sup>	22,200	34,986	40,061	37,080
State and local	45,344	55,995	74,336	74,900
Toll revenue	4,748	6,438	10,130	10,653
Transit total <sup>b</sup>	8,575	10,670	13,874	14,592
Toll revenue	0	335	287	314
Railroad <sup>c</sup>	36	1	0	0
Air total	14,497	22,235	29,384	30,702
Federal: Airport and Airway Trust Fund <sup>d</sup>	6,291	10,544	11,994	12,484
State and local	8,206	11,691	17,390	18,218
Water total	3,832	4,058	6,191	6,551
Federal: water receipts <sup>e</sup>	1,909	1,551	2,325	2,412
State and local	1,923	2,507	3,866	4,139
Pipeline <sup>c</sup>	35	30	60	63
General support <sup>c</sup>	7	26	16	14
<b>Total, all modes</b>	<b>94,526</b>	<b>134,774</b>	<b>174,337</b>	<b>174,868</b>
Federal	30,478	47,138	54,456	52,053
State and local	64,048	87,636	119,882	122,815

Key: R = revised

<sup>a</sup> Includes both Highway and Transit Accounts of the Highway Trust Fund (HTF). Also includes other receipts from motor fuel and motor vehicle taxes not deposited in the HTF. <sup>b</sup> Includes state and local government only. <sup>c</sup> Includes federal only. <sup>d</sup> Receipts from aviation user and aviation security fees are also included. <sup>e</sup> Includes Harbor Maintenance Trust Fund, St. Lawrence Seaway tolls, Inland Waterway Trust Fund, Panama Canal receipts through 2000, Oil Spill Liability Trust Fund, Offshore Oil Pollution Fund, Deep Water Port Liability Fund, and excise taxes of the Boat Safety Program.

**Notes:** Government transportation revenue consists of money collected by governments from transportation user charges and taxes to finance transportation programs. The revenue of a mode of transportation includes all transportation revenues designated to that mode regardless the sources or instruments from which the revenues are collected. Tolls from highways, bridges, and tunnels etc. but designated for transit use are accounted as transit revenue. The revisions for transportation revenues include: 1) state and local air transportation revenues for 1995 and 2000, 2) pipeline revenues for 2000, and 3) the revenues for 2007.

**Source:** U. S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, Government Transportation Financial Statistics 2011.

#### 4-17 Government Transportation Expenditures by Mode and Level of Government: 1995, 2000, 2007, 2008 (millions of current dollars)

	R <sup>1</sup> 1995	R <sup>2</sup> 2000	R <sup>2</sup> 2007	2008
Highway total	90,075	119,903	175,456	182,007
Federal	1,685	2,182	2,932	3,803
State and local	88,391	117,720	172,524	178,204
Transit total	25,460	34,823	45,753	50,893
Federal	1,277	3,672	98	90
State and local	24,183	31,150	45,655	50,803
Rail total	1,049	778	1,528	1,526
Federal	1,023	765	1,523	1,525
State and local	26	13	5	1
Air total	19,184	22,352	43,584	46,430
Federal	10,787	9,192	23,523	25,166
State and local	8,397	13,160	20,061	21,264
Water total	6,666	7,634	12,069	12,758
Federal	4,357	4,493	7,308	7,818
State and local	2,309	3,141	4,761	4,940
Pipeline total	26	55	89	92
Federal	14	37	66	61
State and local	12	18	23	31
General support	775	653	834	675
Federal	769	645	821	663
State and local	6	8	13	12
<b>Total, all modes</b>	<b>143,235</b>	<b>186,197</b>	<b>279,312</b>	<b>294,381</b>
Federal	19,911	20,987	36,271	39,126
State and local	123,323	165,210	243,041	255,255

Key: R = revised

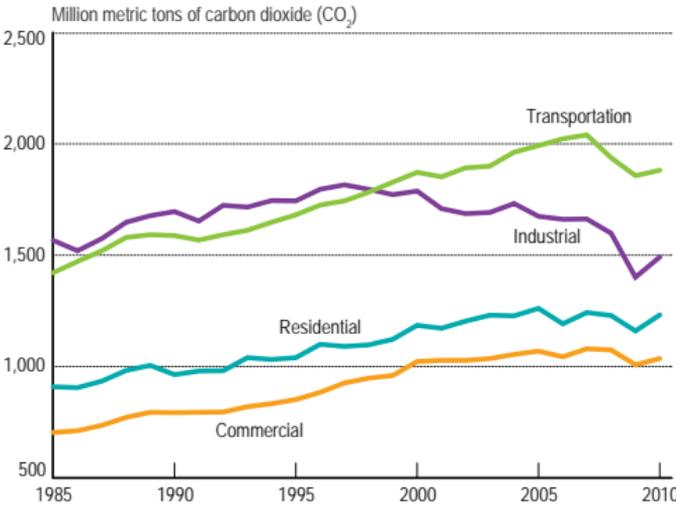
**Notes:** Federal expenditure includes direct Federal spending, excluding grants to State and local governments. State and local expenditure includes outlays from all sources of funds including funds from federal grants, except railroad and pipeline modes. State and local expenditure for rail and pipeline modes include outlays that are funded by Federal grants only. The part of expenditure that may be funded by other funding sources of State and local governments are not covered due to lack of data. Outlays for civilian transportation-related activities of the U.S. Army Corps of Engineers for construction, operation, and maintenance of channels, harbors, locks, and dams, and protection of navigation are not included for all years due to lack of data. The revisions for transportation expenditures include: 1) outlays for air transportation, 2) Federal water outlays for 1995 and 2007, 3) Federal expenditures on highway, transit and pipeline for 2000, 4) highway data for 2007, and 5) outlays for State and local transit and Federal general support for 2007.

**Source:** U. S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *Government Transportation Financial Statistics 2011*.

# 5 ENVIRONMENTAL SUSTAINABILITY

While transportation enhances the quality of our lives, it also generates environmental impacts. Overall, most transportation-related air pollutant emissions have declined since 1980. This follows national mandates for more stringent vehicle emission standards, cleaner burning fuels, and greener automobile technologies. Greenhouse gas emissions from transportation fuel use rose steadily until 2007 before decreasing in 2008 due to the economic recession. However, transportation-related emissions have recently increased.

## 5-1 U.S. Greenhouse Gas Emissions From Energy Use: 1985–2010

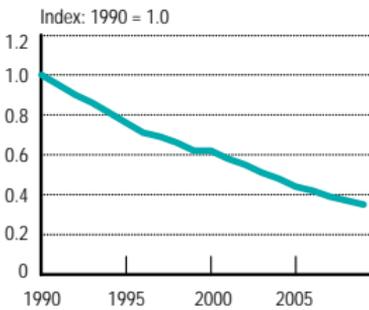


Notes: Electric power sector emissions are distributed across sectors. Data for 2008 and 2009 are revised.

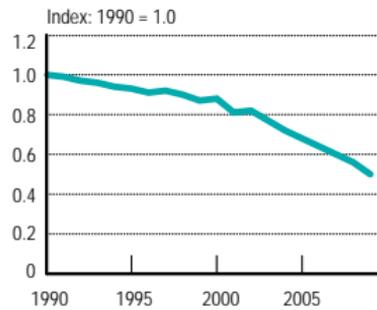
Source: U.S. Department of Energy (USDOE), Energy Information Administration (EIA), *Monthly Energy Review, Carbon Dioxide Emissions From Energy Consumption*, tables 12.2 to 12.5, available at <http://www.eia.doe.gov/emeu/mer/environ.html> as of August 2011.

## 5-2 Index of Key Air Pollutant Emissions From U.S. Transportation: 1990–2009

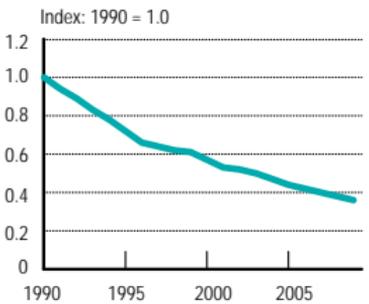
### Carbon monoxide



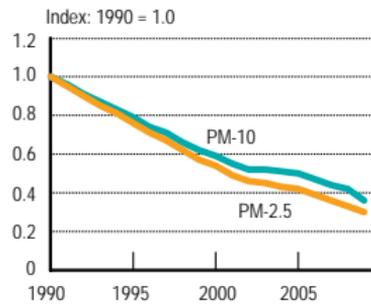
### Nitrogen oxide



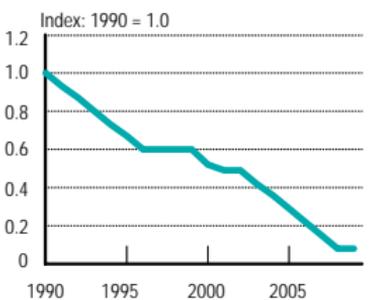
### Volatile organic compounds



### PM-10; PM-2.5



### Sulfur dioxide



### Ammonia

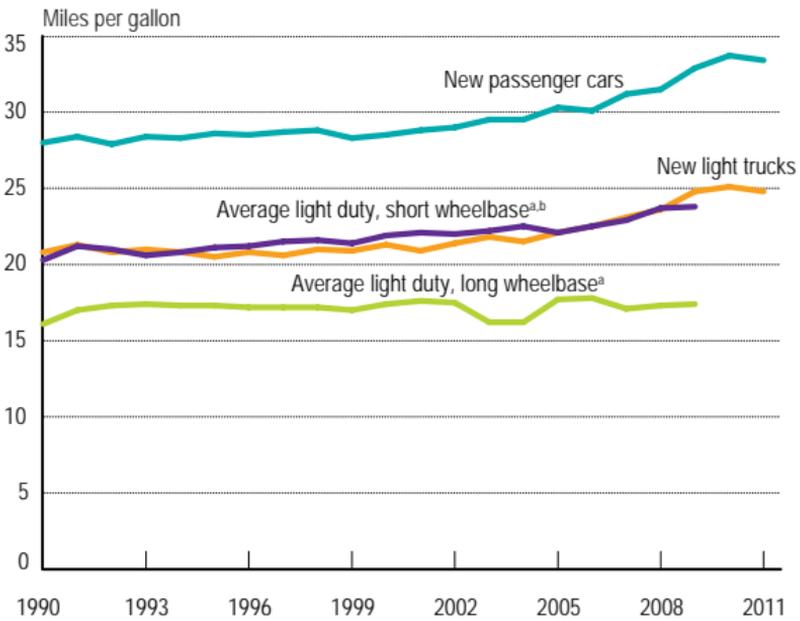


Key: PM-10 = airborne particulates of less than 10 microns; PM-2.5 = airborne particulates of less than 2.5 microns.

Notes: Not all graph scales are comparable. The indices are calculated using data on emissions from highway vehicles only. Particulate matters include PM without condensibles. Ammonia data for 2003 through 2005 are revised. Data for 2006 through 2008 are revised.

Source: U.S. Environmental Protection Agency, Clearinghouse for Inventories and Emissions Factors (CHIEF), *Current Emission Trends Summaries*, available at <http://www.epa.gov/ttn/chief/trends/index.html> as of August 2011.

### 5-3 New Passenger Car and Light Truck Fuel Economy Averages: 1990–2011



<sup>a</sup>Data before 2007 are for passenger car and other 2-axle, 4-tire vehicles, respectively. <sup>b</sup>Before 1995, light duty vehicle, short wheel base (previously passenger car) fuel efficiency includes motorcycles.

Key: U = unavailable.

Notes: Fuel economy is miles divided by gallons. New vehicle data are for model years. Average fleet data for 2007 to 2009 were calculated using a new methodology developed by FHWA. Data for these years are based on new categories and are not comparable to previous years. The new category "Light duty vehicle, short wheel base" includes passenger cars, light trucks, vans and sport utility vehicles with a wheelbase equal to or less than 121 inches. The new category "Light duty vehicle, long wheel base" includes large passenger cars, vans, pickup trucks, and sport/utility vehicles with wheelbases larger than 121 inches.

Source: National Highway Traffic Safety Administration, *Summary of Fuel Economy Performance* (Washington, DC: Annual Issues), available at <http://www.nhtsa.gov/> and Federal Highway Administration, Highway Statistics (Washington, DC: Annual Issues), table VM-1, available at <http://www.fhwa.dot.gov/policyinformation/statistics.cfm> as cited in U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *National Transportation Statistics*, table 4-23, available at [http://www.bts.gov/publications/national\\_transportation\\_statistics/](http://www.bts.gov/publications/national_transportation_statistics/) as of December 2011.

## 5-4 Hybrid Vehicle Sales<sup>a</sup> in the United States: 1999–2010<sup>c</sup>

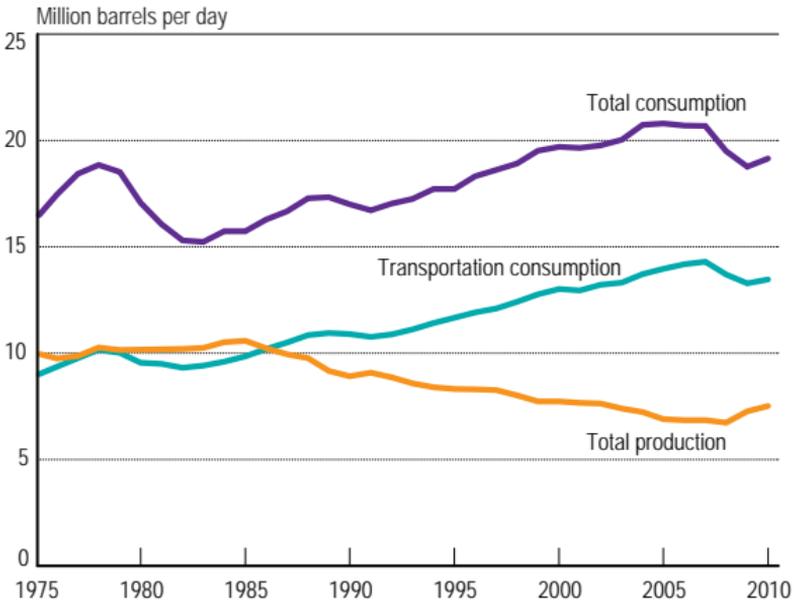
Year	Domestic hybrid <sup>b</sup>	Import hybrid	Total hybrid
1999	0	17	17
2000	0	9,350	9,350
2001	0	20,282	20,282
2002	0	22,335	22,335
2003	0	47,566	47,566
2004	2,993	81,206	84,199
2005	15,960	189,868	205,828
2006	24,198	229,320	253,518
2007	77,629	275,233	352,862
2008	86,082	229,606	315,688
2009	81,882	208,858	290,740
2010	64,893	209,528	274,421

<sup>a</sup> Sales include leased vehicles and fleet sales. <sup>b</sup> Includes vehicles produced in Canada and Mexico. <sup>c</sup> Calendar year vehicle sales.

**Notes:** Data for 2009 are revised. The first domestic hybrid vehicle was not introduced in the U.S. market until 2004. A hybrid vehicle is a vehicle powered by a combination of battery-electric motor(s) and an internal combustion engine.

**Source:** Ward's Automotive Group, WardsAuto.com, personal communication, March 2011.

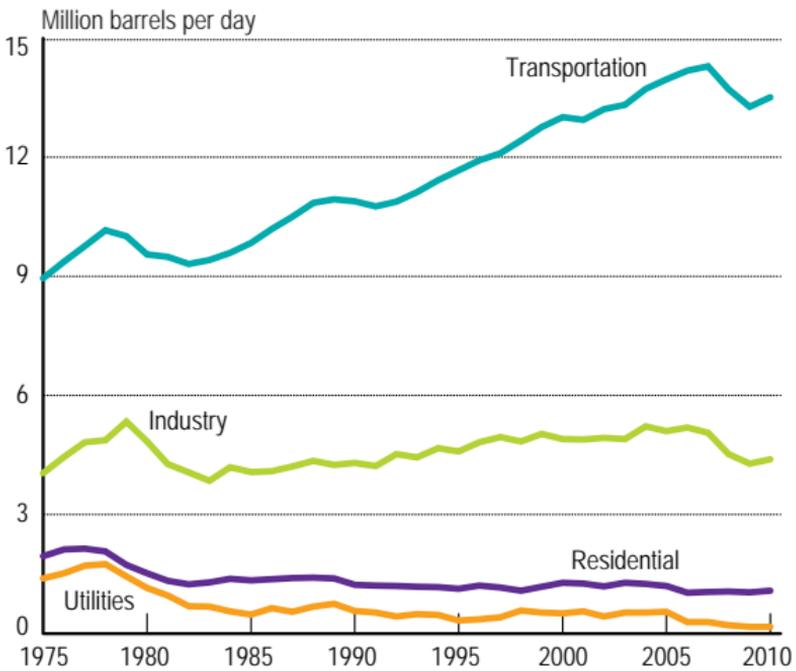
## 5-5 U.S. Petroleum Production and Consumption: 1975–2010



Notes: Data for 2010 are preliminary. Data for 2008 are revised.

Source: U.S. Department of Energy, Energy Information Administration, *Monthly Energy Review* (Washington, DC: September 2010), tables 3.1 and 3.7c, available at <http://www.eia.doe.gov/aer/petro.html> as of July 2010 as cited in USDOT, RITA, BTS, *National Transportation Statistics*, table 4-1, available at [http://www.bts.gov/publications/national\\_transportation\\_statistics/](http://www.bts.gov/publications/national_transportation_statistics/) as of October 2011.

## 5-6 Transportation's Share of U.S. Petroleum Use: 1975–2010



Note: The 2010 data are preliminary.

Source: U.S. Department of Energy, Energy Information Administration, *Monthly Energy Review* (Washington, DC: July 2011), tables 3.7a–c, available at <http://www.eia.doe.gov/mer/petro.html> as of August 2011.

## GLOSSARY

**Air carrier:** Certificated provider of scheduled and nonscheduled services.

**Chained dollars:** A method to measure real changes in dollar values between years that uses chain-type indexes, rather than constant dollars. The method first calculates the real changes between adjacent years. Annual rates of real changes are then chained (multiplied) together to obtain the rate of real changes between nonadjacent years.

**Class I railroad:** Railroads earning adjusted annual operating revenues for three consecutive years of \$250,000,000 or more, based on 1991 dollars with an adjustment factor applied to subsequent years.

**Commercial waterway facilities:** Waterway facilities, as defined by the U.S. Army Corps of Engineers, are piers, wharves, and docks. Not included are those facilities used exclusively for recreational or active military craft and generally those providing nonmaritime use.

**Commuter rail:** Urban/suburban passenger train service for short-distance travel between a central city and adjacent suburbs run on tracks of a traditional railroad system. Does not include heavy or light rail transit service.

**Congestion cost:** Value of travel time delay (estimated at \$12.50 per hour of person travel and \$23.70 per hour of truck travel in 2009) and excess fuel consumption (estimated using the average cost per gallon by state).

**Contracted service (purchased transportation):** Transportation service provided to a public transit agency or governmental unit from a public or private transportation provider based on a written contract.

**Delay:** The extra travel time (hours) spent traveling at congested speeds rather than free-flow speeds (60 mph on freeways and 35 mph on principal arterials) divided by the number of persons making a trip during the peak period (6:00 a.m.–9:00 a.m. and 4:00 p.m.–7:00 p.m.).

**Demand-response transit:** A nonfixed-route, nonfixed-schedule form of transportation that operates in response to calls from passengers or their agents to the transit operator or dispatcher.

**Directional route miles:** The sum of the mileage in each direction over which transit vehicles travel while in revenue service.

**Directly operated service:** Transportation service provided directly by a transit agency, using their employees to supply the necessary labor to operate the revenue vehicles.

**Draft:** The depth of water a vessel draws, loaded or unloaded.

**Ferry:** Vessels that carry passengers and/or vehicles over a body of water. Generally steam or diesel-powered, ferryboats may also be hovercraft, hydrofoil, and other high-speed vessels. The vessel is limited in its use to the carriage of deck passengers or vehicles or both, operates on a short run on a frequent schedule between two points over the most direct water routes other than in ocean or coastwise service, and is offered as a public service of a type normally attributed to a bridge or tunnel.

**For-hire:** Refers to a vehicle operated on behalf of or by a company that provides transport services to external customers for a fee. It is distinguished from private transportation services, in which a firm transports its own freight and does not offer its transportation services to other shippers.

**Functionally Obsolete:** Functional obsolescence is a function of the geometrics of the bridge not meeting current design standards.

**General aviation:** Civil aviation operations other than those air carriers holding a Certificate of Public Convenience and Necessity. Types of aircraft used in general aviation range from corporate, multi-engine jets piloted by a professional crew to amateur-built, single-engine, piston-driven, acrobatic planes.

**Gross Domestic Product:** The total value of goods and services produced by labor and property located in the United States. As long as the labor and property are located in the United States, the suppliers may be either U.S. residents or residents of foreign countries.

**Heavy rail transit:** High-speed transit rail operated on rights-of-way that exclude all other vehicles and pedestrians.

**Hub area:** As used here, a geographic area based on the percentage of total enplaned passengers in that area. A hub area can comprise more than one airport and falls into one of the following classes: large—a community enplaning 1 percent or more of the total enplaned passengers; medium—0.25–0.99 percent; small—0.05–0.24 percent; nonhub area—less than 0.05 percent. The definition of hub used here is distinct from airline usage of the term to describe “hub-and-spoke” route structures or other definitions of hubs used by the Federal Aviation Administration, which relate to traffic at individual airports.

**Intermodal:** Transportation activities involving more than one mode of transportation, including transportation connections, choices, cooperation, and coordination of various modes.

**Large certificated air carrier:** Carriers operating aircraft with a maximum passenger capacity of more than 60 seats or a maximum payload of more than 18,000 pounds. These carriers are also grouped by annual operating revenues: majors—more than \$1 billion; nationals—between \$100 million and \$1 billion; large regionals—between \$20 million and \$99,999,999; and medium regionals—less than \$20 million.

**Light rail transit:** Urban transit rail operated on a reserved right-of-way that may be crossed by roads used by motor vehicles and pedestrians.

**Light truck:** Trucks of 10,000 pounds gross vehicle weight rating or less, including pickup trucks, vans, truck-based station wagons, and sport utility vehicles.

**Long-distance travel:** Long-distance trips are trips of 50 miles or more from home to the farthest destination traveled and include the return component as well as any overnight stops and stops to change transportation mode.

**Metric ton:** A unit of weight equal to 2,204.6 pounds.

**North American Industry Classification System (NAICS):**

NAICS (established in April 1997) replaced the Standard Industrial Classification (SIC) and groups producing and nonproducing economic activities into 20 sectors and 1,170 industries in the United States version. It was developed to provide common industry definitions for Canada, Mexico, and the United States to facilitate analyses of the economies of the three countries.

**Nonself-propelled vessels:** Includes dry cargo, tank barges, and railroad car floats that operate in U.S. ports and waterways.

**Particulates:** Carbon particles formed by partial oxidation and reduction of hydrocarbon fuel. Also included are trace quantities of metal oxides and nitrides, originating from engine wear, component degradation, and inorganic fuel additives.

**Passenger mile:** One passenger transported one mile. For example, one vehicle traveling 3 miles carrying 5 passengers generates 15 passenger-miles.

**Pedalcyclist:** A person on a vehicle that is powered solely by pedals.

**Personal communication:** Involves contacting the source for data if not publicly available.

**Self-propelled vessels:** Includes dry cargo vessels, tankers, and offshore supply vessels, tugboats, pushboats, and passenger vessels, such as excursion/sightseeing boats, combination passenger and dry cargo vessels, and ferries.

**Serious injury (Air Carrier/General Aviation):** An injury that requires hospitalization for more than 48 hours, commencing within 7 days from the date when the injury was received; results in a bone fracture (except simple fractures of fingers, toes, or nose); involves lacerations that cause severe hemorrhages, nerve, muscle, or tendon damage; involves injury to any internal organ; or involves second- or third-degree burns or any burns affecting more than 5 percent of the body surface.

**Short ton:** A unit of weight equal to 2,000 pounds.

**Standard Industrial Classification (SIC):** SIC (first used in 1937) groups establishments by primary activity to ease data collection, tabulation, presentation, and analysis. SIC was intended to promote greater uniformity and comparability in data presentations by government, industry, and research institutions. SIC classifies industries by composition and structure of the economy.

**Structurally Deficient:** Structural deficiencies are characterized by deteriorated conditions of significant bridge elements and reduced load-carrying capacity.

**Ton mile:** A unit of measure equal to movement of one ton over one mile.

**Truck: Single unit**—A large truck on a single frame with at least two axles and six tires. **Combination**—A power unit (truck or truck tractor) and one or more trailing units.

**Vehicle mile:** One vehicle traveling one mile.

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