RITA *Bureau of Transportation Statistics*

# National Transportation Statistics

U.S. Department of Transportation
**Research and Innovative Technology Administration**

# National Transportation Statistics

# 2011

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Statistics

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# Introduction

Compiled and published by the U.S. Department of Transportation's Bureau of Transportation Statistics (BTS), *National Transportation Statistics* presents information on the U.S. transportation system, including its physical components, safety record, economic performance, energy use, and environmental impacts. *National Transportation Statistics* is a companion document to the *Transportation Statistics Annual Report*, which analyzes some of the data presented here, and *State Transportation Statistics*, which presents state-level data on many of the same topics presented here.

The report has four chapters:

- Chapter 1 provides data on the extent, condition, use, and performance of the physical transportation network.
- Chapter 2 details transportation's safety record, giving data on accidents, crashes, fatalities, and injuries for each transportation mode and hazardous materials.
- Chapter 3 focuses on the relationship between transportation and the economy, presenting data on transportation's contribution to the gross domestic product, employment by industry and occupation, and transportation-related consumer and government expenditures.
- Chapter 4 presents data on transportation energy use and transportation-related environmental impacts.

Appendix A contains metric conversions of select tables. BTS obtained the data in this report from many sources, including federal government agencies, private industry, and associations. Documents cited as sources for the tables provide detailed information about definitions, methodologies, and statistical reliability. Some of the data are based on samples and are subject to sampling variability. *National Transportation Statistics* is updated quarterly at www.bts.gov.

# Table of Contents

**INTRODUCTION**

Table A - Social and Economic Characteristics of the United States (Updated April 2008)

**Chapter 1. The Transportation System**

**SECTION A. PHYSICAL EXTENT**

1-1 System Mileage Within the United States (Updated April 2010)
1-2 Number of Air Carriers, Railroads, Interstate Motor Carriers, Marine Vessel Operators, and Pipeline Operators (Updated April 2010)
1-3 Number of U.S. Airports (Updated July 2010)
1-4 Public Road and Street Mileage in the United States by Type of Surface (Updated April 2010)
1-5 U.S. Public Road and Street Mileage by Functional System (Updated April 2011)
1-6 Estimated U.S. Roadway Lane-Miles by Functional System (Updated April 2011)
1-7 Number of Stations Served by Amtrak and Rail Transit, Fiscal Year (Updated January 2010)
1-8 ADA Lift- or Ramp-Equipped Transit Buses (Updated April 2008)
1-9 ADA-Accessible Rail Transit Stations by Agency (Updated April 2010)
1-10 U.S. Oil and Gas Pipeline Mileage (Updated July 2010)

**SECTION B. VEHICLE, AIRCRAFT, AND VESSEL INVENTORY**

1-11 Number of U.S. Aircraft, Vehicles, Vessels, and Other Conveyances (Updated July 2010)
1-12 U.S. Sales or Deliveries of New Aircraft, Vehicles, Vessels, and Other Conveyances (Updated April 2011)
1-13 Active U.S. Air Carrier and General Aviation Fleet by Type of Aircraft (Updated July 2010)
1-14 U.S. Automobile and Truck Fleets by Use (Updated April 2007)
1-15 Annual U.S. Motor Vehicle Production and Factory (Wholesale) Sales (Updated April 2011)
1-16 Retail New Passenger Car Sales (Updated April 2011)
1-17 New and Used Passenger Car Sales and Leases (Updated October 2010)
1-18 Retail Sales and Lease of New Cars by Sector (Updated October 2010)
1-19 Sales of Hybrid Vehicles in the United States (Updated April 2011)
1-20 Period Sales, Market Shares, and Sales-Weighted Fuel Economies of New Domestic and Imported Automobiles (Updated April 2010)
1-21 Period Sales, Market Shares, and Sales-Weighted Fuel Economies of New Domestic and Imported Light Trucks (Updated April 2010)
1-22 Number of Trucks by Weight
1-23 World Motor Vehicle Production, Selected Countries (Updated April 2010)

1-24 Number and Size of the U.S. Flag Merchant Fleet and Its Share of the World Fleet (Updated April 2011)

**SECTION C. CONDITION**

1-25 U.S. Airport Runway Pavement Conditions (Updated January 2010)
1-26 Median Age of Automobiles and Trucks in Operation in the United States (Updated January 2010)
1-27 Condition of U.S. Roadways by Functional System (Updated October 2010)
1-28 Condition of U.S. Bridges (Updated July 2010)
1-29 Average Age of Urban Transit Vehicles (Updated April 2010)
1-30 Condition of Urban Bus and Rail Transit Maintenance Facilities (Updated July 2010)
1-31 Condition of Rail Transit Infrastructure (Updated July 2010)
1-32 Class I Railroad Locomotive Fleet by Year Built (Updated July 2010)
1-33 Age and Availability of Amtrak Locomotive and Car Fleets (Updated October 2010)
1-34 U.S. Flag Vessels by Type and Age (Updated October 2010)

**SECTION D. TRAVEL AND GOODS MOVEMENT**

1-35 U.S. Vehicle-Miles (Updated July 2010)
1-36 Roadway Vehicle-Miles Traveled (VMT) and VMT per Lane-Mile by Functional Class (Updated April 2010)
1-37 U.S. Air Carrier Aircraft Departures, Enplaned Revenue Passengers, and Enplaned Revenue Tons (Updated April 2011)
1-38 Average Length of Haul, Domestic Freight and Passenger Modes (Updated April 2010)
1-39 Worldwide Commercial Space Launches (Updated July 2010)
1-40 U.S. Passenger-Miles (Updated April 2010)
1-41 Principal Means of Transportation to Work (Updated January 2010)
1-42 Long-Distance Travel in the United States by Selected Trip Characteristics: 2001
1-43 Long-Distance Travel in the United States by Selected Traveler Characteristics: 2001
1-44 Passengers Boarded at the Top 50 U.S. Airports (Updated July 2010)
1-45 Air Passenger Travel Arrivals in the United States (Updated July 2010)
1-46 Air Passenger Travel Departures from the United States (Updated July 2010)
1-47 U.S.-Canadian Border Land-Passenger Gateways: Entering the United States (Updated October 2010)
1-48 U.S.-Mexican Border Land-Passenger Gateways: Entering the United States (Updated October 2010)
1-49 U.S. Ton-Miles of Freight (Updated April 2010)
1-50 U.S. Ton-Miles of Freight (BTS Special Tabulation) (Updated September 2009)
1-51 Top U.S. Foreign Trade Freight Gateways by Value of Shipments (Updated April 2010)
1-52 U.S.-Canadian Border Land-Freight Gateways: Number of Incoming Truck or Rail Container Crossings (Updated April 2011)
1-53 U.S.-Canadian Border Land-Freight Gateways: Number of Incoming Truck or Train Crossings (Updated October 2010)

1-54 U.S.-Mexican Border Land-Freight Gateways: Number of Incoming Truck or Rail Container Crossings (Updated October 2010)
1-55 U.S.-Mexican Border Land-Freight Gateways: Number of Incoming Truck and Train Crossings (Updated October 2010)
1-56 U.S. Waterborne Freight (Updated April 2010)
1-57 Tonnage of Top 50 U.S. Water Ports, Ranked by Total Tons (Updated October 2010)
1-58 Freight Activity in the United States: 1993, 1997, and 2002 (Updated January 2010)
1-59 Value, Tons, and Ton-Miles of Freight Shipments within the United States by Domestic Establishments, 2002P (Updated January 2010)
1-60 Value of U.S. Land Exports to and Imports from Canada and Mexico by Mode (Updated October 2010)
1-61 Crude Oil and Petroleum Products Transported in the United States by Mode (Updated April 2011)
1-62 U.S. Hazardous Materials Shipments by Transportation Mode, 2007 (Updated April 2011)
1-63 U.S. Hazardous Materials Shipments by Hazard Class, 2002 (Updated January 2010)

**SECTION E. PHYSICAL PERFORMANCE**
1-64 Passengers Denied Boarding by the Largest U.S. Air Carriers (Updated July 2010)
1-65 Mishandled-Baggage Reports Filed by Passengers with the Largest U.S. Air Carriers (Updated April 2011)
1-66 Flight Operations Arriving On Time by the Largest U.S. Air Carriers (Updated April 2011)
1-67 FAA-Cited Causes of Departure and En route Delays (Updated April 2011)
1-68 Major U.S. Air Carrier Delays, Cancellations, and Diversions (Updated January 2010)
1-69 Annual Person-Hours of Highway Traffic Delay per Person (Updated April 2011)
1-70 Travel Time Index (Updated April 2011)
1-71 Annual Roadway Congestion Index (Updated April 2011)
1-72 Annual Highway Congestion Cost (Updated April 2011)
1-73 Amtrak On-Time Performance Trends and Hours of Delay by Cause (Updated April 2011)

**Chapter 2. Transportation Safety**

**SECTION A. MULTIMODAL**
2-1 Transportation Fatalities by Mode (Updated January 2010)
2-2 Injured Persons by Transportation Mode (Updated April 2010)
2-3 Transportation Accidents by Mode (Updated January 2010)
2-4 Distribution of Transportation Fatalities by Mode (Updated January 2010)
2-5 Highway-Rail Grade-Crossing Safety and Property Damage Data (Updated July 2010)
2-6 Hazardous Materials Fatalities, Injuries, Accidents, and Property Damage Data (Updated January 2010)
2-7 Transportation-Related Occupational Fatalities (Updated April 2011)

2-8 Reporting Thresholds for Property Damage by U.S. Department of Transportation Modal (Updated December 2007)

**SECTION B. AIR**

2-9 U.S. Air Carrier Safety Data (Updated July 2010)

2-10 U.S. Commuter Air Carrier Safety Data (Updated July 2010)

2-11 U.S. Air Carrier Fatal Accidents by First Phase of Operation (Updated April 2011)

2-12 U.S. Commuter Air Carrier Fatal Accidents by First Phase of Operation (Updated April 2011)

2-13 U.S. On-Demand Air Taxi Safety Data (Updated October 2010)

2-14 U.S. General Aviation Safety Data (Updated October 2010)

2-15 Number of Pilot-Reported Near Midair Collisions (NMAC) by Degree of Hazard (Updated September 2009)

2-16 Prohibited Items Intercepted at Airport Screening Checkpoints (Updated April 2010)

**SECTION C. HIGHWAY**

2-17 Motor Vehicle Safety Data (Updated April 2010)

2-18 Motor Vehicle Fatalities, Vehicle-Miles, and Associated Rates by Highway Functional System (Updated July 2010)

2-19 Occupant Fatalities by Vehicle Type and Nonoccupant Fatalities (Updated April 2011)

2-20 Occupant and Non-Motorist Fatalities in Crashes by Number of Vehicles and Alcohol Involvement (Updated April 2010)

2-21 Passenger Car Occupant Safety Data (Updated October 2010)

2-22 Motorcycle Rider Safety Data (Updated April 2010)

2-23 Truck Occupant Safety Data (Updated October 2010)

2-24 Bus Occupant Safety Data (Updated October 2010)

2-25 State Laws on Distracted Driving (Updated April 2011)

2-26 Fatalities by Highest Blood Alcohol Concentration (BAC) in Highway Crashes (Updated April 2011)

2-27 Number of States with Different Types of Anti-DUI/DWI Legislation in Effect as of January 1 of the Listed Year (Updated October 2007)

2-28 Motor Vehicle Fatal Crashes by Day of Week, Time of Day, and Weather and Light Conditions (Updated September 2009)

2-29 Motor Vehicle Fatal Crashes by Posted Speed Limit (Updated September 2009)

2-30 Safety Belt and Motorcycle Helmet Use (Updated October 2010)

2-31 Estimated Number of Lives Saved by Use of Restraints (Updated October 2010)

**SECTION D. TRANSIT**

2-32 Transit Safety and Property Damage Data (Updated July 2010)

2-33 Transit Safety Data by Mode for All Reported Accidents (Updated October 2010)

2-34 Transit Safety Data by Mode for All Reported Incidents (Updated October 2010)

2-35 Transit and Grade-Crossing Fatalities by Rail Transit Mode (Updated October 2010)

2-36 Transit and Grade-Crossing Injuries by Rail Transit Mode (Updated October 2010)

2-37 Transit and Grade-Crossing Fatalities by Rail Transit Mode (Updated October 2010)

2-38 Reports of Violent Crime, Property Crime, and Arrests by Transit Mode (Updated January 2010)

**SECTION E. RAILROAD**

2-39 Railroad and Grade-Crossing Fatalities by Victim Class (Updated July 2010)

2-40 Railroad and Grade-Crossing Injured Persons by Victim Class (Updated July 2010)

2-41 Train Fatalities, Injuries, and Accidents by Type of Accident (Updated July 2010)

2-42 Railroad Passenger Safety Data (Updated October 2010)

2-43 Railroad System Safety and Property Damage Data (Updated October 2010)

2-44 Fatalities and Injuries of On-Duty Railroad Employees (Updated July 2010)

**SECTION F. WATER**

2-45 Waterborne Transportation Safety and Property Damage Data Related to Vessel Casualties (Updated April 2010)

2-46 Waterborne Transportation Safety Data not Related to Vessel Casualties (Updated April 2010)

2-47 Recreational Boating Safety, Alcohol Involvement, and Property Damage Data (Updated April 2011)

2-48 Personal Watercraft Safety Data (Updated January 2010)

2-49 U.S. Coast Guard Search and Rescue Statistics, Fiscal Year (Updated October 2010)

**SECTION G. PIPELINE**

2-50 Hazardous Liquid and Natural Gas Pipeline Safety (Updated April 2011)

**Chapter 3. Transportation and the Economy**

**SECTION A. TRANSPORTATION AND THE TOTAL ECONOMY**

3-1 U.S. Gross Domestic Product (GDP) Attributed to For-Hire Transportation Services (Updated March 2009)

3-2 U.S. Gross Domestic Product (GDP) Attributed to For-Hire Transportation Services-2005 chained dollars (Updated April 2010)

3-3 U.S. Gross Domestic Product (GDP) Attributed to Transportation-Related Final Demand (Updated December 2008)

3-4 U.S. Gross Domestic Product (GDP) Attributed to Transportation-Related Final Demand-2005 chained dollars (Updated April 2010)

3-5 U.S. Gross Domestic Demand (GDD) Attributed to Transportation-Related Final Demand (Updated April 2011)

3-6 U.S. Gross Domestic Demand (GDD) Attributed to Transportation-Related Final Demand-2005 chained dollars (Updated April 2011)

3-7 Contributions to Gross Domestic Product (GDP): Selected Industries (Updated April 2011)

3-8 Contributions to Gross Domestic Product (GDP): Selected Industries-2005 chained dollars (Updated April 2010)

3-9 Gross Domestic Product (GDP) by Major Social Function (Updated April 2011)

3-10 National Transportation and Economic Trends (Updated April 2010)

**SECTION B. TRANSPORTATION AND CONSUMER EXPENDITURES**


3-11 Sales Price of Transportation Fuel to End-Users (Updated January 2010)

3-12 Price Trends of Gasoline v. Other Consumer Goods and Services (Updated October 2007)

3-13 Producer Price Indices for Transportation Services and Warehousing Services (NAICS) (Updated July 2010)

3-14 Producer Price Indices for Transportation Equipment, NAICS Basis ((Updated April 2011)

3-15 Personal Expenditures by Category (Updated April 2011)

3-16 Personal Consumption Expenditures on Transportation by Subcategory (Updated March 2009)

3-17 Average Cost of Owning and Operating an Automobile (Updated April 2011)

3-18 Average Passenger Fares (Current $) (Updated April 2011)

3-19 Average Passenger Fares (Chained 2000 $) (Updated July 2010)


**SECTION C. TRANSPORTATION REVENUES, EMPLOYMENT, AND PRODUCTIVITY**


3-20 Average Passenger Revenue per Passenger-Mile (Updated July 2010)

3-21 Average Freight Revenue per Ton-Mile (Updated October 2010)

3-22 Total Operating Revenues (Updated April 2008)

3-23 Employment in For-Hire Transportation and Selected Transportation-Related Industries (NAICS) (Updated January 2010)

3-24 Employment in Transportation and Transportation-Related Occupations (Updated October 2010)

3-25 Average Wage and Salary Accruals per Full-Time Equivalent Employee by Transportation Industry (NAICS) (Updated July 2010)

3-26 Median Weekly Earnings of Full-Time Wage and Salary Workers in Transportation by Detailed Occupation (1998 Standard Occupational Classification [SOC] basis) (Updated July 2010)

3-27 Total Wage and Salary Accruals by Transportation Industry (NAICS) (Updated October 2010)

3-28 Labor Productivity Indices for Selected Transportation Industries (NAICS) (Updated July 2010)


**SECTION D. GOVERNMENT FINANCE**


3-29 Federal, State, and Local Government Transportation-Related Revenues and Expenditures, Fiscal Year (Current $ millions) (Updated April 2010)

3-30 Federal, State, and Local Government Transportation-Related Revenues and Expenditures, Fiscal Year (Chained 1996 $) (Updated April 2010)

3-31 Summary of Transportation Revenues and Expenditures from Own Funds and User (Updated April 2010)

3-32 Transportation Revenues by Mode and Level of Government, Fiscal Year (Current $ millions) (Updated December 2008)

3-33 Transportation Revenues by Mode and Level of Government, Fiscal Year (Chained 1996 $ millions) (Updated December 2008)

3-34 Cash Balances of the Transportation-Related Federal Trust Funds, Fiscal Year (Updated December 2007)

3-35 Transportation Expenditures by Mode and Level of Government From Own Funds, Fiscal Year (Current $ millions) (Updated April 2010)

3-36 Transportation Expenditures by Mode and Level of Government From Own Funds, Fiscal Year (Chained 1996 $ millions) (Updated April 2010)

3-37 Federal Transportation Grants to State and Local Governments by Mode, Fiscal Year (Current $ millions) (Updated April 2010)

3-38 Federal Transportation Grants to State and Local Governments by Mode, Fiscal Year (Chained 1996 $ millions) (Updated April 2010)

**Chapter 4. Transportation, Energy, and the Environment**

**SECTION A. U.S. AND TRANSPORTATION SECTION ENERGY CONSUMPTION**

4-1 Overview of U.S. Petroleum Production, Imports, Exports, and Consumption (Updated October 2010)

4-2 U.S. Consumption of Energy from Primary Sources by Sector (Updated October 2010)

4-3 Domestic Demand for Refined Petroleum Products by Sector (Updated July 2010)

**SECTION B. TRANSPORTATION ENERGY CONSUMPTION BY MODE**

4-4 U.S. Energy Consumption by the Transportation Sector (Updated October 2010)

4-5 Fuel Consumption by Mode of Transportation (Updated July 2010)

4-6 Energy Consumption by Mode of Transportation (Updated April 2010)

4-7 Domestic Demand for Gasoline by Mode (Updated October 2010)

4-8 Certificated Air Carrier Fuel Consumption and Travel (Updated July 2010)

4-9 Motor Vehicle Fuel Consumption and Travel (Updated April 2010)

4-10 Estimated Consumption of Alternative and Replacement Fuels for Highway Vehicles (Updated October 2010)

4-11 Passenger Car and Motorcycle Fuel Consumption and Travel (Updated July 2010)

4-12 Other 2-Axle 4-Tire Vehicle Fuel Consumption and Travel (Updated July 2010)

4-13 Single-Unit 2-Axle 6-Tire or More Truck Fuel Consumption and Travel (Updated October 2010)

4-14 Combination Truck Fuel Consumption and Travel (Updated July 2010)

4-15 Bus Fuel Consumption and Travel (Updated July 2010)

4-16 Transit Industry Electric Power and Primary Energy Consumption and Travel (Updated April 2010)

4-17 Class I Rail Freight Fuel Consumption and Travel (Updated July 2010)

4-18 Amtrak Fuel Consumption and Travel (Updated April 2011)

4-19 U.S. Government Energy Consumption by Agency and Source (Updated September 2009)

**SECTION C. TRANSPORTATION ENERGY INTENSITY AND FUEL EFFICIENCY**

4-20 Energy Intensity of Passenger Modes (Updated April 2010)

4-21 Energy Intensity of Certificated Air Carriers, All Services (Updated January 2010)

4-22 Energy Intensity of Passenger Cars, Other 2-Axle 4-Tire Vehicles, and Motorcycles (Updated April 2010)

4-23 Average Fuel Efficiency of U.S. Passenger Cars and Light Trucks (Updated October 2010)
4-24 Energy Intensity of Transit Motor Buses (Updated October 2010)
4-25 Energy Intensity of Class I Railroad Freight Service (Updated July 2010)
4-26 Energy Intensity of Amtrak Services (Updated April 2008)
4-27 Energy Intensity of Amtrak Services (Loss-adjusted conversion factors) (Updated April 2010)
4-28 Annual Wasted Fuel Due to Congestion (Updated April 2010)
4-29 Annual Wasted Fuel per Person (Updated April 2011)

**SECTION D. AIR POLLUTION**

4-30 Federal Exhaust Emission Certification Standards for Newly Manufactured Gasoline- and Diesel-Powered Light-Duty Vehicles (Updated April 2011)
4-31 Federal Exhaust Emission Certification Standards for Newly Manufactured Gasoline- and Diesel-Powered Light Duty Trucks (Category LDT1) (Grams per mile)
4-32 Federal Exhaust Emission Certification Standards for Newly Manufactured Gasoline- and Diesel-Powered Light Duty Trucks (Category LDT2) (Grams per mile)
4-33 Federal Exhaust Emission Certification Standards for Newly Manufactured Gasoline- and Diesel-Powered Light Duty Trucks (Category LDT3) (Grams per mile)
4-34 Federal Exhaust Emission Certification Standards for Newly Manufactured Gasoline- and Diesel-Powered Light Duty Trucks (Category LDT4) (Grams per mile)
4-35 Federal Exhaust Emission Certification Standards for Newly Manufactured Gasoline- and Diesel-Powered Medium-Duty Passenger Vehicles (MDPV)
4-36 Federal Exhaust Emissions Certification Standards for Newly Manufactured Gasoline- and Diesel-Powered Light Heavy-Duty Trucks (Grams per brake horsepower-hour)
4-37 Federal Exhaust Emissions Certification Standards for Newly Manufactured Gasoline- and Diesel-Powered Heavy Heavy-Duty Trucks (Grams per brake horsepower-hour)
4-38 Federal Exhaust Emissions Standards for Newly Manufactured Motorcycles
4-39 Federal Exhaust Emissions Standards for Newly Manufactured and In-Use Aircraft Engines
4-40 Federal Exhaust Emissions Standards for Locomotives
4-41 Federal Exhaust Emissions Standards for Newly Manufactured Marine Spark-Ignition Outboard, Personal Watercraft, and Jet-Boat Engines
4-42 Tier 2 Federal Exhaust Emissions Standards for Newly Manufactured Commercial Marine Compression-Ignition Engines (Updated January 2010)
4-43 Estimated National Average Vehicle Emissions Rates per Vehicle by Vehicle Type Using Gasoline and Diesel (Updated July 2010)
4-44 Estimated National Average Vehicle Emissions Rates per Vehicle by Vehicle Type Using Reformulated Gasoline and Diesel (Updated January 2010)
4-45 Estimated National Emissions of Carbon Monoxide (Updated April 2010)
4-46 Estimated National Emissions of Nitrogen Oxides (Updated April 2011)
4-47 Estimated National Emissions of Volatile Organic Compounds (Updated April 2011)
4-48 Estimated National Emissions of Particulate Matter (PM-10) (Updated April 2011)
4-49 Estimated National Emissions of Particulate Matter (PM-2.5) (Updated April 2011)
4-50 Estimated National Emissions of Sulfur Dioxide (Updated April 2011)
4-51 Air Pollution Trends in Selected Metropolitan Statistical Areas (Updated April 2011)

4-52 Areas in Nonattainment of National Ambient Air Quality Standards for Criteria Pollutants (Updated April 2007)
4-53 U.S. Carbon Dioxide Emissions from Energy Use by Sector (Updated July 2010)

**SECTION E. WATER POLLUTION, NOISE, AND SOLID WASTE**

4-54 Petroleum Oil Spills Impacting Navigable U.S. Waters (Updated October 2007)
4-55 Leaking Underground Storage Tank Releases and Cleanups (Updated April 2010)
4-56 Highway Noise Barrier Construction (Updated April 2011)
4-57 Number of People Residing in High Noise Areas around U.S. Airports (Updated July 2010)
4-58 Motor Vehicles Scrapped (Updated April 2011)

**Appendix A. Metric Conversion Tables**

1-1M System Kilometers Within the United States (Updated April 2010)
1-4M Kilometers of Public Roads and Streets in the United States by Type of Surface (Updated April 2010)
1-6M Estimated U.S. Roadway Lane-Kilometers by Functional System (Updated April 2011)
1-36M Roadway Vehicle-Kilometers Traveled (VKT) and VKT per Lane-Kilometers by Functional Class (Updated April 2011)
1-38M Average Length of Haul, Domestic Freight and Passenger Modes (Updated April 2010)
1-40M U.S. Passenger-Kilometers (Updated April 2010)
1-49M U.S. Tonne-Kilometers of Freight (Updated April 2010)
1-50M U.S. Tonne-Kilometers of Freight (BTS Special Tabulation) (Updated April 2010)
1-56M U.S. Waterborne Freight (Updated September 2009)
1-61M Crude Oil and Petroleum Products Transported in the United States by Mode (Updated April 2011)
4-3M Domestic Demand for Refined Petroleum Products by Sector (Updated July 2010)
4-5M Fuel Consumption by Mode of Transportation (Updated July 2010)
4-6M Energy Consumption by Mode of Transportation (Updated April 2010)
4-7M Domestic Demand for Gasoline by Mode (Updated October 2010)
4-8M Certificated Air Carrier Fuel Consumption and Travel (Updated July 2010)
4-9M Motor Vehicle Fuel Consumption and Travel (Updated April 2008)
4-11M Passenger Car and Motorcycle Fuel Consumption and Travel (Updated July 2010)
4-12M Other 2-Axle 4-Tire Vehicle Fuel Consumption and Travel (Updated July 2010)
4-13M Single-Unit 2-Axle 6-Tire or More Truck Fuel Consumption and Travel (Updated October 2010)
4-14M Combination Truck Fuel Consumption and Travel (Updated July 2010)
4-15M Bus Fuel Consumption and Travel (Updated July 2010)
4-16M Transit Industry Electric Power and Primary Energy Consumption and Travel (Updated April 2010)
4-17M Class I Rail Freight Fuel Consumption and Travel (Updated July 2010)
4-18M Amtrak Fuel Consumption and Travel (Updated April 2011)
4-19M U.S. Government Energy Consumption by Agency and Source (Updated September 2009)
4-20M Energy Intensity of Passenger Modes (Updated April 2010)

4-21M Energy Intensity of Certificated Air Carriers, All Services (Updated January 2010)
4-22M Energy Intensity of Passenger Cars, Other 2-Axle 4-Tire Vehicles, and Motorcycles (Updated April 2010)
4-23M Average Fuel Efficiency of U.S. Passenger Cars and Light Trucks (Updated October 2010)
4-24M Energy Intensiveness of Transit Motor Buses (Updated October 2010)
4-25M Energy Intensity of Class I Railroad Freight Service (Updated April 2008)

**Appendix B. Glossary**

**Appendix C. List of Acronyms and Initialisms**

**Appendix D. Modal Profiles**

Air Carrier Profile (Updated April 2008)
General Aviation Profile (Updated July 2010)
Highway Profile (Updated September 2009)
Automobile Profile (Updated September 2009)
Truck Profile (Updated January 2010)
Bus Profile (Updated October 2010)
Transit Profile (Updated October 2010)
Rail Profile (Updated April 2011)
Water Transport Profile (Updated December 2007)
Oil Pipeline Profile (Updated October 2010)
Natural Gas Pipeline Profile (Updated April 2010)

**Appendix E. Data Source and Accuracy Statements**

**Table A: Social and Economic Characteristics of the United States**

| | (R) 1980 | (R) 1985 | (R) 1990 | (R) 1995 | (R) 1996 | (R) 1997 | (R) 1998 | (R) 1999 | (R) 2000 | (R) 2001 | (R) 2002 | (R) 2003 | (R) 2004 | (R) 2005 | (R) 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL U.S. resident population[a] (thousands) | 227,225 | 237,924 | 249,464 | 262,803 | 265,229 | 267,784 | 270,248 | 272,691 | 282,172 | 285,082 | 287,804 | 290,326 | 293,046 | 295,753 | 298,593 | 301,580 | 304,375 | 307,007 |
| Population by Age (thousands) | | | | | | | | | | | | | | | | | | |
| Under 18 | 63,683 | 62,624 | 64,177 | 68,555 | 69,109 | 69,603 | 69,903 | 70,199 | 72,385 | 72,736 | 73,049 | 73,258 | 73,493 | 73,749 | 74,010 | 74,340 | 74,430 | 74,548 |
| 18-24 years | 30,103 | 28,902 | 26,835 | 25,112 | 24,843 | 24,980 | 25,476 | 26,011 | 27,317 | 28,001 | 28,489 | 28,912 | 29,286 | 29,405 | 29,541 | 29,734 | 30,090 | 30,412 |
| 25-34 | 37,429 | 41,697 | 43,148 | 40,730 | 40,246 | 39,559 | 38,743 | 37,936 | 39,826 | 39,584 | 39,546 | 39,523 | 39,632 | 39,713 | 39,944 | 40,371 | 40,958 | 41,566 |
| 35-44 | 25,805 | 31,691 | 37,777 | 42,555 | 43,365 | 44,014 | 44,498 | 44,813 | 45,169 | 45,065 | 44,664 | 44,187 | 43,839 | 43,544 | 43,279 | 42,851 | 42,241 | 41,530 |
| 45-54 | 22,743 | 22,459 | 25,194 | 31,100 | 32,358 | 33,625 | 34,575 | 35,802 | 37,989 | 39,343 | 39,917 | 40,717 | 41,501 | 42,342 | 43,104 | 43,749 | 44,234 | 44,592 |
| 55-64 | 21,754 | 22,135 | 21,093 | 21,132 | 21,353 | 21,816 | 22,666 | 23,389 | 24,413 | 25,031 | 26,568 | 27,806 | 29,033 | 30,296 | 31,510 | 32,668 | 33,623 | 34,787 |
| 65 and over | 25,707 | 28,416 | 31,241 | 33,619 | 33,957 | 34,185 | 34,385 | 34,540 | 35,074 | 35,320 | 35,571 | 35,923 | 36,263 | 36,704 | 37,206 | 37,867 | 38,800 | 39,571 |
| Population by Sex[a] (thousands) | | | | | | | | | | | | | | | | | | |
| Male | 110,399 | 115,730 | 121,626 | 128,294 | 129,504 | 130,783 | 132,030 | 133,277 | 138,459 | 139,999 | 141,414 | 142,677 | 144,138 | 145,561 | 147,061 | 148,612 | 150,074 | 151,449 |
| Female | 116,826 | 122,194 | 127,838 | 134,510 | 135,724 | 137,001 | 138,218 | 139,414 | 143,713 | 145,083 | 146,390 | 147,649 | 148,908 | 150,192 | 151,533 | 152,968 | 154,301 | 155,557 |
| Population in Metropolitan areas[b,c] (thousands) | 177,000 | U | 198,000 | 210,000 | 212,000 | 214,000 | 216,417 | 218,607 | 233,791 | 236,676 | 239,295 | 241,702 | 244,265 | 246,815 | 249,394 | 252,181 | 254,813 | 257,355 |
| Large (over 1 million) | 119,000 | U | 139,000 | 147,000 | 149,000 | 151,000 | 153,143 | 155,905 | 149,757 | 151,843 | 154,596 | 156,164 | 157,802 | 159,424 | 159,921 | 163,742 | 166,565 | 168,350 |
| Medium (250,000-999,999) | 41,000 | U | 41,000 | 44,000 | 44,000 | 43,000 | 43,366 | 42,680 | 56,190 | 57,034 | 56,643 | 56,979 | 58,123 | 58,780 | 61,057 | 60,481 | 60,034 | 61,063 |
| Small (less than 250,000) | 17,000 | U | 18,000 | 19,000 | 19,000 | 20,000 | 19,908 | 20,022 | 27,843 | 27,799 | 28,055 | 28,559 | 28,341 | 28,611 | 28,416 | 27,958 | 28,214 | 27,942 |
| Population in Micropolitan areas[b] (thousands) | NA | NA | NA | NA | NA | NA | NA | NA | 29,189 | 29,261 | 29,374 | 29,488 | 29,634 | 29,784 | 30,010 | 30,186 | 30,339 | 30,450 |
| Population in Rural / Urban[d] areas (thousands) | | | | | | | | | | | | | | | | | | |
| Rural | 59,495 | U | 61,656 | U | U | U | U | U | 59,061 | U | U | U | U | U | U | U | U | U |
| Urban | 167,051 | U | 187,053 | U | U | U | U | U | 222,361 | U | U | U | U | U | U | U | U | U |
| Population in Regions[a] (thousands) | | | | | | | | | | | | | | | | | | |
| Northeast | 49,183.0 | 49,869.0 | 50,875.6 | 51,443.9 | 51,520.3 | 51,591.3 | 51,685.7 | 51,830.0 | 53,667.5 | 53,930.0 | 54,167.7 | 54,364.5 | 54,514.3 | 54,598.2 | 54,710.0 | 54,879.4 | 55,060.2 | 55,283.7 |
| South | 75,721.0 | 81,409.0 | 85,731.7 | 91,777.7 | 92,947.2 | 94,176.8 | 95,348.8 | 96,468.5 | 100,559.9 | 101,868.6 | 103,185.0 | 104,431.6 | 105,874.0 | 107,411.0 | 108,930.8 | 110,573.4 | 112,021.0 | 113,317.9 |
| Midwest | 58,901.2 | 58,820.0 | 59,765.4 | 61,991.9 | 62,371.5 | 62,675.5 | 62,950.5 | 63,242.3 | 64,494.0 | 64,815.4 | 65,074.7 | 65,319.0 | 65,587.7 | 65,806.4 | 66,082.1 | 66,359.2 | 66,595.6 | 66,836.9 |
| West | 43,419.4 | 47,827.0 | 53,091.6 | 57,589.7 | 58,389.6 | 59,340.0 | 60,263.0 | 61,150.1 | 63,450.6 | 64,467.5 | 65,376.4 | 66,211.3 | 67,069.7 | 67,937.5 | 68,870.3 | 69,767.9 | 70,698.0 | 71,568.1 |
| Number of Immigrants admitted[e] | 524,295 | 568,149 | 1,535,872 | 720,177 | 915,560 | 797,847 | 653,206 | 644,787 | 841,002 | 1,058,902 | 1,059,356 | 703,542 | 957,883 | 1,122,257 | 1,266,129 | 1,052,415 | 1,107,126 | 1,130,818 |
| Total area[f] (square miles) | 3,618,770 | U | 3,717,796 | U | U | U | U | U | 3,794,083 | U | U | U | U | U | U | U | U | U |
| Gross domestic product (chained $ 2005 billions)[g] | 5,839.0 | 6,849.3 | 8,033.9 | 9,093.7 | 9,433.9 | 9,854.3 | 10,283.5 | 10,779.9 | 11,226.0 | 11,347.1 | 11,553.0 | 11,840.6 | 12,263.8 | 12,638.4 | 12,976.2 | 13,254.1 | 13,312.1 | 12,987.4 |
| Government, total | U | U | U | U | U | U | 1,461.8 | 1,479.4 | 1,507.1 | 1,519.8 | 1,549.3 | 1,564.8 | 1,576.3 | 1,585.9 | 1,593.2 | 1,614.1 | 1,647.1 | 1,677.6 |
| Private industry, total | U | U | U | U | U | U | 8,885.9 | 9,354.9 | 9,785.6 | 9,911.3 | 10,079.1 | 10,315.7 | 10,713.8 | 11,052.5 | 11,385.5 | 11,633.4 | 11,619.6 | 11,313.9 |
| Agriculture, forestry, fishing, and hunting | U | U | U | U | U | U | 88.8 | 92.8 | 103.7 | 100.2 | 104.3 | 115.2 | 122.7 | 127.1 | 128.1 | 120.8 | 132.3 | 138.4 |
| Mining | U | U | U | U | U | U | 285.9 | 264.8 | 232.5 | 262.7 | 265.9 | 231.3 | 229.3 | 192.0 | 207.6 | 198.3 | 199.0 | 206.3 |
| Utilities | U | U | U | U | U | U | 195.6 | 215.5 | 222.9 | 193.2 | 200.4 | 207.6 | 215.8 | 205.7 | 207.1 | 214.3 | 221.2 | 228.1 |
| Construction | U | U | U | U | U | U | 601.6 | 634.4 | 655.0 | 640.2 | 617.9 | 619.4 | 619.9 | 611.7 | 593.8 | 570.9 | 551.8 | 497.2 |
| Manufacturing | U | U | U | U | U | U | 1245.8 | 1312.7 | 1396.5 | 1332.1 | 1365.3 | 1404.8 | 1517.9 | 1568.0 | 1636.6 | 1709.8 | 1647.4 | 1550.6 |
| Wholesale trade | U | U | U | U | U | U | 537.9 | 566.3 | 606.0 | 636.4 | 642.4 | 681.2 | 717.8 | 725.3 | 747.5 | 766.5 | 761.9 | 754.2 |
| Retail trade | U | U | U | U | U | U | 703.0 | 723.3 | 751.4 | 774.9 | 800.4 | 818.5 | 818.8 | 838.8 | 854.2 | 867.7 | 822.6 | 785.7 |
| Transportation and warehousing | U | U | U | U | U | U | 288.2 | 298.3 | 318.2 | 306.8 | 302.6 | 317.9 | 346.8 | 369.7 | 386.1 | 397.7 | 388.0 | 377.1 |
| Information | U | U | U | U | U | U | 363.3 | 412.6 | 396.9 | 426.4 | 473.7 | 485.8 | 549.5 | 592.6 | 598.3 | 633.9 | 642.6 | 653.0 |
| Finance, insurance, real estate, rental, and leasing | U | U | U | U | U | U | 1991.5 | 2122.1 | 2261.9 | 2399.4 | 2394.4 | 2429.9 | 2465.5 | 2606.5 | 2716.2 | 2775.5 | 2821.1 | 2752.0 |
| Professional and business services | U | U | U | U | U | U | 1158.4 | 1209.7 | 1269.8 | 1300.8 | 1310.5 | 1346.9 | 1393.1 | 1461.8 | 1511.0 | 1551.3 | 1574.6 | 1526.9 |
| Educational services, health care, and social assistance | U | U | U | U | U | U | 784.5 | 805.4 | 824.2 | 845.0 | 880.4 | 909.4 | 937.3 | 953.4 | 985.2 | 1005.3 | 1037.5 | 1051.7 |
| Arts, entertainment, recreation, accomodation, and food services | U | U | U | U | U | U | 400.8 | 425.5 | 442.8 | 436.0 | 444.0 | 454.1 | 472.5 | 481.6 | 496.1 | 503.1 | 496.5 | 481.3 |
| Other services, except government | U | U | U | U | U | U | 338.4 | 341.3 | 346.6 | 310.4 | 320.1 | 314.9 | 317.3 | 318.5 | 318.8 | 325.9 | 325.0 | 310.3 |
| Total civilian labor force (thousands) | 106,940 | 115,461 | 125,840 | 132,304 | 133,943 | 136,297 | 137,673 | 139,368 | 142,583 | 143,734 | 144,863 | 146,510 | 147,401 | 149,320 | 151,428 | 153,124 | 154,287 | 154,142 |
| Participation rate of men (percent) | 77.4 | 76.3 | 76.4 | 75.0 | 74.9 | 75.0 | 74.9 | 74.7 | 74.8 | 74.4 | 74.1 | 73.5 | 73.3 | 73.3 | 73.5 | 73.2 | 73.0 | 72.0 |
| Participation rate of women (percent) | 51.5 | 54.5 | 57.5 | 58.9 | 59.3 | 59.8 | 59.8 | 60.0 | 59.9 | 59.8 | 59.6 | 59.5 | 59.2 | 59.3 | 59.4 | 59.3 | 59.5 | 59.2 |
| Number of households (thousands) | 80,776 | 86,789 | 93,347 | 98,990 | 99,627 | 101,018 | 102,528 | 103,874 | 104,705 | 108,209 | 109,297 | 111,278 | 112,000 | 113,343 | 114,384 | 116,011 | 116,783 | 117,181 |
| Average size of households | 2.76 | 2.69 | 2.63 | 2.65 | 2.65 | 2.64 | 2.62 | 2.61 | 2.62 | 2.58 | 2.58 | 2.57 | 2.57 | 2.57 | 2.57 | 2.56 | 2.56 | 2.57 |
| Median household income[h] (constant $ 2005) | 39,949 | 40,865 | 43,357 | 43,343 | 43,974 | 44,879 | 46,510 | 47,681 | 47,602 | 46,564 | 46,021 | 45,980 | 45,820 | 46,326 | 46,671 | 47,297 | 45,610 | 45,305 |
| Mean household income[h] (constant $ 2005) | 47,512 | 50,291 | 54,159 | 57,159 | 58,384 | 60,265 | 62,023 | 64,132 | 64,771 | 64,186 | 62,779 | 62,697 | 62,493 | 63,344 | 64,457 | 63,657 | 62,040 | 61,869 |
| Average household expenditures[c] (constant $ 2005) | U | 40,643 | 41,095 | 41,039 | 41,874 | 42,228 | 42,503 | 43,345 | 43,130 | 43,576 | 44,141 | 43,326 | 44,850 | 46,409 | 46,862 | 46,736 | 45,776 | 44,659 |

**KEY:** NA = not applicable; R = revised; U = data are not available.

[a] Estimates are as of July 1 for each year. The numbers for each sub-category in each year may not add up to the total population due to rounding.

[b] New metropolitan area definitions were published by the Office of Management and Budget (OMB) in 2003. These definitions were applied to population data by the Census Bureau beginning with the data from the 2000 Census. A new term, core based statistical areas (CBSAs), collectively refers to metropolitan and micropolitan statistical areas. A metropolitan statistical area is defined as having at least one urbanized area of 50,000 or more inhabitants. A micropolitan statistical area is defined as having at least one urban cluster of more than 10,000 but less than 50,000 inhabitants.

[c] Numbers prior to 1999 are estimated to the nearest million.

[d] As of April 1 of year indicated. The Census Bureau only tabulates urban / rural numbers for the decennial census years.

[e] Fiscal year ending September 30.

[f] The Census Bureau calculates square mileage comprising land and water area for the decennial census years. Data for 1980 comprises land and inland water. Data for 1990 comprises land, Great Lakes, inland water, and coastal water. Data for 2000 comprises land, Great Lakes, inland water, territorial water, and coastal water.

[g] Sums of chained-dollar estimates for individual industries do not add to national totals because the chain-type indices used to derive them are based on weights of more than one period.

[h] Converted to constant 2005 dollars by the Bureau of Transportation Statistics using the CPI-U-RS price index.

**SOURCES**

**U.S. resident population, age, sex, region, metropolitan areas, micropolitan areas:**

U.S. Census Bureau, Population Division, *Population Estimates*, available at http://www.census.gov/popest/estbygeo.html as of Aug. 27, 2010.

**Rural / urban:**

1980-90: Ibid., *Statistical Abstract of the United States 2000* (Washington, DC: 2001), table 37.

2000-06: Ibid., *Statistical Abstract of the United States 2008* (Washington, DC: 2008), table 29.

**Immigrants:**

U.S. Department of Homeland Security, U.S. Citizenship and Immigration Services, *Yearbook of Immigration Statistics* (Washington, DC: Annual Issues), table 1, available at http://www.dhs.gov/ximgtn/statistics/ as of Dec. 29, 2009.

**Total area:**

U.S. Department of Commerce, Bureau of the Census, *Statistical Abstract of the United States 2002* (Washington, DC:2003), table 1.

**Gross domestic product:**

1980-97: U.S. Department of Commerce, Bureau of Economic Analysis, *National Economic Accounts*, National Income and Product Accounts Table, table 1.1.6, available at http://www.bea.gov/national/index.htm as of Aug. 30, 2010.

1998-2009: U.S. Department of Commerce, Bureau of Economic Analysis, *Industry Economic Accounts*, Gross-Domestic-Product-by-Industry Accounts, Real Value Added by Industry, available at http://www.bea.gov/industry/index.htm as of Aug. 30, 2010.

**Civilian labor force:**

U.S. Department of Labor, Bureau of Labor Statistics, *Current Population Survey*, Employment status of the civilian noninstitutional population, available at http://www.bls.gov/cps/cpsaat1.pdf as of Aug. 27, 2010.

**Participation rates:**

U.S. Department of Labor, Bureau of Labor Statistics, *Current Population Survey,* Table 2, Employment Status of the Civilian Noninstitutional Population 16 years and Over by Sex, 1971 to Date, available at http://www.bls.gov/cps/cpsaat2.pdf as of Aug. 27, 2010.

**Number of households and average size of households:**

U.S. Department of Commerce, Bureau of the Census, *Current Population Survey*, Table HH-6, Average Populaton Per Household and Family: 1940 to Present, available at http://www.census.gov/population/www/socdemo/hh-fam.html#ht as of Aug. 27, 2010.

**Mean and Median household income:**

U.S. Department of Commerce, Bureau of the Census, *Current Population Survey,* Historical Income Tables, table H-6. Regions--All Races by Median and Mean Income: 1975 to 2009, available at http://www.census.gov/hhes/www/income/data/historical/index.html as of Oct. 30, 2010.

**Average household expenditures:**

U.S Department of Labor, Bureau of Labor Statistics, *Consumer Expenditure Survey*, *Average Annual Expenditures, All Consumer Units*, available at http://www.bls.gov/data/home.htm as of Oct. 29, 2010.

# Chapter 1

# The Transportation System

## Section A
## Physical Extent

**Table 1-1: System Mileage Within the United States (Statute miles)**

| | 1960 | 1965 | 1970 | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Highway[a] | 3,545,693 | 3,689,666 | 3,730,082 | 3,838,146 | 3,859,837 | 3,863,912 | 3,866,926 | 3,883,920 | 3,901,081 | 3,905,211 | 3,906,595 | 3,912,226 | 3,919,652 | 3,945,872 | 3,906,290 | 3,917,243 | 3,936,222 | 3,948,335 | 3,966,485 | 3,974,107 | 3,981,512 | 3,995,635 | 4,016,741 | 4,032,126 | 4,042,778 | U |
| Class I rail[b,c] | 207,334 | 199,798 | 196,479 | 191,520 | 164,822 | 145,764 | 119,758 | 116,626 | 113,056 | 110,425 | 109,332 | 108,264 | 105,779 | 102,128 | 100,570 | 99,430 | 99,250 | 97,817 | 100,125 | 99,126 | 97,662 | 95,664 | 94,801 | 94,313 | 94,082 | 93,921 |
| Amtrak[c] | N | N | N | N | 24,000 | 24,000 | 24,000 | 25,000 | 25,000 | 25,000 | 25,000 | 24,000 | 25,000 | 25,000 | 22,000 | 23,000 | 23,000 | 23,000 | 23,000 | 22,675 | 22,256 | 22,007 | 21,708 | 21,708 | 21,178 | 21,178 |
| Transit[d] | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Commuter rail[c] | N | N | N | N | N | 3,574 | 4,132 | 4,038 | 4,013 | 4,090 | 4,090 | 4,160 | 3,682 | 4,417 | 5,172 | 5,191 | 5,209 | 5,209 | 6,831 | 6,809 | 6,875 | 7,118 | 6,972 | 7,135 | 7,261 | 7,561 |
| Heavy rail | N | N | N | N | N | 1,293 | 1,351 | 1,369 | 1,403 | 1,452 | 1,455 | 1,458 | 1,478 | 1,527 | 1,527 | 1,540 | 1,558 | 1,572 | 1,572 | 1,597 | 1,596 | 1,622 | 1,623 | 1,623 | 1,623 | 1,623 |
| Light rail | N | N | N | N | N | 384 | 483 | 551 | 558 | 537 | 562 | 568 | 638 | 659 | 676 | 802 | 834 | 897 | 960 | 996 | 1,187 | 1,188 | 1,280 | 1,341 | 1,397 | 1,477 |
| Navigable channels[e] | 25,000 | 25,000 | 26,000 | 26,000 | 26,000 | 26,000 | 26,000 | 26,000 | 26,000 | 26,000 | 26,000 | 26,000 | 26,000 | 26,000 | 26,000 | 26,000 | 26,000 | 26,000 | 26,000 | 26,000 | 26,000 | 26,000 | 26,000 | 25,320 | 25,320 | 25,320 |
| Oil pipeline[f,g] | 190,944 | 210,867 | 218,671 | 225,889 | 218,393 | 213,605 | 208,752 | 203,828 | 196,545 | 193,980 | 190,350 | 181,912 | 177,535 | 179,873 | 178,648 | 177,463 | 176,996 | 158,248 | 160,990 | 159,889 | (R) 163,469 | (R) 162,919 | (R) 162,887 | (R) 166,256 | (R) 169,586 | 172,048 |
| Gas pipeline[h] | 630,950 | 767,520 | 913,267 | 979,263 | 1,051,774 | 1,110,785 | 1,270,374 | 1,217,451 | 1,216,081 | 1,277,069 | 1,335,530 | 1,331,676 | 1,314,663 | 1,331,775 | 1,372,644 | 1,364,336 | 1,377,320 | 1,413,555 | 1,462,579 | 1,432,144 | 1,484,813 | (R) 1,484,374 | (R) 1,503,791 | (R) 1,523,411 | (R) 1,532,713 | 1,539,911 |

**KEY:** N = data do not exist; R = revised; U = data are unavailable.

[a] All public road and street mileage in the 50 states and the District of Columbia. For years prior to 1980, some miles of nonpublic roadways are included. No consistent data on private road mileage are available. Beginning in 1998, approximately 43,000 miles of Bureau of Land Management Roads are excluded.

[b] Data represent miles of road owned (aggregate length of road, excluding yard tracks, sidings, and parallel lines).

[c] Portions of *Class I freight railroads* , *Amtrak* , and *Commuter rail* networks share common trackage.*Amtrak* data represent miles of road operated.

[d] *Transit* system length is measured in directional route-miles. Directional route-miles are the distance in each direction over which public transportation vehicles travel while in revenue service. Directional route-miles are computed with regard to direction of service, but without regard to the number of traffic lanes or rail tracks existing in the right-of-way. Beginning in 2002, directional route-mileage data for the*Commuter* and *Light rail* modes include purchased transportation. 2005 and later years directional route-mileage data for the*Heavy rail* mode include purchased transportation.

[e] These are estimated sums of all domestic waterways which include rivers, bays, channels, and the inner route of the Southeast Alaskan Islands, but does not include the Great Lakes or deep ocean traffic. The Waterborne Commerce Statistics Center monitored 12,612 miles as commercially significant inland shallow-draft waterways in 2001. Beginning in 2007, waterways connecting lakes and the St. Lawrence seaway inside the U.S. are included.

[f] The large drop in mileage between 2000 and 2001 is due to a change in the source of the data. CO2 or other is excluded for 2004 to 2008.

[g] Includes trunk and gathering lines for crude-oil pipeline.

[h] Excludes service pipelines. Data not adjusted to common diameter equivalent. Mileage as of the end of each year. Data includes gathering, transmission, and distribution mains. Prior to 1985 data also include field lines. See table 1-10 for a more detailed breakout of*Oil and Gas pipeline* mileage. Length data reported in*Gas Facts* prior to 1985 was taken from the American Gas Association's member survey, the Uniform Statistical Report, supplemented with estimates for companies that did not participate.*Gas Facts* length data is now based on information reported to the U.S. Department of Transportation on Form 7100. Since data for 1985 and later years are obtained from the Pipeline and Hazardous Material Safety Administration, data for these years are not comparable with prior years or with numbers published in the previous NTS reports.

**SOURCES**

**Highway:**

1960-95: U.S. Department of Transportation, Federal Highway Administration,*Highway Statistics Summary to 1995,* FHWA-PL-97-009 (Washington, DC: Annual Issues), table HM-212.

1996-2008: Ibid., *Highway Statistics* , table HM-20, (Washington, DC: Annual Issues), available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of Dec. 21, 2010.

**Class I rail:**

1960-2009: Association of American Railroads,*Railroad Facts* (Washington, DC: Annual Issues), page 3, and similar tables in earlier editions.

**Amtrak:**

1980: Amtrak, *Corporate Planning and Development* , personal communication (Washington, DC).

1985-2001: Amtrak, Corporate Planning and Development,*Amtrak Annual Report, Statistical Appendix* (Washington, DC: Annual Issues).

2002-09: Association of American Railroads,*Railroad Facts* (Washington, DC: Annual Issues), page 77, and similar tables in earlier editions.

**Transit:**

1985-95: U.S. Department of Transportation, Federal Transit Administration,*National Transit Database* (Washington, DC: Annual Issues), available at http://www.ntdprogram.gov/ntdprogram as of Nov. 16, 2009.

1996-2009: Ibid., *National Transit Database* (Washington, DC: Annual Issues), table 23 and similar tables in earlier edition, available at http://www.ntdprogram.gov/ntdprogram as of Dec. 21, 2010.

**Navigable channels:**

1960-96: U.S. Army Corps of Engineers, Ohio River Division, Huntington District,*Ohio River Navigation System Report, 1996, Commerce on the Ohio River and its Tributaries* (Fort Belvoir, VA: 1996), page 2.

1997-99: Ibid., *Waterborne Commerce Statistics Center Databases* , personal communication, Aug. 3, 2001.

2000-04: Ibid., personal communication, Apr. 21, 2006.

2005-06: U.S. Army Corps of Engineers, personal communication, Dec. 12, 2006.

2007-08: U.S. Army Corps of Engineers, personal communication, May 13, 2009 and Dec. 15, 2009.

**Oil pipeline:**

1960-2000: Eno Transportation Foundation, Inc., *Transportation in America, 2002* (Washington, DC: 2002), page 58.

2001-03: U.S. Department of Transportation, Pipeline and Hazardous Materials Administration, Office of Pipeline Safety*Pipeline Statistics* , available at http://ops.dot.gov/stats.htm as of May 22, 2009.

2004-09: U.S. Department of Transportation, Pipeline and Hazardous Materials Administration, Office of Pipeline Safety*Pipeline Statistics* , available at http://ops.dot.gov/stats.htm as of Nov. 30, 2010.

**Gas pipeline:**

1960-80: American Gas Association,*Gas Facts* (Washington, DC: Annual Issues), table 5-1 and similar tables in earlier editions, personal communication, May 07, 2009.

1985-2009: U.S. Department of Transportation, Pipeline and Hazardous Materials Administration, Office of Pipeline Safety*Pipeline Statistics* , available at http://ops.dot.gov/stats.htm as of Nov. 30, 2010.

**Table 1-2: Number of Air Carriers, Railroads, Interstate Motor Carriers, Marine Vessel Operators, and Pipeline Operators**

| | 1960 | 1965 | 1970 | 1975 | 1980 | 1985 | 1990 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Air carriers[a] | N | N | 39 | 36 | 63 | 102 | 70 | 96 | 96 | 96 | 96 | 94 | 91 | 87 | 83 | 80 | 83 | 82 | 98 |
| Major air carriers | N | N | N | N | N | 13 | 14 | 11 | 12 | 13 | 13 | 13 | 15 | 15 | 15 | 14 | 14 | 17 | 21 |
| Other air carriers | N | N | N | N | N | 89 | 56 | 85 | 84 | 83 | 83 | 81 | 76 | 72 | 68 | 66 | 69 | 65 | 77 |
| Railroads | 607 | 568 | 517 | 477 | 480 | 500 | 530 | 541 | 553 | 550 | 559 | 555 | 560 | 571 | 552 | 549 | 556 | 560 | 559 |
| Class I railroads | 106 | 76 | 71 | 73 | 39 | 25 | 14 | 11 | 10 | 9 | 9 | 9 | 8 | 8 | 7 | 7 | 7 | 7 | 7 |
| Other railroads | 501 | 492 | 446 | 404 | 441 | 475 | 516 | 530 | 543 | 541 | 550 | 546 | 552 | 563 | 545 | 542 | 549 | 553 | 552 |
| Interstate motor carriers[b] | U | U | U | U | U | U | 216,000 | 346,000 | 379,000 | 417,000 | 477,486 | 517,297 | 560,393 | 592,909 | 600,104 | 674,314 | 677,317 | 679,744 | U |
| Marine vessel operators[c] | U | U | U | U | U | U | U | 1,381 | 1,348 | 1,311 | 1,235 | 1,174 | 1,114 | 1,063 | 877 | 798 | 767 | 733 | 682 |
| Pipeline operators[d] | N | N | 1,123 | 1,682 | 2,243 | (R) 2,163 | (R) 2,198 | (R) 2,367 | (R) 2,327 | (R) 2,281 | (R) 2,236 | (R) 2,238 | (R) 2,157 | (R) 2,135 | (R) 2,186 | (R) 2,216 | 2,240 | 2,166 | 2,297 |
| Hazardous liquid | N | N | N | N | N | (R) 171 | (R) 171 | (R) 197 | (R) 205 | (R) 216 | (R) 219 | (R) 215 | (R) 220 | (R) 220 | (R) 218 | (R) 235 | (R) 278 | (R) 302 | 324 |
| Natural gas transmission | N | N | 420 | 432 | 474 | 724 | 866 | 975 | 971 | 957 | 889 | 885 | 844 | (R) 837 | (R) 919 | (R) 947 | (R) 941 | (R) 968 | 992 |
| Natural gas distribution[e] | N | N | 938 | 1,500 | 1,932 | 1,485 | 1,382 | 1,444 | 1,397 | 1,365 | 1,375 | 1,393 | 1,363 | 1,341 | 1,331 | (R) 1,311 | (R) 1,344 | (R) 1,352 | 1,325 |

**KEY:** N = data do not exist; R = revised; U = data are not available.

[a] Carrier groups are categorized based on their annual operating revenues as major, national, large regional, and medium regional. The thresholds were last adjusted July 1, 1999, and the threshold for major air carriers is currently $1 billion. The other air carrier category contains all national, large regional, and medium regional air carriers. Beginning in 2003, regional air carriers are not required to report financial data which may result in under reporting of "Other carriers" in this table.

[b] Figures are for the fiscal year, October through September. The Federal Motor Carrier Safety Administration deletes motor carriers from the Motor Carrier Management Information System (MCMIS) when they receive an official notice of a change in status. This most often occurs when a safety audit or compliance review is attempted. As a result, inactive carriers may be included in the MCMIS.

[c] The printed source materials do not contain totals for the number of operators and data files from which the figures can be determined are not available prior to 1993.

[d] There is some overlap among the operators for the pipeline modes. Therefore the total number of pipeline operators is lower than the sum for the three pipeline modes.

[e] In 1975 and 1980, natural gas distribution includes master meter and mobile home park natural gas distribution operators. A master meter system is a pipeline system for distributing gas within, but not limited to, a definable area, such as a mobile home park, housing project, or apartment complex, where the operator purchases metered gas from an outside source for resale through a gas distribution pipeline system. The gas distribution pipeline system supplies the ultimate consumer who either purchases the gas directly through a meter or by other means, such as by rents.

**SOURCES**

**Air carriers:**

1960-2002: U.S. Department of Transportation, Bureau of Transportation Statistics, Office of Airline Information, *Air Carrier Financial Statistics Quarterly* (Washington, DC: Fourth quarter issues), "Alphabetical List of Air Carriers by Carrier Group ...".

2003: Ibid., personal communication, Oct. 5, 2004.

2004-06: U.S. Department of Transportation, Bureau of Transportation Statistics, Office of Airline Information, *Air Carrier Financial Statistics Quarterly* (Washington, DC: Fourth quarter issues), "Alphabetical List of Air Carriers by Carrier Group ".

**Railroads:**

1960-85: Association of American Railroads, *Railroad Ten-Year Trends* , Vol. 2 (Washington, DC), table I-2.

1990-98: Ibid., Vol. 16 (Washington, DC: 1999), p. 10.

1999-2006: Ibid., *Railroad Facts* (Washington, DC: Annual issues), p. 3.

**Interstate motor carriers:**

1990-2001: U.S. Department of Transportation, Federal Motor Carrier Safety Administration, *Motor Carrier Management Information System* , and personal communication, Nov. 6, 2001.

2002-05: U.S. Department of Transportation, Federal Motor Carrier Safety Administration, Analysis and Information Online, available at http://ai.volpe.dot.gov/mcspa.asp as of June 4, 2004, and personal communication, January 2007.

**Marine vessel operators:**

U.S. Army Corps of Engineers, *Waterborne Transportation Lines of the United States, Volume 1, National Summaries* (New Orleans, LA: Annual issues), table 13.

**Pipeline Operators:**

U.S. Department of Transportation, Office of Pipeline Safety, *Gas Distribution Systems* , *Gas Transmission & Gathering Systems and Hazardous Liquid Pipeline Systems Annual Reporting* , and personal communication, as of September 2008.

**Table 1-3: Number of U.S. Airports[a]**

| | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL airports[b] | 15,161 | 16,319 | 17,490 | 17,581 | 17,846 | 18,317 | 18,343 | 18,224 | 18,292 | 18,345 | 18,770 | 19,098 | 19,281 | 19,356 | 19,572 | 19,581 | 19,820 | 19,854 | 19,983 | 20,341 | 19,930 | 19,750 |
| Public use, total | 4,814 | 5,858 | 5,589 | 5,551 | 5,545 | 5,538 | 5,474 | 5,415 | 5,389 | 5,357 | 5,352 | 5,324 | 5,317 | 5,294 | 5,286 | 5,286 | 5,288 | 5,270 | 5,233 | 5,221 | 5,202 | 5,178 |
| Lighted runways, percent | 66.2 | 68.1 | 71.4 | 71.9 | 72.3 | 72.8 | 73.5 | 74.3 | 74.5 | 74.6 | 74.8 | 76.1 | 75.9 | 76.2 | 76.1 | 76.2 | 76.3 | 76.8 | 77.2 | U | U | U |
| Paved runways, percent | 72.3 | 66.7 | 70.7 | 71.5 | 71.6 | 72.2 | 72.9 | 73.3 | 73.7 | 74.0 | 74.2 | 74.2 | 74.3 | 74.6 | 74.5 | 74.5 | 74.5 | 74.8 | 75.3 | U | U | U |
| Private use, total | 10,347 | 10,461 | 11,901 | 12,030 | 12,301 | 12,779 | 12,869 | 12,809 | 12,903 | 12,988 | 13,418 | 13,774 | 13,964 | 14,062 | 14,286 | 14,295 | 14,532 | 14,584 | 14,757 | 14,839 | 14,451 | 14,298 |
| Lighted runways, percent | 15.2 | 9.1 | 7.0 | 6.8 | 6.6 | 6.3 | 6.2 | 6.4 | 6.4 | 6.4 | 6.3 | 6.7 | 7.2 | 8.0 | 8.3 | 8.6 | 9.0 | 9.2 | 9.5 | U | U | U |
| Paved runways, percent | 13.3 | 17.4 | 31.5 | 32.0 | 32.2 | 32.7 | 33.0 | 33.0 | 32.9 | 33.0 | 33.2 | 31.8 | 32.0 | 32.4 | 32.4 | 32.7 | 32.8 | 33.2 | 33.3 | U | U | U |
| Military | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | 281 | 277 | 274 |
| TOTAL civil airports | 15,161 | 16,319 | 17,490 | 17,581 | 17,846 | 18,317 | 18,343 | 18,224 | 18,292 | 18,345 | 18,770 | 19,098 | 19,281 | 19,356 | 19,572 | 19,581 | 19,820 | 19,854 | 19,983 | 20,341 | 19,930 | 19,750 |
| Certificated[c], total | 730 | 700 | 680 | 669 | 664 | 670 | 672 | 667 | 671 | 660 | 660 | 655 | 651 | 635 | 633 | 628 | 599 | 575 | 604 | 565 | (R) 560 | 559 |
| Civil | U | U | U | U | U | U | 577 | 572 | 577 | 566 | 566 | 565 | 563 | 560 | 558 | 555 | 542 | U | U | U | U | U |
| Military | U | U | U | U | U | U | 95 | 95 | 94 | 94 | 94 | 90 | 88 | 75 | 75 | 73 | 57 | U | U | U | U | U |
| General aviation, total | 14,431 | 15,619 | 16,810 | 16,912 | 17,182 | 17,647 | 17,671 | 17,557 | 17,621 | 17,685 | 18,110 | 18,443 | 18,630 | 18,721 | 18,939 | 18,953 | 19,221 | 19,279 | 19,379 | (R) 19,776 | (R) 19,370 | 19,191 |

**KEY:** R = revised; U = data are unavailable.

[a] Includes civil and joint-use civil-military airports, heliports, STOL (short takeoff and landing) ports, and seaplane bases in the United States and its territories. Sole-use military airports are included beginning in 2007.
[b] Total airports in 2006 does not sum from Public and Private based on the source data.
[c] Certificated airports serve air-carrier operations with aircraft seating more than 9 passengers. As of 2005, the Federal Aviation Administration (FAA) no longer certificates military airports.

**SOURCE**
U.S. Department of Transportation, Federal Aviation Administration, *Administrator's Fact Book* (Washington, DC), available at http://www.faa.gov/about/office_org/headquarters_offices/aba/admin_factbook/ as of Apr. 28, 2010.

**Table 1-4: Public Road and Street Mileage in the United States by Type of Surface[a] (Thousands of miles)**

| | 1960 | 1965 | 1970 | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL paved and unpaved | 3,546 | 3,690 | 3,730 | 3,838 | 3,860 | 3,864 | 3,867 | 3,884 | 3,901 | 3,905 | 3,907 | 3,912 | 3,934 | 3,958 | 3,949 | 3,930 | 3,950 | 3,962 | 3,981 | 3,988 | 3,995 | 4,010 | 4,031 |
| Paved[b], total | 1,230 | 1,455 | 1,658 | 1,855 | 2,073 | 2,114 | 2,255 | 2,280 | 2,303 | 2,278 | 2,342 | 2,378 | 2,381 | 2,410 | 2,420 | 2,451 | 2,504 | 2,523 | 2,578 | 2,612 | 2,578 | 2,601 | 2,630 |
| Low and intermediate type | 672 | 758 | 897 | 967 | 1,041 | 1,015 | 1,025 | 1,030 | 1,026 | 1,010 | 1,043 | 1,062 | 1,066 | [d]N | [d]N | [d]N | [d]N | [d]N | [d]N | [d]N | [d]N | [d]N | [d]N |
| High-type | 558 | 696 | 762 | 888 | 1,032 | 1,099 | 1,230 | 1,250 | 1,277 | 1,268 | 1,299 | 1,316 | 1,314 | [d]N | [d]N | [d]N | [d]N | [d]N | [d]N | [d]N | [d]N | [d]N | [d]N |
| Unpaved[c], total | 2,315 | 2,235 | 2,072 | 1,983 | 1,787 | 1,750 | 1,612 | 1,604 | 1,598 | 1,628 | 1,564 | 1,534 | 1,554 | 1,548 | 1,529 | 1,479 | 1,446 | 1,439 | 1,403 | 1,376 | 1,418 | 1,409 | 1,402 |

**KEY:** N = data do not exist.

[a] 1960-95 data include the 50 states and the District of Columbia; 1996-2007 data include the 50 states, District of Columbia, and Puerto Rico.

[b] Paved mileage includes the following categories: low type (an earth, gravel, or stone roadway that has a bituminous surface course less than 1" thick); intermediate type (a mixed bituminous or bituminous penetration roadway on a flexible base having a combined surface and base thickness of less than 7"); high-type flexible (a mixed bituminous or bituminous penetration roadway on a flexible base having a combined surface and base thickness of 7" or more; high-type composite (a mixed bituminous or bituminous penetration roadway of more than 1" compacted material on a rigid base with a combined surface and base thickness of 7" or more; high-type rigid (Portland cement concrete roadway with or without a bituminous wearing surface of less than 1").

[c] Unpaved mileage includes the following categories: unimproved roadways using the natural surface and maintained to permit passability; graded and drained roadways of natural earth aligned and graded to permit reasonably convenient use by motor vehicles, and that have adequate drainage to prevent serious impairment of the road by normal surface water–surface may be stabilized; and soil, gravel, or stone roadways drained and graded with a surface of mixed soil, gravel, crushed stone, slag, shell, etc.–surface may be stabilized. The percentage of unpaved roads that are nonsurfaced dropped from approximately 42% in the 1960s to about 37% in the first half of the 1970s, to about 32% in 1980 and has held at about 22% since 1985.

[d] Data no longer available for paved minor collectors and local public roads.

**NOTES**

A public road is any road under the jurisdiction of and maintained by a public authority (federal, state, county, town or township, local government or instrumentality thereof) and open to public travel. No consistent data on private road mileage are available (although prior to 1980 some nonpublic roadway mileage are included). Most data are provided by the states to the US DOT Federal Highway Administration (FHWA). Some years contain FHWA estimates for some states.

Numbers may not add to totals due to rounding.

**SOURCES**

1960-95: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1995* (Washington, DC), table HM-212, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of March 2009.

1996-2007: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics* (Washington, DC: Annual issues), table HM-12, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of March 2009.

**Table 1-5: U.S. Public Road and Street Mileage by Functional System[a]**

| | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | [b]1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL urban and rural mileage | 3,866,926 | 3,883,920 | 3,901,081 | 3,905,211 | 3,906,595 | 3,912,226 | 3,919,652 | 3,945,872 | 3,906,290 | 3,917,243 | 3,936,222 | 3,948,335 | 3,966,485 | 3,974,107 | 3,981,512 | 3,995,635 | 4,016,741 |
| Urban mileage, total | 744,644 | 749,862 | 785,066 | 805,877 | 813,785 | 819,706 | 826,765 | 836,740 | 841,642 | 846,085 | 852,243 | 877,004 | 894,724 | 940,969 | 981,276 | 1,009,839 | 1,029,366 |
| Principal arterials, Interstates | 11,527 | 11,602 | 12,516 | 12,877 | 13,126 | 13,164 | 13,217 | 13,247 | 13,312 | 13,343 | 13,379 | 13,406 | 13,491 | 14,460 | 15,129 | 15,703 | 16,044 |
| Principal arterials, other freeways, and expressways | 7,668 | 7,709 | 8,491 | 8,841 | 8,994 | 8,970 | 9,027 | 9,063 | 9,127 | 9,132 | 9,140 | 9,126 | 9,323 | 9,870 | 10,246 | 10,560 | 10,748 |
| Principal arterials, other | 51,968 | 52,515 | 51,900 | 52,708 | 53,110 | 52,796 | 52,983 | 53,223 | 53,132 | 53,199 | 53,314 | 53,056 | 53,439 | 56,870 | 59,695 | 61,803 | 62,830 |
| Minor arterials | 74,659 | 74,795 | 80,815 | 86,821 | 87,857 | 88,510 | 89,020 | 89,185 | 89,496 | 89,432 | 89,789 | 89,962 | 90,411 | 93,888 | 97,433 | 101,673 | 102,975 |
| Collectors | 78,254 | 77,102 | 82,784 | 84,854 | 86,089 | 87,331 | 87,790 | 88,049 | 88,071 | 88,005 | 88,200 | 88,713 | 89,247 | 97,114 | 102,150 | 106,109 | 108,833 |
| Local | 520,568 | 526,139 | 548,560 | 559,776 | 564,609 | 568,935 | 574,728 | 583,973 | 588,504 | 592,974 | 598,421 | 622,741 | 638,813 | 668,767 | 696,623 | 713,991 | 727,936 |
| Rural mileage, total | 3,122,282 | 3,134,058 | 3,116,015 | 3,099,334 | 3,092,810 | 3,092,520 | 3,092,887 | 3,109,132 | 3,064,648 | 3,071,158 | 3,083,979 | 3,071,331 | 3,071,761 | 3,033,138 | 3,000,236 | 2,985,796 | 2,987,375 |
| Principal arterials, Interstates | 33,547 | 33,677 | 32,951 | 32,631 | 32,457 | 32,580 | 32,820 | 32,817 | 32,813 | 32,974 | 33,048 | 33,061 | 32,992 | 32,048 | 31,443 | 30,905 | 30,586 |
| Principal arterials, other | 83,802 | 86,747 | 94,947 | 96,770 | 97,175 | 97,948 | 98,131 | 98,257 | 98,852 | 98,838 | 98,919 | 99,185 | 98,853 | 97,038 | 95,946 | 95,156 | 94,937 |
| Minor arterials | 144,774 | 141,795 | 137,685 | 137,577 | 138,120 | 137,151 | 137,359 | 137,497 | 137,308 | 137,462 | 137,575 | 137,587 | 137,568 | 135,596 | 135,449 | 135,408 | 135,386 |
| Major collectors | 436,352 | 436,746 | 434,072 | 432,222 | 431,115 | 431,712 | 432,117 | 432,714 | 432,408 | 432,934 | 433,121 | 433,284 | 430,946 | 424,288 | 420,046 | 419,999 | 419,117 |
| Minor collectors | 293,922 | 293,511 | 284,504 | 282,182 | 282,011 | 274,081 | 273,198 | 272,362 | 272,140 | 271,676 | 271,803 | 271,377 | 270,700 | 267,524 | 267,842 | 264,387 | 262,841 |
| Local | 2,129,885 | 2,141,582 | 2,131,856 | 2,117,952 | 2,111,932 | 2,119,048 | 2,119,262 | 2,135,485 | 2,091,127 | 2,097,274 | 2,109,513 | 2,096,837 | 2,100,702 | 2,076,644 | 2,049,510 | 2,039,941 | 2,044,508 |

[a] Includes the 50 states and the District of Columbia. When states did not submit reports, data were estimated by the U.S. Department of Transportation, Federal Highway Administration.

[b] Beginning in 1998, approximately 43,000 miles of Bureau of Land Management roads are excluded.

**NOTES**

A public road is any road under the ownership of and maintained by a public authority (federal, state, county, town or township, local government or instrumentality thereof) and open to public travel. No consistent data on private road mileage are available. For more detailed information, including breakouts of mileage by ownership and type of surface, see the source document.

**SOURCES**

1990-95: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1995* (Washington, DC), table HM-220, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of March 2009.

1996-2007: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics* (Washington, DC: Annual issues), table HM-20, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of March 2009.

**Table 1-6: Estimated U.S. Roadway Lane-Miles by Functional System[a]**

| | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | [d]1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL lane-miles | 7,922,174 | 8,017,994 | 8,051,081 | 8,087,793 | 8,124,090 | 8,132,196 | 8,143,014 | 8,158,253 | 8,178,654 | 8,242,437 | 8,160,858 | 8,177,983 | 8,224,245 | 8,251,847 | 8,295,171 | 8,315,121 | 8,338,821 | 8,371,718 | 8,420,589 | 8,457,353 |
| Urban, total | 1,395,245 | 1,542,339 | 1,670,496 | 1,682,752 | 1,758,731 | 1,803,775 | 1,825,877 | 1,840,107 | 1,857,649 | 1,882,676 | 1,891,608 | 1,895,986 | 1,915,503 | 1,967,047 | 2,006,436 | 2,108,650 | 2,199,155 | 2,263,360 | 2,308,602 | 2,343,858 |
| Interstates | 48,458 | 57,295 | 62,214 | 62,826 | 67,266 | 69,184 | 70,832 | 71,377 | 71,790 | 72,257 | 73,006 | 73,293 | 73,912 | 74,463 | 75,107 | 79,591 | 82,926 | 85,986 | 87,944 | 89,270 |
| Other arterials[b] | 333,673 | 371,649 | 399,376 | 402,360 | 418,208 | 435,386 | 442,474 | 445,828 | 449,480 | 453,623 | 454,060 | 450,411 | 456,181 | 457,567 | 462,855 | 484,171 | 505,328 | 523,838 | 532,933 | 540,189 |
| Collectors | 145,128 | 162,377 | 167,770 | 165,288 | 176,137 | 179,653 | 183,353 | 185,032 | 186,923 | 188,850 | 187,533 | 186,334 | 188,570 | 189,538 | 190,843 | 207,356 | 217,650 | 225,548 | 231,853 | 233,853 |
| Local | 867,986 | 951,018 | 1,041,136 | 1,052,278 | 1,097,120 | 1,119,552 | 1,129,218 | 1,137,870 | 1,149,456 | 1,167,946 | 1,177,009 | 1,185,948 | 1,196,840 | 1,245,479 | 1,277,631 | 1,337,532 | 1,393,251 | 1,427,988 | 1,455,872 | 1,480,546 |
| Rural, total | 6,526,929 | 6,475,655 | 6,380,585 | 6,405,041 | 6,365,359 | 6,328,421 | 6,317,137 | 6,318,146 | 6,321,005 | 6,359,761 | 6,269,250 | 6,281,997 | 6,308,742 | 6,284,800 | 6,288,735 | 6,206,471 | 6,139,666 | 6,108,358 | 6,111,987 | 6,113,495 |
| Interstates | 130,980 | 131,907 | 135,871 | 136,503 | 133,467 | 132,138 | 131,266 | 131,916 | 132,963 | 133,165 | 133,231 | 134,198 | 134,587 | 134,638 | 134,570 | 130,384 | 127,889 | 125,564 | 124,380 | 123,512 |
| Other arterials[b] | 507,098 | 510,005 | 517,342 | 517,813 | 526,714 | 525,906 | 529,818 | 530,706 | 532,856 | 536,989 | 537,993 | 539,293 | 540,457 | 542,337 | 544,011 | 534,278 | 532,045 | 529,555 | 525,686 | 530,476 |
| Collectors[c] | 1,431,267 | 1,466,789 | 1,467,602 | 1,467,561 | 1,441,466 | 1,434,473 | 1,432,189 | 1,417,428 | 1,416,662 | 1,418,637 | 1,415,774 | 1,413,953 | 1,414,667 | 1,414,155 | 1,408,752 | 1,388,515 | 1,380,712 | 1,373,348 | 1,372,906 | 1,369,500 |
| Local | 4,457,584 | 4,366,954 | 4,259,770 | 4,283,164 | 4,263,712 | 4,235,904 | 4,223,864 | 4,238,096 | 4,238,524 | 4,270,970 | 4,182,252 | 4,194,553 | 4,219,031 | 4,193,670 | 4,201,402 | 4,153,294 | 4,099,020 | 4,079,891 | 4,089,015 | 4,090,007 |

[a] Includes the 50 States and the District of Columbia.

[b] For urban: the sum of other freeways and expressways, other principal arterials, and minor arterials. For rural: the sum of other principal arterials and minor arterials.

[c] Includes minor and major collectors.

[d] Beginning in 1998, approximately 138,400 lane-miles of Bureau of Land Management roads are excluded.

**NOTE**

In estimating rural and urban lane mileage, the U.S. Department of Transportation, Federal Highway Administration assumes that rural minor collectors and urban/rural local roads are two lanes wide.

**SOURCES**

1980-95: U.S. Department of Transportation, Federal Highway Administration, Office of Highway Information Management, *Highway Statistics Summary to 1995* (Washington, DC), table HM-260, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of March 2009.

1996-2007: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics* (Washington, DC: Annual issues), table HM-60, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of March 2009.

**Table 1-7: Number of Stations Served by Amtrak and Rail Transit, Fiscal Year**

| | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Amtrak | 510 | 503 | 491 | 487 | 498 | 504 | 516 | 523 | 524 | 535 | 540 | 530 | 542 | 516 | 508 | 510 | 515 | 512 | 515 | 514 | 517 | 518 | 503 | 497 | (R) 527 | 527 |
| Rail transit | 1,822 | 1,895 | 1,920 | 2,164 | 2,027 | 2,143 | 2,169 | 2,192 | 2,240 | 2,286 | 2,376 | 2,382 | 2,325 | 2,391 | 2,524 | 2,567 | 2,595 | 2,621 | 2,784 | 2,797 | 2,909 | 2,946 | 2,985 | 2,997 | 3,027 | 3,101 |

**KEY:** R = revised.

**NOTES**

Rail transit is the sum of commuter rail, heavy rail, and light rail. In several large urban areas, Amtrak and commuter rail stations are shared. Starting in 2001, stations serving the Alaska Railroad are included in the rail transit total.

Rail transit data for 2002 and later years include both directly operated and purchased transit services. Prior to 2002, data include directly operated services only.

**SOURCES**

**Amtrak:**

1984-98: Amtrak, *Amtrak Annual Report* , Statistical Appendix (Washington, DC: Annual Issues).

1999-2009: Amtrak, *Annual Report* (Washington, DC: Annual Issues), p. 61 and similar pages in previous editions, available at http://www.amtrak.com/servlet/ContentServer?c=Page&pagename=am%2FLayout&cid=1241245669222 as of Nov. 22, 2010.

**Rail transit:**

U.S. Department of Transportation, Federal Transit Administration, *National Transit Database* (Washington, DC: Annual Issues), tables 20 and 21, and similar tables in earlier editions, available at http://www.ntdprogram.gov/ntdprogram/data.htm as of Nov. 22, 2010.

## Table 1-8: ADA Lift- or Ramp-Equipped Transit Buses

| | Small buses | | | Medium buses | | | Large buses | | | Articulated buses | | | Total buses | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | Number | ADA Equipped | Percent | Number | ADA Equipped | Percent | Number | ADA Equipped | Percent | Number | ADA Equipped | Percent | Number | ADA Equipped | Percent |
| 1993 | 3,964 | 3,146 | 79.4 | 3,542 | 1,911 | 54.0 | 46,413 | 23,338 | 50.3 | 1,807 | 693 | 38.4 | 55,726 | 29,088 | 52.2 |
| 1994 | 4,738 | 3,795 | 80.1 | 3,693 | 2,153 | 58.3 | 46,979 | 24,398 | 51.9 | 1,613 | 719 | 44.6 | 57,023 | 31,065 | 54.5 |
| 1995 | 5,372 | 4,539 | 84.5 | 3,879 | 2,561 | 66.0 | 46,355 | 27,420 | 59.2 | 1,716 | 861 | 50.2 | 57,322 | 35,381 | 61.7 |
| 1996 | 5,998 | 5,269 | 87.8 | 4,233 | 3,081 | 72.8 | 45,587 | 29,073 | 63.8 | 1,551 | 893 | 57.6 | 57,369 | 38,316 | 66.8 |
| 1997 | 6,853 | 6,194 | 90.4 | 5,136 | 4,143 | 80.7 | 45,502 | 29,684 | 65.2 | 1,484 | 911 | 61.4 | 58,975 | 40,932 | 69.4 |
| 1998 | 7,147 | 6,545 | 91.6 | 5,929 | 5,150 | 86.9 | 46,188 | 33,512 | 72.6 | 1,566 | 1,071 | 68.4 | 60,830 | 46,278 | 76.1 |
| 1999 | 8,265 | 7,722 | 93.4 | 6,613 | 5,959 | 90.1 | 46,891 | 36,029 | 76.8 | 1,849 | 1,503 | 81.3 | 63,618 | 51,213 | 80.5 |
| 2000 | 8,850 | 8,366 | 94.5 | 7,455 | 6,926 | 92.9 | 47,017 | 37,581 | 79.9 | 2,002 | 1,712 | 85.5 | 65,324 | 54,585 | 83.6 |
| 2001 | 9,622 | 9,176 | 95.4 | 7,830 | 7,337 | 93.7 | 47,925 | 40,501 | 84.5 | 2,002 | 1,771 | 88.5 | 67,379 | 58,785 | 87.2 |
| 2002 | 9,822 | 9,743 | 99.2 | 8,693 | 8,550 | 98.4 | 47,764 | 44,035 | 92.2 | 2,139 | 2,079 | 97.2 | 68,418 | 64,407 | 94.1 |
| 2003 | 10,084 | 10,002 | 99.2 | 9,346 | 9,127 | 97.7 | 46,608 | 43,780 | 93.9 | 2,558 | 2,466 | 96.4 | 68,596 | 65,375 | 95.3 |
| 2004 | 10,248 | 10,098 | 98.5 | 10,031 | 10,031 | 100.0 | 45,919 | 44,739 | 97.4 | 2,591 | 2,586 | 99.8 | 68,789 | 67,454 | 98.1 |
| 2005 | 11,118 | 10,846 | 97.6 | 10,631 | 10,499 | 98.8 | 45,524 | 43,479 | 95.5 | 2,231 | 2,225 | 99.7 | 69,504 | 67,049 | 96.5 |
| 2006 | 11,537 | 11,315 | 98.1 | 10,993 | 10,891 | 99.1 | 45,403 | 44,385 | 97.8 | 2,294 | 2,289 | 99.8 | 70,227 | 68,880 | 98.1 |

**KEY**: ADA = Americans with Disabilities Act of 1992.

**NOTES**

Includes buses of transit agencies receiving federal funding for bus purchases, and buses of agencies not receiving federal funds that voluntarily report data to the Federal Transit Administration.

Large buses have more than 35 seats; medium buses have 25-35 seats; small buses have less than 25 seats; articulated buses are extra-long buses that measure between 54 and 60 feet.

**SOURCE**

1993-2006: U.S. Department of Transportation, Federal Transit Administration, *2005 National Transit Summaries and Trends* (Washington, DC: 2007), p. 57 and similar tables in earlier editions, Internet website http://www.ntdprogram.gov/ntdprogram/pubs/NTST/2006/2006_NTST.pdf as of Feb. 11, 2008.

**Table 1-9: ADA-Accessible Rail Transit Stations by Agency**

| | | Number of stations | | | | | | | | | | | | | | Percent of Stations Not ADA-Accessible | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Type of rail transit / agency | Primary city served | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
| Heavy rail | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| San Francisco Bay Area Rapid Transit District | San Francisco, CA | 36 | 39 | 39 | 39 | 39 | 39 | 39 | 43 | 43 | 43 | 43 | 43 | 43 | 43 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Los Angeles County Metropolitan Transportation Authority | Los Angeles, CA | 5 | 8 | 8 | 13 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Washington Metropolitan Area Transit Authority | Washington, DC | 74 | 75 | 75 | 76 | 78 | 83 | 83 | 83 | 83 | 86 | 86 | 86 | 86 | 86 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Miami-Dade Transit | Miami, FL | 21 | 21 | 21 | 21 | 21 | 21 | 21 | 22 | 22 | 22 | 20 | 22 | 22 | 22 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Metropolitan Atlanta Rapid Transit Authority | Atlanta, GA | 36 | 36 | 36 | 36 | 36 | 38 | 38 | 38 | 38 | 38 | 38 | 38 | 38 | 38 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Chicago Transit Authority | Chicago, IL | 140 | 141 | 141 | 142 | 142 | 144 | 144 | 144 | 144 | 144 | 144 | 144 | 143 | 143 | 100.0 | 100.0 | 100.0 | 90.1 | 62.0 | 55.6 | 55.6 | 54.2 | 50.0 | 50.0 | 47.9 | 44.4 | 39.9 | 37.8 |
| Massachusetts Bay Transportation Authority | Boston, MA | 53 | 53 | 53 | 53 | 53 | 53 | 53 | 53 | 53 | 53 | 53 | 53 | 53 | 53 | 37.7 | 37.7 | 37.7 | 30.2 | 30.2 | 28.3 | 24.5 | 20.8 | 20.8 | 20.8 | 20.8 | 7.5 | 7.5 | 7.5 |
| Maryland Transit Administration | Baltimore, MD | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Metropolitan Transportation Authority New York City Transit | New York, NY | 468 | 468 | 468 | 468 | 468 | 468 | 468 | 468 | 468 | 468 | 468 | 468 | 468 | 468 | 94.0 | 93.6 | 93.6 | 93.4 | 91.2 | 91.2 | 90.6 | 89.3 | 88.5 | 86.1 | 85.3 | 84.0 | 82.9 | 82.3 |
| Port Authority Trans-Hudson Corporation | New York, NY | 13 | 13 | 13 | 13 | 13 | 13 | 11 | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 53.8 | 53.8 | 53.8 | 53.8 | 53.8 | 53.8 | 54.5 | 46.2 | 46.2 | 46.2 | 46.2 | 46.2 | 46.2 | 46.2 |
| Metropolitan Transportation Authority Staten Island Railway | New York, NY | 22 | 22 | 22 | 22 | 22 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 90.9 | 90.9 | 90.9 | 90.9 | 90.9 | 87.0 | 82.6 | 82.6 | 82.6 | 78.3 | 78.3 | 78.3 | 78.3 | 78.3 |
| The Greater Cleveland Regional Transit Authority | Cleveland, OH | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 77.8 | 66.7 | 66.7 | 61.1 | 55.6 | 55.6 | 50.0 | 50.0 | 44.4 | 44.4 | 33.3 | 27.8 | 27.8 | 27.8 |
| Southeastern Pennsylvania Transportation Authority | Philadelphia, PA | 76 | 76 | 76 | 76 | 76 | 76 | 53 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 94.7 | 94.7 | 94.7 | 94.7 | 94.7 | 94.7 | 75.5 | 77.3 | 76.0 | 76.0 | 76.0 | 68.0 | 62.7 | 61.3 |
| Port Authority Transit Corporation | Philadelphia, PA | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 76.9 | 76.9 | 61.5 | 61.5 | 61.5 | 61.5 | 61.5 | 61.5 | 61.5 | 61.5 | 61.5 | 61.5 | 61.5 | 61.5 |
| Commuter rail | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Altamont Commuter Express | San Jose, CA | U | U | U | U | U | U | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | NA | NA | NA | NA | NA | NA | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| North San Diego County Transit District | San Diego, CA | U | U | U | U | U | U | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | NA | NA | NA | NA | NA | NA | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Peninsula Corridor Joint Powers Board | San Francisco, CA | U | U | U | U | U | U | 34 | 34 | 34 | 33 | 32 | 32 | 32 | 32 | NA | NA | NA | NA | NA | NA | 35.3 | 29.4 | 29.4 | 27.3 | 28.1 | 25.0 | 21.9 | 18.8 |
| Southern California Regional Rail Authority | Los Angeles, CA | U | 45 | 46 | 46 | 47 | 49 | 51 | 53 | 53 | 54 | 54 | 54 | 55 | 55 | NA | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Connecticut Department of Transportation | New Haven, CT | U | U | U | U | U | U | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 9 | NA | NA | NA | NA | NA | NA | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 11.1 |
| Virginia Railway Express | Washington, DC | U | U | U | U | U | U | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | NA | NA | NA | NA | NA | NA | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| South Florida Regional Transportation Authority | Miami, FL | U | U | U | U | U | U | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | NA | NA | NA | NA | NA | NA | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Northeast Illinois Regional Commuter Railroad Corporation | Chicago, IL | 226 | 226 | 226 | 227 | 227 | 227 | 227 | 227 | 230 | 231 | 238 | 239 | 239 | 240 | 59.7 | 54.0 | 54.0 | 51.1 | 49.3 | 44.9 | 42.3 | 41.0 | 39.6 | 37.2 | 33.2 | 31.8 | 31.0 | 30.0 |
| Northern Indiana Commuter Transportation District | Chicago, IL | 18 | 18 | 18 | 18 | 18 | 18 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 61.1 | 61.1 | 61.1 | 61.1 | 61.1 | 61.1 | 45.0 | 45.0 | 40.0 | 40.0 | 35.0 | 35.0 | 35.0 | 35.0 |
| Massachusetts Bay Transportation Authority | Boston, MA | U | U | 117 | 119 | 120 | 121 | 124 | 125 | 126 | 126 | 126 | 126 | 133 | 133 | NA | NA | 42.7 | (R) 42.0 | 38.3 | 38.0 | 37.1 | 35.2 | 34.9 | 34.9 | 33.3 | 30.2 | 28.6 | 28.6 |
| Maryland Transit Administration | Baltimore, MD | U | U | U | U | U | U | 42 | 42 | 42 | 42 | 42 | 42 | 42 | 42 | NA | NA | NA | NA | NA | NA | 47.6 | 47.6 | 47.6 | 47.6 | 47.6 | 42.9 | 42.9 | 42.9 |
| Northern New England Passenger Rail Authority (NNEPRA) | Portland, ME | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 10 | 10 | 10 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 0.0 | 0.0 | 0.0 |
| Metro Transit | Minneapolis/St. Cloud, MN | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 6 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 0.0 |
| Rio Metro Regional Transit District | Albuquerque/Santa Fe, NM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 10 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 0.0 |
| New Jersey Transit Corporation | New York, NY | 158 | 158 | 158 | 162 | 162 | 162 | 167 | 168 | 167 | 167 | 162 | 162 | 164 | 164 | 86.1 | 86.1 | 74.1 | 71.6 | 71.6 | 71.6 | 69.5 | 69.0 | 59.3 | 59.3 | 58.6 | 58.6 | 57.3 | 57.3 |
| Metropolitan Transportation Authority Long Island Rail Road | New York, NY | 134 | 134 | 124 | 124 | 124 | 124 | 124 | 124 | 124 | 124 | 124 | 124 | 124 | 124 | 88.8 | 88.8 | 29.0 | 21.8 | 21.8 | 21.8 | 20.2 | 20.2 | 20.2 | 20.2 | 20.2 | 20.2 | 19.4 | 16.1 |
| Metropolitan Transportation Authority Metro-North Railroad | New York, NY | 106 | 106 | 106 | 106 | 108 | 108 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 110 | 84.0 | 82.1 | 81.1 | 81.1 | 81.5 | 74.1 | 73.4 | 70.6 | 70.6 | 70.6 | 65.1 | 65.1 | 61.5 | 60.9 |
| Pennsylvania Department of Transportation | Pennslyvania, PA | U | U | U | U | U | U | 14 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | NA | NA | NA | NA | NA | NA | 71.4 | 66.7 | 66.7 | 66.7 | 66.7 | 66.7 | 66.7 | 66.7 |
| Southeastern Pennsylvania Transportation Authority | Philadelphia, PA | 181 | 177 | 177 | 177 | 177 | 177 | 153 | 156 | 156 | 156 | 156 | 156 | 154 | 154 | 86.2 | 83.1 | 83.1 | 83.1 | 83.1 | 83.1 | 68.6 | 67.3 | 67.3 | 65.4 | 64.7 | 64.7 | 64.3 | 64.3 |
| Regional Transity Authority (RTA) | Nashville, TN | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 6 | 6 | 6 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 0.0 | 0.0 | 0.0 |
| Dallas Area Rapid Transit | Dallas, TX | U | U | U | U | U | U | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 5 | NA | NA | NA | NA | NA | NA | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Fort Worth Transportation Authority | Fort Worth,TX | U | U | U | U | U | U | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | NA | NA | NA | NA | NA | NA | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Utah Transit Authority | Salt Lake City, UT | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 8 | 8 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 0.0 | 0.0 |
| Central Puget Sound Regional Transit Authority | Seattle, WA | U | U | U | U | U | U | 7 | 9 | 9 | 9 | 9 | 9 | 10 | 10 | NA | NA | NA | NA | NA | NA | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Light rail | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Los Angeles County Metropolitan Transportation Authority | Los Angeles, CA | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 49 | 49 | 49 | 49 | 49 | 49 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| San Francisco Municipal Railway | San Francisco, CA | 11 | 11 | 11 | 11 | 11 | 11 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Sacramento Regional Transit District | Sacramento, CA | 28 | 28 | 28 | 29 | 29 | 29 | 29 | 31 | 41 | 41 | 41 | 48 | 48 | 48 | 100.0 | 100.0 | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.2 | 2.4 | 2.4 | 2.4 | 2.1 | 2.1 | 2.1 |
| San Diego Trolley, Inc. | San Diego, CA | 38 | 41 | 49 | 49 | 49 | 49 | 49 | 49 | 49 | 49 | 53 | 53 | 53 | 53 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 2.0 | 2.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Santa Clara Valley Transportation Authority | San Jose, CA | 33 | 34 | 34 | 34 | 47 | 49 | 44 | 44 | 57 | 57 | 65 | 65 | 65 | 65 | 84.8 | 85.3 | 85.3 | 85.3 | 55.3 | 53.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Denver Regional Transportation District | Denver, CO | 15 | 15 | 15 | 15 | 20 | 20 | 20 | 24 | 23 | 23 | 36 | 36 | 36 | 36 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Hillsborough Area Regional Transit Authority | Tampa-St. Petersburg, FL | NA | NA | NA | NA | NA | NA | NA | 8 | 8 | 8 | 8 | 8 | 8 | 8 | NA | NA | NA | NA | NA | NA | NA | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| New Orleans Regional Transit Authority | New Orleans, LA | 2 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | NA | 9 | 9 | 9 | 9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | NA | 0.0 | 0.0 | 0.0 | 0.0 |
| Massachusetts Bay Transportation Authority | Boston, MA | 95 | 95 | 95 | 95 | 95 | 78 | 78 | 70 | 70 | 70 | 70 | 74 | 74 | 74 | 90.5 | 90.5 | 90.5 | 87.4 | 87.4 | 79.5 | 79.5 | 64.3 | 64.3 | 64.3 | 64.3 | 62.2 | 62.2 | 52.7 |
| Maryland Transit Administration | Baltimore, MD | 24 | 24 | 32 | 32 | 32 | 32 | 32 | 32 | 32 | 33 | 33 | 33 | 33 | 33 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| City of Detroit Department of Transportation | Detroit, MI | NA | NA | NA | NA | NA | 8 | 8 | 8 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 100.0 | 100.0 | 100.0 | NA | NA | NA | NA | NA | NA |
| Metro Transit | Minneapolis, MN | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 17 | 17 | 19 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 47.1 | 0.0 | 0.0 |
| Bi-State Development Agency | St. Louis, MO | 18 | 18 | 18 | 18 | 18 | 26 | 26 | 28 | 28 | 28 | 28 | 37 | 37 | 37 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| New Jersey Transit Corporation | Newark, NJ | 11 | 11 | 11 | 11 | 11 | 11 | 26 | 27 | 49 | 52 | 52 | 60 | 60 | 60 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 42.3 | 44.4 | 14.3 | 13.5 | 13.5 | 10.0 | 10.0 | 10.0 |
| Niagara Frontier Transportation Authority | Buffalo, NY | 14 | 14 | 14 | 14 | 14 | 14 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 | 53.3 | 53.3 | 53.3 | 53.3 | 53.3 | 53.3 | 0.0 | 0.0 |
| The Greater Cleveland Regional Transit Authority | Cleveland, OH | 33 | 33 | 33 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 93.9 | 84.8 | 84.8 | 79.4 | 79.4 | 76.5 | 76.5 | 76.5 | 76.5 | 76.5 | 76.5 | 73.5 | 73.5 | 73.5 |
| Tri-County Metropolitan Transportation District of Oregon | Portland, OR | 27 | 27 | 29 | 47 | 47 | 47 | 52 | 52 | 62 | 63 | 63 | 63 | 30 | 30 | 3.7 | 3.7 | 3.4 | 2.1 | 2.1 | 2.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Port Authority of Allegheny County | Pittsburgh, PA | 13 | 13 | 13 | 13 | 13 | 13 | 14 | 14 | 25 | 25 | 25 | 25 | 27 | 23 | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Southeastern Pennsylvania Transportation Authority | Philadelphia, PA | 64 | 64 | 64 | 64 | 64 | 64 | 68 | 46 | 46 | 46 | 46 | 45 | 45 | 45 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 95.6 | 100.0 | 97.8 | 97.8 | 97.8 | 97.8 | 95.6 | 95.6 |
| Memphis Area Transit Authority | Memphis, TN | 20 | 20 | 27 | 28 | 28 | 28 | 28 | 1 | 7 | 7 | 7 | 7 | 7 | 7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Dallas Area Rapid Transit | Dallas, TX | 14 | 20 | 20 | 20 | 20 | 22 | 29 | 34 | 34 | 34 | 34 | 34 | 34 | 39 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Island Transit | Galveston, TX | 3 | 3 | 3 | U | U | U | 3 | 3 | 3 | 3 | 3 | 3 | U | U | 0.0 | 0.0 | 0.0 | NA | NA | NA | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | U | U |
| Metropolitan Transit Authority of Harris County | Houston, TX | NA | NA | NA | NA | NA | NA | NA | NA | 16 | 16 | 16 | 16 | 16 | 16 | NA | NA | NA | NA | NA | NA | NA | NA | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Utah Transit Authority | Salt Lake City, UT | NA | NA | NA | 16 | 16 | 20 | 20 | 23 | 23 | 24 | 25 | 25 | 28 | 28 | NA | NA | NA | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Central Puget Sound Regional Transit Authority | Seattle, WA | NA | NA | NA | NA | NA | NA | NA | 6 | 6 | 6 | 6 | 6 | 6 | 19 | NA | NA | NA | NA | NA | NA | NA | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| King County Department of Transportation | Seattle, WA | 14 | 14 | 14 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | NA | 11 | 11 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | NA | 0.0 | 0.0 |
| Kenosha Transit | Kenosha, WI | NA | NA | NA | NA | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | NA | NA | NA | NA | 100.0 | 100.0 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 |

**KEY**: ADA = Americans with Disabilities Act of 1992; NA = not applicable; R = revised; U = data are unavailable.

**NOTES**

Rail transit data for 2002 and beyond include both directly operated and purchased transportation. Prior to 2002, the data include directly operated service only.
Stations for U.S. territories are excluded.

**SOURCE**

U.S. Department of Transportation, Federal Transit Administration,*National Transit Database* (Washington, DC: Annual Issues), table 21, available at http://www.ntdprogram.gov as of Dec. 8, 2010.

**Table 1-10: U.S. Oil and Gas Pipeline Mileage**

| | 1960 | 1965 | 1970 | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | (R) 2007 | (R) 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Oil pipeline, total[a] | 190,944 | 210,867 | 218,671 | 225,889 | 218,393 | 213,605 | 208,752 | 203,828 | 196,545 | 193,980 | 190,350 | 181,912 | 177,535 | 179,873 | 178,648 | 177,463 | 176,996 | 154,877 | 149,619 | 139,901 | 142,200 | 131,348 | 140,861 | 147,235 | 146,822 | 148,622 |
| Crude lines | 141,085 | 149,424 | 146,275 | 145,679 | 129,831 | 117,812 | 118,805 | 115,860 | 110,651 | 107,246 | 103,277 | 97,029 | 92,610 | 91,523 | 87,663 | 86,369 | 85,480 | 52,386 | 52,854 | 50,149 | 50,749 | 46,234 | 47,617 | 46,658 | 50,214 | 50,214 |
| Product lines | 49,859 | 61,443 | 72,396 | 80,210 | 88,562 | 95,793 | 89,947 | 87,968 | 85,894 | 86,734 | 87,073 | 84,883 | 84,925 | 88,350 | 90,985 | 91,094 | 91,516 | 85,214 | 80,551 | 75,565 | 76,258 | 71,310 | 81,103 | 85,666 | 84,914 | 84,914 |
| Gas pipeline[b], total | 630,900 | 767,500 | 913,300 | 979,300 | 1,051,800 | 1,110,785 | 1,270,374 | 1,217,451 | 1,216,081 | 1,277,069 | 1,335,530 | 1,331,676 | 1,314,663 | 1,331,775 | 1,372,644 | 1,364,336 | 1,377,320 | 1,413,555 | 1,462,579 | 1,432,144 | 1,484,813 | (R) 1,484,374 | (R) 1,503,791 | 1,523,411 | 1,532,713 | 1,539,911 |
| Distribution mains | 391,400 | 494,500 | 594,800 | 648,200 | 701,800 | 784,852 | 945,964 | 890,876 | 891,984 | 951,750 | 1,002,669 | 1,003,798 | 992,860 | 1,002,942 | 1,040,765 | 1,035,946 | 1,050,802 | 1,101,485 | 1,136,479 | 1,107,559 | 1,156,863 | (R) 1,160,312 | (R) 1,182,906 | 1,202,515 | 1,208,986 | 1,217,967 |
| Transmission pipelines | 183,700 | 211,300 | 252,200 | 262,600 | 266,500 | 290,464 | 291,990 | 293,862 | 291,468 | 293,263 | 301,545 | 296,947 | 292,186 | 294,370 | 302,714 | 296,114 | 298,957 | 290,456 | 303,541 | 301,827 | 303,216 | 300,663 | 300,458 | 301,185 | 303,401 | 301,896 |
| Gathering lines[c] | 55,800 | 61,700 | 66,300 | 68,500 | 83,500 | 35,469 | 32,420 | 32,713 | 32,629 | 32,056 | 31,316 | 30,931 | 29,617 | 34,463 | 29,165 | 32,276 | 27,561 | 21,614 | 22,559 | 22,758 | 24,734 | 23,399 | (R) 20,427 | 19,711 | 20,326 | 20,048 |

**KEY:** R = revised.

[a] Mileages of *Oil pipeline* for years 1960-2000 include regulated and unregulated trunk and gathering *Crude lines*, as well as refined oil trunk lines. Beginning in 2001, data include information for Federal Energy Regulatory Comission-regulated oil pipeline companies only. For years 2001 and after, total miles of pipeline include both trunk and *Gathering lines*, whereas the individual components, namely, crude and product lines, include the mileages of trunk lines only. Thus, details do not add to the total for this period.
[b] Excludes service pipeline. Data are not adjusted to common diameter equivalent. Mileage as of the end of each year.
[c] Before 1985, data include field line mileage.

**NOTE**

Mileage data reported in *Gas Facts*, prior to 1985, is taken from the American Gas Association's member survey, the Uniform Statistical Report, supplemented with estimates for companies that did not participate.

**SOURCES**

**Oil pipeline:**

1960-2000: Eno Transportation Foundation, Inc., *Transportation In America 2002* (Washington, DC: 2002), pp. 58 and 59, and similar tables in earlier editions.

2001-09: PennWell Corporation, *Oil and Gas Journal: Transportation Special Report* (Houston, TX), pp. 76 and 120, and similar tables in earlier editions.

**Gas pipeline:**

1960-75: American Gas Association, *Gas Facts, 1979* (Arlington, VA: 1980), table 44. 1980: Ibid., *Gas Facts* (Washington, DC: Annual Issue), tables 5-1 and 5-3.

1985-2009: U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration, Office of Pipeline Safety *Natural Gas Transmission, Gas Distribution, and Hazardous Liquid Pipeline Annual Mileage*, available at http://ops.dot.gov/stats.htm as of Dec. 2, 2010.

# Section B
# Vehicle, Aircraft, and Vessel Inventory

**Table 1-11: Number of U.S. Aircraft, Vehicles, Vessels, and Other Conveyances**

| | 1960 | 1965 | 1970 | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Air | | | | | | | | | | | | | | | | | | | | | | | | | |
| Air carrier[a] | 2,135 | 2,125 | 2,679 | 2,495 | 3,808 | 4,678 | 6,083 | 6,054 | 7,320 | 7,297 | 7,370 | 7,411 | 7,478 | 7,616 | 8,111 | 8,228 | 8,055 | 8,497 | 8,194 | 8,176 | 8,186 | 8,225 | 8,089 | 8,044 | 7,856 |
| General aviation[b] (active fleet) | 76,549 | 95,442 | 131,743 | 168,475 | 211,045 | 210,654 | 198,000 | 196,874 | 185,650 | 177,120 | 172,935 | 188,089 | 191,129 | 192,414 | 204,710 | 219,464 | 217,533 | 211,446 | 211,244 | 209,708 | 219,426 | 224,352 | 221,943 | 231,607 | 228,663 |
| Highway, total (registered vehicles) | 74,431,800 | 91,739,623 | 111,242,295 | 137,912,779 | 161,490,159 | 177,133,282 | 193,057,376 | 192,313,834 | 194,427,346 | 198,041,338 | 201,801,921 | 205,427,212 | 210,441,249 | 211,580,033 | 215,496,003 | 220,461,056 | 225,821,241 | 235,331,382 | 234,624,135 | 236,760,033 | 243,010,549 | 247,421,120 | 250,844,644 | (R) 254,403,081 | 255,917,664 |
| Passenger car | 61,671,390 | 75,257,588 | 89,243,557 | 106,705,934 | 121,600,843 | 127,885,193 | 133,700,496 | 128,299,601 | 126,581,148 | 127,327,189 | 127,883,469 | 128,386,775 | 129,728,341 | 129,748,704 | 131,838,538 | 132,432,044 | 133,621,420 | 137,633,467 | 135,920,677 | 135,669,897 | 136,430,651 | 136,568,083 | 135,399,945 | 135,932,930 | 137,079,843 |
| Motorcycle | 574,032 | 1,381,956 | 2,824,098 | 4,964,070 | 5,693,940 | 5,444,404 | 4,259,462 | 4,177,365 | 4,065,118 | 3,977,856 | 3,756,555 | 3,897,191 | 3,871,599 | 3,826,373 | 3,879,450 | 4,152,433 | 4,346,068 | 4,903,056 | 5,004,156 | 5,370,035 | 5,767,934 | 6,227,146 | 6,678,958 | (R) 7,138,476 | 7,752,926 |
| Other 2-axle 4-tire vehicle[c, d] | U | U | 14,210,591 | 20,418,250 | 27,875,934 | 37,213,863 | 48,274,555 | 53,033,443 | 57,091,143 | 59,993,706 | 62,903,589 | 65,738,322 | 69,133,913 | 70,224,082 | 71,330,205 | 75,356,376 | 79,084,979 | 84,187,636 | 85,011,305 | 87,186,663 | 91,845,327 | 95,336,839 | 99,124,775 | (R) 101,469,615 | 101,234,849 |
| Truck, single-unit 2-axle 6-tire or more[c, d] | U | 13,999,285 | 3,681,405 | 4,231,622 | 4,373,784 | 4,593,071 | 4,486,981 | 4,480,815 | 4,369,842 | 4,407,850 | 4,906,385 | 5,023,670 | 5,266,029 | 5,293,358 | 5,734,925 | 5,762,864 | 5,926,030 | 5,703,501 | 5,650,619 | 5,848,523 | 6,161,028 | 6,395,240 | 6,649,337 | (R) 6,806,630 | 6,790,882 |
| Truck, combination[c, d] | 11,914,249 | 786,510 | 905,082 | 1,130,747 | 1,416,869 | 1,403,266 | 1,708,895 | 1,691,331 | 1,675,363 | 1,680,305 | 1,681,500 | 1,695,751 | 1,746,586 | 1,789,968 | 1,997,345 | 2,028,562 | 2,096,619 | 2,154,174 | 2,276,661 | 1,908,365 | 2,010,335 | 2,086,759 | 2,169,670 | (R) 2,220,995 | 2,215,856 |
| Bus | 272,129 | 314,284 | 377,562 | 462,156 | 528,789 | 593,485 | 626,987 | 631,279 | 644,732 | 654,432 | 670,423 | 685,503 | 694,781 | 697,548 | 715,540 | 728,777 | 746,125 | 749,548 | 760,717 | 776,550 | 795,274 | 807,053 | 821,959 | 834,436 | 843,308 |
| Transit[g] | | | | | | | | | | | | | | | | | | | | | | | | | |
| Motor bus | 49,600 | 49,600 | 49,700 | 50,822 | 59,411 | 64,258 | 58,714 | 60,377 | 63,080 | 64,850 | 68,123 | 67,107 | (R) 53,339 | (R) 54,946 | (R) 55,661 | (R) 57,352 | (R) 58,578 | (R) 60,256 | (R) 60,719 | (R) 61,659 | (R) 61,318 | (R) 62,284 | (R) 64,025 | (R) 63,359 | 63,151 |
| Light rail cars | 2,856 | 1,549 | 1,262 | 1,061 | 1,013 | 717 | 910 | 1,092 | 1,055 | 1,001 | 1,051 | 1,048 | (R) 1,097 | (R) 1,062 | (R) 1,061 | (R) 1,160 | (R) 1,306 | (R) 1,359 | (R) 1,448 | (R) 1,482 | (R) 1,622 | (R) 1,645 | (R) 1,801 | (R) 1,802 | 1,948 |
| Heavy rail cars | 9,010 | 9,115 | 9,338 | 9,608 | 9,641 | 9,326 | 10,567 | 10,478 | 10,391 | 10,282 | 10,282 | 10,166 | (R) 10,243 | (R) 10,228 | (R) 10,296 | (R) 10,362 | (R) 10,311 | (R) 10,718 | (R) 10,849 | (R) 10,754 | (R) 10,858 | (R) 11,110 | (R) 11,052 | (R) 11,222 | 11,377 |
| Trolley bus | 3,826 | 1,453 | 1,050 | 703 | 823 | 676 | 610 | 551 | 665 | 635 | 643 | 695 | (R) 675 | (R) 655 | (R) 646 | (R) 657 | (R) 652 | (R) 600 | (R) 616 | (R) 672 | (R) 597 | (R) 615 | (R) 609 | (R) 559 | 590 |
| Commuter rail cars and locomotives | U | U | U | U | 4,500 | 4,035 | 4,982 | 5,126 | 5,164 | 4,982 | 5,126 | 5,164 | (R) 5,239 | (R) 5,425 | (R) 5,535 | (R) 5,549 | (R) 5,497 | (R) 5,528 | (R) 5,631 | (R) 5,866 | (R) 6,130 | (R) 6,290 | (R) 6,300 | (R) 6,279 | 6,494 |
| Demand response | U | U | U | U | U | 14,490 | 16,471 | 17,879 | 20,695 | 23,527 | 28,729 | 29,352 | (R) 17,738 | (R) 19,820 | (R) 20,042 | (R) 20,761 | (R) 22,087 | (R) 24,668 | (R) 24,808 | (R) 25,873 | (R) 26,333 | (R) 28,346 | (R) 29,406 | (R) 29,433 | 30,773 |
| Other[f] | U | U | U | U | U | 867 | 1,176 | 1,568 | 1,821 | 2,268 | 2,462 | 2,809 | (R) 5,344 | (R) 6,245 | (R) 7,105 | (R) 7,467 | (R) 7,705 | (R) 8,137 | (R) 8,033 | (R) 8,626 | (R) 10,544 | (R) 11,622 | (R) 12,454 | (R) 12,953 | 14,953 |
| Rail | | | | | | | | | | | | | | | | | | | | | | | | | |
| Class I, freight cars | 1,658,292 | 1,478,005 | 1,423,921 | 1,359,459 | 1,168,114 | 867,070 | 658,902 | 633,489 | 605,189 | 587,033 | 590,930 | 583,486 | 570,865 | 568,493 | 575,604 | 579,140 | 560,154 | 499,860 | 477,751 | 467,063 | 473,773 | 474,839 | 475,415 | 460,172 | 450,297 |
| Class I, locomotive | 29,031 | 27,780 | 27,077 | 27,846 | 28,094 | 22,548 | 18,835 | 18,344 | 18,004 | 18,161 | 18,505 | 18,812 | 19,269 | 19,684 | 20,261 | 20,256 | 20,028 | 19,745 | 20,506 | 20,774 | 22,015 | 22,779 | 23,732 | 24,143 | 24,003 |
| Nonclass I freight cars | 32,104 | 37,164 | 29,787 | 29,407 | 102,161 | 111,086 | 103,527 | 97,492 | 90,064 | 88,513 | 86,120 | 84,724 | 87,364 | 116,108 | 121,659 | 126,762 | 132,448 | 125,470 | 130,590 | 124,580 | 120,169 | 120,195 | 120,688 | 120,463 | 109,487 |
| Car companies and shippers freight cars | 275,090 | 285,493 | 330,473 | 334,739 | 440,552 | 443,530 | 449,832 | 458,679 | 477,883 | 497,586 | 515,362 | 550,717 | 582,344 | 585,818 | 618,404 | 662,934 | 688,194 | 688,806 | 691,329 | 687,337 | 693,978 | 717,211 | 750,404 | 805,074 | 833,188 |
| Amtrak, passenger train car | U | U | U | 1,913 | 2,128 | 1,854 | 1,863 | 1,786 | 1,796 | 1,853 | 1,852 | 1,722 | 1,730 | 1,728 | 1,962 | 1,992 | 1,894 | 2,084 | 2,896 | 1,623 | 1,211 | 1,186 | 1,191 | 1,164 | 1,177 |
| Amtrak, locomotive | U | U | U | 355 | 419 | 291 | 318 | 316 | 336 | 360 | 338 | 313 | 299 | 332 | 345 | 329 | 378 | 401 | 372 | 442 | 276 | 258 | 319 | 270 | 278 |
| Water | | | | | | | | | | | | | | | | | | | | | | | | | |
| Nonself-propelled vessels[h, b] | 16,777 | 17,033 | 19,377 | 25,515 | 31,662 | 33,597 | 31,209 | U | 30,899 | 30,785 | 30,730 | 31,360 | 32,811 | 33,011 | 33,509 | 33,387 | 33,152 | 33,042 | 32,381 | 31,335 | 31,296 | 32,052 | 32,211 | 31,654 | 31,238 |
| Self-propelled vessels[h, i] | 6,543 | 6,083 | 6,455 | 6,144 | 7,126 | 7,522 | 8,236 | U | 8,311 | 8,323 | 8,334 | 8,281 | 8,293 | 8,408 | 8,523 | 8,379 | 8,202 | 8,546 | 8,621 | 8,648 | 8,994 | 8,976 | 8,898 | 9,041 | 9,063 |
| Oceangoing self-propelled vessels (1,000 gross tons and over) | (R) 2,926 | (R) 2,376 | 1,579 | (R) 857 | (R) 864 | (R) 737 | (R) 636 | (R) 619 | (R) 603 | (R) 565 | (R) 543 | (R) 509 | (R) 495 | (R) 477 | (R) 470 | (R) 463 | (R) 454 | (R) 443 | (R) 426 | (R) 418 | (R) 423 | (R) 366 | (R) 344 | 275 | 272 |
| Recreational boats[k] | 2,450,484 | 4,138,140 | 5,128,345 | 7,303,286 | 8,577,857 | 9,589,483 | 10,996,253 | 11,068,440 | 11,132,386 | 11,282,736 | 11,429,585 | 11,734,710 | 11,877,938 | 12,312,982 | 12,565,930 | 12,738,271 | 12,782,143 | 12,876,346 | 12,854,054 | 12,794,616 | 12,781,476 | 12,942,414 | 12,746,126 | 12,875,568 | 12,692,892 |

**KEY:** U = data are unavailable; R = revised.

[a] *Air carrier* aircraft are those carrying passengers or cargo for hire under 14 CFR 121 and 14 CFR 135. Beginning in 1990, the number of aircraft is the monthly average of the number of aircraft reported in use for the last three months of the year. Prior to 1990, it was the number of aircraft reported in use during December of a given year.

[b] 1991-94 data revised to reflect changes in adjustment for nonresponse bias with 1996 telephone survey factors; 1995-97 data may not be comparable to 1994 and earlier years due to changes in methodology. Includes air taxi aircraft. Beginning in 2004, commuter activity is excluded from all estimates. Commuter activity was included in the air taxi use category in 2003 and prior.

[c] In 1960, this category includes all *Trucks* and *Other 2-axle 4-tire vehicles* .

[d] 1965 *Other 2-axle 4-tire vehicle* data included in all *Trucks* .

[e] Prior to 1984, excludes most rural and smaller systems funded via Sections 18 and 16(b)(2), Urban Mass Transportation Act of 1964, as amended. Also prior to 1984, includes total vehicles owned and leased.

[f] *Other* includes aerial tramway, automated guideway transit, cable car, ferry boat, inclined plane, monorail, and vanpool.

[g] *Nonself-propelled vessels* include dry-cargo barges, tank barges, and railroad-car floats.

[h] Data for Jan. 1, 1991-June 30, 1991 included in 1990 figure.

[i] *Self-propelled vessels* include dry-cargo and/or passenger, offshore supply vessels, railroad-car ferries, tankers, and towboats.

[j] 1960-2006 data includes private and government owned vessels of 1,000 gross tons and over. Beginning in 2007, data are reported only for privately-owned vessels of 1,000 gross tons and over. All the data are year end data.

[k] *Recreational vessels* that are required to be numbered in accordance with Chapter 123 of Title 46 U.S.C.

**NOTES**

Transit *Motor bus* figure is also included as part of bus in the *Highway* category.

*Bus* and *Demand responsive* in these tables refer to a mode of service, not to a specific vehicle type. *Demand responsive* service, defined as roadway service directly from an origin to a destination determined by the rider and not following a fixed-route, is usually provided by vans, small buses and in a limited number of cases by large buses. *Bus* service is a variety of roadway services that share the characteristic of being entirely or partially fixed routes. *Bus* service includes local service, express service, subscription service, diversionary route service, loop service, and other types. Although *Bus* service is normally provided by buses, it can be provided by smaller vehicles that may be considered large vans.

For more detail on oceangoing vessels, see table 1-23.

*Transit* data for 1996 and later years are obtained from the National Transit Database and cannot be compared with data for earlier years.

**SOURCES**

**Air:**

*Air carrier:*

1960-65: U.S. Department of Transportation, Federal Aviation Administration, *FAA Statistical Handbook of Aviation, 1970* (Washington, DC: 1970), table 5.3.

1970-75: Ibid., *1979 edition* (Washington, DC: 1979), table 5.1.

1980-85: Ibid., *Calendar Year 1986* (Washington, DC: 1986), table 5.1.

1990-94: Ibid., *Calendar Year 1997* (Washington, DC: unpublished), table 5.1, personal communication, Mar. 19, 1999.

1995-2008: Aerospace Industries Association, *Aerospace Facts and Figures* (Washington, DC), p. 94 and similar tables in earlier editions.

*General aviation:*

1960-65: U.S. Department of Transportation, Federal Aviation Administration, *FAA Statistical Handbook of Aviation, 1969* (Washington, DC: 1969), table 9.10.

1970-75: Ibid., *Calendar Year 1976* (Washington, DC: 1976), table 8-6.

1980: Ibid., *General Aviation Activity Survey, Calendar Year 1980* (Washington, DC: 1981), table 1-3.

1985: Ibid., *Calendar Year 1985* (Washington, DC: 1987), table 2-9.

1990-2008: Ibid., *General Aviation and Air Taxi Activity Survey* (Annual Issues), table 1.2, available at http://www.faa.gov/data_research/aviation_data_statistics/general_aviation/ as of May 3, 2010.

**Highway:**

*Passenger car:*

1960-94: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1995*, FHWA-PL-97-009 (Washington, DC: July 1997), table MV-201.

1995-2008: Ibid., Highway Statistics (Washington, DC: Annual Issues), table VM-1, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of May 3, 2010.

*Motorcycle:*

1960-94: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1995*, FHWA-PL-97-009 (Washington, DC: July 1997), table MV-201.

1995-2008: Ibid., Highway Statistics (Washington, DC: Annual Issues), table VM-1, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of May 3, 2010.

*Other 2-axle 4-tire vehicles:*

1970-94: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1995*, FHWA-PL-97-009 (Washington, DC: July 1997), table VM-201A.

1995-2008: Ibid., *Highway Statistics* (Washington, DC: Annual Issues), table VM-1, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of May 3, 2010.

*Single-unit and combination trucks, and buses:*

1960-94: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1995*, FHWA-PL-97-009 (Washington, DC: July 1997), table VM-201A.

1995-2008: Ibid., *Highway Statistics* (Washington, DC: Annual Issues), table VM-1, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of May 3, 2010.

**Transit:**

1960-1995: American Public Transit Association, *Public Transportation Fact Book, Appendix A: Historical Tables* (Washington, DC), table 17 available at: http://www.apta.com/RESOURCES/STATISTICS/Pages/transitstats.aspx as of May 3, 2010.

1996-2008: U.S. Department of Transportation, Federal Transit Administration, *National Transit Database*, Annual Data Tables (Washington, DC: Annual Issues), available at http://www.ntdprogram.gov/ntdprogram/data.htm as of May 13, 2010.

**Rail (all categories, except Amtrak):**

1960-2008: Association of American Railroads, *Railroad Facts* (Washington, DC: Annual Issues), pp. 52 and 69.

**Amtrak:**

*Passenger train-cars and locomotives:*

1975-80: Amtrak, State and Local Affairs Department, personal communication.

1985-2000: Ibid., *Amtrak Annual Report*, Statistical Appendix (Washington, DC: Annual Issues), p. 47.

2001-08: Association of American Railroads, *Railroad Facts* (Washington, DC: Annual Issues), p. 77 and similar tables in earlier editions.

**Water transportation:**

*Nonself-propelled vessels and self-propelled vessels:*

1960-2008: U.S. Army, Corps of Engineers, *Waterborne Transportation Lines of The United States, Volume 1, National Summaries* (New Orleans, LA : Annual Issues), table 1, available at http://www.ndc.iwr.usace.army.mil/veslchar/veslchar.htm as of May 3, 2010.

*Oceangoing self-propelled vessels:*

1960-2000: U.S. Department of Transportation, Maritime Administration, *Merchant Fleets of the World* (Washington, DC: Annual issues), and unpublished revisions.

2001-08: U.S. Department of Transportation, Maritime Administration, personal communication as of Janurary 2008 and June 2010.

*Recreational boats:*

1960-2008: U.S. Department of Transportation, U.S. Coast Guard, Boating Statistics (Washington, DC: Annual Issues), table 31, available at http://www.uscgboating.org/statistics/accident_statistics.aspx as of May 3, 2010.

**Table 1-12: U.S. Sales or Deliveries of New Aircraft, Vehicles, Vessels, and Other Conveyances**

| | 1960 | 1965 | 1970 | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number of civilian aircraft (shipments) | | | | | | | | | | | | | | | | | | | | | | | | |
| Transport [a] | 245 | 233 | 311 | 315 | 387 | 278 | 521 | 589 | 567 | 408 | 309 | 256 | 269 | 374 | 559 | 620 | 485 | 526 | 379 | 281 | (R) 285 | (R) 290 | 398 | 441 |
| Helicopters | N | 598 | 482 | 864 | 1,366 | 384 | 603 | 571 | 324 | 258 | 308 | 292 | 278 | 346 | 363 | 361 | 493 | 415 | 318 | 517 | 805 | 947 | 898 | 1,009 |
| General aviation | 7,588 | 11,852 | 7,283 | 14,072 | 11,881 | 2,029 | 1,144 | 1,021 | 899 | 964 | 928 | 1,077 | 1,115 | 1,549 | 2,193 | 2,475 | 2,802 | 2,618 | 2,196 | 2,130 | (R) 2,344 | (R) 2,850 | 3,147 | 3,279 |
| Highway | | | | | | | | | | | | | | | | | | | | | | | | |
| Passenger car (new retail sales) | 6,641,000 | 9,332,000 | 8,399,000 | 8,624,000 | 8,979,000 | 11,043,000 | 9,300,000 | 8,175,000 | 8,214,000 | 8,518,000 | 8,990,000 | 8,635,000 | 8,526,000 | 8,272,000 | 8,141,721 | 8,698,284 | 8,846,625 | 8,422,625 | 8,103,229 | 7,610,481 | (R) 7,545,149 | (R) 7,719,553 | 7,820,854 | 7,618,413 |
| Motorcycle (new retail sales) [b] | N | N | 1,125,000 | 940,000 | 1,070,000 | 710,000 | 303,000 | 280,000 | 278,000 | 293,000 | 306,000 | 309,000 | 330,000 | 356,000 | 432,000 | 546,000 | 710,000 | 850,000 | 936,000 | 1,001,000 | 1,063,000 | 1,149,000 | 1,190,000 | 1,124,000 |
| Truck (factory sales) [c] | 1,194,475 | 1,716,564 | 1,660,446 | 2,231,630 | 1,667,283 | 3,464,327 | 3,725,205 | 3,387,503 | 4,062,002 | 4,895,224 | 5,640,275 | 5,713,469 | 5,775,730 | 6,152,817 | 6,435,185 | 7,345,019 | 7,022,478 | 6,223,586 | 6,963,720 | 7,143,429 | 7,466,739 | (R) 7,246,737 | 6,442,831 | 6,200,712 |
| Bus; includes school bus (factory sales) | U | 35,241 | 31,994 | 40,530 | 34,385 | 33,533 | 32,731 | 24,058 | 22,484 | 24,549 | 22,409 | 23,918 | 27,583 | 26,882 | 27,483 | U | U | U | U | U | U | U | U | U |
| Recreational vehicle (shipments) | N | 192,830 | 380,300 | 339,600 | 178,500 | 351,700 | 347,300 | 293,700 | 382,700 | 420,200 | 518,800 | 475,200 | 466,800 | 438,800 | 441,300 | 481,200 | 418,300 | 321,000 | 378,700 | 377,800 | 412,100 | 419,500 | 416,800 | 353,500 |
| Bicycle [d] | N | N | N | N | 9,000,000 | 11,400,000 | 10,800,000 | 11,600,000 | 11,600,000 | 13,000,000 | 12,500,000 | 12,000,000 | 10,900,000 | 11,000,000 | 11,100,000 | 11,600,000 | 11,900,000 | 11,300,000 | 13,600,000 | 12,900,000 | 13,000,000 | 14,000,000 | 12,700,000 | 12,800,000 |
| Transit cars (deliveries) | | | | | | | | | | | | | | | | | | | | | | | | |
| Motor bus [e] | (R) 2,806 | 3,000 | 1,424 | 5,261 | 4,572 | (R) 5,390 | (R) 5,728 | (R) 5,961 | (R) 4,668 | (R) 6,524 | (R) 9,740 | (R) 9,317 | (R) 9,328 | (R) 10,529 | (R) 9,970 | (R) 11,331 | (R) 11,916 | (R) 15,958 | (R) 10,600 | (R) 11,754 | (R) 9,373 | (R) 10,394 | (P) 10,944 | U |
| Light rail | 0 | 0 | 0 | 0 | 32 | 63 | 55 | 17 | 35 | 54 | 72 | 38 | 39 | 76 | 80 | 123 | 136 | 111 | 107 | 169 | 127 | 129 | (P) 102 | U |
| Heavy rail | 416 | 580 | 308 | 127 | 130 | 441 | 10 | 6 | 163 | 260 | 55 | 72 | 10 | 34 | 120 | 122 | 204 | 751 | 828 | 470 | 76 | 50 | (P) 462 | U |
| Trolley bus | 0 | 0 | 0 | 1 | 98 | 0 | 118 | 149 | 0 | 24 | 36 | 3 | 3 | 0 | 54 | 0 | 0 | 149 | 88 | 103 | 31 | 23 | (P) 6 | U |
| Commuter rail | 214 | 666 | 302 | 2,165 | 152 | 179 | 83 | 187 | 110 | 8 | 47 | 38 | 111 | 198 | 122 | 132 | 116 | 54 | 166 | 338 | 571 | 476 | (P) 137 | U |
| Class I rail (deliveries) | | | | | | | | | | | | | | | | | | | | | | | | |
| Freight car [f] | 57,047 | 77,822 | 66,185 | 72,392 | 85,920 | 12,080 | 32,063 | 24,678 | 25,761 | 35,239 | 48,819 | 60,853 | 57,877 | 50,396 | 75,685 | 74,223 | 55,791 | 34,260 | 17,714 | 32,184 | 46,871 | 68,612 | 74,729 | U |
| Locomotive | 389 | 1,387 | 1,029 | 772 | 1,480 | 522 | 530 | 472 | 321 | 504 | 821 | 928 | 761 | 743 | 889 | 709 | 640 | 710 | 745 | 587 | 1,121 | 827 | 922 | U |
| Amtrak (deliveries) | | | | | | | | | | | | | | | | | | | | | | | | |
| Passenger train car | N | N | N | 109 | 109 | N | 58 | 0 | 0 | 0 | 64 | 76 | 92 | 10 | 0 | 0 | 26 | U | U | U | U | U | U | U |
| Locomotive | N | N | N | 30 | 17 | 10 | 0 | 0 | 20 | 26 | 18 | 10 | 0 | 111 | 35 | 0 | 4 | U | U | U | U | U | U | U |
| Water transport | | | | | | | | | | | | | | | | | | | | | | | | |
| Merchant vessel [g] | 20 | 13 | 13 | 15 | 23 | 14 | 0 | 0 | 3 | 0 | 1 | 1 | 0 | 1 | 4 | 2 | 0 | 2 | 2 | 6 | (R) 5 | 7 | U | U |
| Recreational boat [h] | N | N | N | N | 569,700 | 636,800 | 494,700 | 448,000 | 466,750 | 498,775 | 576,200 | 663,760 | 634,750 | 610,100 | (R) 571,400 | (R) 582,500 | 576,800 | 880,300 | 844,100 | 837,900 | 870,100 | (R) 864,450 | 912,130 | 841,820 |

**KEY:** N = data do not exist; P = preliminary; R = revised; U = data are not availabl

[a] U.S.-manufactured fixed-wing aircraft over 33,000 pounds empty weight, including all jet transports plus the 4-engine turboprop-powered Lockheed L-100.

[b] Includes domestic and imported vehicles. Prior to 1985, all terrain vehicles (ATVs) were included in the motorcycle total. In 1995, the Motorcycle Industry Cour revised its data for the years 1985 to present to exclude ATVs from its totals.

[c] Includes large passenger or utility vehicles that may be considered cars in other tables, and starting in 1999 includes bus

[d] Includes domestic and imported vehicles, wheel sizes 20 inches and over. Data from 1997 onwards are projectio

[e] Buses or bus-type vehicles only. Includes demand response beginning from 1985. Excludes vanpool vans and most rural and smaller systems prior to 1984. Motor bus numbers in this table are not comparable to the numbers reported in earlier editions due to changes in the methodology by the American Public Transit Association. Transit motor bus figure is also included as part of the bus total in the highway category.

[f] Includes all railroads and private car owners.

[g] Self-propelled, 1,000 or more gross tons.

[h] Retail unit estimates. Includes outboard, inboard, and sterndrive boats, jet boats (since 1995), personal watercraft (since 1991), sailboats, canoes, and kayaks (since 2001). Also includes inflatable boats (except 1992 to 2002) and sailboards (until 1990).

**NOTE**

Truck sales for 1960 and for 1999 and later includes buses.

**SOURCES**

**Civilian aircraft:**

1960-1994: Aerospace Industries Association, *Aerospace Facts and Figures* (Washington, DC: Annual issues), Civil Aircraft Shipments

1995-2007: Aerospace Industries Association, *Aerospace Statistics*, Group 1: General Statistics, Series 02 Year-End Review and Forecast, Year-End Data Tabl table 5, available at http://www.aia-aerospace.org/industry_information/economics/aerospace_statistics/ as of March 17, 2009.

**Highway:**

*Passenger cars and trucks:*

1960-80: American Automobile Manufacturers Association, *Motor Vehicle Facts & Figures, 1998* (Southfield, MI: 1999), p. 21 (passenger car) and p. 6 (truck).

1985-2007: Ward's Communications, *Motor Vehicle Facts & Figures*, *2008* (Detroit, MI: 2008), p. 21 (passenger car) and p. 8 (truck).

*Motorcycles:*

1970-2000: Motorcycle Industry Council, Inc., *Motorcycle Statistical Annual, 2001* (Irvine, CA: 2002), p. 8 and similar tables in earlier editions.

2001-02: Motorcycle Industry Council, Inc., *Motorcycle Sales Rev Up for 11th Straight Year*, media release, Feb. 13, 2004, available at http://www.mic.org as of June 24, 2004.

2003-05: Motorcycle Industry Council, Inc., *Motorcycle and Scooter Sales Climb for 14th Consecutive Year*, media release, Feb. 16, 2007, available at http://www.motorcycles.org as of Apr. 23, 2007.

2006-07: Motorcycle Industry Council, Inc., *Motorcycle and Scooter Sales Top One Million for Record Sixth Consecutive Year*, media release, Feb. 13, 2009, available at http://www.motorcycles.org as of March 2009.

*Buses:*

1965-97: American Automobile Manufacturers Association, *Motor Vehicle Facts & Figures, 1998* (Detroit, MI: 1998), p. 6 and similar tables in earlier editions.

1998: Ward's Communications, *Motor Vehicle Facts & Figures, 1999* (Detroit, MI: 1999), p. 6 and similar tables in earlier editions.

*Recreational vehicles:*

1965-75: Ibid., *Motor Vehicle Facts & Figures, 1998* (Detroit, MI: 1998), p. 12 and similar tables in earlier editions.

1980-2007: Ward's Communications, *Motor Vehicle Facts & Figures*, *2008* (Detroit, MI: 2008), p. 13.

*Bicycles:*

1980-2005: National Bicycle Dealers Association, *Industry Overview*, available at http://www.nbda.com as of Apr. 23, 2007, and personal communication Sept. 24, 1996.

2006-07: National Bicycle Dealers Association, *A Look at the Bicycle Industry's Vital Statistics*, available at http://www.nbda.com as of March 2009.

**Transit:**

American Public Transit Association, *Public Transportation Fact Book* (Washington, DC: Annual issues), available at http://www.apta.com as of March 17, 2009.

**Class I rail:**

Association of American Railroads, *Railroad Facts 2007* (Washington, DC: 2006), p. 55 and similar pages in earlier editions

**Amtrak:**

1975-80: Ibid., *Railroad Facts 1997* (Washington, DC: 1997), p. 17 and similar pages in earlier editions

1985-2000: Amtrak, *Amtrak Annual Report,* Statistical Appendix (Washington, DC: Annual issues).

**Water:**

*Merchant vessel:*

1960-2002: U.S. Department of Transportation, Maritime Administration, *Merchant Fleets of the World* (Washington, DC: Annual issues) and personal communications Sept. 2, 2003, Mar. 1, 2005, and Jan. 9, 2006.

2003-05: U.S. Department of Transportation, Maritime Administration, personal communications, June 21, 200

*Recreational boat:*

1980-1997: National Marine Manufacturers Association, *Boating 2004* (Chicago, IL: 2005), annual retail unit estimates, available at http://www.nmma.org as of Fe 7, 2006.

1998-2007: National Marine Manufacturers Association, *2007 Recreational Boating Statistical Abstract* (Chicago, IL: 2007), available at http://www.nmma.org as of March 17, 2009.

**Table 1-13: Active U.S. Air Carrier and General Aviation Fleet by Type of Aircraft (Number of carriers)**

| | 1965 | 1970 | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AIR CARRIER[a] | 2,125 | 2,679 | 2,495 | 3,805 | 4,678 | 6,083 | 6,054 | 7,320 | 7,297 | 7,370 | 7,411 | 7,478 | 7,616 | 8,111 | 8,228 | 8,055 | 8,497 | 8,194 | 8,176 | 8,186 | 8,225 | 8,089 | 8,044 | 7,856 |
| Fixed Wing, total | 2,104 | 2,663 | 2,488 | 3,803 | 4,673 | 6,072 | 6,048 | 7,187 | 7,173 | 7,242 | 7,293 | 7,357 | 7,482 | 7,994 | 8,106 | 8,010 | 8,370 | 8,161 | 8,144 | 8,150 | 8,182 | 8,042 | 7,998 | 7,808 |
| Turbojet, total | 725 | 2,136 | 2,114 | 2,526 | 3,164 | 4,148 | 4,167 | 4,446 | 4,584 | 4,636 | 4,832 | 4,922 | 5,108 | 5,411 | 5,630 | 5,956 | 6,296 | 6,383 | 6,523 | 6,691 | 6,839 | 6,784 | 6,784 | 6,670 |
| Four engine | 511 | 931 | 602 | 436 | 322 | 432 | 410 | 389 | 410 | 420 | 435 | 440 | 450 | 447 | 441 | 432 | 419 | 365 | 337 | 305 | 310 | 272 | 263 | 237 |
| Three engine | 173 | 659 | 994 | 1,347 | 1,488 | 1,438 | 1,376 | 1,381 | 1,292 | 1,236 | 1,210 | 1,212 | 1,224 | 1,238 | 1,181 | 1,061 | 996 | 790 | 602 | 519 | 540 | 523 | 416 | 373 |
| Two engine | 41 | 546 | 518 | 743 | 1,354 | 2,278 | 2,381 | 2,676 | 2,882 | 2,980 | 3,187 | 3,270 | 3,434 | 3,726 | 4,008 | 4,463 | 4,881 | 5,228 | 5,584 | 5,867 | 5,989 | 5,989 | 6,105 | 6,060 |
| Turboprop, total | 312 | 374 | 260 | 682 | 1,073 | 1,595 | 1,598 | 1,894 | 1,868 | 1,782 | 1,713 | 1,696 | 1,646 | 1,832 | 1,788 | 1,469 | 1,494 | 1,250 | 1,123 | 989 | 889 | 803 | 761 | 701 |
| Four engine | 215 | 110 | 68 | 92 | 108 | 88 | 75 | 107 | 102 | 87 | 81 | 56 | 45 | 39 | 28 | 29 | 24 | 17 | 16 | 17 | 7 | 7 | 7 | 7 |
| Two engine | 89 | 259 | 192 | 590 | 965 | 1,507 | 1,523 | 1,787 | 1,751 | 1,695 | 1,632 | 1,635 | 1,596 | 1,789 | 1,759 | 1,440 | 1,470 | 1,233 | 1,107 | 968 | 880 | 791 | 750 | 685 |
| One engine | 8 | 5 | U | U | U | U | U | U | 15 | 0 | 0 | 5 | 5 | 4 | 1 | 0 | 0 | 0 | 0 | 4 | 2 | 5 | 4 | 9 |
| Piston, total | 1,067 | 153 | 114 | 595 | 436 | 329 | 283 | 847 | 721 | 824 | 748 | 739 | 728 | 751 | 688 | 585 | 580 | 528 | 498 | 470 | 454 | 455 | 453 | 437 |
| Four engine | 447 | 34 | 37 | 73 | 38 | 31 | 26 | 20 | 22 | 19 | 15 | 18 | 19 | 17 | 19 | 17 | 16 | 12 | 13 | 20 | 20 | 18 | 18 | 18 |
| Three engine | 590 | 110 | 69 | U | 4 | 6 | 5 | 5 | 0 | 5 | 1 | 7 | 4 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 2 | 14 | 15 | 14 |
| Two engine | 30 | 9 | 8 | 522 | 394 | 292 | 252 | 415 | 293 | 335 | 333 | 317 | 298 | 391 | 292 | 255 | 173 | 154 | 143 | 125 | 126 | 184 | 181 | 176 |
| One engine | U | U | U | U | U | U | U | 407 | 406 | 465 | 399 | 397 | 407 | 340 | 374 | 310 | 388 | 359 | 339 | 323 | 306 | 239 | 239 | 229 |
| Helicopter | 21 | 16 | 7 | 2 | 5 | 11 | 6 | 133 | 124 | 128 | 118 | 121 | 134 | 117 | 122 | 39 | 127 | 33 | 32 | 36 | 43 | 47 | 46 | 48 |
| GENERAL AVIATION (GENERAL FLEET)[b,f] | 95,442 | 161,743 | 168,475 | 211,043 | 196,500 | 198,000 | 196,874 | 185,650 | 177,120 | 172,935 | 188,089 | 191,129 | 192,414 | 204,710 | 219,464 | 217,533 | 211,446 | 211,244 | 209,708 | 219,426 | 224,352 | 221,943 | 231,607 | 228,663 |
| Fixed Wing, total[c] | 93,130 | 127,934 | 161,570 | 200,094 | 184,700 | 184,500 | 182,585 | 171,671 | 156,936 | 150,158 | 162,342 | 163,691 | 166,854 | 175,203 | 184,723 | 183,276 | 177,697 | 176,283 | 176,624 | 182,867 | 185,373 | 182,186 | 186,806 | 182,961 |
| Turbojet, total | U | 950 | 1,776 | 2,992 | 4,100 | 4,100 | 4,126 | 4,004 | 3,663 | 3,914 | 4,559 | 4,424 | 5,178 | 6,066 | 7,120 | 7,001 | 7,787 | 8,355 | 7,997 | 9,298 | 9,823 | 10,379 | 10,385 | 11,042 |
| Two engine[d] | U | 822 | 1,742 | 2,551 | 3,600 | 3,700 | 3,863 | 3,738 | 3,426 | 3,652 | 4,071 | 4,077 | 4,638 | 5,513 | 6,387 | 6,215 | 5,643 | 7,655 | 7,465 | 8,649 | 9,097 | 10,379 | U | U |
| Other[e] | U | 128 | 34 | 441 | 50 | 400 | 263 | 266 | 237 | 262 | 488 | 347 | 539 | 552 | 733 | 786 | 831 | 701 | 532 | 650 | 727 | U | U | U |
| Turboprop, total | U | 1,458 | 2,519 | 4,089 | 5,000 | 5,300 | 4,941 | 4,786 | 4,116 | 4,092 | 4,995 | 5,716 | 5,619 | 6,174 | 5,679 | 5,762 | 6,596 | 6,841 | 7,689 | 8,379 | 7,942 | 8,063 | 9,514 | 8,906 |
| Two engine[d] | U | 1,287 | 2,486 | 3,966 | 4,900 | 4,900 | 4,415 | 4,187 | 3,443 | 3,605 | 4,295 | 4,917 | 4,939 | 5,076 | 4,641 | 5,040 | 5,643 | 5,703 | 5,790 | 5,858 | 5,307 | 5,487 | 5,456 | 5,456 |
| One engine | U | 138 | 33 | U | U | U | U | U | 650 | 481 | 668 | 719 | 650 | 1,033 | 1,018 | 678 | 915 | 1,108 | 1,821 | 2,468 | 2,595 | 2,576 | 4,059 | 3,450 |
| Other | U | 33 | U | 123 | 100 | 400 | 526 | 599 | 24 | 7 | 32 | 80 | 29 | 65 | 21 | 45 | 38 | 30 | 78 | 54 | 40 | U | U | U |
| Piston, total | 92,556 | 125,526 | 157,275 | 193,013 | 175,600 | 175,200 | 173,518 | 162,881 | 149,156 | 142,152 | 152,788 | 153,551 | 156,056 | 162,963 | 171,923 | 170,513 | 163,314 | 161,087 | 160,938 | 165,189 | 167,608 | 163,743 | 166,907 | 163,013 |
| Two engine[d] | 11,422 | 15,835 | 20,331 | 24,366 | 22,100 | 21,100 | 20,551 | 17,966 | 15,626 | 14,750 | 15,706 | 16,082 | 15,938 | 18,659 | 20,930 | 20,951 | 18,192 | 17,483 | 17,491 | 18,469 | 19,412 | 18,708 | 19,337 | 17,515 |
| One engine | 81,134 | 109,492 | 136,944 | 168,435 | 153,400 | 154,000 | 152,836 | 144,837 | 133,516 | 127,351 | 137,049 | 137,401 | 140,038 | 144,234 | 150,886 | 149,422 | 145,034 | 143,503 | 143,265 | 146,613 | 148,101 | 145,036 | 147,569 | 145,497 |
| Other | U | 199 | U | 212 | 100 | 100 | 131 | 77 | 14 | 51 | 33 | 68 | 79 | 70 | 108 | 140 | 89 | 101 | 182 | 107 | 95 | U | U | U |
| Rotorcraft, total | 1,503 | 2,255 | 4,073 | 6,001 | 6,000 | 6,900 | 6,238 | 5,979 | 4,721 | 4,728 | 5,830 | 6,570 | 6,786 | 7,425 | 7,448 | 7,150 | 6,783 | 6,648 | 6,525 | 7,821 | 8,728 | 9,159 | 9,567 | 9,876 |
| Piston | U | 1,666 | 2,499 | 2,794 | 2,700 | 3,200 | 2,390 | 2,348 | 1,846 | 1,627 | 1,863 | 2,507 | 2,259 | 2,545 | 2,564 | 2,680 | 2,292 | 2,351 | 2,123 | 2,315 | 3,039 | 3,264 | 2,769 | 3,498 |
| Turbine, total | U | 589 | 1,574 | 3,207 | 3,300 | 3,700 | 3,848 | 3,631 | 2,875 | 3,101 | 3,967 | 4,063 | 4,527 | 4,881 | 4,884 | 4,470 | 4,491 | 4,297 | 4,403 | 5,506 | 5,689 | 5,895 | 6,798 | 6,378 |
| Multiengine | U | U | U | U | U | U | U | U | 629 | 616 | 733 | 643 | 764 | 843 | 839 | 694 | 884 | 686 | 853 | 1,130 | 1,151 | 1,268 | 1,367 | 1,371 |
| One engine | U | 589 | U | U | U | U | U | U | 2,246 | 2,485 | 3,234 | 3,420 | 3,762 | 4,038 | 4,045 | 3,776 | 3,607 | 3,611 | 3,550 | 4,376 | 4,537 | 4,627 | 5,431 | 5,007 |
| Other Aircraft, total | 809 | 1,554 | 2,832 | 4,945 | 5,800 | 6,600 | 8,051 | 8,000 | 5,037 | 5,906 | 4,741 | 4,244 | 4,092 | 5,580 | 6,765 | 6,700 | 6,545 | 6,377 | 6,008 | 5,939 | 6,454 | 6,277 | 5,940 | 5,652 |
| Gliders | U | U | U | U | U | U | U | U | 1,814 | 2,976 | 2,182 | 1,934 | 2,016 | 2,105 | 2,041 | 2,041 | 1,904 | 1,951 | 2,002 | 2,116 | 2,074 | 1,975 | 1,947 | 1,914 |
| Lighter-than-Air | U | U | U | U | U | U | U | U | 3,223 | 2,931 | 2,559 | 2,310 | 2,075 | 3,475 | 4,725 | 4,660 | 4,641 | 4,426 | 4,006 | 3,823 | 4,380 | 4,303 | 3,993 | 3,738 |
| Experimental, total | U | U | U | U | U | U | U | U | 10,426 | 12,144 | 15,176 | 16,625 | 14,680 | 16,502 | 20,528 | 20,407 | 20,421 | 21,936 | 20,550 | 22,800 | 23,627 | 23,047 | 23,228 | 23,364 |
| Amateur Built | U | U | U | U | U | U | U | U | 6,171 | 8,833 | 9,328 | 11,566 | 10,261 | 13,189 | 16,858 | 16,739 | 16,736 | 18,168 | 17,028 | 19,165 | 19,817 | 19,316 | 19,538 | 19,657 |
| Exhibition | U | U | U | U | U | U | U | U | 1,868 | 637 | 2,245 | 2,094 | 1,798 | 1,630 | 1,999 | 1,973 | 2,052 | 2,190 | 2,031 | 2,070 | 2,120 | 2,103 | 2,101 | 2,096 |
| Other | U | U | U | U | U | U | U | U | 2,387 | 2,674 | 3,603 | 2,965 | 2,620 | 1,684 | 1,671 | 1,694 | 1,633 | 1,578 | 1,491 | 1,565 | 1,691 | 1,629 | 1,589 | 1,501 |

**KEY:** U = data are unavailable.

[a] *Air carrier* aircraft are aircraft carrying passengers or cargo for hire under 14 CFR 121 (large aircraft-more than 30 seats) and 14 CFR 135 (small aircraft-30 seats or less). This definition is more encompassing than that in the Federal Aviation Administration (FAA) Aviation Forecast- jet aircraft, 60 seats or more carrying passengers or cargo for hire. Beginning in 1990, the number of aircraft is the monthly average reported in use for the last three months of the year. Prior to 1990, it was the number of aircraft reported in use during December of a given year.

[b] Details may not add to totals due to estimation procedures and rounding. Beginning in 1993, excludes commuters. Prior to 1993, single-engine turboprops were included in *Turboprop, Other*; single and multiengine turbine rotorcraft were not shown separately; *Gliders* and *Lighter-than-air* aircraft were combined into the *Other* category; and *Experimental* aircraft were included in the appropriate aircraft type; for example, prior to 1993, the *Piston, One engine* aircraft type included both experimental and nonexperimental aircraft. Starting in 1993, that aircraft type only includes nonexperimental aircraft. Due to changes in methodology beginning in 1995, estimates may not be comparable to those for 1994 and earlier years.

[c] For 1965, total includes 574 turbine aircraft of unspecified subtype.

[d] For 1965-1975 this category includes multiengine aircraft.

[e] For 1975, this category includes single-engine aircraft.

[f] Source reported rounded data for general aviation for 1985 and 1990.

**NOTES**

Prior to 1970, aircraft counts included aircraft retained in FAA data systems until the owners requested that they be deregistered. As a result, thousands of aircraft that had been destroyed over the years remained in the system. Since 1970, annual verification of aircraft registrations is required. Failure to comply with this requirement leads to revocation of the registration certificate and exclusion of the aircraft from the official count of the following year. Listed engine configurations (e.g., two-, three-, multi-) represent all applicable combinations for each aircraft type. Totals may not agree with those in other tables as revisions to prior year data are reported at the aggregate level only.

**SOURCES**

**Air carriers:**

1965: U.S. Department of Transportation, Federal Aviation Administration, *FAA Statistical Handbook of Aviation, 1966 Edition.* (Washington, DC: 1966), table 7.5.
1970: Ibid., *Calendar Year 1971.* (Washington, DC: 1972), table 5.5.
1975: Ibid., *Calendar Year 1975.* (Washington, DC: Dec. 31, 1975), table 5.3.
1980: Ibid., *Calendar Year 1980.* (Washington, DC: Dec. 31, 1980), table 5.2.
1985: Ibid., *Calendar Year 1993.* FAA-APO-95-5 (Washington, DC: 1995), table 5.2.
1990-94: Ibid., *Calendar Year 1996, available at* http://www.api.faa.gov/handbook96/toc96.htm as of Mar. 31, 2000, table 5.2.

1995-2008: Aerospace Industries Association, *Aerospace Facts and Figures* (Washington DC: Annual Issues), "Active U.S. Air Carrier Fleet," and similar tables in earlier editions.

**General aviation:**

1965: U.S. Department of Transportation, Federal Aviation Administration, *FAA Statistical Handbook of Aviation, 1966 Edition.* (Washington, DC: 1966), table 5.1.
1970: Ibid., *Calendar Year 1971.* (Washington, DC: 1972), table 8.3.
1975: Ibid., *Calendar Year 1975.* (Washington, DC: Dec. 31, 1975), table 8.4.
1980: Ibid., *General Aviation Activity and Avionics Survey, Annual Report Calendar Year 1980,* FAA-MS-81-5 (Washington, DC: December 1985), table 2-6.
1985: Ibid., *Annual Summary Report 1994 Data,* FAA-APO-95-10 (Washington, DC: 1996), table 1.2.
1990: Ibid., *General Aviation and Air Taxi Activity Survey, Calendar Year 1999* (Washington, DC: 2001), table 1.2.
1991: Ibid., *General Aviation and Air Taxi Activity Survey, Calendar Year 2002* (Washington, DC: 2004), table 1.2.
1992-2008: Ibid., *General Aviation and Air Taxi Activity Survey, Calendar Year 2008* (Washington, DC: 2009), table 1.2, available at http://www.faa.gov/data_statistics/aviation_data_statistics/general_aviation/ as of Apr. 23, 2010.

**Table 1-14: U.S. Automobile and Truck Fleets by Use (Thousands)**

| | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001[e] | 2002[e] | 2003[e] | 2004[e] | 2005[e] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL automobiles and trucks in fleets | U | U | U | U | U | 15,257 | 15,570 | 15,869 | 16,879 | 15,530 | 15,196 | 13,642 | 11,985 | 12,128 | 11,884 | 12,274 |
| Automobiles in fleets, total | U | U | U | U | U | 9,042 | 9,124 | 9,225 | 9,550 | 7,742 | 7,346 | 6,640 | 5,600 | 5,647 | 5,514 | 5,621 |
| Automobiles in fleets of 25 or more (10 or more cars for 1999-2001 and 15 or more cars for 2002-04)[a] | | | | | | | | | | | | | | | | |
| Business[b] | 2,889 | 2,628 | 2,492 | 1,751 | 1,722 | 1,326 | 1,295 | 1,188 | 1,159 | 3,195 | 2,950 | 2,620 | 930 | 929 | 873 | 877 |
| Government[c] | 538 | 504 | 516 | 401 | 428 | 1,214 | 1,209 | 1,218 | 1,030 | 885 | 883 | 734 | 1,360 | 1,420 | 1,200 | 1,200 |
| Utilities | 551 | 544 | 548 | 386 | 382 | 376 | 376 | 377 | 359 | 320 | 317 | U[f] | U[f] | U[f] | U[f] | U[f] |
| Police | 249 | 250 | 264 | 264 | 266 | 269 | 274 | 280 | 289 | 302 | 306 | 312 | 317 | 317 | 402 | 412 |
| Taxi (includes vans) | 141 | 141 | 140 | 140 | 141 | 139 | 130 | 181 | 190 | 135 | 136 | 142 | 148 | 148 | 156 | 162 |
| Rental (includes vans and SUVs) | 990 | 1,160 | 1,448 | 1,501 | 1,473 | 1,518 | 1,590 | 1,608 | 1,602 | 1,733 | 1,581 | 1,542 | 1,555 | 1,520 | 1,570 | 1,620 |
| Automobiles in fleets of 4 to 24 (4 to 9 cars for 1999-2001 and 5 to 14 cars for 2002-05)[a] | U | U | U | U | U | 4,200 | 4,250 | 4,373 | 4,921 | 1,172 | 1,173 | 1,290 | 1,290 | 1,313 | 1,313 | 1,350 |
| Trucks in fleets, total | U | U | U | U | U | 6,215 | 6,446 | 6,644 | 7,329 | 7,788 | 7,850 | 7,002 | 6,385 | 6,481 | 6,370 | 6,653 |
| Trucks in fleets of 25 or more (10 or more trucks for 1999-2001 and 15 or more cars for 2002-05)[a] | | | | | | | | | | | | | | | | |
| Business[d] | U | U | 1,080 | 1,378 | 1,375 | 1,205 | 1,275 | 1,332 | 1,360 | 3,016 | 3,026 | 2,820 | 2,180 | 2,181 | 2,337 | 2,370 |
| Government[c] | U | U | 297 | 632 | 646 | 2,221 | 2,215 | 2,223 | 2,010 | 2,400 | 2,408 | 2,052 | 2,070 | 2,102 | 1,615 | 1,615 |
| Utilities | U | U | 593 | 493 | 487 | 480 | 482 | 483 | 459 | 499 | 498 | U[f] | U[f] | U[f] | U[f] | U[f] |
| Other (police, taxi, etc.) | U | U | 7 | 7 | 7 | 7 | 7 | 7 | 8 | 8 | 8 | 9 | 9 | 9 | 26 | 37 |
| Rental trucks (not including vans and SUVs) | U | U | 304 | 308 | 363 | 202 | 197 | 179 | 181 | 213 | 248 | 246 | 251 | 289 | 492 | 521 |
| Trucks in fleets of 4 to 24 (4 to 9 trucks for 1999-2001 and 5 to 14 cars from 2002-05)[a] | U | U | U | U | U | 2,100 | 2,270 | 2,420 | 3,311 | 1,652 | 1,662 | 1,875 | 1,875 | 1,900 | 1,900 | 2,110 |

**KEY**: SUV = sport utility vehicle; U = data are not available.

[a] The data source, Bobit Publishing, changed data collection categories in 1999 and again in 2002.

[b] Includes driver schools.

[c] Includes military vehicles and federal, state, county, and local government vehicles.

[d] Businesses with Class 1-5 trucks may include leasing, construction, plumbing, heating, food distribution, pest control, cable TV, etc.

[e] 2001-2005 data do not include employee-owned fleet information as the source has stopped publishing the data.

[f] Business and utility data have been combined in the 2002, 2003, 2004, and 2005 issues of the *Automotive Fleet Fact Book.*

**SOURCE**

Bobit Publishing Co., *Automotive Fleet Fact Book,* annual issues.

**Table 1-15: Annual U.S. Motor Vehicle Production and Factory (Wholesale) Sales (Thousands of units)**

| | 1960 | 1965 | 1970 | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Production, total | 7,905 | 11,120 | 8,284 | 8,987 | 8,010 | 11,638 | 9,767 | 8,790 | 9,691 | 10,855 | 12,239 | 11,995 | 11,830 | 12,131 | 12,003 | 13,025 | 12,774 | 11,425 | 12,280 | 12,087 | 11,960 | 11,947 | 11,260 | 10,752 | 8,673 |
| Passenger cars | 6,703 | 9,335 | 6,550 | 6,717 | 6,376 | 8,186 | 6,078 | 5,440 | 5,667 | 5,982 | 6,601 | 6,340 | 6,083 | 5,934 | 5,554 | 5,638 | 5,542 | 4,879 | 5,019 | 4,510 | 4,230 | 4,321 | 4,367 | 3,924 | 3,777 |
| Commercial vehicles[a] | 1,202 | 1,785 | 1,734 | 2,270 | 1,634 | 3,452 | 3,690 | 3,350 | 4,025 | 4,873 | 5,638 | 5,655 | 5,747 | 6,197 | 6,448 | 7,387 | 7,231 | 6,546 | 7,261 | 7,577 | 7,731 | 7,625 | 6,893 | 6,828 | 4,896 |
| Factory (wholesale) sales, total | 7,869 | 11,057 | 8,239 | 8,985 | 8,067 | 11,467 | 9,775 | 8,795 | 9,747 | 10,857 | 12,189 | 12,023 | 11,916 | 12,223 | 12,112 | 12,127 | 12,527 | 11,108 | U | U | U | U | U | U | U |
| Passenger cars | 6,675 | 9,306 | 6,547 | 6,713 | 6,400 | 8,002 | 6,050 | 5,407 | 5,685 | 5,962 | 6,549 | 6,310 | 6,140 | 6,070 | 5,677 | 5,428 | 5,504 | 4,884 | U | U | U | U | U | U | U |
| Commercial vehicles[a] | 1,194 | 1,752 | 1,692 | 2,272 | 1,667 | 3,464 | 3,725 | 3,388 | 4,062 | 4,895 | 5,640 | 5,713 | 5,776 | 6,153 | 6,435 | 6,699 | 7,022 | 6,224 | 7,286 | 7,606 | 7,846 | 7,798 | 7,059 | 6,946 | 5,105 |

**KEY:** U = data are unavailable.

[a] Includes trucks under 10,000 pounds gross vehicle weight rating (GVWR), such as compact and conventional pickups, sport utility vehicles, minivans, and vans, and trucks and buses over 10,000 pounds GVWR.

**NOTES**

Factory sales can be greater than production total because of sales from previous year's inventory.

Ward's stopped collecting sales data for *Passenger cars* after 2001 because sales data are very close to production data.

Numbers may not add to totals due to rounding.

**SOURCE**

Ward's, *Motor Vehicle Facts & Figures,* U.S. Production and Factory Sales of Cars, Trucks and Buses (Southfield, MI: Annual Issues).

**Table 1-16: Retail[a] New Passenger Car Sales (Thousands of units)**

| | 1970 | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total new passenger car sales | 8,400 | 8,624 | 8,949 | 10,979 | 9,303 | 8,189 | 8,213 | 8,518 | 8,991 | 8,635 | 8,526 | 8,272 | 8,142 | 8,698 | 8,847 | 8,423 | 8,103 | 7,610 | 7,545 | 7,720 | 7,821 | 7,618 | 6,813 |
| Domestic[b] | 7,119 | 7,053 | 6,580 | 8,205 | 6,919 | 6,162 | 6,286 | 6,742 | 7,255 | 7,129 | 7,255 | 6,917 | 6,762 | 6,979 | 6,831 | 6,325 | 5,878 | 5,527 | 5,396 | 5,533 | 5,476 | 5,253 | 4,535 |
| Imports | 1,280 | 1,572 | 2,369 | 2,775 | 2,384 | 2,028 | 1,927 | 1,776 | 1,735 | 1,506 | 1,271 | 1,355 | 1,380 | 1,719 | 2,016 | 2,098 | 2,226 | 2,083 | 2,149 | 2,187 | 2,345 | 2,365 | 2,278 |
| Japan | 313 | 808 | 1,894 | 2,171 | 1,719 | 1,505 | 1,452 | 1,328 | 1,239 | 982 | 726 | 726 | 691 | 758 | 863 | 837 | 930 | 830 | 810 | 923 | 1,154 | 1,183 | 1,142 |
| Germany | 750 | 493 | 292 | 408 | 263 | 193 | 201 | 186 | 192 | 207 | 237 | 297 | 367 | 467 | 517 | 523 | 547 | 544 | 542 | 534 | 561 | 567 | 507 |
| Other | 217 | 271 | 184 | 196 | 402 | 330 | 275 | 262 | 303 | 317 | 308 | 332 | 322 | 494 | 637 | 738 | 749 | 709 | 797 | 729 | 630 | 615 | 630 |

[a] Retail new car sales include both sales to individuals and to corporate fleets. It also includes leased cars.
[b] Includes cars produced in Canada and Mexico.

**NOTE**

Numbers may not add to totals due to rounding.

**SOURCES**

1970: American Automobile Manufacturers Association *Motor Vehicle Facts & Figures 1992* (Detroit, MI: 1992), p. 16.
1980-2008: Ward's, *Motor Vehicle Facts & Figures* (Southfield, MI: Annual Issues).

**Table 1-17: New and Used Passenger Car Sales and Leases (Thousands of vehicles**

| | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | (R) 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total, vehicle sales and leases | (R) 51,667 | (R) 49,820 | (R) 50,057 | (R) 52,243 | (R) 55,539 | (R) 56,864 | (R) 56,250 | (R) 56,727 | (R) 56,799 | (R) 58,140 | (R) 59,426 | (R) 60,092 | (R) 60,164 | (R) 60,539 | (R) 59,844 | (R) 61,583 | (R) 59,614 | (R) 57,879 | 50,024 | 46,093 |
| New vehicle sales and leases | (R) 14,137 | (R) 12,530 | (R) 13,107 | (R) 14,186 | (R) 15,398 | (R) 15,106 | (R) 15,449 | (R) 15,490 | (R) 15,958 | (R) 17,401 | (R) 17,806 | (R) 17,468 | (R) 17,139 | (R) 16,967 | (R) 17,299 | (R) 17,445 | (R) 17,049 | (R) 16,460 | 13,493 | 10,601 |
| Passenger cars | 9,300 | 8,175 | 8,214 | 8,518 | 8,990 | 8,636 | 8,527 | 8,273 | 8,142 | 8,697 | 8,852 | 8,422 | (R) 8,103 | (R) 7,611 | (R) 7,545 | (R) 7,720 | (R) 7,821 | (R) 7,618 | 6,814 | 5,456 |
| Light Trucks | (R) 4,837 | (R) 4,355 | (R) 4,892 | (R) 5,668 | (R) 6,407 | (R) 6,470 | (R) 6,922 | (R) 7,218 | (R) 7,816 | (R) 8,704 | (R) 8,954 | (R) 9,046 | (R) 9,035 | (R) 9,357 | (R) 9,753 | (R) 9,725 | (R) 9,228 | (R) 8,842 | 6,680 | 5,145 |
| New vehicle sales[a] | (R) 13,562 | (R) 11,787 | (R) 11,904 | (R) 12,334 | (R) 12,879 | (R) 12,458 | (R) 12,486 | (R) 12,066 | (R) 12,371 | (R) 12,990 | (R) 13,644 | (R) 13,861 | (R) 13,967 | (R) 13,919 | (R) 14,042 | (R) 14,047 | (R) 13,816 | (R) 13,002 | 11,232 | 8,893 |
| Passenger cars | 8,766 | 7,508 | 7,332 | 7,321 | 7,275 | 6,841 | 6,721 | 6,211 | (R) 5,968 | 6,395 | 6,581 | 6,407 | 6,371 | (R) 5,928 | (R) 5,777 | (R) 5,859 | (R) 6,128 | (R) 5,875 | 5,649 | 4,581 |
| Light Trucks | (R) 4,796 | (R) 4,279 | (R) 4,571 | (R) 5,013 | (R) 5,603 | (R) 5,617 | (R) 5,765 | (R) 5,856 | (R) 6,403 | (R) 6,595 | (R) 7,063 | (R) 7,454 | (R) 7,596 | (R) 7,991 | (R) 8,264 | (R) 8,188 | (R) 7,688 | (R) 7,127 | 5,582 | 4,313 |
| New vehicle leases[b] | 575 | 743 | 1,203 | 1,852 | 2,519 | 2,648 | 2,963 | 3,424 | 3,587 | 4,411 | 4,162 | 3,607 | (R) 3,172 | (R) 3,048 | 3,257 | 3,397 | 3,233 | 3,458 | 2,262 | 1,708 |
| Passenger cars | 534 | 667 | 882 | 1,197 | 1,715 | 1,795 | 1,806 | 2,062 | 2,174 | 2,301 | 2,272 | 2,015 | 1,732 | 1,683 | 1,768 | 1,861 | 1,693 | 1,743 | 1,164 | 876 |
| Light Trucks | 41 | 76 | 321 | 655 | 804 | 853 | 1,157 | 1,362 | 1,413 | 2,110 | 1,891 | 1,593 | 1,439 | 1,366 | 1,489 | 1,536 | 1,540 | 1,715 | 1,098 | 833 |
| Used vehicle sales[c] | 37,530 | 37,290 | 36,950 | 38,057 | 40,141 | 41,758 | 40,801 | 41,237 | 40,841 | 40,739 | 41,620 | 42,624 | 43,025 | 43,572 | 42,545 | 44,138 | 42,566 | (R) 41,419 | 36,530 | 35,492 |
| Value ($ in billions)[d] | | | | | | | | | | | | | | | | | | | | |
| Total, new and used vehicle sales | 447 | 437 | 486 | 524 | 582 | 611 | 627 | 642 | 651 | 698 | 736 | 737 | 721 | 738 | 765 | 776 | 786 | 774 | 643 | 575 |
| New vehicle sales | 227 | 208 | 240 | 267 | 291 | 292 | 298 | 306 | 316 | 348 | 380 | 369 | 371 | 382 | 407 | 421 | 445 | 435 | 351 | 274 |
| Used vehicle sales | 220 | 229 | 246 | 257 | 291 | 319 | 329 | 336 | 335 | 350 | 356 | 367 | 350 | 356 | 358 | 355 | 341 | 339 | 292 | 301 |
| Average Price (current $)[d] | | | | | | | | | | | | | | | | | | | | |
| New and used vehicle sales | (R) 8,691 | (R) 8,813 | 9,759 | 10,078 | 10,543 | 10,818 | 11,221 | 11,385 | 11,545 | 12,098 | 12,469 | 12,321 | 12,034 | 12,253 | 12,868 | 12,695 | (R) 13,287 | 13,451 | 12,909 | 12,519 |
| New vehicle sales | 16,350 | 16,880 | 18,655 | 19,200 | 19,335 | 19,819 | 19,727 | 20,214 | 20,276 | 20,534 | 21,850 | 21,507 | 22,005 | 22,894 | 24,082 | 24,796 | 26,854 | 26,950 | 26,477 | 26,249 |
| Used vehicle sales | 5,857 | 6,143 | 6,656 | 6,742 | 7,245 | 7,644 | 8,073 | 8,139 | 8,211 | 8,587 | 8,547 | 8,619 | 8,130 | 8,180 | 8,410 | 8,036 | 8,009 | 8,186 | 7,986 | 8,483 |

**KEY:** R = revised.

[a] New vehicle sales data is calculated by subtracting CNW Marketing's vehicle leasing data from BEA's data which combines sales and leases (see below for sources).

[b] Consumer leases only.

[c] Used car sales include sales from franchised dealers, independent dealers, and casual sales.

[d] Includes leased vehicles.

**NOTES**

Average price cannot be calculated from the data presented in this table because the vehicle sales and value of sales are from different sources.

Components may not add to totals due to rounding.

*New vehicle sales and leases* reported in this table are not seasonally adjusted. These data are not comparable to the data reported in table 1-18 due to differences that arise from the seasonal adjustment.

**SOURCES**

**New vehicle sales and leases:**
U.S. Department of Commerce, Bureau of Economic Analysis,*Underlying Detail for the National Income and Product Account Tables*, Table 7.2.5S, available at http://www.bea.gov/ as of Sept. 1, 2010.

**New vehicle sales:**
Calculated by U.S. Department of Transportation, Bureau of Transportation Statistics.

**New vehicle leases:**
CNW Marketing / Research, personal communication, Aug. 30, 2010.

**Used vehicle sales, value, and average price:**
Manheim Consulting, personal communication, Aug. 27, 2010.

**Table 1-18: Retail Sales and Leases of New Cars by Sector (Thousands of vehicles)**

| | 1965 | 1970 | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | (R) 2004 | 2005 | (R) 2006 | (R) 2007 | (R) 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total sales and leases of new cars | 9,333 | (R) 8,403 | 8,538 | 8,982 | 10,978 | 9,300 | 8,175 | 8,214 | 8,518 | 8,990 | 8,637 | 8,527 | 8,273 | (R) 8,143 | 8,697 | 8,852 | 8,422 | 8,102 | 7,615 | 7,545 | (R) 7,720 | 7,821 | 7,618 | 6,813 | 5,456 |
| Consumer | 7,103 | 6,252 | 5,907 | 6,100 | 7,092 | 5,677 | 4,424 | 4,566 | 4,656 | 4,600 | 4,326 | 4,079 | 3,907 | (R) 3,981 | (R) 4,388 | (R) 4,678 | (R) 4,629 | (R) 4,523 | 4,341 | 4,275 | (R) 4,335 | 4,330 | 4,113 | 3,759 | 3,228 |
| Business | 2,140 | 2,056 | 2,508 | 2,758 | 3,754 | 3,477 | 3,648 | 3,529 | 3,672 | 4,183 | 4,070 | 4,223 | 4,166 | 3,943 | 4,076 | (R) 3,950 | (R) 3,570 | (R) 3,374 | 3,074 | 3,078 | (R) 3,169 | 3,239 | 3,255 | 2,820 | 2,041 |
| Government | 90 | 94 | 123 | 124 | 132 | (R) 147 | 103 | 119 | 190 | 207 | 241 | 225 | 199 | 219 | 232 | 224 | 223 | 205 | (R) 200 | 192 | 216 | 252 | (R) 251 | 234 | 187 |
| Percentage of total sales and leases | | | | | | | | | | | | | | | | | | | | | | | | | |
| Consumer | 76.1 | 74.4 | 69.2 | 67.9 | 64.6 | 61.0 | 54.1 | 55.6 | 54.7 | 51.2 | 50.1 | 47.8 | 47.2 | 48.9 | 50.5 | (R) 52.8 | 55.0 | 55.8 | 57.0 | 56.7 | 56.2 | 55.4 | 54.0 | 55.2 | 59.2 |
| Business | 22.9 | 24.5 | 29.4 | 30.7 | 34.2 | 37.4 | 44.6 | 43.0 | 43.1 | 46.5 | 47.1 | 49.5 | 50.4 | 48.4 | 46.9 | 44.6 | 42.4 | 41.6 | 40.4 | 40.8 | 41.0 | 41.4 | 42.7 | 41.4 | 37.4 |
| Government | 1.0 | 1.1 | 1.4 | 1.4 | 1.2 | 1.6 | 1.3 | 1.4 | 2.2 | 2.3 | 2.8 | 2.6 | 2.4 | 2.7 | 2.7 | 2.5 | 2.6 | 2.5 | 2.6 | 2.5 | 2.8 | 3.2 | 3.3 | 3.4 | 3.4 |

**KEY:** R = revised.

**NOTES**

This table includes imported cars, but not vans, trucks, or sport utility vehicles.
Numbers may not add to totals due to rounding.
Annual numbers are calculated by averaging monthly data.
Government sales are determined by subtracting the consumer and business sales from total sales.
The data is seasonally adjusted at annual rates. These data are not comparable to the data reported in table 1-17 due to differences that arise from the seasonal adjustment.

**SOURCES**

1965: U.S. Department of Commerce, Bureau of Economic Analysis, National Income and Wealth Division, unpublished data.
1970-2009: Ibid., *Underlying Detail for the National Income and Product Account Tables* , table 7.2.5S, available at http://www.bea.gov/ as of Sept. 2, 2010.

**Table 1-19: Sales of Hybrid Vehicles in the United States**

| | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total U.S. sales[a] of hybrid vehicles | 17 | 9,350 | 20,282 | 22,335 | 47,566 | 84,199 | 205,828 | 253,518 | 352,862 | 315,688 | 290,740 | 274,421 |
| Domestic[b] | 0 | 0 | 0 | 0 | 0 | 2,993 | 15,960 | 24,198 | 77,629 | 86,082 | 81,882 | 64,893 |
| Imports | 17 | 9,350 | 20,282 | 22,335 | 47,566 | 81,206 | 189,868 | 229,320 | 275,233 | 229,606 | 208,858 | 209,528 |

[a] *Sales* includes leased vehicles and fleet sales.
[b] Includes cars produced in Canada and Mexico.

**NOTE**

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**
WardsAuto.com, Ward's Automotive Group, personal communication, Mar. 18, 2011.

**Table 1-20: Period Sales, Market Shares, and Sales-Weighted Fuel Economies of New Domestic and Imported Automobiles (Thousands of vehicles)**

| | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sales | | | | | | | | | | | | | | | | | | | | | | |
| TOTAL units | 9,443 | 10,791 | 8,810 | 8,524 | 8,108 | 8,456 | 8,415 | 9,396 | 7,890 | 8,335 | 7,972 | 8,379 | 9,128 | 8,408 | 8,304 | 7,951 | 7,538 | 8,027 | 7,993 | 8,029 | 8,537 | 8,200 |
| Small Cars | 4,825 | 5,519 | 4,999 | 5,032 | 4,440 | 4,537 | 4,720 | 5,190 | 4,197 | 4,443 | 3,839 | 3,919 | 4,266 | 4,065 | 3,801 | 3,698 | 3,275 | 3,185 | 3,196 | 3,143 | 3,175 | 3,040 |
| Midsize Cars | 2,987 | 2,777 | 2,342 | 2,114 | 2,120 | 2,330 | 2,057 | 2,515 | 2,359 | 2,399 | 2,968 | 3,141 | 2,894 | 2,480 | 2,807 | 2,483 | 2,522 | 2,886 | 2,413 | 3,084 | 2,911 | 2,606 |
| Large Cars | 963 | 1,512 | 1,092 | 1,012 | 1,240 | 1,103 | 1,277 | 1,306 | 1,066 | 1,195 | 913 | 1,059 | 1,665 | 1,416 | 1,252 | 1,261 | 1,185 | 1,234 | 1,570 | 1,162 | 1,646 | 1,875 |
| Small Wagons | 310 | 496 | 160 | 209 | 143 | 301 | 206 | 198 | 90 | 149 | 99 | 78 | 68 | 212 | 236 | 338 | 300 | 365 | 493 | 393 | 556 | 549 |
| Midsize Wagons | 257 | 341 | 184 | 122 | 137 | 166 | 138 | 176 | 169 | 149 | 153 | 181 | 234 | 236 | 208 | 171 | 158 | 238 | 220 | 173 | 173 | 122 |
| Large Wagons | 102 | 145 | 31 | 34 | 27 | 19 | 16 | 10 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 98 | 118 | 102 | 74 | 74 | 77 |
| Market share, percent | | | | | | | | | | | | | | | | | | | | | | |
| Small Cars | 51.1 | 51.1 | 56.7 | 59.0 | 54.8 | 53.7 | 56.1 | 55.2 | 53.2 | 53.3 | 48.2 | 46.8 | 46.7 | 48.3 | 45.8 | 46.5 | 43.4 | 39.7 | 40.0 | 39.1 | 37.2 | 37.1 |
| Midsize Cars | 31.6 | 25.7 | 26.6 | 24.8 | 26.1 | 27.6 | 24.4 | 26.8 | 29.9 | 28.8 | 37.2 | 37.5 | 31.7 | 29.5 | 33.8 | 31.2 | 33.5 | 36.0 | 30.2 | 38.4 | 34.1 | 31.8 |
| Large Cars | 10.2 | 14.0 | 12.4 | 11.9 | 15.3 | 13.0 | 15.2 | 13.9 | 13.5 | 14.3 | 11.5 | 12.6 | 18.2 | 16.8 | 15.1 | 15.9 | 15.7 | 15.4 | 19.6 | 14.5 | 19.3 | 22.9 |
| Small Wagons | 3.3 | 4.6 | 1.8 | 2.5 | 1.8 | 3.6 | 2.4 | 2.1 | 1.1 | 1.8 | 1.2 | 0.9 | 0.7 | 2.5 | 2.8 | 4.3 | 4.0 | 4.5 | 6.2 | 4.9 | 6.5 | 6.7 |
| Midsize Wagons | 2.7 | 3.2 | 2.1 | 1.4 | 1.7 | 2.0 | 1.6 | 1.9 | 2.1 | 1.8 | 1.9 | 2.2 | 2.6 | 2.8 | 2.5 | 2.2 | 2.1 | 3.0 | 2.8 | 2.2 | 2.0 | 1.5 |
| Large Wagons | 1.1 | 1.3 | 0.4 | 0.4 | 0.3 | 0.2 | 0.2 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.3 | 1.5 | 1.3 | 0.9 | 0.9 | 0.9 |
| Fuel economy, mpg | | | | | | | | | | | | | | | | | | | | | | |
| Fleet | 23.5 | 27.0 | 27.8 | 28.0 | 27.6 | 28.2 | 28.0 | 28.3 | 28.3 | 28.4 | 28.5 | 28.2 | 28.2 | 28.4 | 28.6 | 28.9 | 28.9 | 29.5 | 29.2 | 30.3 | 30.3 | 30.9 |
| Small Cars | 26.1 | 29.8 | 29.8 | 30.0 | 30.0 | 30.5 | 30.4 | 30.7 | 30.8 | 30.9 | 30.9 | 30.3 | 30.3 | 30.7 | 30.7 | 30.6 | 30.5 | 31.1 | 31.1 | 31.7 | 31.6 | 32.6 |
| Midsize Cars | 21.6 | 24.9 | 26.2 | 26.0 | 25.8 | 26.1 | 25.9 | 26.1 | 26.5 | 26.5 | 27.1 | 27.1 | 27.0 | 27.2 | 27.7 | 28.3 | 28.7 | 29.8 | 29.6 | 31.2 | 31.5 | 31.7 |
| Large Cars | 19.1 | 22.3 | 23.7 | 23.6 | 23.8 | 24.2 | 24.1 | 24.5 | 24.3 | 24.5 | 24.6 | 24.8 | 25.6 | 25.4 | 26.0 | 26.0 | 26.0 | 26.4 | 26.0 | 26.1 | 26.8 | 27.5 |
| Small Wagons | 28.6 | 32.5 | 29.6 | 30.6 | 30.2 | 32.5 | 32.9 | 33.3 | 31.6 | 32.2 | 32.1 | 31.5 | 29.2 | 27.3 | 26.1 | 30.2 | 31.4 | 32.4 | 31.4 | 31.6 | 32.1 | 32.6 |
| Midsize Wagons | 21.1 | 25.2 | 25.3 | 25.9 | 26.2 | 26.2 | 26.0 | 26.6 | 26.3 | 26.3 | 26.2 | 26.3 | 27.3 | 26.6 | 27.4 | 27.2 | 26.4 | 26.0 | 26.4 | 26.6 | 26.8 | 27.7 |
| Large Wagons | 19.1 | 20.9 | 22.7 | 22.9 | 22.7 | 22.5 | 22.9 | 22.8 | 23.2 | NA | NA | NA | NA | NA | NA | NA | 22.0 | 22.2 | 21.9 | 21.6 | 22.0 | 21.8 |

**KEY:** mpg = miles per gallon; NA = not applicable.

**NOTE**

Numbers may not add to totals due to rounding.

**SOURCE**

U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, *Transportation Energy Data Book*, Edition 29, table 4.7 (Oak Ridge, TN), available at http://cta.ornl.gov/data/index.shtml as of Nov. 19, 2010.

**Table 1-21: Period Sales, Market Shares, and Sales-Weighted Fuel Economies of New Domestic and Imported Light Trucks (Thousands of vehicles)**

| | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sales[a] | | | | | | | | | | | | | | | | | | | | | | |
| TOTAL units | 1,863 | 3,669 | 3,805 | 4,049 | 4,064 | 4,754 | 5,710 | 5,749 | 5,254 | 6,124 | 6,485 | 6,839 | 7,447 | 7,202 | 7,815 | 7,824 | 8,173 | 7,866 | 7,111 | 7,257 | 7,871 | 7,797 |
| Small Pickups | 452 | 497 | 289 | 309 | 252 | 263 | 358 | 298 | 221 | 131 | 260 | 213 | 101 | 81 | 197 | 194 | 161 | 8 | 7 | Z | Z | Z |
| Midsize Pickups | 98 | 616 | 600 | 873 | 716 | 743 | 1,040 | 700 | 698 | 690 | 829 | 761 | 766 | 545 | 466 | 527 | 378 | 216 | 274 | 261 | 255 | 326 |
| Large Pickups | 887 | 964 | 945 | 738 | 872 | 996 | 1,271 | 1,273 | 1,036 | 1,587 | 1,326 | 1,571 | 1,746 | 1,893 | 1,717 | 1,753 | 1,967 | 2,076 | 1,906 | 1,845 | 1,860 | 1,616 |
| Small Vans | 16 | 93 | 30 | 15 | 40 | 12 | 11 | 6 | 2 | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z |
| Midsize Vans | 130 | 600 | 1,124 | 943 | 1,088 | 1,323 | 1,295 | 1,552 | 1,298 | 1,126 | 1,357 | 1,292 | 1,522 | 938 | 1,131 | 1,121 | 893 | 1,425 | 1,096 | 845 | 862 | 696 |
| Large Vans | 96 | 162 | 107 | 76 | 93 | 106 | 112 | 104 | 109 | 139 | 132 | 171 | 170 | 294 | 112 | 111 | 60 | 55 | 70 | 32 | 30 | 29 |
| Small SUV | 60 | 115 | 189 | 136 | 129 | 144 | 188 | 189 | 120 | 489 | 316 | 314 | 400 | 390 | 354 | 264 | 256 | 215 | 132 | 162 | 143 | 191 |
| Midsize SUV | 100 | 563 | 447 | 904 | 799 | 1,038 | 1,265 | 1,397 | 1,528 | 1,401 | 1,623 | 1,762 | 1,863 | 1,944 | 1,802 | 2,093 | 2,502 | 2,079 | 2,117 | 2,142 | 2,701 | 2,463 |
| Large SUV | 23 | 57 | 72 | 54 | 75 | 129 | 169 | 230 | 241 | 560 | 642 | 754 | 879 | 1,115 | 2,034 | 1,760 | 1,955 | 1,790 | 1,508 | 1,970 | 2,020 | 2,476 |
| Market share, percent | | | | | | | | | | | | | | | | | | | | | | |
| Small Pickups | 24.3 | 13.5 | 7.6 | 7.6 | 6.2 | 5.5 | 6.3 | 5.2 | 4.2 | 2.1 | 4.0 | 3.1 | 1.4 | 1.1 | 2.5 | 2.5 | 2.0 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| Midsize Pickups | 5.3 | 16.8 | 15.8 | 21.6 | 17.6 | 15.6 | 18.2 | 12.2 | 13.3 | 11.3 | 12.8 | 11.1 | 10.3 | 7.6 | 6.0 | 6.7 | 4.6 | 2.7 | 3.9 | 3.6 | 3.2 | 4.2 |
| Large Pickups | 47.6 | 26.3 | 24.8 | 18.2 | 21.5 | 21.0 | 22.3 | 22.1 | 19.7 | 25.9 | 20.4 | 23.0 | 23.4 | 26.3 | 22.0 | 22.4 | 24.1 | 26.4 | 26.8 | 25.4 | 23.6 | 20.7 |
| Small Vans | 0.9 | 2.5 | 0.8 | 0.4 | 1.0 | 0.3 | 0.2 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Midsize Vans | 7.0 | 16.4 | 29.5 | 23.3 | 26.8 | 27.8 | 22.7 | 27.0 | 24.7 | 18.4 | 20.9 | 18.9 | 20.4 | 13.0 | 14.5 | 14.3 | 10.9 | 18.1 | 15.4 | 11.6 | 11.0 | 8.9 |
| Large Vans | 5.2 | 4.4 | 2.8 | 1.9 | 2.3 | 2.2 | 2.0 | 1.8 | 2.1 | 2.3 | 2.0 | 2.5 | 2.3 | 4.1 | 1.4 | 1.4 | 0.7 | 0.7 | 1.0 | 0.4 | 0.4 | 0.4 |
| Small SUV | 3.2 | 3.1 | 5.0 | 3.4 | 3.2 | 3.0 | 3.3 | 3.3 | 2.3 | 8.0 | 4.9 | 4.6 | 5.4 | 5.4 | 4.5 | 3.4 | 3.1 | 2.7 | 1.9 | 2.2 | 1.8 | 2.4 |
| Midsize SUV | 5.4 | 15.3 | 11.7 | 22.3 | 19.7 | 21.8 | 22.2 | 24.3 | 29.1 | 22.9 | 25.0 | 25.8 | 25.0 | 27.0 | 23.1 | 26.8 | 30.6 | 26.4 | 29.8 | 29.5 | 34.3 | 31.6 |
| Large SUV | 1.2 | 1.6 | 1.9 | 1.3 | 1.8 | 2.7 | 3.0 | 4.0 | 4.6 | 9.1 | 9.9 | 11.0 | 11.8 | 15.5 | 26.0 | 22.5 | 23.9 | 22.8 | 21.2 | 27.1 | 25.7 | 31.8 |
| Fuel Economy, mpg | | | | | | | | | | | | | | | | | | | | | | |
| Fleet | 18.6 | 20.6 | 20.7 | 21.3 | 20.8 | 21.0 | 20.8 | 20.5 | 20.8 | 20.6 | 20.9 | 20.5 | 20.8 | 20.6 | 20.6 | 20.9 | 20.8 | 21.4 | 21.8 | 22.1 | 22.5 | 22.9 |
| Small Pickups | 24.3 | 26.7 | 24.8 | 25.0 | 24.6 | 26.3 | 24.9 | 24.4 | 24.6 | 24.9 | 24.5 | 23.2 | 26.3 | 26.5 | 23.2 | 23.2 | 22.6 | 25.8 | 26.9 | NA | NA | NA |
| Midsize Pickups | 25.9 | 25.7 | 24.7 | 24.6 | 23.8 | 23.7 | 24.0 | 24.7 | 24.8 | 24.2 | 23.9 | 22.5 | 22.8 | 21.8 | 21.1 | 22.8 | 21.8 | 23.6 | 24.1 | 23.4 | 24.0 | 24.6 |
| Large Pickups | 17.2 | 17.7 | 18.0 | 18.2 | 18.3 | 18.7 | 18.4 | 18.0 | 18.2 | 18.9 | 18.6 | 18.5 | 19.3 | 18.9 | 18.7 | 18.9 | 19.0 | 19.4 | 19.6 | 19.8 | 19.8 | 20.1 |
| Small Vans | 19.0 | 25.5 | 23.9 | 24.0 | 27.0 | 28.2 | 27.0 | 26.5 | 26.2 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Midsize Vans | 16.9 | 19.8 | 21.8 | 21.9 | 21.8 | 22.3 | 22.0 | 22.2 | 22.8 | 22.6 | 23.3 | 23.0 | 23.5 | 24.0 | 23.7 | 24.1 | 24.1 | 24.2 | 24.7 | 24.5 | 24.7 | 24.9 |
| Large Vans | 16.0 | 16.1 | 16.5 | 16.7 | 16.9 | 17.0 | 17.0 | 17.1 | 17.1 | 18.6 | 18.3 | 17.9 | 18.0 | 17.7 | 17.9 | 18.7 | 19.4 | 19.4 | 19.4 | 19.8 | 20.0 | 19.7 |
| Small SUV | 18.8 | 22.1 | 23.4 | 23.6 | 23.4 | 23.2 | 24.1 | 24.2 | 28.5 | 22.8 | 23.8 | 24.1 | 22.5 | 24.9 | 24.7 | 25.2 | 24.7 | 24.3 | 21.5 | 22.4 | 22.9 | 23.5 |
| Midsize SUV | 14.3 | 19.7 | 19.1 | 20.2 | 19.9 | 20.0 | 19.8 | 19.6 | 20.0 | 20.5 | 20.8 | 21.0 | 21.0 | 21.7 | 21.8 | 22.4 | 22.5 | 23.0 | 23.6 | 24.7 | 25.2 | 25.3 |
| Large SUV | 14.3 | 16.9 | 16.7 | 16.2 | 15.7 | 16.3 | 16.4 | 16.6 | 17.3 | 17.5 | 17.4 | 17.2 | 17.6 | 18.5 | 19.1 | 18.8 | 18.9 | 19.9 | 20.4 | 20.9 | 21.2 | 22.2 |

**KEY:** mpg = miles per gallon; NA = not applicable; SUV = sport utility vehicle; Z = value of zero.

[a] *Sales* period is October 1 of the previous year through September 30 of the current year. These figures represent only those sales that could be matched to corresponding U.S. Environmental Protection Agency fuel economy values.

**NOTE**

Numbers may not add to totals due to rounding.

**SOURCE**

U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, *Transportation Energy Data Book* , Edition 29, table 4.9 (Oak Ridge, TN), available at http://cta.ornl.gov/data/index.shtml as of Nov. 22, 2010.

## Table 1-22: Number of Trucks by Weight

| | Thousands of trucks | | | Percent change 1992-1997 | Percent change 1992-2002 |
|---|---|---|---|---|---|
| | 1992 | 1997 | 2002 | | |
| ALL trucks | 59,200.8 | 72,800.3 | 85,174.8 | 23.0% | 43.9% |
| Light Trucks | | | | | |
| Less than 6,001 lb | 50,545.7 | 62,798.4 | 62,617.3 | 24.2% | 23.9% |
| 6,001 to 10,000 lb | 4,647.5 | 5,301.5 | 17,142.3 | 14.1% | 268.8% |
| Medium Trucks | | | | | |
| 10,001 to 14,000 lb | 694.3 | 818.9 | 1,142.1 | 17.9% | 64.5% |
| 14,001 to 16,000 lb | 282.4 | 315.9 | 395.9 | 11.9% | 40.2% |
| 16,001 to 19,500 lb | 282.3 | 300.8 | 376.1 | 6.6% | 33.2% |
| Light-heavy Trucks | | | | | |
| 19,501 to 26,000 lb | 732.0 | 729.3 | 910.3 | -0.4% | 24.4% |
| Heavy Trucks | | | | | |
| 26,001 to 33,000 lb | 387.3 | 427.7 | 436.8 | 10.4% | 12.8% |
| 33,001 to 40,000 lb | 232.6 | 256.7 | 228.8 | 10.4% | -1.6% |
| 40,001 to 50,000 lb | 338.6 | 399.9 | 318.4 | 18.1% | -6.0% |
| 50,001 to 60,000 lb | 226.7 | 311.4 | 326.6 | 37.4% | 44.1% |
| 60,001 to 80,000 lb | 781.1 | 1,069.8 | 1,178.7 | 37.0% | 50.9% |
| 80,001 to 100,000 lb | 33.3 | 46.3 | 68.9 | 39.0% | 106.9% |
| 100,001 to 130,000 lb | 12.3 | 17.9 | 26.4 | 45.5% | 114.6% |
| 130,000 lb or more | 4.6 | 5.9 | 6.3 | 28.3% | 37.0% |
| Not reported | <50 | <50 | N | N | N |

**KEY**: lb = pound;  N = data do not exist.

**NOTES**

Average vehicle weight is the empty weight of the vehicle plus the average load of the vehicle.

Excludes vehicles owned by Federal, state, or local governments; ambulances; buses; motor homes; farm tractors; unpowered trailer units; and trucks reported to have been sold, junked, or wrecked prior to July 1 of the year preceding the 1992 and 1997 surveys and January 1, 2002 for the 2002 survey.

**SOURCES**

1992, 1997: U.S. Census Bureau, *1997 Economic Census: Vehicle Inventory and Use Survey: United States* , EC97TV-US (Washington, DC: 1999).

2002: U.S. Census Bureau, *2002 Economic Census: Vehicle Inventory and Use Survey: United States* , EC02TV-US (Washington, DC: 2004).

**Table 1-23: World Motor Vehicle Production, Selected Countries (Thousands of vehicles)**

Passenger cars[a]

| | 1961 | 1971 | 1981 | 1991 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total world | 11,391 | 26,453 | 27,407 | 35,288 | 35,717 | 36,100 | 37,318 | 38,481 | 37,286 | 38,816 | 40,732 | 40,144 | 41,215 | 41,782 | 42,832 | 44,113 | 46,512 | 49,175 | 50,025 | 43,451 |
| U.S. percent of world | 48.5 | 32.5 | 22.8 | 15.4 | 18.5 | 17.6 | 16.3 | 15.4 | 14.9 | 14.5 | 13.6 | 12.2 | 12.2 | 10.8 | 9.9 | 9.8 | 9.4 | 8.0 | 7.5 | 5.2 |
| Argentina | 78 | 193 | 139 | 114 | 338 | 227 | 269 | 366 | 353 | 225 | 239 | 170 | 111 | 110 | 171 | 183 | 263 | 351 | 400 | 380 |
| Australia | 182 | 393 | 352 | 269 | 323 | 314 | 303 | 320 | 350 | 294 | 324 | 286 | 307 | 366 | 341 | 320 | 298 | 306 | 286 | 188 |
| Austria | 8 | 1 | 7 | 14 | 45 | 59 | 97 | 98 | 91 | 124 | 116 | 131 | 131 | 119 | 227 | 231 | 248 | 200 | 125 | 57 |
| Belgium | U | 279 | 216 | 253 | 409 | 386 | 368 | 356 | 319 | 218 | 912 | 1,059 | 937 | 792 | 852 | 895 | 882 | 790 | 680 | 510 |
| Brazil | 98 | 342 | 406 | 705 | 1,248 | 1,297 | 1,459 | 1,680 | 1,244 | 1,102 | 1,348 | 1,482 | 1,521 | 1,505 | 1,756 | 2,009 | 2,092 | 2,388 | 2,561 | 2,578 |
| Canada | 328 | 1,083 | 803 | 1,060 | 1,214 | 1,337 | 1,279 | 1,374 | 1,122 | 1,626 | 1,551 | 1,275 | 1,369 | 1,340 | 1,336 | 1,356 | 1,390 | 1,342 | 1,195 | 822 |
| China | U | U | U | 81 | 250 | 321 | 382 | 482 | 507 | 570 | 620 | 704 | 1,091 | 2,019 | 2,316 | 3,118 | 3,869 | 4,798 | 6,341 | 8,509 |
| Czech Republic[b] | 59 | 149 | 181 | 173 | 174 | 208 | 263 | 321 | 368 | 348 | 428 | 457 | 441 | 436 | 443 | 599 | 850 | 926 | 933 | 968 |
| France | 988 | 2,694 | 2,612 | 3,188 | 3,175 | 3,051 | 3,148 | 2,259 | 2,603 | 2,676 | 2,883 | 3,182 | 3,284 | 3,220 | 2,913 | 3,113 | 2,728 | 2,551 | 2,145 | 1,815 |
| Germany | 1,802 | 3,829 | 3,758 | 4,677 | 4,094 | 4,360 | 4,540 | 4,678 | 5,348 | 5,310 | 4,803 | 5,301 | 4,799 | 5,145 | 5,192 | 5,350 | 5,399 | 5,709 | 5,532 | 4,965 |
| India | 22 | 42 | 42 | 179 | 237 | 330 | 396 | 410 | 384 | 519 | 514 | 548 | 706 | 907 | 940 | 999 | 1,186 | 1,377 | 1,507 | 1,781 |
| Italy | 694 | 1,701 | 1,257 | 1,633 | 1,341 | 1,422 | 1,318 | 1,563 | 1,402 | 1,410 | 1,422 | 1,272 | 1,126 | 1,026 | 834 | 726 | 893 | 911 | 659 | 661 |
| Japan | 250 | 3,718 | 6,974 | 9,753 | 7,802 | 7,611 | 7,864 | 8,491 | 8,056 | 8,100 | 8,363 | 8,118 | 8,619 | 8,478 | 8,720 | 9,017 | 9,757 | 9,945 | 9,916 | 6,862 |
| South Korea | U | U | 69 | 1,158 | 1,806 | 2,003 | 2,265 | 2,308 | 1,625 | 2,362 | 2,602 | 2,471 | 2,651 | 2,768 | 2,054 | 2,195 | 2,298 | 2,509 | 2,436 | 2,375 |
| Malaysia | U | U | U | 102 | 137 | 164 | 176 | 280 | 126 | 200 | 280 | 345 | U | U | U | U | U | U | U | U |
| Mexico | U | 154 | 355 | 720 | 857 | 699 | 798 | 855 | 953 | 994 | 1,130 | 1,001 | 960 | 774 | 782 | 846 | 1,098 | 1,209 | 1,217 | 943 |
| Netherlands | 13 | 78 | 78 | 85 | 92 | 100 | 145 | 197 | 243 | 262 | 215 | 189 | 182 | 163 | 188 | 115 | 87 | 62 | 59 | 51 |
| Poland | 14 | 86 | 248 | 168 | 349 | 347 | 353 | 295 | 460 | 651 | 533 | 367 | 287 | 285 | 516 | 527 | 609 | 695 | 840 | 833 |
| Portugal | U | U | U | U | 38 | 41 | 119 | 186 | 181 | 187 | 191 | 177 | 183 | 166 | 151 | 138 | 143 | 134 | 132 | 102 |
| Romania | U | U | U | 84 | 85 | 71 | 76 | 108 | 104 | 88 | 58 | 57 | U | U | U | U | U | U | U | U |
| Russia | 149 | 518 | 1,324 | 1,308 | 796 | 838 | 868 | 982 | U | 946 | 966 | 1,022 | 981 | 1,010 | 1,110 | 1,068 | 1,174 | 1,289 | 1,469 | 596 |
| Spain | 55 | 453 | 855 | 1,943 | 1,974 | 2,131 | 2,213 | 2,342 | 2,217 | 2,029 | 2,445 | 2,211 | 2,267 | 2,399 | 2,403 | 2,098 | 2,079 | 2,196 | 2,014 | 1,827 |
| Sweden | 110 | 287 | 258 | 269 | 353 | 388 | 368 | 376 | 368 | 385 | 260 | 248 | 238 | 280 | 290 | 289 | 289 | 317 | 252 | 129 |
| Taiwan | U | U | U | 266 | 291 | 282 | 265 | 268 | 293 | 255 | 265 | 195 | 245 | 265 | 300 | 324 | 211 | 213 | 139 | 184 |
| Turkey | U | 13 | 25 | 196 | 213 | 233 | 208 | 243 | U | U | 297 | 175 | 204 | 294 | 447 | 454 | 546 | 635 | 622 | 511 |
| United Kingdom | 1,004 | 1,742 | 955 | 1,237 | 1,467 | 1,532 | 1,686 | 1,698 | 1,748 | 1,787 | 1,629 | 1,492 | 1,628 | 1,658 | 1,647 | 1,596 | 1,442 | 1,535 | 1,448 | 91 |
| United States | 5,522 | 8,584 | 6,253 | 5,440 | 6,601 | 6,340 | 6,083 | 5,934 | 5,554 | 5,638 | 5,542 | 4,879 | 5,019 | 4,510 | 4,230 | 4,321 | 4,367 | 3,924 | 3,777 | 2,246 |
| Yugoslavia, Federal Republic of[c] | 15 | 114 | 240 | 213 | 8 | 8 | 9 | 11 | U | U | U | U | U | U | U | U | U | U | U | U |

Commercial vehicles[d]

| | 1961 | 1971 | 1981 | 1991 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total world | 3,809 | 6,948 | 9,729 | 11,974 | 13,941 | 13,946 | 14,178 | 14,993 | 14,807 | 16,132 | 16,799 | 16,181 | 17,757 | 18,549 | 21,131 | 21,607 | 22,049 | 22,889 | (R) 19,374 | 16,638 |
| U.S. percent of world | 29.7 | 30.1 | 17.4 | 28.0 | 40.4 | 40.6 | 40.5 | 41.3 | 43.5 | 45.8 | 43.0 | 40.5 | 40.9 | 40.8 | 36.6 | 35.3 | 31.3 | 29.8 | 25.3 | 20.8 |
| Argentina | 58 | 60 | 33 | 25 | 70 | 59 | 44 | 80 | 105 | 80 | 101 | 66 | 48 | 60 | 89 | 137 | 169 | 194 | 198 | 133 |
| Australia | 49 | 77 | 40 | 15 | 31 | 17 | 19 | 29 | 34 | 17 | 25 | 34 | 37 | 48 | 64 | 69 | 20 | 26 | 39 | 35 |
| Austria | 5 | 6 | 8 | 6 | 3 | 9 | 9 | 10 | 12 | 16 | 25 | 24 | 20 | 21 | 21 | 23 | 27 | 28 | 25 | 16 |
| Belgium | 1 | 17 | 41 | 84 | 70 | 82 | 69 | 74 | 87 | 74 | 121 | 129 | 119 | 113 | 43 | 31 | 36 | 45 | 44 | 13 |
| Brazil | 47 | 174 | 374 | 255 | 334 | 332 | 346 | 388 | 329 | 242 | 323 | 316 | 271 | 322 | 454 | 519 | 519 | 582 | 659 | 608 |
| Canada | 63 | 277 | 520 | 829 | 1,106 | 1,071 | 1,118 | 1,198 | 1,050 | 1,430 | 1,411 | 1,258 | 1,260 | 1,213 | 1,376 | 1,332 | 1,182 | 1,237 | 887 | 668 |
| China | U | U | U | 628 | 1,103 | 1,114 | 1,084 | 1,096 | 1,121 | 1,235 | 1,389 | 1,628 | 2,160 | 2,425 | 2,754 | 2,590 | 3,410 | 4,085 | 3,166 | 5,137 |
| Czech Republic[b] | 17 | 28 | 49 | 29 | 6 | 8 | 9 | 47 | 42 | 27 | 27 | 8 | 6 | 5 | 5 | 5 | 5 | 13 | 13 | 7 |
| France | 217 | 316 | 408 | 423 | 383 | 424 | 443 | 322 | 351 | 357 | 469 | 447 | 409 | 400 | 439 | 386 | 446 | 465 | 423 | 228 |
| Germany | 411 | 312 | 358 | 358 | 262 | 307 | 303 | 345 | 379 | 378 | 395 | 390 | 346 | 361 | 378 | 408 | 421 | 504 | 514 | 245 |
| India | 32 | 47 | 107 | 176 | 238 | 306 | 366 | 336 | 129 | 261 | 282 | 277 | 186 | 254 | 571 | 643 | 772 | 873 | 809 | 861 |
| Italy | 65 | 116 | 176 | 245 | 194 | 245 | 227 | 254 | 290 | 291 | 316 | 308 | 301 | 295 | 308 | 313 | 319 | 373 | 365 | 182 |
| Japan | 789 | 2,093 | 4,206 | 3,492 | 2,752 | 2,585 | 2,482 | 2,484 | 1,994 | 1,805 | 1,781 | 1,660 | 1,639 | 1,808 | 1,791 | 1,783 | 1,728 | 1,652 | 1,647 | 1,072 |
| South Korea | U | U | 65 | 340 | 506 | 523 | 548 | 510 | 329 | 471 | 513 | 475 | 496 | 410 | 1,416 | 1,505 | 1,542 | 1,577 | 1,391 | 1,138 |
| Malaysia | U | U | U | 0 | 0 | 0 | 0 | 0 | 7 | 5 | 15 | 14 | U | U | U | U | U | U | U | U |
| Mexico | U | 57 | 242 | 269 | 266 | 236 | 422 | 503 | 500 | 540 | 792 | 856 | 845 | 801 | 771 | 838 | 948 | 886 | 950 | 618 |
| Netherlands | 6 | 13 | 12 | 26 | 23 | 32 | 19 | 20 | 28 | 25 | 52 | 50 | 49 | 56 | 60 | 65 | 72 | 77 | 73 | 26 |
| Poland | 22 | 60 | 60 | 25 | 16 | 34 | 48 | 27 | 39 | 44 | 24 | 20 | 23 | 14 | 76 | 85 | 106 | 90 | 105 | 74 |
| Portugal | U | U | U | 26 | 87 | 16 | 13 | 81 | 90 | 65 | 56 | 62 | 68 | 74 | 76 | 82 | 84 | 42 | 43 | 24 |
| Romania | U | U | U | 10 | 5 | 22 | 23 | 21 | 23 | 19 | 14 | 12 | U | U | U | U | U | U | U | |
| Russia | 406 | 612 | 874 | 744 | 206 | 156 | 136 | 192 | U | 226 | 237 | 228 | 239 | 269 | 275 | 285 | 328 | 377 | 326 | 127 |
| Spain | 20 | 79 | 132 | 139 | 168 | 203 | 199 | 220 | 609 | 644 | 587 | 639 | 588 | 630 | 610 | 654 | 699 | 694 | 528 | 337 |
| Sweden | 22 | 30 | 55 | 75 | 82 | 102 | 95 | 104 | 114 | 109 | 36 | 38 | 38 | 43 | 48 | 35 | 39 | 44 | 46 | 23 |
| Taiwan | U | U | U | 116 | 132 | 124 | 101 | 113 | 112 | 95 | 100 | 77 | 92 | 122 | 131 | 123 | 92 | 71 | 44 | 43 |
| Turkey | U | 12 | 22 | 46 | 31 | 49 | 69 | 102 | U | U | 133 | 95 | 142 | 240 | 376 | 426 | 442 | 465 | 526 | 359 |
| United Kingdom | 443 | 456 | 230 | 217 | 228 | 233 | 238 | 238 | 233 | 186 | 189 | 193 | 193 | 189 | 209 | 207 | 208 | 216 | 202 | 999 |
| United States | 1,131 | 2,088 | 1,690 | 3,350 | 5,638 | 5,655 | 5,747 | 6,197 | 6,448 | 7,387 | 7,231 | 6,546 | 7,261 | 7,577 | 7,731 | 7,625 | 6,893 | 6,828 | (R) 4,896 | 3,463 |
| Yugoslavia, Federal Republic of[c] | 5 | 18 | 27 | 26 | 2 | 2 | 1 | 2 | U | U | U | U | U | U | U | U | U | U | U | U |

Total passenger cars[a] and commercial vehicles[d]

| | 1961 | 1971 | 1981 | 1991 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total world | 15,200 | 33,401 | 37,136 | 47,262 | 49,658 | 50,046 | 51,496 | 53,474 | 52,093 | 54,948 | 57,531 | 56,325 | 58,973 | 60,331 | 63,963 | 65,720 | 68,561 | 72,064 | (R) 69,399 | 60,089 |
| U.S. percent of world | 43.8 | 32.0 | 21.4 | 18.6 | 24.6 | 24.0 | 23.0 | 22.7 | 23.0 | 23.7 | 22.2 | 20.3 | 20.8 | 20.0 | 18.7 | 18.2 | 16.4 | 14.9 | 12.5 | 9.5 |
| Argentina | 136 | 253 | 172 | 139 | 409 | 286 | 313 | 446 | 458 | 305 | 340 | 236 | 159 | 170 | 260 | 320 | 432 | 545 | 597 | 513 |
| Australia | 231 | 470 | 392 | 284 | 354 | 331 | 322 | 349 | 384 | 311 | 348 | 319 | 344 | 413 | 405 | 389 | 318 | 332 | 324 | 223 |
| Austria | 13 | 7 | 15 | 20 | 48 | 68 | 106 | 108 | 103 | 139 | 141 | 155 | 151 | 140 | 249 | 253 | 275 | 228 | 151 | 72 |
| Belgium | 1 | 296 | 257 | 337 | 479 | 468 | 437 | 430 | 406 | 291 | 1,033 | 1,187 | 1,056 | 904 | 895 | 927 | 918 | 834 | 725 | 523 |
| Brazil | 145 | 516 | 780 | 960 | 1,582 | 1,629 | 1,805 | 2,067 | 1,573 | 1,344 | 1,671 | 1,798 | 1,793 | 1,827 | 2,210 | 2,528 | 2,611 | 2,971 | 3,220 | 3,185 |
| Canada | 391 | 1,360 | 1,323 | 1,889 | 2,321 | 2,408 | 2,397 | 2,571 | 2,173 | 3,057 | 2,962 | 2,532 | 2,629 | 2,553 | 2,712 | 2,688 | 2,571 | 2,579 | 2,082 | 1,490 |
| China | U | U | U | 709 | 1,353 | 1,435 | 1,466 | 1,578 | 1,628 | 1,805 | 2,009 | 2,332 | 3,251 | 4,444 | 5,071 | 5,708 | 7,280 | 8,882 | 9,507 | 13,646 |
| Czech Republic[b] | 76 | 177 | 230 | 202 | 180 | 216 | 272 | 369 | 411 | 376 | 455 | 465 | 447 | 442 | 448 | 605 | 855 | 939 | 946 | 975 |
| France | 1,205 | 3,010 | 3,020 | 3,611 | 3,558 | 3,475 | 3,591 | 2,581 | 2,954 | 3,033 | 3,352 | 3,628 | 3,693 | 3,620 | 3,352 | 3,499 | 3,174 | 3,016 | 2,568 | 2,043 |
| Germany | 2,213 | 4,141 | 4,116 | 5,035 | 4,356 | 4,667 | 4,843 | 5,023 | 5,727 | 5,688 | 5,198 | 5,692 | 5,145 | 5,507 | 5,570 | 5,758 | 5,820 | 6,213 | 6,046 | 5,210 |
| India | 54 | 89 | 149 | 355 | 475 | 636 | 762 | 746 | 513 | 780 | 796 | 825 | 892 | 1,161 | 1,511 | 1,642 | 1,958 | 2,250 | 2,316 | 2,642 |
| Italy | 759 | 1,817 | 1,433 | 1,878 | 1,534 | 1,667 | 1,545 | 1,817 | 1,693 | 1,701 | 1,738 | 1,580 | 1,427 | 1,322 | 1,142 | 1,038 | 1,212 | 1,284 | 1,024 | 843 |
| Japan | 1,039 | 5,811 | 11,180 | 13,245 | 10,554 | 10,196 | 10,346 | 10,975 | 10,050 | 9,905 | 10,145 | 9,777 | 10,258 | 10,286 | 10,512 | 10,800 | 11,484 | 11,596 | 11,564 | 7,935 |
| South Korea | U | U | 134 | 1,498 | 2,312 | 2,526 | 2,813 | 2,818 | 1,954 | 2,832 | 3,115 | 2,946 | 3,148 | 3,178 | 3,469 | 3,699 | 3,840 | 4,086 | 3,827 | 3,513 |
| Malaysia | U | U | U | 102 | 137 | 164 | 176 | 280 | 134 | 205 | 295 | 359 | U | U | U | U | U | U | U | U |
| Mexico | U | 211 | 597 | 989 | 1,123 | 935 | 1,220 | 1,358 | 1,453 | 1,534 | 1,923 | 1,857 | 1,805 | 1,575 | 1,553 | 1,684 | 2,046 | 2,095 | 2,168 | 1,561 |
| Netherlands | 19 | 91 | 90 | 111 | 115 | 132 | 164 | 218 | 271 | 287 | 267 | 239 | 231 | 219 | 248 | 181 | 159 | 139 | 132 | 77 |
| Poland | 36 | 146 | 308 | 193 | 365 | 381 | 401 | 322 | 499 | 695 | 556 | 387 | 310 | 300 | 592 | 612 | 715 | 785 | 945 | 907 |
| Portugal | U | U | U | 26 | 125 | 57 | 132 | 267 | 271 | 252 | 247 | 240 | 251 | 239 | 227 | 219 | 227 | 176 | 175 | 126 |
| Romania | U | U | U | 94 | 90 | 93 | 99 | 129 | 127 | 107 | 72 | 69 | U | U | U | U | U | U | U | U |
| Russia | 555 | 1,130 | 2,198 | 2,052 | 1,002 | 994 | 1,004 | 1,174 | U | 1,172 | 1,203 | 1,250 | 1,220 | 1,280 | 1,385 | 1,353 | 1,502 | 1,665 | 1,794 | 722 |
| Spain | 75 | 532 | 987 | 2,082 | 2,142 | 2,334 | 2,412 | 2,562 | 2,826 | 2,672 | 3,033 | 2,850 | 2,855 | 3,030 | 3,012 | 2,753 | 2,777 | 2,890 | 2,542 | 2,164 |
| Sweden | 132 | 317 | 313 | 344 | 435 | 490 | 463 | 480 | 483 | 494 | 296 | 286 | 276 | 323 | 339 | 324 | 327 | 361 | 299 | 152 |
| Taiwan | U | U | U | 382 | 423 | 406 | 366 | 381 | 405 | 350 | 365 | 272 | 337 | 387 | 431 | 446 | 303 | 283 | 183 | 226 |
| Turkey | U | 25 | 47 | 242 | 244 | 282 | 277 | 344 | U | U | 431 | 271 | 347 | 534 | 823 | 879 | 988 | 1,099 | 1,147 | 870 |
| United Kingdom | 1,447 | 2,198 | 1,185 | 1,454 | 1,695 | 1,765 | 1,924 | 1,936 | 1,981 | 1,973 | 1,817 | 1,685 | 1,821 | 1,846 | 1,856 | 1,803 | 1,650 | 1,750 | 1,649 | 1,090 |
| United States | 6,653 | 10,672 | 7,943 | 8,790 | 12,239 | 11,995 | 11,830 | 12,131 | 12,003 | 13,025 | 12,774 | 11,425 | 12,280 | 12,087 | 11,960 | 11,947 | 11,260 | 10,752 | (R) 8,672 | 5,709 |
| Yugoslavia, Federal Republic of[c] | 20 | 132 | 267 | 239 | 9 | 10 | 10 | 14 | U | U | U | U | U | U | U | U | U | U | U | U |

**KEY:** R = revised; U = data are unavailable.

[a] Does not include minivans, pickups, and sport utility vehicles.
[b] Formerly Czechoslovakia and Ward's does not report a number for Slovakia.
[c] *Yugoslavia* no longer exists and Ward's does not report numbers for countries that were previously a part of *Yugoslavia*.
[d] Includes all trucks and buses. Light trucks, such as pickups, sport utility vehicles, and minivans are included under *Commercial vehicles*.

**NOTES**

Prior to 2000, the country of manufacture was recognized as the producing country. To conform with current OICA (International Organization of Motor Vehicle Manufacturers) practices, starting in 2000, the country of final assembly was recognized as the producing country. This explains the sudden change in trends across some countries from 1999 to 2000.
Numbers may not add to totals due to rounding. Also numbers may not add to totals due to the inclusion of small countries in the total.
Beginning in 1998, some smaller countries not listed in this table are included in the world totals.

**SOURCE**

Ward's, *Motor Vehicle Facts & Figures* (Southfield, MI: Annual Issues), p. 14 and similar pages in earlier editions.

**Table 1-23: Number and Size of the U.S. Flag Merchant Fleet and Its Share of the World Fleet**
**(Oceangoing ships of 1,000 gross tons and over)**

| | 1960 | 1965 | 1970 | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | (R) 2004 | (R) 2005 | (R) 2006 | (R) 2007 | 2008 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| World fleet | 17,317 | 18,329 | 19,980 | 22,872 | 24,867 | 25,555 | 23,596 | 23,943 | 23,753 | 24,331 | 25,092 | 25,608 | 26,858 | 27,557 | (R) 27,828 | 28,259 | 28,318 | (R) 25,847 | (R) 26,782 | (R) 27,694 | 28,988 | 30,071 | 31,507 | 33,035 | 34,750 |
| U.S. fleet | 2,926 | 2,376 | 1,579 | 857 | 864 | 737 | 636 | 619 | 603 | 565 | 543 | 509 | 495 | 477 | 470 | 463 | 454 | 443 | 426 | 418 | 423 | 366 | 344 | 275 | 272 |
| U.S. Percentage of the world fleet | 16.9 | 13.0 | 7.9 | 3.7 | 3.5 | 2.9 | 2.7 | 2.6 | 2.5 | 2.3 | 2.2 | 2.0 | 1.8 | 1.7 | (R) 1.7 | 1.6 | 1.6 | (R) 1.7 | (R) 1.6 | (R) 1.5 | 1.5 | 1.2 | 1.1 | 0.8 | 0.8 |
| Freighters, total | 2,138 | 1,747 | 1,076 | 511 | 471 | 417 | 367 | 359 | 349 | 322 | 308 | 295 | 292 | 288 | 289 | 284 | 286 | 283 | 276 | 274 | 276 | 235 | 219 | 128 | 133 |
| DWT (thousands) | 21,877 | 18,127 | 11,733 | 7,051 | 6,885 | 7,353 | 7,265 | 7,156 | 7,211 | 7,040 | 6,866 | 6,517 | 6,419 | 6,458 | 6,732 | 6,696 | 6,680 | 6,635 | (R) 6,402 | (R) 6,521 | 6,817 | 5,769 | 5,417 | 4,099 | 4,122 |
| General cargo[a] | N | N | N | 356 | 259 | 209 | 166 | 165 | 182 | 169 | 152 | 142 | 146 | 142 | 140 | 137 | 136 | 132 | 126 | 123 | 119 | 123 | 97 | 25 | 25 |
| DWT (thousands)[a] | N | N | N | 4,640 | 3,329 | 2,980 | 2,605 | 2,592 | 2,973 | 2,913 | 2,677 | 2,472 | 2,467 | 2,420 | 2,400 | 2,404 | 2,362 | 2,162 | (R) 1,838 | (R) 1,810 | 1,755 | 1,805 | 1,389 | 280 | 285 |
| Containership | N | N | N | 109 | 121 | 104 | 92 | 92 | 83 | 87 | 86 | 81 | 83 | 85 | 91 | 89 | 90 | 91 | 90 | 86 | 92 | 81 | 76 | 82 | 77 |
| DWT (thousands) | N | N | N | 1,773 | 2,289 | 2,651 | 2,856 | 2,856 | 2,722 | 2,812 | 2,802 | 2,600 | 2,639 | 2,743 | 3,096 | 3,056 | 3,058 | 3,200 | (R) 3,290 | (R) 3,281 | 3,631 | 3,318 | 3,102 | 3,426 | 3,240 |
| Partial containerships | N | N | N | 37 | 68 | 63 | 59 | 52 | 30 | 3 | 3 | 3 | 1 | 1 | N | N | N | N | N | N | N | N | N | N | N |
| DWT (thousands) | N | N | N | 510 | 940 | 904 | 836 | 741 | 456 | 57 | 57 | 57 | 17 | 17 | N | N | N | N | N | N | N | N | N | N | N |
| RO/Ro | N | N | N | 9 | 23 | 41 | 50 | 50 | 54 | 63 | 67 | 69 | 62 | 60 | 58 | 58 | 60 | 60 | 60 | 65 | 65 | 31 | 46 | 21 | 31 |
| DWT (thousands) | N | N | N | 128 | 327 | 818 | 968 | 967 | 1,060 | 1,258 | 1,330 | 1,388 | 1,296 | 1,278 | 1,236 | 1,236 | 1,260 | 1,273 | 1,273 | 1,431 | 1,431 | 646 | 926 | 393 | 598 |
| Tankers, total | 422 | 341 | 294 | 267 | 308 | 258 | 233 | 226 | 220 | 210 | 200 | 181 | 173 | 161 | 154 | 154 | 142 | 130 | 120 | 109 | 108 | 94 | 89 | 62 | 57 |
| DWT (thousands) | 7,815 | 7,561 | 7,739 | 9,711 | 16,152 | 15,534 | 15,641 | 14,993 | 14,180 | 13,048 | 11,945 | 11,028 | 10,378 | 9,696 | 9,289 | 9,373 | 8,447 | 7,532 | (R) 6,531 | (R) 5,771 | 6,035 | 5,098 | 4,974 | 3,842 | 3,864 |
| Petroleum/chemical[b] ships | N | N | N | N | N | 244 | 219 | 212 | 206 | 196 | 186 | 167 | 159 | 148 | 145 | 146 | 142 | 130 | U | U | U | U | U | U | U |
| DWT (thousands)[b] | N | N | N | N | N | 14,574 | 14,681 | 14,033 | 13,279 | 12,143 | 11,040 | 10,123 | 9,473 | 8,857 | 8,737 | 8,845 | 8,447 | 7,532 | U | U | U | U | U | U | U |
| Liquefied petroleum/natural gas ships | N | N | N | N | N | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 13 | 9 | 8 | N | N | N | N | N | N | N | N | N |
| DWT (thousands) | N | N | N | N | N | 960 | 960 | 960 | 901 | 905 | 905 | 905 | 905 | 839 | 552 | 528 | N | N | N | N | N | N | N | N | N |
| Combination/passenger and cargo, total | 309 | 227 | 171 | 60 | 65 | 37 | 10 | 10 | 11 | 12 | 13 | 13 | 15 | 14 | 12 | 11 | 11 | 13 | 12 | 15 | 18 | 19 | 18 | 14 | 11 |
| DWT (thousands) | 2,070 | 1,488 | 1,107 | 388 | 446 | 299 | 91 | 92 | 97 | 104 | 115 | 115 | 139 | 136 | 116 | 99 | 99 | 105 | (R) 100 | (R) 91 | 108 | 100 | 98 | 46 | 9 |
| Bulk carriers, total | 57 | 61 | 38 | 19 | 20 | 25 | 26 | 24 | 23 | 21 | 22 | 20 | 15 | 14 | 15 | 14 | 15 | 17 | 18 | 20 | 21 | 18 | 18 | 71 | 71 |
| DWT (thousands) | 805 | 1,107 | 767 | 544 | 607 | 1,152 | 1,270 | 1,014 | 991 | 949 | 1,042 | 925 | 575 | 321 | 604 | 579 | 604 | 706 | (R) 797 | (R) 837 | 889 | 543 | 543 | 2,340 | 2,242 |

**KEY:** DWT = deadweight tons; N = data do not exist; R = revised; RO/RO = roll-on/roll-off vessels; U = data are unavailable.

[a] Includes barge carriers.
[b] Includes integrated tug/barges.

**NOTES**
Excludes non-merchant type and/or U.S. Navy-owned vessels currently in the National Defense Reserve Fleet.
Excludes ships operating exclusively on the Great Lakes and inland waterways and special types such as: channel ships, icebreakers, cable ships, and merchant ships owned by military forces.
1960-2006 data includes private and government owned vessels of 1,000 gross tons and over. Beginning in 2007, data are reported only for privately-owned vessels of 1,000 gross tons and over.
All data are year-end data, except that 2004 data for *Freigher* are as of July 1, 2004..

**SOURCES**
**World fleet:**
1994: U.S. Department of Transportation, Maritime Administration, *Merchant Fleets of the World* (Washington, DC: Annual issues), and unpublished revisions.
All other years: U.S. Department of Transportation, Maritime Administration, personal communication as of June 2010.
**All other categories:**
1960-2000: U.S. Department of Transportation, Maritime Administration, *Merchant Fleets of the World* (Washington, DC: Annual issues), and unpublished revisions.
2001-08: U.S. Department of Transportation, Maritime Administration, personal communication as of Janurary 2008 and June 2010.

**Table 1-24: Number and Size of the U.S. Flag Merchant Fleet and Its Share of the World Fleet**
**(Oceangoing ships of 1,000 gross tons and over)**

| | 1960 | 1965 | 1970 | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | (R) 2004 | (R) 2005 | (R) 2006 | (R) 2007 | 2008 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| World fleet | 17,317 | 18,329 | 19,980 | 22,872 | 24,867 | 25,555 | 23,596 | 23,943 | 23,753 | 24,331 | 25,092 | 25,608 | 26,858 | 27,557 | (R) 27,828 | 28,259 | 28,318 | (R) 25,847 | (R) 26,782 | (R) 27,694 | 28,988 | 30,071 | 31,507 | 33,035 | 34,750 |
| U.S. fleet | 2,926 | 2,376 | 1,579 | 857 | 864 | 737 | 636 | 619 | 603 | 565 | 543 | 509 | 495 | 477 | 470 | 463 | 454 | 443 | 426 | 418 | 423 | 366 | 344 | 275 | 272 |
| U.S. Percentage of the world fleet | 16.9 | 13.0 | 7.9 | 3.7 | 3.5 | 2.9 | 2.7 | 2.6 | 2.5 | 2.3 | 2.2 | 2.0 | 1.8 | 1.7 | (R) 1.7 | 1.6 | 1.6 | (R) 1.7 | (R) 1.6 | (R) 1.5 | 1.5 | 1.2 | 1.1 | 0.8 | 0.8 |
| Freighters, total | 2,138 | 1,747 | 1,076 | 511 | 471 | 417 | 367 | 359 | 349 | 322 | 308 | 295 | 292 | 288 | 289 | 284 | 286 | 283 | 276 | 274 | 276 | 235 | 219 | 128 | 133 |
| DWT (thousands) | 21,877 | 18,127 | 11,733 | 7,051 | 6,885 | 7,353 | 7,265 | 7,156 | 7,211 | 7,040 | 6,866 | 6,517 | 6,419 | 6,458 | 6,732 | 6,696 | 6,680 | 6,635 | (R) 6,402 | (R) 6,521 | 6,817 | 5,769 | 5,417 | 4,099 | 4,122 |
| General cargo[a] | N | N | N | 356 | 259 | 209 | 166 | 165 | 182 | 169 | 152 | 142 | 146 | 142 | 140 | 137 | 136 | 132 | 126 | 123 | 119 | 123 | 97 | 25 | 25 |
| DWT (thousands)[a] | N | N | N | 4,640 | 3,329 | 2,980 | 2,605 | 2,592 | 2,973 | 2,913 | 2,677 | 2,472 | 2,467 | 2,420 | 2,400 | 2,404 | 2,362 | 2,162 | (R) 1,838 | (R) 1,810 | 1,755 | 1,805 | 1,389 | 280 | 285 |
| Containership | N | N | N | 109 | 121 | 104 | 92 | 92 | 83 | 87 | 86 | 81 | 83 | 85 | 91 | 89 | 90 | 91 | 90 | 86 | 92 | 81 | 76 | 82 | 77 |
| DWT (thousands) | N | N | N | 1,773 | 2,289 | 2,651 | 2,856 | 2,856 | 2,722 | 2,812 | 2,802 | 2,600 | 2,639 | 2,743 | 3,096 | 3,056 | 3,058 | 3,200 | (R) 3,290 | (R) 3,281 | 3,631 | 3,318 | 3,102 | 3,426 | 3,240 |
| Partial containerships | N | N | N | 37 | 68 | 63 | 59 | 52 | 30 | 3 | 3 | 3 | 1 | 1 | N | N | N | N | N | N | N | N | N | N | N |
| DWT (thousands) | N | N | N | 510 | 940 | 904 | 836 | 741 | 456 | 57 | 57 | 57 | 17 | 17 | N | N | N | N | N | N | N | N | N | N | N |
| RO/Ro | N | N | N | 9 | 23 | 41 | 50 | 50 | 54 | 63 | 67 | 69 | 62 | 60 | 58 | 58 | 60 | 60 | 60 | 65 | 65 | 31 | 46 | 21 | 31 |
| DWT (thousands) | N | N | N | 128 | 327 | 818 | 968 | 967 | 1,060 | 1,258 | 1,330 | 1,388 | 1,296 | 1,278 | 1,236 | 1,236 | 1,260 | 1,273 | 1,273 | 1,431 | 1,431 | 646 | 926 | 393 | 598 |
| Tankers, total | 422 | 341 | 294 | 267 | 308 | 258 | 233 | 226 | 220 | 210 | 200 | 181 | 173 | 161 | 154 | 154 | 142 | 130 | 120 | 109 | 108 | 94 | 89 | 62 | 57 |
| DWT (thousands) | 7,815 | 7,561 | 7,739 | 9,711 | 16,152 | 15,534 | 15,641 | 14,993 | 14,180 | 13,048 | 11,945 | 11,028 | 10,378 | 9,696 | 9,289 | 9,373 | 8,447 | 7,532 | (R) 6,531 | (R) 5,771 | 6,035 | 5,098 | 4,974 | 3,842 | 3,864 |
| Petroleum/chemical[b] ships | N | N | N | N | N | 244 | 219 | 212 | 206 | 196 | 186 | 167 | 159 | 148 | 145 | 146 | 142 | 130 | U | U | U | U | U | U | U |
| DWT (thousands)[b] | N | N | N | N | N | 14,574 | 14,681 | 14,033 | 13,279 | 12,143 | 11,040 | 10,123 | 9,473 | 8,857 | 8,737 | 8,845 | 8,447 | 7,532 | U | U | U | U | U | U | U |
| Liquefied petroleum/natural gas ships | N | N | N | N | N | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 13 | 9 | 8 | N | N | N | N | N | N | N | N | N |
| DWT (thousands) | N | N | N | N | N | 960 | 960 | 960 | 901 | 905 | 905 | 905 | 905 | 839 | 552 | 528 | N | N | N | N | N | N | N | N | N |
| Combination/passenger and cargo, total | 309 | 227 | 171 | 60 | 65 | 37 | 10 | 10 | 11 | 12 | 13 | 13 | 15 | 14 | 12 | 11 | 11 | 13 | 12 | 15 | 18 | 19 | 18 | 14 | 11 |
| DWT (thousands) | 2,070 | 1,488 | 1,107 | 388 | 446 | 299 | 91 | 92 | 97 | 104 | 115 | 115 | 139 | 136 | 116 | 99 | 99 | 105 | (R) 100 | (R) 91 | 108 | 100 | 98 | 46 | 9 |
| Bulk carriers, total | 57 | 61 | 38 | 19 | 20 | 25 | 26 | 24 | 23 | 21 | 22 | 20 | 15 | 14 | 15 | 14 | 15 | 17 | 18 | 20 | 21 | 18 | 18 | 71 | 71 |
| DWT (thousands) | 805 | 1,107 | 767 | 544 | 607 | 1,152 | 1,270 | 1,014 | 991 | 949 | 1,042 | 925 | 575 | 321 | 604 | 579 | 604 | 706 | (R) 797 | (R) 837 | 889 | 543 | 543 | 2,340 | 2,242 |

**KEY:** DWT = deadweight tons; N = data do not exist; R = revised; RO/RO = roll-on/roll-off vessels; U = data are unavailable.

[a] Includes barge carriers.
[b] Includes integrated tug/barges.

**NOTES**

Excludes non-merchant type and/or U.S. Navy-owned vessels currently in the National Defense Reserve Fleet.
Excludes ships operating exclusively on the Great Lakes and inland waterways and special types such as: channel ships, icebreakers, cable ships, and merchant ships owned by military forces.
1960-2006 data includes private and government owned vessels of 1,000 gross tons and over. Beginning in 2007, data are reported only for privately-owned vessels of 1,000 gross tons and over.
All data are year-end data, except that 2004 data for *Freigher* are as of July 1, 2004..

**SOURCES**

**World fleet:**
1994: U.S. Department of Transportation, Maritime Administration, *Merchant Fleets of the World* (Washington, DC: Annual issues), and unpublished revisions.
All other years: U.S. Department of Transportation, Maritime Administration, personal communication as of June 2010.
**All other categories:**
1960-2000: U.S. Department of Transportation, Maritime Administration, *Merchant Fleets of the World* (Washington, DC: Annual issues), and unpublished revisions.
2001-08: U.S. Department of Transportation, Maritime Administration, personal communication as of Janurary 2008 and June 2010.

# Section C
# Condition

## Table 1-25: U.S. Airport Runway Pavement Conditions

| | 1986 | 1990 | 1993 | 1997 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NPIAS[a] airports, number | 3,243 | 3,285 | 3,294 | 3,331 | 3,344 | 3,361 | 3,364 | 3,358 | 3,346 | 3,356 | 3,357 | 3,365 | 3,372 | 3,356 | 3,345 | 3,332 |
| Good condition (percent) | 61 | 61 | 68 | 72 | 72 | 73 | 73 | 71 | 75 | 75 | 75 | 77 | 78 | 79 | 78 | 79 |
| Fair condition (percent) | 28 | 29 | 25 | 23 | 23 | 22 | 22 | 24 | 21 | 21 | 21 | 19 | 19 | 18 | 19 | 18 |
| Poor condition (percent) | 11 | 10 | 7 | 5 | 5 | 5 | 5 | 5 | 4 | 4 | 4 | 4 | 3 | 3 | 3 | 3 |
| Commercial service airports[b], number | 550 | 568 | 554 | 566 | 547 | 546 | 546 | 536 | 510 | 513 | 517 | 517 | 514 | 522 | 528 | 503 |
| Good condition (percent) | 78 | 78 | 79 | 79 | 78 | 79 | 79 | 79 | 80 | 82 | 79 | 79 | 80 | 81 | 82 | 82 |
| Fair condition (percent) | 15 | 17 | 18 | 19 | 20 | 19 | 19 | 19 | 18 | 16 | 19 | 18 | 18 | 17 | 16 | 16 |
| Poor condition (percent) | 7 | 5 | 3 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 3 | 2 | 2 | 2 | 2 |

**KEY:** NPIAS = National Plan of Integrated Airport Systems.

[a] The U.S. Department of Transportation, Federal Aviation Administration's (FAA's) National Plan of Integrated Airport Systems is composed of all commercial service airports, all reliever airports, and selected general aviation airports. It does not include over 1,000 publicly owned public-use landing areas, privately owned public-use airports, and other civil landing areas not open to the general public. NPIAS airports account for almost all enplanements. In 2005, there were approximately 16,500 non-NPIAS airports. See table 1-3 for more detail on airports.

[b] Commercial service airports are defined as public airports receiving scheduled passenger service, and having at least 2,500 enplaned passengers per year.

**NOTES**

Data are as of January 1 of each year. Runway pavement condition is classified by the FAA as follows:
Good: All cracks and joints are sealed.
Fair: Mild surface cracking, unsealed joints, and slab edge spalling.
Poor: Large open cracks, surface and edge spalling, vegetation growing through cracks and joints.

**SOURCES**

**Condition:**

1986, 1990: U.S. Department of Transportation, Federal Aviation Administration, *National Plan of Integrated Airport Systems* (Washington DC: 1991).
1993: Ibid., *National Plan of Integrated Airport Systems* (Washington DC: 1995).
1997, 1999-2010: U.S. Department of Transportation, Federal Aviation Administration, Office of Airport Planning and Programming, National Planning Division, personal communication, Dec. 22, 2009, and Dec. 7, 2010.

**Total number of airports:**

Ibid., personal communication, Dec. 22, 2009, and Dec. 7, 2010.

**Table 1-26: Median Age of Automobiles and Trucks in Operation in the United States**

| Year | Automobiles | Light trucks[a] | All trucks[b] |
|---|---|---|---|
| 1990 | 6.5 | U | 6.5 |
| 1991 | 6.7 | U | 6.8 |
| 1992 | 7.0 | U | 7.2 |
| 1993 | 7.3 | 7.1 | 7.5 |
| 1994 | 7.5 | 7.2 | 7.5 |
| 1995 | 7.7 | 7.4 | 7.6 |
| 1996 | 7.9 | 7.5 | 7.7 |
| 1997 | 8.1 | 7.3 | 7.8 |
| 1998 | 8.3 | 7.1 | 7.6 |
| 1999 | 8.3 | 6.9 | 7.2 |
| 2000 | 8.3 | 6.7 | 6.9 |
| 2001 | 8.3 | 6.1 | 6.8 |
| 2002 | 8.4 | 6.6 | 6.8 |
| 2003 | 8.6 | 6.5 | 6.7 |
| 2004 | 8.9 | 6.4 | 6.6 |
| 2005 | 9.0 | 6.6 | 6.8 |
| 2006 | 9.2 | 6.8 | 6.9 |
| 2007 | 9.2 | 7.1 | 7.3 |
| 2008 | 9.4 | 7.5 | 7.6 |

Mean age of household vehicles for several years[c]

| | Automobile | Van | Sport utility | Pickup | Other truck | RV/motor home |
|---|---|---|---|---|---|---|
| 1969 | 5.1 | U | U | U | U | U |
| 1977 | 5.5 | 6.4 | U | 7.3 | 11.6 | 4.5 |
| 1983 | 7.2 | 8.5 | U | 8.5 | 12.4 | 10.7 |
| 1990 | 7.6 | 5.9 | U | 8.4 | 14.5 | 10.4 |
| 1995 | 8.2 | 6.7 | 6.6 | 9.7 | 14.9 | 13.2 |
| 2001 | 8.5 | 7.0 | 6.1 | 9.4 | 16.8 | 12.5 |

**KEY:** U = data are unavailable.

[a] Gross vehicle weight 1-3.

[b] Gross vehicle weight 1-8.

[C] The 1969, 1977, 1983, and 1990 surveys do not include a separate category for sports utility vehicles (SUV), while the 1995 and 2001 surveys do. In 1990, most SUVs were classified as automobiles.

**NOTE**

Data for median age of automobiles are as of July 1 of each year.

**SOURCES**

**Median age of automobiles:**

The R.L. Polk Co., *News, Latest News*, *U.S. Vehicle Median Age Increased in 2008, According To Polk,* available at http://usa.polk.com/News/LatestNews/ as of July 29, 2009.

**Mean age of household vehicles:**

U.S. Department of Transportation, Federal Highway Administration, *1995 Nationwide Personal Transportation Survey: Summary of Travel Trends* (Washington, DC: 1999); U.S. Department of Transportation, Federal Highway Administration, Bureau of Transportation Statistics, *2001 National Household Travel Survey (NHTS) Data* , available at http://nhts.ornl.gov as of September, 2009.

**Table 1-27: Condition of U.S. Roadways by Functional System**

| | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **RURAL** | | | | | | | | | | | | | | | | | | | |
| Interstates miles reported | 33,547 | 33,677 | 33,027 | 29,089 | 31,502 | 31,254 | 31,312 | 31,431 | 30,498 | 32,820 | 32,888 | 32,951 | 32,907 | 31,956 | 31,341 | 30,802 | 30,512 | 30,040 | 30,076 |
| Poor, percent | 8.7 | 7.6 | 5.2 | 7.0 | 6.5 | 6.3 | 3.9 | 3.6 | 4.1 | 2.4 | 2.1 | 1.9 | 2.1 | 1.6 | 2.0 | 1.7 | 2.0 | 1.9 | 1.9 |
| Mediocre, percent[b] | NR | NR | 14.1 | 27.7 | 26.5 | 20.7 | 19.1 | 19.1 | 16.5 | 14.0 | 12.2 | 11.7 | 10.2 | 9.8 | 10.4 | 9.5 | 8.0 | 7.9 | 7.7 |
| Fair, percent | 31.9 | 31.7 | 17.4 | 20.9 | 23.9 | 22.3 | 21.7 | 20.7 | 17.8 | 18.1 | 16.9 | 15.4 | 15.5 | 15.4 | 14.5 | 13.6 | 12.8 | 12.5 | 12.1 |
| Good, percent[b] | NR | NR | 27.6 | 36.1 | 33.2 | 36.9 | 38.8 | 41.0 | 42.6 | 44.0 | 44.8 | 43.3 | 44.0 | 43.9 | 46.9 | 47.0 | 46.5 | 46.8 | 46.9 |
| Very good, percent | 59.5 | 60.7 | 35.6 | 8.3 | 9.9 | 13.9 | 16.6 | 15.7 | 19.0 | 21.5 | 23.9 | 27.7 | 28.2 | 29.3 | 26.2 | 28.2 | 30.7 | 30.9 | 31.4 |
| Unpaved, percent | N | N | N | N | N | N | N | N | N | N | N | | N | N | N | N | N | N | N |
| Miles not reported[a] | N | N | N | 3,563 | 955 | 1,326 | 1,508 | 1,382 | 2,313 | 153 | 162 | 109 | 84 | 87 | 103 | 92 | 71 | 311 | 117 |
| Other principal arterials miles reported | 83,802 | 85,729 | 94,798 | 78,296 | 89,506 | 89,265 | 92,103 | 92,170 | 93,333 | 97,247 | 97,297 | 97,946 | 97,854 | 96,656 | 95,390 | 94,216 | 94,500 | 94,396 | 94,367 |
| Poor, percent | 3.4 | 3.6 | 3.3 | 2.9 | 2.4 | 4.4 | 1.4 | 1.6 | 1.4 | 0.9 | 0.8 | 0.7 | 0.7 | 0.7 | 0.9 | 0.8 | 0.8 | 0.6 | 0.5 |
| Mediocre, percent[b] | NR | NR | 5.9 | 9.2 | 8.2 | 7.6 | 5.8 | 4.9 | 4.6 | 3.7 | 3.2 | 3.0 | 2.7 | 2.8 | 3.3 | 2.8 | 2.5 | 2.5 | 2.4 |
| Fair, percent | 42.6 | 44.5 | 34.6 | 54.8 | 57.4 | 51.1 | 49.1 | 47.7 | 43.3 | 41.5 | 38.7 | 37.3 | 35.6 | 35.5 | 35.9 | 33.5 | 31.3 | 30.9 | 30.5 |
| Good, percent[b] | NR | NR | 28.5 | 26.7 | 26.6 | 27.9 | 34.4 | 37.2 | 38.3 | 40.5 | 42.9 | 42.5 | 44.2 | 44.6 | 44.9 | 45.8 | 46.5 | 46.5 | 47.5 |
| Very good, percent | 53.8 | 51.9 | 27.6 | 6.4 | 5.4 | 9.0 | 9.3 | 8.6 | 12.3 | 13.5 | 14.4 | 16.5 | 16.7 | 16.4 | 14.9 | 17.1 | 18.9 | 19.5 | 19.1 |
| Unpaved, percent | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N |
| Miles not reported[a] | N | N | N | 17,905 | 7,489 | 8,683 | 6,028 | 6,083 | 5,524 | 1,587 | 1,619 | 1,247 | 1,009 | 386 | 552 | 946 | 430 | 377 | 579 |
| Minor arterials miles reported | 144,735 | 142,866 | 137,637 | 134,837 | 124,877 | 121,443 | 126,381 | 126,525 | 130,591 | 135,192 | 136,096 | 134,706 | 136,955 | 134,984 | 134,884 | 134,358 | 134,914 | 134,798 | 134,386 |
| Poor, percent | 4.6 | 4.3 | 3.9 | 3.9 | 3.5 | 3.7 | 2.3 | 2.3 | 1.9 | 1.7 | 1.7 | 1.7 | 1.3 | 1.3 | 1.4 | 1.4 | 1.7 | 1.2 | 1.3 |
| Mediocre, percent[b] | NR | NR | 7.1 | 9.1 | 10.5 | 9.0 | 8.2 | 6.7 | 6.0 | 5.2 | 5.3 | 5.2 | 4.5 | 4.8 | 5.1 | 4.0 | 4.2 | 4.5 | 4.5 |
| Fair, percent | 48.2 | 47.3 | 36.4 | 53.5 | 57.9 | 54.7 | 50.7 | 50.4 | 47.2 | 47.3 | 46.2 | 44.9 | 43.6 | 43.0 | 44.3 | 42.0 | 40.7 | 40.9 | 40.8 |
| Good, percent[b] | NR | NR | 25.3 | 25.0 | 23.6 | 23.9 | 31.0 | 33.6 | 34.3 | 34.4 | 35.6 | 36.9 | 39.1 | 41.2 | 39.5 | 41.6 | 41.5 | 40.3 | 40.4 |
| Very good, percent | 47.2 | 48.4 | 26.8 | 8.5 | 4.5 | 8.7 | 7.7 | 7.0 | 10.6 | 11.4 | 11.2 | 11.3 | 11.6 | 9.7 | 9.6 | 11.0 | 11.8 | 13.0 | 13.1 |
| Unpaved, percent | Z | Z | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N |
| Miles not reported[a] | N | N | N | 12,740 | 13,294 | 15,708 | 10,978 | 10,978 | 6,664 | 1,968 | 1,436 | 2,874 | 606 | 607 | 573 | 1,049 | 455 | 497 | 616 |
| Major collectors miles reported | 436,365 | 436,737 | 434,175 | 432,223 | 431,111 | 431,712 | 432,117 | 386,122 | 388,498 | 389,134 | 388,488 | 389,579 | 389,125 | 383,414 | 379,061 | 378,722 | 378,753 | 378,451 | 380,297 |
| Poor, percent | 8.9 | 7.7 | 7.8 | 6.8 | 6.5 | 6.5 | 6.7 | 7.8 | 7.4 | 9.0 | 8.5 | 7.7 | 7.7 | 7.4 | 6.9 | 6.5 | 6.2 | 5.7 | 5.3 |
| Mediocre, percent[b] | NR | NR | 11.0 | 12.4 | 11.3 | 11.4 | 10.3 | 12.3 | 11.9 | 12.1 | 12.7 | 12.8 | 11.8 | 11.7 | 11.9 | 12.0 | 11.7 | 12.1 | 12.4 |
| Fair, percent | 43.8 | 45.2 | 32.3 | 37.7 | 33.5 | 30.8 | 34.4 | 37.6 | 39.0 | 44.8 | 43.7 | 43.7 | 43.4 | 44.3 | 46.5 | 46.3 | 47.0 | 48.6 | 48.3 |
| Good, percent[b] | NR | NR | 17.7 | 16.3 | 16.1 | 17.4 | 20.0 | 23.0 | 23.4 | 20.9 | 22.0 | 23.4 | 24.9 | 25.1 | 23.5 | 24.2 | 23.4 | 23.0 | 22.8 |
| Very good, percent | 36.2 | 36.1 | 20.4 | 15.9 | 21.9 | 23.7 | 18.4 | 19.3 | 18.3 | 13.1 | 13.2 | 12.5 | 12.2 | 11.4 | 11.1 | 11.0 | 11.7 | 10.7 | 11.2 |
| Unpaved, percent | 11.1 | 11.0 | 10.7 | 10.9 | 10.7 | 10.2 | 10.1 | N | N | N | N | N | N | N | N | N | N | N | N |
| Miles not reported[a] | N | N | N | N | N | N | N | 2,402 | N | N | N | N | N | N | N | N | N | N | N |
| **URBAN** | | | | | | | | | | | | | | | | | | | |
| Interstates miles reported | 11,527 | 11,603 | 12,466 | 10,738 | 12,338 | 12,307 | 12,430 | 12,477 | 12,231 | 13,109 | 13,139 | 13,256 | 13,367 | 14,331 | 14,984 | 15,544 | 15,899 | 16,035 | 16,348 |
| Poor, percent | 8.6 | 7.7 | 7.1 | 10.6 | 13.0 | 10.4 | 8.6 | 9.0 | 9.4 | 7.3 | 6.5 | 7.4 | 7.7 | 7.7 | 7.2 | 6.0 | 5.2 | 5.9 | 5.4 |
| Mediocre, percent[b] | NR | NR | 13.2 | 30.9 | 29.9 | 26.8 | 28.3 | 27.0 | 25.5 | 23.1 | 21.7 | 20.8 | 20.6 | 19.1 | 17.7 | 16.8 | 16.3 | 16.0 | 15.2 |
| Fair, percent | 32.2 | 32.3 | 17.0 | 23.6 | 24.2 | 23.8 | 24.7 | 24.4 | 21.8 | 22.6 | 21.4 | 20.9 | 20.3 | 18.8 | 19.5 | 18.6 | 18.4 | 18.1 | 17.3 |
| Good, percent[b] | NR | NR | 28.0 | 28.3 | 26.7 | 27.5 | 30.7 | 32.9 | 32.0 | 34.9 | 37.1 | 35.9 | 36.0 | 36.6 | 38.2 | 42.0 | 41.4 | 41.3 | 42.9 |
| Very good, percent | 59.1 | 60.0 | 34.7 | 6.5 | 6.2 | 11.4 | 7.6 | 6.7 | 11.4 | 12.0 | 13.3 | 14.9 | 15.4 | 17.9 | 17.4 | 16.6 | 18.7 | 18.8 | 19.2 |
| Unpaved, percent | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N |
| Miles not reported[a] | N | N | N | 2,140 | 788 | 857 | 787 | 771 | 1,040 | 230 | 226 | 156 | 123 | 131 | 140 | 157 | 139 | 271 | 193 |
| Other freeways and expressway miles reported | 7,670 | 7,714 | 8,465 | 7,011 | 7,618 | 7,804 | 8,410 | 8,480 | 8,772 | 8,860 | 8,796 | 8,959 | 9,242 | 9,786 | 10,143 | 10,443 | 10,659 | 10,832 | 11,175 |
| Poor, percent | 2.2 | 2.3 | 2.6 | 3.8 | 5.3 | 4.8 | 3.4 | 3.3 | 3.2 | 2.6 | 2.8 | 3.1 | 2.7 | 2.4 | 2.1 | 1.9 | 1.5 | 1.6 | 1.4 |
| Mediocre, percent[b] | NR | NR | 5.9 | 9.4 | 12.7 | 9.8 | 8.7 | 8.7 | 8.7 | 8.1 | 8.1 | 7.1 | 7.6 | 8.3 | 7.6 | 6.0 | 5.0 | 5.5 | 5.1 |
| Fair, percent | 43.9 | 44.2 | 32.4 | 60.6 | 58.1 | 54.7 | 54.7 | 58.5 | 54.3 | 53.6 | 50.7 | 50.5 | 48.6 | 45.7 | 45.5 | 44.7 | 43.0 | 42.3 | 42.5 |
| Good, percent[b] | NR | NR | 28.1 | 22.7 | 20.9 | 20.4 | 26.3 | 25.2 | 27.1 | 29.0 | 31.6 | 31.5 | 33.3 | 35.0 | 37.4 | 39.6 | 40.1 | 40.5 | 40.6 |
| Very good, percent | 53.9 | 53.5 | 31.0 | 3.5 | 2.9 | 10.3 | 6.8 | 4.2 | 6.6 | 6.8 | 6.8 | 7.7 | 7.9 | 8.6 | 7.4 | 7.9 | 10.3 | 10.0 | 10.3 |
| Unpaved, percent | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N |
| Miles not reported[a] | N | N | N | 1,846 | 1,377 | 1,166 | 617 | 579 | 397 | 281 | 353 | 167 | 82 | 81 | 98 | 108 | 84 | 78 | 152 |
| Other principal arterials miles reported | 51,987 | 52,349 | 52,165 | 30,337 | 38,598 | 41,444 | 44,498 | 45,009 | 44,886 | 48,045 | 47,890 | 48,931 | 50,016 | 53,431 | 56,831 | 59,743 | 61,064 | 61,259 | 62,584 |
| Poor, percent | 5.9 | 6.6 | 6.8 | 9.2 | 12.5 | 12.4 | 11.8 | 12.1 | 12.9 | 12.5 | 13.2 | 12.9 | 13.3 | 12.7 | 12.2 | 11.8 | 11.1 | 11.4 | 11.6 |
| Mediocre, percent[b] | NR | NR | 11.5 | 13.3 | 16.3 | 14.7 | 14.1 | 14.6 | 18.5 | 18.1 | 16.8 | 16.4 | 16.4 | 16.4 | 15.5 | 15.7 | 14.5 | 15.4 | 15.2 |
| Fair, percent | 49.0 | 49.1 | 34.8 | 55.0 | 50.8 | 47.2 | 48.9 | 49.5 | 45.3 | 45.2 | 45.1 | 45.7 | 46.1 | 46.7 | 46.8 | 47.2 | 44.9 | 45.8 | 45.8 |
| Good, percent[b] | NR | NR | 21.4 | 19.3 | 16.6 | 15.9 | 17.5 | 17.8 | 17.6 | 18.8 | 19.4 | 19.5 | 19.4 | 19.5 | 20.0 | 20.1 | 21.4 | 21.7 | 21.8 |
| Very good, percent | 45.1 | 44.3 | 25.3 | 3.3 | 3.8 | 9.7 | 7.7 | 6.0 | 5.8 | 5.4 | 5.4 | 5.5 | 4.9 | 4.7 | 5.5 | 5.3 | 8.2 | 5.6 | 5.5 |
| Unpaved, percent | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N |
| Miles not reported[a] | N | N | N | 22,498 | 14,492 | 11,352 | 8,485 | 8,209 | 8,246 | 5,154 | 5,426 | 4,126 | 3,422 | 3,440 | 2,863 | 2,064 | 1,765 | 2,030 | 1,975 |
| Minor arterials miles reported | 74,656 | 74,979 | 80,368 | 86,819 | 87,852 | 88,510 | 89,020 | 88,484 | 88,667 | 88,663 | 88,338 | 88,250 | 89,559 | 92,527 | 96,170 | 100,290 | 101,637 | 102,786 | 104,883 |
| Poor, percent | 8.9 | 7.4 | 7.9 | 7.9 | 6.7 | 6.7 | 6.9 | 7.2 | 7.3 | 9.1 | 10.0 | 10.5 | 10.5 | 11.4 | 13.0 | 12.3 | 12.2 | 13.2 | 12.6 |
| Mediocre, percent[b] | NR | NR | 14.3 | 13.8 | 12.3 | 13.6 | 13.0 | 13.0 | 12.2 | 13.2 | 16.0 | 15.9 | 16.1 | 16.5 | 15.8 | 15.2 | 14.6 | 14.7 | 14.6 |
| Fair, percent | 48.5 | 49.9 | 34.1 | 40.2 | 38.1 | 36.9 | 37.9 | 37.9 | 39.5 | 40.7 | 39.8 | 41.1 | 40.7 | 41.6 | 40.8 | 40.7 | 40.1 | 39.3 | 40.5 |
| Good, percent[b] | NR | NR | 19.2 | 18.4 | 20.5 | 20.4 | 20.7 | 21.4 | 21.1 | 18.5 | 16.9 | 16.8 | 17.4 | 16.7 | 15.9 | 16.4 | 16.2 | 16.5 | 16.3 |
| Very good, percent | 42.1 | 42.1 | 24.0 | 19.4 | 22.1 | 22.1 | 21.1 | 20.6 | 19.9 | 18.6 | 17.3 | 15.7 | 15.3 | 13.8 | 14.5 | 15.4 | 16.9 | 16.3 | 16.0 |
| Unpaved, percent | 0.5 | 0.6 | 0.5 | 0.4 | 0.3 | 0.3 | 0.4 | N | N | N | N | N | N | N | N | N | N | N | N |
| Miles not reported[a] | N | N | N | N | N | N | N | 374 | N | N | N | N | N | N | N | N | N | N | N |
| Collectors miles reported | 78,248 | 77,097 | 82,657 | 84,856 | 86,098 | 87,331 | 87,790 | 86,666 | 86,705 | 86,821 | 86,030 | 86,265 | 87,754 | 94,939 | 99,675 | 103,979 | 106,843 | 107,336 | 111,655 |
| Poor, percent | 16.5 | 11.2 | 10.5 | 10.6 | 9.8 | 9.7 | 9.7 | 10.6 | 10.4 | 13.4 | 14.7 | 14.6 | 15.4 | 16.5 | 18.1 | 16.9 | 18.8 | 19.8 | 18.6 |
| Mediocre, percent[b] | NR | NR | 16.9 | 16.8 | 16.2 | 16.8 | 16.6 | 16.0 | 15.0 | 14.9 | 17.4 | 17.3 | 17.4 | 17.5 | 16.7 | 16.6 | 16.1 | 16.6 | 16.6 |
| Fair, percent | 50.4 | 53.5 | 35.2 | 40.0 | 40.0 | 39.0 | 39.2 | 39.0 | 39.9 | 37.7 | 35.7 | 36.6 | 36.8 | 36.0 | 34.3 | 35.8 | 35.1 | 34.5 | 36.5 |
| Good, percent[b] | NR | NR | 17.3 | 16.1 | 17.0 | 17.2 | 18.2 | 18.4 | 17.6 | 15.4 | 14.2 | 13.4 | 13.7 | 13.4 | 13.2 | 14.4 | 12.9 | 12.7 | 12.2 |
| Very good, percent | 31.7 | 34.2 | 19.1 | 15.5 | 16.0 | 16.6 | 15.4 | 15.9 | 17.1 | 18.6 | 18.0 | 18.1 | 16.7 | 16.6 | 17.7 | 16.3 | 17.1 | 16.4 | 16.1 |
| Unpaved, percent | 1.3 | 1.1 | 1.1 | 1.0 | 0.9 | 0.8 | 0.9 | N | N | N | N | N | N | N | N | N | N | N | N |
| Miles not reported[a] | N | N | N | N | N | N | N | 663 | N | N | N | N | N | N | N | N | N | N | N |

**KEY:** N = data do not exist; NR = not reported; Z = value too small to report.

[a] Historical differences in *Miles not reported* result from the transition from the Present Serviceability Rating (PSR) to the International Roughness Indicator (IRI).
[b] For 1990 and 1991, this category is Included in row below.

**NOTES**
Numbers may not add to totals due to rounding.

*Interstates* have stricter roughness standards than other roads and its roughness classifications are not comparable with the other categories.

Data are for the 50 states and the District of Columbia. The terms *Poor* and *Mediocre* refer to Federal Highway Administration (FHWA)'s pavement condition criteria categories for quantitative International Roughness Index and Present Serviceability Ratings. For further information, refer to the U.S. Department of Transportation, FHWA, *Status of the Nation's Highways, Bridges, and Transit: 2002 Conditions and Performance Report*, Exhibit 3-3, available at: http://www.fhwa.dot.gov/policy, as of January 2010.

Data prior to 1993 are not comparable with later years because of differences in pavement condition indicators used for the two periods. F additional information, refer to the accuracy profile in the appendix of the *Status of the Nation's Highways, Bridges, and Transit: 2002 Conditions and Performance Report*. Total mileage in this table will not match that in table 1-5 due to a change in the method of preparing mileage data derived from the Highway Performance Monitoring System, beginning with the 1997 issue of FHWA's Highway Statistics.

**SOURCES**
**Rural major collector, urban minor arterial, and urban collector:**
U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics* (Washington, DC: Annual Issues), table HM-63, available at http://www.fhwa.dot.gov/policy/ohpi/hss/index.cfm as of Aug. 18, 2010.
**All other categories except rural major collector, urban minor arterial, and urban collector:**
1990-92: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics* (Washington, DC: Annual Issues), table HM-63, available at http://www.fhwa.dot.gov/policy/ohpi/hss/index.cfm as of Aug. 18, 2010.
1993-2008: Ibid., table HM-64, available at http://www.fhwa.dot.gov/policy/ohpi/hss/index.cfm as of Aug. 18, 2010.

**Table 1-28: Condition of U.S. Highway Bridges**

| | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL all bridges | 572,205 | 574,036 | 572,197 | 573,716 | 576,460 | 581,135 | 581,863 | 582,751 | 582,976 | 585,542 | 589,674 | 589,685 | 590,887 | 591,940 | 593,813 | 595,363 | 597,340 | 599,766 | 601,396 | 603,259 |
| Urban | 108,770 | 112,363 | 115,312 | 117,488 | 121,141 | 122,537 | 124,950 | 127,633 | 128,312 | 130,339 | 133,384 | 133,401 | 135,339 | 135,415 | 137,598 | 142,408 | 146,041 | 151,171 | 153,407 | 156,305 |
| Rural | 463,435 | 461,673 | 456,885 | 456,228 | 455,319 | 458,598 | 456,913 | 455,118 | 454,664 | 455,203 | 456,290 | 456,284 | 455,548 | 456,525 | 456,215 | 452,955 | 451,299 | 448,595 | 447,989 | 446,954 |
| Structurally deficient bridges, total | 137,865 | 134,534 | 118,698 | 111,980 | 107,683 | 104,317 | 101,518 | 98,475 | 93,072 | 88,150 | 86,678 | 83,595 | 81,261 | 79,775 | 77,752 | 75,923 | 73,784 | 72,520 | 71,461 | 71,177 |
| Urban | 16,847 | 17,032 | 16,323 | 15,932 | 15,692 | 15,205 | 15,094 | 14,846 | 14,073 | 12,967 | 13,079 | 12,705 | 12,503 | 12,316 | 12,175 | 12,600 | 12,585 | 12,951 | 12,896 | 12,828 |
| Rural | 121,018 | 117,502 | 102,375 | 96,048 | 91,991 | 89,112 | 86,424 | 83,629 | 78,999 | 75,183 | 73,599 | 70,890 | 68,758 | 67,459 | 65,577 | 63,323 | 61,199 | 59,569 | 58,565 | 58,349 |
| Functionally obsolete bridges, total | 100,355 | 97,593 | 80,393 | 80,000 | 79,832 | 80,950 | 81,208 | 77,410 | 79,500 | 81,900 | 81,510 | 81,439 | 81,537 | 80,990 | 80,567 | 80,412 | 80,317 | 79,804 | 79,933 | 78,477 |
| Urban | 30,266 | 30,842 | 26,243 | 26,511 | 27,024 | 27,487 | 28,087 | 26,865 | 27,588 | 29,065 | 29,398 | 29,383 | 29,675 | 29,886 | 30,298 | 31,391 | 32,292 | 33,139 | 33,691 | 33,743 |
| Rural | 70,089 | 66,751 | 54,150 | 53,489 | 52,808 | 53,463 | 53,121 | 50,545 | 51,912 | 52,835 | 52,112 | 52,056 | 51,862 | 51,104 | 50,269 | 49,021 | 48,025 | 46,665 | 46,242 | 44,734 |

**NOTES**

Explanations for the terms *Structurally Deficient* and *Functionally Obsolete* can be found on pages 14 and 15 in Chapter 3 of the Federal Highway Administration, 2006 Conditions and Performance Report, available at http://www.fhwa.dot.gov/policy/2006cpr/pdfs/chap3.pdf.

U.S. totals include the 50 states, the District of Columbia, and Puerto Rico.

Table includes: Rural–Interstate, principal arterial, minor arterial, major collector, minor collector and local roads; Urban–Interstate, other freeways or expressways, other principal arterial, minor arterial, collector, and local roads.

Data for 1990, 1992, 1997-99, 2000, and 2007-09 are as of December of those years; data for 1991 and 1994-96 are as of June of those years; data for 1993 are as of September of that year; data for 2000 are as of August of that year; and data for 2002-06 are as of July of those years.

**SOURCES**

1990-2000: 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 (NBI)*, personal communication, Aug. 14, 2001 and Apr. 24, 2008.

2001-09: U.S. Department of Transportation, Federal Highway Administration, Office of Bridge Technology, *National Bridge Inventory (NBI)*, *Count of Bridges by Highway System,* available at http://www.fhwa.dot.gov/bridge/britab.htm as of Apr. 23, 2010.

## Table 1-29: Average Age of Urban Transit Vehicles (Years)

| | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Transit rail | | | | | | | | | | | | | | | | | | | | | |
| Commuter rail locomotives[a] | 16.3 | 15.7 | 15.3 | 15.8 | 15.6 | 15.3 | 15.9 | 17.6 | 17.0 | 14.7 | 13.2 | 13.4 | 14.2 | 16.0 | 16.6 | 16.0 | 16.5 | 16.9 | 18.4 | 18.6 | 18.3 |
| Commuter rail passenger coaches | 19.1 | 17.6 | 17.3 | 19.3 | 18.6 | 20.1 | 21.4 | 24.1 | 21.6 | 19.4 | 17.5 | 16.9 | 18.1 | 20.1 | 20.5 | 17.9 | 18.6 | 18.6 | 18.9 | 18.7 | 18.3 |
| Commuter rail self-propelled passenger cars | 12.3 | 15.9 | 16.5 | 17.6 | 18.2 | 16.0 | 19.8 | 21.1 | 22.3 | 23.2 | 24.3 | 25.4 | 26.2 | 27.1 | 25.4 | 23.6 | 19.4 | 15.9 | 16.9 | 17.9 | 18.5 |
| Heavy-rail passenger cars | 17.1 | 16.2 | 16.9 | 17.7 | 17.8 | 15.8 | 19.3 | 20.2 | 21.1 | 22.0 | 22.5 | 22.9 | 21.7 | 20.0 | 19.0 | 19.8 | 20.8 | 21.6 | 21.6 | 20.7 | 19.0 |
| Light rail vehicles (streetcars) | 20.6 | 15.2 | 16.6 | 17.0 | 14.9 | 16.7 | 16.8 | 16.0 | 15.9 | 15.7 | 15.7 | 16.1 | 16.4 | 16.3 | 15.6 | 15.5 | 14.5 | 15.3 | 16.1 | 16.4 | 16.4 |
| Transit bus[b] | | | | | | | | | | | | | | | | | | | | | |
| Articulated | 3.4 | 7.6 | 8.2 | 9.1 | 9.5 | 10.1 | 10.7 | 11.3 | 11.7 | 11.2 | 8.5 | 6.6 | 5.9 | 5.8 | 5.8 | 4.6 | 4.9 | 5.4 | 6.2 | 6.9 | 6.6 |
| Full-size | 8.1 | 8.2 | 8.0 | 8.3 | 8.5 | 8.7 | 8.6 | 8.7 | 8.5 | 8.5 | 8.4 | 8.1 | 7.8 | 7.5 | 7.3 | 7.2 | 7.6 | 7.4 | 6.2 | 7.7 | 7.8 |
| Mid-size | 5.6 | 6.6 | 6.7 | 6.8 | 6.4 | 6.9 | 6.8 | 6.3 | 5.8 | 5.8 | 5.6 | 5.6 | 5.6 | 5.6 | 5.7 | 5.7 | 5.8 | 6.2 | 6.5 | 6.7 | 6.2 |
| Small | 4.8 | 3.9 | 4.0 | 4.1 | 4.0 | 4.1 | 4.0 | 4.0 | 3.9 | 4.0 | 4.0 | 4.1 | 4.0 | 4.0 | 4.0 | 4.1 | 4.1 | 4.3 | 4.3 | 4.4 | 4.3 |
| Trolley | U | 10.9 | 10.3 | 11.2 | 12.0 | 11.1 | 13.1 | 14.0 | 14.7 | 14.6 | 15.6 | 16.4 | 20.4 | 15.4 | 11.6 | 8.5 | 9.4 | 9.0 | 8.5 | 9.0 | 9.4 |
| Other | | | | | | | | | | | | | | | | | | | | | |
| Vans | 3.8 | 2.8 | 3.0 | 3.1 | 3.1 | 3.9 | 3.1 | 3.1 | 3.0 | 2.9 | 3.1 | 3.1 | 3.3 | 4.9 | 3.4 | 3.4 | 3.4 | 3.1 | 3.1 | 3.3 | 3.2 |
| Ferry boats | U | 21.7 | 19.6 | 22.7 | 24.7 | 23.5 | 23.4 | 25.3 | 25.4 | 25.8 | 25.1 | 25.6 | 24.7 | 26.8 | 27.1 | 25.6 | 25.6 | 21.7 | 20.3 | 20.1 | 19.3 |

**KEY:** U = data are unavailable.

[a] Locomotives used in Amtrak intercity passenger services are not included.

[b] *Full-size* buses have more than 35 seats; *Mid-size* buses have 25-35 seats; *Small* buses have fewer than 25 seats.

**SOURCES**

**All data, except full-size, mid-size, small, and articulated transit bus:**

U.S. Department of Transportation, Federal Transit Administration, *National Transit Database* (Washington, DC: Annual reports), table 25 and similar tables in earlier editions, available at http://www.ntdprogram.gov/ntdprogram/ as of Nov. 23, 2010.

**Full-size, mid-size, small, and articulated transit bus:**

1985-91: U.S. Department of Transportation, Federal Transit Administration, *National Transit Database 1991* (Washington, DC: 1993), table 29 and similar tables in earlier editions.

1992-2009: Ibid., *National Transit Summaries and Trends* (Washington, DC: Annual reports), available at http://www.ntdprogram.gov/ntdprogram/ as of Nov. 23, 2010.

## Table 1-30: Condition of Urban Bus and Rail Transit Maintenance Facilities

| | 1995 | 1997 | 2000 | 2002 | 2004 | (R) 2006 |
|---|---|---|---|---|---|---|
| Bus, number of facilities[a] | 484 | 503 | 497 | 1,219 | 1,207 | 1,280 |
| Excellent | 102 | 13 | 46 | 83 | 208 | 210 |
| Good | 257 | 86 | 41 | 68 | 62 | 69 |
| Adequate | 34 | 285 | 266 | 672 | 551 | 536 |
| Substandard | 29 | 93 | 121 | 387 | 379 | 344 |
| Poor | 63 | 26 | 23 | 10 | 6 | 121 |
| Rail, number of facilities | U | U | 150 | 152 | 152 | 201 |
| Excellent | U | U | 0 | 27 | 40 | 42 |
| Good | U | U | 32 | 18 | 26 | 19 |
| Adequate | U | U | 64 | 76 | 74 | 87 |
| Substandard | U | U | 36 | 27 | 10 | 51 |
| Poor | U | U | 18 | 3 | 2 | 2 |

[a] These data are derived from the Transit Economic Requirements Model (TERM). TERM uses statistically determined decay curves to simulate the deterioration of the Nation's transit vehicles, facilities, and other infrastructure components. National Transit Database (NTD) data are applied to these decay curves to estimate conditions. Only the condition of directly operated facilities are provided for 1995, 1997 and 2000. The NTD began gathering information on facilities owned by bus systems providing services under contract in 1999 (known as purchased transportation), however, TERM did not base condition estimates on this full set of facilities until 2002.

**KEY:** R = revised; U = data are unavailable.

**NOTE**

Numbers may not add to totals due to rounding.

**SOURCES**

1995-2004: U.S. Department of Transportation, Federal Transit Administration, *Transit Economic Requirements Model,* as of Feb. 12, 2008.

2006: U.S. Department of Transportation, Federal Transit Administration, *Status of the Nation's Highways, Bridges and Transit: Conditions and Performance* (Washington, DC: Biennial Issues), tables 3-31 and 3-34, available at http://www.fhwa.dot.gov/pubstats.html as of June 25, 2010.

**Table 1-31: Condition of Rail Transit Infrastructure (Percent)**

| | 1995 | 1997 | 2000 | (R) 2002 | (R) 2004 | (R) 2006 |
|---|---|---|---|---|---|---|
| Stations | | | | | | |
| Excellent | 14.0 | 11.0 | 1.0 | 3.0 | 7.0 | 12.7 |
| Good | 47.0 | 46.0 | 33.0 | 22.0 | 28.0 | 12.2 |
| Adequate | 12.0 | 15.0 | 50.0 | 18.0 | 14.0 | 40.8 |
| Substandard | 12.0 | 13.0 | 16.0 | 26.0 | 51.0 | 31.3 |
| Poor | 15.0 | 15.0 | 0.0 | 30.0 | 0.0 | 3.0 |
| Communication Systems | | | | | | |
| Excellent | N | 0.0 | 0.0 | 7.4 | 12.1 | 14.0 |
| Good | N | 61.0 | 62.0 | 68.6 | 62.7 | 30.5 |
| Adequate | N | 16.0 | 12.1 | 9.7 | 25.2 | 54.8 |
| Substandard | N | 12.0 | 14.0 | 6.0 | 0.0 | 0.6 |
| Poor | N | 10.0 | 11.9 | 8.3 | 0.0 | 0.0 |
| Train Control Systems | | | | | | |
| Excellent | N | 9.0 | 7.2 | 5.5 | 0.3 | 2.2 |
| Good | N | 52.0 | 56.0 | 65.9 | 44.6 | 37.0 |
| Adequate | N | 16.0 | 16.9 | 11.1 | 29.0 | 41.0 |
| Substandard | N | 11.0 | 10.3 | 9.7 | 14.1 | 14.4 |
| Poor | N | 13.0 | 9.5 | 7.8 | 12.0 | 5.5 |
| Traction Power Systems | | | | | | |
| Excellent | N | 25.0 | 20.7 | 37.0 | 7.6 | 7.0 |
| Good | N | 44.0 | 54.5 | 45.0 | 46.5 | 35.0 |
| Adequate | N | 10.0 | 10.6 | 10.8 | 44.5 | 46.5 |
| Substandard | N | 7.0 | 6.9 | 2.9 | 1.4 | 7.2 |
| Poor | N | 14.0 | 7.3 | 4.2 | 0.0 | 4.2 |
| Revenue Collection Systems | | | | | | |
| Excellent | N | 27.0 | 29.5 | 33.5 | 25.8 | 28.9 |
| Good | N | 33.0 | 31.0 | 56.4 | 53.7 | 30.0 |
| Adequate | N | 18.0 | 17.6 | 2.4 | 9.5 | 10.7 |
| Substandard | N | 10.0 | 18.1 | 6.9 | 8.0 | 8.8 |
| Poor | N | 12.0 | 3.8 | 0.8 | 3.0 | 21.5 |
| Elevated structures | | | | | | |
| Excellent | 1.0 | 0.0 | 2.0 | 5.1 | 3.1 | 4.6 |
| Good | 56.0 | 59.0 | 59.0 | 82.8 | 77.2 | 68.5 |
| Adequate | 16.0 | 12.0 | 16.0 | 2.5 | 4.1 | 11.7 |
| Substandard | 20.0 | 29.0 | 22.0 | 7.3 | 13.9 | 7.9 |
| Poor | 7.0 | 1.0 | 2.0 | 2.3 | 1.7 | 7.3 |
| Underground tunnels | | | | | | |
| Excellent | 9.0 | 7.0 | 12.0 | 34.2 | 26.4 | 18.2 |
| Good | 59.0 | 47.0 | 46.0 | 36.7 | 48.2 | 41.1 |
| Adequate | 13.0 | 18.0 | 19.0 | 13.0 | 12.4 | 10.5 |
| Substandard | 11.0 | 19.0 | 11.0 | 8.6 | 5.6 | 15.4 |
| Poor | 7.0 | 9.0 | 12.0 | 7.5 | 7.4 | 14.8 |

**KEY**: N = data do not exist; R = revised.

**NOTE**

Percents may not add to 100 due to rounding.

**SOURCE**

U.S. Department of Transportation, Federal Transit Administration, *Status of the Nation's Highways, Bridges and Transit: Conditions and Performance* (Washington, DC: Biennial Issues), tables 3-35 and 3-36, available at http://www.fhwa.dot.gov/pubstats.html as of June 25, 2010.

**Table 1-32: Class I Railroad Locomotive Fleet by Year Built (Locomotive Units)**

| Year built[a] | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total | 18,835 | 18,344 | 18,004 | 18,161 | 18,505 | 18,812 | 19,269 | 19,684 | 20,261 | 20,256 | 20,028 | 19,745 | 20,506 | 20,774 | 22,015 | 22,779 | 23,732 | 24,143 | 24,003 | 24,045 |
| Before 1970 | 5,117 | 4,353 | 4,038 | 3,766 | 3,535 | b | b | b | b | b | f | f | f | f | f | j | j | j | j | j |
| 1970-74 | 3,852 | 3,617 | 3,384 | 3,248 | 3,184 | [c]6,048 | [c]5,783 | [c]5,529 | [c]5,565 | [c]5196 | f | f | f | f | f | j | j | j | j | j |
| 1975-79 | 4,432 | 4,375 | 4,292 | 4,352 | 4,275 | 4,254 | 4,274 | 4,219 | 4,116 | 4,000 | [g]8,541 | [g]7,862 | [g]7,133 | [g]6,889 | [g]7,056 | j | j | j | j | j |
| 1980-84 | 2,837 | 2,826 | 2,784 | 2,730 | 2,625 | 2,754 | 2,735 | 2,728 | 2,723 | 2,581 | 2,411 | 2,153 | 1,790 | 1,655 | 1,585 | [k]8,705 | [k]8,237 | [k]7,907 | [k]7,297 | [k]7,054 |
| 1985-89 | 1,989 | 1,985 | 1,970 | 1,968 | 1,971 | 1,890 | 1,866 | 1,829 | 1,830 | 1,779 | 1,775 | 1,672 | 1,807 | 1,791 | 1,799 | 1,786 | 1,735 | 1,695 | 1,604 | 1,558 |
| 1990 | 608 | 605 | 604 | 604 | 599 | [d]2,965 | [d]2,959 | [d]2,958 | [d]2,736 | [d]2,688 | [d]2,648 | [d]2,667 | [d]2,702 | [d]2,700 | [d]2,715 | [d]2,783 | [d]2,740 | [d]2,718 | [d]2,494 | [d]2,464 |
| 1991 | | 583 | 595 | 595 | 594 | e | e | e | e | e | e | e | e | e | e | e | e | e | e | e |
| 1992 | | | 337 | 340 | 339 | e | e | e | e | e | e | e | e | e | e | e | e | e | e | e |
| 1993 | | | | 558 | 602 | e | e | e | e | e | e | e | e | e | e | e | e | e | e | e |
| 1994 | | | | | 781 | e | e | e | e | e | e | e | e | e | e | e | e | e | e | e |
| 1995 | | | | | | 901 | 945 | 983 | 953 | 951 | 973 | [h]4,020 | [h]4,582 | [h]4,673 | [h]4,672 | [h]4,348 | [h]4,535 | [h]4,300 | [h]4,146 | [h]4,173 |
| 1996 | | | | | | | 707 | 696 | 708 | 706 | 697 | i | i | i | i | i | i | i | i | i |
| 1997 | | | | | | | | 742 | 741 | 743 | 745 | i | i | i | i | i | i | i | i | i |
| 1998 | | | | | | | | | 889 | 890 | 890 | i | i | i | i | i | i | i | i | i |
| 1999 | | | | | | | | | | 722 | 713 | i | i | i | i | i | i | i | i | i |
| 2000 | | | | | | | | | | | 635 | 691 | 987 | 863 | 863 | [l]4,350 | [l]4,673 | [l]4,618 | [l]4,777 | [l]4,650 |
| 2001 | | | | | | | | | | | | 680 | 810 | 891 | 891 | m | m | m | m | m |
| 2002 | | | | | | | | | | | | | 695 | 725 | 722 | m | m | m | m | m |
| 2003 | | | | | | | | | | | | | | 587 | 591 | m | m | m | m | m |
| 2004 | | | | | | | | | | | | | | | 1,121 | m | m | m | m | m |
| 2005 | | | | | | | | | | | | | | | | 807 | 881 | 876 | 876 | 875 |
| 2006 | | | | | | | | | | | | | | | | | 931 | 1,097 | 1,145 | 1,122 |
| 2007 | | | | | | | | | | | | | | | | | | 932 | 907 | 911 |
| 2008 | | | | | | | | | | | | | | | | | | | 757 | 777 |
| 2009 | | | | | | | | | | | | | | | | | | | | 461 |

[a] Disregards year of rebuilding.
[b] Included in 1970-74 category.
[c] Includes all locomotives built before 1975.
[d] Includes locomotives built between 1990-94.
[e] Included in 1990 category.
[f] Included in 1975-79 category.
[g] Includes all locomotives built before 1980.
[h] Includes locomotives built between 1995-99.
[i] Included in 1995 category.
[j] Included in 1980-84 category.
[k] Includes all locomotives built before 1985.
[l] Includes locomotives built between 2000-04.
[m] Included in 2000 category.

**SOURCE**

Association of American Railroads, *Railroad Facts* (Washington, DC: 2010), p. 50 and similar pages in earlier editions.

**Table 1-33: Age and Availability of Amtrak Locomotive and Car Fleets**

| | 1972 | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Locomotives | | | | | | | | | | | | | | | | | | | | | | | | |
| Percent available for service[a] | U | 87 | 83 | 93 | 84 | 86 | 83 | 84 | 85 | 88 | 88 | 88 | 88 | 90 | 89 | U | U | 87 | 82 | 83 | 83 | 84 | 82 | 82 |
| Average age (years)[b] | 22.3 | 14.4 | 7.4 | 7 | 12 | 13 | 13 | 13.2 | 13.4 | 13.9 | 14.4 | 12.0 | 12.6 | 12.8 | 11.2 | 13.9 | 13.7 | 14.8 | 15.7 | 16.4 | 17.5 | (R) 18.6 | (R) 19.6 | 20.6 |
| Passenger and other train cars | | | | | | | | | | | | | | | | | | | | | | | | |
| Percent available for service[a] | U | 82 | 77 | 90 | 90 | 92 | 90 | 89 | 88 | 90 | 90 | 91 | 93 | 91 | 91 | U | U | 83 | 84 | 84 | 85 | 85 | 86 | 86 |
| Average age (years)[b] | 22.0 | 24.7 | 14.3 | 14.2 | 20.0 | 21.0 | 21.5 | 22.6 | 22.4 | 21.8 | 20.7 | 19.8 | 21.1 | 22.2 | 19.4 | 18.5 | 20.4 | 21.4 | 22.4 | 23.3 | 22.5 | (R) 23.5 | (R) 24.5 | 25.5 |

**KEY:** R = revised; U = data are not available.

[a] Year-end daily average. Active units less backshop units undergoing heavy maintenance less back-ordered units undergoing progressive maintenance and running repairs.
[b] Fiscal Year-end average. Fiscal Year ends Sept. 30th of stated year.

**NOTES**
1972 was Amtrak's first full fiscal year of operation.
Roadrailers are not considered train cars for the purpose of our calculations.

**SOURCES**
1972-80: Amtrak, *Amtrak Annual Report* (Washington, DC: Annual Issues).
1985-2000: Ibid., *Amtrak Annual Report,* Statistical Appendix (Washington, DC: Annual Issues).
2001-09: Amtrak, *Amtrak Active Fleet* , personal communications, Aug. 20, 2009, and July 1, 2010.

**TABLE 1-34: U.S. Flag Vessels by Type and Age (Number of vessels)**

| | Vessel type | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Age[a] | Dry cargo | Tanker | Towboat | Passenger[b] | Offshore support / crewboats[c] | Dry barge | Tank / liquid barge[d] | Total |
| 1990–91, total | 900 | 257 | 5,210 | 721 | 1,168 | 27,110 | 3,874 | 39,342 |
| <6 | 80 | 6 | 132 | 151 | 85 | 2,335 | 162 | 2,951 |
| 6–10 | 161 | 38 | 706 | 120 | 318 | 4,570 | 316 | 6,229 |
| 11–15 | 212 | 50 | 1,029 | 110 | 474 | 7,639 | 829 | 10,343 |
| 16–20 | 141 | 35 | 844 | 80 | 144 | 6,374 | 750 | 8,368 |
| 21–25 | 82 | 38 | 750 | 65 | 84 | 2,607 | 759 | 4,385 |
| >25 | 196 | 86 | 1,718 | 188 | 51 | 3,372 | 1,049 | 6,660 |
| 1992, total | 497 | 249 | 5,203 | 1,201 | 1,205 | 26,981 | 3,864 | 39,313 |
| <6 | 36 | 5 | 134 | 219 | 93 | 3,224 | 296 | 4,012 |
| 6–10 | 73 | 28 | 398 | 198 | 208 | 1,783 | 121 | 2,829 |
| 11–15 | 135 | 54 | 1,137 | 203 | 567 | 9,114 | 902 | 12,150 |
| 16–20 | 73 | 33 | 926 | 169 | 189 | 6,696 | 740 | 8,853 |
| 21–25 | 31 | 42 | 716 | 122 | 91 | 2,475 | 677 | 4,167 |
| >25 | 124 | 82 | 1,874 | 287 | 53 | 3,496 | 1,123 | 7,049 |
| 1993, total | 470 | 205 | 5,219 | 1,243 | 1,197 | 26,982 | 3,970 | 39,306 |
| <6 | 25 | 3 | 135 | 207 | 103 | 3,558 | 325 | 4,356 |
| 6–10 | 67 | 22 | 205 | 221 | 107 | 1,070 | 68 | 1,764 |
| 11–15 | 135 | 43 | 1,221 | 211 | 597 | 8,810 | 869 | 11,894 |
| 16–20 | 70 | 33 | 968 | 164 | 218 | 6,772 | 791 | 9,019 |
| 21–25 | 41 | 31 | 674 | 129 | 106 | 2,904 | 655 | 4,543 |
| >25 | 128 | 73 | 2,008 | 311 | 64 | 3,713 | 1,256 | 7,555 |
| 1994, total | 778 | 202 | 5,179 | 928 | 1,236 | 26,757 | 3,966 | 39,064 |
| <6 | 46 | 4 | 146 | 157 | 107 | 3,630 | 399 | 4,489 |
| 6–10 | 103 | 12 | 151 | 185 | 61 | 1,171 | 36 | 1,719 |
| 11–15 | 200 | 36 | 1,135 | 123 | 540 | 7,903 | 754 | 10,691 |
| 16–20 | 130 | 44 | 966 | 122 | 309 | 6,314 | 799 | 8,684 |
| 21–25 | 90 | 32 | 664 | 82 | 130 | 3,873 | 638 | 5,509 |
| >25 | 206 | 74 | 2,107 | 259 | 86 | 3,706 | 1,327 | 7,765 |
| 1995, total | 726 | 178 | 5,127 | 954 | 1,288 | 27,375 | 3,985 | 39,641 |
| <6 | 38 | 5 | 168 | 149 | 119 | 3,975 | 489 | 4,943 |
| 6–10 | 90 | 8 | 134 | 195 | 58 | 1,483 | 46 | 2,014 |
| 11–15 | 168 | 34 | 959 | 133 | 463 | 6,387 | 611 | 8,760 |
| 16–20 | 135 | 38 | 988 | 121 | 412 | 6,507 | 736 | 8,939 |
| 21–25 | 80 | 29 | 726 | 91 | 141 | 4,897 | 697 | 6,661 |
| >25 | 213 | 64 | 2,146 | 263 | 92 | 3,966 | 1,403 | 8,148 |
| 1996, total | 713 | 161 | 5,177 | 967 | 1,274 | 28,775 | 4,036 | 41,104 |
| <6 | 43 | 7 | 205 | 153 | 123 | 5,189 | 573 | 6,293 |
| 6–10 | 74 | 8 | 118 | 188 | 61 | 2,041 | 87 | 2,577 |
| 11–15 | 141 | 29 | 715 | 142 | 351 | 4,505 | 346 | 6,229 |
| 16–20 | 155 | 36 | 1,036 | 119 | 460 | 7,234 | 840 | 9,881 |
| 21–25 | 79 | 23 | 842 | 87 | 155 | 5,416 | 723 | 7,325 |
| >25 | 229 | 62 | 2,386 | 290 | 144 | 4,766 | 1,576 | 9,453 |
| 1997, total | 692 | 147 | 5,173 | 1,025 | 1,369 | 29,040 | 3,971 | 41,419 |
| <6 | 52 | 8 | 227 | 150 | 122 | 5,515 | 519 | 6,593 |
| 6–10 | 66 | 2 | 118 | 187 | 94 | 2,582 | 181 | 3,230 |
| 11–15 | 96 | 27 | 396 | 152 | 223 | 1,800 | 137 | 2,831 |
| 16–20 | 183 | 36 | 1,173 | 131 | 588 | 8,943 | 928 | 11,982 |
| 21–25 | 84 | 21 | 918 | 102 | 177 | 5,772 | 727 | 7,801 |
| >25 | 209 | 53 | 2,332 | 302 | 159 | 4,284 | 1,477 | 8,816 |
| 1998, total | 714 | 135 | 5,237 | 1,011 | 1,423 | 29,557 | 3,952 | 42,032 |
| <6 | 56 | 12 | 247 | 150 | 163 | 5,877 | 485 | 6,991 |
| 6–10 | 55 | 3 | 124 | 168 | 105 | 3,117 | 267 | 3,839 |
| 11–15 | 105 | 19 | 196 | 166 | 111 | 1,113 | 72 | 1,782 |
| 16–20 | 179 | 31 | 1,198 | 129 | 634 | 8,591 | 865 | 11,626 |
| 21–25 | 88 | 22 | 979 | 106 | 211 | 5,909 | 763 | 8,076 |
| >25 | 230 | 48 | 2,487 | 292 | 195 | 4,817 | 1,499 | 9,573 |
| 1999, total | 695 | 142 | 5,098 | 970 | 1,470 | 29,414 | 3,973 | 41,766 |
| <6 | 60 | 12 | 302 | 144 | 245 | 6,640 | 565 | 7,968 |
| 6–10 | 49 | 3 | 140 | 146 | 114 | 3,192 | 298 | 3,943 |
| 11–15 | 97 | 12 | 146 | 183 | 61 | 1,231 | 39 | 1,769 |
| 16–20 | 146 | 35 | 1,101 | 120 | 571 | 7,414 | 742 | 10,129 |
| 21–25 | 99 | 30 | 953 | 95 | 283 | 5,302 | 760 | 7,522 |
| >25 | 243 | 50 | 2,447 | 282 | 191 | 5,491 | 1,560 | 10,267 |
| 2000, total | 737 | 135 | 4,995 | 918 | 1,414 | 29,141 | 4,011 | 41,354 |
| <6 | 66 | 11 | 325 | 134 | 246 | 6,721 | 582 | 8,085 |
| 6–10 | 50 | 4 | 143 | 118 | 106 | 3,051 | 329 | 3,802 |
| 11–15 | 113 | 8 | 142 | 178 | 58 | 1,565 | 48 | 2,112 |
| 16–20 | 136 | 34 | 929 | 124 | 454 | 5,846 | 602 | 8,125 |
| 21–25 | 105 | 30 | 954 | 90 | 332 | 5,365 | 712 | 7,588 |
| >25 | 263 | 48 | 2,497 | 271 | 214 | 6,461 | 1,714 | 11,470 |
| 2001, total | 966 | 120 | 5,150 | 733 | 1,573 | 28,920 | 4,122 | 41,588 |

| | Vessel type | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Age[a] | Dry cargo | Tanker | Towboat | Passenger[b] | Offshore support / crewboats[c] | Dry barge | Tank / liquid barge[d] | Total |
| <6 | 114 | 12 | 369 | 84 | 305 | 6,830 | 623 | 8,337 |
| 6–10 | 76 | 3 | 167 | 81 | 111 | 2,815 | 388 | 3,641 |
| 11–15 | 132 | 5 | 125 | 138 | 68 | 2,043 | 85 | 2,596 |
| 16–20 | 139 | 32 | 692 | 110 | 372 | 4,241 | 329 | 5,916 |
| 21–25 | 154 | 28 | 972 | 77 | 452 | 6,126 | 805 | 8,614 |
| >25 | 347 | 40 | 2,818 | 240 | 262 | 6,712 | 1,884 | 12,306 |
| 2002, total | 989 | 108 | 5,180 | 750 | 1,591 | 28,313 | 4,068 | 41,002 |
| <6 | 113 | 13 | 369 | 70 | 322 | 6,117 | 595 | 7,599 |
| 6–10 | 86 | 3 | 185 | 92 | 96 | 3,416 | 419 | 4,298 |
| 11–15 | 130 | 2 | 142 | 136 | 89 | 2,499 | 172 | 3,170 |
| 16–20 | 114 | 22 | 381 | 117 | 228 | 1,669 | 134 | 2,665 |
| 21–25 | 175 | 35 | 1,091 | 75 | 547 | 7,702 | 843 | 10,468 |
| >25 | 368 | 33 | 3,004 | 256 | 305 | 6,731 | 1,904 | 12,603 |
| 2003, total | 969 | 104 | 5,172 | 789 | 1,609 | 27,304 | 4,031 | 39,983 |
| <6 | 114 | 9 | 362 | 69 | 314 | 4,909 | 604 | 6,381 |
| 6–10 | 93 | 7 | 217 | 89 | 126 | 4,155 | 396 | 5,085 |
| 11–15 | 110 | 3 | 148 | 122 | 93 | 2,976 | 260 | 3,712 |
| 16–20 | 127 | 15 | 198 | 133 | 111 | 1,054 | 71 | 1,709 |
| 21–25 | 168 | 32 | 1,135 | 84 | 584 | 7,135 | 774 | 9,912 |
| >25 | 354 | 38 | 3,105 | 287 | 378 | 6,884 | 1,923 | 12,972 |
| 2004, total | 987 | 103 | 5,314 | 834 | 1,746 | 27,227 | 4,069 | 40,290 |
| <6 | 126 | 11 | 367 | 72 | 279 | 4,556 | 676 | 6,087 |
| 6–10 | 112 | 10 | 272 | 97 | 198 | 4,840 | 453 | 5,983 |
| 11–15 | 95 | 3 | 166 | 119 | 109 | 3,057 | 296 | 3,846 |
| 16–20 | 132 | 8 | 157 | 144 | 64 | 1,169 | 35 | 1,709 |
| 21–25 | 130 | 31 | 1,083 | 92 | 580 | 6,240 | 639 | 8,795 |
| >25 | 390 | 40 | 3,262 | 308 | 512 | 7,152 | 1,970 | 13,642 |
| 2005, total | 969 | 100 | 5,290 | 841 | 1,768 | 27,901 | 4,151 | 41,028 |
| <6 | 115 | 11 | 336 | 62 | 244 | 4,140 | 743 | 5,651 |
| 6–10 | 106 | 13 | 321 | 96 | 262 | 5,611 | 512 | 6,921 |
| 11–15 | 74 | 4 | 157 | 114 | 107 | 3,120 | 333 | 3,911 |
| 16–20 | 137 | 3 | 155 | 150 | 59 | 1,507 | 43 | 2,054 |
| 21–25 | 116 | 30 | 907 | 98 | 464 | 5,174 | 535 | 7,324 |
| >25 | 419 | 39 | 3,406 | 321 | 629 | 8,113 | 1,985 | 14,918 |
| 2006, total | 946 | 90 | 5,285 | 828 | 1,721 | 27,961 | 4,250 | 41,109 |
| <6 | 123 | 14 | 362 | 53 | 237 | 3,955 | 833 | 5,577 |
| 6–10 | 103 | 10 | 336 | 88 | 277 | 6,006 | 496 | 7,316 |
| 11–15 | 75 | 2 | 172 | 101 | 103 | 2,913 | 386 | 3,752 |
| 16–20 | 127 | 3 | 132 | 148 | 55 | 1,949 | 84 | 2,498 |
| 21–25 | 96 | 21 | 690 | 110 | 359 | 3,629 | 293 | 5,198 |
| >25 | 421 | 40 | 3,581 | 328 | 685 | 9,204 | 2,155 | 16,414 |
| 2007, total | 931 | 80 | 5,356 | 833 | 1,810 | 27,187 | 4,467 | 40,695 |
| <6 | 100 | 8 | 411 | 46 | 258 | 4,340 | 1,005 | 6,169 |
| 6–10 | 102 | 10 | 355 | 79 | 288 | 5,508 | 481 | 6,827 |
| 11–15 | 90 | 3 | 191 | 106 | 104 | 3,537 | 418 | 4,451 |
| 16–20 | 117 | 2 | 144 | 142 | 87 | 2,080 | 172 | 2,744 |
| 21–25 | 86 | 15 | 380 | 123 | 213 | 1,482 | 123 | 2,424 |
| >25 | 435 | 42 | 3,860 | 337 | 853 | 9,893 | 2,263 | 17,705 |
| 2008, total | 894 | 76 | 5,424 | 821 | 1,830 | 26,678 | 4,560 | 40,301 |
| <6 | 90 | 10 | 475 | 45 | 295 | 4,494 | 1,127 | 6,536 |
| 6–10 | 102 | 8 | 360 | 72 | 292 | 4,435 | 494 | 5,766 |
| 11–15 | 96 | 6 | 214 | 95 | 123 | 4,543 | 390 | 5,469 |
| 16–20 | 94 | 3 | 155 | 129 | 93 | 2,524 | 259 | 3,257 |
| 21–25 | 87 | 12 | 205 | 138 | 88 | 935 | 63 | 1,528 |
| >25 | 425 | 37 | 4,003 | 341 | 936 | 9,395 | 2,225 | 17,375 |

[a] Age is based on the year the vessel was built or rebuilt.
[b] Includes passenger excursion/sightseeing, combination passenger and dry-cargo vessels, and ferries.
[c] In 1992, *Offshore supply boats* were designated as crewboats.
[d] In 1992, *Tank barges* were designated as liquid barges.

**NOTES**

Figures include vessels available for operation.
Totals may be greater than sum because of unclassified vessels and vessels of unknown age.

**SOURCE**

U.S. Army Corps of Engineers, *Waterborne Transportation Lines of the United States, Volume 1, National Summaries* (New Orleans, LA: Annual Issues), table 4, available at http://www.ndc.iwr.usace.army.mil/publications.htm as of July 1, 2010.

**Table 1-35: U.S. Vehicle-Miles (Millions)**

| | 1960 | 1965 | 1970 | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Air | | | | | | | | | | | | | | | | | | | | | | | | | |
| Air carrier, large certificated, domestic, all services | 858 | 1,134 | 2,068 | (R) 1,638 | (R) 2,276 | (R) 3,026 | (R) 3,963 | (R) 3,854 | (R) 3,995 | (R) 4,156 | (R) 4,378 | (R) 4,628 | (R) 4,807 | (R) 4,907 | (R) 5,030 | (R) 5,326 | (R) 5,662 | (R) 5,545 | (R) 5,615 | (R) 6,106 | (R) 6,602 | (R) 6,716 | (R) 6,605 | (R) 6,733 | 6,446 |
| General aviation[a] | 1,769 | 2,562 | 3,207 | 4,238 | 5,204 | 4,673 | 4,548 | 4,400 | 3,465 | 3,253 | 3,358 | 3,795 | 3,524 | 3,877 | N | N | N | N | N | N | N | N | N | N | N |
| Highway[b], total | 718,763 | 887,811 | 1,109,724 | 1,327,664 | 1,527,295 | 1,774,827 | 2,144,362 | 2,172,050 | 2,247,151 | 2,296,378 | 2,357,588 | 2,422,696 | 2,485,848 | 2,561,695 | 2,631,522 | 2,691,056 | 2,746,925 | 2,797,287 | 2,855,508 | 2,890,450 | 2,964,788 | 2,989,430 | (R) 3,014,371 | (R) 3,032,399 | 2,973,509 |
| Passenger car[b,c,h] | 587,012 | 722,696 | 916,700 | 1,033,950 | 1,111,596 | 1,246,798 | 1,408,266 | 1,358,185 | 1,371,569 | 1,374,709 | 1,406,089 | 1,438,294 | 1,469,854 | 1,502,556 | 1,549,577 | 1,569,100 | 1,600,287 | 1,628,332 | 1,658,474 | 1,672,079 | 1,699,890 | 1,708,421 | (R) 1,690,534 | (R) 1,672,467 | 1,615,850 |
| Motorcycle[c,h] | U | U | 2,979 | 5,629 | 10,214 | 9,086 | 9,557 | 9,178 | 9,557 | 9,906 | 10,240 | 9,797 | 9,920 | 10,081 | 10,283 | 10,584 | 10,469 | 9,639 | 9,552 | 9,577 | 10,122 | 10,454 | (R) 12,049 | (R) 13,621 | 14,484 |
| Other 2-axle 4-tire vehicle[h] | U | U | 123,286 | 200,700 | 290,935 | 390,961 | 574,571 | 649,394 | 706,863 | 745,750 | 764,634 | 790,029 | 816,540 | 850,739 | 868,275 | 901,022 | 923,059 | 943,207 | 966,034 | 984,094 | 1,027,164 | 1,041,051 | (R) 1,082,490 | (R) 1,112,271 | 1,108,603 |
| Truck, single-unit 2-axle 6-tire or more[h] | 98,551 | 128,769 | 27,081 | 34,606 | 39,813 | 45,441 | 51,901 | 52,898 | 53,874 | 56,772 | 61,284 | 62,705 | 64,072 | 66,893 | 68,021 | 70,304 | 70,500 | 72,448 | 75,866 | 77,757 | 78,441 | 78,496 | (R) 80,344 | (R) 82,014 | 83,951 |
| Truck, combination | 28,854 | 31,665 | 35,134 | 46,724 | 68,678 | 78,063 | 94,341 | 96,645 | 99,510 | 103,116 | 108,932 | 115,451 | 118,899 | 124,584 | 128,359 | 132,384 | 135,020 | 136,584 | 138,737 | 140,160 | 142,370 | 144,028 | (R) 142,169 | (R) 145,046 | 143,507 |
| Bus | 4,346 | 4,681 | 4,544 | 6,055 | 6,059 | 4,478 | 5,726 | 5,750 | 5,778 | 6,125 | 6,409 | 6,420 | 6,563 | 6,842 | 7,007 | 7,662 | 7,590 | 7,077 | 6,845 | 6,783 | 6,801 | 6,980 | (R) 6,783 | (R) 6,980 | 7,114 |
| Transit[d], total | 2,143 | 2,008 | 1,883 | 2,176 | 2,287 | 2,791 | 3,242 | 3,306 | 3,355 | 3,435 | 3,467 | 3,551 | 3,082 | 3,201 | 3,347 | 3,500 | 3,605 | 3,735 | 3,855 | 3,915 | 3,972 | 4,054 | 4,127 | 4,238 | 4,375 |
| Motor bus[e] | 1,576 | 1,528 | 1,409 | 1,526 | 1,677 | 1,863 | 2,130 | 2,167 | 2,178 | 2,210 | 2,162 | 2,184 | 1,813 | 1,849 | 1,904 | 1,985 | 2,041 | 2,104 | 2,156 | 2,177 | 2,169 | 2,192 | 2,214 | 2,241 | 2,272 |
| Light rail | 75 | 42 | 34 | 24 | 18 | 17 | 24 | 28 | 29 | 28 | 34 | 35 | 37 | 41 | 43 | 48 | 52 | 54 | 61 | 64 | 67 | 69 | 74 | 84 | 88 |
| Heavy rail | 391 | 395 | 407 | 423 | 385 | 451 | 537 | 527 | 525 | 522 | 532 | 537 | 543 | 558 | 566 | 578 | 595 | 608 | 621 | 630 | 642 | 646 | 652 | 657 | 674 |
| Trolley bus | 101 | 43 | 33 | 15 | 13 | 16 | 14 | 14 | 14 | 13 | 14 | 14 | 14 | 14 | 14 | 14 | 15 | 13 | 14 | 14 | 13 | 13 | 12 | 11 | 12 |
| Commuter rail | N | N | N | 173 | 179 | 183 | 213 | 215 | 219 | 224 | 231 | 238 | 242 | 251 | 259 | 266 | 271 | 277 | 284 | 286 | 295 | 303 | 315 | 325 | 337 |
| Demand responsive[e] | N | N | N | N | N | 247 | 306 | 335 | 364 | 406 | 464 | 507 | 363 | 410 | 469 | 494 | 532 | 578 | 613 | 640 | 651 | 683 | 708 | 752 | 803 |
| Ferry boat[f] | N | N | N | N | U | U | 2 | 2 | 2 | 3 | 2 | 3 | 2 | 2 | 2 | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Other[i] | N | N | N | 15 | 15 | 15 | 16 | 19 | 24 | 30 | 29 | 34 | 68 | 77 | 90 | 112 | 97 | 100 | 104 | 101 | 131 | 144 | 149 | 163 | 187 |
| Rail | | | | | | | | | | | | | | | | | | | | | | | | | |
| Class I freight, train-miles | 404 | 421 | 427 | 403 | 428 | 347 | 380 | 375 | 390 | 405 | 441 | 458 | 469 | 475 | 475 | 490 | 504 | 500 | 500 | 516 | 535 | 548 | 563 | 543 | 524 |
| Class I freight, car-miles | 28,170 | 29,336 | 29,890 | 27,656 | 29,277 | 24,920 | 26,159 | 25,628 | 26,128 | 26,883 | 28,485 | 30,383 | 31,715 | 31,660 | 32,657 | 33,851 | 34,590 | 34,243 | 34,680 | 35,555 | 37,071 | 37,712 | 38,955 | 38,186 | 37,226 |
| Intercity/Amtrak[f] train-miles | 209 | 172 | 93 | 30 | 30 | 30 | 33 | 34 | 34 | 35 | 34 | 32 | 30 | 32 | 33 | 34 | 35 | 36 | 38 | 37 | 37 | 36 | 36 | 37 | 38 |
| Intercity/Amtrak[f] car-miles | 2,208 | 1,775 | 690 | 253 | 235 | 251 | 301 | 313 | 307 | 303 | 304 | 292 | 276 | 288 | 312 | 342 | 368 | 378 | 379 | 332 | 308 | 265 | 264 | 267 | 272 |
| Total train-miles[g] | 613 | 593 | 520 | 433 | 458 | 377 | 413 | 409 | 424 | 440 | 475 | 490 | 499 | 507 | 508 | 524 | 539 | 536 | 537 | 553 | 572 | 584 | 599 | 581 | 562 |

**KEY:** N = data do not exist; R = revised; U = data are unavailable.

[a] All operations other than those operating under 14 CFR 121 and 14 CFR 135. Data for 1996 are estimated using new information on nonrespondents and are not comparable to earlier years. Mileage in source is multiplied by 1.151 to convert to nautical-miles for 1985-1997.

[b] In July 1997, the FHWA published revised vehicle-miles data for the highway modes for many years. The major change reflected the reassignment of some vehicles from the passenger car category to the *Other 2-axle 4-tire vehicle* category. This category was calculated prior to rounding.

[c] U.S. Department of Transportation, Federal Highway Administration (FHWA), provides data separately for passenger car and motorcycle in its annual *Highway Statistics* series. However, the 1995 summary report provides updated data for *Passenger car* and *Motorcycle* combined. *Passenger car* figures in this table were computed by U.S. Department of Transportation, Bureau of Transportation Statistics, by subtracting the most current motorcycle figures from the aggregate *Passenger car* and *Motorcycle* figures.

[d] Prior to 1985, excludes *Demand responsive* and most rural and smaller systems funded via Sections 18 and 16(b)2, Federal Transit Act. The series is not continuous between 1980 and 1985. Transit rail modes are measured in car-miles. Car-miles measure individual vehicle-miles in a train. A 10-car train traveling 1 mile would equal 1 train-mile and 10 car-miles.

[e] *Motor bus* and *Demand responsive* figures are also included in the *Bus* figure for *Highway*.

[f] National Passenger Railroad Corporation (Amtrak) began operations in 1971.

[g] Although both *Train-miles* and *Car-miles* are shown for rail, only *Train-miles* are included in the total. A *Train-mile* is the movement of a train, which can consist of multiple vehicles (cars), the distance of 1 mile. This differs from a vehicle-mile, which is the movement of 1 vehicle the distance of 1 mile. A 10-vehicle train traveling 1 mile would be measured as 1 train-mile and 10 vehicle-miles. Caution should be used when comparing train-miles with vehicle miles.

[h] 1960–65, *Motorcycle* data are included in *Passenger car*, and *Other 2-axle 4-tire vehicle* data included in *Single-unit 2-axle 6-tire* or more *Truck*.

[i] Ferry boat included with *Other*.

**NOTES**

Numbers may not add to totals due to rounding.

*Transit* data from 1996 and after are not comparable to the data for earlier years or to the data published in previous editions of the report due to different data sources used.

**SOURCES**

**Air:**

*Air carrier:*

1960: Civil Aeronautics Board, *Handbook of Airline Statistics 1969* (Washington, DC: 1970), part III, table 2.

1965-70: Ibid., *Handbook of Airline Statistics 1973* (Washington, DC: 1974), part III, table 2.

1975-2008: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, T1: U.S. Air Carrier Traffic and Capacity Summary by Service Class, available at http://www.transtats.bts.gov/Tables.asp?DB_ID=130&DB_Name=Air%20Carrier%20Summary%20Data%20%28Form%2041%20and%20298C%20Summary%20Data%29&DB_Short_Name=Air%20Carrier%20Summary, as of June 23, 2010.

*General aviation:*

1960-65: U.S. Department of Transportation, Federal Aviation Administration, *FAA Statistical Handbook of Aviation 1972* (Washington, DC: 1973), table 9.10.

1970-75: U.S. Department of Transportation, Federal Aviation Administration, *FAA Statistical Handbook of Aviation 1976* (Washington, DC: 1976), table 8-5.

1980: U.S. National Transportation Safety Board estimate, personal communication, Dec. 7, 1998.

1985-92: Ibid., General Aviation Activity and Avionics Survey (Washington, DC: Annual Issues), table 3.3.

1993-97: Ibid., *General Aviation and Air Taxi Activity and Avionics Survey* (Washington, DC: Annual Issues), table 3.3.

**Highway:**

*Passenger car and motorcycle:*

1960-94: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1995*, table VM-201A, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of Apr. 28, 2010.

1995-2008: Ibid., Highway Statistics (Washington, DC: Annual Issues), table VM-1, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of Apr. 29, 2010.

*Motorcycle:*

1970-80: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics, Summary to 1985* (Washington, DC: 1986), table VM-201A.

1985-2008: Ibid., Highway Statistics (Washington, DC: Annual Issues), table VM-1, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of Apr. 29, 2010.

*Other 2-axle 4-tire vehicle:*

1970-94: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1995*, table VM-201A, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of Aug. 20, 2009.

1995-2008: Ibid., Highway Statistics (Washington, DC: Annual Issues), table VM-1, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of Apr. 29, 2010.

*Single-unit 2-axle 6-tires or more truck, combination truck, and bus:*

1960-94: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1995*, table VM-201A, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of August 20, 2009.

1995-2008: Ibid., Highway Statistics (Washington, DC: Annual Issues), table VM-1, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of Apr. 29, 2010.

**Transit:**

1960-95: American Public Transportation Association, *Public Transportation Fact Book* (Washington, DC: Annual Issues), table 6 and similar tables in earlier editions.

1996-2008: U.S. Department of Transportation, Federal Transit Administration, *National Transit Database*, available at http://www.ntdprogram.gov/ntdprogram/data.htm as of Apr. 29, 2010

**Rail:**

*Class I rail freight train- and car-miles:*

Association of American Railroads, *Railroad Facts* (Washington, DC: Annual Issues), p. 33 (train-miles) and p. 34 (car-miles).

*Intercity/Amtrak train-miles:*

1960-70: Association of American Railroads, *Yearbook of Railroad Facts* (Washington, DC: 1975), p. 39.

1975-2001: National Passenger Railroad Corporation (Amtrak), Amtrak Annual Report, Statistical Appendix (Washington, DC: Annual Issues).

2002-08: Association of American Railroads, *Railroad Facts* (Washington, DC: Annual Issues), p. 77.

*Intercity/Amtrak car-miles:*

1960-75: Association of American Railroads, *Yearbook of Railroad Facts* (Washington, DC: 1975), p. 40.

1980-2000: National Passenger Railroad Corporation (Amtrak), Amtrak Corporate Reporting, Route Profitability System, personal communication, 2001.

2001-08: Association of American Railroads, *Railroad Facts* (Washington, DC: Annual Issues), p. 77.

**Table 1-36M: Roadway Vehicle-Kilometers Traveled (VKT) and VKT per Lane-Kilometers by Functional Class[a]**

| | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Urban VKT, total (millions) | 1,376,416 | 1,680,313 | 2,052,693 | 2,073,635 | 2,193,623 | 2,268,647 | 2,332,337 | 2,397,173 | 2,452,457 | 2,499,240 | 2,567,901 | 2,619,397 | 2,677,583 | 2,714,387 | 2,780,296 | 2,905,683 | 3,045,305 | 3,141,230 | 3,181,749 | 3,209,867 | 3,191,476 | 3,214,446 |
| Interstate | 259,494 | 347,921 | 448,848 | 459,186 | 488,058 | 510,804 | 532,012 | 549,636 | 565,812 | 581,670 | 602,896 | 616,796 | 633,221 | 643,715 | 657,607 | 696,255 | 731,262 | 754,895 | 768,113 | 777,820 | 766,194 | 764,379 |
| Other arterial[b] | 779,227 | 930,635 | 1,125,306 | 1,138,640 | 1,199,956 | 1,245,597 | 1,284,094 | 1,311,889 | 1,343,196 | 1,362,514 | 1,388,857 | 1,413,250 | 1,449,040 | 1,470,837 | 1,508,530 | 1,567,398 | 1,641,674 | 1,686,945 | 1,706,062 | 1,718,989 | 1,709,487 | 1,693,145 |
| Collector[c] | 133,645 | 144,162 | 171,068 | 172,652 | 186,789 | 189,721 | 193,263 | 204,272 | 208,104 | 209,450 | 212,281 | 211,794 | 217,860 | 221,962 | 228,324 | 247,438 | 260,888 | 270,431 | 278,754 | 281,090 | 282,261 | 288,356 |
| Local | 204,050 | 257,595 | 307,470 | 303,157 | 318,821 | 322,525 | 322,968 | 331,375 | 335,345 | 345,607 | 363,868 | 377,557 | 377,462 | 377,872 | 385,835 | 394,592 | 411,482 | 428,959 | 428,819 | 431,969 | 433,533 | 468,567 |
| Rural VKT, total (millions) | 1,081,527 | 1,175,993 | 1,398,324 | 1,421,941 | 1,422,816 | 1,427,015 | 1,461,833 | 1,501,983 | 1,545,282 | 1,608,180 | 1,661,693 | 1,710,126 | 1,743,164 | 1,787,494 | 1,815,598 | 1,746,758 | 1,722,397 | 1,670,398 | 1,669,001 | 1,666,159 | 1,593,923 | 1,577,522 |
| Interstate | 217,397 | 248,414 | 322,147 | 329,933 | 330,812 | 335,239 | 346,923 | 359,498 | 374,277 | 386,653 | 404,782 | 418,697 | 431,594 | 440,347 | 450,555 | 434,434 | 429,688 | 416,482 | 415,071 | 412,697 | 391,537 | 389,256 |
| Other arterial[b] | 422,894 | 455,127 | 532,477 | 538,736 | 553,714 | 562,574 | 575,065 | 593,196 | 609,695 | 630,955 | 649,345 | 665,174 | 676,888 | 687,966 | 698,141 | 670,446 | 659,741 | 642,019 | 634,885 | 633,221 | 602,334 | 599,429 |
| Collector[c] | 304,919 | 332,602 | 386,983 | 395,303 | 378,051 | 364,188 | 371,000 | 380,043 | 387,900 | 408,934 | 414,998 | 425,596 | 430,067 | 437,917 | 442,581 | 424,323 | 419,928 | 404,890 | 404,549 | 404,773 | 388,106 | 371,271 |
| Local | 136,318 | 139,850 | 156,716 | 157,968 | 160,239 | 165,014 | 168,844 | 169,245 | 173,410 | 181,639 | 192,568 | 200,659 | 204,615 | 221,264 | 224,320 | 217,554 | 213,040 | 207,007 | 214,497 | 215,469 | 211,946 | 217,566 |
| Urban VKT per lane-kilometer, total (thousands) | 613 | 677 | 764 | 766 | 775 | 782 | 794 | (R) 809 | 820 | 825 | 844 | 858 | 869 | 857 | 861 | 856 | 860 | 862 | 856 | 851 | 829 | 818 |
| Interstate | 3,327 | 3,773 | 4,483 | 4,542 | 4,508 | 4,588 | 4,667 | (R) 4,785 | 4,897 | 5,002 | 5,131 | 5,229 | 5,323 | 5,370 | 5,440 | 5,436 | 5,479 | 5,455 | 5,427 | 5,414 | 5,245 | 5,222 |
| Other arterial[b] | 1,451 | 1,556 | 1,751 | 1,758 | 1,783 | 1,778 | 1,803 | (R) 1,828 | 1,857 | 1,866 | 1,901 | 1,950 | 1,974 | 1,997 | 2,025 | 2,012 | 2,019 | 2,001 | 1,989 | 1,977 | 1,923 | 1,850 |
| Collector[c] | 572 | 552 | 634 | 649 | 659 | 656 | 655 | 686 | 692 | 689 | 703 | 706 | 718 | 728 | 743 | 741 | 745 | 745 | 747 | 747 | 723 | 710 |
| Local | 146 | 168 | 184 | 179 | 181 | 179 | 178 | 181 | 181 | 184 | 192 | 198 | 196 | 189 | 188 | 183 | 184 | 187 | 183 | 181 | 179 | 190 |
| Rural VKT per lane-kilometer, total (thousands) | 103 | 113 | 136 | 138 | 139 | 140 | 144 | 148 | 152 | 157 | 165 | 169 | 172 | 177 | 179 | 175 | 174 | 170 | 170 | 169 | 163 | 161 |
| Interstate | 1,031 | 1,170 | 1,473 | 1,502 | 1,540 | 1,576 | 1,642 | 1,693 | 1,749 | 1,804 | 1,888 | 1,939 | 1,993 | 2,032 | 2,080 | 2,070 | 2,088 | 2,061 | 2,074 | 2,076 | 1,981 | 1,985 |
| Other arterial[b] | 518 | 555 | 640 | 646 | 653 | 665 | 674 | 695 | 711 | 730 | 750 | 766 | 778 | 788 | 797 | (R) 780 | 771 | 753 | 744 | 742 | 705 | 693 |
| Collector[c] | 132 | 141 | 164 | 167 | 163 | 158 | 161 | 167 | 170 | 179 | 182 | 187 | 189 | 192 | 195 | 190 | 189 | 183 | 184 | 184 | 177 | 167 |
| Local | 19 | 20 | 23 | 23 | 23 | 24 | 25 | 25 | 25 | 26 | 29 | 30 | 30 | 33 | 33 | 33 | 32 | 32 | 33 | 33 | 32 | 33 |

**KEY:** R = revised.

[a] Includes the 50 States and the District of Columbia.
[b] *Urban other arterial* includes other freeways and expressways, other principal arterial, and minor arterial *Rural other arterial* includes other principal arterial and minor arterial prior to 2009, and includes other freeways and expressways, other principal arterial and minor arterial for 2009.
[b] *Collector* is the sum of major and minor collectors.

**NOTES**
See table 1-6M for estimated highway *Lane-kilometers* by functional class.
1 mile=1.609344 kilometers.
Component values may not add to totals due to rounding.
2009 data exclude 1,325 kilometers of federal agency owned roads and 114 kilometers of other non federal agency owned roads. 2008 data exclude 1,268 kilometers of federal agency owned roads. 2007 data exclude 1,268 kilometers of federal owned roads and 703 kilometers of local government owned roads. 2006 data exclude 1,268 kilometers of federal owned roads and included 441 kilometers of miscoded roads. 2005 data exclude 1,239 kilometers of federal agency owned roads.

**SOURCES**
**Vehicle-Kilometers Traveled (VMT):**
1980-94: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1995,* FHWA-PL-97-009 (Washington, DC: July 1997), table VM-202, available at www.fhwa.dot.gov/policy/ohpi as of Mar. 18, 2009.

1995-2009: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics* (Washington, DC: Annual Issues), table VM-2, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of Mar. 14, 2011.
**Lane-kilometers:**
1980-95: U.S. Department of Transportation, Federal Highway Administration, Office of Highway Information Management *Highway Statistics Summary to 1995* (Washington, DC), table HM-260, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of Mar. 29, 2011.

1996-2009: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics* (Washington, DC: Annual Issues), table HM-60, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of Mar. 14, 2011.

**Table 1-37: U.S. Air Carrier Aircraft Departures, Enplaned Revenue Passengers, and Enplaned Revenue Tons**

| | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | (R) 2007 | 2008 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AIRCRAFT DEPARTURES | | | | | | | | | | | | | | | | | | | | | | |
| Total performed[a] | 4,555,516 | 5,156,848 | 5,505,659 | 6,641,681 | 6,545,000 | 6,606,609 | 7,193,841 | 7,513,232 | 8,030,530 | 8,204,674 | 8,095,888 | 8,248,269 | 8,605,486 | 8,929,559 | 8,548,932 | 8,052,756 | 8,585,736 | 9,444,234 | 9,859,941 | 9,512,017 | 10,842,368 | 10,307,025 |
| Total scheduled | 4,530,535 | 5,204,564 | 5,591,596 | 6,758,571 | 7,024,412 | 6,703,670 | 7,058,097 | 7,359,093 | 7,920,467 | 8,064,653 | 7,907,554 | 8,094,020 | 8,432,940 | 8,688,776 | 8,340,180 | 7,981,190 | 8,479,414 | 9,193,220 | 9,722,715 | 9,429,017 | 10,533,325 | 9,975,955 |
| Large hubs | | | | | | | | | | | | | | | | | | | | | | |
| Performed | 2,437,958 | 2,887,239 | 3,439,446 | 4,167,868 | 4,114,950 | 4,078,211 | 4,480,575 | 4,756,589 | 5,162,534 | 5,257,541 | 5,266,560 | 5,416,158 | 5,645,179 | 5,851,801 | 5,177,758 | 4,918,940 | 5,336,246 | 5,591,234 | 5,842,793 | 5,660,186 | 6,095,332 | 5,742,452 |
| Scheduled | 2,409,874 | 2,905,923 | 3,487,660 | 4,237,466 | 4,312,032 | 4,144,325 | 4,443,937 | 4,713,178 | 5,147,875 | 5,243,646 | 5,219,161 | 5,405,728 | 5,570,419 | 5,720,435 | 5,092,030 | 4,867,648 | 5,326,856 | 5,486,529 | 5,806,009 | 5,654,357 | 6,238,895 | 5,866,511 |
| Medium hubs | | | | | | | | | | | | | | | | | | | | | | |
| Performed | 902,652 | 1,048,726 | 1,185,008 | 1,394,833 | 1,256,306 | 1,301,977 | 1,310,322 | 1,471,377 | 1,439,639 | 1,425,280 | 1,430,537 | 1,429,730 | 1,499,243 | 1,574,986 | 1,893,805 | 1,791,778 | 1,703,127 | 2,046,105 | 2,184,522 | 2,076,849 | 2,236,012 | 2,208,796 |
| Scheduled | 899,543 | 1,058,438 | 1,201,540 | 1,417,762 | 1,352,515 | 1,312,257 | 1,268,316 | 1,398,144 | 1,387,833 | 1,356,162 | 1,352,944 | 1,345,197 | 1,404,482 | 1,507,991 | 1,812,161 | 1,784,913 | 1,671,068 | 2,007,421 | 2,153,826 | 2,062,423 | 2,213,263 | 2,181,478 |
| Small hubs | | | | | | | | | | | | | | | | | | | | | | |
| Performed | 640,589 | 598,559 | 514,176 | 669,450 | 689,518 | 771,529 | 841,685 | 710,569 | 738,231 | 754,914 | 695,841 | 714,920 | 746,625 | 779,518 | 864,722 | 788,758 | 884,306 | 1,088,691 | 1,091,838 | 1,095,346 | 1,130,616 | 1,057,948 |
| Scheduled | 644,133 | 608,738 | 524,048 | 679,103 | 858,429 | 783,305 | 794,279 | 685,421 | 711,947 | 722,170 | 660,685 | 674,812 | 770,092 | 759,208 | 856,112 | 809,246 | 855,679 | 1,025,145 | 1,064,124 | 1,078,363 | 1,134,183 | 1,055,628 |
| Nonhubs | | | | | | | | | | | | | | | | | | | | | | |
| Performed | 574,317 | 622,324 | 367,029 | 409,530 | 484,226 | 454,892 | 561,259 | 574,697 | 690,126 | 766,939 | 702,950 | 687,461 | 714,439 | 723,254 | 612,647 | 553,280 | 662,057 | 718,204 | 740,788 | 679,636 | 1,380,408 | 1,297,829 |
| Scheduled | 576,985 | 631,465 | 378,348 | 424,240 | 501,436 | 463,783 | 551,565 | 562,350 | 672,812 | 742,675 | 674,764 | 668,283 | 687,947 | 701,142 | 579,877 | 519,383 | 625,811 | 674,125 | 698,756 | 633,874 | 946,984 | 872,338 |
| ENPLANED REVENUE PASSENGERS[b] | 196,782,144 | 281,408,852 | 363,341,497 | 438,544,001 | 428,319,248 | 447,625,988 | 468,313,029 | 508,458,194 | 526,055,483 | 558,183,741 | 568,615,687 | 588,335,318 | 610,628,716 | 639,753,899 | 595,364,778 | 575,058,533 | 593,132,200 | 652,413,250 | 690,135,672 | 690,765,508 | 718,735,471 | 690,249,540 |
| Large hubs | 133,975,900 | 197,679,376 | 264,507,144 | 317,595,099 | 313,375,097 | 319,582,090 | 340,048,661 | 372,731,005 | 392,601,890 | 417,339,694 | 426,246,423 | 442,402,443 | 458,665,099 | 479,570,342 | 413,634,333 | 401,696,877 | 424,621,015 | 447,500,697 | 473,367,070 | 475,207,801 | 501,735,503 | 478,700,010 |
| Medium hubs | 36,539,613 | 51,664,627 | 65,770,376 | 80,466,373 | 72,985,169 | 80,800,955 | 79,032,913 | 88,601,244 | 85,929,285 | 89,018,764 | 90,779,705 | 91,755,793 | 96,394,866 | 102,082,360 | 124,587,728 | 119,733,580 | 109,492,740 | 135,364,314 | 143,749,228 | 142,139,330 | 139,828,095 | 137,535,272 |
| Small hubs | 19,406,607 | 23,393,324 | 24,240,726 | 30,771,383 | 31,224,974 | 36,879,632 | 37,334,956 | 34,443,996 | 33,561,098 | 37,122,974 | 36,298,979 | 37,675,305 | 38,644,557 | 40,121,294 | 42,833,911 | 40,053,861 | 43,545,830 | 51,812,381 | 53,291,924 | 55,008,304 | 55,627,434 | 52,757,861 |
| Nonhubs | 6,860,024 | 8,671,525 | 8,823,251 | 9,711,146 | 10,734,008 | 10,363,311 | 11,896,499 | 12,681,949 | 13,963,210 | 14,702,309 | 15,290,580 | 16,501,777 | 16,924,194 | 17,979,903 | 14,308,806 | 13,574,215 | 15,472,615 | 17,735,858 | 19,727,450 | 18,410,073 | 21,544,439 | 21,256,397 |
| ENPLANED REVENUE TONS[c] | 3,661,061 | 5,088,313 | 4,024,470 | 6,298,824 | 6,417,504 | 6,736,309 | 8,203,090 | 8,718,082 | 9,365,017 | 10,333,298 | 13,520,228 | 14,083,769 | 14,911,847 | 15,105,527 | 17,514,685 | 13,525,489 | 13,911,441 | 14,616,794 | 14,445,548 | 14,262,852 | 14,092,403 | 12,695,987 |
| Freight, total | 2,764,763 | 3,562,187 | 2,601,027 | 4,732,726 | 4,854,513 | 5,053,678 | 6,383,887 | 6,802,375 | 7,204,479 | 8,047,795 | 11,163,448 | 11,784,514 | 12,067,717 | 12,770,655 | 15,805,842 | 12,674,172 | 13,069,642 | 13,870,934 | 13,795,084 | 13,673,646 | 13,543,701 | 12,045,843 |
| Large hubs | 2,265,665 | 3,008,311 | 2,047,988 | 3,001,217 | 2,960,604 | 3,067,778 | 3,678,851 | 4,025,517 | 4,402,327 | 4,653,189 | 5,691,363 | 6,208,629 | 5,993,061 | 6,728,534 | 6,338,289 | 4,999,651 | 5,524,253 | 5,424,975 | 5,184,194 | 5,019,609 | 5,241,739 | 4,562,613 |
| Medium hubs | 358,044 | 414,325 | 469,057 | 1,446,744 | 1,507,017 | 1,633,136 | 1,857,865 | 2,022,282 | 1,950,318 | 2,169,411 | 3,855,449 | 3,897,242 | 4,382,712 | 4,445,684 | 6,871,585 | 5,750,187 | 5,264,084 | 5,042,642 | 6,239,905 | 5,239,725 | 6,386,330 | 5,815,015 |
| Small hubs | 99,133 | 73,795 | 48,127 | 191,358 | 222,247 | 267,619 | 516,199 | 432,680 | 541,062 | 755,232 | 963,093 | 1,019,615 | 1,053,050 | 936,896 | 1,405,627 | 1,056,987 | 1,015,860 | 2,052,242 | 981,639 | 2,010,442 | 890,633 | 722,877 |
| Nonhubs | 41,922 | 65,756 | 35,855 | 93,407 | 164,645 | 85,145 | 330,973 | 321,896 | 310,772 | 469,962 | 653,542 | 659,028 | 638,894 | 659,541 | 1,190,341 | 867,347 | 1,265,445 | 1,351,075 | 1,389,346 | 1,403,870 | 1,024,999 | 945,338 |
| Mail, total | 896,298 | 1,526,125 | 1,423,443 | 1,566,098 | 1,562,991 | 1,682,632 | 1,819,203 | 1,915,706 | 2,160,538 | 2,285,503 | 2,356,781 | 2,299,255 | 2,844,130 | 2,334,872 | 1,708,843 | 851,317 | 841,799 | 745,860 | 650,464 | 589,206 | 548,702 | 650,144 |
| Large hubs | 677,179 | 1,091,059 | 1,082,567 | 1,146,589 | 1,095,019 | 1,201,545 | 1,320,176 | 1,406,910 | 1,546,568 | 1,630,445 | 1,699,154 | 1,662,643 | 2,183,127 | 1,674,892 | 1,127,090 | 642,709 | 663,406 | 572,837 | 492,408 | 429,955 | 369,519 | 436,838 |
| Medium hubs | 151,498 | 255,929 | 268,179 | 292,899 | 321,041 | 321,051 | 324,441 | 344,200 | 442,814 | 466,583 | 473,577 | 482,710 | 502,096 | 508,356 | 407,330 | 162,549 | 141,315 | 143,888 | 136,635 | 124,151 | 120,709 | 155,029 |
| Small hubs | 48,486 | 148,116 | 59,917 | 108,656 | 126,070 | 144,918 | 152,692 | 136,111 | 136,008 | 157,137 | 138,818 | 127,748 | 126,793 | 109,283 | 103,227 | 34,293 | 27,464 | 25,202 | 16,901 | 18,512 | 7,842 | 10,332 |
| Nonhubs | 19,134 | 31,021 | 12,781 | 17,954 | 20,861 | 15,117 | 21,894 | 28,485 | 35,149 | 31,338 | 45,232 | 26,154 | 32,114 | 42,341 | 71,196 | 11,766 | 9,614 | 3,933 | 4,520 | 16,588 | 50,632 | 47,946 |

**KEY:** R = revised.

[a] Total performed includes scheduled departures performed minus those scheduled departures that did not occur plus unscheduled service.
[b] The number of persons receiving air transportation from an air carrier for which remuneration is received by the carrier, excluding persons receiving reduced rate charges, such as air carrier employees, infants, and others (except ministers of religion, elderly individuals, and handicapped individuals).
[c] The number of short tons transported on a flight by an air carrier.

**NOTES**

Data are for all scheduled and nonscheduled service by large certificated U.S. air carriers at all airports served within the 50 states and the District of Columbia. U.S. territories are not included in the data. Not all scheduled service is actually performed. Moreover, for several years, total performed departures exceed total scheduled departures because nonscheduled departures are included in the totals. Prior to 1993, all scheduled and some nonscheduled enplanements for certificated air carriers were included; no enplanements were included for air carriers offering charter service only. Prior to 1990, freight includes both freight and express shipments, and mail includes priority and nonpriority U.S. mail and foreign mail; beginning in 1990, only aggregate numbers are reported.
Large certificated air carriers operate aircraft with seating capacity of more than 60 seats or a maximum payload capacity of more than 18,000 pounds and hold Certificates of Public Convenience and Necessity issued by the U.S. Department of Transportation authorizing the performance of air transportation. Data for commuter, intrastate, air taxi, small-certificated, and foreign-flag air carriers are not included.

Prior to 2000, and/or 2007-2008 air traffic hubs are designated as geographical areas based on the percentage of total passengers enplaned in the area. Under this designation, a hub may have more than one airport in it. (This definition of hub should not be confused with the definition used by the airlines in describing their "hub-and-spoke" route structures.) Individual communities fall into four hub classifications as determined by each community's percentage of total enplaned revenue passengers in all services and all operations of U.S. certificated route carriers within the 50 states and the District of Columbia. For 2000-2006, hub designation is based on passenger boardings at individual airports as designated by the FAA. Classifications are based on the percentage of total enplaned revenue passengers for each year according to the following: one percent or more = large, 0.25 to 0.9999 percent = medium, 0.05 to 0.249 percent = small, less than 0.05 = nonhub.

**SOURCES**
1975-99: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, Office of Airline Information, *Airport Activity Statistics of Certified Route Air Carriers* (Washington, DC: Annual issues), tables 2, 3, 4, and 5.
2000-08: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, Office of Airline Information, *Airport Activity Statistics Database* (Form 41 Schedule T-3), special tabulation.

**Table 1-38: Average Length of Haul, Domestic Freight and Passenger Modes (Miles)**

| | 1960 | 1965 | 1970 | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Freight | | | | | | | | | | | | | | | | | | | | | | | | | |
| Air carrier | 953 | 943 | 1,014 | 1,082 | 1,052 | 1,157 | 1,389 | 1,346 | 1,391 | 1,347 | 1,221 | 1,160 | 1,181 | 1,077 | 1,078 | 1,001 | 982 | 973 | 1,204 | 1,216 | 1,261 | 1,218 | 1,218 | 1,220 | 1,247 |
| Truck[a] | 272 | 259 | 263 | 286 | 363 | 366 | 391 | 398 | 410 | 407 | 392 | 416 | 426 | 435 | 442 | 458 | 473 | 485 | U | U | U | U | U | U | U |
| Class I rail | 461 | 503 | 515 | 541 | 616 | 665 | 726 | 751 | 763 | 794 | 817 | (R) 843 | (R) 842 | (R) 851 | (R) 835 | (R) 835 | (R) 843 | (R) 858 | (R) 853 | (R) 862 | (R) 902 | (R) 893 | 906 | 913 | 919 |
| Coastwise (water) | 1,496 | 1,501 | 1,509 | 1,362 | 1,915 | 1,972 | (R) 1,605 | (R) 1,705 | (R) 1,762 | (R) 1,650 | (R) 1,652 | (R) 1,652 | (R) 1,526 | (R) 1,330 | (R) 1,261 | (R) 1,279 | (R) 1,251 | (R) 1,228 | (R) 1,219 | (R) 1,248 | (R) 1,269 | (R) 1,233 | 1,126 | 1,108 | 1,116 |
| Lakewise (water) | 522 | 494 | 506 | 530 | 536 | 524 | (R) 553 | (R) 535 | (R) 519 | (R) 514 | (R) 508 | (R) 514 | (R) 508 | (R) 507 | (R) 505 | (R) 501 | (R) 506 | (R) 509 | (R) 529 | (R) 529 | (R) 538 | (R) 540 | 548 | 543 | 556 |
| Internal (water) | 282 | 297 | 330 | 358 | 405 | 435 | (R) 470 | (R) 483 | (R) 479 | (R) 467 | (R) 482 | (R) 494 | (R) 477 | (R) 466 | (R) 472 | (R) 488 | (R) 481 | (R) 476 | (R) 483 | (R) 457 | (R) 454 | (R) 440 | 446 | 437 | 443 |
| Intraport (water) | U | U | U | 16 | 17 | 15 | (R) 13 | (R) 13 | (R) 12 | (R) 12 | (R) 16 | (R) 16 | (R) 17 | (R) 15 | (R) 15 | (R) 15 | (R) 16 | (R) 15 | (R) 15 | (R) 15 | (R) 16 | (R) 17 | 17 | 17 | 16 |
| Crude (oil pipeline) | 325 | 320 | 300 | 633 | 871 | 777 | 812 | 822 | 830 | 790 | 778 | 797 | 779 | 781 | 767 | 766 | U | U | U | U | U | U | U | U | U |
| Petroleum products (oil pipeline) | 269 | 335 | 357 | 516 | 414 | 391 | 387 | 379 | 379 | 406 | 414 | 402 | 413 | 413 | 420 | 418 | U | U | U | U | U | U | U | U | U |
| Passenger | | | | | | | | | | | | | | | | | | | | | | | | | |
| Air carrier, domestic, scheduled | 583 | 614 | 678 | 698 | 736 | 758 | 803 | 806 | 806 | 799 | 787 | 791 | 802 | 817 | 812 | 824 | 833 | (R) 843 | (R) 850 | (R) 844 | (R) 862 | (R) 865 | 871 | 871 | 872 |
| Bus, intercity | 79 | 94 | 106 | 113 | 125 | 121 | 141 | 143 | 136 | 138 | 138 | 140 | 143 | 144 | 144 | 143 | 143 | U | U | U | U | U | U | U | U |
| Commuter rail | 21 | 21 | 22 | 23 | 23 | 24 | 22 | 23 | 23 | 22 | 21 | 24 | 24 | 23 | 23 | (R) 22 | 23 | 23 | 23 | 23 | 23 | 22 | 23 | 24 | 23 |
| Amtrak[b] | N | N | N | 236 | 216 | 231 | 273 | 285 | 286 | 280 | 279 | 268 | 256 | 256 | 251 | 248 | 244 | 237 | 234 | 231 | 219 | 215 | 220 | 218 | 215 |

**KEY:** N = data do not exist; R = revised; U = data are unavailable.

[a] Total Class I and Class II motor carriers of freight (less-than-truckload, specialized carrier for truckload, and others).
[b] Amtrak began operations in 1971. Data are reported for fiscal years.

**NOTES**

Average length of haul for *freight* is calculated by dividing ton-miles by estimates of tonnage from the various data sources. The calculation of average length of haul for *passenger* trips varies by mode: for *air carrier* it is calculated by dividing revenue passenger-miles by revenue passenger enplanements; for *commuter rail*, *intercity bus*, and *Amtrak* it is calculated by dividing passenger-miles by number of passengers. *Commuter rail* data for 1996 and later is not comparable to previous years' data due to a change in sources.

**SOURCES**

**Freight:**

*Air carrier:*

1960-2001: Eno Transportation Foundation, Inc., *Transportation In America, 2002* (Washington, DC: 2004), p. 65.

2002-08: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, Office of Airline Information, *TranStats Database, T-100 Market Data*, special tabulation, Mar. 18, 2010.

*Truck:*

Eno Transportation Foundation, Inc., *Transportation In America, 18th edition* (Washington, DC: 2002), p. 65.

*Class I rail:*

Association of American Railroads, *Railroad Facts* (Washington, DC: Annual Issues), p. 36 and similar pages in previous editions.

*Water:*

U.S. Army Corps of Engineers, *Waterborne Commerce of the United States, Part 5* (New Orleans, LA: Annual issues), section 1, table 1-4, available at http://www.iwr.usace.army.mil/ndc/wcsc/wcsc.htm as of Apr. 05, 2010.

*Oil pipeline:*

1960-70: Transportation Policy Associates, Washington, DC, personal communication.

1975-99: Eno Transportation Foundation, Inc., *Transportation in America, 18th edition* (Washington, DC: 2002), p. 65.

**Passenger:**

*Air carrier:*

U.S. Department of Transportation, Bureau of Transportation Statistics, Office of Airline Information, *Air Carrier Traffic Statistics* (Washington, DC: Annual Issues), p. 3 and similar pages in previous issues.

*Intercity bus:*

Eno Transportation Foundation, Inc., *Transportation in America, 18th edition* (Washington, DC: 2002), p. 64.

*Commuter Rail:*

1960-95: Eno Transportation Foundation, Inc., *Transportation in America, 18th edition* (Washington, DC: 2002), p. 64.

1996-2008: U.S. Department of Transportation, Federal Transit Administration, *National Transit Database* (Washington, DC: Annual Issues), table 19 and similar tables in earlier editions, available at http://www.ntdprogram.gov/ntdprogram/data.htm as of Apr. 5, 2010.

*Amtrak:*

1970-85: Amtrak, personal communication, Jan. 26, 1999.

1990-2002: Amtrak, *Amtrak Annual Report* (Washington, DC: 2003), Statistical Appendix.

2003-08: Association of American Railroads, *Railroad Facts* (Washington, DC: Annual issues).

**Table 1-39: Worldwide Commercial Space Launches**

| | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | TOTAL 1990-2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL space launches | 15 | 12 | 14 | 11 | 15 | 23 | 24 | 38 | 41 | 39 | 35 | 16 | 24 | 17 | 15 | 18 | 21 | 23 | 28 | 24 | 429 |
| United States, total | 9 | 6 | 6 | 5 | 5 | 12 | 11 | 17 | 22 | 15 | 7 | 3 | 5 | 5 | 6 | 1 | 2 | 3 | 6 | 4 | 150 |
| Athena | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| Atlas | 1 | 2 | 3 | 3 | 4 | 8 | 7 | 6 | 5 | 4 | 3 | 1 | 3 | 4 | 5 | 1 | 1 | 0 | 1 | 1 | 63 |
| Conestoga | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Delta | 5 | 4 | 3 | 1 | 1 | 1 | 3 | 7 | 11 | 5 | 2 | 1 | 2 | 0 | 0 | 0 | 1 | 3 | 2 | 2 | 54 |
| Falcon | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 3 |
| Pegasus | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 3 | 4 | 2 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 16 |
| Taurus | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 4 |
| Titan | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| Europe, total | 5 | 6 | 6 | 6 | 8 | 8 | 9 | 11 | 9 | 8 | 12 | 8 | 10 | 4 | 1 | 5 | 5 | 6 | 5 | 5 | 137 |
| Ariane 4 | 5 | 6 | 6 | 6 | 8 | 8 | 9 | 11 | 9 | 8 | 8 | 6 | 7 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 98 |
| Ariane 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 2 | 3 | 3 | 1 | 5 | 5 | 6 | 5 | 5 | 39 |
| Russia, total | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 7 | 5 | 13 | 13 | 3 | 8 | 5 | 5 | 8 | 9 | 12 | 11 | 10 | 111 |
| Cosmos | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 3 | 0 | 8 |
| Dnepr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 3 | 2 | 1 | 11 |
| Kosmos | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 3 |
| Proton | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 6 | 4 | 5 | 6 | 2 | 5 | 1 | 4 | 4 | 4 | 4 | 6 | 7 | 60 |
| Rockot | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 1 | 1 | 0 | 0 | 2 | 7 |
| Shtil | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Soyuz | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 3 | 0 | 0 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 12 |
| Soyuz 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 0 | 0 | 4 |
| Start | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 4 |
| Volna | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| Ukraine, total | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Zenit 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| China, total | 1 | 0 | 2 | 0 | 2 | 3 | 2 | 3 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 19 |
| Long March 2C | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| Long March 2E | 0 | 0 | 2 | 0 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| Long March 3 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| Long March 3B | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 4 |
| India, total | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 |
| PSLV | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 |
| Sea Launch[a], total | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 3 | 2 | 1 | 3 | 3 | 4 | 5 | 1 | 6 | 4 | 34 |
| Zenit 3SL | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 3 | 2 | 1 | 3 | 3 | 4 | 5 | 1 | 6 | 4 | 34 |

[a] *Sea Launch* is an international venture involving organizations in four countries and uses its own launch facility outside national borders. Their first commercial launch, in 1999, was licensed by the Federal Aviation Administration. *Sea Launch* filed for Chapter 11 bankruptcy protection in June 2009 and thus had no launches in the second half of the year.

**NOTES**

A commercial launch is a launch that is internationally competed (i.e., available in principle to international launch providers) or whose primary payload is commercial in nature. FAA-licensed launches carrying captive government (NASA and DOD) or industry payloads (ORBCOMM, Delta 3 demosat, Zenit 3SL demosat, and others) are counted here. Data are for orbital launches only.

**SOURCES**

1990–99: U.S. Department of Transportation, Federal Aviation Administration, Associate Administrator for Commercial Space Transportation, personal communication, June 4, 2002.

2000-09: U.S. Department of Transportation, Federal Aviation Administration, *Commercial Space Transportation: Year in Review* (Washington, DC: Annual Issues), tables 1, 3, 4, and Appendix I, available at http://www.faa.gov/about/office_org/headquarters_offices/ast/ as of Apr. 9, 2010.

**Table 1-40: U.S. Passenger-Miles (Millions)**

| | 1960 | 1965 | 1970 | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Air, total | 33,399 | 57,626 | 117,542 | 147,400 | 219,068 | 290,136 | 358,873 | 350,185 | 365,564 | 372,130 | 398,199 | 414,688 | 446,652 | 463,112 | 476,362 | 502,457 | (R) 531,329 | 502,406 | 483,409 | 505,226 | 557,892 | 583,758 | 588,455 | 607,546 | 583,506 |
| Air carrier, certificated, domestic, all services | 31,099 | 53,226 | 108,442 | 136,000 | 204,368 | 277,836 | 345,873 | 338,085 | 354,764 | 362,230 | 388,399 | 403,888 | 434,652 | 450,612 | 463,262 | 488,357 | 516,129 | 486,506 | 483,409 | 505,226 | 557,892 | 583,758 | 588,455 | 607,546 | 583,506 |
| General aviation[a] | 2,300 | 4,400 | 9,100 | 11,400 | 14,700 | 12,300 | 13,000 | 12,100 | 10,800 | 9,900 | 9,800 | 10,800 | 12,000 | 12,500 | 13,100 | 14,100 | 15,200 | 15,900 | U | U | U | U | U | U | U |
| Highway, total[b] | 1,272,078 | 1,555,237 | 2,042,002 | 2,404,954 | 2,653,510 | 3,012,953 | 3,561,209 | 3,600,322 | 3,697,719 | 3,768,066 | 3,837,512 | 3,868,070 | 3,968,386 | 4,089,366 | (R) 4,200,634 | 4,304,270 | 4,390,076 | 4,643,794 | 4,667,038 | 4,721,869 | 4,844,452 | (R) 4,887,945 | 4,929,366 | (R) 4,963,161 | 4,871,683 |
| Passenger car[h,c,g] | 1,144,673 | 1,394,803 | 1,750,897 | 1,954,166 | 2,011,989 | 2,094,621 | 2,281,391 | 2,200,260 | 2,208,226 | 2,213,281 | 2,249,742 | 2,286,887 | 2,337,068 | 2,389,065 | 2,463,828 | 2,494,870 | 2,544,457 | 2,556,481 | 2,620,389 | 2,641,885 | 2,685,827 | (R) 2,699,305 | 2,671,044 | (R) 2,642,498 | 2,553,043 |
| Motorcycle[h,c,g] | U | U | 3,277 | 6,192 | 12,257 | 11,812 | 12,424 | 11,656 | 11,946 | 12,184 | 12,390 | 10,777 | 10,912 | 11,089 | 11,311 | 11,642 | 11,516 | 11,760 | 12,131 | 12,163 | 12,855 | (R) 13,277 | 15,303 | (R) 17,298 | 18,395 |
| Other 2-axle 4-tire vehicle[c,h] | U | U | 225,613 | 363,267 | 520,774 | 688,091 | 999,754 | 1,116,958 | 1,201,667 | 1,252,860 | 1,269,292 | 1,256,146 | 1,298,299 | 1,352,675 | 1,380,557 | 1,432,625 | 1,467,664 | 1,678,853 | 1,674,792 | 1,706,103 | 1,780,771 | (R) 1,804,848 | 1,876,690 | (R) 1,928,319 | 1,921,960 |
| Truck, single-unit 2-axle 6-tire or more[h] | 98,551 | 128,769 | 27,081 | 34,606 | 39,813 | 45,441 | 51,901 | 52,898 | 53,874 | 56,772 | 61,284 | 62,705 | 64,072 | 66,893 | 68,021 | 70,304 | 70,500 | 85,489 | 75,866 | 77,757 | 78,441 | (R) 78,496 | 80,344 | (R) 82,014 | 83,951 |
| Truck, combination | 28,854 | 31,665 | 35,134 | 46,724 | 68,678 | 78,063 | 94,341 | 96,645 | 99,510 | 103,116 | 108,932 | 115,451 | 118,899 | 124,584 | 128,359 | 132,384 | 135,020 | 161,169 | 138,737 | 140,160 | 142,370 | (R) 144,028 | 142,169 | (R) 145,046 | 143,507 |
| Bus[d] | U | U | U | U | U | 94,925 | 121,398 | 121,906 | 122,496 | 129,852 | 135,871 | 136,104 | 139,136 | 145,060 | 148,558 | 162,445 | 160,919 | 150,042 | 145,124 | 143,801 | 144,188 | (R) 147,992 | 143,816 | (R) 147,985 | 150,827 |
| Transit, total[e] | U | U | U | U | 39,854 | 39,581 | 41,143 | 40,703 | 40,241 | 39,384 | 39,585 | 39,808 | 38,984 | 40,180 | 41,605 | 43,279 | 45,100 | 46,508 | 46,096 | 45,677 | 46,546 | 47,125 | 49,504 | 51,873 | 53,712 |
| Motor bus[d] | U | U | U | U | 21,790 | 21,161 | 20,981 | 21,090 | 20,336 | 20,247 | 18,832 | 18,818 | 16,802 | 17,509 | 17,874 | 18,684 | 18,807 | 19,583 | 19,679 | 19,179 | 18,921 | 19,425 | 20,390 | 20,388 | 21,198 |
| Light rail | U | U | U | U | 381 | 350 | 571 | 662 | 701 | 705 | 833 | 860 | 955 | 1,024 | 1,115 | 1,190 | 1,339 | 1,427 | 1,432 | 1,476 | 1,576 | 1,700 | 1,866 | 1,930 | 2,081 |
| Heavy rail | U | U | U | U | 10,558 | 10,427 | 11,475 | 10,528 | 10,737 | 10,231 | 10,668 | 10,559 | 11,530 | 12,056 | 12,284 | 12,902 | 13,844 | 14,178 | 13,663 | 13,606 | 14,354 | 14,418 | 14,721 | 16,138 | 16,850 |
| Trolley bus | U | U | U | U | 219 | 306 | 193 | 195 | 199 | 188 | 187 | 187 | 184 | 189 | 182 | 186 | 192 | 187 | 188 | 176 | 173 | 173 | 164 | 156 | 161 |
| Commuter rail | 4,197 | 4,128 | 4,592 | 4,513 | 6,516 | 6,534 | 7,082 | 7,344 | 7,320 | 6,940 | 7,996 | 8,244 | 8,350 | 8,037 | 8,702 | 8,764 | 9,400 | 9,544 | 9,500 | 9,555 | 9,715 | 9,470 | 10,359 | 11,137 | 11,032 |
| Demand responsive[d] | U | U | U | U | U | 364 | 431 | 454 | 495 | 562 | 577 | 607 | 391 | 531 | 513 | 559 | 588 | 626 | 651 | 689 | 704 | 738 | 753 | 778 | 844 |
| Ferry boat[f] | U | U | U | U | U | U | 286 | 282 | 271 | 260 | 260 | 260 | 255 | 254 | 280 | 295 | 298 | 295 | 301 | 367 | 357 | 359 | 360 | 381 | 390 |
| Other[i] | U | U | U | U | 390 | 439 | 124 | 148 | 182 | 251 | 232 | 273 | 516 | 579 | 654 | 699 | 632 | 668 | 683 | 629 | 745 | 842 | 891 | 966 | 1,156 |
| Rail | | | | | | | | | | | | | | | | | | | | | | | | | |
| Intercity/Amtrak[f] | 17,064 | 13,260 | 6,179 | 3,931 | 4,503 | 4,825 | 6,057 | 6,273 | 6,091 | 6,199 | 5,921 | 5,545 | 5,050 | 5,166 | 5,304 | 5,330 | 5,498 | 5,559 | 5,468 | 5,680 | 5,511 | 5,381 | 5,410 | 5,784 | 6,179 |

**KEY:** R = revised; U = data are unavailable.

[a] All operations other than those operating under 14 CFR 121 and 14 CFR 135.

[b] In July 1997, FHWA published revised passenger-miles data for the highway modes for a number of years. The major change reflected the reassignment of some vehicles from the *passenger car* category to the *other 2-axle 4-tire vehicle* category. Passenger-miles for *passenger car, motorcycle, and other 2-axle 4-tire vehicles* were derived by multiplying vehicle-miles for these vehicles by average vehicle occupancy rates, provided by the Nationwide Personal Transportation Survey (1977, 1983, and 1995) and the National Household Travel Survey (2001).

[c] U.S. Department of Transportation, Federal Highway Administration (FHWA), provides data separately for *passenger car* and *motorcycle* in its annual *Highway Statistics* series. However, the 1995 summary report provides updated data for *passenger car* and *motorcycle* combined. *Passenger car* figures in this table were computed by U.S. Department of Transportation, Bureau of Transportation Statistics by subtracting the most current *motorcycle* figures from the aggregate *passenger car* and *motorcycle* figures.

[d] *Motor bus* and *demand responsive* figures are also included in the *bus* figure for highway.

[e] Prior to 1985, excludes *demand responsive* and most rural and smaller systems funded via Sections 18 and 16(b)2, Federal Transit Act. The series is not continuous between 1980 and 1985. *Transit rail* modes are measured in car-miles. Car-miles measure individual vehicle-miles in a train. A 10-car train traveling 1 mile would equal 1 train-mile and 10 car-miles.

[f] *Amtrak* began operations in 1971. Does not include contract commuter passengers.

[g] *Motorcycles* are included in *Passenger car* in 1960 and 1965.

[h] *Other 2-axle 4-tire vehicles* are included in *single-unit 2-axle 6-tire or more truck* in 1960 and 1965.

[i] *Ferry boats* are included in *Other* in 1980 and 1985.

**NOTES**

Air carrier passenger-miles are computed by summing the products of the aircraft-miles flown on each inter airport segment multiplied by the number of passengers carried on that segment. Highway passenger-miles from 1960 to 1994 are calculated by multiplying vehicle-miles of travel as cited by FHWA by the average number of occupants for each vehicle type. Average vehicle occupancy rates are based on various sources, such as the National Household Travel Survey, conducted by the Federal Highway Administration, and the Vehicle Inventory and Use Survey, conducted by the Bureau of the Census. Transit passenger-miles are the cumulative sum of the distances ridden by each passenger. Rail passenger-miles represent the movement of 1 passenger for 1 mile.

*Transit* data from 1996 and after are not comparable to the data for earlier years or to the data published in previous editions of the report due to different data sources used.

Numbers may not add to totals due to rounding.

**SOURCES**

**Air:**

*Air carrier, domestic, all services:*

1960: Civil Aeronautics Board, *Handbook of Airline Statistics, 1969* (Washington, DC: 1970), part III, table 2.

1965-70: Ibid., *Handbook of Airline Statistics, 1973* (Washington, DC: 1974), part III, table 2.

1975-80: Ibid., *Air Carrier Traffic Statistics* (Washington, DC: 1976, 1981), page 4 (December 1976) and page 2 (December 1981).

1985-2008: U.S. Department of Transportation, Bureau of Transportation Statistics, Office of Airline Information, *Air Carrier Traffic Statistics* (Washington, DC: Annual December issues), page 3, line1.

*General aviation:*

1960-2001: Eno Transportation Foundation, Inc., *Transportation in America, 2002* (Washington, DC: 2002) , pages 45-46.

**Highway:**

*Passenger car and motorcycle:*

1960-94: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1995,* available at http://www.fhwa.dot.gov/ohim/summary95/index.html as of July 28, 2000, table VM-201A.

1995-2008: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1, available at http://www.fhwa.dot.gov/policy/ohpi/hss/index.htm as of Mar. 05, 2010 .

*Motorcycle:*

1970-80: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1985* (Washington, DC: 1986), table VM-201A.

1985-2008: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1, available at http://www.fhwa.dot.gov/policy/ohpi/hss/index.htm as of Mar. 05, 2010.

*Other 2-axle 4-tire vehicle:*

1970-94: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1995* , available at http://www.fhwa.dot.gov/ohim/summary95/index.html as of July 28, 2000, table VM-201A.

1995-2008: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1, available at http://www.fhwa.dot.gov/policy/ohpi/hss/index.htm as of Mar. 05, 2010.

*Single-unit 2-axle 6-tires or more truck, combination truck, and bus:*

1960-94: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1995* , available at http://www.fhwa.dot.gov/ohim/summary95/index.html as of July 28, 2000, table VM-201A.

1995-2008: Ibid., Highway Statistics (Washington, DC: Annual issues), table VM-1, available at http://www.fhwa.dot.gov/policy/ohpi/hss/index.htm as of Mar. 05, 2010.

**Transit:**

*Ferryboat:*

1992: American Public Transit Association, personal communication, July 19, 2000.

1993-95: American Public Transit Association, personal communication, Aug. 13, 2001.

1996-2008: U.S. Department of Transportation, Federal Transit Administration, *National Transit Database* , available at http://www.ntdprogram.gov/ntdprogram/data.htm as of Mar. 05, 2010.

*All other data:*

1960-1995: American Public Transportation Association, *Public Transportation Fact Book* (Washington, DC: Annual Issues), table 2 and similar tables in earlier editions.

1996-2008: U.S. Department of Transportation, Federal Transit Administration, *National Transit Database* , available at http://www.ntdprogram.gov/ntdprogram/data.htm as of Mar. 05, 2010.

**Rail, Intercity / Amtrak:**

1960-80: Association of American Railroads, *Railroad Facts* (Washington, DC: Annual Issues).

1985: Amtrak, *Amtrak FY95 Annual Report* (Washington, DC: 1996), Statistical Appendix, page 4.

1990-2002: Ibid., *Amtrak Annual Report* (Washington, DC: Annual Issues), Statistical Appendix.

2003-08: Association of American Railroads, *Railroad Facts* (Washington, DC: Annual Issues), page 77.

**Table 1-41: Principal Means of Transportation to Work (Thousands)**

| | 1989 | | 1993 | | 1997 | | 1999 | | 2001 | | 2003 | | 2005 | | 2006 | | 2007 | | 2008 | | 2009 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Percent | Number | Percent | Number | Percent | Number | Percent | Number | Percent | Number | Percent | Number | Percent | Number | Percent | Number | Percent | Number | Percent | Number | Percent |
| All workers | 106,630 | 100.0 | 103,741 | 100.0 | 116,469 | 100.0 | 118,041 | 100.0 | 119,896 | 100.0 | 115,342 | 100.0 | 133,091 | 100.0 | 138,266 | 100.0 | 139,260 | 100.0 | 143,996 | 100.0 | 138,592 | 100.0 |
| Automobile, total | 93,943 | 88.1 | 91,301 | 88.0 | 101,908 | 87.5 | 103,467 | 87.7 | 105,450 | 88.0 | 101,664 | 88.1 | 116,659 | 87.7 | 119,898 | 86.7 | 120,442 | 86.5 | 124,177 | 86.2 | 119,393 | 86.1 |
| Drives self | 81,322 | 76.3 | 79,449 | 76.6 | 90,207 | 77.5 | 92,363 | 78.2 | 93,819 | 78.3 | 91,607 | 79.4 | 102,458 | 77.0 | 105,046 | 76.0 | 105,955 | 76.1 | 108,776 | 75.5 | 105,476 | 76.1 |
| Carpool, total | 12,621 | 11.8 | 11,852 | 11.4 | 11,701 | 10.0 | 11,104 | 9.4 | 11,631 | 9.7 | 10,057 | 8.7 | 14,200 | 10.7 | 14,852 | 10.7 | 14,488 | 10.4 | 15,402 | 10.7 | 13,917 | 10.0 |
| 2-person | 9,708 | 9.1 | 9,105 | 8.8 | 9,294 | 8.0 | 8,705 | 7.4 | 9,012 | 7.5 | 7,866 | 6.8 | 10,981 | 8.3 | 11,408 | 8.3 | 11,139 | 8.0 | 11,846 | 8.2 | 10,813 | 7.8 |
| 3-person | 1,748 | 1.6 | 1,684 | 1.6 | 1,526 | 1.3 | 1,454 | 1.2 | 1,642 | 1.4 | 1,351 | 1.2 | 3,219 | 2.4 | 1,992 | 1.4 | 1,963 | 1.4 | 2,088 | 1.5 | 1,822 | 1.3 |
| 4+ person[a] | 1,165 | 1.1 | 1,063 | 1.0 | 881 | 0.8 | 945 | 0.8 | 977 | 0.8 | 840 | 0.7 | NA | NA | 1,451 | 1.0 | 1,385 | 1.0 | 1,467 | 1.0 | 1,282 | 0.9 |
| Public transportation[b] | 4,880 | 4.6 | 4,740 | 4.6 | 5,337 | 4.6 | 5,779 | 4.9 | 5,602 | 4.7 | 5,081 | 4.4 | 6,202 | 4.7 | 6,642 | 4.8 | 6,761 | 4.9 | 7,170 | 5.0 | 6,922 | 5.0 |
| Taxicab[c] | 152 | 0.1 | 117 | 0.1 | 139 | 0.1 | 144 | 0.1 | 133 | 0.1 | 128 | 0.1 | NA | NA | 178 | 0.1 | 179 | 0.1 | 167 | 0.1 | 157 | 0.1 |
| Bicycle or motorcycle[c] | 795 | 0.7 | 744 | 0.7 | 738 | 0.6 | 749 | 0.6 | 846 | 0.7 | 691 | 0.6 | NA | NA | 895 | 0.6 | 949 | 0.7 | 1,183 | 0.8 | 1,060 | 0.8 |
| Walks only | 3,634 | 3.4 | 3,227 | 3.1 | 3,869 | 3.3 | 3,627 | 3.1 | 3,405 | 2.8 | 3,171 | 2.7 | 3,291 | 2.5 | 3,952 | 2.9 | 3,954 | 2.8 | 4,061 | 2.8 | 3,966 | 2.9 |
| Other means[d] | 491 | 0.5 | 474 | 0.5 | 867 | 0.7 | 987 | 0.8 | 1,052 | 0.9 | 1,072 | 0.9 | 2,143 | 1.6 | 1,289 | 0.9 | 1,298 | 0.9 | 1,340 | 0.9 | 1,176 | 0.8 |
| Works at home | 2,736 | 2.6 | 3,137 | 3.0 | 3,611 | 3.1 | 3,288 | 2.8 | 3,409 | 2.8 | 3,536 | 3.1 | 4,796 | 3.6 | 5,411 | 3.9 | 5,677 | 4.1 | 5,897 | 4.1 | 5,918 | 4.3 |

**KEY:** NA = not applicable.

[a] For 2005 only, the *Carpool* categories are 2-person and 3+ person; 4+ person is not available as in other years.
[b] *Public transportation* refers to bus, streetcar, subway, railroad, and elevated trains.
[c] *Taxicab* and *Bicycle or motorcycle* data are included in *Other means* for 2005 only.
[d] *Other means* include ferryboats, surface trains, and van service and other means not classified.

**NOTES**

Principal means of transportation to work refers to the mode of travel used to get from home to work most frequently. If more than one means of transportation was used each day, those surveyed were asked to specify the one used for the longest distance during the trip from home to work.

Component values may not add to totals due to rounding.

**SOURCES**

1989-2005:U.S. Department of Housing and Urban Development, *American Housing Survey for the United States: 2005* (Washington, DC: 2006), table 2-24 and similar tables in earlier editions, available at http://www.census.gov/hhes/www/ahs.html as of Oct. 12, 2006.

2006-09: U.S. Department of Commerce, U.S. Census Bureau, *American Community Survey*, available at http://factfinder.census.gov/ as of Oct. 22, 2010.

**Table 1-42: Long-Distance Travel in the United States by Selected Trip Characteristics: 2001**
**(Roundtrips to destinations at least 50 miles away)**

| | Person trips (thousands) | | Person-miles (millions) | | Personal-use vehicle trips (thousands) | | Personal-use vehicle-miles (millions) | |
|---|---|---|---|---|---|---|---|---|
| | Number | Percent | Number | Percent | Number | Percent | Number | Percent |
| TOTAL | 2,617,126 | 100.0 | 1,360,813 | 100.0 | 2,336,094 | 100.0 | 760,325 | 100.0 |
| Principal means of transportation | 2,617,126 | 100.0 | 1,360,813 | 100.0 | 2,336,094 | 100.0 | 760,325 | 100.0 |
| Personal-use vehicle | 2,336,094 | 89.3 | 760,325 | 55.9 | 2,336,094 | 100.0 | 760,325 | 100.0 |
| Airplane | 193,290 | 7.4 | 557,609 | 41.0 | NA | NA | NA | NA |
| Commercial airplane | 187,063 | 7.1 | 551,314 | 40.5 | NA | NA | NA | NA |
| Bus | 55,443 | 2.1 | 27,081 | 2.0 | NA | NA | NA | NA |
| Intercity | 22,941 | 0.9 | 9,945 | 0.7 | NA | NA | NA | NA |
| Charter or tour | 32,502 | 1.2 | 17,136 | 1.3 | NA | NA | NA | NA |
| Train | 21,144 | 0.8 | 10,546 | 0.8 | NA | NA | NA | NA |
| Ship, boat, or ferry | 2,040 | 0.1 | 4,278 | 0.3 | NA | NA | NA | NA |
| Other | 3,728 | 0.1 | 840 | 0.1 | NA | NA | NA | NA |
| Not reported | 5,388 | 0.2 | 133 | 0.0 | NA | NA | NA | NA |
| Roundtrip distance | 2,617,126 | 100.0 | 1,360,813 | 100.0 | 2,336,094 | 100.0 | 760,325 | 100.0 |
| Less than 200 miles | 1,249,018 | 47.7 | 175,171 | 12.9 | 1,209,312 | 51.8 | 170,441 | 22.4 |
| 200–299 miles | 456,100 | 17.4 | 110,937 | 8.2 | 439,120 | 18.8 | 106,748 | 14.0 |
| 300–499 miles | 377,177 | 14.4 | 144,972 | 10.7 | 355,501 | 15.2 | 136,328 | 17.9 |
| 500–999 miles | 269,109 | 10.3 | 185,695 | 13.6 | 231,182 | 9.9 | 157,405 | 20.7 |
| 1,000-1,999 miles | 132,548 | 5.1 | 189,468 | 13.9 | 71,481 | 3.1 | 97,652 | 12.8 |
| 2,000 miles or more | 133,174 | 5.1 | 554,569 | 40.8 | 29,498 | 1.3 | 91,749 | 12.1 |
| Mean (miles) | 520 | NA | NA | NA | 325 | NA | NA | NA |
| Median (miles) | 209 | NA | NA | NA | 194 | NA | NA | NA |
| Calendar quarter | 2,617,126 | 100.0 | 1,360,813 | 100.0 | 2,336,094 | 100.0 | 760,325 | 100.0 |
| 1st quarter | 576,111 | 22.0 | 291,733 | 21.4 | 510,906 | 21.9 | 162,400 | 21.4 |
| 2nd quarter | 684,382 | 26.2 | 397,302 | 29.2 | 602,396 | 25.8 | 199,958 | 26.3 |
| 3rd quarter | 733,488 | 28.0 | 374,407 | 27.5 | 667,600 | 28.6 | 220,300 | 29.0 |
| 4th quarter | 623,146 | 23.8 | 297,371 | 21.9 | 555,192 | 23.8 | 177,666 | 23.4 |
| Main purpose of trip | 2,617,126 | 100.0 | 1,360,813 | 100.0 | 2,336,094 | 100.0 | 760,325 | 100.0 |
| Commute | 330,369 | 12.6 | 67,599 | 5.0 | 318,336 | 13.6 | 57,571 | 7.6 |
| Business | 399,312 | 15.3 | 279,337 | 20.5 | 316,006 | 13.5 | 100,665 | 13.2 |
| Pleasure | 1,464,914 | 56.0 | 827,035 | 60.8 | 1,322,501 | 56.6 | 476,681 | 62.7 |
| Visit relatives or friends | 663,203 | 25.3 | 357,095 | 26.2 | 609,457 | 26.1 | 220,583 | 29.0 |
| Leisure[a] | 786,532 | 30.1 | 456,201 | 33.5 | 700,467 | 30.0 | 250,863 | 33.0 |
| Rest or relaxation | 73,810 | 2.8 | 30,431 | 2.2 | 68,750 | 2.9 | 21,602 | 2.8 |
| Sightseeing | 39,764 | 1.5 | 20,591 | 1.5 | 34,721 | 1.5 | 12,828 | 1.7 |
| Outdoor recreation | 125,627 | 4.8 | 44,203 | 3.2 | 116,724 | 5.0 | 34,802 | 4.6 |
| Entertainment | 176,062 | 6.7 | 61,561 | 4.5 | 154,347 | 6.6 | 43,581 | 5.7 |
| Personal business | 245,679 | 9.4 | 108,752 | 8.0 | 229,706 | 9.8 | 76,814 | 10.1 |
| Other | 176,202 | 6.7 | 77,342 | 5.7 | 149,019 | 6.4 | 48,437 | 6.4 |
| Not reported | 651 | 0.02 | 748 | 0.05 | 526 | 0.02 | 157 | 0.02 |
| Nights away from home | 2,617,126 | 100.0 | 1,360,813 | 100.0 | 2,336,094 | 100.0 | 760,325 | 100.0 |
| None | 1,472,089 | 56.2 | 321,353 | 23.6 | 1,401,406 | 60.0 | 279,249 | 36.7 |
| 1–3 nights | 821,311 | 31.4 | 431,155 | 31.7 | 728,311 | 31.2 | 284,967 | 37.5 |
| 4–7 nights | 230,335 | 8.8 | 326,913 | 24.0 | 155,194 | 6.6 | 124,495 | 16.4 |
| 8 or more nights | 93,392 | 3.6 | 281,390 | 20.7 | 51,183 | 2.2 | 71,613 | 9.4 |
| Mean, excluding none (nights) | 3.5 | NA | NA | NA | 3.0 | NA | NA | NA |
| Type of lodging at destination | 2,617,126 | 100.0 | 1,360,813 | 100.0 | 2,336,094 | 100.0 | 760,325 | 100.0 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Friend's or relative's home | 480,887 | 18.4 | 370,166 | 27.2 | 416,652 | 17.8 | 204,705 | 26.9 |
| Hotel, motel, or resort | 369,065 | 14.1 | 469,505 | 34.5 | 252,951 | 10.8 | 149,185 | 19.6 |
| Rented cabin, condo, or vacation home | 48,041 | 1.8 | 41,529 | 3.1 | 42,016 | 1.8 | 25,037 | 3.3 |
| Owned cabin, condo, or vacation home | 67,816 | 2.6 | 36,725 | 2.7 | 63,248 | 2.7 | 23,988 | 3.2 |
| Camper, trailer, recreational vehicle, tent | 60,815 | 2.3 | 35,118 | 2.6 | 59,519 | 2.5 | 29,924 | 3.9 |
| Other type of lodging | 99,902 | 3.8 | 73,314 | 5.4 | 83,930 | 3.6 | 38,356 | 5.0 |
| Did not stay overnight | 1,489,330 | 56.9 | 333,896 | 24.5 | 1,417,045 | 60.7 | 288,922 | 38.0 |
| Not reported | 1,271 | 0.05 | 559 | 0.04 | 731 | 0.03 | 208 | 0.03 |
| Nights at destination | | | | | | | | |
| Mean nights at destination | 1.5 | NA | NA | NA | 1.1 | NA | NA | NA |
| Friend's or relative's home | 3.3 | NA | NA | NA | 2.7 | NA | NA | NA |
| Hotel, motel, or resort | 2.8 | NA | NA | NA | 2.3 | NA | NA | NA |

**KEY**: NA = not applicable.

[a] Includes other leisure purposes not shown separately.

**NOTE**

Numbers may not add to totals due to rounding.

**SOURCE**

U.S. Department of Transportation, Bureau of Transportation Statistics, Federal Highway Administration, National Household Travel Survey data, CD-ROM, February 2004.

**Table 1-43: Long-Distance Travel in the United States by Selected Traveler Characteristics: 2001**
**(Roundtrips to destinations at least 50 miles away)**

| | Persons (thousands) | | Person trips (thousands) | | Person-miles (millions) | | Personal-use vehicle trips (thousands) | | Personal-use vehicle-miles (millions) | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Percent | Number | Percent | Number | Percent | Number | Percent | Number | Percent |
| TOTAL | 277,208 | 100.0 | 2,617,126 | 100.0 | 1,360,813 | 100.0 | 2,336,094 | 100.0 | 760,325 | 100.0 |
| Under 5 | 19,281 | 7.0 | 113,329 | 4.3 | 56,136 | 4.1 | 107,012 | 4.6 | 37,220 | 4.9 |
| 5–17 years | 52,450 | 18.9 | 337,984 | 12.9 | 169,303 | 12.4 | 297,520 | 12.7 | 101,565 | 13.4 |
| 18–24 years | 23,918 | 8.6 | 209,171 | 8.0 | 97,575 | 7.2 | 192,499 | 8.2 | 60,386 | 7.9 |
| 25–29 years | 18,432 | 6.6 | 192,382 | 7.4 | 109,392 | 8.0 | 172,075 | 7.4 | 56,290 | 7.4 |
| 30–39 years | 43,114 | 15.6 | 505,463 | 19.3 | 260,673 | 19.2 | 447,666 | 19.2 | 136,738 | 18.0 |
| 40–49 years | 40,924 | 14.8 | 483,005 | 18.5 | 257,444 | 18.9 | 428,672 | 18.3 | 134,938 | 17.7 |
| 50–59 years | 30,498 | 11.0 | 391,161 | 14.9 | 204,614 | 15.0 | 351,977 | 15.1 | 110,109 | 14.5 |
| 60–64 years | 11,250 | 4.1 | 123,103 | 4.7 | 67,517 | 5.0 | 111,692 | 4.8 | 39,101 | 5.1 |
| 65–74 years | 18,345 | 6.6 | 155,190 | 5.9 | 81,500 | 6.0 | 140,226 | 6.0 | 53,741 | 7.1 |
| 75 years and over | 18,997 | 6.9 | 106,337 | 4.1 | 56,659 | 4.2 | 86,755 | 3.7 | 30,237 | 4.0 |
| Median (years) | 33.5 | N/A | 37.3 | NA | NA | NA | 37.4 | NA | NA | NA |
| Sex, total | 277,208 | 100.0 | 2,617,126 | 100.0 | 1,360,813 | 100.0 | 2,336,094 | 100.0 | 760,325 | 100.0 |
| Male | 135,291 | 48.8 | 1,499,967 | 57.3 | 757,454 | 55.7 | 1,347,123 | 57.7 | 429,259 | 56.5 |
| Female | 141,917 | 51.2 | 1,117,160 | 42.7 | 603,358 | 44.3 | 988,971 | 42.3 | 331,066 | 43.5 |
| Race, total | 277,208 | 100.0 | 2,617,126 | 100.0 | 1,360,813 | 100.0 | 2,336,094 | 100.0 | 760,325 | 100.0 |
| White | 193,338 | 69.7 | 2,033,914 | 77.7 | 1,058,412 | 77.8 | 1,821,143 | 78.0 | 595,944 | 78.4 |
| Black | 33,877 | 12.2 | 207,350 | 7.9 | 91,393 | 6.7 | 180,399 | 7.7 | 59,363 | 7.8 |
| Asian or Pacific Islander | 7,223 | 2.6 | 49,559 | 1.9 | 59,235 | 4.4 | 39,501 | 1.7 | 12,067 | 1.6 |
| American Indian, Eskimo, or Aleutian | 1,316 | 0.5 | 12,565 | 0.5 | 5,975 | 0.4 | 11,688 | 0.5 | 3,693 | 0.5 |
| Other | 39,472 | 14.2 | 294,628 | 11.3 | 136,480 | 10.0 | 266,200 | 11.4 | 84,115 | 11.1 |
| Not reported | 1,983 | 0.7 | 19,110 | 0.7 | 9,318 | 0.7 | 17,163 | 0.7 | 5,144 | 0.7 |
| Ethnicity, total | 277,208 | 100.0 | 2,617,126 | 100.0 | 1,360,813 | 100.0 | 2,336,094 | 100.0 | 760,325 | 100.0 |
| Hispanic origin | 35,043 | 12.6 | 253,100 | 9.7 | 118,516 | 8.7 | 227,266 | 9.7 | 71,465 | 9.4 |
| Not of Hispanic origin | 242,165 | 87.4 | 2,364,026 | 90.3 | 1,242,297 | 91.3 | 2,108,828 | 90.3 | 688,859 | 90.6 |
| Household income | 277,208 | 100.0 | 2,617,126 | 100.0 | 1,360,813 | 100.0 | 2,336,094 | 100.0 | 760,325 | 100.0 |
| Less than $25,000 | 58,935 | 21.3 | 327,852 | 12.5 | 133,903 | 9.8 | 302,354 | 12.9 | 95,773 | 12.6 |
| $25,000–$39,999 | 54,404 | 19.6 | 454,543 | 17.4 | 188,296 | 13.8 | 422,556 | 18.1 | 138,312 | 18.2 |
| $40,000–$49,999 | 29,471 | 10.6 | 297,383 | 11.4 | 135,256 | 9.9 | 278,871 | 11.9 | 86,849 | 11.4 |
| $50,000–$59,999 | 26,622 | 9.6 | 285,398 | 10.9 | 147,926 | 10.9 | 260,465 | 11.1 | 85,859 | 11.3 |
| $60,000–$74,999 | 25,557 | 9.2 | 305,461 | 11.7 | 134,024 | 9.8 | 281,037 | 12.0 | 83,941 | 11.0 |
| $75,000–$99,999 | 32,264 | 11.6 | 380,371 | 14.5 | 221,657 | 16.3 | 332,095 | 14.2 | 107,055 | 14.1 |
| $100,000 or more | 33,587 | 12.1 | 444,802 | 17.0 | 334,526 | 24.6 | 359,642 | 15.4 | 129,050 | 17.0 |
| Not reported | 16,369 | 5.9 | 121,316 | 4.6 | 65,224 | 4.8 | 99,074 | 4.2 | 33,486 | 4.4 |
| Household type | 277,208 | 100.0 | 2,617,126 | 100.0 | 1,360,813 | 100.0 | 2,336,094 | 100.0 | 760,325 | 100.0 |
| One adult, no children | 13,743 | 5.0 | 139,195 | 5.3 | 84,619 | 6.2 | 119,661 | 5.1 | 38,003 | 5.0 |
| One adult, youngest child 0-5 | 5,736 | 2.1 | 25,736 | 1.0 | 15,239 | 1.1 | 21,777 | 0.9 | 6,528 | 0.9 |
| One adult, youngest child 6-15 | 8,242 | 3.0 | 70,325 | 2.7 | 31,689 | 2.3 | 63,413 | 2.7 | 18,918 | 2.5 |
| One adult, youngest child 16-21 | 2,614 | 0.9 | 22,080 | 0.8 | 7,677 | 0.6 | 18,741 | 0.8 | 4,967 | 0.7 |
| One adult, retired, no children | 8,750 | 3.2 | 42,932 | 1.6 | 23,648 | 1.7 | 36,142 | 1.5 | 11,325 | 1.5 |
| Two or more adults, no children | 50,160 | 18.1 | 620,148 | 23.7 | 355,433 | 26.1 | 542,463 | 23.2 | 175,694 | 23.1 |
| Two or more adults, youngest child 0-5 | 69,688 | 25.1 | 593,106 | 22.7 | 291,117 | 21.4 | 536,070 | 22.9 | 172,395 | 22.7 |
| Two or more adults, youngest child 6-15 | 64,237 | 23.2 | 590,787 | 22.6 | 292,422 | 21.5 | 530,746 | 22.7 | 167,498 | 22.0 |
| Two or more adults, youngest child 16-21 | 18,741 | 6.8 | 205,093 | 7.8 | 101,686 | 7.5 | 182,859 | 7.8 | 57,110 | 7.5 |
| Two or more adults, retired, no children | 35,297 | 12.7 | 307,725 | 11.8 | 157,284 | 11.6 | 284,221 | 12.2 | 107,887 | 14.2 |
| Educational attainment, total (Persons 16 years and over) | 208,479 | 100.0 | 2,173,473 | 100.0 | 1,144,890 | 100.0 | 1,940,042 | 100.0 | 624,049 | 100.0 |
| Less than high school graduate | 30,601 | 14.7 | 183,801 | 8.5 | 84,797 | 7.4 | 162,768 | 8.4 | 49,856 | 8.0 |
| High school graduate | 63,428 | 30.4 | 585,117 | 26.9 | 225,637 | 19.7 | 554,002 | 28.6 | 168,467 | 27.0 |
| Some college, no degree | 43,377 | 20.8 | 458,953 | 21.1 | 211,462 | 18.5 | 423,517 | 21.8 | 137,884 | 22.1 |
| Associate's degree | 13,570 | 6.5 | 162,145 | 7.5 | 80,413 | 7.0 | 146,649 | 7.6 | 46,528 | 7.5 |
| Bachelor's degree | 33,063 | 15.9 | 437,767 | 20.1 | 285,168 | 24.9 | 369,402 | 19.0 | 126,532 | 20.3 |
| Some grad school or grad degree | 23,237 | 11.1 | 339,237 | 15.6 | 253,592 | 22.1 | 278,227 | 14.3 | 93,484 | 15.0 |
| Not reported | 1,202 | 0.6 | 6,453 | 0.3 | 3,822 | 0.3 | 5,477 | 0.3 | 1,299 | 0.2 |
| Activity status, total (Persons 16 years and over) | 208,479 | 100.0 | 2,173,473 | 100.0 | 1,144,890 | 100.0 | 1,940,042 | 100.0 | 624,049 | 100.0 |
| Working full time | 115,428 | 55.4 | 1,426,531 | 65.6 | 716,671 | 62.6 | 1,275,103 | 65.7 | 382,355 | 61.3 |
| Retired | 35,611 | 17.1 | 254,291 | 11.7 | 137,388 | 12.0 | 230,254 | 11.9 | 85,957 | 13.8 |
| Other | 57,098 | 27.4 | 491,046 | 22.6 | 289,717 | 25.3 | 433,191 | 22.3 | 155,015 | 24.8 |
| Not reported | 342 | 0.2 | 1,605 | 0.1 | 1,115 | 0.1 | 1,495 | 0.1 | 722 | 0.1 |

**KEY**: NA = not applicable.

**NOTE**
Numbers may not add to totals due to rounding.

**SOURCE**

U.S. Department of Transportation, Bureau of Transportation Statistics, Federal Highway Administration, National Household Travel Survey data, CD-ROM, February 2004.

**Table 1-44: Passengers Boarded at the Top 50 U.S. Airports[a]**
**(Ranked by Passenger Enplanements in 2009)**

| Airport | Code | 1999 Rank | 1999 Total Enplaned Passengers | (R) 2008 Rank | (R) 2008 Total Enplaned Passengers | 2009 Rank | 2009 Total Enplaned Passengers | Percent change 1999-2009 | Percent change 2008-2009 |
|---|---|---|---|---|---|---|---|---|---|
| Atlanta, GA (Hartsfield-Jackson Atlanta International) | ATL | 1 | 37,232,485 | 1 | 43,251,133 | 1 | 41,875,839 | 12.5 | -3.2 |
| Chicago, IL (Chicago O'Hare International) | ORD | 2 | 31,657,965 | 2 | 31,357,564 | 2 | 28,994,466 | -8.4 | -7.5 |
| Dallas, TX (Dallas/Fort Worth International) | DFW | 3 | 27,592,758 | 3 | 26,838,812 | 3 | 26,332,812 | -4.6 | -1.9 |
| Denver, CO (Denver International) | DEN | 5 | 17,502,449 | 4 | 23,940,617 | 4 | 23,721,549 | 35.5 | -0.9 |
| Los Angeles, CA (Los Angeles International) | LAX | 4 | 24,043,891 | 5 | 22,669,005 | 5 | 21,676,680 | -9.8 | -4.4 |
| Houston, TX (George Bush Intercontinental) | IAH | 13 | 14,735,065 | 7 | 19,413,743 | 6 | 18,610,288 | 26.3 | -4.1 |
| Phoenix, AZ (Phoenix Sky Harbor International) | PHX | 8 | 16,089,706 | 8 | 19,224,795 | 7 | 18,329,229 | 13.9 | -4.7 |
| Las Vegas, NV (McCarran International) | LAS | 10 | 15,367,358 | 6 | 19,897,410 | 8 | 18,314,373 | 19.2 | -8.0 |
| Charlotte, NC (Charlotte Douglas International) | CLT | 21 | 9,442,282 | 9 | 17,193,157 | 9 | 17,078,366 | 80.9 | -0.7 |
| New York, NY (John F. Kennedy International) | JFK | 20 | 10,138,272 | 10 | 16,752,675 | 10 | 16,191,561 | 59.7 | -3.3 |
| San Francisco, CA (San Francisco International) | SFO | 7 | 16,563,022 | 15 | 15,760,022 | 11 | 15,997,148 | -3.4 | 1.5 |
| Minneapolis, MN (Minneapolis-St. Paul International/Wold-Chamberlain) | MSP | 9 | 15,390,844 | 12 | 16,317,285 | 12 | 15,505,689 | 0.7 | -5.0 |
| Newark, NJ (Newark Liberty International) | EWR | 12 | 14,912,219 | 13 | 16,117,237 | 13 | 15,208,723 | 2.0 | -5.6 |
| Orlando, FL (Orlando International) | MCO | 16 | 12,563,805 | 14 | 16,099,283 | 14 | 15,062,650 | 19.9 | -6.4 |
| Detroit, MI (Detroit Metropolitan Wayne County) | DTW | 6 | 16,570,055 | 11 | 16,751,796 | 15 | 15,042,151 | -9.2 | -10.2 |
| Seattle, WA (Seattle-Tacoma International) | SEA | 14 | 13,063,780 | 17 | 15,230,851 | 16 | 14,719,937 | 12.7 | -3.4 |
| Philadelphia, PA (Philadelphia International) | PHL | 19 | 10,346,557 | 16 | 15,266,795 | 17 | 14,714,285 | 42.2 | -3.6 |
| Miami, FL (Miami International) | MIA | 15 | 12,763,958 | 18 | 13,577,795 | 18 | 13,389,575 | 4.9 | -1.4 |
| Boston, MA (General Edward Lawrence Logan International) | BOS | 17 | 11,090,707 | 19 | 11,586,556 | 19 | 11,377,851 | 2.6 | -1.8 |
| New York, NY (LaGuardia) | LGA | 18 | 10,805,389 | 20 | 11,172,540 | 20 | 10,750,986 | -0.5 | -3.8 |
| Baltimore, MD (Baltimore/Washington International Thurgood Marshall) | BWI | 25 | 8,004,113 | 22 | 10,082,852 | 21 | 10,228,317 | 27.8 | 1.4 |
| Salt Lake City, UT (Salt Lake International) | SLC | 22 | 8,717,529 | 23 | 9,991,736 | 22 | 9,903,028 | 13.6 | -0.9 |
| Washington, DC (Dulles International) | IAD | 29 | 6,838,523 | 24 | 9,974,636 | 23 | 9,713,816 | 42.0 | -2.6 |
| Fort Lauderdale, FL (Fort Lauderdale-Hollywood International) | FLL | 32 | 6,223,985 | 21 | 10,372,202 | 24 | 9,568,333 | 53.7 | -7.8 |
| Washington, DC (Ronald Reagan Washington National) | DCA | 30 | 6,663,275 | 27 | 8,606,060 | 25 | 8,413,506 | 26.3 | -2.2 |
| San Diego, CA (San Diego International) | SAN | 27 | 7,252,579 | 25 | 8,931,012 | 26 | 8,380,119 | 15.5 | -6.2 |
| Chicago, IL (Chicago Midway) | MDW | 33 | 6,137,767 | 28 | 8,015,533 | 27 | 8,223,625 | 34.0 | 2.6 |
| Tampa, FL (Tampa International) | TPA | 28 | 6,912,306 | 26 | 8,691,544 | 28 | 8,081,857 | 16.9 | -7.0 |
| Honolulu, HI (Honolulu International) | HNL | 23 | 8,576,055 | 29 | 7,785,516 | 29 | 7,548,395 | -12.0 | -3.0 |
| Portland, OR (Portland International) | PDX | 31 | 6,541,043 | 30 | 6,959,281 | 30 | 6,351,480 | -2.9 | -8.7 |
| St. Louis, MO (Lambert-St Louis International) | STL | 11 | 14,929,887 | 31 | 6,722,736 | 31 | 6,069,458 | -59.3 | -9.7 |
| Cincinnati, OH (Cincinnati/Northern Kentucky International) | CVG | 26 | 7,615,588 | 32 | 6,640,219 | 32 | 5,192,501 | -31.8 | -21.8 |
| Memphis, TN (Memphis International) | MEM | 39 | 4,533,738 | 34 | 5,375,882 | 33 | 5,053,691 | 11.5 | -6.0 |
| Kansas City, MO (Kansas City International) | MCI | 35 | 5,601,445 | 36 | 5,371,296 | 34 | 4,909,175 | -12.4 | -8.6 |
| Cleveland, OH (Hopkins International) | CLE | 34 | 5,921,429 | 35 | 5,371,709 | 35 | 4,693,669 | -20.7 | -12.6 |
| Oakland, CA (Oakland International) | OAK | 37 | 4,738,024 | 33 | 5,503,373 | 36 | 4,569,637 | -3.6 | -17.0 |
| Raleigh, NC (Raleigh-Durham International) | RDU | 43 | 4,026,007 | 38 | 4,755,384 | 37 | 4,407,859 | 9.5 | -7.3 |
| Sacramento, CA (Sacramento International) | SMF | 44 | 3,658,148 | 37 | 4,912,781 | 38 | 4,406,386 | 20.5 | -10.3 |
| Nashville, TN (Nashville International) | BNA | 42 | 4,064,137 | 40 | 4,622,908 | 39 | 4,368,811 | 7.5 | -5.5 |
| Santa Ana, CA (John Wayne-Orange County) | SNA | 45 | 3,642,580 | 42 | 4,463,009 | 40 | 4,310,909 | 18.3 | -3.4 |
| Houston, TX (William P. Hobby) | HOU | 41 | 4,214,715 | 45 | 4,224,298 | 41 | 4,084,737 | -3.1 | -3.3 |
| San Jose, CA (Norman Y. Mineta San Jose International) | SJC | 36 | 5,487,338 | 39 | 4,713,840 | 42 | 4,045,393 | -26.3 | -14.2 |
| Austin, TX (Austin-Bergstrom International) | AUS | 49 | 3,292,114 | 44 | 4,257,503 | 43 | 4,013,002 | 21.9 | -5.7 |
| San Juan, PR (Luis Munoz Marin International) | SJU | 40 | 4,531,970 | 41 | 4,547,000 | 44 | 3,980,766 | -12.2 | -12.5 |
| Pittsburgh, PA (Pittsburgh International) | PIT | 24 | 8,021,249 | 43 | 4,277,612 | 45 | 3,941,423 | -50.9 | -7.9 |
| New Orleans, LA (Louis Armstrong International) | MSY | 38 | 4,571,895 | 48 | 3,983,636 | 46 | 3,911,524 | -14.4 | -1.8 |
| Milwaukee, WI (General Mitchell Field) | MKE | 56 | 2,724,913 | 50 | 3,830,969 | 47 | 3,881,158 | 42.4 | 1.3 |
| San Antonio, TX (San Antonio International) | SAT | 48 | 3,340,356 | 49 | 3,951,928 | 48 | 3,731,117 | 11.7 | -5.6 |
| Indianapolis, IN (Indianapolis International) | IND | 46 | 3,539,523 | 46 | 4,046,353 | 49 | 3,721,862 | 5.2 | -8.0 |
| Dallas, TX (Dallas Love Field) | DAL | 47 | 3,414,304 | 47 | 4,030,526 | 50 | 3,672,970 | 7.6 | -8.9 |
| Top 50 U.S. Airports, total[b] | NA | NA | 512,005,341 | NA | 573,432,405 | NA | 546,272,682 | 6.7 | -4.7 |
| All airports | NA | NA | 611,582,354 | NA | 699,024,406 | NA | 663,172,829 | 8.4 | -5.1 |

**KEY:** NA = not applicable.

[a] Rank order by total enplaned passengers on large certificated U.S. air carriers (Majors, Nationals, Large Regionals, and Medium Regionals), scheduled and nonscheduled operations, at all airports served within the 50 states, the District of Columbia, and other U.S. areas designated by the Federal Aviation Administration.

[b] The total for the top 50 airports will not sum from the individual airports because some top 50 airports in 2009 were not in the top 50 in the earlier years.

**NOTES**

Large certificated air carriers hold Certificates of Public Convenience and Necessity issued by the U.S. Department of Transportation authorizing the performance of air transportation. Large certificated air carriers operate at least one aircraft with seating capacity of more than 60 seats or a maximum payload capacity of more than 18,000 pounds. Data for commuter, small-certificated and foreign-flag air carriers are not included.

**SOURCE**

U.S. Department of Transportation, Bureau of Transportation Statistics, Office of Airline Information, *Air Carrier Summary Data (Form 41 and 298C Summary Data), T-3 Data*, available at http://transtats.bts.gov/DataIndex.asp as of Apr. 26, 2010.

**Table 1-45: Air Passenger Travel Arrivals in the United States from Selected Foreign Countries by Flag of Carriers (Thousands of passengers)**

| | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL arriving passengers (excludes Canada) | 12,646 | 20,262 | 24,156 | 36,414 | 35,464 | 38,927 | 41,558 | 43,818 | 46,910 | 49,853 | 54,315 | 56,181 | 57,785 | 62,217 | 56,700 | 53,865 | 53,952 | 59,582 | 60,699 | 62,951 | 65,411 | 68,221 | 65,245 |
| United States (excludes Canada) | 6,502 | 10,031 | 11,798 | 19,145 | 18,910 | 20,537 | 21,940 | 23,291 | 24,582 | 25,148 | 26,744 | 27,390 | 27,462 | 29,837 | 27,985 | 26,953 | 26,557 | 29,992 | 31,657 | (R) 33,364 | (R) 35,278 | (R) 37,233 | 35,773 |
| Foreign (excludes Canada) | 6,144 | 10,231 | 12,357 | 17,269 | 16,554 | 18,390 | 19,618 | 20,527 | 22,328 | 24,704 | 27,571 | 28,791 | 30,324 | 32,380 | 28,715 | 26,912 | 27,395 | 29,591 | 29,042 | (R) 29,587 | (R) 30,132 | (R) 30,988 | 29,471 |
| Selected countries of embarkation[a] | | | | | | | | | | | | | | | | | | | | | | | |
| Australia | 106 | 227 | 277 | 495 | 561 | 598 | 591 | 551 | 581 | 622 | 618 | 613 | 670 | 812 | 739 | 724 | 674 | 758 | 789 | 808 | 625 | 504 | 753 |
| Bahamas Islands | 758 | 1,123 | 1,503 | 1,679 | 1,436 | 1,341 | 1,370 | 1,424 | 1,433 | 1,487 | 1,530 | 1,396 | 1,337 | 1,471 | 1,458 | 1,430 | 1,491 | 1,500 | 1,554 | 1,509 | 1,459 | 1,363 | 1,266 |
| Barbados | 76 | 135 | 216 | 228 | 197 | 191 | 208 | 196 | 222 | 212 | 203 | 195 | 197 | 208 | 191 | 206 | 218 | 229 | 205 | 230 | 213 | 208 | 202 |
| Belgium | 144 | 242 | 281 | 417 | 366 | 357 | 408 | 377 | 379 | 407 | 589 | 715 | 730 | 778 | 598 | 330 | 305 | 375 | 382 | 364 | 418 | 615 | 605 |
| Bermuda | 398 | 497 | 434 | 487 | 430 | 405 | 436 | 447 | 426 | 363 | 425 | 407 | 384 | 374 | 334 | 312 | 310 | 311 | 323 | 358 | 374 | 325 | 315 |
| Brazil | 212 | 300 | 352 | 584 | 635 | 645 | 711 | 878 | 1,112 | 1,176 | 1,388 | 1,377 | 1,154 | 1,280 | 1,094 | 977 | 949 | 1,010 | 1,087 | 1,154 | 1,219 | 1,318 | 1,413 |
| Canada[b] | U | U | U | 6,870 | 6,263 | 6,546 | 6,843 | 6,812 | 7,417 | 8,501 | 8,895 | 9,613 | 9,676 | 10,236 | 9,166 | 8,686 | 8,380 | 9,189 | 9,785 | U | U | U | U |
| China/Taiwan | 50 | 113 | 206 | 325 | 404 | 447 | 606 | 830 | 972 | 1,017 | 1,068 | 1,080 | 1,170 | 1,186 | 1,092 | 1,024 | 846 | 986 | 1,085 | 1,141 | 1,169 | 1,102 | 956 |
| Colombia | 173 | 315 | 279 | 286 | 305 | 343 | 389 | 443 | 481 | 499 | 586 | 606 | 649 | 674 | 683 | 590 | 618 | 658 | 594 | 787 | 815 | 893 | 998 |
| Denmark | 222 | 267 | 241 | 313 | 279 | 295 | 285 | 267 | 221 | 236 | 252 | 225 | 223 | 232 | 240 | 309 | 314 | 314 | 278 | 350 | 345 | 427 | 353 |
| Dominican Republic | 336 | 468 | 606 | 948 | 849 | 951 | 1,027 | 1,070 | 1,136 | 1,168 | 1,168 | 1,251 | 1,368 | 1,498 | 1,430 | 1,409 | 1,593 | 1,745 | 1,805 | 1,961 | 1,893 | 1,927 | 2,044 |
| France | 512 | 689 | 955 | 1,777 | 1,600 | 1,926 | 1,877 | 2,017 | 2,045 | 2,178 | 2,323 | 2,523 | 2,591 | 3,147 | 3,023 | 2,879 | 2,735 | 2,965 | 2,970 | 2,941 | 2,935 | 3,216 | 3,037 |
| Germany | 622 | 1,175 | 1,582 | 2,466 | 2,444 | 2,797 | 2,922 | 2,883 | 3,125 | 3,173 | 3,545 | 3,558 | 3,491 | 3,886 | 3,519 | 3,483 | 3,673 | 3,955 | 4,177 | 4,252 | 4,811 | 5,121 | 4,866 |
| Grand Cayman | 25 | 121 | 173 | 273 | 256 | 229 | 185 | 294 | 314 | 323 | 328 | 370 | 335 | 343 | 317 | 291 | 287 | 284 | 171 | 303 | 314 | 321 | 322 |
| Greece | 121 | 208 | 187 | 132 | 83 | 146 | 165 | 201 | 220 | 235 | 186 | 192 | 191 | 195 | 135 | 108 | 101 | 129 | 129 | 163 | 193 | 218 | 177 |
| Haiti | 91 | 133 | 192 | 233 | 217 | 154 | 200 | 137 | 314 | 303 | 289 | 293 | 327 | 303 | 317 | 338 | 353 | 312 | 247 | 302 | 370 | 382 | 419 |
| Hong Kong | 98 | 228 | 270 | 356 | 397 | 437 | 511 | 558 | 658 | 668 | 589 | 592 | 650 | 731 | 735 | 697 | 519 | 796 | 893 | 1,002 | 969 | 1,018 | 1,043 |
| Ireland | 220 | 220 | 274 | 448 | 418 | 569 | 582 | 660 | 642 | 721 | 716 | 775 | 950 | 1,064 | 992 | 848 | 1,025 | 1,105 | 1,243 | 1,319 | 1,378 | 1,361 | 1,212 |
| Israel | 84 | 189 | 294 | 204 | 202 | 231 | 293 | 332 | 412 | 483 | 482 | 502 | 547 | 577 | 400 | 343 | 356 | 449 | 512 | 576 | 542 | 670 | 665 |
| Italy | 431 | 537 | 662 | 792 | 716 | 885 | 903 | 953 | 1,007 | 1,047 | 1,097 | 1,078 | 1,171 | 1,511 | 1,269 | 1,082 | 983 | 1,220 | 1,254 | 1,301 | 1,369 | 1,528 | 1,429 |
| Jamaica | 457 | 429 | 707 | 975 | 907 | 888 | 982 | 1,040 | 1,124 | 1,136 | 1,162 | 1,219 | 1,209 | 1,248 | 1,226 | 1,238 | 1,226 | 1,267 | 1,200 | 1,499 | 1,424 | 1,444 | 1,451 |
| Japan | 1,095 | 1,624 | 2,435 | 4,528 | 4,510 | 4,972 | 4,999 | 5,149 | 5,676 | 6,349 | 6,736 | 6,630 | 6,991 | 6,974 | 5,876 | 5,666 | 5,261 | 6,071 | 6,263 | 5,769 | 5,849 | 5,474 | 4,978 |
| Korea, Republic of | 105 | 234 | 390 | 826 | 827 | 971 | 1,070 | 1,166 | 1,335 | 1,514 | 1,625 | 1,184 | 1,240 | 1,470 | 1,262 | 1,253 | 1,192 | 1,364 | 1,439 | 1,545 | 1,609 | 1,676 | 1,676 |
| Mexico | 1,626 | 2,886 | 2,719 | 4,313 | 4,467 | 4,625 | 4,778 | 5,107 | 4,884 | 5,591 | 6,124 | 6,318 | 6,576 | 6,999 | 6,591 | 6,349 | 6,753 | 7,604 | 8,075 | 8,471 | 8,672 | 8,847 | 7,857 |
| Netherlands | 312 | 427 | 583 | 837 | 892 | 1,039 | 1,297 | 1,427 | 1,580 | 1,774 | 2,074 | 2,213 | 2,318 | 2,401 | 2,132 | 2,104 | 2,055 | 2,213 | 2,252 | 1,944 | 2,304 | 2,497 | 2,194 |
| Netherland Antilles | 213 | 327 | 407 | 388 | 353 | 290 | 360 | 390 | 339 | 305 | 368 | 382 | 371 | 389 | 371 | 371 | 401 | 422 | 397 | 441 | 425 | 476 | 471 |
| Panama Republic | 97 | 150 | 180 | 153 | 175 | 177 | 201 | 221 | 225 | 229 | 227 | 267 | 308 | 359 | 343 | 339 | 370 | 387 | 364 | 468 | 502 | 653 | 693 |
| Philippines | 108 | 194 | 145 | 246 | 261 | 315 | 318 | 375 | 397 | 379 | 410 | 275 | 331 | 405 | 400 | 365 | 339 | 414 | 383 | 496 | 422 | 447 | 416 |
| Spain | 306 | 312 | 419 | 558 | 520 | 659 | 600 | 578 | 604 | 618 | 675 | 732 | 734 | 827 | 758 | 769 | 809 | 872 | 772 | 855 | 905 | 1,103 | 1,162 |
| Switzerland | 236 | 312 | 452 | 616 | 525 | 549 | 603 | 676 | 733 | 790 | 910 | 1,068 | 1,026 | 1,069 | 913 | 701 | 699 | 707 | 711 | 712 | 761 | 857 | 872 |
| United Kingdom | 1,549 | 2,973 | 3,460 | 5,166 | 4,793 | 5,651 | 6,006 | 6,087 | 6,648 | 7,131 | 7,935 | 8,640 | 8,780 | 9,382 | 8,435 | 8,217 | 8,281 | 8,801 | 8,654 | 8,432 | 8,598 | 8,810 | 8,018 |
| Venezuela | 205 | 533 | 248 | 458 | 510 | 576 | 653 | 702 | 786 | 659 | 709 | 810 | 794 | 718 | 730 | 556 | 400 | 527 | 449 | 535 | 561 | 553 | 559 |

**KEY:** R = revised; U = data are unavailable

[a] Country where passenger boarded a direct flight to the *United States*.

[b] Canadian figures come from a separate source and represents the number of revenue passengers on scheduled commercial and charter flights. It does not includ foreign (non-Canadian, non-U.S.) scheduled carriers.

**NOTES**

Data includes passengers on international commercial flights arriving at U.S. airports an only from foreign ports to U.S. ports and, Puerto Rico, Guam, or the Virgin Islands, and other U.S. territories.

Data compiled from flight reports required by the U.S. Department of Homeland Security, except for *Canada*.

Numbers may not add to totals due to independent rounding

**SOURCES**

**Totals and all selected countries, except for Canada:**

1975-94: U.S. Department of Transportation, Research and Special Programs Administration, Volpe National Transportation Systems Center *U.S. International Air Travel Statistics* (Cambridge, MA: Annual issues), table IIa.

1995: U.S. Department of Commerce, International Trade Administration, *U.S. International Air Passenger Statistics Report, Calendar Year 1995* (Washington, DC: 1996), table IIa.

1996-2005: Ibid., *U.S. International Air Travel Statistics Report* (Washington, DC: Annual issues), I-92table IIa and personal communication, Feb. 13, 2007.

2006-09: U.S. Department of Commerce, Office of Travel and Tourism Industries, personal communication, June 14, 2010

**Canada:**

1975-2005: Statistics Canada, *Air Carrier Traffic at Canadian Airports* (Canada: Annual issues), and personal communication, Feb. 21, 2007

2006-09: U.S. Department of Commerce, Office of Travel and Tourism Industries, personal communication, June 14, 2010

**Table 1-46: Air Passenger Travel Departures from the United States to Selected Foreign Countries by Flag of Carriers (Thousands of passengers)**

| | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL departing passengers (excludes Canada) | 12,053 | 19,256 | 22,487 | 34,046 | 33,286 | 36,211 | 38,254 | 40,349 | 43,026 | 45,785 | 49,684 | 50,863 | 53,856 | 57,498 | 52,594 | 48,606 | 49,968 | 55,931 | 58,545 | 59,477 | 62,815 | 64,467 | 62,299 |
| United States (excludes Canada) | 5,912 | 9,369 | 10,696 | 17,628 | 17,530 | 18,858 | 20,232 | 21,355 | 22,231 | 22,901 | 24,302 | 24,513 | 25,457 | 27,431 | 25,483 | 23,610 | 24,070 | 27,249 | 29,668 | (R) 31,492 | 34,066 | 34,894 | 32,791 |
| Foreign (excludes Canada) | 6,141 | 9,886 | 11,791 | 16,418 | 15,756 | 17,353 | 18,022 | 18,993 | 20,795 | 22,884 | 25,382 | 26,350 | 28,399 | 30,068 | 27,111 | 24,996 | 25,897 | 28,683 | 28,877 | (R) 27,985 | 28,748 | 29,573 | 29,508 |
| Selected countries of debarkation[a] | | | | | | | | | | | | | | | | | | | | | | | |
| Australia | 103 | 245 | 232 | 540 | 581 | 609 | 588 | 522 | 560 | 614 | 606 | 607 | 686 | 806 | 713 | 686 | 672 | 766 | 828 | 879 | 907 | 853 | 1,005 |
| Bahamas Islands | 704 | 1,006 | 1,151 | 1,279 | 1,128 | 1,005 | 1,046 | 963 | 1,024 | 994 | 983 | 955 | 1,027 | 1,137 | 1,007 | 935 | 1,101 | 1,151 | 1,230 | 1,252 | 1,165 | 1,111 | 966 |
| Barbados | 74 | 126 | 204 | 230 | 199 | 185 | 207 | 208 | 217 | 210 | 200 | 196 | 202 | 214 | 204 | 189 | 206 | 222 | 237 | 246 | 226 | 213 | 204 |
| Belgium | 134 | 231 | 249 | 395 | 318 | 355 | 372 | 334 | 340 | 380 | 513 | 622 | 713 | 740 | 586 | 265 | 269 | 346 | 369 | 351 | 406 | 514 | 490 |
| Bermuda | 372 | 467 | 389 | 277 | 237 | 217 | 247 | 242 | 199 | 196 | 215 | 207 | 206 | 189 | 150 | 165 | 216 | 251 | 261 | 289 | 301 | 296 | 284 |
| Brazil | 206 | 291 | 322 | 560 | 592 | 659 | 696 | 826 | 1,024 | 1,135 | 1,292 | 1,297 | 1,134 | 1,194 | 1,081 | 936 | 928 | 989 | 1,094 | 1,147 | 1,221 | 1,334 | 1,455 |
| Canada[b] | N | N | N | 6,870 | 6,263 | 6,546 | 6,798 | 6,764 | 7,405 | 8,477 | 8,890 | 9,647 | 9,692 | 10,246 | 9,161 | 8,672 | 8,406 | 9,222 | 9,807 | U | U | U | 11,613 |
| China/Taiwan | 41 | 90 | 187 | 337 | 447 | 481 | 616 | 803 | 891 | 945 | 939 | 934 | 975 | 1,026 | 944 | 927 | 770 | 917 | 1,008 | 1,048 | 1,117 | 1,064 | 998 |
| Colombia | 171 | 299 | 294 | 277 | 294 | 324 | 353 | 415 | 461 | 467 | 567 | 588 | 585 | 622 | 649 | 587 | 615 | 640 | 696 | 790 | 859 | 941 | 1,015 |
| Denmark | 188 | 254 | 254 | 307 | 239 | 266 | 272 | 254 | 229 | 227 | 259 | 217 | 214 | 227 | 239 | 316 | 334 | 357 | 318 | 359 | 394 | 378 | 333 |
| Dominican Republic | 322 | 443 | 528 | 896 | 780 | 881 | 949 | 980 | 995 | 1,057 | 1,070 | 1,108 | 1,263 | 1,294 | 1,214 | 1,180 | 1,357 | 1,466 | 1,624 | 1,695 | 1,647 | 1,655 | 1,795 |
| France | 470 | 635 | 894 | 1,626 | 1,523 | 1,769 | 1,759 | 1,896 | 1,868 | 2,021 | 2,147 | 2,289 | 2,544 | 3,082 | 2,927 | 2,588 | 2,620 | 2,887 | 3,065 | 3,008 | 3,047 | 3,148 | 2,911 |
| Germany | 649 | 1,178 | 1,539 | 2,339 | 2,298 | 2,627 | 2,788 | 2,785 | 2,883 | 2,978 | 3,178 | 3,210 | 3,364 | 3,722 | 3,389 | 3,108 | 3,364 | 3,747 | 4,014 | 4,134 | 4,611 | 4,720 | 4,531 |
| Grand Cayman | 26 | 112 | 161 | 250 | 238 | 196 | 244 | 259 | 264 | 285 | 290 | 305 | 291 | 289 | 271 | 237 | 271 | 255 | 203 | 275 | 300 | 324 | 301 |
| Greece | 123 | 190 | 210 | 129 | 88 | 150 | 150 | 184 | 194 | 206 | 192 | 181 | 170 | 170 | 126 | 102 | 99 | 124 | 115 | 101 | 139 | 138 | 173 |
| Haiti | 81 | 124 | 169 | 201 | 178 | 139 | 180 | 118 | 292 | 288 | 284 | 295 | 315 | 296 | 300 | 315 | 332 | 286 | 273 | 285 | 338 | 367 | 364 |
| Hong Kong | 59 | 152 | 238 | 310 | 369 | 474 | 477 | 545 | 640 | 651 | 610 | 621 | 621 | 728 | 733 | 657 | 512 | 783 | 894 | 978 | 1,046 | 1,189 | 1,037 |
| Ireland | 163 | 212 | 233 | 311 | 263 | 316 | 324 | 380 | 409 | 449 | 488 | 554 | 743 | 809 | 797 | 631 | 779 | 837 | 908 | 993 | 1,066 | 1,070 | 945 |
| Israel | 105 | 186 | 255 | 259 | 249 | 294 | 317 | 367 | 426 | 492 | 499 | 488 | 515 | 480 | 374 | 338 | 363 | 465 | 484 | 475 | 504 | 560 | 649 |
| Italy | 409 | 495 | 660 | 731 | 694 | 873 | 878 | 918 | 955 | 1,006 | 1,055 | 1,041 | 1,101 | 1,366 | 1,182 | 955 | 962 | 1,172 | 1,246 | 1,310 | 1,360 | 1,290 | 1,295 |
| Jamaica | 416 | 382 | 607 | 888 | 821 | 796 | 887 | 909 | 987 | 988 | 1,018 | 1,018 | 1,086 | 1,095 | 1,084 | 1,067 | 1,126 | 1,164 | 1,193 | 1,335 | 1,292 | 1,311 | 1,274 |
| Japan | 1,183 | 1,602 | 2,255 | 4,471 | 4,431 | 4,795 | 4,757 | 4,954 | 5,452 | 6,187 | 6,796 | 6,487 | 6,709 | 6,985 | 5,993 | 5,665 | 5,072 | 5,819 | 5,949 | 5,708 | 5,810 | 5,384 | 4,992 |
| Korea, Republic of | 60 | 186 | 333 | 723 | 759 | 887 | 961 | 1,082 | 1,252 | 1,382 | 1,461 | 1,032 | 1,101 | 1,307 | 1,137 | 1,114 | 1,110 | 1,269 | 1,349 | 1,386 | 1,445 | 1,495 | 1,636 |
| Mexico | 1,525 | 2,886 | 2,671 | 4,136 | 4,230 | 4,307 | 4,371 | 4,632 | 4,568 | 5,133 | 5,613 | 5,771 | 6,217 | 6,510 | 6,025 | 5,643 | 6,075 | 6,931 | 7,488 | 7,615 | 7,927 | 8,068 | 7,208 |
| Netherlands | 304 | 409 | 562 | 777 | 881 | 965 | 1,150 | 1,319 | 1,444 | 1,636 | 1,920 | 1,933 | 2,009 | 2,107 | 1,854 | 1,722 | 1,674 | 1,827 | 1,931 | 1,877 | 2,195 | 2,353 | 2,144 |
| Netherland Antilles | 184 | 282 | 395 | 377 | 341 | 309 | 347 | 368 | 295 | 288 | 319 | 340 | 335 | 337 | 344 | 330 | 370 | 384 | 398 | 414 | 419 | 443 | 437 |
| Panama Republic | 100 | 142 | 209 | 183 | 189 | 186 | 194 | 211 | 214 | 221 | 240 | 272 | 299 | 344 | 355 | 343 | 386 | 403 | 422 | 463 | 523 | 645 | 716 |
| Philippines | 81 | 160 | 165 | 195 | 194 | 241 | 249 | 228 | 281 | 275 | 306 | 218 | 272 | 348 | 309 | 332 | 309 | 376 | 352 | 341 | 399 | 420 | 376 |
| Spain | 260 | 273 | 397 | 540 | 513 | 637 | 576 | 553 | 573 | 577 | 615 | 669 | 708 | 782 | 732 | 688 | 740 | 887 | 799 | 862 | 994 | 1,127 | 1,203 |
| Switzerland | 224 | 306 | 434 | 600 | 527 | 543 | 593 | 657 | 712 | 760 | 811 | 906 | 983 | 1,038 | 905 | 671 | 690 | 705 | 696 | 699 | 672 | 724 | 785 |
| United Kingdom | 1,446 | 2,840 | 3,322 | 4,903 | 4,594 | 5,245 | 5,682 | 5,918 | 6,372 | 6,693 | 7,475 | 8,143 | 8,717 | 9,154 | 8,180 | 7,659 | 7,962 | 8,709 | 8,497 | 8,156 | 8,394 | 8,561 | 7,954 |
| Venezuela | 198 | 518 | 245 | 444 | 488 | 565 | 641 | 686 | 778 | 644 | 698 | 782 | 793 | 694 | 728 | 533 | 405 | 534 | 567 | 552 | 620 | 642 | 580 |

**KEY:** N = data do not exist; R = revised; U = data are unavailable.

[a] Country where passenger deboarded a direct flight from the United States.

[b] Canadian figures come from a separate source and represents the number of revenue passengers on scheduled commercial and charter flights. It does not include foreign (non-Canadian, non-U.S.) scheduled carriers.

**NOTES**

It includes passengers on international commercial flights departing U.S. airports, and travelers between U.S. airports in the 50 states, Puerto Rico, Guam, or the Virgin Islands, and other U.S. territories. Data compiled from flight reports required by the U.S. Immigration and Naturalization Service, except for Canada data.

Numbers may not add to totals due to independent rounding.

**SOURCES**

**Totals and all selected countries, except for Canada:**

1975-94: U.S. Department of Transportation, Research and Special Programs Administration, Volpe National Transportation Systems Center, *U.S. International Air Travel Statistics* (Cambridge, MA: Annual issues), table IId.

1995: U.S. Department of Commerce, International Trade Administration, *U.S. International Air Passenger Statistics Report, Calendar Year 1995* (Washington, DC: 1996), table IId.

1996-2006: Ibid., *U.S. International Air Travel Statistics Report* (Washington, DC: Annual issues), table IId, and personal communication, Jan. 10, 2008.

2007-09: U.S. Department of Commerce, Office of Travel and Tourism Industries, personal communication, June 14, 2010.

**Canada:**

1974-2005: Statistics Canada, *Air Carrier Traffic at Canadian Airports* (Canada: Annual issues) and personal communication, Feb. 21, 2007.

2006-09: U.S. Department of Commerce, Office of Travel and Tourism Industries, personal communication, June 14, 2010.

# Section D
# Travel and Goods Movement

**Table 1-47: U.S.-Canadian Border Land-Passenger Gateways: Entering the United States**

| All U.S.-Canadian land gateways | 2002 | | 2003 | | 2004 | | 2005 | | 2006 | | 2007 | | 2008 | | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| All personal vehicle passengers | (R) 68,986,616 | All personal vehicle passengers | (R) 62,136,536 | All personal vehicle passengers | (R) 63,269,668 | All personal vehicle passengers | 62,501,376 | All personal vehicle passengers | 62,986,037 | All personal vehicle passengers | 58,247,817 | All personal vehicle passengers | 57,401,224 | All personal vehicle passengers | 53,508,568 |
| All personal vehicles | 32,538,817 | All personal vehicles | 30,220,184 | All personal vehicles | 30,660,487 | All personal vehicles | 30,351,683 | All personal vehicles | (R) 30,038,524 | All personal vehicles | (R) 29,766,447 | All personal vehicles | 28,677,703 | All personal vehicles | 26,919,239 |
| All bus passengers | 4,212,863 | All bus passengers | 3,779,970 | All bus passengers | 3,890,380 | All bus passengers | 3,854,858 | All bus passengers | 3,499,103 | All bus passengers | 3,684,631 | All bus passengers | (R) 3,404,305 | All bus passengers | 2,503,417 |
| All pedestrians | 1,081,682 | All pedestrians | 937,493 | All pedestrians | 826,017 | All pedestrians | 605,339 | All pedestrians | 533,739 | All pedestrians | 441,066 | All pedestrians | 499,666 | All pedestrians | 379,902 |
| All train passengers | 255,134 | All train passengers | 234,796 | All train passengers | 223,477 | All train passengers | 235,758 | All train passengers | 244,683 | All train passengers | 233,070 | All train passengers | 238,593 | All train passengers | 217,833 |
| All buses | 160,961 | All buses | 156,589 | All buses | 155,702 | All buses | 153,454 | All buses | (R) 129,452 | All buses | (R) 136,430 | All buses | 127,233 | All buses | 116,355 |
| Personal vehicle passengers – top 5 gateways | | | | | | | | | | | | | | | |
| Buffalo-Niagara Falls, NY | 17,031,458 | Buffalo-Niagara Falls, NY | 13,216,214 | Buffalo-Niagara Falls, NY | 13,195,191 | Buffalo-Niagara Falls, NY | 13,224,477 | Buffalo-Niagara Falls, NY | 13,514,778 | Buffalo-Niagara Falls, NY | 14,372,038 | Buffalo-Niagara Falls, NY | 13,102,189 | Buffalo-Niagara Falls, NY | 11,817,527 |
| Detroit, MI | 12,318,806 | Detroit, MI | 10,965,872 | Detroit, MI | 10,574,206 | Detroit, MI | 10,655,076 | Detroit, MI | 9,932,051 | Detroit, MI | 9,560,365 | Detroit, MI | 8,386,427 | Detroit, MI | 7,270,765 |
| Blaine, WA | 4,794,088 | Blaine, WA | 4,491,959 | Blaine, WA | 4,936,364 | Blaine, WA | 4,868,308 | Blaine, WA | 5,276,202 | Blaine, WA | 5,187,218 | Blaine, WA | 5,754,718 | Blaine, WA | 5,966,409 |
| Port Huron, MI | 4,188,972 | Port Huron, MI | 3,821,908 | Port Huron, MI | 3,909,238 | Port Huron, MI | 4,001,589 | Port Huron, MI | 4,106,919 | Port Huron, MI | 3,523,429 | Port Huron, MI | 3,500,157 | Port Huron, MI | 3,319,652 |
| Champlain-Rouses Point, NY | 3,766,141 | Champlain-Rouses Point, NY | 3,521,091 | Champlain-Rouses Point, NY | (R) 3,538,682 | Champlain-Rouses Point, NY | 2,921,118 | Champlain-Rouses Point, NY | 2,920,749 | Champlain-Rouses Point, NY | 1,923,295 | Champlain-Rouses Point, NY | 1,946,442 | Champlain-Rouses Point, NY | 2,198,127 |
| Personal vehicles – top 5 gateways | | | | | | | | | | | | | | | |
| Buffalo-Niagara Falls, NY | 7,569,643 | Buffalo-Niagara Falls, NY | 6,414,415 | Buffalo-Niagara Falls, NY | 6,148,983 | Detroit, MI | 6,035,004 | Buffalo-Niagara Falls, NY | 6,026,058 | Buffalo-Niagara Falls, NY | 5,977,040 | Buffalo-Niagara Falls, NY | 5,716,260 | Buffalo-Niagara Falls, NY | 5,291,623 |
| Detroit, MI | 6,857,332 | Detroit, MI | 6,315,590 | Detroit, MI | 6,131,426 | Buffalo-Niagara Falls, NY | 6,034,398 | Detroit, MI | 5,634,179 | Detroit, MI | 5,471,657 | Detroit, MI | 4,744,182 | Detroit, MI | 4,082,030 |
| Blaine, WA | 2,385,389 | Blaine, WA | 2,299,636 | Blaine, WA | 2,524,256 | Blaine, WA | 2,482,065 | Blaine, WA | 2,596,970 | Blaine, WA | 2,763,389 | Blaine, WA | 2,748,629 | Blaine, WA | 2,842,631 |
| Port Huron, MI | 2,187,210 | Port Huron, MI | 1,965,011 | Port Huron, MI | 1,995,988 | Port Huron, MI | 1,953,413 | Port Huron, MI | 1,975,745 | Port Huron, MI | 1,704,479 | Port Huron, MI | 1,667,254 | Port Huron, MI | 1,570,273 |
| Massena, NY | 1,162,510 | Massena, NY | 1,133,727 | Calais, ME | 1,200,379 | Calais, ME | 1,174,011 | Calais, ME | 1,173,617 | Calais, ME | 1,032,840 | Massena, NY | 1,002,960 | Champlain-Rouses Point, NY | 1,040,154 |
| Bus passengers – top 5 gateways | | | | | | | | | | | | | | | |
| Buffalo-Niagara Falls, NY | 1,556,924 | Buffalo-Niagara Falls, NY | 1,321,778 | Buffalo-Niagara Falls, NY | 1,222,775 | Buffalo-Niagara Falls, NY | 1,367,283 | Detroit, MI | 911,799 | Buffalo-Niagara Falls, NY | 1,142,765 | Buffalo-Niagara Falls, NY | 1,040,700 | Buffalo-Niagara Falls, NY | 883,448 |
| Detroit, MI | 915,551 | Detroit, MI | 904,425 | Detroit, MI | 930,725 | Detroit, MI | 931,100 | Buffalo, Niagara Falls, NY | 885,061 | Detroit, MI | 870,982 | Detroit, MI | 720,014 | Blaine, WA | 323,333 |
| Blaine, WA | 336,696 | Blaine, WA | 283,863 | Blaine, WA | 329,297 | Champlain-Rouses Point, NY | 296,390 | Blaine, WA | 452,521 | Blaine, WA | 337,322 | Blaine, WA | 335,951 | Detroit, MI | 297,787 |
| Champlain-Rouses Point, NY | 282,859 | Champlain-Rouses Point, NY | 234,620 | Champlain-Rouses Point, NY | 277,018 | Blaine, WA | 294,564 | Champlain-Rouses Point, NY | 294,028 | Champlain-Rouses Point, NY | 306,898 | Champlain-Rouses Point, NY | (R) 306,006 | Champlain-Rouses Point, NY | 282,949 |
| Port Huron, MI | 147,309 | Sault Ste. Marie, MI | 192,760 | Sault Ste. Marie, MI | 223,800 | Skagway, AK | 134,204 | Skagway, AK | 144,819 | Sault Ste. Marie, MI | 165,136 | Sault Ste. Marie, MI | 208,288 | Skagway, AK | 161,255 |
| Pedestrians – top 5 gateways | | | | | | | | | | | | | | | |
| Buffalo-Niagara Falls, NY | 818,913 | Buffalo-Niagara Falls, NY | 656,022 | Buffalo-Niagara Falls, NY | 547,126 | Buffalo-Niagara Falls, NY | 370,295 | Buffalo-Niagara Falls, NY | 345,652 | Buffalo-Niagara Falls, NY | 277,000 | Buffalo-Niagara Falls, NY | 333,565 | Buffalo-Niagara Falls, NY | 244,697 |
| Sumas, WA | 64,432 | Sumas, WA | 59,330 | Sumas, WA | 54,911 | Calais, ME | 44,238 | Sumas, WA | 28,963 | Sumas, WA | 33,341 | Sumas, WA | 37,699 | Sumas, WA | 27,022 |
| Portland, ME[a] | 39,293 | Calais, ME | 45,899 | Calais, ME | 44,762 | Sumas, WA | 33,769 | Calais, ME | 22,323 | Calais, ME | 29,123 | Calais, ME | 27,420 | Calais, ME | 16,665 |
| Calais, ME | 35,154 | Portland, ME[a] | 38,129 | International Falls, MN | 28,180 | International Falls, MN | 24,497 | International Falls, MN | 20,440 | Point Roberts, WA | 14,762 | International Falls, MN | 15,113 | Detroit, MI | 16,529 |
| International Falls, MN | 24,175 | International Falls, MN | 27,623 | Portland, ME[a] | 21,599 | Point Roberts, WA | 22,440 | Point Roberts, WA | 14,935 | International Falls, MN | 14,238 | Anacortes, WA | 15,091 | International Falls, MN | 15,247 |
| Train passengers – top 5 gateways | | | | | | | | | | | | | | | |
| Blaine, WA | 60,521 | Skagway, AK | 44,430 | Skagway, AK | 52,353 | Skagway, AK | 67,462 | Skagway, AK | 74,347 | Skagway, AK | 80,816 | Skagway, AK | 77,137 | Skagway, AK | 64,751 |
| Buffalo-Niagara Falls, NY | 47,315 | Blaine, WA | 43,515 | Blaine, WA | 41,705 | Buffalo-Niagara Falls, NY | 35,951 | Buffalo-Niagara Falls, NY | 37,880 | Buffalo-Niagara Falls, NY | 39,640 | Buffalo-Niagara Falls, NY | 37,449 | Blaine, WA | 44,718 |
| Champlain-Rouses Point, NY | 33,738 | Buffalo-Niagara Falls, NY | 37,240 | Buffalo-Niagara Falls, NY | 31,045 | Blaine, WA | 35,454 | Champlain-Rouses Point, NY | 33,518 | Blaine, WA | 32,106 | Blaine, WA | 34,749 | Champlain-Rouses Point, NY | 36,356 |
| Skagway, AK | 29,754 | Champlain-Rouses Point, NY | 28,325 | Champlain-Rouses Point, NY | 30,294 | Champlain-Rouses Point, NY | 29,831 | Blaine, WA | 32,184 | Champlain-Rouses Point, NY | 20,881 | Champlain-Rouses Point, NY | 32,274 | Buffalo-Niagara Falls, NY | 28,477 |
| Port Huron, MI | 26,815 | Port Huron, MI | 25,485 | Port Huron, MI | 18,297 | Port Huron, MI | 19,032 | Port Huron, MI | 16,070 | Detroit, MI | 9,323 | Detroit, MI | 9,385 | International Falls, MN | 6,572 |
| Buses – top 5 gateways | | | | | | | | | | | | | | | |
| Buffalo-Niagara Falls, NY | 50,582 | Buffalo-Niagara Falls, NY | 43,358 | Buffalo-Niagara Falls, NY | 39,920 | Buffalo-Niagara Falls, NY | 45,289 | Detroit, MI | 36,457 | Buffalo-Niagara Falls, NY | 37,529 | Buffalo-Niagara Falls, NY | 34,067 | Detroit, MI | 29,777 |
| Detroit, MI | 36,603 | Detroit, MI | 36,177 | Detroit, MI | 37,229 | Detroit, MI | 37,244 | Buffalo-Niagara Falls, NY | 30,295 | Detroit, MI | 33,615 | Detroit, MI | 31,160 | Buffalo-Niagara Falls, NY | 28,534 |
| Blaine, WA | 15,748 | Sault Ste. Marie, MI | 15,760 | Sault Ste. Marie, MI | 17,453 | Blaine, WA | 12,720 | Blaine, WA | 12,776 | Blaine, WA | 14,405 | Blaine, WA | 14,145 | Blaine, WA | 15,159 |
| Champlain-Rouses Point, NY | 10,415 | Blaine, WA | 12,865 | Blaine, WA | 14,279 | Skagway, AK | 10,257 | Skagway, AK | 10,405 | Skagway, AK | 11,309 | Skagway, AK | 11,337 | Skagway, AK | 10,571 |
| Sault Ste. Marie, MI | 8,831 | Champlain-Rouses Point, NY | 11,290 | Skagway, AK | 9,515 | Sault Ste. Marie, MI | 10,243 | Champlain-Rouses Point, NY | 8,317 | Champlain-Rouses Point, NY | 8,124 | Champlain-Rouses Point, NY | 8,418 | Champlain-Rouses Point, NY | 8,565 |

**KEY:** R = revised.

[a] Gateway is a pedestrian/ferry combination crossing.

**NOTE**

Data reflect all personal vehicles, buses, passengers and pedestrians entering the United States across the U.S.-Canadian border, regardless of nationality.

**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 12, 2010.

**Table 1-48: U.S.-Mexican Border Land-Passenger Gateways: Entering the United States**

| 2002 | | 2003 | | 2004 | | 2005 | | 2006 | | 2007 | | 2008 | | 2009 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| All U.S.-Mexican land gateways | | | | | | | | | | | | | | | |
| All personal vehicle passengers | 199,020,692 | All personal vehicle passengers | 193,697,482 | All personal vehicle passengers | 190,936,607 | All personal vehicle passengers | 186,067,448 | All personal vehicle passengers | 179,255,014 | All personal vehicle passengers | 164,534,262 | All personal vehicle passengers | 157,981,839 | All personal vehicle passengers | 141,016,993 |
| All personal vehicles | 89,849,415 | All personal vehicles | 88,068,391 | All personal vehicles | 91,133,889 | All personal vehicles | 91,556,319 | All personal vehicles | 88,295,570 | All personal vehicles | 81,788,235 | All personal vehicles | 78,856,542 | All personal vehicles | 70,304,756 |
| All pedestrians | 50,278,281 | All pedestrians | 48,663,773 | All pedestrians | 48,084,235 | All pedestrians | 45,829,612 | All pedestrians | 46,251,414 | All pedestrians | 49,538,963 | All pedestrians | 44,841,640 | All pedestrians | 41,314,685 |
| All bus passengers | 3,926,154 | All bus passengers | 3,746,885 | All bus passengers | 3,388,517 | All bus passengers | 3,169,779 | All bus passengers | 3,187,282 | All bus passengers | 3,389,055 | All bus passengers | 3,455,630 | All bus passengers | 2,429,190 |
| All buses | 309,360 | All buses | 319,087 | All buses | 269,027 | All buses | 256,396 | All buses | 262,862 | All buses | 265,162 | All buses | 266,414 | All buses | 228,454 |
| All train passengers | 15,108 | All train passengers | 12,101 | All train passengers | 12,664 | All train passengers | 17,833 | All train passengers | 21,504 | All train passengers | 20,482 | All train passengers | 22,016 | All train passengers | 4,187 |
| Personal vehicle passengers — top 5 gateways | | | | | | | | | | | | | | | |
| San Ysidro, CA | 36,171,884 | San Ysidro, CA | 39,180,519 | San Ysidro, CA | 33,382,991 | San Ysidro, CA | 32,265,477 | San Ysidro, CA | 31,868,563 | San Ysidro, CA | 28,390,175 | San Ysidro, CA | 25,319,449 | San Ysidro, CA | 23,934,882 |
| El Paso, TX | 26,363,164 | El Paso, TX | 26,317,018 | El Paso, TX | 28,108,167 | El Paso, TX | 29,180,824 | El Paso, TX | 27,999,510 | El Paso, TX | 23,674,992 | El Paso, TX | 21,806,353 | El Paso, TX | 18,377,270 |
| Hidalgo, TX | 17,613,527 | Brownsville, TX | 15,673,205 | Hidalgo, TX | 15,514,648 | Brownsville, TX | 14,614,745 | Laredo, TX | 14,244,080 | Laredo, TX | 13,367,960 | Laredo, TX | 15,397,879 | Laredo, TX | 12,729,210 |
| Laredo, TX | 15,915,545 | Hidalgo, TX | 15,587,611 | Brownsville, TX | 15,374,317 | Laredo, TX | 14,017,324 | Brownsville, TX | 14,023,353 | Hidalgo, TX | 13,304,851 | Hidalgo, TX | 13,467,615 | Hidalgo, TX | 12,073,543 |
| Brownsville, TX | 15,820,595 | Laredo, TX | 15,208,606 | Laredo, TX | 15,032,956 | Hidalgo, TX | 13,989,453 | Hidalgo, TX | 12,632,201 | Brownsville, TX | 13,062,876 | Brownsville, TX | 13,274,693 | Brownsville, TX | 11,156,688 |
| Personal vehicles — top 5 gateways | | | | | | | | | | | | | | | |
| San Ysidro, CA | 16,441,766 | San Ysidro, CA | 17,408,481 | San Ysidro, CA | 17,621,030 | San Ysidro, CA | 17,208,106 | San Ysidro, CA | 17,135,163 | San Ysidro, CA | 15,696,262 | El Paso, TX | 13,716,434 | San Ysidro, CA | 13,354,887 |
| El Paso, TX | 13,095,153 | El Paso, TX | 13,699,206 | El Paso, TX | 14,817,206 | El Paso, TX | 15,971,739 | El Paso, TX | 15,602,602 | El Paso, TX | 14,062,053 | San Ysidro, CA | 13,672,329 | El Paso, TX | 10,529,485 |
| Hidalgo, TX | 8,136,100 | Brownsville, TX | 7,219,865 | Brownsville, TX | 7,211,401 | Brownsville, TX | 7,103,553 | Brownsville, TX | 6,967,503 | Hidalgo, TX | 6,835,305 | Hidalgo, TX | 6,982,770 | Hidalgo, TX | 6,177,838 |
| Brownsville, TX | 7,896,809 | Hidalgo, TX | 7,169,629 | Hidalgo, TX | 7,183,674 | Hidalgo, TX | 6,969,846 | Hidalgo, TX | 6,480,467 | Brownsville, TX | 6,476,671 | Brownsville, TX | 6,567,121 | Brownsville, TX | 5,512,863 |
| Laredo, TX | 6,921,709 | Laredo, TX | 6,777,423 | Laredo, TX | 6,725,119 | Otay Mesa, CA | 6,672,994 | Calexico, CA | 6,110,214 | Calexico, CA | 5,747,309 | Laredo, TX | 6,105,126 | Laredo, TX | 5,452,111 |
| Pedestrians — top 5 gateways | | | | | | | | | | | | | | | |
| El Paso, TX | 9,301,395 | El Paso, TX | 8,899,168 | San Ysidro, CA | 9,457,600 | San Ysidro, CA | 8,156,350 | San Ysidro, CA | 7,811,614 | El Paso, TX | 8,454,434 | El Paso, TX | 8,029,106 | El Paso, TX | 7,637,649 |
| San Ysidro, CA | 7,903,483 | San Ysidro, CA | 8,302,110 | El Paso, TX | 8,441,671 | El Paso, TX | 7,613,546 | Nogales, AZ | 7,726,045 | San Ysidro, CA | 7,756,569 | San Ysidro, CA | 7,289,862 | San Ysidro, CA | 6,188,126 |
| Calexico, CA | 6,894,820 | Calexico, CA | 6,230,123 | Nogales, AZ | 6,131,407 | Nogales, AZ | 6,930,198 | El Paso, TX | 7,500,141 | Nogales, AZ | 7,722,877 | Nogales, AZ | 6,568,207 | Laredo, TX | 4,090,191 |
| Nogales, AZ | 5,911,866 | Nogales, AZ | 5,583,533 | Calexico, CA | 4,847,096 | Calexico, CA | 4,481,014 | Laredo, TX | 4,245,842 | Calexico, CA | 5,290,977 | Calexico, CA | 4,359,901 | Nogales, AZ | 4,038,356 |
| Laredo, TX | 4,648,046 | Laredo, TX | 4,577,725 | Laredo, TX | 4,507,105 | Laredo, TX | 4,356,041 | Calexico, CA | 4,048,629 | Laredo, TX | 4,625,416 | Laredo, TX | 3,873,872 | Calexico, CA | 3,904,913 |
| Bus passengers — top 5 gateways | | | | | | | | | | | | | | | |
| San Ysidro, CA | 1,199,630 | San Ysidro, CA | 1,244,973 | San Ysidro, CA | 1,032,343 | San Ysidro, CA | 995,337 | San Ysidro, CA | 1,060,444 | Laredo, TX | 899,461 | Laredo, TX | 928,793 | Laredo, TX | 845,629 |
| Laredo, TX | 757,459 | Laredo, TX | 748,644 | Laredo, TX | 802,635 | Laredo, TX | 826,679 | Laredo, TX | 878,164 | San Ysidro, CA | 875,450 | El Paso, TX | 748,259 | San Ysidro, CA | 453,130 |
| Hidalgo, TX | 632,923 | Hidalgo, TX | 655,430 | Hidalgo, TX | 650,100 | Hidalgo, TX | 369,443 | Otay Mesa, CA | 312,862 | El Paso, TX | 442,191 | San Ysidro, CA | 700,787 | El Paso, TX | 311,749 |
| Otay Mesa, CA | 546,493 | El Paso, TX | 392,718 | El Paso, TX | 265,096 | El Paso, TX | 276,381 | El Paso, TX | 239,749 | Hidalgo, TX | 310,225 | Hidalgo, TX | 333,840 | Hidalgo, TX | 300,778 |
| El Paso, TX | 351,335 | Otay Mesa, CA | 303,756 | Otay Mesa, CA | 251,461 | Otay Mesa, CA | 251,614 | Nogales, AZ | 217,093 | Otay Mesa, CA | 296,637 | Otay Mesa, CA | 240,026 | Nogales, AZ | 166,567 |
| Buses — top 5 gateways | | | | | | | | | | | | | | | |
| San Ysidro, CA | 97,042 | San Ysidro, CA | 110,820 | San Ysidro, CA | 109,946 | San Ysidro, CA | 105,930 | San Ysidro, CA | 100,632 | San Ysidro, CA | 97,726 | San Ysidro, CA | 87,787 | San Ysidro, CA | 72,450 |
| Otay Mesa, CA | 65,474 | Otay Mesa, CA | 72,749 | Otay Mesa, CA | 41,032 | Otay Mesa, CA | 39,203 | Otay Mesa, CA | 44,793 | Otay Mesa, CA | 47,258 | Otay Mesa, CA | 47,758 | Laredo, TX | 43,342 |
| Laredo, TX | 38,852 | Laredo, TX | 35,406 | Laredo, TX | 37,902 | Laredo, TX | 35,841 | Laredo, TX | 37,105 | Laredo, TX | 37,106 | Laredo, TX | 39,122 | Otay Mesa, CA | 34,595 |
| El Paso, TX | 32,270 | Hidalgo, TX | 32,805 | Hidalgo, TX | 32,701 | Hidalgo, TX | 27,964 | Hidalgo, TX | 27,344 | Hidalgo, TX | 28,942 | Hidalgo, TX | 33,127 | Hidalgo, TX | 28,407 |
| Hidalgo, TX | 31,952 | El Paso, TX | 30,031 | El Paso, TX | 17,551 | El Paso, TX | 15,993 | El Paso, TX | 14,843 | El Paso, TX | 18,530 | El Paso, TX | 24,716 | El Paso, TX | 19,474 |
| Train passengers — top 5 gateways | | | | | | | | | | | | | | | |
| Eagle Pass, TX | 6,872 | Eagle Pass, TX | 6,496 | Eagle Pass, TX | 6,612 | El Paso, TX | 7,637 | El Paso, TX | 11,165 | El Paso, TX | 10,519 | El Paso, TX | 9,656 | Nogales, AZ | 2,252 |
| Nogales, AZ | 2,216 | El Paso, TX | 1,869 | El Paso, TX | 2,234 | Eagle Pass, TX | 7,248 | Eagle Pass, TX | 5,348 | Eagle Pass, TX | 5,940 | Eagle Pass, TX | 6,616 | Tecate, CA | 881 |
| Calexico East, CA | 1,934 | Nogales, AZ | 1,664 | Nogales, AZ | 1,656 | Calexico East, CA | 1,239 | Nogales, AZ | 2,612 | Nogales, AZ | 2,352 | Nogales, AZ | 2,560 | Calexico East, CA | 562 |
| El Paso, TX | 1,866 | Calexico East, CA | 1,456 | Calexico East, CA | 1,618 | Nogales, AZ | 952 | Calexico East, CA | 1,556 | Calexico East, CA | 694 | Tecate, CA | 2,179 | Otay Mesa/San Ysidro, CA | 492 |
| Tecate, CA | 1,760 | Otay Mesa/San Ysidro, CA | 460 | Otay Mesa/San Ysidro, CA | 510 | Otay Mesa/San Ysidro, CA | 478 | Otay Mesa/San Ysidro, CA | 422 | Otay Mesa/San Ysidro, CA | 490 | Calexico East, CA | 531 | NA | NA |

**KEY:** NA= not applicable.

**NOTES**

Data reflect all personal vehicles, buses, passengers and pedestrians entering the United States across the U.S.-Mexican border, regardless of nationality.

Year 2009 data for *Train passengers* in Texas are not available.

**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 12, 2010.

## Table 1-49: U.S. Ton-Miles of Freight (Millions)

| | 1960 | 1965 | 1970 | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL U.S. ton-miles of freight (millions) | U | 1,854,034 | 2,206,713 | 2,284,706 | 2,988,522 | 2,949,410 | 3,314,677 | 3,348,634 | 3,418,086 | 3,438,542 | 3,614,823 | 3,769,036 | 3,823,723 | 3,805,437 | 3,832,237 | 3,907,225 | 3,907,042 | (R) 3,930,328 | (R) 3,973,661 | 4,027,015 | U | U | U | U | U |
| Air carrier, domestic, all services[a] | 553 | 1,353 | 2,709 | 3,470 | 4,528 | 5,156 | 9,064 | 8,860 | 9,820 | 10,675 | 11,803 | 12,520 | 12,861 | 13,601 | 13,840 | 14,202 | 14,983 | (R) 13,069 | (R) 13,370 | 15,231 | 16,451 | (R) 15,745 | 15,361 | 15,141 | 13,774 |
| Intercity truck[b] | 285,000 | 359,000 | 412,000 | 454,000 | 555,000 | 610,000 | 854,000 | 874,000 | 896,000 | 936,000 | 996,000 | 1,042,000 | 1,071,000 | 1,119,000 | 1,149,000 | 1,186,000 | 1,203,000 | 1,224,000 | 1,255,000 | 1,264,000 | U | U | U | U | U |
| Class I rail | 572,309 | 697,878 | 764,809 | 754,252 | 918,958 | 876,984 | 1,033,969 | 1,038,875 | 1,066,781 | 1,109,309 | 1,200,701 | 1,305,688 | 1,355,975 | 1,348,926 | 1,376,802 | 1,433,461 | 1,465,960 | 1,495,472 | 1,507,011 | 1,551,438 | 1,662,598 | 1,696,425 | 1,771,897 | 1,770,545 | 1,777,236 |
| Domestic water transportation[c,d] | U | 489,803 | 596,195 | 565,984 | 921,836 | 892,970 | 833,544 | 848,399 | 856,685 | 789,658 | 814,919 | 807,728 | 764,687 | 707,410 | 672,795 | 655,862 | 645,799 | 621,686 | 612,081 | 606,146 | 621,170 | 591,277 | 561,629 | 553,151 | 520,521 |
| Coastwise | U | 302,546 | 359,784 | 315,846 | 631,149 | 610,977 | 479,134 | 502,133 | 502,311 | 448,404 | 457,601 | 440,345 | 408,086 | 349,843 | 314,864 | 292,730 | 283,872 | 274,559 | 263,688 | 278,919 | 279,857 | 263,464 | 227,155 | 228,052 | 207,877 |
| Lakewise | U | 75,918 | 79,416 | 68,517 | 61,747 | 48,184 | 60,930 | 55,339 | 55,785 | 56,438 | 58,263 | 59,704 | 58,335 | 62,166 | 61,654 | 57,045 | 57,879 | 50,854 | 53,653 | 47,539 | 55,733 | 51,924 | 53,105 | 51,893 | 50,263 |
| Internal | U | 109,701 | 155,816 | 180,399 | 227,343 | 232,708 | 292,393 | 289,959 | 297,639 | 283,894 | 297,762 | 306,329 | 296,791 | 294,023 | 294,896 | 304,724 | 302,558 | 294,861 | 293,410 | 278,352 | 284,096 | 274,367 | 279,778 | 271,617 | 260,960 |
| Intraport | U | 1,638 | 1,179 | 1,222 | 1,596 | 1,102 | 1,087 | 968 | 950 | 922 | 1,293 | 1,350 | 1,475 | 1,378 | 1,381 | 1,362 | 1,490 | 1,413 | 1,329 | 1,336 | 1,484 | 1,521 | 1,591 | 1,589 | 1,421 |
| Oil pipeline[d] | 229,000 | 306,000 | 431,000 | 507,000 | 588,200 | 564,300 | 584,100 | 578,500 | 588,800 | 592,900 | 591,400 | 601,100 | 619,200 | 616,500 | 619,800 | 617,700 | 577,300 | 576,100 | 586,200 | 590,200 | 599,600 | 607,500 | 581,300 | 557,700 | U |

**KEY:** R = revised; U = data are unavailable

[a] Includes freight, express, and mail revenue ton-miles as reported on U.S. DOT Form 41.

[b] The methodology was changed in 1990 for intercity trucks. Therefore figures prior to 1990 are not comparable to those after 1990.

[c] Excludes intraterritorial traffic, for which ton-miles were not compiled.

[d] The large increase between1975 and 1980 was a result of a new Alaska pipeline and consequent water transportation of crude petroleum from Alaskan ports to the mainland United States for refining.

**NOTE**

Numbers may not add to totals due to rounding.

**SOURCES**

**Air carrier, domestic, all services:**

1960-65: Civil Aeronautics Board,*Handbook of Airline Statistics, 1969*(Washington, DC: 1970).

1970-80: Ibid.,*Air Carrier Traffic Statistics* (Washington, DC: Annual Issues), p. 2, line 3.

1985-2008: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, Office of Airline Information,*Air Carrier Traffic Statistics* (Washington, DC: Annual Issues), p. 3, line 3.

**Intercity truck:**

1960-2003: Eno Transportation Foundation, Inc.*Transportation in America, 2007*(Washington, DC: 2007), p. 40.

**Class I rail:**

Association of American Railroads,*Railroad Facts* (Washington, DC: Annual Issue), p. 27.

**Domestic water transportation:**

U.S. Army Corps of Engineers,*Waterborne Commerce of the U.S.* (New Orleans, LA: Annual Issues), part 5, section 1, table 1-4, and similar tables in earlier editions available at http://www.iwr.usace.army.mil/ndc/wcsc/wcsc.htm as of March 17, 2010.

**Oil pipeline:**

1960-70: Eno Transportation Foundation, Inc.*Transportation in America, 1998*(Washington, DC: 1998), p. 44.

1975: Association of Oil Pipe Lines,*Shifts in Petroleum Transportation*(Washington, DC: Annual Issue), table 4.

1980-2007: Ibid.,*Shifts in Petroleum Transportation*(Washington, DC: Annual Issues), table 1.

**Table 1-50: U.S. Ton-Miles of Freight (BTS Special Tabulation) (Millions)**

| | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL U.S. ton-miles of freight | (R) 3,403,914 | (R) 3,366,875 | (R) 3,195,481 | (R) 3,251,875 | (R) 3,340,129 | (R) 3,313,853 | (R) 3,328,265 | (R) 3,474,497 | (R) 3,597,014 | (R) 3,567,788 | (R) 3,621,806 | (R) 3,635,965 | (R) 3,746,255 | (R) 3,767,227 | (R) 3,944,809 | (R) 4,104,069 | (R) 4,173,925 | (R) 4,179,233 | (R) 4,228,376 | (R) 4,300,142 | (R) 4,328,750 | (R) 4,357,377 | (R) 4,409,000 | (R) 4,414,929 | (R) 4,540,837 | (R) 4,570,316 | (R) 4,630,792 | 4,608,671 |
| Air | 4,840 | 5,090 | 5,140 | 5,870 | 6,500 | 6,710 | 7,340 | 8,670 | 9,330 | 10,210 | 10,420 | 9,960 | 10,990 | 11,540 | 12,030 | 12,720 | 13,760 | 13,900 | 14,140 | 14,500 | 15,810 | 13,288 | 13,837 | (R) 15,231 | 16,451 | (R) 15,745 | (R) 15,361 | 15,142 |
| Truck | (R) 629,574 | (R) 630,798 | (R) 646,589 | (R) 673,913 | (R) 706,782 | (R) 716,693 | (R) 735,095 | (R) 774,798 | (R) 800,729 | (R) 828,375 | (R) 848,643 | (R) 867,799 | (R) 890,088 | (R) 927,831 | (R) 987,764 | (R) 1,033,875 | (R) 1,061,781 | (R) 1,110,376 | (R) 1,139,594 | (R) 1,176,199 | (R) 1,192,633 | (R) 1,213,013 | (R) 1,245,342 | (R) 1,264,570 | (R) 1,281,367 | (R) 1,291,308 | (R) 1,291,244 | 1,317,061 |
| Railroad | 932,000 | 924,000 | 810,000 | 841,000 | 900,091 | 876,209 | 891,235 | 951,940 | 1,025,683 | 1,045,628 | 1,064,408 | 1,041,929 | 1,098,379 | 1,135,016 | 1,221,073 | 1,317,010 | (R) 1,377,095 | 1,391,089 | 1,448,352 | 1,503,665 | 1,546,319 | 1,599,332 | 1,605,532 | 1,603,564 | (R) 1,684,407 | (R) 1,733,329 | (R) 1,855,902 | 1,819,633 |
| Domestic water transportation | 921,835 | 929,413 | 886,469 | 919,566 | 887,719 | 892,971 | 873,401 | 895,415 | 890,029 | 815,550 | 833,544 | 848,399 | 856,683 | 789,657 | 814,917 | 807,728 | 764,687 | 707,410 | 672,795 | 655,861 | 645,799 | 621,687 | 612,080 | 606,146 | 621,170 | 591,276 | 561,629 | 553,143 |
| Coastwise | 631,149 | 634,765 | 632,707 | 649,750 | 593,923 | 610,977 | 580,889 | 586,818 | 561,595 | 483,889 | 479,134 | 502,133 | 502,311 | 448,404 | 457,600 | 440,345 | 408,086 | 349,843 | 314,864 | 292,730 | 283,872 | 274,559 | 263,688 | 278,919 | 279,857 | 263,464 | 227,155 | 228,052 |
| Lakewise | 61,747 | 62,148 | 35,623 | 43,088 | 49,784 | 48,184 | 43,198 | 50,077 | 58,160 | 58,308 | 60,930 | 55,339 | 55,784 | 56,438 | 58,263 | 59,704 | 58,335 | 62,166 | 61,654 | 57,045 | 57,879 | 50,854 | 53,653 | 47,539 | 55,733 | 51,924 | 53,105 | 51,893 |
| Internal | 227,343 | 231,184 | 217,027 | 225,628 | 242,855 | 232,708 | 248,117 | 257,336 | 269,036 | 272,157 | 292,393 | 289,959 | 297,638 | 283,894 | 297,762 | 306,329 | 296,791 | 294,023 | 294,896 | 304,724 | 302,558 | 294,861 | 293,410 | 278,352 | 284,096 | 274,367 | 279,778 | 271,607 |
| Intraport | 1,596 | 1,316 | 1,112 | 1,100 | 1,157 | 1,102 | 1,197 | 1,184 | 1,238 | 1,196 | 1,087 | 968 | 950 | 921 | 1,292 | 1,350 | 1,475 | 1,378 | 1,381 | 1,362 | 1,490 | 1,413 | 1,329 | 1,336 | 1,484 | 1,521 | 1,591 | 1,591 |
| Pipeline | 915,666 | 877,574 | 847,284 | 811,526 | 839,037 | 821,270 | 821,195 | 843,673 | 871,243 | 868,025 | 864,792 | 867,878 | 890,114 | 903,183 | 909,025 | 932,737 | 956,602 | 956,458 | 953,495 | (R) 949,917 | (R) 928,189 | (R) 910,057 | (R) 932,209 | (R) 925,418 | 937,442 | (R) 938,659 | (R) 906,656 | 903,693 |
| Oil and oil products | 588,000 | 564,000 | 566,000 | 556,000 | 568,000 | 564,000 | 578,000 | 587,000 | 601,000 | 584,000 | 584,100 | 578,500 | 588,800 | 592,900 | 591,400 | 601,100 | 619,200 | 616,500 | 619,800 | (R) 617,700 | (R) 577,300 | (R) 576,100 | (R) 586,200 | (R) 590,200 | 599,600 | 607,500 | (R) 581,300 | 557,700 |
| Natural Gas | 327,666 | 313,574 | 281,284 | 255,526 | 271,037 | 257,270 | 243,195 | 256,673 | 270,243 | 284,025 | 280,692 | 289,378 | 301,314 | 310,283 | 317,625 | 331,637 | 337,402 | 339,958 | 333,695 | 332,217 | 350,889 | 333,957 | 346,009 | 335,218 | 337,842 | (R) 331,159 | (R) 325,356 | 345,993 |

**KEY:** R = revised.

**NOTES**

BTS developed a more comprehensive and reliable estimates of ton-miles for the air, truck, rail, water, and pipeline modes than are presented in table 1-49. These improved estimates are not comparable to data in table 1-49.

Numbers may not add to totals due to rounding.

**SOURCE**

U.S. Department of Transportation, Research and Innovative Technology Administration (RITA), Bureau of Transportation Statistics (BTS), special tabulation.

**Table 1-51: Top U.S. Foreign Trade Freight Gateways by Value of Shipments (Current $ billions)**

| Gateway | Type[a] | 2009 | | | | (R) 2008 | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Rank | Exports | Imports | Total | Rank | Exports | Imports | Total |
| Los Angeles, CA | Water | 1 | 28.0 | 167.7 | 195.6 | 1 | 34.7 | 209.1 | 243.8 |
| New York, NY | Water | 2 | 38.3 | 104.5 | 142.8 | 2 | 50.6 | 134.8 | 185.4 |
| John F. Kennedy International Airport, NY | Air | 3 | 65.8 | 61.2 | 127.0 | 3 | 85.5 | 82.4 | 167.9 |
| Houston, TX | Water | 4 | 48.4 | 57.7 | 106.1 | 4 | 68.8 | 78.9 | 147.7 |
| Laredo, TX | Land | 5 | 45.3 | 49.8 | 95.1 | 6 | 53.9 | 61.8 | 115.8 |
| Chicago, IL | Air | 6 | 31.0 | 59.8 | 90.8 | 7 | 35.9 | 61.2 | 97.0 |
| Detroit, MI | Land | 7 | 47.7 | 37.2 | 85.0 | 5 | 66.5 | 53.7 | 120.2 |
| Long Beach, CA | Water | 8 | 24.2 | 44.4 | 68.5 | 8 | 31.6 | 60.0 | 91.6 |
| Los Angeles International Airport, CA | Air | 9 | 30.9 | 32.2 | 63.1 | 11 | 41.3 | 37.0 | 78.3 |
| Buffalo-Niagara Falls, NY | Land | 10 | 33.2 | 27.8 | 61.0 | 10 | 40.3 | 40.5 | 80.8 |
| Port Huron, MI | Land | 11 | 28.4 | 30.1 | 58.5 | 9 | 35.2 | 46.0 | 81.2 |
| Savannah, GA | Water | 12 | 18.9 | 27.7 | 46.6 | 13 | 22.8 | 36.1 | 59.0 |
| New Orleans, LA | Air | 13 | 19.2 | 25.7 | 44.9 | 19 | 19.9 | 25.1 | 45.0 |
| Charleston, SC | Water | 14 | 16.3 | 28.6 | 44.9 | 12 | 22.3 | 40.0 | 62.3 |
| Norfolk, VA | Water | 15 | 18.9 | 24.0 | 43.0 | 14 | 23.9 | 30.0 | 54.0 |
| El Paso, TX | Land | 16 | 17.9 | 24.4 | 42.3 | 17 | 20.2 | 28.0 | 48.2 |
| San Francisco International Airport, CA | Air | 17 | 21.0 | 18.8 | 39.8 | 15 | 26.6 | 26.2 | 52.8 |
| Miami International Airport Cargo Facilities, FL | Air | 18 | 27.5 | 11.7 | 39.1 | 20 | 29.2 | 10.8 | 40.0 |
| Dallas-Fort Worth, TX | Air | 19 | 14.9 | 20.9 | 35.8 | 24 | 16.4 | 23.1 | 39.5 |
| Anchorage, AK | Air | 20 | 8.4 | 26.2 | 34.7 | 21 | 10.2 | 31.2 | 41.4 |
| Oakland, CA | Water | 21 | 12.7 | 21.1 | 33.8 | 25 | 12.4 | 26.3 | 38.7 |
| Seattle, WA | Water | 22 | 7.9 | 25.5 | 33.4 | 21 | 9.9 | 30.0 | 39.9 |
| New Orleans, LA | Water | 23 | 18.5 | 14.4 | 32.9 | 16 | 25.3 | 24.4 | 49.7 |
| Atlanta, GA | Air | 24 | 11.5 | 20.8 | 32.3 | 28 | 12.3 | 19.9 | 32.2 |
| Baltimore, MD | Water | 25 | 10.7 | 19.4 | 30.1 | 18 | 16.1 | 29.2 | 45.3 |
| Otay Mesa, CA | Land | 26 | 9.4 | 19.2 | 28.6 | 29 | 10.6 | 21.2 | 31.8 |
| Cleveland, OH | Air | 27 | 15.7 | 11.2 | 26.8 | 30 | 17.6 | 13.2 | 30.9 |
| Tacoma, WA | Water | 28 | 6.0 | 19.2 | 25.2 | 27 | 8.2 | 27.1 | 35.3 |
| Philadelphia, PA | Water | 29 | 2.8 | 20.5 | 23.3 | 19 | 5.1 | 38.1 | 43.2 |
| San Juan International Airport, PR | Air | 30 | 13.7 | 8.3 | 21.9 | 41 | 12.3 | 8.9 | 21.3 |
| Washington, DC | Air | 31 | 5.8 | 14.5 | 20.4 | 46 | 5.6 | 11.9 | 17.5 |
| Annapolis, MD | Water | 32 | 0.0 | 19.4 | 19.4 | 69 | 7.1 | 2.9 | 9.9 |
| Champlain-Rouses Point, NY | Land | 33 | 11.3 | 7.9 | 19.2 | 33 | 9.4 | 14.2 | 23.6 |
| Hidalgo, TX | Land | 34 | 8.5 | 10.6 | 19.1 | 39 | 9.9 | 12.3 | 22.1 |
| Corpus Christie, TX | Water | 35 | 4.0 | 14.7 | 18.7 | 31 | 5.0 | 24.7 | 29.7 |
| Miami, FL | Water | 36 | 9.1 | 9.5 | 18.5 | 38 | 11.1 | 11.1 | 22.2 |
| Morgan City, LA | Water | 37 | 0.2 | 16.8 | 17.1 | 26 | 0.2 | 38.3 | 38.5 |
| Port Everglades, FL | Water | 38 | 9.5 | 6.8 | 16.3 | 37 | 12.0 | 10.6 | 22.6 |
| Nogales, AZ | Land | 39 | 5.9 | 10.3 | 16.2 | 43 | 6.9 | 12.2 | 19.1 |
| Gramercy, LA | Water | 40 | 9.7 | 6.4 | 16.1 | 32 | 8.8 | 15.4 | 24.2 |
| Pembina, ND | Land | 41 | 8.7 | 6.6 | 15.3 | 42 | 11.2 | 8.6 | 19.9 |
| Blaine, WA | Land | 42 | 9.1 | 5.5 | 14.6 | 45 | 11.0 | 7.4 | 18.4 |
| Chicago, IL | Land | 43 | 0.0 | 14.0 | 14.0 | 36 | 0.0 | 22.7 | 22.7 |
| Jacksonville, FL | Water | 44 | 6.0 | 7.5 | 13.5 | 34 | 11.2 | 11.8 | 23.0 |
| Texas City, TX | Water | 45 | 2.7 | 10.6 | 13.3 | 35 | 3.3 | 19.5 | 22.7 |
| Port Arthur, TX | Water | 46 | 2.3 | 10.8 | 13.1 | 47 | 2.4 | 14.9 | 17.4 |
| Houston Intercontinental Airport, TX | Air | 47 | 7.2 | 5.5 | 12.7 | 56 | 8.3 | 5.3 | 13.5 |
| Eagle Pass, TX | Land | 48 | 4.6 | 7.9 | 12.5 | 59 | 5.0 | 7.8 | 12.8 |
| Newark, NJ | Air | 49 | 4.1 | 8.3 | 12.4 | 55 | 4.5 | 10.1 | 14.6 |
| Beaumont, TX | Water | 50 | 2.5 | 9.7 | 12.2 | 40 | 2.8 | 18.5 | 21.3 |
| Total top 50 gateways[a] | NA | NA | 776.5 | 1,095.4 | 1,871.9 | NA | 998.1 | 1,635.3 | 2,633.4 |

KEY: R = revised.

[a] Data for 2008 is based on the top 50 freight gateways in 2008 and is not a summation of the numbers on the table.

**NOTES**

**All data:** Trade levels reflect the mode of transportation as a shipment enters or exits at a border port. Flows through individual ports are based on reported data collected from U.S. trade documents. Trade does not include low-value shipments. (In general, these are imports valued at less than $1,250 and exports that are valued at less than $2,500).

Numbers may not add to totals due to rounding.

Data for some ports may be significantly different in the previous version of this table due to a revision by the source.

**Air:** Data for all air gateways are reported at the port level and include a low level (generally less than 2%-3% of the total value) of small user-fee airports located in the same region. Air gateways not identified by airport name (e.g., Chicago, IL, and others) include major airport(s) in that geographic area in addition to small regional airports. In addition, due to Bureau of Census confidentiality regulations, data for courier operations are included in the airport totals for JFK International Airport, New Orleans, Los Angeles, Cleveland, Chicago, Miami, and Anchorage.

**SOURCES**

**Air and Water**: U.S. Department of Commerce, U.S. Census Bureau, Foreign Trade Division, *USA Trade Online*, special tabulation, available at http://data.usatradeonline.gov/ as of December 2010.

**Land**: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *TransBorder Freight Data*, special tabulation, available at http://www.bts.gov/programs/international/transborder/ as of March 2011.

**Table 1-52: U.S.-Canadian Border Land-Freight Gateways: Number of Incoming Truck or Rail Container Crossings**

| Truck Container | 2002 | | 2003 | | 2004 | | 2005 | | 2006 | | 2007 | | 2008 | | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total U.S.-Canadian border | 6,820,052 | Total U.S.-Canadian border | 6,606,307 | Total U.S.-Canadian border | 6,775,388 | Total U.S.-Canadian border | 6,775,444 | Total U.S.-Canadian border | 6,669,623 | Total U.S.-Canadian border | 6,365,752 | Total U.S.-Canadian border | 5,782,214 | Total U.S.-Canadian border | 4,954,442 |
| Total top 5 gateways | 4,544,669 | Total top 5 gateways | 4,397,004 | Total top 5 gateways | 4,520,932 | Total top 5 gateways | 4,472,799 | Total top 5 gateways | 4,412,181 | Total top 5 gateways | 4,306,192 | Total top 5 gateways | 3,827,225 | Total top 5 gateways | 3,227,155 |
| Detroit, MI | 1,668,496 | Detroit, MI | 1,588,769 | Detroit, MI | 1,638,062 | Detroit, MI | 1,678,177 | Detroit, MI | 1,715,969 | Detroit, MI | 1,725,426 | Detroit, MI | 1,482,250 | Detroit, MI | 1,153,887 |
| Buffalo-Niagara, NY | 1,208,096 | Buffalo-Niagara, NY | 1,162,950 | Buffalo-Niagara, NY | 1,175,884 | Buffalo-Niagara, NY | 1,142,274 | Buffalo-Niagara, NY | 1,118,120 | Buffalo-Niagara, NY | 1,088,469 | Buffalo-Niagara, NY | 981,329 | Buffalo-Niagara, NY | 845,627 |
| Port Huron, MI | 907,291 | Port Huron, MI | 927,740 | Port Huron, MI | 947,907 | Port Huron, MI | 924,776 | Port Huron, MI | 833,711 | Port Huron, MI | 770,282 | Port Huron, MI | 732,493 | Port Huron, MI | 623,549 |
| Blaine, WA | 409,786 | Champlain-Rouse Pt., NY | 378,783 | Champlain-Rouse Pt., NY | 381,434 | Champlain-Rouse Pt., NY | 374,524 | Champlain-Rouse Pt., NY | 391,541 | Champlain-Rouse Pt., NY | 366,059 | Champlain-Rouse Pt., NY | 356,844 | Blaine, WA | 310,962 |
| Champlain-Rouses Point, NY | 351,000 | Blaine, WA | 338,762 | Blaine, WA | 377,645 | Blaine, WA | 353,048 | Blaine, WA | 352,840 | Blaine, WA | 355,956 | Blaine, WA | 274,309 | Champlain-Rouse Pt., NY | 293,130 |
| Rail Container | 2002 | | 2003 | | 2004 | | 2005 | | 2006 | | 2007 | | 2008 | | 2009 |
| Total U.S.-Canadian border | 1,824,976 | Total U.S.-Canadian border | 1,868,245 | Total U.S.-Canadian border | 1,950,909 | Total U.S.-Canadian border | 1,940,557 | Total U.S.-Canadian border | 1,923,787 | Total U.S.-Canadian border | 1,939,876 | Total U.S.-Canadian border | 1,898,581 | Total U.S.-Canadian border | 1,553,416 |
| Total top 5 gateways | 1,305,446 | Total top 5 gateways | 1,333,244 | Total top 5 gateways | 1,346,724 | Total top 5 gateways | 1,325,479 | Total top 5 gateways | 1,333,105 | Total top 5 gateways | 1,347,207 | Total top 5 gateways | 1,329,412 | Total top 5 gateways | 1,115,410 |
| Port Huron, MI | 424,635 | Port Huron, MI | 458,551 | Port Huron, MI | 474,175 | Port Huron, MI | 457,275 | Port Huron, MI | 445,269 | Port Huron, MI | 466,569 | Port Huron, MI | 426,661 | Port Huron, MI | 369,321 |
| Detroit, MI | 293,300 | Detroit, MI | 254,688 | International Falls, MN | 259,165 | International Falls, MN | 251,118 | International Falls, MN | 282,784 | International Falls, MN | 290,852 | International Falls, MN | 335,442 | International Falls, MN | 295,171 |
| International Falls, MN | 238,515 | International Falls, MN | 252,699 | Detroit, MI | 234,823 | Portal, ND | 231,832 | Portal, ND | 244,988 | Portal, ND | 242,220 | Portal, ND | 235,589 | Portal, ND | 194,884 |
| Portal, ND | 199,637 | Portal, ND | 217,390 | Portal, ND | 224,896 | Detroit, MI | 231,482 | Detroit, MI | 218,963 | Detroit, MI | 213,777 | Detroit, MI | 210,255 | Detroit, MI | 155,283 |
| Buffalo-Niagara, NY | 149,359 | Buffalo-Niagara, NY | 149,916 | Buffalo-Niagara, NY | 153,665 | Buffalo-Niagara, NY | 153,772 | Buffalo-Niagara, NY | 141,101 | Buffalo-Niagara, NY | 133,789 | Buffalo-Niagara, NY | 121,465 | Buffalo-Niagara, NY | 100,751 |

**NOTES**

*Truck Container* data represent the number of *Truck container* crossings, not the number of unique vehicles. Data are for both loaded and empty truck containers.

*Rail Container* data include both loaded and empty *Rail containers*.

**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 1, 2010.

**Table 1-53: U.S.-Canadian Border Land-Freight Gateways: Number of Incoming Truck or Train Crossings**

| Truck | 2002 | | 2003 | | 2004 | | 2005 | | 2006 | | 2007 | | 2008 | | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total U.S.-Canadian border | 6,915,973 | Total U.S.-Canadian border | 6,728,228 | Total U.S.-Canadian border | 6,903,882 | Total U.S.-Canadian border | 6,783,944 | Total U.S.-Canadian border | 6,649,249 | Total U.S.-Canadian border | (R) 6,477,761 | Total U.S.-Canadian border | 5,894,551 | Total U.S.-Canadian border | 5,020,633 |
| Total top 5 gateways | 4,567,704 | Total top 5 gateways | 4,478,405 | Total top 5 gateways | 4,591,686 | Total top 5 gateways | 4,553,263 | Total top 5 gateways | 4,499,055 | Total top 5 gateways | (R) 4,375,717 | Total top 5 gateways | 3,920,345 | Total top 5 gateways | 3,274,768 |
| Detroit, MI | 1,670,565 | Detroit, MI | 1,634,319 | Detroit, MI | 1,701,452 | Detroit, MI | 1,745,318 | Detroit, MI | 1,770,008 | Detroit, MI | 1,773,465 | Detroit, MI | 1,510,487 | Detroit, MI | 1,197,967 |
| Buffalo-Niagara, NY | 1,208,095 | Buffalo-Niagara, NY | 1,162,961 | Buffalo-Niagara, NY | 1,175,254 | Buffalo-Niagara, NY | 1,142,411 | Buffalo-Niagara, NY | 1,117,789 | Buffalo-Niagara, NY | 1,088,438 | Buffalo-Niagara, NY | 981,329 | Buffalo-Niagara, NY | 846,114 |
| Port Huron, MI | 907,729 | Port Huron, MI | 928,074 | Port Huron, MI | 945,962 | Port Huron, MI | 922,401 | Port Huron, MI | 835,927 | Port Huron, MI | 770,282 | Port Huron, MI | 732,422 | Port Huron, MI | 625,642 |
| Blaine, WA | 410,256 | Champlain-Rouse Pt., NY | 387,962 | Champlain-Rouse Pt., NY | 397,317 | Champlain-Rouse Pt., NY | 388,869 | Champlain-Rouse Pt., NY | 409,372 | Champlain-Rouse Pt., NY | 387,033 | Champlain-Rouse Pt., NY | 364,912 | Blaine, WA | 310,075 |
| Champlain-Rouses Point, NY | 371,059 | Blaine, WA | 365,089 | Blaine, WA | 371,701 | Blaine, WA | 354,264 | Blaine, WA | 365,959 | Blaine, WA | (R) 356,499 | Blaine, WA | 331,195 | Champlain-Rouse Pt., NY | 294,970 |
| **Train** | **2002** | | **2003** | | **2004** | | **2005** | | **2006** | | **2007** | | **2008** | | **2009** |
| Total U.S.-Canadian border | 32,822 | Total U.S.-Canadian border | 34,137 | Total U.S.-Canadian border | 33,267 | Total U.S.-Canadian border | 32,807 | Total U.S.-Canadian border | 32,526 | Total U.S.-Canadian border | 30,362 | Total U.S.-Canadian border | 29,780 | Total U.S.-Canadian border | 24,034 |
| Total top 5 gateways | 18,920 | Total top 5 gateways | 19,646 | Total top 5 gateways | 18,564 | Total top 5 gateways | 19,129 | Total top 5 gateways | 17,662 | Total top 5 gateways | 17,240 | Total top 5 gateways | 16,677 | Total top 5 gateways | 13,013 |
| Port Huron, MI | 4,707 | Port Huron, MI | 5,447 | Port Huron, MI | 5,276 | Port Huron, MI | 6,344 | Port Huron, MI | 4,439 | Port Huron, MI | 4,459 | International Falls, MN | 4,136 | International Falls, MN | 3,286 |
| Detroit, MI | 4,278 | Detroit, MI | 4,246 | Detroit, MI | 3,936 | International Falls, MN | 3,980 | International Falls, MN | 4,259 | International Falls, MN | 4,026 | Port Huron, MI | 4,061 | Port Huron, MI | 3,064 |
| International Falls, MN | 3,662 | International Falls, MN | 3,928 | International Falls, MN | 3,720 | Detroit, MI | 3,602 | Detroit, MI | 3,610 | Detroit, MI | 3,546 | Detroit, MI | 3,135 | Buffalo-Niagara, NY | 2,312 |
| Buffalo-Niagara, NY | 3,320 | Warroad, MN | 3,062 | Buffalo-Niagara, NY | 2,976 | Buffalo-Niagara, NY | 2,918 | Buffalo-Niagara, NY | 2,807 | Warroad, MN | 2,640 | Warroad, MN | 2,879 | Warroad, MN | 2,277 |
| Warroad, MN | 2,953 | Buffalo-Niagara, NY | 2,963 | Warroad, MN | 2,656 | Warroad, MN | 2,285 | Warroad, MN | 2,547 | Buffalo-Niagara, NY | 2,569 | Buffalo-Niagara, NY | 2,466 | Detroit, MI | 2,074 |

**KEY:** R = revised.

**NOTE**

Data do not include privately owned pickup trucks.

**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 1, 2010.

**Table 1-54: U.S.-Mexican Border Land-Freight Gateways: Number of Incoming Truck or Rail Container Crossings**

| Truck Container | 2002 | | 2003 | | 2004 | | 2005 | | 2006 | | 2007 | | 2008 | | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total U.S.-Mexican border | 4,434,441 | Total U.S.-Mexican border | 4,293,226 | Total U.S.-Mexican border | 4,512,900 | Total U.S.-Mexican border | 4,677,562 | Total U.S.-Mexican border | 4,740,407 | Total U.S.-Mexican border | 4,852,936 | Total U.S.-Mexican border | 4,844,250 | Total U.S.-Mexican border | 4,278,741 |
| Total top 5 gateways | 3,556,930 | Total top 5 gateways | 3,444,994 | Total top 5 gateways | 3,621,641 | Total top 5 gateways | 3,740,341 | Total top 5 gateways | 3,777,395 | Total top 5 gateways | 3,881,283 | Total top 5 gateways | 3,882,764 | Total top 5 gateways | 3,408,198 |
| Laredo, TX | 1,437,580 | Laredo, TX | 1,345,099 | Laredo, TX | 1,387,648 | Laredo, TX | 1,455,504 | Laredo, TX | 1,518,819 | Laredo, TX | 1,563,860 | Laredo, TX | 1,555,414 | Laredo, TX | 1,382,455 |
| Otay Mesa/San Ysidro, CA | 726,318 | Otay Mesa/San Ysidro, CA | 711,526 | Otay Mesa/San Ysidro, CA | 726,166 | Otay Mesa/San Ysidro, CA | 744,278 | El Paso, TX | 757,795 | El Paso, TX | 759,319 | Otay Mesa/San Ysidro, CA | 774,195 | Otay Mesa/San Ysidro, CA | 686,119 |
| El Paso, TX | 714,931 | El Paso, TX | 665,422 | El Paso, TX | 717,245 | El Paso, TX | 734,851 | Otay Mesa/San Ysidro, CA | 748,146 | Otay Mesa/San Ysidro, CA | 735,305 | El Paso, TX | 752,574 | El Paso, TX | 639,896 |
| Hidalgo, TX | 386,985 | Hidalgo, TX | 405,238 | Hidalgo, TX | 453,222 | Hidalgo, TX | 494,572 | Hidalgo, TX | 462,859 | Hidalgo, TX | 496,413 | Hidalgo, TX | 477,014 | Hidalgo, TX | 420,646 |
| Calexico East, CA | 291,116 | Calexico East, CA | 317,709 | Calexico East, CA | 337,360 | Calexico East, CA | 311,136 | Nogales, AZ | 289,776 | Calexico East, CA | 326,386 | Calexico East, CA | 323,567 | Nogales, AZ | 279,082 |
| Rail Container | 2002 | | 2003 | | 2004 | | 2005 | | 2006 | | 2007 | | 2008 | | 2009 |
| Total U.S.-Mexican border | 602,322 | Total U.S.-Mexican border | 607,475 | Total U.S.-Mexican border | 675,305 | Total U.S.-Mexican border | 728,559 | Total U.S.-Mexican border | 803,291 | Total U.S.-Mexican border | 813,511 | Total U.S.-Mexican border | 776,385 | Total U.S.-Mexican border | 574,299 |
| Total top 5 gateways | 591,255 | Total top 5 gateways | 596,773 | Total top 5 gateways | 660,214 | Total top 5 gateways | 710,238 | Total top 5 gateways | 788,472 | Total top 5 gateways | 797,481 | Total top 5 gateways | 762,740 | Total top 5 gateways | 563,965 |
| Laredo, TX | 296,782 | Laredo, TX | 313,244 | Laredo, TX | 317,061 | Laredo, TX | 316,402 | Laredo, TX | 332,950 | Laredo, TX | 341,856 | Laredo, TX | 328,592 | Laredo, TX | 271,095 |
| Eagle Pass, TX | 98,236 | Brownsville, TX | 98,622 | El Paso, TX | 110,992 | El Paso, TX | 143,741 | El Paso, TX | 185,614 | El Paso, TX | 179,076 | El Paso, TX | 160,795 | Eagle Pass, TX | 141,664 |
| Brownsville, TX | 96,591 | Eagle Pass, TX | 88,329 | Brownsville, TX | 97,803 | Brownsville, TX | 105,175 | Eagle Pass, TX | 112,521 | Eagle Pass, TX | 134,041 | Eagle Pass, TX | 142,377 | El Paso, TX | 72,353 |
| Nogales, AZ | 52,236 | El Paso, TX | 50,893 | Eagle Pass, TX | 87,459 | Eagle Pass, TX | 98,089 | Brownsville, TX | 97,572 | Brownsville, TX | 90,139 | Brownsville, TX | 75,419 | Nogales, AZ | 44,832 |
| El Paso, TX | 47,410 | Nogales, AZ | 45,685 | Nogales, AZ | 46,899 | Nogales, AZ | 46,831 | Nogales, AZ | 59,815 | Nogales, AZ | 52,369 | Nogales, AZ | 55,557 | Brownsville, TX | 34,021 |

**NOTES**

*Truck Container* data represent the number of *Truck container* crossings, not the number of unique vehicles. Data are for both loaded and empty truck containers.

*Rail Container* data include both loaded and empty *Rail containers*.

**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 1, 2010.

**Table 1-55: U.S.-Mexican Border Land-Freight Gateways: Number of Incoming Truck and Train Crossings**

| Truck | 2002 | | 2003 | | 2004 | | 2005 | | 2006 | | 2007 | | 2008 | | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total U.S.-Mexican border | 4,426,593 | Total U.S.-Mexican border | 4,238,045 | Total U.S.-Mexican border | 4,503,688 | Total U.S.-Mexican border | 4,675,897 | Total U.S.-Mexican border | 4,759,679 | Total U.S.-Mexican border | 4,882,500 | Total U.S.-Mexican border | 4,866,252 | Total U.S.-Mexican border | 4,291,465 |
| Total top 5 gateways | 3,544,815 | Total top 5 gateways | 3,378,199 | Total top 5 gateways | 3,604,137 | Total top 5 gateways | 3,737,803 | Total top 5 gateways | 3,778,528 | Total top 5 gateways | 3,895,641 | Total top 5 gateways | 3,893,000 | Total top 5 gateways | 3,407,336 |
| Laredo, TX | 1,441,653 | Laredo, TX | 1,354,229 | Laredo, TX | 1,391,850 | Laredo, TX | 1,455,607 | Laredo, TX | 1,518,989 | Laredo, TX | 1,563,836 | Laredo, TX | 1,555,197 | Laredo, TX | 1,382,319 |
| Otay Mesa/San Ysidro, CA | 731,291 | Otay Mesa/San Ysidro, CA | 697,152 | Otay Mesa/San Ysidro, CA | 726,164 | El Paso, TX | 740,654 | Otay Mesa/San Ysidro, CA | 749,472 | El Paso, TX | 782,936 | Otay Mesa/San Ysidro, CA | 776,972 | Otay Mesa/San Ysidro, CA | 684,425 |
| El Paso, TX | 705,199 | El Paso, TX | 659,614 | El Paso, TX | 719,545 | Otay Mesa/San Ysidro, CA | 730,253 | El Paso, TX | 744,951 | Otay Mesa/San Ysidro, CA | 738,765 | El Paso, TX | 758,856 | El Paso, TX | 644,272 |
| Hidalgo, TX | 390,282 | Hidalgo, TX | 406,064 | Hidalgo, TX | 454,351 | Hidalgo, TX | 491,077 | Hidalgo, TX | 457,825 | Hidalgo, TX | 486,756 | Hidalgo, TX | 476,000 | Hidalgo, TX | 419,426 |
| Calexico East, CA | 276,390 | Calexico East, CA | 261,140 | Calexico East, CA | 312,227 | Calexico East, CA | 320,212 | Calexico East, CA | 307,291 | Calexico East, CA | 323,348 | Calexico East, CA | 325,975 | Calexico East, CA | 276,894 |
| Train | 2002 | | 2003 | | 2004 | | 2005 | | 2006 | | 2007 | | 2008 | | 2009 |
| Total U.S.-Mexican border | 7,757 | Total U.S.-Mexican border | 7,774 | Total U.S.-Mexican border | 7,844 | Total U.S.-Mexican border | 9,458 | Total U.S.-Mexican border | 10,166 | Total U.S.-Mexican border | 10,648 | Total U.S.-Mexican border | 10,262 | Total U.S.-Mexican border | 7,475 |
| Total top 5 gateways | 7,179 | Total top 5 gateways | 7,265 | Total top 5 gateways | 7,282 | Total top 5 gateways | 8,719 | Total top 5 gateways | 9,344 | Total top 5 gateways | 9,745 | Total top 5 gateways | 9,563 | Total top 5 gateways | 6,969 |
| Laredo, TX | 3,270 | Laredo, TX | 3,510 | Laredo, TX | 3,443 | Laredo, TX | 3,459 | Laredo, TX | 3,850 | Laredo, TX | 3,994 | Laredo, TX | 3,921 | Laredo, TX | 2,716 |
| Eagle Pass, TX | 1,718 | Eagle Pass, TX | 1,624 | Eagle Pass, TX | 1,653 | Eagle Pass, TX | 1,812 | El Paso, TX | 2,449 | El Paso, TX | 2,691 | El Paso, TX | 2,473 | Eagle Pass, TX | 1,704 |
| Brownsville, TX | 964 | Brownsville, TX | 1,045 | Brownsville, TX | 998 | El Paso, TX | 1,618 | Eagle Pass, TX | 1,337 | Eagle Pass, TX | 1,485 | Eagle Pass, TX | 1,654 | El Paso, TX | 1,502 |
| Nogales, AZ | 607 | El Paso, TX | 629 | El Paso, TX | 744 | Brownsville, TX | 1,045 | Brownsville, TX | 1,055 | Brownsville, TX | 984 | Brownsville, TX | 875 | Nogales, AZ | 563 |
| El Paso, TX | 620 | Nogales, AZ | 457 | Nogales, AZ | 444 | Nogales, AZ | 785 | Nogales, AZ | 653 | Calexico East, CA | 591 | Nogales, AZ | 640 | Brownsville, TX | 484 |

**NOTE**

Data do not include privately owned pickup trucks.

**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 1, 2010.

**Table 1-56: U.S. Waterborne Freight (Million short tons)**

| | 1960 | 1965 | 1970 | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | (P) 2008 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL freight | 1,099.9 | 1,272.9 | 1,531.7 | 1,695.0 | 1,998.9 | 1,788.4 | 2,163.9 | 2,092.1 | 2,132.1 | 2,128.2 | 2,214.8 | 2,240.4 | 2,284.1 | 2,333.1 | 2,339.5 | 2,322.6 | 2,424.5 | 2,393.3 | 2,340.2 | 2,394.2 | 2,551.9 | 2,527.6 | 2,588.4 | 2,564.0 | 2,469.8 |
| Foreign | 339.3 | 443.7 | 581.0 | 748.7 | 921.4 | 774.3 | 1,041.6 | 1,013.6 | 1,037.5 | 1,060.0 | 1,115.7 | 1,147.4 | 1,183.4 | 1,220.6 | 1,245.4 | 1,260.8 | 1,354.7 | 1,350.8 | 1,319.2 | 1,378.1 | 1,504.9 | 1,498.7 | 1,564.9 | 1,542.5 | 1,520.8 |
| Imports | 211.3 | 269.8 | 339.3 | 476.6 | 517.5 | 412.7 | 600.0 | 555.4 | 586.7 | 648.8 | 719.5 | 672.7 | 732.6 | 788.3 | 840.7 | 860.8 | 939.7 | 951.8 | 934.9 | 1,004.8 | 1,089.1 | 1,096.9 | 1,130.9 | 1,075.7 | 998.7 |
| Exports | 128.0 | 173.9 | 241.6 | 272.1 | 403.9 | 361.6 | 441.6 | 458.2 | 450.8 | 411.3 | 396.2 | 474.7 | 450.8 | 432.3 | 404.7 | 400.0 | 415.0 | 399.0 | 384.3 | 373.3 | 415.8 | 401.8 | 434.0 | 466.8 | 522.1 |
| Domestic | 760.6 | 829.2 | 950.7 | 946.3 | 1,077.5 | 1,014.1 | 1,122.3 | 1,078.5 | 1,094.6 | 1,068.2 | 1,099.0 | 1,093.0 | 1,100.7 | 1,112.5 | 1,094.1 | 1,061.8 | 1,069.8 | 1,042.5 | 1,021.0 | 1,016.1 | 1,047.1 | 1,028.9 | 1,023.5 | 1,021.5 | 949.0 |
| Inland | 291.1 | 369.6 | 472.1 | 503.9 | 535.0 | 534.7 | 622.6 | 600.4 | 621.0 | 607.3 | 618.4 | 620.3 | 622.1 | 630.6 | 625.0 | 624.6 | 628.4 | 619.8 | 608.0 | 609.6 | 626.2 | 624.0 | 627.6 | 621.9 | 583.9 |
| Coastal | 209.2 | 201.5 | 238.4 | 231.9 | 329.6 | 309.8 | 298.6 | 294.5 | 285.1 | 271.7 | 277.0 | 266.6 | 267.4 | 263.1 | 249.6 | 228.8 | 226.9 | 223.6 | 216.4 | 223.5 | 220.6 | 213.7 | 201.8 | 205.8 | 185.3 |
| Great Lakes | 155.1 | 153.7 | 157.1 | 129.3 | 115.1 | 92.0 | 110.2 | 103.4 | 107.4 | 109.9 | 114.8 | 116.1 | 114.9 | 122.7 | 122.2 | 113.9 | 114.4 | 100.0 | 101.5 | 89.8 | 103.5 | 96.2 | 96.9 | 95.6 | 90.3 |
| Intraport | 104.2 | 102.9 | 81.5 | 78.3 | 94.2 | 74.3 | 86.4 | 75.6 | 76.8 | 74.4 | 82.9 | 83.1 | 89.0 | 89.8 | 90.1 | 88.6 | 94.6 | 93.2 | 90.0 | 86.9 | 91.3 | 90.2 | 91.4 | 93.1 | 85.2 |
| Intraterritory | 1.0 | 1.5 | 1.6 | 2.9 | 3.6 | 3.4 | 4.5 | 4.6 | 4.2 | 5.0 | 5.9 | 6.9 | 7.3 | 6.3 | 7.2 | 5.9 | 5.5 | 5.9 | 5.1 | 6.4 | 5.5 | 4.9 | 5.8 | 5.1 | 4.2 |

**KEY:** P = preliminary.

**NOTES**

*Domestic Inland* excludes waterway improvement materials, and beginning in 1996, excludes fish.
Numbers may not add to totals due to rounding.

**SOURCES**

1960: U.S. Army Corps of Engineers, *Waterborne Commerce of the United States, Calendar Year 2004* (New Orleans, LA), part 5, tables 1-1, 1-3, and 1-6.

1965-2008: Ibid., *Waterborne Commerce of the United States* (New Orleans, LA: Annual Issues), available at http://www.ndc.iwr.usace.army.mil/wcsc/wcsc.htm as of Jan. 6, 2010.

**Table 1-57: Tonnage of Top 50 U.S. Water Ports, Ranked by Total Tons[a]**

| | 2008 | | 2007 | | 1998 | | Percent change | Percent change |
|---|---|---|---|---|---|---|---|---|
| Ports | Rank | Total tons (Millions) | Rank | Total tons (Millions) | Rank | Total tons (Millions) | 2007-2008 | 1998-2008 |
| South Louisiana, LA, Port of | 1 | 224.0 | 1 | 229.0 | 1 | 196.6 | -2.2% | 13.9% |
| Houston, TX | 2 | 212.2 | 2 | 216.1 | 2 | 169.1 | -1.8% | 25.5% |
| New York, NY and NJ | 3 | 153.5 | 3 | 157.2 | 3 | 137.5 | -2.4% | 11.6% |
| Long Beach, CA | 4 | 80.2 | 4 | 85.9 | 10 | 57.7 | -6.7% | 38.9% |
| Corpus Christi, TX | 5 | 76.8 | 6 | 81.1 | 5 | 86.2 | -5.3% | -10.9% |
| New Orleans, LA | 6 | 73.0 | 8 | 76.0 | 4 | 88.8 | -4.0% | -17.8% |
| Beaumont, TX | 7 | 69.5 | 5 | 81.4 | 9 | 60.1 | -14.6% | 15.7% |
| Huntington - Tristate | 8 | 69.3 | 7 | 76.5 | 27 | 24.7 | -9.4% | 180.3% |
| Mobile, AL | 9 | 67.6 | 10 | 64.5 | 15 | 49.2 | 4.9% | 37.4% |
| Plaquemines, LA, Port of | 10 | 63.7 | 12 | 58.8 | 7 | 65.8 | 8.4% | -3.1% |
| Los Angeles, CA | 11 | 59.8 | 9 | 65.5 | 18 | 44.1 | -8.7% | 35.4% |
| Lake Charles, LA | 12 | 53.8 | 11 | 64.2 | 11 | 53.6 | -16.3% | 0.4% |
| Texas City, TX | 13 | 52.6 | 13 | 56.8 | 14 | 49.5 | -7.4% | 6.3% |
| Baton Rouge, LA | 14 | 51.8 | 14 | 54.6 | 6 | 66.8 | -5.2% | -22.5% |
| Duluth - Superior, MN and WI | 15 | 45.3 | 16 | 46.5 | 19 | 42.4 | -2.5% | 6.8% |
| Norfolk Harbor, VA | 16 | 44.6 | 18 | 39.7 | 16 | 47.7 | 12.2% | -6.6% |
| Baltimore, MD | 17 | 43.4 | 17 | 41.3 | 20 | 40.1 | 5.2% | 8.2% |
| Pittsburgh, PA | 18 | 41.8 | 19 | 38.1 | 13 | 52.9 | 9.8% | -20.9% |
| Tampa, FL | 19 | 39.7 | 15 | 46.9 | 12 | 53.2 | -15.3% | -25.5% |
| Paulsboro, NJ | 20 | 36.4 | 20 | 38.0 | 28 | 23.5 | -4.3% | 54.7% |
| Valdez, AK | 21 | 36.0 | 21 | 37.8 | 8 | 61.9 | -4.8% | -41.9% |
| Savannah, GA | 22 | 35.4 | 22 | 36.5 | 39 | 17.7 | -3.0% | 99.8% |
| Pascagoula, MS | 23 | 33.6 | 23 | 35.2 | 25 | 26.4 | -4.6% | 27.2% |
| Philadelphia, PA | 24 | 32.3 | 24 | 35.1 | 17 | 47.5 | -8.2% | -32.0% |
| Port Arthur, TX | 25 | 31.8 | 28 | 29.3 | 23 | 29.6 | 8.5% | 7.4% |
| Freeport, TX | 26 | 29.8 | 27 | 29.6 | 24 | 29.0 | 0.8% | 2.9% |
| St.Louis, MO and IL | 27 | 29.5 | 25 | 32.1 | 21 | 31.8 | -8.1% | -7.1% |
| Tacoma, WA | 28 | 27.2 | 30 | 26.9 | 40 | 17.4 | 0.8% | 56.1% |
| Portland, OR | 29 | 26.7 | 26 | 31.1 | 22 | 30.0 | -14.3% | -11.0% |
| Richmond, CA | 30 | 26.4 | 31 | 25.0 | 36 | 19.0 | 5.5% | 38.6% |
| Seattle, WA | 31 | 26.2 | 29 | 28.2 | 30 | 22.6 | -7.1% | 15.8% |
| Marcus Hook, PA | 32 | 24.7 | 32 | 24.8 | 29 | 22.7 | -0.5% | 8.5% |
| Chicago, IL | 33 | 22.7 | 33 | 24.5 | 26 | 26.0 | -7.4% | -12.7% |
| Newport News, VA | 34 | 22.6 | 43 | 15.0 | 35 | 19.1 | 51.0% | 18.5% |
| Portland, ME | 35 | 22.1 | 34 | 24.3 | 44 | 15.1 | -8.8% | 46.9% |
| Port Everglades, FL | 36 | 21.7 | 35 | 24.2 | 31 | 21.8 | -10.6% | -0.6% |
| Jacksonville, FL | 37 | 21.0 | 38 | 21.2 | 33 | 21.2 | -0.7% | -0.7% |
| Boston, MA | 38 | 21.0 | 37 | 22.4 | 32 | 21.2 | -6.0% | -0.9% |
| Charleston, SC | 39 | 20.9 | 36 | 22.6 | 37 | 18.7 | -7.4% | 12.0% |
| Oakland, CA | 40 | 17.8 | 41 | 16.9 | 52 | 11.1 | 5.3% | 59.8% |
| Memphis,TN | 41 | 16.4 | 39 | 18.8 | 41 | 17.2 | -13.1% | -4.9% |
| Indiana Harbor, IN | 42 | 15.4 | 42 | 15.0 | 45 | 14.9 | 2.4% | 3.2% |
| Honolulu, HI | 43 | 14.0 | 40 | 17.6 | 47 | 13.7 | -20.3% | 2.1% |
| Cincinnati, OH | 44 | 13.4 | 47 | 13.2 | 50 | 12.0 | 1.7% | 12.2% |
| Two Harbors, MN | 45 | 13.4 | 46 | 13.7 | 49 | 13.2 | -1.7% | 1.6% |
| Kalama, WA | 46 | 12.9 | 53 | 10.4 | 83 | 4.7 | 24.4% | 174.2% |
| Detroit, MI | 47 | 12.8 | 44 | 14.9 | 34 | 19.5 | -14.1% | -34.0% |
| Anacortes, WA | 48 | 11.5 | 45 | 14.3 | 51 | 11.9 | -20.0% | -4.0% |
| San Juan, PR | 49 | 11.0 | 50 | 12.2 | 43 | 15.3 | -10.2% | -28.2% |
| Toledo, OH | 50 | 11.0 | 49 | 12.5 | 48 | 13.2 | -12.1% | -17.2% |
| Total top 50[b] | NA | 2,220.1 | NA | 2,305.8 | NA | 2,075.0 | -3.7% | 7.0% |
| All ports | NA | 2,477.1 | NA | 2,564.0 | NA | 2,339.5 | -3.4% | 5.9% |

**KEY:** NA = not applicable.

[a] Tonnage totals include both domestic and foreign waterborne trade.
[b] Data for 2007 and 1998 are based on the top 50 water ports in 2007 and 1998, and are not a summation of the numbers in the table.

**NOTE**
Numbers may not add to totals due to rounding.

**SOURCE**
U.S. Army Corps of Engineers, *Waterborne Commerce of the United States, Part 5, National Summaries* (New Orleans, LA: Annual Issues), tables 1-1, 5-1 and 5-2, available at http://www.ndc.iwr.usace.army.mil/wcsc/wcsc.htm as of July 14, 2010.

**Table 1-58: Freight Activity in the United States: 1993, 1997, 2002 and 2007**

| Mode of transportation | Value (billion $) | | | | | Tons (millions) | | | | | Ton-miles[c] (billions) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1993 | 1997 | 2002 | (R) 2007 | Percent change (1997-2007)[d] | 1993 | 1997 | 2002 | (R) 2007 | Percent change (1997-2007)[d] | 1993 | 1997 | 2002 | (R) 2007 | Percent change (1997-2007)[d] |
| TOTAL all modes | 5,846 | 6,944 | 8,397 | 11,685 | 68.3 | 9,688 | 11,090 | 11,668 | 12,543 | 13.1 | 2,421 | 2,661 | 3,138 | 3,345 | 25.7 |
| Single modes, total | 4,941 | 5,720 | 7,049 | 9,539 | 66.8 | 8,922 | 10,437 | 11,087 | 11,698 | 12.1 | 2,137 | 2,383 | 2,868 | 2,894 | 21.4 |
| Truck[a] | 4,403 | 4,982 | 6,235 | 8,336 | 67.3 | 6,386 | 7,701 | 7,843 | 8,779 | 14.0 | 870 | 1,024 | 1,256 | 1,342 | 31.1 |
| For-hire truck | 2,625 | 2,901 | 3,757 | 4,956 | 70.8 | 2,808 | 3,403 | 3,657 | 4,075 | 19.8 | 629 | 741 | 960 | 1,056 | 42.4 |
| Private truck | 1,756 | 2,037 | 2,445 | 3,380 | 66.0 | 3,544 | 4,137 | 4,150 | 4,704 | 13.7 | 236 | 269 | 291 | 286 | 6.7 |
| Rail | 247 | 320 | 311 | 436 | 36.5 | 1,544 | 1,550 | 1,874 | 1,861 | 20.1 | 943 | 1,023 | 1,262 | 1,344 | 31.4 |
| Water | 62 | 76 | 89 | 115 | 51.5 | 505 | 563 | 681 | 404 | -28.4 | 272 | 262 | 283 | 157 | -39.9 |
| Shallow draft | 41 | 54 | 57 | 91 | 68.8 | 362 | 415 | 459 | 343 | -17.2 | 164 | 189 | 212 | 117 | -37.9 |
| Great Lakes | S | 2 | 1 | S | U | 33 | 38 | 38 | 18 | -53.7 | 12 | 13 | 14 | 7 | -48.7 |
| Deep draft | 20 | 20 | 31 | 23 | 12.8 | 110 | 110 | 185 | 43 | -61.4 | 95 | 59 | 57 | 33 | -44.2 |
| Air (includes truck and air) | 139 | 229 | 265 | 252 | 10.1 | 3 | 4 | 4 | 4 | -19.3 | 4 | 6 | 6 | 5 | -27.6 |
| Pipeline[b] | 90 | 113 | 149 | 400 | 252.1 | 484 | 618 | 685 | 651 | 5.3 | S | S | S | S | S |
| Multiple modes, total | 663 | 946 | 1,079 | 1,867 | 97.4 | 226 | 217 | 217 | 574 | 164.8 | 191 | 205 | 226 | 417 | 103.7 |
| Parcel, U.S. Postal Service or courier | 563 | 856 | 988 | 1,562 | 82.5 | 19 | 24 | 26 | 34 | 43.1 | 13 | 18 | 19 | 28 | 55.4 |
| Truck and rail | 83 | 76 | 70 | 187 | 147.4 | 41 | 54 | 43 | 226 | 315.9 | 38 | 56 | 46 | 197 | 254.2 |
| Truck and water | 9 | 8 | 14 | 58 | 608.5 | 68 | 33 | 23 | 146 | 338.1 | 41 | 35 | 32 | 98 | 183.0 |
| Rail and water | 4 | 2 | 3 | 14 | 684.4 | 79 | 79 | 105 | 55 | -30.8 | 70 | 78 | 115 | 47 | -39.3 |
| Other multiple modes | 3 | 4 | 4 | 45 | 961.6 | 19 | 26 | 20 | 114 | 333.7 | S | 19 | 14 | 46 | 149.4 |
| Other / unknown modes, total | 242 | 279 | 269 | 279 | 0.2 | 541 | 437 | 365 | 272 | -37.8 | 93 | 73 | 44 | 34 | -54.0 |

**KEY:** R = revised; S = data are not published because of high sampling variability or other reasons; U = data are unavailable.

[a] Truck as a single mode includes shipments that went by private truck only, for-hire truck only, or a combination of both.
[b] 1993 and 1997 data exclude most shipments of crude oil. 2002 and 2007 data exclude shipments of crude petroleum.
[c] Ton-miles estimates are based on estimated distances traveled along a modeled transportation network.
[d] Percent change has been revised in conjuction with 2007 data.

**NOTES**

Numbers may not add to totals due to rounding. Value-of-shipment estimates are reported in current prices. Coverage for the 2002 and 2007 Commodity Flow Survey (CFS) differs from the previous surveys due to a change from the 1997 Standard Industrial Classification (SIC) system to the North American Industry Classification System (NAICS) and other survey improvements. The 2007 estimates are derived using an improved methodology of estimation.

**SOURCES**

1993 and 1997: U.S. Department of Transportation, Bureau of Transportation Statistics and U.S. Department of Commerce, Census Bureau, *1997 Commodity Flow Survey: United States* (Washington, DC: December 1999), table 1b.

2002: U.S Department of Transportation, Bureau of Transportation Statistics and U.S. Department of Commerce, Census Bureau, *2002 Commodity Flow Survey: United States* (Washington, DC: December 2004), table 1a.

2007: U.S Department of Transportation, Bureau of Transportation Statistics and U.S. Department of Commerce, Census Bureau, *2007 Commodity Flow Survey: United States, Final Release* (Washington, DC: December 2009), table 1, available at http://www.bts.gov/publications/commodity_flow_survey/ as of December 28, 2009.

**Table 1-59: Value, Tons, and Ton-Miles of Freight Shipments within the United States by Domestic Establishments, 2007[a]**

| SCTG | | Value ($billions) | Percent | Tons (millions) | Percent | Ton-miles[c] (billions) | Percent | Value per ton ($) | Average miles per shipment |
|---|---|---|---|---|---|---|---|---|---|
| 01 | Live animals and live fish | 10.8 | 0.09 | 6.2 | 0.05 | 4.0 | 0.12 | 1,761.5 | 739 |
| 02 | Cereal grains | 84.9 | 0.73 | 514.2 | 4.10 | 203.4 | 6.08 | 165.0 | 139 |
| 03 | Other agricultural products | 143.6 | 1.23 | 211.9 | 1.69 | 88.2 | 2.64 | 677.9 | 354 |
| 04 | Animal feed and products of animal origin (NEC) | 90.5 | 0.77 | 246.4 | 1.96 | 76.2 | 2.28 | 367.1 | 499 |
| 05 | Meat, fish, seafood, and their preparations | 277.3 | 2.37 | 98.4 | 0.78 | 48.5 | 1.45 | 2,817.2 | 247 |
| 06 | Grain, alcohol and tobacco products | 143.1 | 1.22 | 120.0 | 0.96 | 50.7 | 1.52 | 1,192.6 | 403 |
| 07 | Other prepared foodstuffs and fats and oils | 479.8 | 4.11 | 468.4 | 3.73 | 171.5 | 5.13 | 1,024.2 | 268 |
| 08 | Alcoholic beverages | 158.3 | 1.35 | 114.0 | 0.91 | 36.7 | 1.10 | 1,388.6 | 80 |
| 09 | Tobacco products | 70.6 | 0.60 | 3.3 | 0.03 | 0.4 | 0.01 | 21,450.6 | 407 |
| 10 | Monumental or building stone | 5.2 | 0.04 | 28.7 | 0.23 | 3.1 | 0.09 | 181.0 | 123 |
| 11 | Natural sands | 6.7 | 0.06 | 460.1 | 3.67 | 41.1 | 1.23 | 14.5 | 56 |
| 12 | Gravel and crushed stone | 21.2 | 0.18 | 2,039.5 | 16.26 | 147.8 | 4.42 | 10.4 | 37 |
| 13 | Nonmetallic minerals (NEC) | 16.7 | 0.14 | 272.3 | 2.17 | 52.1 | 1.56 | 61.4 | 223 |
| 14 | Metallic ores and concentrates | 32.9 | 0.28 | 76.7 | 0.61 | 39.3 | 1.18 | 429.2 | 504 |
| 15 | Coal | 38.2 | 0.33 | 1,416.2 | 11.29 | 835.8 | 24.99 | 27.0 | 106 |
| 17 | Gasoline and aviation turbine fuel | 663.2 | 5.68 | 959.2 | 7.65 | 68.6 | 2.05 | 691.4 | 43 |
| 18 | Fuel oils | 373.5 | 3.20 | 641.9 | 5.12 | 54.2 | 1.62 | 581.9 | 32 |
| 19 | Coal and petroleum products (NEC) | 268.2 | 2.29 | 578.2 | 4.61 | 127.2 | 3.80 | 463.8 | 111 |
| 20 | Basic chemicals | 271.5 | 2.32 | 412.6 | 3.29 | 171.2 | 5.12 | 658.0 | 428 |
| 21 | Pharmaceutical products | 771.3 | 6.60 | 19.1 | 0.15 | 8.1 | 0.24 | 40,430.5 | 635 |
| 22 | Fertilizers | 43.6 | 0.37 | 149.6 | 1.19 | 59.0 | 1.76 | 291.5 | 171 |
| 23 | Chemical products and preparations (NEC) | 331.8 | 2.84 | 123.5 | 0.98 | 58.5 | 1.75 | 2,685.4 | 638 |
| 24 | Plastics and rubber | 489.4 | 4.19 | 186.4 | 1.49 | 104.6 | 3.13 | 2,625.8 | 550 |
| 25 | Logs and other wood in the rough | 7.1 | 0.06 | 107.9 | 0.86 | 11.2 | 0.33 | 65.7 | 110 |
| 26 | Wood products | 183.9 | 1.57 | 323.8 | 2.58 | 100.8 | 3.01 | 567.9 | 328 |
| 27 | Pulp, newsprint, paper, and paperboard | 126.9 | 1.09 | 145.4 | 1.16 | 82.1 | 2.45 | 872.6 | 297 |
| 28 | Paper or paperboard articles | 118.1 | 1.01 | 82.2 | 0.66 | 29.0 | 0.87 | 1,435.8 | 512 |
| 29 | Printed products | 190.4 | 1.63 | 51.4 | 0.41 | 22.4 | 0.67 | 3,701.5 | 579 |
| 30 | Textiles, leather, and articles of textiles or leather | 473.6 | 4.05 | 46.7 | 0.37 | 30.6 | 0.92 | 10,135.5 | 1,101 |
| 31 | Nonmetallic mineral products | 197.0 | 1.69 | 1,156.8 | 9.22 | 115.3 | 3.45 | 170.3 | 447 |
| 32 | Base metal in primary or semifinished forms and in finished basic shapes | 488.4 | 4.18 | 364.9 | 2.91 | 129.2 | 3.86 | 1,338.3 | 360 |
| 33 | Articles of base metal | 388.3 | 3.32 | 131.9 | 1.05 | 52.3 | 1.56 | 2,943.3 | 561 |
| 34 | Machinery | 628.3 | 5.38 | 66.7 | 0.53 | 36.8 | 1.10 | 9,415.3 | 498 |
| 35 | Electronic and other electrical equipment and components and office equipment | 1,046.5 | 8.96 | 47.5 | 0.38 | 31.6 | 0.95 | 22,018.5 | 815 |
| 36 | Motorized and other vehicles (including parts) | 907.3 | 7.76 | 133.1 | 1.06 | 64.8 | 1.94 | 6,815.3 | 489 |
| 37 | Transportation equipment (NEC) | 173.9 | 1.49 | 6.8 | 0.05 | 4.5 | 0.13 | 25,514.7 | 908 |
| 38 | Precision instruments and apparatus | 304.6 | 2.61 | 5.7 | 0.05 | 3.5 | 0.11 | 53,743.8 | 1,008 |
| 39 | Furniture, mattresses and mattress supports, lamps, lighting fittings, and illuminated signs | 152.3 | 1.30 | 26.6 | 0.21 | 15.0 | 0.45 | 5,717.9 | 766 |
| 40 | Miscellaneous manufactured products | 490.3 | 4.20 | 91.8 | 0.73 | 42.0 | 1.26 | 5,338.5 | 1,012 |
| 41 | Waste and scrap | 82.2 | 0.70 | 305.9 | 2.44 | 67.0 | 2.00 | 268.9 | 152 |
| 43 | Mixed freight | 932.4 | 7.98 | 300.9 | 2.40 | 56.1 | 1.68 | 3,098.3 | 369 |
| 99 | Commodity unknown | 1.5 | 0.01 | S | U | 0.1 | 0.00 | U | 485 |
| | All commodities[b] | 11,684.9 | 100.00 | 12,543.4 | 100.00 | 3,344.7 | 100.00 | 931.6 | 619 |

**KEY:** NEC = not elsewhere classified; SCTG = Standard Classification of Transportation Goods; S = data are not published because of high sampling variability or other reasons; U = data are unavailable.

[a] All data have been revised using data from the final release of the *2007 Commodity Flow Survey*.
[b] Estimates exclude shipments of crude petroleum (SCTG 16).
[c] Ton-miles estimates are based on estimated distances traveled along a modeled transportation network.

**NOTES**

Details may not add to totals due to rounding or missing numbers that do not meet publication standards because of high sampling variability or poor response quality.

**SOURCE**

U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics and U.S. Department of Commerce, Census Bureau, *2007 Commodity Flow Survey*: *United States*, *Final Release* (Washington, DC: December 2009), table 6, available at http://www.bts.gov/publications/commodity_flow_survey/ as of December 28, 2009.

**Table 1-60: Value of U.S. Land Exports to and Imports from Canada and Mexico by Mode ($ millions)**

| | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Exports to Canada, total | 124,701.3 | 129,884.1 | 139,109.7 | 133,970.3 | 137,745.4 | 146,374.1 | 154,847.4 | 145,661.6 | 146,435.3 | 154,870.8 | 171,878.1 | 192,907.5 | 209,283.2 | 226,058.3 | 235,681.5 | 184,652.8 | 224,808.9 |
| Truck | 89,151.1 | 97,423.4 | 102,743.0 | 111,173.8 | 114,806.1 | 123,140.0 | 129,825.3 | 117,694.5 | 118,259.1 | 124,235.0 | 135,897.5 | 151,221.7 | 164,318.1 | 174,342.7 | 178,593.0 | 142,544.6 | 173,588.0 |
| Rail | 13,593.9 | 15,271.9 | 15,678.7 | 13,255.6 | 12,279.6 | 11,754.6 | 12,946.5 | 12,972.7 | 13,974.1 | 14,776.5 | 16,596.6 | 19,321.9 | 22,477.8 | 25,496.8 | 29,437.5 | 19,972.6 | 26,116.2 |
| Pipeline | 133.8 | 121.3 | 162.2 | 180.6 | 93.4 | 113.9 | 161.6 | 221.3 | 174.3 | 759.6 | 1,584.2 | 2,393.9 | 2,180.0 | 3,334.5 | 4,313.2 | 2,631.8 | 3,150.6 |
| Other[a] | 21,753.2 | 17,010.5 | 20,467.5 | 9,336.1 | 10,559.5 | 11,360.0 | 11,913.4 | 14,772.0 | 14,026.7 | 15,099.2 | 17,776.7 | 19,933.1 | 20,263.4 | 22,833.8 | 23,294.4 | 19,456.1 | 21,901.4 |
| Mail[b] | 69.3 | 57.0 | 58.3 | 24.1 | 6.8 | 5.6 | 0.6 | 1.1 | 1.2 | 0.4 | 23.1 | 36.9 | 43.8 | 50.5 | 43.3 | 47.8 | 52.8 |
| Exports to Mexico, total | 46,503.3 | 42,662.2 | 51,753.4 | 64,169.5 | 70,164.4 | 76,129.0 | 97,158.9 | 88,926.4 | 85,157.8 | 85,614.8 | 97,303.7 | 104,276.5 | 116,749.2 | 118,758.5 | 129,587.4 | 110,377.9 | 138,928.9 |
| Truck | 39,066.5 | 35,914.2 | 44,091.8 | 55,592.6 | 60,432.1 | 66,923.8 | 82,389.2 | 74,223.1 | 70,924.7 | 70,550.8 | 79,349.2 | 83,341.2 | 92,991.6 | 93,047.2 | 100,263.9 | 89,416.6 | 111,110.2 |
| Rail | 4,192.0 | 4,694.4 | 5,119.2 | 5,648.0 | 6,188.8 | 5,710.6 | 10,495.8 | 10,389.4 | 10,143.0 | 11,264.9 | 13,632.9 | 15,747.7 | 17,271.2 | 19,340.0 | 21,965.2 | 15,290.9 | 19,632.0 |
| Pipeline | 0.4 | 1.0 | 2.3 | 68.3 | 73.4 | 144.2 | 301.8 | 296.1 | 567.9 | 155.3 | 87.2 | 543.3 | 707.0 | 787.4 | 1,250.5 | 787.8 | 2,038.5 |
| Other[a] | 3,238.9 | 2,025.8 | 2,540.1 | 2,860.5 | 3,470.0 | 3,349.6 | 3,972.0 | 4,017.7 | 3,521.5 | 3,643.3 | 4,216.4 | 4,622.8 | 5,779.1 | 5,581.0 | 6,107.2 | 4,881.8 | 6,147.6 |
| Mail[c] | 5.5 | 26.8 | 0.0 | 0.1 | 0.1 | 0.7 | 0.0 | 0.1 | 0.6 | 0.4 | 18.1 | 21.6 | 0.3 | 2.9 | 0.6 | 0.8 | 0.6 |
| Imports from Canada, total | 123,504.9 | 143,669.5 | 156,206.6 | 155,682.6 | 162,105.7 | 183,723.5 | 210,270.5 | 200,853.4 | 194,820.7 | 207,448.4 | 236,734.9 | 265,402.1 | 278,889.2 | 284,773.1 | 301,127.7 | 201,088.8 | 246,252.1 |
| Truck | 79,456.4 | 88,964.9 | 98,400.8 | 99,814.8 | 108,856.7 | 118,901.4 | 127,816.3 | 117,129.9 | 117,985.3 | 116,714.1 | 132,762.1 | 143,695.6 | 149,884.0 | 150,404.1 | 141,352.5 | 105,078.9 | 123,238.0 |
| Rail | 30,322.8 | 39,996.9 | 39,811.0 | 38,293.0 | 37,374.1 | 46,255.4 | 49,699.2 | 47,197.9 | 46,966.8 | 49,980.9 | 57,947.2 | 60,606.3 | 63,258.4 | 65,962.2 | 63,756.9 | 41,058.2 | 56,996.0 |
| Pipeline | 9,728.6 | 10,606.6 | 12,796.2 | 13,879.5 | 11,120.1 | 12,055.5 | 23,117.1 | 25,908.5 | 21,832.3 | 31,451.3 | 36,828.3 | 48,766.5 | 53,865.2 | 55,015.6 | 82,018.5 | 45,630.3 | 57,562.2 |
| Other[a] | 3,991.6 | 3,888.2 | 4,968.4 | 3,572.5 | 4,575.1 | 6,386.9 | 9,571.0 | 10,523.8 | 7,992.7 | 9,236.6 | 8,994.4 | 12,184.4 | 11,736.0 | 12,957.4 | 13,555.1 | 9,098.4 | 7,288.4 |
| Mail | 5.5 | 5.2 | 6.9 | 0.4 | 1.7 | 13.1 | 4.1 | 7.2 | 0.4 | 0.3 | 0.2 | 0.1 | 0.2 | 0.4 | 0.1 | 0.1 | 0.2 |
| FTZ[d] | 0.0 | 207.6 | 223.4 | 122.4 | 177.9 | 111.2 | 62.8 | 86.1 | 43.3 | 65.3 | 202.6 | 149.3 | 145.5 | 433.5 | 444.6 | 222.9 | 1,167.3 |
| Imports from Mexico, total | 43,616.2 | 54,048.9 | 63,312.2 | 72,155.0 | 81,720.3 | 95,023.4 | 113,436.5 | 111,870.3 | 114,380.8 | 114,842.5 | 127,646.0 | 135,400.5 | 155,205.1 | 167,713.2 | 163,478.0 | 140,575.8 | 181,339.4 |
| Truck | 35,013.9 | 43,014.3 | 48,350.0 | 56,716.5 | 65,883.7 | 76,448.0 | 88,668.7 | 86,377.2 | 90,593.6 | 92,535.0 | 104,943.8 | 112,267.6 | 126,463.6 | 137,037.0 | 134,224.2 | 117,787.4 | 148,948.2 |
| Rail | 7,769.0 | 9,137.9 | 12,297.7 | 12,646.9 | 12,029.7 | 14,693.4 | 21,056.1 | 22,056.8 | 20,790.7 | 19,701.7 | 20,183.4 | 20,782.2 | 25,863.5 | 27,060.0 | 25,264.8 | 19,302.5 | 28,484.2 |
| Pipeline | 187.9 | 27.4 | 8.1 | 3.6 | 2.4 | 1.5 | 11.5 | 1.6 | 0.6 | 0.2 | 0.3 | 0.0 | 55.4 | 168.6 | 193.2 | 155.3 | 181.6 |
| Other[a] | 643.5 | 768.9 | 639.2 | 668.2 | 917.8 | 1,255.8 | 1,573.9 | 1,539.7 | 1,548.9 | 1,600.1 | 1,838.7 | 1,990.2 | 2,399.2 | 2,696.4 | 2,716.9 | 2,175.0 | 1,863.5 |
| Mail | 1.9 | 1.3 | 1.5 | 0.2 | 0.2 | 0.2 | 0.6 | 0.1 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.0 |
| FTZ[u] | 0.0 | 1,099.2 | 2,015.6 | 2,119.6 | 2,886.7 | 2,624.4 | 2,125.7 | 1,894.9 | 1,446.8 | 1,005.4 | 679.8 | 360.4 | 423.3 | 751.1 | 1,078.9 | 1,155.5 | 1,862.0 |

[a] *Other* includes "flyaway aircraft" or aircraft moving under their own power (i.e., aircraft moving from the manufacturer to a customer and not carrying any freight), powerhouse (electricity), vessels moving under their own power, pedestrians carrying freight, and unknown and miscellaneous.

[b] *Mail* shipments data for several years prior to May 2004 were not compiled correctly resulting in undercounts.

[c] Beginning in January 1996, new edit checks were added in the processing of the these data. Because of these checks, the number of *Mail* export shipments from the United States to Mexico declined sharply between 1995 and 1996. The Census Bureau found that a number of *Rail* shipments were misidentified as *Mail* shipments in 1994 and 1995, although the exact proportion of these is unknown.

[d] Foreign Trade Zones (*FTZ*s) were added as a mode of transport for land import shipments beginning in April 1995. Although *FTZ*s are being treated as a mode of transportation in the Transborder Surface Freight Data, the actual mode for a specific shipment into or out of an *FTZ* is unknown because U.S. Customs does not collect this information.

**NOTES**

Shipments that neither originate nor terminate in the United States (i.e., in transit, in-bond shipments) are not included here, although they use the U.S. transportation system These shipments are usually part of Mexico-Canada trade, and simply pass through the United States. Transshipments, however, are included in 1994, 1995, and 1996; these are shipments that entered or exited the United States by way of a Customs port on the northern or southern border, but whose origin or destination was a country other than Canada or Mexico. Starting in 1997, transshipments are excluded. Users should note these differences before comparing figures for 1994-96 with 1997 and subsequent year data. Data exclude export shipments valued at less than $2,500 and import shipments valued at less than $1,250.

Component numbers may not add to totals due to rounding.

**SOURCE**

U.S. Department of Transportation, Bureau of Transportation Statistics, *Transborder Freight Data* , available at http://www.bts.gov/programs/international/transborder/ as of Mar. 15, 2011.

**Table 1-61: Crude Oil and Petroleum Products Transported in the United States by Mode (billions)**

| | 1975 | | 1980 | | 1985 | | 1990 | | 1995 | | 1996 | | 1997 | | 1998 | | 1999 | | 2000 | | 2001 | | 2002 | | 2003 | | 2004 | | 2005 | | 2006 | | 2007 | | 2008 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Ton-miles | Percent | Ton-miles | Percent | Ton-miles | Percent | Ton-miles | Percent | Ton-miles | Percent | Ton-miles | Percent | Ton-miles | Percent | Ton-miles | Percent | Ton-miles | Percent | Ton-miles | Percent | Ton-miles | Percent | Ton-miles | Percent | Ton-miles | Percent | Ton-miles | Percent | Ton-miles | Percent | Ton-miles | Percent | Ton-miles | Percent | Ton-miles | Percent |
| Crude oil, total | 331.5 | 100.0 | 753.0 | 100.0 | 786.2 | 100.0 | 628.2 | 100.0 | 586.0 | 100.0 | 543.2 | 100.0 | 486.9 | 100.0 | 454.1 | 100.0 | 423.0 | 100.0 | 376.0 | 100.0 | 376.6 | 100.0 | 384.0 | 100.0 | 380.4 | 100.0 | 374.1 | 100.0 | (R) 376.3 | 100.0 | 366.0 | 100.0 | 335.5 | 100.0 | 396.4 | 100.0 |
| Pipelines[a] | 288.0 | 86.9 | 362.6 | 48.2 | 334.4 | 42.5 | 334.8 | 53.3 | 335.9 | 57.3 | 338.3 | 62.3 | 337.4 | 69.3 | 334.1 | 73.6 | 321.1 | 75.9 | 283.4 | 75.4 | 277.0 | 73.6 | 286.6 | 74.6 | 284.5 | 74.8 | 283.7 | 75.8 | 293.5 | 78.0 | 300.5 | 82.1 | 266.6 | 79.5 | 330.7 | 83.4 |
| Water carriers[b] | 40.6 | 12.2 | 387.4 | 51.4 | 449.2 | 57.1 | 291.2 | 46.4 | 247.7 | 42.3 | 202.4 | 37.3 | 147.3 | 30.3 | 117.9 | 26.0 | 100.0 | 23.6 | 91.0 | 24.2 | 98.1 | 26.0 | 95.7 | 24.9 | 94.1 | 24.7 | 88.7 | 23.7 | 81.1 | 21.6 | 63.8 | 17.4 | 66.9 | 19.9 | 63.2 | 15.9 |
| Motor carriers[c] | 1.4 | 0.4 | 2.5 | 0.3 | 1.8 | 0.2 | 1.5 | 0.2 | 1.7 | 0.3 | 1.7 | 0.3 | 1.7 | 0.3 | 1.6 | 0.4 | 1.4 | 0.3 | 1.2 | 0.3 | 1.1 | 0.3 | 1.2 | 0.3 | 1.3 | 0.3 | 1.2 | 0.3 | 1.4 | 0.4 | 1.4 | 0.4 | 1.6 | 0.5 | 1.7 | 0.4 |
| Railroads | 1.5 | 0.5 | 0.5 | 0.1 | 0.8 | 0.1 | 0.7 | 0.1 | 0.8 | 0.1 | 0.8 | 0.1 | 0.5 | 0.1 | 0.5 | 0.1 | 0.5 | 0.1 | 0.4 | 0.1 | 0.4 | 0.1 | 0.5 | 0.1 | 0.5 | 0.1 | 0.5 | 0.1 | 0.4 | 0.1 | 0.4 | 0.1 | 0.4 | 0.1 | 0.7 | 0.2 |
| Refined petroleum products, total | 515.2 | 100.0 | 492.3 | 100.0 | 409.3 | 100.0 | 448.6 | 100.0 | 458.9 | 100.0 | 479.0 | 100.0 | 469.6 | 100.0 | 475.7 | 100.0 | 489.9 | 100.0 | 497.3 | 100.0 | 493.2 | 100.0 | 480.6 | 100.0 | 502.9 | 100.0 | 528.4 | 100.0 | (R) 529.7 | 100.0 | 489.4 | 100.0 | 499.9 | 100.0 | 485.7 | 100.0 |
| Pipelines[a] | 219.0 | 42.5 | 225.6 | 45.8 | 229.9 | 56.2 | 249.3 | 55.6 | 265.2 | 57.8 | 280.9 | 58.6 | 279.1 | 59.4 | 285.7 | 60.1 | 296.6 | 60.5 | 293.9 | 59.1 | 299.1 | 60.6 | 299.6 | 62.3 | 305.7 | 60.8 | 315.9 | 59.8 | 314.0 | 59.3 | 280.9 | 57.4 | 291.1 | 58.2 | 299.2 | 61.6 |
| Water carriers | 257.4 | 50.0 | 230.4 | 46.8 | 141.2 | 34.5 | 157.8 | 35.2 | 153.2 | 33.4 | 154.1 | 32.2 | 148.3 | 31.6 | 147.1 | 30.9 | 147.5 | 30.1 | 153.4 | 30.8 | 145.9 | 29.6 | 131.9 | 27.4 | 146.0 | 29.0 | 158.2 | 29.9 | 159.4 | 30.1 | 149.3 | 30.5 | 149.1 | 29.8 | 130.8 | 26.9 |
| Motor carriers[c] | 26.2 | 5.1 | 24.3 | 5.0 | 26.9 | 6.6 | 28.2 | 6.3 | 24.6 | 5.4 | 28.0 | 5.8 | 26.0 | 5.5 | 26.7 | 5.6 | 27.6 | 5.6 | 30.1 | 6.1 | 29.7 | 6.0 | 29.4 | 6.1 | 31.9 | 6.3 | 33.2 | 6.3 | 33.4 | 6.3 | 33.8 | 6.9 | 33.5 | 6.7 | 33.4 | 6.9 |
| Railroads | 12.6 | 2.4 | 12.0 | 2.4 | 11.3 | 2.7 | 13.3 | 3.0 | 15.9 | 3.5 | 16.0 | 3.3 | 16.2 | 3.4 | 16.2 | 3.4 | 18.2 | 3.7 | 19.9 | 4.0 | 18.5 | 3.8 | 19.7 | 4.1 | 19.3 | 3.8 | 21.1 | 4.0 | 22.8 | 4.3 | 25.4 | 5.2 | 26.2 | 5.2 | 22.3 | 4.6 |
| Combined crude and petroleum products, total | 846.7 | 100.0 | 1,245.3 | 100.0 | 1,195.5 | 100.0 | 1,076.8 | 100.0 | 1,044.9 | 100.0 | 1,022.2 | 100.0 | 956.5 | 100.0 | 929.8 | 100.0 | 912.9 | 100.0 | 873.3 | 100.0 | 869.8 | 100.0 | 864.6 | 100.0 | 883.3 | 100.0 | 902.5 | 100.0 | 906.0 | 100.0 | 855.4 | 100.0 | 835.4 | 100.0 | 882.2 | 100.0 |
| Pipelines[a] | 507.0 | 59.9 | 588.2 | 47.2 | 564.3 | 47.2 | 584.1 | 54.2 | 601.1 | 57.5 | 619.2 | 60.6 | 616.5 | 64.5 | 619.8 | 66.7 | 617.7 | 67.7 | 577.3 | 66.1 | 576.1 | 66.2 | 586.2 | 67.8 | 590.2 | 66.8 | 599.6 | 66.4 | 607.5 | 67.1 | 581.3 | 68.0 | 557.7 | 66.8 | 629.9 | 71.4 |
| Water carriers[b] | 298.0 | 35.2 | 617.8 | 49.6 | 590.4 | 49.4 | 449.0 | 41.7 | 400.9 | 38.4 | 356.5 | 34.9 | 295.6 | 30.9 | 265.0 | 28.5 | 247.5 | 27.1 | 244.4 | 28.0 | 244.0 | 28.1 | 227.6 | 26.3 | 240.1 | 27.2 | 246.9 | 27.4 | 240.5 | 26.5 | 213.1 | 24.9 | 216.0 | 25.9 | 194.0 | 22.0 |
| Motor carriers[c] | 27.6 | 3.3 | 26.8 | 2.2 | 28.7 | 2.4 | 29.7 | 2.8 | 26.3 | 2.5 | 29.7 | 2.9 | 27.7 | 2.9 | 28.3 | 3.0 | 29.0 | 3.2 | 31.3 | 3.6 | 30.8 | 3.5 | 30.6 | 3.5 | 33.2 | 3.8 | 34.4 | 3.8 | 34.8 | 3.8 | 35.2 | 4.1 | 35.2 | 4.2 | 35.1 | 4.0 |
| Railroads | 14.1 | 1.7 | 12.5 | 1.0 | 12.1 | 1.0 | 14.0 | 1.3 | (R) 16.7 | 1.6 | 16.8 | 1.6 | 16.7 | 1.7 | 16.7 | 1.8 | 18.7 | 2.0 | 20.3 | 2.3 | 18.9 | 2.2 | 20.2 | 2.3 | 19.8 | 2.2 | 21.6 | 2.4 | 23.2 | 2.6 | 25.8 | 3.0 | 26.6 | 3.2 | 23.0 | 2.6 |

[a] Beginning with 2006 data, *Pipeline* data were taken from PHMSA F 7000-1-1. Previously, data were extracted from FERC Form No. 6, which included data for federally-regulated pipelines. For 2005, data for federally regulated *Pipelines* were estimated to include about 90 percent of the total national ton-miles, so the *Pipeline* statistics for that year were adjusted to include an additional 10 percent of ton-miles. From 1990 through 2004, the federally regulated estimate was 84 percent with a 16 percent addition for other *Pipeline* ton-miles.

[b] The large increase in *Water carrier Ton-miles* between 1975 and 1980 reflects the entrance of the Alaska pipeline, moving crude petroleum for water transportation to U.S. refineries.

[c] The amount carried by *Motor carriers* is estimated.

**NOTE**
Details may not add to totals due to rounding in the source publication.

**SOURCES**
1975: Association of Oil Pipe Lines, *Shifts in Petroleum Transportation* (Washington, DC), table 6.
1980-85: Ibid., (Washington, DC: Annual Issues), tables 1, 2, and 3.

1990-2009: Ibid., (Washington, DC: Annual Issues), tables 1, 2, and 3, available at http://www.aopl.org/publications/?fa=reports as of Mar. 23, 2011.

## Table 1-62: U.S. Hazardous Materials Shipments by Transportation Mode, 2007

| Transportation mode | Value ($ billion) | Value Percent | Tons (millions) | Tons Percent | Ton-miles (billions) | Ton-miles Percent | Average miles per shipment |
|---|---|---|---|---|---|---|---|
| TOTAL all modes | 1,448.2 | 100.0 | 2,231.1 | 100.0 | 323.5 | 100.0 | 96 |
| Single modes, total | 1,370.6 | 94.6 | 2,111.6 | 94.6 | 279.1 | 86.3 | 65 |
| Truck[a] | 837.1 | 57.8 | 1,202.8 | 53.9 | 104.0 | 32.2 | 59 |
| For-hire | 358.8 | 24.8 | 495.1 | 22.2 | 63.3 | 19.6 | 214 |
| Private[b] | 478.3 | 33.0 | 707.7 | 31.7 | 40.7 | 12.6 | 32 |
| Rail | 69.2 | 4.8 | 129.7 | 5.8 | 92.2 | 28.5 | 578 |
| Water | 69.2 | 4.8 | 149.8 | 6.7 | 37.1 | 11.5 | 383 |
| Air | 1.7 | 0.1 | S | – | S | – | 1,095 |
| Pipeline[c] | 393.4 | 27.2 | 628.9 | 28.2 | S | S | S |
| Multiple modes, total | 71.1 | 4.9 | 111.0 | 5.0 | 42.9 | 13.3 | 834 |
| Parcel, U.S. Postal Service or Courier | 7.7 | 0.5 | 0.2 | – | 0.2 | – | 836 |
| Other | 63.4 | 4.4 | 110.8 | 5.0 | 42.7 | 13.2 | 233 |
| Unknown and other modes, total | 6.5 | 0.5 | 8.5 | 0.4 | 1.5 | 0.5 | 58 |

**KEY:** – = less than 1 unit of measure or equal to zero; S = data are not published because of high sampling variability or other reasons.

[a] Truck as a single mode includes shipments that went by private truck only, for-hire truck only, or a combination of both.

[b] Private truck refers to a truck operated by a temporary or permanent employee of an establishment or the buyer/receiver of the shipment.

[c] Excludes most shipments of crude oil. See previous table for the estimated amount of crude oil and petroleum products transported in the United States.

**NOTE**

Numbers may not add to totals due to rounding.

**SOURCE**

U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, U.S. Department of Commerce, Census Bureau, *2007 Commodity Flow Survey, Hazardous Materials* (Washington, DC: December 2009), table CF0700H01, available at http://factfinder.census.gov/servlet/IBQTable?_bm=y&-geo_id=&-ds_name=CF0700H01&-_lang=en as of Mar. 9, 2010.

## Table 1-63: U.S. Hazardous Materials Shipments by Hazard Class, 2007

| Hazard class and description | Value | | Tons | | Ton-miles | | Average miles per shipment |
|---|---|---|---|---|---|---|---|
| | (billion $) | Percent | (millions) | Percent | (billions) | Percent | |
| Class 1. Explosives | 12 | 0.8 | 3 | 0.1 | 1 | 0.3 | 738 |
| Class 2. Gases | 132 | 9.1 | 251 | 11.2 | 55 | 17.1 | 51 |
| Class 3. Flammable liquids | 1,170 | 80.8 | 1,753 | 78.6 | 182 | 56.1 | 91 |
| Class 4. Flammable solids | 4 | 0.3 | 20 | 0.9 | 6 | 1.7 | 309 |
| Class 5. Oxidizers and organic peroxides | 7 | 0.5 | 15 | 0.7 | 7 | 2.2 | 361 |
| Class 6. Toxics (poison) | 21 | 1.5 | 11 | 0.5 | 6 | 1.8 | 467 |
| Class 7. Radioactive materials | 21 | 1.4 | 1 | U | U | U | S |
| Class 8. Corrosive materials | 51 | 3.6 | 114 | 5.1 | 44 | 13.7 | 208 |
| Class 9. Miscellaneous dangerous goods | 30 | 2.1 | 63 | 2.8 | 23 | 7.1 | 484 |
| Total | 1,448 | 100.0 | 2,231 | 100.0 | 323 | 100.0 | 96 |

**KEY:** U = data are unavailable or less than 1 unit of measure or rounds to zero; S = data were not published because of high sampling variability or other reasons.

**NOTE**

Numbers may not add to totals due to rounding.

**SOURCE**

U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, and U.S. Department of Commerce, Census Bureau, 2007 Commodity Flow Survey, American Fact Finder, Hazardous Materials (Washington, DC: December 2009), table CF0700H02, available at http://www.census.gov/svsd/www/cfsmain.html as of December 29, 2009.

# Section E
# Physical Performance

**Table 1-64: Passengers Boarded and Denied Boarding by the Largest U.S. Air Carriers[a] (Thousands of passengers)**

| | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | (R) 2009 | 2010 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Boarded | 420,696 | 429,190 | 445,271 | 449,184 | 457,286 | 460,277 | 480,555 | 502,960 | 514,170 | 523,081 | 543,344 | 477,970 | 467,205 | 485,797 | 522,308 | 516,553 | 552,445 | 567,740 | 576,476 | 548,041 | 595,253 |
| Denied boarding,[b] total | 628 | 646 | 764 | 683 | 824 | 842 | 957 | 1,071 | 1,136 | 1,070 | 1,120 | 900 | 837 | 769 | 747 | 597 | 674 | 685 | 684 | 719 | 746 |
| Voluntary | 561 | 599 | 718 | 632 | 771 | 794 | 899 | 1,018 | 1,091 | 1,024 | 1,062 | 861 | 803 | 727 | 702 | 552 | 619 | 621 | 620 | 651 | 681 |
| Involuntary | 67 | 47 | 46 | 51 | 53 | 49 | 58 | 54 | 45 | 46 | 57 | 39 | 34 | 42 | 45 | 45 | 55 | 64 | 64 | 67 | 65 |
| Percent denied boarding | 0.15 | 0.15 | 0.17 | 0.15 | 0.18 | 0.18 | 0.20 | 0.21 | 0.22 | 0.20 | 0.21 | 0.19 | 0.18 | 0.16 | 0.14 | 0.12 | 0.12 | 0.12 | 0.12 | 0.13 | 0.11 |

**KEY:** R = revised.

[a] Data include nonstop scheduled service between points within the United States (including territories) by U.S. air carriers with at least 1% of the total domestic scheduled service passenger revenues and operate aircraft with a passenger capacity of more than 60 seats. In 2010, the air carriers were Jetblue, Airtran, Hawaiian, United, Alaska, American, Frontier, Southwest, US Airways, American Eagle, Continental, Mesa, Skywest, Delta, Comair, Atlantic Southeast, Pinnacle, and ExpressJet. Before 1994, carriers included both majors and national airlines, i.e., airlines with over $100 million in revenue.

[b] Number of passengers who hold confirmed reservations and are denied boarding ("bumped") from a flight because it is oversold. These figures include only passengers whose oversold flight departs without them; they do not include passengers affected by canceled, delayed, or diverted flights.

**NOTE**

Since merging with Delta, data for Northwest Airlines are included under Delta as of January 2010.

**SOURCE**

U.S. Department of Transportation, Office of Aviation Enforcement and Proceedings, Aviation Consumer Protection Division, *Air Travel Consumer Report* (Washington, DC: Annual February Issues), p. 33 and similar pages in previous editions, available at http://airconsumer.ost.dot.gov/reports/index.htm as of Mar. 14, 2011.

**Table 1-65: Mishandled-Baggage Reports Filed by Passengers with the Largest U.S. Air Carriers[a]**

| | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | (R) 2009 | 2010 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total mishandled-baggage reports (millions) | 2.66 | 2.20 | 2.45 | 2.28 | 2.32 | 2.28 | 2.46 | 2.28 | 2.48 | 2.54 | 2.74 | 2.14 | 1.81 | 2.20 | 2.82 | 2.94 | 4.08 | 4.40 | 3.14 | 2.10 | 2.04 |
| Enplaned passengers (domestic) (millions) | 395.70 | 408.47 | 416.95 | 407.55 | 435.67 | 439.80 | 464.00 | 459.83 | 481.75 | 499.10 | 517.47 | 467.93 | 471.35 | 524.52 | 575.36 | 442.02 | 606.60 | 624.69 | 595.82 | 527.83 | 571.38 |
| Reports per 1,000 passengers | 6.73 | 5.38 | 5.87 | 5.60 | 5.33 | 5.18 | 5.30 | 4.96 | 5.16 | 5.08 | 5.29 | 4.58 | 3.84 | 4.19 | 4.91 | 6.64 | 6.73 | 7.05 | 5.26 | 3.99 | 3.57 |

**KEY:** R = revised.

[a] Data include nonstop scheduled service between points within the United States (including territories) by U.S. air carriers with at least 1% of the total domestic scheduled service passenger revenues and those carriers that report voluntarily. In 2010, the air carriers were Airtran, Alaska, American, American Eagle, Atlantic Southeast, Comair, Continental, Delta, ExpressJet, Frontier, Hawaiian, JetBlue, Mesa, Pinnacle, Skywest, Southwest, United, and US Airways.

**NOTES**

Domestic system only.

Based on passenger reports of mishandled-baggage, including those that did not subsequently result in claims for compensation.

Since merging with Delta, data for Northwest Airlines are included under Delta as of January 2010.

**SOURCE**

U.S. Department of Transportation, Office of Aviation Enforcement and Proceedings, Aviation Consumer Protection Division,*Air Travel Consumer Report* (Washington, DC: Annual February Issues), p. 30 and similar pages in previous editions, available at http://airconsumer.dot.gov/reports/index.htm as of Mar. 14, 2011.

## Table 1-66: Flight Operations Arriving On Time by the Largest U.S. Air Carriers[a]

| | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| On-time flight operations (percent) | 79.4 | 82.5 | 82.3 | 81.6 | 81.5 | 78.6 | 74.5 | 77.7 | 77.2 | 76.1 | 72.6 | 77.4 | 82.1 | 82.0 | 78.1 | 77.4 | 75.4 | 73.4 | 76.0 | 79.5 | 79.8 |

[a] Data include nonstop scheduled service between points within the United States (including territories) by U.S. air carriers with at least 1% of the total domestic scheduled service passenger revenues and those carriers that report voluntarily. In 2010, the air carriers were Airtran, Alaska, American, American Eagle, Atlantic Southeast, Comair, Continental, Delta, ExpressJet, Frontier, Hawaiian, JetBlue, Mesa, Pinnacle, Skywest, Southwest, United, and US Airways.

**NOTES**

A flight is considered on time if it arrived less than 15 minutes after the scheduled time shown in the carriers' Computerized Reservations Systems. Canceled and diverted operations are counted as late.

Since merging with Delta, data for Northwest Airlines are included under Delta as of January 2010.

**SOURCE**

U.S. Department of Transportation, Office of Aviation Enforcement and Proceedings, Aviation Consumer Protection Division, *Air Travel Consumer Report* (Washington, DC: Annual February Issues), table 1a, available at http://airconsumer.ost.dot.gov/reports/index.htm as of Mar. 14, 2011.

**Table 1-67: FAA-Cited Causes of Departure and En Route Delays (After pushing back from the gate)**

| | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | (R) 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Operations delayed (thousands) | 356 | 338 | 394 | 393 | 298 | 281 | 276 | 248 | 237 | 272 | 245 | 306 | 374 | 450 | 348 | 286 | 317 | 455 | 438 | 492 | 541 | 555 | 473 |
| Cause (percent) | | | | | | | | | | | | | | | | | | | | | | | |
| Weather | 67 | 70 | 57 | 56 | 65 | 65 | 72 | 75 | 72 | 74 | 68 | 74 | 69 | 69 | 72 | 72 | 72 | 70 | 69 | 66 | 65 | 66 | 63 |
| Airport terminal volume | 11 | 9 | 29 | 33 | 26 | 25 | 21 | 18 | 17 | 17 | 20 | 13 | 8 | 14 | 12 | 14 | 11 | 15 | 15 | 16 | 19 | 20 | 21 |
| Air Route Traffic Control Center volume | 13 | 12 | 8 | 2 | 1 | 2 | 1 | 1 | 1 | 2 | 2 | 2 | 4 | U | U | U | U | U | U | U | U | U | U |
| Closed runways / taxiways | 4 | 5 | 3 | 3 | 3 | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 5 | 6 | 5 | 4 | 7 | 6 | 10 | 14 | 12 | 9 | 6 |
| National Airspace System equipment | 4 | 3 | 2 | 1 | 2 | 2 | 2 | 2 | 3 | 2 | 3 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Other | 1 | 1 | 1 | 4 | 3 | 3 | 2 | 2 | 4 | 2 | 4 | 6 | 13 | 9 | 10 | 9 | 9 | 8 | 5 | 3 | 3 | 4 | 6 |

**KEY:** FAA = Federal Aviation Administration; R = revised; U = data are unavailable.

**NOTE**

As of 2008, the FAA reports *delays* for aircraft that accumulate a *delay* of 15 minutes or more throughout the duration of the flight. Each holding segment is recorded as one *delay*. The Operations Network (OPSNET) Database *delay* data dating back to the year 2000 have been converted to be consistent with the new definitions.

Beginning in 2008 the FAA started to combine *Air Route Traffic Control Center volume* and *Airport Terminal volume* and retroactively applied this change through the year 2000.

Numbers may not add to totals due to rounding.

**SOURCES**

1987-97: U.S. Department of Transportation, Federal Aviation Administration, *Aviation Capacity Enhancement Plan* (Washington, DC: Annual Issues).

1998-99: U.S. Department of Transportation, Federal Aviation Administration, *Operations Network (OPSNET) Database*, available at http://www.faa.gov/apa/Delays/atDelays.htm as of Aug. 8, 2002.

2000-09: Ibid., *Operations Network (OPSNET) Database*, available at http://www.apo.data.faa.gov/ as of Apr. 28, 2010.

**Table 1-68: Major U.S. Air Carrier Delays, Cancellations, and Diversions**

| | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total operations | 5,202,096 | 5,041,200 | 5,270,893 | 5,076,925 | 5,092,157 | 5,070,501 | 5,180,048 | 5,327,435 | 5,351,983 | 5,411,843 | 5,384,721 | 5,527,884 | 5,683,047 | 5,967,780 | 5,271,359 | 6,488,540 | 7,129,270 | 7,140,596 | 7,141,922 | 7,455,458 | 7,009,726 | 6,450,285 | 6,450,118 |
| Late departures | 730,712 | 883,167 | 753,182 | 621,509 | 617,148 | 661,056 | 729,960 | 827,934 | 973,948 | 846,870 | 870,395 | 937,273 | 1,131,663 | 953,808 | 717,368 | 834,390 | 1,187,594 | 1,279,404 | 1,424,777 | 1,572,978 | 1,327,198 | 1,084,290 | 1,111,949 |
| Percent of total | 14.0 | 17.5 | 14.3 | 12.2 | 12.1 | 13.0 | 14.1 | 15.5 | 18.2 | 15.6 | 16.2 | 17.0 | 19.9 | 16.0 | 13.6 | 12.9 | 16.7 | 17.9 | 19.9 | 21.1 | 18.9 | 16.8 | 17.2 |
| Late arrivals | 1,042,452 | 1,208,470 | 1,087,774 | 890,068 | 902,567 | 931,437 | 960,254 | 1,039,250 | 1,220,045 | 1,083,834 | 1,070,071 | 1,152,725 | 1,356,040 | 1,104,439 | 868,225 | 1,057,804 | 1,421,391 | 1,466,065 | 1,615,537 | 1,804,028 | 1,524,735 | 1,218,288 | 1,174,885 |
| Percent of total | 20.0 | 24.0 | 20.6 | 17.5 | 17.7 | 18.4 | 18.5 | 19.5 | 22.8 | 20.0 | 19.9 | 20.9 | 23.9 | 18.5 | 16.5 | 16.3 | 19.9 | 20.5 | 22.6 | 24.2 | 21.8 | 18.9 | 18.2 |
| Cancellations | 50,163 | 74,165 | 52,458 | 43,505 | 52,836 | 59,845 | 66,740 | 91,905 | 128,536 | 97,763 | 144,509 | 154,311 | 187,490 | 231,198 | 65,143 | 101,469 | 127,757 | 133,730 | 121,934 | 160,809 | 137,432 | 89,377 | 113,255 |
| Percent of total | 1.0 | 1.5 | 1.0 | 0.9 | 1.0 | 1.2 | 1.3 | 1.7 | 2.4 | 1.8 | 2.7 | 2.8 | 3.3 | 3.9 | 1.2 | 1.6 | 1.8 | 1.9 | 1.7 | 2.2 | 2.0 | 1.4 | 1.8 |
| Diversions | 14,436 | 14,839 | 15,954 | 12,585 | 11,384 | 10,333 | 12,106 | 10,492 | 14,121 | 12,081 | 13,161 | 13,555 | 14,254 | 12,909 | 8,356 | 11,381 | 13,784 | 14,028 | 16,186 | 17,182 | 17,265 | 15,463 | 15,474 |
| Percent of total | 0.3 | 0.3 | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.2 | 0.2 | 0.2 | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |

**KEY**: R = revised.

**NOTES**

*Late departures* and *arrivals* are strongly seasonal and are affected by weather and heavy demand in winter and summer months. The term *Late* is defined as 15 minutes after the scheduled departure or arrival time. A cancelled flight is one that was not operated, but was listed in a carrier's computer reservation system within seven calendar days of the scheduled departure. A diverted flight is one that left from the scheduled departure airport but flew to a destination point other than the scheduled destination point. The number of carriers reporting beginning in 2010 is 18. The number of carriers reporting in 2008 and 2009 is 19 (20 through February 2008, after which Aloha Airlines ceased reporting). During 2005-2007, 20 air carriers reported on-time performance data, including all major U.S. carriers (carriers with at least one percent of total domestic scheduled-service passenger revenues) and other carriers that reported voluntarily. The number of carriers reporting in previous years is as follows: 2004 (19); 2003 (18); 2002 (10); 2001 (12); 2000 (11); 1999 (10); 1998 (10); 1997 (10); 1996 (10); and 1995 (10).

**SOURCES**

1988-94: U.S. Department of Transportation, Bureau of Transportation Statistics, Office of Airline Information *Airline Service Quality Performance Data*.

1995-2010: Ibid., *Airline On-Time Tables, Table 1 - Summary of Airline On-Time Performance Year-to-date through December 2010,* available at http://www.bts.gov/programs/airline_information/airline_ontime_tables/ as of Mar. 14, 2011.

**Table 1-69: Annual Person-Hours of Highway Traffic Delay Per Person**

| Urban area | Population group | (R) 1982 | (R) 1985 | (R) 1990 | (R) 1991 | (R) 1992 | (R) 1993 | (R) 1994 | (R) 1995 | (R) 1996 | (R) 1997 | (R) 1998 | (R) 1999 | (R) 2000 | (R) 2001 | (R) 2002 | (R) 2003 | (R) 2004 | (R) 2005 | (R) 2006 | (R) 2007 | 2008 | 2009 | Percent change[a] Short-term 2004-2009 Percent | Short-term 2004-2009 Rank | Long-term 1982-2009 Percent | Long-term 1982-2009 Rank |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Akron, OH | Medium | 3 | 4 | 9 | 10 | 12 | 14 | 18 | 15 | 19 | 22 | 23 | 23 | 22 | 21 | 20 | 18 | 19 | 19 | 20 | 16 | 16 | 16 | -16 | 71 | 433 | 24 |
| Albany-Schenectady-Troy, NY | Medium | 3 | 4 | 7 | 8 | 8 | 8 | 9 | 10 | 10 | 11 | 12 | 13 | 14 | 15 | 15 | 17 | 19 | 19 | 22 | 24 | 17 | 18 | -5 | 34 | 500 | 21 |
| Albuquerque, NM | Medium | 9 | 12 | 18 | 18 | 21 | 23 | 24 | 27 | 30 | 32 | 33 | 34 | 30 | 29 | 27 | 28 | 31 | 33 | 34 | 35 | 29 | 26 | -16 | 73 | 189 | 65 |
| Allentown-Bethlehem, PA-NJ | Medium | 7 | 8 | 11 | 12 | 14 | 17 | 19 | 20 | 23 | 25 | 26 | 23 | 24 | 24 | 24 | 23 | 24 | 24 | 23 | 24 | 22 | 22 | -8 | 45 | 214 | 64 |
| Anchorage, AK | Small | 16 | 19 | 18 | 17 | 19 | 18 | 18 | 18 | 18 | 18 | 20 | 20 | 20 | 22 | 23 | 22 | 22 | 21 | 22 | 22 | 16 | 14 | -36 | 99 | -13 | 100 |
| Atlanta, GA | Very large | 13 | 17 | 23 | 26 | 30 | 34 | 38 | 40 | 43 | 46 | 49 | 49 | 52 | 53 | 55 | 56 | 56 | 58 | 57 | 51 | 45 | 44 | -21 | 82 | 238 | 59 |
| Austin, TX | Large | 9 | 15 | 17 | 19 | 17 | 19 | 19 | 27 | 30 | 33 | 31 | 35 | 36 | 39 | 40 | 44 | 47 | 52 | 50 | 46 | 41 | 39 | -17 | 76 | 333 | 43 |
| Bakersfield, CA | Medium | 1 | 1 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 4 | 4 | 4 | 4 | 5 | 5 | 6 | 7 | 6 | 6 | 9 | 11 | 83 | 2 | 1,000 | 3 |
| Baltimore, MD | Large | 11 | 18 | 35 | 35 | 33 | 34 | 34 | 36 | 37 | 38 | 37 | 37 | 41 | 44 | 53 | 56 | 56 | 57 | 57 | 56 | 48 | 50 | -11 | 55 | 355 | 39 |
| Baton Rouge, LA | Medium | 9 | 13 | 17 | 18 | 17 | 21 | 23 | 26 | 26 | 26 | 26 | 31 | 31 | 32 | 32 | 36 | 37 | 37 | 35 | 34 | 37 | 37 | 0 | 19 | 311 | 48 |
| Beaumont, TX | Small | 5 | 6 | 6 | 7 | 8 | 9 | 9 | 10 | 11 | 11 | 14 | 16 | 18 | 19 | 23 | 24 | 25 | 26 | 25 | 25 | 23 | 21 | -16 | 72 | 320 | 45 |
| Birmingham, AL | Medium | 7 | 9 | 11 | 12 | 13 | 15 | 19 | 20 | 21 | 23 | 28 | 29 | 30 | 30 | 30 | 31 | 32 | 31 | 31 | 30 | 26 | 28 | -13 | 60 | 300 | 49 |
| Boise, ID | Small | 2 | 4 | 8 | 9 | 10 | 10 | 9 | 10 | 13 | 16 | 18 | 19 | 20 | 23 | 23 | 23 | 23 | 24 | 25 | 24 | 18 | 21 | -9 | 48 | 950 | 4 |
| Boston, MA-NH-RI | Very large | 13 | 18 | 29 | 29 | 34 | 34 | 35 | 35 | 36 | 39 | 40 | 41 | 44 | 45 | 49 | 51 | 56 | 57 | 56 | 52 | 50 | 48 | -14 | 64 | 269 | 56 |
| Boulder, CO | Small | 9 | 11 | 14 | 15 | 18 | 21 | 21 | 24 | 24 | 27 | 26 | 27 | 28 | 29 | 27 | 27 | 28 | 28 | 31 | 26 | 22 | 15 | -46 | 101 | 67 | 96 |
| Bridgeport-Stamford, CT-NY | Medium | 11 | 16 | 22 | 22 | 26 | 25 | 28 | 30 | 29 | 34 | 38 | 41 | 44 | 45 | 47 | 47 | 45 | 47 | 50 | 50 | 39 | 35 | -22 | 86 | 218 | 63 |
| Brownsville, TX | Small | 1 | 2 | 3 | 3 | 3 | 3 | 4 | 4 | 5 | 5 | 6 | 6 | 8 | 8 | 8 | 9 | 9 | 10 | 10 | 10 | 13 | 14 | 56 | 3 | 1,300 | 2 |
| Buffalo, NY | Large | 4 | 5 | 8 | 8 | 8 | 9 | 9 | 10 | 10 | 11 | 12 | 14 | 16 | 16 | 17 | 21 | 20 | 21 | 23 | 21 | 16 | 17 | -15 | 67 | 325 | 44 |
| Cape Coral, FL | Small | 8 | 9 | 12 | 14 | 16 | 21 | 24 | 27 | 29 | 27 | 25 | 24 | 23 | 26 | 26 | 27 | 27 | 28 | 32 | 31 | 23 | 23 | -15 | 66 | 188 | 66 |
| Charleston-North Charleston, SC | Medium | 10 | 14 | 19 | 20 | 22 | 22 | 23 | 23 | 22 | 23 | 25 | 25 | 25 | 25 | 26 | 28 | 29 | 28 | 31 | 30 | 24 | 27 | -7 | 42 | 170 | 71 |
| Charlotte, NC-SC | Large | 5 | 8 | 11 | 11 | 12 | 11 | 11 | 10 | 12 | 14 | 15 | 17 | 19 | 20 | 22 | 23 | 25 | 25 | 26 | 27 | 26 | 26 | 4 | 17 | 420 | 26 |
| Chicago, IL-IN | Very large | 18 | 27 | 39 | 39 | 41 | 41 | 41 | 46 | 52 | 52 | 55 | 55 | 55 | 57 | 66 | 68 | 72 | 77 | 74 | 71 | 64 | 70 | -3 | 29 | 289 | 54 |
| Cincinnati, OH-KY-IN | Large | 4 | 6 | 14 | 15 | 17 | 19 | 24 | 23 | 24 | 28 | 28 | 27 | 29 | 28 | 28 | 30 | 29 | 28 | 28 | 27 | 21 | 19 | -34 | 98 | 375 | 34 |
| Cleveland, OH | Large | 3 | 3 | 8 | 9 | 10 | 12 | 14 | 17 | 19 | 21 | 19 | 20 | 20 | 18 | 17 | 16 | 19 | 17 | 17 | 16 | 20 | 19 | 0 | 19 | 533 | 17 |
| Colorado Springs, CO | Medium | 6 | 7 | 10 | 10 | 13 | 15 | 18 | 21 | 21 | 27 | 33 | 39 | 45 | 47 | 47 | 45 | 42 | 53 | 50 | 44 | 31 | 31 | -26 | 92 | 417 | 27 |
| Columbia, SC | Small | 4 | 7 | 10 | 10 | 12 | 11 | 12 | 12 | 13 | 14 | 14 | 15 | 17 | 18 | 18 | 20 | 20 | 20 | 24 | 28 | 24 | 25 | 25 | 5 | 525 | 20 |
| Columbus, OH | Large | 2 | 3 | 8 | 8 | 9 | 11 | 12 | 13 | 15 | 16 | 16 | 16 | 15 | 16 | 16 | 17 | 19 | 19 | 18 | 17 | 19 | 17 | -11 | 53 | 750 | 8 |
| Corpus Christi, TX | Small | 5 | 6 | 6 | 7 | 7 | 7 | 7 | 7 | 7 | 8 | 8 | 9 | 9 | 10 | 10 | 10 | 11 | 11 | 9 | 11 | 10 | 10 | -9 | 49 | 100 | 90 |
| Dallas-Fort Worth-Arlington, TX | Very large | 7 | 12 | 19 | 21 | 23 | 26 | 27 | 30 | 30 | 30 | 33 | 39 | 40 | 41 | 43 | 45 | 49 | 51 | 53 | 51 | 49 | 48 | -2 | 28 | 586 | 13 |
| Dayton, OH | Medium | 7 | 9 | 14 | 14 | 15 | 16 | 15 | 18 | 17 | 19 | 18 | 20 | 19 | 16 | 16 | 15 | 17 | 15 | 15 | 13 | 15 | 15 | -12 | 59 | 114 | 85 |
| Denver-Aurora, CO | Large | 12 | 14 | 16 | 19 | 21 | 26 | 28 | 32 | 36 | 38 | 41 | 45 | 47 | 47 | 46 | 47 | 50 | 53 | 52 | 49 | 48 | 47 | -6 | 37 | 292 | 52 |
| Detroit, MI | Very large | 14 | 16 | 28 | 29 | 32 | 34 | 32 | 32 | 33 | 34 | 34 | 36 | 36 | 39 | 41 | 42 | 42 | 41 | 42 | 42 | 37 | 33 | -21 | 82 | 136 | 80 |
| El Paso, TX-NM | Medium | 3 | 4 | 7 | 8 | 11 | 11 | 14 | 12 | 11 | 12 | 14 | 17 | 20 | 22 | 22 | 23 | 27 | 28 | 28 | 26 | 25 | 21 | -22 | 86 | 600 | 11 |
| Eugene, OR | Small | 5 | 5 | 7 | 7 | 7 | 7 | 6 | 7 | 7 | 9 | 10 | 12 | 15 | 12 | 13 | 14 | 13 | 14 | 13 | 12 | 10 | 9 | -31 | 96 | 80 | 95 |
| Fresno, CA | Medium | 7 | 7 | 11 | 10 | 11 | 11 | 11 | 11 | 12 | 13 | 16 | 17 | 18 | 16 | 16 | 16 | 15 | 16 | 16 | 16 | 12 | 14 | -7 | 40 | 100 | 90 |
| Grand Rapids, MI | Medium | 4 | 6 | 9 | 9 | 12 | 16 | 15 | 14 | 15 | 15 | 18 | 19 | 18 | 18 | 17 | 18 | 19 | 19 | 19 | 18 | 17 | 19 | 0 | 19 | 375 | 34 |
| Greensboro, NC | Small | 3 | 3 | 5 | 6 | 9 | 11 | 11 | 12 | 18 | 19 | 21 | 23 | 24 | 27 | 28 | 27 | 20 | 19 | 17 | 16 | 14 | 15 | -25 | 90 | 400 | 28 |
| Hartford, CT | Medium | 5 | 6 | 10 | 10 | 16 | 13 | 15 | 16 | 17 | 20 | 23 | 25 | 26 | 25 | 25 | 25 | 27 | 27 | 31 | 30 | 24 | 24 | -11 | 56 | 380 | 31 |
| Honolulu, HI | Medium | 14 | 17 | 26 | 26 | 29 | 29 | 28 | 30 | 29 | 26 | 27 | 27 | 25 | 26 | 25 | 28 | 29 | 32 | 32 | 34 | 31 | 31 | 7 | 14 | 121 | 82 |
| Houston, TX | Very large | 24 | 34 | 31 | 29 | 27 | 28 | 31 | 31 | 34 | 39 | 40 | 42 | 45 | 48 | 49 | 48 | 52 | 55 | 55 | 54 | 63 | 58 | 12 | 10 | 142 | 79 |
| Indianapolis, IN | Large | 10 | 12 | 16 | 18 | 21 | 27 | 31 | 32 | 33 | 35 | 31 | 30 | 31 | 31 | 32 | 32 | 32 | 30 | 29 | 28 | 25 | 25 | -22 | 84 | 150 | 75 |
| Indio-Cathedral City-Palm Springs, CA | Medium | 22 | 21 | 23 | 23 | 22 | 21 | 20 | 19 | 18 | 19 | 18 | 16 | 15 | 14 | 13 | 16 | 17 | 20 | 21 | 19 | 14 | 14 | -18 | 77 | -36 | 101 |
| Jackson, MS | Small | 3 | 4 | 4 | 6 | 6 | 6 | 8 | 9 | 9 | 11 | 11 | 12 | 12 | 15 | 16 | 16 | 19 | 20 | 23 | 23 | 19 | 19 | 0 | 19 | 533 | 17 |
| Jacksonville, FL | Large | 10 | 14 | 20 | 20 | 24 | 25 | 26 | 28 | 29 | 28 | 27 | 26 | 26 | 25 | 29 | 31 | 32 | 31 | 31 | 32 | 28 | 26 | -19 | 79 | 160 | 74 |
| Kansas City, MO-KS | Large | 4 | 8 | 16 | 15 | 17 | 25 | 26 | 25 | 29 | 31 | 31 | 36 | 33 | 32 | 31 | 32 | 28 | 30 | 31 | 27 | 22 | 21 | -25 | 90 | 425 | 25 |
| Knoxville, TN | Small | 6 | 7 | 17 | 17 | 19 | 20 | 22 | 24 | 29 | 29 | 28 | 28 | 26 | 25 | 25 | 25 | 24 | 23 | 21 | 22 | 22 | 21 | -13 | 60 | 250 | 57 |
| Lancaster-Palmdale, CA | Medium | 19 | 19 | 16 | 20 | 19 | 16 | 15 | 12 | 12 | 11 | 11 | 11 | 12 | 13 | 15 | 16 | 16 | 17 | 18 | 17 | 16 | 18 | 13 | 7 | -5 | 99 |
| Laredo, TX | Small | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 1 | 1 | 2 | 2 | 4 | 12 | 1100 | 1 | 119,900 | 1 |
| Las Vegas, NV | Large | 5 | 7 | 15 | 17 | 17 | 19 | 21 | 23 | 23 | 23 | 23 | 24 | 24 | 24 | 26 | 28 | 30 | 32 | 32 | 33 | 27 | 32 | 7 | 15 | 540 | 16 |
| Little Rock, AR | Small | 5 | 5 | 7 | 8 | 8 | 10 | 11 | 12 | 13 | 13 | 16 | 19 | 17 | 20 | 16 | 19 | 24 | 23 | 24 | 28 | 22 | 24 | 0 | 19 | 380 | 31 |
| Los Angeles-Long Beach-Santa Ana, CA | Very large | 39 | 46 | 80 | 76 | 75 | 70 | 68 | 70 | 72 | 73 | 73 | 76 | 76 | 79 | 80 | 79 | 82 | 82 | 84 | 79 | 60 | 63 | -23 | 89 | 62 | 97 |
| Louisville, KY-IN | Large | 9 | 9 | 10 | 13 | 16 | 18 | 19 | 19 | 21 | 23 | 24 | 25 | 25 | 22 | 24 | 25 | 26 | 25 | 24 | 22 | 21 | 22 | -15 | 69 | 144 | 77 |
| Madison, WI | Small | 5 | 5 | 6 | 5 | 5 | 6 | 6 | 6 | 6 | 5 | 6 | 6 | 6 | 7 | 7 | 7 | 8 | 7 | 7 | 7 | 9 | 11 | 38 | 4 | 120 | 83 |
| McAllen, TX | Medium | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 3 | 3 | 3 | 5 | 6 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 6 | 7 | 0 | 19 | 600 | 11 |
| Memphis, TN-MS-AR | Large | 5 | 5 | 12 | 13 | 14 | 16 | 18 | 20 | 20 | 21 | 22 | 22 | 24 | 25 | 25 | 28 | 28 | 28 | 28 | 25 | 21 | 24 | -14 | 64 | 380 | 31 |
| Miami, FL | Very large | 10 | 12 | 22 | 22 | 24 | 24 | 25 | 26 | 26 | 28 | 29 | 33 | 38 | 40 | 42 | 44 | 44 | 45 | 44 | 43 | 35 | 39 | -11 | 58 | 290 | 53 |
| Milwaukee, WI | Large | 9 | 13 | 22 | 23 | 26 | 29 | 27 | 30 | 28 | 28 | 30 | 32 | 32 | 30 | 30 | 31 | 31 | 31 | 28 | 29 | 27 | 25 | -19 | 80 | 178 | 70 |
| Minneapolis-St. Paul, MN | Large | 6 | 10 | 20 | 20 | 23 | 28 | 32 | 34 | 35 | 43 | 45 | 47 | 48 | 53 | 49 | 49 | 50 | 54 | 50 | 48 | 50 | 43 | -14 | 63 | 617 | 10 |
| Nashville-Davidson, TN | Large | 17 | 17 | 26 | 25 | 23 | 24 | 31 | 33 | 33 | 36 | 32 | 34 | 36 | 37 | 40 | 43 | 43 | 43 | 41 | 39 | 33 | 35 | -19 | 78 | 106 | 88 |
| New Haven, CT | Medium | 7 | 11 | 14 | 15 | 18 | 20 | 20 | 22 | 20 | 25 | 30 | 34 | 34 | 37 | 37 | 36 | 32 | 34 | 34 | 33 | 28 | 29 | -9 | 50 | 314 | 47 |
| New Orleans, LA | Large | 17 | 22 | 22 | 23 | 22 | 22 | 24 | 24 | 22 | 24 | 25 | 26 | 25 | 24 | 24 | 25 | 25 | 26 | 31 | 29 | 28 | 31 | 24 | 6 | 82 | 94 |
| New York-Newark, NY-NJ-CT | Very large | 10 | 12 | 23 | 21 | 21 | 22 | 25 | 27 | 29 | 32 | 33 | 36 | 35 | 35 | 37 | 42 | 47 | 51 | 50 | 48 | 42 | 42 | -11 | 54 | 320 | 45 |
| Oklahoma City, OK | Medium | 5 | 7 | 9 | 11 | 11 | 13 | 12 | 17 | 19 | 22 | 22 | 25 | 23 | 27 | 28 | 25 | 25 | 23 | 27 | 30 | 26 | 25 | 0 | 19 | 400 | 28 |

**Table 1-69: Annual Person-Hours of Highway Traffic Delay Per Person**

| Urban area | Population group | (R) 1982 | (R) 1985 | (R) 1990 | (R) 1991 | (R) 1992 | (R) 1993 | (R) 1994 | (R) 1995 | (R) 1996 | (R) 1997 | (R) 1998 | (R) 1999 | (R) 2000 | (R) 2001 | (R) 2002 | (R) 2003 | (R) 2004 | (R) 2005 | (R) 2006 | (R) 2007 | 2008 | 2009 | Percent change[a] Short-term 2004-2009 Percent | Short-term 2004-2009 Rank | Long-term 1982-2009 Percent | Long-term 1982-2009 Rank |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Omaha, NE-IA | Medium | 3 | 4 | 8 | 8 | 10 | 10 | 11 | 11 | 12 | 12 | 14 | 14 | 16 | 17 | 18 | 18 | 18 | 18 | 20 | 19 | 21 | 20 | 11 | 11 | 567 | 14 |
| Orlando, FL | Large | 11 | 17 | 31 | 35 | 35 | 34 | 35 | 37 | 39 | 42 | 45 | 46 | 47 | 49 | 47 | 46 | 44 | 44 | 44 | 43 | 37 | 41 | -7 | 41 | 273 | 55 |
| Oxnard-Ventura, CA | Medium | 2 | 4 | 7 | 7 | 8 | 9 | 11 | 12 | 14 | 12 | 13 | 15 | 16 | 18 | 19 | 19 | 21 | 23 | 22 | 24 | 18 | 19 | -10 | 51 | 850 | 6 |
| Pensacola, FL-AL | Small | 3 | 3 | 8 | 7 | 9 | 10 | 10 | 12 | 14 | 16 | 15 | 15 | 16 | 16 | 17 | 19 | 20 | 21 | 23 | 23 | 18 | 19 | -5 | 33 | 533 | 17 |
| Philadelphia, PA-NJ-DE-MD | Very large | 12 | 15 | 20 | 21 | 23 | 21 | 23 | 24 | 24 | 27 | 30 | 31 | 32 | 35 | 38 | 40 | 41 | 42 | 42 | 42 | 38 | 39 | -5 | 32 | 225 | 62 |
| Phoenix, AZ | Very large | 24 | 23 | 26 | 26 | 27 | 27 | 27 | 25 | 28 | 29 | 30 | 32 | 34 | 37 | 36 | 37 | 38 | 44 | 41 | 41 | 37 | 36 | -5 | 34 | 50 | 98 |
| Pittsburgh, PA | Large | 18 | 20 | 33 | 33 | 31 | 31 | 31 | 36 | 36 | 35 | 34 | 37 | 35 | 37 | 38 | 37 | 38 | 37 | 34 | 35 | 31 | 33 | -13 | 62 | 83 | 93 |
| Portland, OR-WA | Large | 11 | 11 | 20 | 21 | 25 | 27 | 27 | 30 | 34 | 34 | 35 | 37 | 38 | 38 | 37 | 39 | 40 | 42 | 41 | 40 | 36 | 36 | -10 | 52 | 227 | 61 |
| Poughkeepsie-Newburgh, NY | Medium | 5 | 6 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 8 | 8 | 8 | 8 | 8 | 9 | 10 | 10 | 10 | 11 | 10 | 9 | 11 | 10 | 12 | 120 | 83 |
| Providence, RI-MA | Large | 2 | 3 | 7 | 7 | 8 | 9 | 9 | 10 | 12 | 13 | 16 | 18 | 19 | 21 | 24 | 26 | 26 | 26 | 24 | 26 | 20 | 19 | -27 | 93 | 850 | 6 |
| Provo, UT | Small | 5 | 5 | 7 | 8 | 8 | 8 | 9 | 9 | 9 | 10 | 10 | 11 | 11 | 12 | 12 | 13 | 13 | 14 | 14 | 14 | 13 | 14 | 8 | 13 | 180 | 69 |
| Raleigh-Durham, NC | Large | 5 | 9 | 17 | 17 | 16 | 18 | 20 | 21 | 22 | 25 | 23 | 25 | 26 | 27 | 29 | 28 | 30 | 31 | 29 | 31 | 25 | 25 | -17 | 75 | 400 | 28 |
| Richmond, VA | Medium | 4 | 5 | 8 | 9 | 11 | 11 | 14 | 16 | 18 | 16 | 15 | 15 | 13 | 14 | 14 | 15 | 17 | 17 | 17 | 17 | 16 | 19 | 12 | 9 | 375 | 34 |
| Riverside-San Bernardino, CA | Large | 3 | 5 | 15 | 17 | 17 | 18 | 15 | 17 | 18 | 18 | 21 | 22 | 24 | 24 | 26 | 29 | 32 | 37 | 38 | 36 | 30 | 30 | -6 | 38 | 900 | 5 |
| Rochester, NY | Medium | 3 | 4 | 8 | 8 | 8 | 8 | 9 | 10 | 10 | 11 | 10 | 12 | 12 | 11 | 11 | 12 | 13 | 13 | 14 | 15 | 13 | 12 | -8 | 43 | 300 | 49 |
| Sacramento, CA | Large | 9 | 12 | 27 | 26 | 24 | 23 | 25 | 25 | 28 | 25 | 25 | 26 | 27 | 28 | 29 | 30 | 33 | 35 | 35 | 33 | 24 | 24 | -27 | 94 | 167 | 72 |
| Salem, OR | Small | 4 | 6 | 13 | 15 | 18 | 21 | 22 | 23 | 22 | 23 | 25 | 28 | 30 | 36 | 38 | 32 | 31 | 32 | 37 | 36 | 22 | 24 | -23 | 88 | 500 | 21 |
| Salt Lake City, UT | Medium | 6 | 8 | 13 | 16 | 18 | 22 | 25 | 26 | 25 | 24 | 23 | 24 | 27 | 28 | 30 | 31 | 27 | 25 | 24 | 25 | 24 | 28 | 4 | 18 | 367 | 37 |
| San Antonio, TX | Large | 4 | 8 | 8 | 8 | 9 | 9 | 10 | 14 | 17 | 19 | 22 | 25 | 30 | 30 | 30 | 30 | 32 | 33 | 31 | 31 | 28 | 30 | -6 | 38 | 650 | 9 |
| San Diego, CA | Very large | 8 | 12 | 25 | 23 | 26 | 24 | 23 | 24 | 26 | 27 | 28 | 33 | 35 | 39 | 43 | 42 | 46 | 46 | 45 | 43 | 41 | 37 | -20 | 81 | 363 | 38 |
| San Francisco-Oakland, CA | Very large | 20 | 38 | 56 | 51 | 51 | 51 | 48 | 52 | 54 | 50 | 53 | 54 | 60 | 59 | 63 | 65 | 68 | 74 | 74 | 71 | 50 | 49 | -28 | 95 | 145 | 76 |
| San Jose, CA | Large | 17 | 30 | 46 | 43 | 39 | 36 | 38 | 43 | 42 | 40 | 43 | 49 | 53 | 55 | 54 | 56 | 52 | 54 | 57 | 55 | 38 | 35 | -33 | 97 | 106 | 88 |
| San Juan, PR | Large | 5 | 7 | 14 | 14 | 15 | 16 | 19 | 20 | 20 | 21 | 21 | 23 | 26 | 27 | 29 | 33 | 36 | 34 | 34 | 33 | 30 | 33 | -8 | 45 | 560 | 15 |
| Sarasota-Bradenton, FL | Medium | 9 | 13 | 12 | 13 | 12 | 14 | 14 | 13 | 15 | 16 | 16 | 19 | 19 | 19 | 19 | 20 | 20 | 20 | 22 | 20 | 13 | 17 | -15 | 67 | 89 | 92 |
| Seattle, WA | Very Large | 10 | 18 | 41 | 43 | 45 | 48 | 48 | 49 | 49 | 52 | 52 | 52 | 49 | 47 | 46 | 48 | 48 | 51 | 50 | 49 | 47 | 44 | -8 | 45 | 340 | 42 |
| Spokane, WA | Small | 6 | 8 | 12 | 15 | 17 | 24 | 24 | 18 | 19 | 21 | 21 | 23 | 22 | 20 | 20 | 19 | 18 | 17 | 18 | 19 | 18 | 16 | -11 | 56 | 167 | 72 |
| Springfield, MA-CT | Medium | 9 | 10 | 12 | 13 | 15 | 15 | 15 | 15 | 15 | 15 | 17 | 18 | 18 | 17 | 18 | 17 | 18 | 19 | 20 | 19 | 17 | 19 | 6 | 16 | 111 | 86 |
| St. Louis, MO-IL | Large | 11 | 14 | 16 | 16 | 19 | 26 | 34 | 40 | 41 | 42 | 42 | 44 | 44 | 40 | 40 | 37 | 37 | 38 | 35 | 32 | 33 | 31 | -16 | 74 | 182 | 68 |
| Stockton, CA | Small | 2 | 3 | 6 | 5 | 5 | 6 | 6 | 7 | 7 | 7 | 7 | 7 | 7 | 8 | 8 | 8 | 9 | 10 | 11 | 11 | 9 | 9 | 0 | 19 | 350 | 40 |
| Tampa-St. Petersburg, FL | Large | 14 | 15 | 20 | 23 | 23 | 24 | 25 | 26 | 26 | 25 | 26 | 27 | 27 | 30 | 33 | 34 | 35 | 34 | 36 | 36 | 35 | 34 | -3 | 30 | 143 | 78 |
| Toledo, OH-MI | Medium | 2 | 2 | 4 | 4 | 5 | 6 | 9 | 13 | 14 | 15 | 16 | 18 | 19 | 18 | 18 | 17 | 19 | 17 | 17 | 16 | 10 | 12 | -37 | 100 | 500 | 21 |
| Tucson, AZ | Medium | 11 | 12 | 13 | 12 | 12 | 12 | 12 | 12 | 13 | 16 | 17 | 17 | 19 | 20 | 21 | 24 | 25 | 28 | 27 | 25 | 21 | 23 | -8 | 44 | 109 | 87 |
| Tulsa, OK | Medium | 4 | 7 | 9 | 9 | 9 | 9 | 9 | 10 | 12 | 13 | 14 | 14 | 15 | 16 | 17 | 17 | 16 | 16 | 18 | 17 | 16 | 18 | 13 | 7 | 350 | 40 |
| Virginia Beach, VA | Large | 14 | 19 | 24 | 22 | 22 | 23 | 28 | 32 | 36 | 38 | 41 | 43 | 37 | 42 | 43 | 42 | 41 | 41 | 42 | 40 | 35 | 32 | -22 | 85 | 129 | 81 |
| Washington, DC-VA-MD | Very large | 20 | 36 | 53 | 57 | 66 | 67 | 69 | 70 | 73 | 71 | 66 | 70 | 73 | 76 | 78 | 82 | 83 | 83 | 82 | 85 | 70 | 70 | -16 | 70 | 250 | 57 |
| Wichita, KS | Medium | 6 | 9 | 11 | 11 | 12 | 15 | 16 | 16 | 15 | 19 | 19 | 19 | 19 | 18 | 18 | 19 | 20 | 19 | 22 | 22 | 20 | 20 | 0 | 19 | 233 | 60 |
| Winston-Salem, NC | Small | 4 | 6 | 5 | 6 | 8 | 7 | 6 | 8 | 8 | 9 | 12 | 13 | 13 | 15 | 17 | 18 | 17 | 20 | 19 | 18 | 15 | 16 | -6 | 36 | 300 | 49 |
| Worcester, MA | Small | 7 | 8 | 10 | 11 | 12 | 14 | 16 | 18 | 19 | 19 | 21 | 21 | 22 | 22 | 22 | 20 | 21 | 22 | 21 | 22 | 21 | 20 | -5 | 31 | 186 | 67 |
| 439 Urban area average | 439 Areas | 14 | 19 | 29 | 29 | 29 | 30 | 31 | 32 | 33 | 34 | 34 | 35 | 35 | 36 | 37 | 37 | 39 | 39 | 39 | 38 | 34 | 34 | -13 | NA | 143 | NA |
| 101 Urban area average | 101 Areas | 14 | 19 | 30 | 30 | 31 | 31 | 32 | 34 | 35 | 36 | 37 | 39 | 40 | 41 | 43 | 44 | 45 | 46 | 46 | 44 | 39 | 39 | -13 | NA | 179 | NA |
| Very large area average | Very large | 19 | 26 | 41 | 40 | 41 | 41 | 41 | 43 | 45 | 46 | 47 | 49 | 50 | 52 | 54 | 55 | 58 | 60 | 60 | 57 | 50 | 50 | -14 | NA | 163 | NA |
| Large area average | Large | 9 | 13 | 20 | 21 | 21 | 23 | 25 | 27 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 36 | 37 | 36 | 35 | 32 | 31 | -14 | NA | 244 | NA |
| Medium area average | Medium | 7 | 8 | 12 | 12 | 14 | 15 | 16 | 17 | 17 | 19 | 20 | 21 | 22 | 22 | 23 | 23 | 23 | 24 | 25 | 24 | 21 | 22 | -4 | NA | 214 | NA |
| Small area average | Small | 5 | 6 | 9 | 9 | 11 | 12 | 12 | 13 | 14 | 15 | 16 | 17 | 17 | 18 | 19 | 19 | 19 | 20 | 20 | 21 | 18 | 18 | -5 | NA | 260 | NA |

**KEY**: NA = not applicable; R = revised.

Very large urban areas – 3 million and over population.
Large urban areas – 1 million to less than 3 million population.
Medium urban areas – 500,000 to less than 1 million population.
Small urban areas – less than 500,000 population.

[a] Percent changes were calculated using the numbers in this table and were not obtained from the source. Rank is based on the calculated percent change with the highest number corresponding to a rank of 1.

**NOTES**

The urban areas included are those containing over 500,000 people and several smaller places mostly chosen by previous sponsors of the Texas Transportation Institute study on mobility.

Methodology and data sources have been changed in 2010 and were applied retroactively to past years; these figures are not comparable to those in past editions of NTS.

**SOURCE**

Texas Transportation Institute,*Congestion Data for Your City,* Excel spreadsheet of the base statistics for the 101 urban areas and population group summary statistics(College Station, TX: 2011), available at http://mobility.tamu.edu as of Jan. 20, 2011.

**Table 1-70: Travel Time Index**

| Urban area | Population group | (R) 1982 | (R) 1985 | (R) 1990 | (R) 1991 | (R) 1992 | (R) 1993 | (R) 1994 | (R) 1995 | (R) 1996 | (R) 1997 | (R) 1998 | (R) 1999 | (R) 2000 | (R) 2001 | (R) 2002 | (R) 2003 | (R) 2004 | (R) 2005 | (R) 2006 | (R) 2007 | 2008 | 2009 | Points change: Short-term 2004-2009 Points | Short-term 2004-2009 Rank[a] | Long-term 1982-2009 Points | Long-term 1982-2009 Rank[a] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Akron, OH | Medium | 1.02 | 1.02 | 1.04 | 1.04 | 1.05 | 1.06 | 1.07 | 1.06 | 1.07 | 1.08 | 1.09 | 1.09 | 1.09 | 1.09 | 1.08 | 1.08 | 1.09 | 1.08 | 1.08 | 1.07 | 1.05 | 1.05 | -4 | 73 | 3 | 89 |
| Albany-Schenectady, NY | Medium | 1.03 | 1.03 | 1.04 | 1.04 | 1.04 | 1.04 | 1.05 | 1.05 | 1.05 | 1.05 | 1.06 | 1.06 | 1.07 | 1.07 | 1.08 | 1.09 | 1.10 | 1.10 | 1.11 | 1.12 | 1.09 | 1.10 | 0 | 22 | 7 | 49 |
| Albuquerque, NM | Medium | 1.05 | 1.06 | 1.10 | 1.11 | 1.12 | 1.13 | 1.14 | 1.15 | 1.17 | 1.18 | 1.18 | 1.19 | 1.17 | 1.16 | 1.14 | 1.14 | 1.15 | 1.16 | 1.17 | 1.17 | 1.15 | 1.13 | -2 | 43 | 8 | 45 |
| Allentown-Bethlehem, PA-NJ | Medium | 1.04 | 1.04 | 1.05 | 1.05 | 1.06 | 1.07 | 1.07 | 1.08 | 1.09 | 1.10 | 1.10 | 1.08 | 1.09 | 1.09 | 1.09 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 0 | 22 | 4 | 72 |
| Anchorage, AK | Small | 1.05 | 1.05 | 1.05 | 1.05 | 1.05 | 1.05 | 1.05 | 1.05 | 1.05 | 1.05 | 1.05 | 1.05 | 1.05 | 1.06 | 1.06 | 1.06 | 1.06 | 1.06 | 1.06 | 1.06 | 1.07 | 1.05 | -1 | 31 | 0 | 101 |
| Atlanta, GA | Very large | 1.08 | 1.10 | 1.13 | 1.14 | 1.16 | 1.17 | 1.19 | 1.20 | 1.21 | 1.22 | 1.24 | 1.23 | 1.25 | 1.26 | 1.27 | 1.27 | 1.27 | 1.28 | 1.28 | 1.27 | 1.23 | 1.22 | -5 | 80 | 14 | 17 |
| Austin, TX | Large | 1.08 | 1.11 | 1.14 | 1.15 | 1.14 | 1.15 | 1.14 | 1.20 | 1.22 | 1.23 | 1.22 | 1.23 | 1.23 | 1.25 | 1.26 | 1.28 | 1.30 | 1.32 | 1.30 | 1.28 | 1.27 | 1.28 | -2 | 43 | 20 | 1 |
| Bakersfield, CA | Medium | 1.01 | 1.01 | 1.02 | 1.02 | 1.03 | 1.03 | 1.03 | 1.03 | 1.04 | 1.04 | 1.04 | 1.04 | 1.05 | 1.05 | 1.06 | 1.06 | 1.07 | 1.08 | 1.08 | 1.08 | 1.07 | 1.08 | 1 | 11 | 7 | 49 |
| Baltimore, MD | Large | 1.05 | 1.06 | 1.12 | 1.12 | 1.11 | 1.11 | 1.12 | 1.12 | 1.12 | 1.13 | 1.12 | 1.13 | 1.14 | 1.16 | 1.18 | 1.19 | 1.19 | 1.19 | 1.20 | 1.20 | 1.16 | 1.17 | -2 | 43 | 12 | 23 |
| Baton Rouge, LA | Medium | 1.07 | 1.09 | 1.11 | 1.12 | 1.11 | 1.14 | 1.15 | 1.16 | 1.17 | 1.17 | 1.17 | 1.20 | 1.19 | 1.19 | 1.19 | 1.21 | 1.21 | 1.21 | 1.22 | 1.22 | 1.23 | 1.24 | 3 | 1 | 17 | 6 |
| Beaumont, TX | Small | 1.02 | 1.03 | 1.02 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.04 | 1.04 | 1.05 | 1.05 | 1.06 | 1.06 | 1.06 | 1.06 | 1.06 | 1.06 | 1.08 | 1.08 | 2 | 4 | 6 | 58 |
| Birmingham, AL | Medium | 1.04 | 1.05 | 1.05 | 1.06 | 1.06 | 1.07 | 1.08 | 1.09 | 1.09 | 1.10 | 1.12 | 1.12 | 1.12 | 1.13 | 1.13 | 1.14 | 1.15 | 1.15 | 1.15 | 1.15 | 1.14 | 1.14 | -1 | 31 | 10 | 33 |
| Boise, ID | Small | 1.02 | 1.03 | 1.07 | 1.07 | 1.07 | 1.07 | 1.06 | 1.07 | 1.08 | 1.10 | 1.11 | 1.11 | 1.12 | 1.14 | 1.14 | 1.15 | 1.15 | 1.15 | 1.16 | 1.15 | 1.14 | 1.12 | -3 | 55 | 10 | 32 |
| Boston, MA-NH-RI | Very large | 1.09 | 1.13 | 1.20 | 1.20 | 1.22 | 1.23 | 1.23 | 1.22 | 1.23 | 1.24 | 1.26 | 1.25 | 1.26 | 1.27 | 1.30 | 1.29 | 1.32 | 1.32 | 1.32 | 1.30 | 1.21 | 1.20 | -12 | 101 | 11 | 27 |
| Boulder, CO | Small | 1.05 | 1.06 | 1.08 | 1.09 | 1.10 | 1.12 | 1.12 | 1.14 | 1.14 | 1.16 | 1.15 | 1.15 | 1.15 | 1.15 | 1.14 | 1.14 | 1.14 | 1.14 | 1.16 | 1.14 | 1.12 | 1.13 | -1 | 31 | 8 | 45 |
| Bridgeport-Stamford, CT-NY | Medium | 1.07 | 1.10 | 1.13 | 1.13 | 1.15 | 1.15 | 1.16 | 1.17 | 1.17 | 1.19 | 1.21 | 1.23 | 1.24 | 1.23 | 1.25 | 1.25 | 1.24 | 1.26 | 1.28 | 1.28 | 1.23 | 1.25 | 1 | 11 | 18 | 4 |
| Brownsville, TX | Small | 1.02 | 1.02 | 1.03 | 1.03 | 1.03 | 1.03 | 1.04 | 1.04 | 1.05 | 1.05 | 1.06 | 1.06 | 1.07 | 1.07 | 1.07 | 1.07 | 1.07 | 1.07 | 1.07 | 1.07 | 1.05 | 1.04 | -3 | 61 | 2 | 93 |
| Buffalo, NY | Large | 1.04 | 1.05 | 1.07 | 1.06 | 1.06 | 1.07 | 1.07 | 1.07 | 1.07 | 1.07 | 1.08 | 1.09 | 1.11 | 1.11 | 1.12 | 1.13 | 1.13 | 1.13 | 1.13 | 1.12 | 1.09 | 1.10 | -3 | 55 | 6 | 58 |
| Cape Coral, FL | Small | 1.07 | 1.07 | 1.09 | 1.09 | 1.10 | 1.12 | 1.13 | 1.14 | 1.14 | 1.13 | 1.11 | 1.10 | 1.10 | 1.11 | 1.12 | 1.12 | 1.12 | 1.12 | 1.14 | 1.14 | 1.13 | 1.12 | 0 | 22 | 5 | 66 |
| Charleston-North Charleston, SC | Medium | 1.09 | 1.11 | 1.13 | 1.14 | 1.16 | 1.15 | 1.16 | 1.15 | 1.15 | 1.15 | 1.16 | 1.16 | 1.16 | 1.16 | 1.17 | 1.18 | 1.18 | 1.17 | 1.18 | 1.18 | 1.15 | 1.15 | -3 | 61 | 6 | 64 |
| Charlotte, NC-SC | Large | 1.06 | 1.09 | 1.12 | 1.12 | 1.13 | 1.11 | 1.11 | 1.11 | 1.12 | 1.14 | 1.15 | 1.16 | 1.19 | 1.19 | 1.21 | 1.21 | 1.22 | 1.20 | 1.21 | 1.21 | 1.19 | 1.17 | -5 | 80 | 11 | 27 |
| Chicago, IL-IN | Very large | 1.08 | 1.11 | 1.16 | 1.16 | 1.16 | 1.16 | 1.16 | 1.18 | 1.20 | 1.20 | 1.21 | 1.21 | 1.21 | 1.21 | 1.25 | 1.26 | 1.27 | 1.29 | 1.28 | 1.26 | 1.26 | 1.25 | -2 | 43 | 17 | 6 |
| Cincinnati, OH-KY-IN | Large | 1.03 | 1.04 | 1.09 | 1.09 | 1.10 | 1.11 | 1.13 | 1.13 | 1.13 | 1.15 | 1.15 | 1.14 | 1.15 | 1.15 | 1.15 | 1.15 | 1.15 | 1.14 | 1.14 | 1.14 | 1.13 | 1.12 | -3 | 55 | 9 | 38 |
| Cleveland, OH | Large | 1.03 | 1.03 | 1.08 | 1.09 | 1.09 | 1.11 | 1.12 | 1.14 | 1.15 | 1.17 | 1.15 | 1.16 | 1.15 | 1.14 | 1.12 | 1.12 | 1.13 | 1.12 | 1.12 | 1.11 | 1.09 | 1.10 | -3 | 55 | 7 | 49 |
| Colorado Springs, CO | Medium | 1.03 | 1.03 | 1.04 | 1.04 | 1.06 | 1.06 | 1.08 | 1.09 | 1.09 | 1.12 | 1.13 | 1.16 | 1.18 | 1.18 | 1.18 | 1.17 | 1.14 | 1.18 | 1.17 | 1.16 | 1.14 | 1.12 | -2 | 42 | 9 | 38 |
| Columbia, SC | Small | 1.02 | 1.03 | 1.04 | 1.04 | 1.05 | 1.04 | 1.04 | 1.04 | 1.05 | 1.05 | 1.05 | 1.06 | 1.06 | 1.06 | 1.07 | 1.07 | 1.07 | 1.07 | 1.08 | 1.10 | 1.08 | 1.09 | 2 | 4 | 7 | 49 |
| Columbus, OH | Large | 1.02 | 1.02 | 1.05 | 1.05 | 1.06 | 1.07 | 1.08 | 1.08 | 1.09 | 1.09 | 1.09 | 1.09 | 1.09 | 1.09 | 1.09 | 1.10 | 1.11 | 1.11 | 1.10 | 1.10 | 1.08 | 1.11 | 0 | 22 | 9 | 38 |
| Corpus Christi, TX | Small | 1.03 | 1.04 | 1.04 | 1.04 | 1.05 | 1.04 | 1.04 | 1.04 | 1.05 | 1.05 | 1.05 | 1.06 | 1.06 | 1.06 | 1.06 | 1.06 | 1.06 | 1.07 | 1.06 | 1.06 | 1.06 | 1.07 | 1 | 11 | 4 | 72 |
| Dallas-Fort Worth-Arlington, TX | Very large | 1.05 | 1.07 | 1.11 | 1.12 | 1.12 | 1.13 | 1.13 | 1.14 | 1.15 | 1.15 | 1.17 | 1.19 | 1.20 | 1.20 | 1.22 | 1.23 | 1.26 | 1.27 | 1.29 | 1.28 | 1.23 | 1.22 | -4 | 73 | 17 | 6 |
| Dayton, OH | Medium | 1.05 | 1.05 | 1.06 | 1.07 | 1.07 | 1.07 | 1.07 | 1.08 | 1.08 | 1.08 | 1.08 | 1.09 | 1.08 | 1.07 | 1.07 | 1.06 | 1.08 | 1.07 | 1.07 | 1.06 | 1.06 | 1.06 | -2 | 43 | 1 | 97 |
| Denver-Aurora, CO | Large | 1.07 | 1.09 | 1.11 | 1.13 | 1.13 | 1.15 | 1.16 | 1.19 | 1.21 | 1.23 | 1.24 | 1.25 | 1.26 | 1.28 | 1.26 | 1.26 | 1.26 | 1.28 | 1.27 | 1.27 | 1.21 | 1.22 | -4 | 73 | 15 | 14 |
| Detroit, MI | Very large | 1.09 | 1.10 | 1.16 | 1.17 | 1.19 | 1.20 | 1.19 | 1.18 | 1.19 | 1.20 | 1.20 | 1.21 | 1.20 | 1.21 | 1.22 | 1.22 | 1.22 | 1.21 | 1.21 | 1.21 | 1.18 | 1.15 | -7 | 93 | 6 | 64 |
| El Paso, TX-NM | Medium | 1.03 | 1.04 | 1.06 | 1.07 | 1.09 | 1.09 | 1.11 | 1.09 | 1.09 | 1.10 | 1.11 | 1.14 | 1.16 | 1.16 | 1.16 | 1.16 | 1.18 | 1.18 | 1.18 | 1.17 | 1.15 | 1.15 | -3 | 61 | 12 | 23 |
| Eugene, OR | Small | 1.05 | 1.05 | 1.06 | 1.06 | 1.06 | 1.06 | 1.06 | 1.06 | 1.06 | 1.08 | 1.09 | 1.11 | 1.13 | 1.11 | 1.12 | 1.13 | 1.12 | 1.13 | 1.12 | 1.11 | 1.08 | 1.07 | -5 | 80 | 2 | 93 |
| Fresno, CA | Medium | 1.03 | 1.03 | 1.06 | 1.06 | 1.06 | 1.07 | 1.06 | 1.07 | 1.07 | 1.07 | 1.09 | 1.09 | 1.10 | 1.09 | 1.08 | 1.08 | 1.08 | 1.08 | 1.09 | 1.09 | 1.06 | 1.07 | -1 | 31 | 4 | 72 |
| Grand Rapids, MI | Medium | 1.02 | 1.02 | 1.03 | 1.03 | 1.04 | 1.05 | 1.05 | 1.05 | 1.05 | 1.05 | 1.06 | 1.06 | 1.06 | 1.06 | 1.06 | 1.06 | 1.06 | 1.05 | 1.05 | 1.05 | 1.05 | 1.06 | 0 | 22 | 4 | 72 |
| Greensboro, NC | Small | 1.01 | 1.01 | 1.02 | 1.02 | 1.03 | 1.04 | 1.04 | 1.04 | 1.06 | 1.06 | 1.07 | 1.08 | 1.08 | 1.09 | 1.10 | 1.09 | 1.07 | 1.07 | 1.07 | 1.06 | 1.05 | 1.05 | -2 | 43 | 4 | 72 |
| Hartford, CT | Medium | 1.05 | 1.06 | 1.09 | 1.09 | 1.13 | 1.11 | 1.12 | 1.12 | 1.13 | 1.14 | 1.16 | 1.17 | 1.18 | 1.16 | 1.16 | 1.16 | 1.17 | 1.17 | 1.19 | 1.19 | 1.15 | 1.13 | -4 | 73 | 8 | 45 |
| Honolulu, HI | Medium | 1.09 | 1.10 | 1.16 | 1.15 | 1.16 | 1.16 | 1.16 | 1.17 | 1.17 | 1.16 | 1.16 | 1.15 | 1.15 | 1.15 | 1.14 | 1.16 | 1.16 | 1.18 | 1.19 | 1.20 | 1.19 | 1.18 | 2 | 4 | 9 | 41 |
| Houston, TX | Very large | 1.18 | 1.24 | 1.23 | 1.20 | 1.19 | 1.18 | 1.20 | 1.20 | 1.22 | 1.24 | 1.23 | 1.25 | 1.26 | 1.27 | 1.28 | 1.28 | 1.31 | 1.33 | 1.32 | 1.31 | 1.28 | 1.25 | -6 | 88 | 7 | 49 |
| Indianapolis, IN | Large | 1.06 | 1.06 | 1.09 | 1.10 | 1.12 | 1.15 | 1.16 | 1.16 | 1.17 | 1.17 | 1.15 | 1.15 | 1.15 | 1.15 | 1.15 | 1.15 | 1.15 | 1.15 | 1.15 | 1.14 | 1.18 | 1.18 | 3 | 1 | 12 | 23 |
| Indio-Cathedral City-Palm Springs, CA | Medium | 1.06 | 1.07 | 1.09 | 1.09 | 1.09 | 1.09 | 1.09 | 1.08 | 1.09 | 1.09 | 1.09 | 1.09 | 1.08 | 1.08 | 1.08 | 1.10 | 1.10 | 1.12 | 1.13 | 1.11 | 1.09 | 1.13 | 3 | 3 | 7 | 57 |
| Jackson, MS | Small | 1.02 | 1.02 | 1.02 | 1.03 | 1.03 | 1.03 | 1.04 | 1.04 | 1.04 | 1.05 | 1.05 | 1.06 | 1.06 | 1.07 | 1.08 | 1.07 | 1.08 | 1.09 | 1.10 | 1.10 | 1.08 | 1.07 | -1 | 31 | 5 | 66 |
| Jacksonville, FL | Large | 1.06 | 1.07 | 1.11 | 1.12 | 1.13 | 1.14 | 1.14 | 1.16 | 1.16 | 1.14 | 1.14 | 1.13 | 1.13 | 1.13 | 1.15 | 1.16 | 1.17 | 1.17 | 1.17 | 1.18 | 1.13 | 1.12 | -5 | 78 | 6 | 58 |
| Kansas City, MO-KS | Large | 1.04 | 1.05 | 1.08 | 1.08 | 1.09 | 1.13 | 1.14 | 1.14 | 1.15 | 1.16 | 1.16 | 1.19 | 1.18 | 1.18 | 1.18 | 1.18 | 1.16 | 1.15 | 1.16 | 1.14 | 1.11 | 1.10 | -6 | 86 | 6 | 58 |
| Knoxville, TN | Small | 1.04 | 1.04 | 1.07 | 1.08 | 1.08 | 1.08 | 1.09 | 1.09 | 1.11 | 1.11 | 1.10 | 1.10 | 1.10 | 1.10 | 1.09 | 1.09 | 1.09 | 1.09 | 1.08 | 1.09 | 1.07 | 1.06 | -3 | 61 | 2 | 93 |
| Lancaster-Palmdale, CA | Medium | 1.07 | 1.07 | 1.05 | 1.06 | 1.06 | 1.06 | 1.06 | 1.06 | 1.07 | 1.07 | 1.07 | 1.07 | 1.07 | 1.08 | 1.09 | 1.10 | 1.10 | 1.10 | 1.10 | 1.10 | 1.06 | 1.11 | 1 | 11 | 4 | 72 |
| Laredo, TX | Small | 1.01 | 1.02 | 1.02 | 1.03 | 1.03 | 1.03 | 1.03 | 1.04 | 1.04 | 1.05 | 1.05 | 1.05 | 1.05 | 1.06 | 1.05 | 1.07 | 1.06 | 1.06 | 1.07 | 1.08 | 1.06 | 1.07 | 1 | 11 | 6 | 58 |
| Las Vegas, NV | Large | 1.06 | 1.07 | 1.16 | 1.18 | 1.19 | 1.20 | 1.22 | 1.23 | 1.22 | 1.22 | 1.23 | 1.24 | 1.25 | 1.25 | 1.26 | 1.28 | 1.29 | 1.29 | 1.28 | 1.28 | 1.27 | 1.26 | -3 | 61 | 20 | 1 |
| Little Rock, AR | Small | 1.02 | 1.02 | 1.03 | 1.03 | 1.03 | 1.04 | 1.04 | 1.04 | 1.05 | 1.05 | 1.06 | 1.07 | 1.07 | 1.08 | 1.06 | 1.07 | 1.08 | 1.08 | 1.09 | 1.10 | 1.08 | 1.10 | 2 | 4 | 8 | 43 |
| Los Angeles-Long Beach-Santa Ana, CA | Very large | 1.21 | 1.23 | 1.41 | 1.41 | 1.40 | 1.37 | 1.34 | 1.36 | 1.37 | 1.38 | 1.38 | 1.39 | 1.39 | 1.41 | 1.40 | 1.40 | 1.41 | 1.42 | 1.43 | 1.42 | 1.35 | 1.38 | -3 | 61 | 17 | 6 |
| Louisville, KY-IN | Large | 1.06 | 1.06 | 1.06 | 1.07 | 1.08 | 1.09 | 1.09 | 1.09 | 1.10 | 1.10 | 1.11 | 1.11 | 1.11 | 1.11 | 1.12 | 1.12 | 1.13 | 1.12 | 1.12 | 1.11 | 1.08 | 1.10 | -3 | 55 | 4 | 72 |
| Madison, WI | Small | 1.03 | 1.04 | 1.04 | 1.03 | 1.04 | 1.04 | 1.04 | 1.04 | 1.04 | 1.04 | 1.04 | 1.05 | 1.05 | 1.05 | 1.05 | 1.05 | 1.05 | 1.05 | 1.05 | 1.05 | 1.05 | 1.06 | 1 | 11 | 3 | 89 |
| McAllen, TX | Medium | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.02 | 1.03 | 1.03 | 1.05 | 1.05 | 1.04 | 1.06 | 1.07 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.09 | 1.09 | 1.07 | 1.09 | 1 | 11 | 8 | 43 |
| Memphis, TN-MS-AR | Large | 1.05 | 1.05 | 1.11 | 1.11 | 1.11 | 1.12 | 1.13 | 1.15 | 1.15 | 1.16 | 1.16 | 1.16 | 1.18 | 1.18 | 1.19 | 1.19 | 1.19 | 1.18 | 1.18 | 1.16 | 1.13 | 1.13 | -6 | 88 | 8 | 45 |
| Miami, FL | Very large | 1.09 | 1.10 | 1.19 | 1.18 | 1.20 | 1.19 | 1.19 | 1.20 | 1.21 | 1.21 | 1.22 | 1.24 | 1.27 | 1.29 | 1.31 | 1.31 | 1.31 | 1.31 | 1.31 | 1.30 | 1.26 | 1.23 | -8 | 95 | 14 | 17 |
| Milwaukee, WI | Large | 1.06 | 1.07 | 1.12 | 1.13 | 1.14 | 1.15 | 1.14 | 1.15 | 1.15 | 1.15 | 1.16 | 1.18 | 1.18 | 1.18 | 1.18 | 1.17 | 1.17 | 1.17 | 1.15 | 1.16 | 1.17 | 1.16 | -1 | 31 | 10 | 33 |
| Minneapolis-St. Paul, MN | Large | 1.05 | 1.07 | 1.13 | 1.13 | 1.15 | 1.17 | 1.20 | 1.22 | 1.22 | 1.26 | 1.28 | 1.30 | 1.31 | 1.33 | 1.31 | 1.31 | 1.31 | 1.33 | 1.31 | 1.30 | 1.24 | 1.21 | -10 | 99 | 16 | 12 |
| Nashville-Davidson, TN | Large | 1.11 | 1.10 | 1.13 | 1.12 | 1.11 | 1.11 | 1.14 | 1.15 | 1.16 | 1.17 | 1.16 | 1.17 | 1.18 | 1.19 | 1.20 | 1.20 | 1.21 | 1.20 | 1.19 | 1.18 | 1.14 | 1.15 | -6 | 88 | 4 | 88 |
| New Haven, CT | Medium | 1.04 | 1.06 | 1.07 | 1.08 | 1.09 | 1.10 | 1.11 | 1.11 | 1.10 | 1.12 | 1.14 | 1.15 | 1.15 | 1.16 | 1.16 | 1.15 | 1.14 | 1.15 | 1.15 | 1.15 | 1.13 | 1.15 | 1 | 11 | 11 | 27 |
| New Orleans, LA | Large | 1.14 | 1.18 | 1.18 | 1.19 | 1.18 | 1.17 | 1.19 | 1.19 | 1.18 | 1.19 | 1.19 | 1.20 | 1.19 | 1.18 | 1.18 | 1.18 | 1.18 | 1.19 | 1.20 | 1.20 | 1.18 | 1.15 | -3 | 61 | 1 | 97 |
| New York-Newark, NY-NJ-CT | Very large | 1.10 | 1.11 | 1.20 | 1.19 | 1.18 | 1.19 | 1.20 | 1.22 | 1.23 | 1.25 | 1.25 | 1.28 | 1.28 | 1.28 | 1.29 | 1.32 | 1.35 | 1.37 | 1.36 | 1.35 | 1.27 | 1.27 | -8 | 95 | 17 | 6 |
| Oklahoma City, OK | Medium | 1.02 | 1.02 | 1.03 | 1.03 | 1.03 | 1.04 | 1.04 | 1.05 | 1.06 | 1.06 | 1.07 | 1.08 | 1.07 | 1.08 | 1.08 | 1.07 | 1.07 | 1.07 | 1.08 | 1.09 | 1.09 | 1.09 | 2 | 4 | 7 | 49 |
| Omaha, NE-IA | Medium | 1.02 | 1.03 | 1.05 | 1.05 | 1.06 | 1.06 | 1.06 | 1.06 | 1.07 | 1.06 | 1.07 | 1.08 | 1.08 | 1.09 | 1.09 | 1.09 | 1.10 | 1.10 | 1.10 | 1.10 | 1.11 | 1.08 | -2 | 43 | 6 | 58 |

**Table 1-70: Travel Time Index**

| Urban area | Population group | (R) 1982 | (R) 1985 | (R) 1990 | (R) 1991 | (R) 1992 | (R) 1993 | (R) 1994 | (R) 1995 | (R) 1996 | (R) 1997 | (R) 1998 | (R) 1999 | (R) 2000 | (R) 2001 | (R) 2002 | (R) 2003 | (R) 2004 | (R) 2005 | (R) 2006 | (R) 2007 | 2008 | 2009 | Points change: Short-term 2004-2009 Points | Short-term 2004-2009 Rank[a] | Long-term 1982-2009 Points | Long-term 1982-2009 Rank[a] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Orlando, FL | Large | 1.07 | 1.11 | 1.18 | 1.19 | 1.19 | 1.18 | 1.18 | 1.19 | 1.20 | 1.22 | 1.23 | 1.23 | 1.23 | 1.24 | 1.23 | 1.23 | 1.22 | 1.22 | 1.22 | 1.22 | 1.19 | 1.20 | -2 | 43 | 13 | 20 |
| Oxnard-Ventura, CA | Medium | 1.01 | 1.02 | 1.03 | 1.03 | 1.04 | 1.05 | 1.06 | 1.06 | 1.07 | 1.07 | 1.07 | 1.08 | 1.08 | 1.10 | 1.10 | 1.11 | 1.12 | 1.12 | 1.12 | 1.13 | 1.11 | 1.12 | 0 | 22 | 11 | 26 |
| Pensacola, FL-AL | Small | 1.03 | 1.03 | 1.06 | 1.05 | 1.06 | 1.06 | 1.06 | 1.07 | 1.08 | 1.09 | 1.09 | 1.09 | 1.09 | 1.09 | 1.09 | 1.10 | 1.10 | 1.10 | 1.12 | 1.12 | 1.08 | 1.07 | -3 | 61 | 4 | 72 |
| Philadelphia, PA-NJ-DE-MD | Very large | 1.09 | 1.11 | 1.13 | 1.13 | 1.13 | 1.13 | 1.13 | 1.14 | 1.15 | 1.16 | 1.18 | 1.18 | 1.18 | 1.21 | 1.21 | 1.21 | 1.22 | 1.22 | 1.22 | 1.22 | 1.19 | 1.19 | -3 | 61 | 10 | 33 |
| Phoenix, AZ | Very large | 1.10 | 1.10 | 1.11 | 1.11 | 1.12 | 1.12 | 1.12 | 1.11 | 1.13 | 1.14 | 1.15 | 1.17 | 1.18 | 1.19 | 1.17 | 1.17 | 1.18 | 1.21 | 1.20 | 1.20 | 1.17 | 1.20 | 2 | 4 | 10 | 33 |
| Pittsburgh, PA | Large | 1.15 | 1.16 | 1.22 | 1.22 | 1.20 | 1.20 | 1.20 | 1.23 | 1.23 | 1.23 | 1.21 | 1.23 | 1.22 | 1.23 | 1.23 | 1.22 | 1.23 | 1.22 | 1.21 | 1.21 | 1.20 | 1.17 | -6 | 88 | 2 | 93 |
| Portland, OR-WA | Large | 1.06 | 1.07 | 1.12 | 1.13 | 1.15 | 1.16 | 1.17 | 1.19 | 1.21 | 1.23 | 1.23 | 1.25 | 1.26 | 1.27 | 1.25 | 1.26 | 1.26 | 1.27 | 1.28 | 1.27 | 1.23 | 1.23 | -3 | 61 | 17 | 6 |
| Poughkeepsie-Newburgh, NY | Medium | 1.03 | 1.03 | 1.03 | 1.04 | 1.03 | 1.03 | 1.03 | 1.03 | 1.04 | 1.04 | 1.04 | 1.04 | 1.04 | 1.04 | 1.05 | 1.05 | 1.05 | 1.05 | 1.05 | 1.05 | 1.04 | 1.04 | -1 | 31 | 1 | 97 |
| Providence, RI-MA | Large | 1.03 | 1.04 | 1.07 | 1.07 | 1.08 | 1.09 | 1.09 | 1.09 | 1.11 | 1.11 | 1.13 | 1.15 | 1.15 | 1.16 | 1.17 | 1.18 | 1.19 | 1.18 | 1.17 | 1.18 | 1.15 | 1.14 | -5 | 80 | 11 | 27 |
| Provo, UT | Small | 1.02 | 1.02 | 1.02 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.04 | 1.04 | 1.04 | 1.04 | 1.05 | 1.05 | 1.05 | 1.05 | 1.05 | 1.05 | 1.05 | 1.03 | 1.06 | 1 | 11 | 4 | 72 |
| Raleigh-Durham, NC | Large | 1.04 | 1.05 | 1.09 | 1.08 | 1.08 | 1.09 | 1.10 | 1.10 | 1.10 | 1.12 | 1.11 | 1.12 | 1.13 | 1.13 | 1.15 | 1.15 | 1.16 | 1.17 | 1.16 | 1.16 | 1.13 | 1.13 | -3 | 61 | 9 | 41 |
| Richmond, VA | Medium | 1.03 | 1.03 | 1.04 | 1.05 | 1.05 | 1.05 | 1.06 | 1.07 | 1.07 | 1.06 | 1.06 | 1.06 | 1.06 | 1.06 | 1.06 | 1.06 | 1.07 | 1.07 | 1.07 | 1.07 | 1.06 | 1.06 | -1 | 31 | 3 | 89 |
| Riverside-San Bernardino, CA | Large | 1.01 | 1.03 | 1.09 | 1.10 | 1.10 | 1.10 | 1.08 | 1.09 | 1.10 | 1.10 | 1.11 | 1.12 | 1.13 | 1.13 | 1.14 | 1.16 | 1.18 | 1.19 | 1.20 | 1.20 | 1.16 | 1.16 | -2 | 43 | 15 | 14 |
| Rochester, NY | Medium | 1.03 | 1.03 | 1.05 | 1.05 | 1.05 | 1.05 | 1.05 | 1.06 | 1.06 | 1.06 | 1.05 | 1.06 | 1.06 | 1.06 | 1.06 | 1.07 | 1.07 | 1.07 | 1.07 | 1.07 | 1.07 | 1.07 | 0 | 22 | 4 | 72 |
| Sacramento, CA | Large | 1.05 | 1.07 | 1.15 | 1.15 | 1.15 | 1.15 | 1.16 | 1.16 | 1.17 | 1.16 | 1.17 | 1.18 | 1.20 | 1.22 | 1.22 | 1.24 | 1.26 | 1.26 | 1.26 | 1.25 | 1.19 | 1.18 | -8 | 95 | 13 | 20 |
| Salem, OR | Small | 1.03 | 1.03 | 1.06 | 1.07 | 1.08 | 1.09 | 1.09 | 1.09 | 1.09 | 1.10 | 1.10 | 1.11 | 1.12 | 1.14 | 1.15 | 1.13 | 1.12 | 1.12 | 1.14 | 1.14 | 1.10 | 1.10 | -2 | 43 | 7 | 49 |
| Salt Lake City, UT | Medium | 1.05 | 1.07 | 1.10 | 1.11 | 1.13 | 1.14 | 1.16 | 1.17 | 1.17 | 1.16 | 1.15 | 1.17 | 1.18 | 1.20 | 1.21 | 1.21 | 1.18 | 1.16 | 1.16 | 1.16 | 1.11 | 1.12 | -6 | 86 | 7 | 49 |
| San Antonio, TX | Large | 1.03 | 1.06 | 1.06 | 1.06 | 1.07 | 1.06 | 1.07 | 1.09 | 1.11 | 1.12 | 1.14 | 1.16 | 1.18 | 1.18 | 1.18 | 1.19 | 1.21 | 1.21 | 1.19 | 1.20 | 1.16 | 1.16 | -5 | 80 | 13 | 20 |
| San Diego, CA | Very large | 1.04 | 1.06 | 1.14 | 1.13 | 1.14 | 1.14 | 1.13 | 1.13 | 1.14 | 1.15 | 1.16 | 1.19 | 1.20 | 1.21 | 1.24 | 1.24 | 1.25 | 1.25 | 1.25 | 1.24 | 1.20 | 1.18 | -7 | 93 | 14 | 17 |
| San Francisco-Oakland, CA | Very large | 1.13 | 1.23 | 1.32 | 1.30 | 1.30 | 1.30 | 1.28 | 1.30 | 1.31 | 1.29 | 1.30 | 1.30 | 1.34 | 1.34 | 1.35 | 1.35 | 1.37 | 1.40 | 1.41 | 1.39 | 1.28 | 1.27 | -10 | 99 | 14 | 16 |
| San Jose, CA | Large | 1.12 | 1.18 | 1.24 | 1.24 | 1.22 | 1.21 | 1.21 | 1.22 | 1.22 | 1.21 | 1.23 | 1.26 | 1.30 | 1.31 | 1.30 | 1.30 | 1.29 | 1.31 | 1.33 | 1.32 | 1.26 | 1.23 | -6 | 88 | 11 | 27 |
| San Juan, PR | Large | 1.07 | 1.08 | 1.14 | 1.14 | 1.15 | 1.15 | 1.17 | 1.18 | 1.18 | 1.18 | 1.18 | 1.19 | 1.21 | 1.22 | 1.23 | 1.24 | 1.25 | 1.24 | 1.24 | 1.24 | 1.22 | 1.25 | 0 | 22 | 18 | 4 |
| Sarasota-Bradenton, FL | Medium | 1.06 | 1.08 | 1.08 | 1.08 | 1.08 | 1.09 | 1.10 | 1.09 | 1.10 | 1.10 | 1.10 | 1.11 | 1.11 | 1.11 | 1.11 | 1.11 | 1.11 | 1.11 | 1.11 | 1.11 | 1.09 | 1.10 | -1 | 31 | 4 | 72 |
| Seattle, WA | Very Large | 1.08 | 1.13 | 1.27 | 1.28 | 1.29 | 1.30 | 1.30 | 1.30 | 1.30 | 1.32 | 1.31 | 1.34 | 1.31 | 1.30 | 1.32 | 1.32 | 1.32 | 1.33 | 1.32 | 1.30 | 1.26 | 1.24 | -8 | 95 | 16 | 12 |
| Spokane, WA | Small | 1.05 | 1.06 | 1.08 | 1.10 | 1.11 | 1.14 | 1.14 | 1.11 | 1.12 | 1.13 | 1.13 | 1.14 | 1.14 | 1.12 | 1.12 | 1.12 | 1.11 | 1.10 | 1.10 | 1.11 | 1.09 | 1.10 | -1 | 31 | 5 | 66 |
| Springfield, MA-CT | Medium | 1.05 | 1.06 | 1.07 | 1.07 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.09 | 1.09 | 1.08 | 1.08 | 1.08 | 1.08 | 1.09 | 1.10 | 1.09 | 1.07 | 1.09 | 1 | 11 | 4 | 72 |
| St. Louis, MO-IL | Large | 1.08 | 1.09 | 1.10 | 1.10 | 1.11 | 1.14 | 1.17 | 1.19 | 1.19 | 1.20 | 1.20 | 1.21 | 1.21 | 1.19 | 1.19 | 1.18 | 1.17 | 1.17 | 1.16 | 1.14 | 1.12 | 1.12 | -5 | 78 | 4 | 72 |
| Stockton, CA | Small | 1.01 | 1.01 | 1.02 | 1.02 | 1.02 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.04 | 1.04 | 1.04 | 1.04 | 1.05 | 1.05 | 1.05 | 1.02 | 1.02 | -2 | 43 | 1 | 97 |
| Tampa-St. Petersburg, FL | Large | 1.13 | 1.14 | 1.17 | 1.18 | 1.18 | 1.18 | 1.18 | 1.18 | 1.17 | 1.16 | 1.16 | 1.16 | 1.15 | 1.16 | 1.17 | 1.17 | 1.18 | 1.18 | 1.19 | 1.19 | 1.16 | 1.16 | -2 | 43 | 3 | 89 |
| Toledo, OH-MI | Medium | 1.01 | 1.01 | 1.02 | 1.02 | 1.03 | 1.03 | 1.05 | 1.06 | 1.06 | 1.07 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.07 | 1.08 | 1.07 | 1.07 | 1.07 | 1.04 | 1.05 | -3 | 61 | 4 | 72 |
| Tucson, AZ | Medium | 1.07 | 1.08 | 1.09 | 1.09 | 1.09 | 1.09 | 1.08 | 1.08 | 1.09 | 1.10 | 1.11 | 1.11 | 1.12 | 1.12 | 1.13 | 1.14 | 1.14 | 1.15 | 1.15 | 1.14 | 1.12 | 1.11 | -3 | 55 | 4 | 72 |
| Tulsa, OK | Medium | 1.02 | 1.03 | 1.04 | 1.04 | 1.04 | 1.04 | 1.04 | 1.04 | 1.05 | 1.06 | 1.06 | 1.06 | 1.06 | 1.06 | 1.06 | 1.06 | 1.06 | 1.05 | 1.06 | 1.06 | 1.05 | 1.07 | 1 | 11 | 5 | 66 |
| Virginia Beach, VA | Large | 1.09 | 1.13 | 1.16 | 1.16 | 1.15 | 1.15 | 1.18 | 1.20 | 1.23 | 1.23 | 1.24 | 1.24 | 1.21 | 1.23 | 1.24 | 1.24 | 1.23 | 1.24 | 1.24 | 1.23 | 1.19 | 1.19 | -4 | 73 | 10 | 33 |
| Washington, DC-VA-MD | Very large | 1.11 | 1.18 | 1.24 | 1.26 | 1.28 | 1.28 | 1.27 | 1.28 | 1.30 | 1.30 | 1.29 | 1.31 | 1.31 | 1.33 | 1.35 | 1.35 | 1.35 | 1.35 | 1.35 | 1.36 | 1.29 | 1.30 | -5 | 80 | 19 | 3 |
| Wichita, KS | Medium | 1.03 | 1.04 | 1.05 | 1.05 | 1.05 | 1.06 | 1.06 | 1.06 | 1.05 | 1.07 | 1.07 | 1.06 | 1.06 | 1.06 | 1.06 | 1.06 | 1.06 | 1.06 | 1.07 | 1.07 | 1.06 | 1.08 | 2 | 4 | 5 | 66 |
| Winston-Salem, NC | Small | 1.01 | 1.02 | 1.02 | 1.02 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.04 | 1.05 | 1.05 | 1.05 | 1.06 | 1.07 | 1.07 | 1.06 | 1.07 | 1.07 | 1.07 | 1.06 | 1.06 | 0 | 22 | 5 | 66 |
| Worcester, MA | Small | 1.03 | 1.04 | 1.05 | 1.05 | 1.05 | 1.06 | 1.07 | 1.08 | 1.08 | 1.08 | 1.09 | 1.09 | 1.09 | 1.09 | 1.09 | 1.08 | 1.08 | 1.09 | 1.09 | 1.09 | 1.08 | 1.07 | -1 | 31 | 4 | 72 |
| 439 Urban area average[b] | 439 Areas | 1.09 | 1.11 | 1.16 | 1.16 | 1.16 | 1.17 | 1.17 | 1.18 | 1.19 | 1.19 | 1.20 | 1.21 | 1.21 | 1.22 | 1.23 | 1.23 | 1.24 | 1.25 | 1.24 | 1.24 | 1.20 | 1.20 | -4 | NA | 11 | NA |
| 101 Urban area average[b] | 101 Areas | 1.10 | 1.11 | 1.17 | 1.17 | 1.18 | 1.18 | 1.18 | 1.19 | 1.19 | 1.20 | 1.20 | 1.22 | 1.22 | 1.23 | 1.23 | 1.24 | 1.24 | 1.25 | 1.25 | 1.24 | 1.20 | 1.20 | -4 | NA | 10 | NA |
| Very large area average[b] | Very large | 1.12 | 1.15 | 1.24 | 1.23 | 1.23 | 1.23 | 1.22 | 1.23 | 1.24 | 1.25 | 1.26 | 1.27 | 1.27 | 1.28 | 1.29 | 1.30 | 1.31 | 1.32 | 1.32 | 1.31 | 1.26 | 1.26 | -5 | NA | 14 | NA |
| Large area average[b] | Large | 1.07 | 1.08 | 1.12 | 1.13 | 1.13 | 1.14 | 1.15 | 1.16 | 1.17 | 1.17 | 1.18 | 1.19 | 1.19 | 1.20 | 1.20 | 1.20 | 1.21 | 1.21 | 1.21 | 1.20 | 1.17 | 1.17 | -4 | NA | 10 | NA |
| Medium area average[b] | Medium | 1.04 | 1.05 | 1.06 | 1.07 | 1.08 | 1.08 | 1.08 | 1.09 | 1.09 | 1.10 | 1.10 | 1.11 | 1.11 | 1.11 | 1.11 | 1.11 | 1.12 | 1.12 | 1.12 | 1.12 | 1.10 | 1.11 | -1 | NA | 7 | NA |
| Small area average[b] | Small | 1.03 | 1.03 | 1.04 | 1.05 | 1.05 | 1.06 | 1.06 | 1.06 | 1.06 | 1.07 | 1.07 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.09 | 1.09 | 1.08 | 1.08 | 0 | NA | 5 | NA |

**KEY:** NA = not applicable.
Very large urban areas – 3 million and over population.
Large urban areas – 1 million to less than 3 million population.
Medium urban areas – 500,000 to less than 1 million population.
Small urban areas – less than 500,000 population.

[a] Rank is based on the calculated point change with the highest number corresponding to a rank of 1.
[b] Averages weighted by Vehicle Miles Traveled.

**NOTES**
The Travel Time Index is the ratio of travel time in the peak period to the travel time at free-flow conditions. A value of 1.35 indicates a 20 minute free-flow trip takes 27 minutes in the peak. Free-flow speeds (60 mph on freeways and 35 mph on principal arterials) are used as comparison threshold.

Methodology and data sources have been changed in 2009 and were applied retroactively to past years, these figures are not comparable to those in past editions of NTS.

**SOURCE**
Texas Transportation Institute,*Congestion Data for Your City,* Excel spreadsheet of the base statistics for the 101 urban areas and population group summary statistics (College Station, TX: 2011), available at http://mobility.tamu.edu as of Jan. 20, 2011.

**Table 1-71: Annual Roadway Congestion Index**

| Urban area | Population group | 1982 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | Points change: Short-term 2004-2009 Points | Short-term 2004-2009 Rank[a] | Long-term 1982-2009 Points | Long-term 1982-2009 Rank[a] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Akron, OH | Medium | 0.50 | 0.54 | 0.68 | 0.69 | 0.71 | 0.76 | 0.79 | 0.78 | 0.81 | 0.84 | 0.85 | 0.85 | 0.86 | 0.85 | 0.85 | 0.86 | 0.89 | 0.87 | 0.89 | 0.88 | 0.84 | 0.81 | -8 | 81 | 31 | 37 |
| Albany-Schenectady, NY | Medium | 0.42 | 0.45 | 0.57 | 0.58 | 0.62 | 0.63 | 0.64 | 0.64 | 0.67 | 0.69 | 0.70 | 0.71 | 0.73 | 0.75 | 0.76 | 0.78 | 0.80 | 0.81 | 0.82 | 0.83 | 0.82 | 0.79 | -1 | 21 | 37 | 20 |
| Albuquerque, NM | Medium | 0.65 | 0.71 | 0.85 | 0.86 | 0.89 | 0.93 | 0.96 | 0.99 | 1.04 | 1.06 | 1.08 | 1.05 | 1.02 | 1.00 | 0.97 | 0.95 | 0.97 | 0.99 | 0.99 | 1.00 | 1.01 | 1.00 | 3 | 6 | 35 | 25 |
| Allentown-Bethlehem, PA-NJ | Medium | 0.64 | 0.68 | 0.76 | 0.78 | 0.83 | 0.87 | 0.90 | 0.92 | 0.96 | 0.98 | 0.98 | 0.98 | 0.97 | 0.95 | 0.93 | 0.92 | 0.95 | 0.95 | 0.93 | 0.94 | 0.91 | 0.89 | -6 | 69 | 25 | 56 |
| Anchorage, AK | Small | 0.75 | 0.75 | 0.72 | 0.72 | 0.71 | 0.70 | 0.72 | 0.71 | 0.70 | 0.70 | 0.71 | 0.72 | 0.73 | 0.75 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.72 | 0.70 | -6 | 70 | -5 | 98 |
| Atlanta, GA | Very large | 0.83 | 0.93 | 1.02 | 1.04 | 1.06 | 1.11 | 1.18 | 1.21 | 1.25 | 1.29 | 1.31 | 1.35 | 1.35 | 1.35 | 1.35 | 1.35 | 1.35 | 1.34 | 1.32 | 1.31 | 1.26 | 1.25 | -10 | 93 | 42 | 13 |
| Austin, TX | Medium | 0.74 | 0.81 | 0.90 | 0.90 | 0.88 | 0.88 | (R) 0.80 | 0.93 | (R) 0.94 | (R) 0.96 | (R) 0.97 | (R) 0.99 | (R) 0.99 | (R) 1.02 | (R) 1.04 | (R) 1.05 | (R) 1.08 | (R) 1.10 | (R) 1.11 | (R) 1.12 | 1.06 | 1.07 | -1 | 21 | 33 | 27 |
| Bakersfield, CA | Medium | 0.50 | 0.57 | 0.65 | 0.67 | 0.69 | 0.68 | 0.70 | 0.71 | 0.72 | 0.74 | 0.77 | 0.78 | 0.75 | 0.76 | 0.78 | 0.78 | 0.81 | 0.83 | 0.83 | 0.83 | 0.84 | 0.83 | 2 | 9 | 33 | 29 |
| Baltimore, MD | Large | 0.75 | 0.81 | 0.95 | 0.96 | 0.96 | 0.97 | 0.99 | 1.02 | 1.02 | 1.03 | 1.04 | 1.05 | 1.09 | 1.12 | 1.18 | 1.20 | 1.20 | 1.21 | 1.20 | 1.21 | 1.18 | 1.15 | -5 | 61 | 40 | 15 |
| Baton Rouge, LA | Medium | 0.86 | 0.87 | 0.89 | 0.91 | 0.90 | 0.92 | 0.95 | 0.96 | 0.98 | 1.00 | 1.01 | 1.02 | 1.02 | 1.04 | 1.04 | 1.05 | 1.05 | 1.06 | 1.09 | 1.09 | 1.09 | 1.09 | 4 | 4 | 23 | 64 |
| Beaumont, TX | Small | 0.56 | 0.57 | 0.61 | 0.63 | 0.64 | 0.64 | 0.64 | (R) 0.66 | (R) 0.70 | (R) 0.71 | (R) 0.74 | (R) 0.75 | (R) 0.77 | (R) 0.78 | (R) 0.79 | (R) 0.82 | (R) 0.83 | (R) 0.86 | (R) 0.87 | (R) 0.86 | 0.81 | 0.82 | -1 | 21 | 26 | 55 |
| Birmingham, AL | Medium | 0.59 | 0.65 | 0.74 | 0.75 | 0.75 | 0.77 | 0.80 | 0.82 | 0.85 | 0.88 | 0.91 | 0.93 | 0.94 | 0.94 | 0.95 | 0.97 | 0.98 | 1.00 | 1.00 | 1.02 | 0.98 | 0.97 | -1 | 21 | 38 | 18 |
| Boise, ID | Small | 0.54 | 0.55 | 0.79 | 0.81 | 0.78 | 0.79 | 0.77 | 0.80 | 0.82 | 0.85 | 0.89 | 0.89 | 0.91 | 0.95 | 0.94 | 0.96 | 0.95 | 0.96 | 0.97 | 0.94 | 0.90 | 0.87 | -8 | 81 | 33 | 29 |
| Boston, MA-NH-RI | Very large | 0.81 | 0.90 | 1.05 | 1.05 | 1.06 | 1.05 | 1.05 | 1.06 | 1.07 | 1.08 | 1.10 | 1.11 | 1.11 | 1.11 | 1.10 | 1.10 | 1.11 | 1.11 | 1.10 | 1.09 | 1.08 | 1.08 | -3 | 39 | 27 | 46 |
| Boulder, CO | Small | 0.73 | 0.75 | 0.79 | 0.82 | 0.84 | 0.85 | 0.87 | 0.88 | 0.88 | 0.90 | 0.88 | 0.90 | 0.91 | 0.90 | 0.92 | 0.91 | 0.91 | 0.90 | 0.91 | 0.89 | 0.83 | 0.81 | -10 | 91 | 8 | 89 |
| Bridgeport-Stamford, CT-NY | Medium | 0.80 | 0.91 | 0.98 | 0.95 | 0.98 | 0.98 | 0.98 | 1.01 | 1.01 | 1.03 | 1.06 | 1.07 | 1.09 | 1.12 | 1.15 | 1.14 | 1.16 | 1.17 | 1.18 | 1.19 | 1.16 | 1.13 | -3 | 39 | 33 | 35 |
| Brownsville, TX | Small | 0.53 | 0.53 | 0.62 | 0.62 | 0.64 | 0.67 | 0.66 | (R) 0.72 | (R) 0.77 | (R) 0.77 | (R) 0.82 | (R) 0.80 | (R) 0.85 | (R) 0.83 | (R) 0.85 | (R) 0.84 | (R) 0.82 | (R) 0.80 | (R) 0.79 | (R) 0.79 | 0.72 | 0.73 | -9 | 87 | 20 | 75 |
| Buffalo, NY | Large | 0.48 | 0.50 | 0.56 | 0.57 | 0.59 | 0.60 | 0.62 | 0.62 | 0.62 | 0.65 | 0.67 | 0.69 | 0.71 | 0.71 | 0.71 | 0.73 | 0.74 | 0.75 | 0.77 | 0.77 | 0.75 | 0.73 | -1 | 21 | 25 | 56 |
| Cape Coral, FL | Small | 0.94 | 0.92 | 0.87 | 0.87 | 0.90 | 0.98 | 1.06 | 1.14 | 1.15 | 1.11 | 1.14 | 1.13 | 1.11 | 1.11 | 1.15 | 1.19 | 1.23 | 1.26 | 1.33 | 1.31 | 1.22 | 1.22 | -1 | 21 | 28 | 43 |
| Charleston-North Charleston, SC | Medium | 0.85 | 0.89 | 0.94 | 0.95 | 0.98 | 0.99 | 1.02 | 1.01 | 1.00 | 1.01 | 1.04 | 1.04 | 1.05 | 1.03 | 1.05 | 1.08 | 1.08 | 1.09 | 1.13 | 1.14 | 1.11 | 1.11 | 3 | 6 | 26 | 51 |
| Charlotte, NC-SC | Large | 0.78 | 0.89 | 0.91 | 0.91 | 0.90 | 0.87 | 0.86 | 0.86 | 0.93 | 1.00 | 0.99 | 1.03 | 1.07 | 1.08 | 1.10 | 1.09 | 1.10 | 1.11 | 1.12 | 1.11 | 1.07 | 1.06 | -4 | 48 | 28 | 43 |
| Chicago, IL-IN | Very large | 0.81 | 0.89 | 1.03 | 1.04 | 1.02 | 1.01 | 1.03 | 1.08 | 1.14 | 1.13 | 1.17 | 1.17 | 1.18 | 1.20 | 1.23 | 1.24 | 1.28 | 1.28 | 1.23 | 1.18 | 1.17 | 1.15 | -13 | 100 | 34 | 26 |
| Cincinnati, OH-KY-IN | Large | 0.66 | 0.74 | 0.88 | 0.87 | 0.87 | 0.92 | 0.97 | 0.97 | 1.00 | 1.06 | 1.07 | 1.06 | 1.07 | 1.04 | 1.06 | 1.06 | 1.04 | 1.06 | 1.05 | 1.06 | 1.02 | 0.99 | -5 | 61 | 33 | 29 |
| Cleveland, OH | Large | 0.73 | 0.69 | 0.83 | 0.84 | 0.85 | 0.88 | 0.89 | 0.90 | 0.91 | 0.93 | 0.94 | 0.95 | 0.94 | 0.91 | 0.89 | 0.89 | 0.91 | 0.90 | 0.90 | 0.89 | 0.85 | 0.82 | -9 | 89 | 9 | 88 |
| Colorado Springs, CO | Medium | 0.50 | 0.56 | 0.61 | 0.60 | 0.62 | 0.64 | 0.66 | 0.70 | 0.72 | 0.77 | 0.80 | 0.83 | 0.86 | 0.88 | 0.87 | 0.85 | 0.81 | 0.88 | 0.87 | 0.85 | 0.83 | 0.81 | 0 | 13 | 31 | 37 |
| Columbia, SC | Small | 0.57 | 0.65 | 0.73 | 0.73 | 0.74 | 0.74 | 0.75 | 0.77 | 0.77 | 0.79 | 0.81 | 0.84 | 0.87 | 0.88 | 0.88 | 0.89 | 0.89 | 0.90 | 0.92 | 0.94 | 0.92 | 0.92 | 3 | 6 | 35 | 23 |
| Columbus, OH | Large | 0.60 | 0.68 | 0.86 | 0.87 | 0.89 | 0.93 | 0.95 | 0.98 | 1.02 | 1.04 | 1.04 | 1.03 | 1.02 | 1.07 | 1.07 | 1.08 | 1.10 | 1.09 | 1.11 | 1.10 | 1.06 | 1.03 | -7 | 76 | 43 | 11 |
| Corpus Christi, TX | Small | 0.55 | 0.63 | 0.68 | 0.67 | 0.66 | 0.64 | 0.65 | 0.65 | 0.67 | 0.71 | 0.71 | 0.71 | 0.70 | 0.71 | 0.71 | 0.69 | 0.71 | 0.71 | 0.69 | 0.70 | 0.69 | 0.69 | -2 | 31 | 14 | 84 |
| Dallas -Fort Worth-Arlington, TX | Very large | 0.71 | 0.82 | 0.95 | 0.96 | 0.96 | 0.96 | 0.96 | (R) 1.00 | (R) 1.01 | (R) 1.02 | (R) 1.05 | (R) 1.08 | (R) 1.10 | (R) 1.12 | (R) 1.13 | (R) 1.15 | (R) 1.17 | (R) 1.20 | (R) 1.21 | (R) 1.20 | 1.17 | 1.17 | 0 | 13 | 46 | 8 |
| Dayton, OH | Medium | 0.80 | 0.79 | 0.85 | 0.85 | 0.84 | 0.88 | 0.82 | 0.89 | 0.90 | 0.91 | 0.91 | 0.90 | 0.89 | 0.89 | 0.89 | 0.90 | 0.95 | 0.93 | 0.93 | 0.91 | 0.85 | 0.83 | -12 | 98 | 3 | 94 |
| Denver-Aurora, CO | Large | 0.82 | 0.83 | 0.89 | 0.91 | 0.92 | 0.95 | 0.98 | 1.03 | 1.07 | 1.09 | 1.13 | 1.16 | 1.17 | 1.17 | 1.15 | 1.16 | 1.14 | 1.18 | 1.16 | 1.17 | 1.14 | 1.11 | -3 | 37 | 29 | 41 |
| Detroit, MI | Very large | 0.91 | 0.96 | 1.06 | 1.08 | 1.12 | 1.13 | 1.12 | 1.13 | 1.15 | 1.15 | 1.16 | 1.17 | 1.19 | 1.21 | 1.22 | 1.23 | 1.23 | 1.24 | 1.24 | 1.23 | 1.16 | 1.13 | -10 | 93 | 22 | 71 |
| El Paso, TX-NM | Medium | 0.60 | 0.66 | 0.71 | 0.76 | 0.80 | 0.81 | 0.83 | 0.83 | 0.83 | 0.84 | 0.87 | 0.89 | 0.89 | 0.90 | 0.90 | 0.92 | 0.93 | 0.92 | 0.89 | 0.87 | 0.87 | 0.87 | -6 | 70 | 27 | 46 |
| Eugene, OR | Small | 0.69 | 0.70 | 0.75 | 0.75 | 0.75 | 0.79 | 0.78 | 0.80 | 0.82 | 0.83 | 0.85 | 0.88 | 0.91 | 0.88 | 0.88 | 0.92 | 0.92 | 0.91 | 0.89 | 0.88 | 0.84 | 0.82 | -10 | 93 | 13 | 85 |
| Fresno, CA | Medium | 0.68 | 0.73 | 0.80 | 0.81 | 0.82 | 0.83 | 0.82 | 0.84 | 0.86 | 0.87 | 0.90 | 0.91 | 0.94 | 0.91 | 0.92 | 0.91 | 0.91 | 0.94 | 0.93 | 0.91 | 0.92 | 0.91 | 0 | 13 | 23 | 66 |
| Grand Rapids, MI | Medium | 0.56 | 0.61 | 0.71 | 0.74 | 0.80 | 0.86 | 0.85 | 0.84 | 0.84 | 0.86 | 0.88 | 0.87 | 0.86 | 0.86 | 0.85 | 0.84 | 0.84 | 0.85 | 0.87 | 0.87 | 0.86 | 0.83 | -1 | 21 | 27 | 49 |
| Greensboro, NC | Small | 0.60 | 0.58 | 0.59 | 0.59 | 0.60 | 0.61 | 0.61 | 0.61 | 0.77 | 0.64 | 0.66 | 0.66 | 0.68 | 0.69 | 0.69 | 0.69 | 0.69 | 0.68 | 0.67 | 0.67 | 0.65 | 0.65 | -4 | 45 | 5 | 92 |
| Hartford, CT | Medium | 0.58 | 0.63 | 0.70 | 0.73 | 0.87 | 0.78 | 0.79 | 0.81 | 0.82 | 0.84 | 0.86 | 0.89 | 0.92 | 0.92 | 0.93 | 0.93 | 0.94 | 0.95 | 0.96 | 0.97 | 0.96 | 0.93 | -1 | 20 | 35 | 23 |
| Honolulu, HI | Medium | 0.82 | 0.88 | 1.04 | 1.04 | 1.06 | 1.06 | 1.08 | 1.08 | 1.08 | 1.06 | 1.06 | 1.06 | 1.04 | 1.04 | 1.04 | 1.06 | 1.07 | 1.08 | 1.08 | 1.10 | 1.08 | 1.03 | -4 | 48 | 21 | 72 |
| Houston, TX | Very large | 0.99 | 1.05 | (R) 1.03 | (R) 1.03 | (R) 1.02 | (R) 1.03 | (R) 1.05 | (R) 1.07 | (R) 1.08 | (R) 1.11 | (R) 1.11 | (R) 1.12 | (R) 1.14 | (R) 1.17 | (R) 1.17 | (R) 1.17 | (R) 1.17 | (R) 1.17 | (R) 1.18 | (R) 1.19 | 1.15 | 1.15 | -2 | 31 | 16 | 80 |
| Indianapolis, IN | Large | 0.80 | 0.83 | 0.94 | 0.97 | 1.02 | 1.05 | 1.11 | 1.17 | 1.17 | 1.20 | 1.17 | 1.17 | 1.18 | 1.19 | 1.19 | 1.17 | 1.14 | 1.14 | 1.11 | 1.09 | 1.08 | 1.05 | -9 | 86 | 25 | 56 |
| Indio-Cathedral City-Palm Springs, CA | Medium | 0.80 | 0.84 | 0.87 | 0.86 | 0.84 | 0.85 | 0.85 | 0.84 | 0.84 | 0.85 | 0.83 | 0.83 | 0.81 | 0.81 | 0.80 | 0.84 | 0.87 | 0.91 | 0.94 | 0.92 | 0.83 | 0.82 | -5 | 61 | 2 | 96 |
| Jackson, MS | Small | 0.66 | 0.68 | 0.72 | 0.73 | 0.73 | 0.74 | 0.74 | 0.76 | 0.78 | 0.78 | 0.79 | 0.80 | 0.79 | 0.81 | 0.83 | 0.82 | 0.86 | 0.86 | 0.91 | 0.90 | 0.88 | 0.87 | 1 | 10 | 21 | 73 |
| Jacksonville, FL | Medium | 0.79 | 0.83 | 0.94 | 0.94 | 0.95 | 0.95 | 0.97 | 0.98 | 1.01 | 1.00 | 1.00 | 1.00 | 1.02 | 1.01 | 1.03 | 1.06 | 1.09 | 1.12 | 1.18 | 1.17 | 1.11 | 1.10 | 1 | 10 | 31 | 37 |
| Kansas City, MO-KS | Large | 0.53 | 0.64 | 0.74 | 0.74 | 0.76 | 0.80 | 0.81 | 0.82 | 0.83 | 0.81 | 0.81 | 0.82 | 0.82 | 0.82 | 0.82 | 0.81 | 0.79 | 0.80 | 0.79 | 0.79 | 0.79 | 0.77 | -2 | 31 | 24 | 61 |
| Knoxville, TN | Small | 0.79 | 0.76 | 0.94 | 0.96 | 0.97 | 0.99 | 1.01 | 1.03 | 1.08 | 1.09 | 1.08 | 1.08 | 1.08 | 1.08 | 1.07 | 1.06 | 1.09 | 1.09 | 1.07 | 1.08 | 1.04 | 1.02 | -7 | 76 | 23 | 66 |
| Lancaster-Palmdale, CA | Medium | 1.13 | 1.12 | 0.89 | 0.90 | 0.92 | 0.91 | 0.90 | 0.88 | 0.88 | 0.87 | 0.86 | 0.84 | 0.82 | 0.85 | 0.88 | 0.91 | 0.91 | 0.91 | 0.92 | 0.91 | 0.87 | 0.86 | -5 | 61 | -27 | 101 |
| Laredo, TX | Small | 0.41 | 0.45 | 0.47 | 0.50 | 0.51 | 0.52 | 0.54 | 0.58 | 0.64 | 0.63 | 0.63 | 0.67 | 0.66 | 0.71 | 0.71 | 0.74 | 0.74 | 0.76 | 0.78 | 0.82 | 0.80 | 0.80 | 6 | 1 | 39 | 17 |
| Las Vegas, NV | Large | 0.69 | 0.66 | 0.94 | 0.97 | 1.02 | 1.09 | 1.09 | 1.10 | 1.11 | 1.08 | 1.09 | 1.14 | 1.18 | 1.16 | 1.19 | 1.24 | 1.28 | 1.32 | 1.36 | 1.42 | 1.36 | 1.32 | 4 | 4 | 63 | 1 |
| Little Rock, AR | Small | 0.54 | 0.60 | 0.70 | 0.73 | 0.71 | 0.72 | 0.75 | 0.77 | 0.79 | 0.79 | 0.82 | 0.85 | 0.83 | 0.86 | 0.82 | 0.83 | 0.87 | 0.89 | 0.94 | 0.94 | 0.91 | 0.92 | 5 | 3 | 38 | 18 |
| Los Angeles-Long Beach-Santa Ana, CA | Very large | 1.21 | 1.25 | 1.57 | 1.56 | 1.54 | 1.52 | 1.49 | 1.51 | 1.54 | 1.53 | 1.53 | 1.53 | 1.54 | 1.54 | 1.55 | 1.55 | 1.58 | 1.57 | 1.58 | 1.58 | 1.56 | 1.54 | -4 | 48 | 33 | 27 |
| Louisville, KY-IN | Large | 0.83 | 0.82 | 0.83 | 0.89 | 0.94 | 0.98 | 1.01 | 1.02 | 1.04 | 1.07 | 1.09 | 1.10 | 1.10 | 1.09 | 1.12 | 1.14 | 1.15 | 1.13 | 1.10 | 1.08 | 1.04 | 1.02 | -13 | 99 | 19 | 77 |
| Madison, WI | Small | 0.88 | 0.88 | 0.88 | 0.87 | 0.86 | 0.83 | 0.86 | 0.85 | 0.84 | 0.82 | 0.82 | 0.82 | 0.82 | 0.83 | 0.84 | 0.84 | 0.85 | 0.83 | 0.85 | 0.84 | 0.83 | 0.81 | -4 | 45 | -7 | 99 |
| McAllen, TX | Medium | 0.52 | 0.57 | 0.63 | 0.64 | 0.65 | 0.68 | 0.70 | 0.75 | 0.77 | 0.76 | 0.75 | 0.79 | 0.81 | 0.85 | 0.86 | 0.85 | 0.84 | 0.83 | 0.83 | 0.83 | 0.80 | 0.80 | -4 | 45 | 28 | 43 |
| Memphis, TN-MS-AR | Large | 0.74 | 0.69 | 0.82 | 0.81 | 0.83 | 0.85 | 0.88 | 0.90 | 0.91 | 0.90 | 0.91 | 0.92 | 0.93 | 0.95 | 0.96 | 0.97 | 0.96 | 0.93 | 0.92 | 0.91 | 0.87 | 0.86 | -10 | 91 | 12 | 86 |
| Miami, FL | Very Large | 0.76 | 0.82 | 0.99 | 1.00 | 1.04 | 1.06 | 1.09 | 1.13 | 1.14 | 1.17 | 1.21 | 1.26 | 1.33 | 1.34 | 1.36 | 1.38 | 1.38 | 1.38 | 1.38 | 1.38 | 1.32 | 1.32 | -6 | 66 | 56 | 3 |

**Table 1-71: Annual Roadway Congestion Index**

| Urban area | Population group | 1982 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | Points change: Short-term 2004-2009 Points | Short-term 2004-2009 Rank[a] | Long-term 1982-2009 Points | Long-term 1982-2009 Rank[a] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Milwaukee, WI | Large | 0.65 | 0.75 | 0.89 | 0.90 | 0.90 | 0.88 | 0.88 | 0.91 | 0.94 | 0.95 | 0.96 | 0.99 | 1.00 | 0.98 | 0.96 | 0.97 | 0.98 | 0.95 | 0.95 | 0.95 | 0.91 | 0.89 | -9 | 87 | 24 | 61 |
| Minneapolis-St. Paul, MN | Large | 0.65 | 0.73 | 0.85 | 0.87 | 0.90 | 0.93 | 1.00 | 1.02 | 1.03 | 1.08 | 1.11 | 1.14 | 1.16 | 1.19 | 1.17 | 1.18 | 1.16 | 1.17 | 1.16 | 1.16 | 1.13 | 1.10 | -6 | 66 | 45 | 9 |
| Nashville-Davidson, TN | Large | 0.82 | 0.80 | 0.85 | 0.84 | 0.85 | 0.84 | 0.90 | 0.92 | 0.91 | 0.93 | 0.92 | 0.93 | 0.95 | 0.97 | 0.98 | 1.01 | 1.02 | 1.01 | 1.00 | 0.99 | 1.00 | 0.98 | -4 | 48 | 16 | 79 |
| New Haven, CT | Medium | 0.63 | 0.68 | 0.80 | 0.79 | 0.83 | 0.83 | 0.81 | 0.81 | 0.81 | 0.85 | 0.88 | 0.92 | 0.94 | 0.97 | 1.00 | 0.99 | 0.98 | 1.00 | 0.99 | 1.00 | 0.99 | 0.96 | -2 | 31 | 33 | 29 |
| New Orleans, LA | Large | 0.86 | 0.91 | 0.89 | 0.89 | 0.89 | 0.88 | 0.93 | 0.94 | 0.91 | 0.92 | 0.96 | 0.96 | 0.94 | 0.93 | 0.94 | 0.94 | 0.95 | 0.96 | 0.98 | 0.97 | 0.90 | 0.90 | -5 | 60 | 4 | 93 |
| New York-Newark, NY-NJ-CT | Very large | 0.73 | 0.80 | 0.91 | 0.90 | 0.90 | 0.92 | 0.93 | 0.95 | 0.97 | 1.01 | 1.02 | 1.05 | 1.06 | 1.06 | 1.08 | 1.13 | 1.14 | 1.13 | 1.14 | 1.15 | 1.13 | 1.09 | -5 | 59 | 36 | 21 |
| Oklahoma City, OK | Medium | 0.63 | 0.69 | 0.70 | 0.72 | 0.73 | 0.77 | 0.77 | 0.81 | 0.83 | 0.85 | 0.86 | 0.88 | 0.87 | 0.89 | 0.89 | 0.89 | 0.89 | 0.90 | 0.90 | 0.92 | 0.91 | 0.89 | 0 | 13 | 26 | 52 |
| Omaha, NE-IA | Medium | 0.61 | 0.66 | 0.75 | 0.75 | 0.80 | 0.80 | 0.80 | 0.81 | 0.84 | 0.83 | 0.85 | 0.87 | 0.89 | 0.91 | 0.93 | 0.92 | 0.93 | 0.94 | 0.97 | 0.96 | 0.95 | 0.94 | 1 | 12 | 33 | 29 |
| Orlando, FL | Large | 0.72 | 0.83 | 0.96 | 0.99 | 0.98 | 0.96 | 0.98 | 1.00 | 1.03 | 1.07 | 1.10 | 1.12 | 1.16 | 1.22 | 1.20 | 1.20 | 1.20 | 1.23 | 1.23 | 1.24 | 1.17 | 1.17 | -3 | 39 | 45 | 10 |
| Oxnard-Ventura, CA | Medium | 0.83 | 0.97 | 1.15 | 1.13 | 1.14 | 1.15 | 1.20 | 1.20 | 1.21 | 1.20 | 1.20 | 1.22 | 1.22 | 1.26 | 1.25 | 1.24 | 1.23 | 1.23 | 1.22 | 1.22 | 1.21 | 1.19 | -4 | 48 | 36 | 22 |
| Pensacola, FL-AL | Small | 0.71 | 0.74 | 0.86 | 0.83 | 0.88 | 0.91 | 0.92 | 0.97 | 0.99 | 1.03 | 0.99 | 1.00 | 1.01 | 0.99 | 1.02 | 1.05 | 1.07 | 1.10 | 1.11 | 1.12 | 0.98 | 0.97 | -10 | 93 | 26 | 52 |
| Philadelphia, PA-NJ-DE-MD | Very large | 0.83 | 0.85 | 0.95 | 0.92 | 0.94 | 0.92 | 0.94 | 0.95 | 0.95 | 0.99 | 1.01 | 1.03 | 1.04 | 1.07 | 1.09 | 1.09 | 1.10 | 1.12 | 1.10 | 1.11 | 1.09 | 1.06 | -4 | 48 | 23 | 64 |
| Phoenix, AZ | Very large | 1.03 | 1.02 | 1.01 | 1.00 | 1.03 | 1.04 | 1.03 | 1.07 | 1.11 | 1.10 | 1.14 | 1.19 | 1.25 | 1.26 | 1.23 | 1.25 | 1.30 | 1.32 | 1.29 | 1.25 | 1.22 | 1.25 | -5 | 61 | 22 | 69 |
| Pittsburgh, PA | Large | 0.67 | 0.69 | 0.76 | 0.75 | 0.74 | 0.73 | 0.73 | 0.75 | 0.75 | 0.75 | 0.76 | 0.77 | 0.77 | 0.78 | 0.79 | 0.80 | 0.80 | 0.79 | 0.78 | 0.78 | 0.75 | 0.73 | -7 | 76 | 6 | 91 |
| Portland, OR-WA | Large | 0.87 | 0.89 | 1.00 | 1.01 | 1.03 | 1.05 | 1.07 | 1.11 | 1.15 | 1.18 | 1.18 | 1.20 | 1.21 | 1.20 | 1.20 | 1.20 | 1.22 | 1.23 | 1.20 | 1.20 | 1.17 | 1.14 | -8 | 84 | 27 | 49 |
| Pooughkeepsie-Newburgh, NY | Medium | 0.83 | 0.85 | 0.85 | 0.85 | 0.85 | 0.86 | 0.86 | 0.86 | 0.85 | 0.86 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.89 | 0.90 | 0.90 | 0.90 | 0.89 | 0.86 | 0.84 | -6 | 70 | 1 | 97 |
| Providence, RI-MA | Large | 0.55 | 0.54 | 0.70 | 0.70 | 0.70 | 0.72 | 0.73 | 0.75 | 0.77 | 0.78 | 0.85 | 0.87 | 0.88 | 0.91 | 0.91 | 0.93 | 0.94 | 0.94 | 0.93 | 0.94 | 0.89 | 0.87 | -7 | 75 | 32 | 36 |
| Provo, UT | Small | 1.16 | 1.17 | 1.16 | 1.17 | 1.17 | 1.12 | 1.11 | 1.10 | 1.10 | 1.09 | 1.03 | 1.07 | 1.06 | 1.06 | 1.05 | 1.04 | 1.04 | 1.03 | 1.00 | 0.98 | 0.92 | 0.90 | -14 | 101 | -26 | 100 |
| Raleigh-Durham, NC | Large | 0.63 | 0.75 | 0.85 | 0.85 | 0.87 | 0.86 | 0.88 | 0.92 | 0.92 | 0.95 | 0.94 | 0.94 | 0.96 | 0.96 | 0.98 | 0.97 | 0.99 | 1.01 | 1.00 | 1.01 | 0.97 | 0.96 | -3 | 39 | 33 | 29 |
| Richmond, VA | Medium | 0.61 | 0.58 | 0.75 | 0.78 | 0.81 | 0.79 | 0.84 | 0.86 | 0.84 | 0.80 | 0.77 | 0.75 | 0.77 | 0.77 | 0.79 | 0.81 | 0.82 | 0.82 | 0.83 | 0.83 | 0.81 | 0.80 | -2 | 30 | 19 | 77 |
| Riverside-San Bernardino, CA | Large | 0.76 | 0.89 | 1.14 | 1.17 | 1.16 | 1.14 | 1.11 | 1.16 | 1.17 | 1.15 | 1.19 | 1.24 | 1.26 | 1.29 | 1.36 | 1.43 | 1.45 | 1.45 | 1.47 | 1.45 | 1.41 | 1.39 | -6 | 70 | 63 | 2 |
| Rochester, NY | Medium | 0.48 | 0.52 | 0.63 | 0.64 | 0.66 | 0.66 | 0.68 | 0.71 | 0.71 | 0.70 | 0.70 | 0.72 | 0.73 | 0.74 | 0.75 | 0.75 | 0.76 | 0.76 | 0.77 | 0.77 | 0.74 | 0.72 | -4 | 48 | 24 | 61 |
| Sacramento, CA | Large | 0.75 | 0.88 | 1.10 | 1.10 | 1.08 | 1.08 | 1.10 | 1.12 | 1.16 | 1.13 | 1.17 | 1.19 | 1.23 | 1.26 | 1.29 | 1.31 | 1.35 | 1.36 | 1.33 | 1.33 | 1.29 | 1.27 | -8 | 84 | 52 | 4 |
| Salem, OR | Small | 0.58 | 0.66 | 0.82 | 0.84 | 0.84 | 0.85 | 0.85 | 0.84 | 0.83 | 0.85 | 0.88 | 0.88 | 0.89 | 0.89 | 0.91 | 0.88 | 0.87 | 0.89 | 0.91 | 0.91 | 0.85 | 0.83 | -4 | 48 | 25 | 56 |
| Salt Lake City, UT | Medium | 0.72 | 0.77 | 0.88 | 0.92 | 0.95 | 0.99 | 1.05 | 1.07 | 1.07 | 1.03 | 1.01 | 1.00 | 1.05 | 1.05 | 1.06 | 1.06 | 1.05 | 1.03 | 1.01 | 1.03 | 1.01 | 0.98 | -7 | 76 | 26 | 52 |
| San Antonio, TX | Large | 0.68 | 0.78 | 0.75 | 0.75 | 0.77 | 0.78 | 0.83 | 0.88 | 0.94 | 0.99 | 1.00 | 1.03 | 1.05 | 1.06 | 1.07 | 1.08 | 1.10 | 1.11 | 1.12 | 1.11 | 1.09 | 1.09 | -1 | 21 | 41 | 14 |
| San Diego, CA | Very large | 0.83 | 0.93 | 1.23 | 1.22 | 1.22 | 1.20 | 1.21 | 1.22 | 1.22 | 1.22 | 1.23 | 1.28 | 1.33 | 1.37 | 1.37 | 1.37 | 1.42 | 1.41 | 1.39 | 1.37 | 1.34 | 1.32 | -10 | 90 | 49 | 5 |
| San Francisco-Oakland, CA | Very large | 1.01 | 1.13 | 1.31 | 1.30 | 1.29 | 1.30 | 1.29 | 1.31 | 1.32 | 1.33 | 1.34 | 1.36 | 1.38 | 1.35 | 1.39 | 1.40 | 1.39 | 1.40 | 1.40 | 1.38 | 1.34 | 1.32 | -7 | 74 | 31 | 37 |
| San Jose, CA | Large | 1.03 | 1.10 | 1.23 | 1.23 | 1.20 | 1.16 | 1.18 | 1.19 | 1.19 | 1.18 | 1.19 | 1.23 | 1.35 | 1.37 | 1.36 | 1.36 | 1.33 | 1.33 | 1.35 | 1.34 | 1.32 | 1.30 | -3 | 39 | 27 | 46 |
| San Juan, PR | Large | 0.69 | 0.73 | 0.83 | 0.83 | 0.86 | 0.87 | 0.91 | 0.92 | 0.94 | 0.94 | 0.98 | 0.99 | 1.02 | 1.04 | 1.09 | 1.14 | 1.17 | 1.15 | 1.15 | 1.14 | 1.14 | 1.11 | -6 | 66 | 42 | 12 |
| Sarasota-Bradenton, FL | Medium | 0.77 | 0.86 | 0.87 | 0.89 | 0.89 | 0.91 | 0.92 | 0.94 | 0.98 | 1.01 | 1.02 | 1.10 | 1.13 | 1.14 | 1.16 | 1.18 | 1.21 | 1.24 | 1.27 | 1.23 | 1.17 | 1.17 | -4 | 48 | 40 | 15 |
| Seattle, WA | Very large | 0.84 | 0.94 | 1.14 | 1.15 | 1.17 | 1.19 | 1.19 | 1.17 | 1.17 | 1.17 | 1.17 | 1.18 | 1.18 | 1.18 | 1.18 | 1.18 | 1.16 | 1.15 | 1.13 | 1.12 | 1.10 | 1.08 | -8 | 80 | 24 | 60 |
| Spokane, WA | Small | 0.53 | 0.59 | 0.64 | 0.67 | 0.71 | 0.75 | 0.75 | 0.75 | 0.75 | 0.76 | 0.77 | 0.77 | 0.76 | 0.76 | 0.75 | 0.76 | 0.73 | 0.71 | 0.71 | 0.72 | 0.70 | 0.69 | -4 | 48 | 16 | 80 |
| Springfield, MA-CT | Medium | 0.60 | 0.63 | 0.69 | 0.70 | 0.72 | 0.73 | 0.73 | 0.74 | 0.74 | 0.75 | 0.77 | 0.79 | 0.79 | 0.78 | 0.81 | 0.81 | 0.83 | 0.83 | 0.83 | 0.83 | 0.81 | 0.80 | -3 | 38 | 20 | 74 |
| St. Louis, MO-IL | Large | 0.84 | 0.89 | 0.86 | 0.84 | 0.88 | 0.92 | 0.99 | 1.04 | 1.05 | 1.05 | 1.03 | 1.03 | 1.02 | 1.01 | 1.00 | 0.96 | 0.94 | 0.91 | 0.89 | 0.89 | 0.89 | 0.86 | -8 | 81 | 2 | 95 |
| Stockton, CA | Small | 0.64 | 0.72 | 0.83 | 0.85 | 0.86 | 0.87 | 0.90 | 0.96 | 0.97 | 0.99 | 1.00 | 1.00 | 1.02 | 1.04 | 1.05 | 1.08 | 1.11 | 1.11 | 1.15 | 1.20 | 1.12 | 1.11 | 0 | 13 | 47 | 7 |
| Tampa-St. Petersburg, FL | Large | 1.04 | 1.09 | 1.13 | 1.18 | 1.17 | 1.18 | 1.18 | 1.16 | 1.14 | 1.14 | 1.13 | 1.12 | 1.13 | 1.17 | 1.20 | 1.21 | 1.26 | 1.27 | 1.29 | 1.29 | 1.24 | 1.24 | -2 | 31 | 20 | 75 |
| Toledo, OH-MI | Medium | 0.54 | 0.61 | 0.65 | 0.64 | 0.68 | 0.72 | 0.78 | 0.81 | 0.86 | 0.88 | 0.89 | 0.89 | 0.91 | 0.91 | 0.90 | 0.87 | 0.88 | 0.87 | 0.87 | 0.84 | 0.79 | 0.77 | -11 | 97 | 23 | 66 |
| Tucson, AZ | Medium | 0.89 | 0.91 | 0.93 | 0.93 | 0.94 | 0.93 | 0.91 | 0.91 | 0.93 | 0.98 | 0.99 | 1.00 | 1.01 | 1.04 | 1.06 | 1.10 | 1.12 | 1.18 | 1.17 | 1.15 | 1.16 | 1.18 | 6 | 2 | 29 | 42 |
| Tulsa, OK | Medium | 0.62 | 0.74 | 0.75 | 0.75 | 0.76 | 0.76 | 0.76 | 0.79 | 0.82 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.83 | 0.80 | 0.81 | 0.82 | 0.82 | 0.77 | 0.76 | -4 | 48 | 14 | 83 |
| Virginia Beach, VA | Large | 0.78 | 0.82 | 0.85 | 0.83 | 0.83 | 0.84 | 0.87 | 0.89 | 0.92 | 0.95 | 0.96 | 0.98 | 0.99 | 0.99 | 1.02 | 1.02 | 1.02 | 1.02 | 1.02 | 1.01 | 1.02 | 1.00 | -2 | 31 | 22 | 69 |
| Washington, DC-VA-MD | Very large | 0.83 | 1.01 | 1.05 | 1.06 | 1.12 | 1.15 | 1.21 | 1.22 | 1.24 | 1.24 | 1.25 | 1.24 | 1.25 | 1.28 | 1.31 | 1.34 | 1.34 | 1.35 | 1.33 | 1.34 | 1.33 | 1.31 | -3 | 39 | 48 | 6 |
| Wichita, KS | Medium | 0.49 | 0.49 | 0.53 | 0.55 | 0.56 | 0.58 | 0.57 | 0.56 | 0.56 | 0.57 | 0.57 | 0.57 | 0.56 | 0.55 | 0.54 | 0.54 | 0.55 | 0.55 | 0.56 | 0.56 | 0.55 | 0.55 | 0 | 13 | 6 | 90 |
| Winston-Salem, NC | Small | 0.70 | 0.75 | 0.78 | 0.78 | 0.79 | 0.76 | 0.78 | 0.80 | 0.79 | 0.80 | 0.81 | 0.81 | 0.84 | 0.83 | 0.82 | 0.83 | 0.83 | 0.85 | 0.84 | 0.86 | 0.83 | 0.82 | -1 | 21 | 12 | 86 |
| Worcester, MA | Small | 0.68 | 0.70 | 0.74 | 0.76 | 0.77 | 0.78 | 0.79 | 0.81 | 0.83 | 0.84 | 0.82 | 0.82 | 0.83 | 0.82 | 0.82 | 0.82 | 0.84 | 0.85 | 0.84 | 0.85 | 0.84 | 0.84 | 0 | 13 | 16 | 80 |
| 439 Urban area average[b] | 439 Areas | 0.69 | 0.73 | 0.84 | 0.86 | 0.86 | 0.90 | 0.91 | 0.93 | 0.95 | 0.96 | 0.97 | 0.99 | 1.01 | 1.02 | 1.03 | 1.03 | 1.04 | 1.03 | 1.03 | 1.03 | 0.98 | 0.98 | -6 | NA | 29 | NA |
| 101 Urban area average[b] | 101 Areas | 0.83 | 0.89 | 1.02 | 1.02 | 1.02 | 1.03 | 1.04 | 1.06 | 1.08 | 1.09 | 1.10 | 1.12 | 1.13 | 1.14 | 1.15 | 1.16 | 1.17 | 1.17 | 1.17 | 1.17 | 1.14 | 1.12 | -5 | NA | 29 | NA |
| Very large area average[b] | Very large | 0.92 | 0.99 | 1.15 | 1.15 | 1.15 | 1.15 | 1.16 | 1.18 | 1.20 | 1.20 | 1.22 | 1.24 | 1.25 | 1.26 | 1.27 | 1.29 | 1.30 | 1.30 | 1.29 | 1.28 | 1.25 | 1.24 | -6 | NA | 32 | NA |
| Large area average[b] | Large | 0.75 | 0.81 | 0.90 | 0.91 | 0.92 | 0.93 | 0.96 | 0.98 | 1.00 | 1.01 | 1.03 | 1.04 | 1.06 | 1.07 | 1.08 | 1.09 | 1.10 | 1.10 | 1.10 | 1.10 | 1.07 | 1.05 | -5 | NA | 30 | NA |
| Medium area average[b] | Medium | 0.67 | 0.72 | 0.79 | 0.80 | 0.82 | 0.83 | 0.85 | 0.86 | 0.88 | 0.89 | 0.89 | 0.90 | 0.91 | 0.92 | 0.92 | 0.93 | 0.94 | 0.94 | 0.95 | 0.95 | 0.93 | 0.91 | -3 | NA | 24 | NA |
| Small area average[b] | Small | 0.69 | 0.71 | 0.77 | 0.78 | 0.79 | 0.80 | 0.81 | 0.83 | 0.85 | 0.85 | 0.86 | 0.87 | 0.87 | 0.88 | 0.89 | 0.89 | 0.91 | 0.91 | 0.93 | 0.93 | 0.89 | 0.88 | -3 | NA | 19 | NA |

**Table 1-71: Annual Roadway Congestion Index**

| Urban area | Population group | 1982 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | Points change: Short-term 2004-2009 Points | Short-term 2004-2009 Rank[a] | Long-term 1982-2009 Points | Long-term 1982-2009 Rank[a] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

**KEY:** NA = not applicable.
Very large urban areas – 3 million and over population.
Large urban areas – 1 million to less than 3 million population.
Medium urban areas – 500,000 to less than 1 million population.
Small urban areas – less than 500,000 population.

[a] Rank is based on the calculated point change with the highest number corresponding to a rank of 1.
[b] Average weighted by vehicle miles traveled in city.

**NOTES**

The Roadway Congestion Index (RCI) is a measure of vehicle travel density on major roadways in an urban area. An RCI exceeding 1.0 indicates an undesirable congestion level, on an average, on the freeways and principal arterial street systems during the peak period. The urban areas included are those containing over 500,000 people and several smaller places mostly chosen by previous sponsors of the Texas Transportation Institute study on mobility.
Methodology and data sources have been changed in 2010 and were applied retroactively to past years; these figures are not comparable to those in past editions of NTS.

**SOURCE**
Texas Transportation Institute,*Congestion Data for Your City,* Excel spreadsheet of the base statistics for the 101 urban areas and population group summary statistics (College Station, TX: 2011), available at http://mobility.tamu.edu as of Jan. 20, 2011.

**Table 1-71: Annual Highway Congestion Cost**

| Urban area | Population group | Annual congestion cost per auto commuter (2009 dollars) | | | | | | | | | | | | | | | | | | | | | | Annual congestion cost (2009 dollars- millions) | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Value | | | | | | | | | | Rank | | | | | | | | | | Value | | | | | | | | | | Rank | | | | | | | | | |
| | | (R) 1998 | (R) 1999 | (R) 2000 | (R) 2001 | (R) 2002 | (R) 2003 | (R) 2004 | (R) 2005 | (R) 2006 | (R) 2007 | 2008 | 2009 | (R) 1998 | (R) 1999 | (R) 2000 | (R) 2001 | (R) 2002 | (R) 2003 | (R) 2004 | (R) 2005 | (R) 2006 | (R) 2007 | 2008 | 2009 | (R) 1998 | (R) 1999 | (R) 2000 | (R) 2001 | (R) 2002 | (R) 2003 | (R) 2004 | (R) 2005 | (R) 2006 | (R) 2007 | 2008 | 2009 |
| Akron, OH | Medium | 493 | 501 | 497 | 488 | 484 | 446 | 490 | 520 | 554 | 462 | 374 | 349 | 52 | 59 | 63 | 68 | 71 | 80 | 79 | 80 | 81 | 89 | 80 | 85 | 144 | 147 | 149 | 149 | 144 | 140 | 160 | 164 | 182 | 153 | 160 | 148 | 58 | 60 | 61 | 62 | 65 | 67 | 65 | 68 | 69 | 79 | 73 | 78 |
| Albany-Schenectady, NY | Medium | 265 | 283 | 330 | 358 | 382 | 431 | 505 | 542 | 641 | 741 | 431 | 446 | 87 | 89 | 88 | 87 | 86 | 81 | 75 | 75 | 68 | 61 | 73 | 66 | 68 | 73 | 86 | 95 | 103 | 119 | 144 | 159 | 192 | 224 | 183 | 160 | 79 | 80 | 80 | 79 | 80 | 75 | 71 | 71 | 64 | 64 | 66 | 67 |
| Albuquerque, NM | Medium | 768 | 818 | 766 | 753 | 699 | 755 | 877 | 995 | 1067 | 1164 | 753 | 677 | 20 | 26 | 33 | 35 | 45 | 45 | 35 | 32 | 30 | 29 | 30 | 37 | 229 | 244 | 228 | 226 | 210 | 229 | 268 | 307 | 332 | 359 | 308 | 286 | 43 | 49 | 51 | 55 | 56 | 54 | 52 | 53 | 49 | 53 | 54 | |
| Allentown-Bethlehem, PA-NJ | Medium | 589 | 534 | 584 | 590 | 584 | 585 | 642 | 689 | 671 | 734 | 520 | 522 | 41 | 55 | 54 | 57 | 59 | 63 | 61 | 58 | 65 | 62 | 61 | 56 | 187 | 172 | 192 | 195 | 198 | 197 | 218 | 234 | 228 | 251 | 233 | 237 | 51 | 55 | 55 | 58 | 58 | 59 | 59 | 59 | 60 | 60 | 60 | 60 |
| Anchorage, AK | Small | 408 | 411 | 438 | 503 | 522 | 509 | 529 | 535 | 589 | 600 | 377 | 329 | 66 | 71 | 71 | 63 | 65 | 68 | 70 | 76 | 75 | 73 | 79 | 89 | 68 | 69 | 75 | 87 | 92 | 92 | 97 | 98 | 110 | 114 | 80 | 72 | 78 | 82 | 82 | 83 | 83 | 85 | 86 | 87 | 85 | 86 | 92 | 95 |
| Atlanta, GA | Very large | 1,183 | 1,198 | 1,359 | 1,420 | 1,484 | 1,554 | 1,649 | 1,820 | 1,842 | 1,719 | 1,087 | 1,046 | 5 | 5 | 5 | 4 | 5 | 5 | 5 | 5 | 5 | 6 | 12 | 11 | 1,785 | 1,866 | 2,165 | 2,308 | 2,442 | 2,584 | 2,770 | 3,088 | 3,164 | 2,996 | 2,777 | 2,727 | 6 | 6 | 6 | 7 | 7 | 8 | 9 | 9 | 9 | 9 | 11 | 10 | |
| Austin, TX | Medium | 720 | 825 | 892 | 991 | 1,025 | 1,160 | 1,302 | 1,534 | 1,512 | 1,443 | 962 | 882 | 28 | 25 | 22 | 20 | 21 | 16 | 14 | 10 | 14 | 17 | 18 | 19 | 277 | 326 | 364 | 420 | 448 | 517 | 598 | 725 | 734 | 739 | 722 | 691 | 37 | 37 | 37 | 33 | 34 | 33 | 30 | 29 | 29 | 29 | 28 | 28 |
| Bakersfield, CA | Medium | 102 | 106 | 113 | 119 | 146 | 163 | 206 | 239 | 235 | 232 | 262 | 310 | 99 | 100 | 100 | 100 | 100 | 100 | 99 | 98 | 99 | 99 | 94 | 92 | 22 | 23 | 26 | 27 | 35 | 40 | 52 | 63 | 66 | 66 | 98 | 119 | 98 | 98 | 98 | 99 | 97 | 97 | 95 | 94 | 94 | 94 | 84 | 82 |
| Baltimore, MD | Large | 868 | 906 | 1,057 | 1,170 | 1,419 | 1,515 | 1,594 | 1,720 | 1,790 | 1,829 | 1,204 | 1,218 | 14 | 17 | 14 | 12 | 6 | 6 | 6 | 6 | 6 | 6 | 5 | 5 | 892 | 933 | 1,108 | 1,254 | 1,553 | 1,690 | 1,801 | 1,967 | 2,069 | 2,136 | 1,952 | 2,024 | 16 | 19 | 19 | 17 | 14 | 14 | 14 | 15 | 14 | 15 | 16 | 15 |
| Baton Rouge, LA | Medium | 766 | 925 | 970 | 1,018 | 1,028 | 1,187 | 1,295 | 1,392 | 1,358 | 1,386 | 1,080 | 1,030 | 21 | 16 | 18 | 19 | 20 | 14 | 15 | 18 | 19 | 18 | 13 | 12 | 142 | 178 | 191 | 202 | 206 | 243 | 271 | 298 | 334 | 350 | 394 | 387 | 59 | 54 | 56 | 56 | 56 | 55 | 53 | 54 | 52 | 50 | 43 | 46 |
| Beaumont, TX | Small | 316 | 377 | 431 | 476 | 569 | 609 | 672 | 721 | 758 | 861 | 501 | 458 | 79 | 73 | 73 | 69 | 62 | 61 | 58 | 55 | 58 | 60 | 53 | 59 | 36 | 42 | 48 | 54 | 65 | 72 | 79 | 87 | 89 | 93 | 95 | 86 | 93 | 92 | 91 | 91 | 89 | 90 | 89 | 90 | 92 | 90 | 86 | 92 |
| Birmingham, AL | Medium | 646 | 672 | 736 | 753 | 771 | 816 | 871 | 909 | 932 | 942 | 615 | 662 | 32 | 35 | 35 | 35 | 37 | 36 | 36 | 40 | 43 | 44 | 39 | 39 | 200 | 210 | 232 | 244 | 257 | 280 | 311 | 333 | 350 | 363 | 338 | 380 | 46 | 49 | 48 | 50 | 51 | 48 | 47 | 47 | 48 | 48 | 50 | 47 |
| Boise, ID | Small | 387 | 430 | 470 | 560 | 544 | 572 | 578 | 633 | 689 | 702 | 401 | 449 | 69 | 68 | 67 | 61 | 64 | 64 | 66 | 65 | 62 | 66 | 76 | 65 | 41 | 47 | 54 | 67 | 68 | 74 | 78 | 88 | 99 | 103 | 77 | 91 | 89 | 89 | 88 | 88 | 88 | 89 | 90 | 89 | 88 | 88 | 93 | 91 |
| Boston, MA-NH-RI | Very large | 895 | 929 | 1,054 | 1,114 | 1,215 | 1,289 | 1,481 | 1,597 | 1,625 | 1,568 | 1,193 | 1,112 | 12 | 14 | 15 | 14 | 11 | 9 | 7 | 7 | 8 | 12 | 6 | 6 | 1,519 | 1,574 | 1,798 | 1,920 | 2,110 | 2,255 | 2,622 | 2,878 | 2,985 | 2,883 | 2,691 | | 9 | 11 | 10 | 12 | 10 | 10 | 10 | 10 | 10 | 11 | 10 | 11 | |
| Boulder, CO | Small | 523 | 554 | 605 | 640 | 613 | 626 | 678 | 712 | 806 | 712 | 459 | 330 | 51 | 53 | 52 | 48 | 56 | 57 | 57 | 57 | 54 | 65 | 67 | 90 | 36 | 38 | 42 | 44 | 43 | 45 | 49 | 51 | 60 | 53 | 45 | 32 | 92 | 94 | 94 | 94 | 95 | 96 | 96 | 97 | 95 | 97 | 100 | 101 |
| Bridgeport-Stamford, CT-NY | Medium | 860 | 967 | 1,084 | 1,146 | 1,217 | 1,246 | 1,234 | 1,388 | 1,535 | 1,601 | 972 | 847 | 16 | 12 | 12 | 13 | 9 | 11 | 17 | 19 | 12 | 10 | 17 | 21 | 290 | 331 | 378 | 409 | 451 | 467 | 468 | 535 | 599 | 631 | 557 | 507 | 35 | 36 | 35 | 35 | 33 | 35 | 37 | 36 | 35 | 35 | 36 | 37 |
| Brownsville, TX | Small | 148 | 156 | 201 | 222 | 233 | 268 | 273 | 319 | 325 | 338 | 327 | 350 | 97 | 97 | 95 | 95 | 95 | 95 | 95 | 96 | 95 | 95 | 88 | 84 | 12 | 13 | 17 | 19 | 21 | 24 | 25 | 30 | 31 | 33 | 47 | 52 | 99 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 99 | 99 |
| Buffalo, NY | Large | 272 | 317 | 388 | 403 | 425 | 528 | 526 | 586 | 658 | 634 | 401 | 417 | 85 | 85 | 81 | 81 | 78 | 65 | 71 | 68 | 66 | 71 | 76 | 72 | 146 | 172 | 212 | 221 | 230 | 265 | 281 | 309 | 345 | 331 | 272 | 280 | 57 | 56 | 52 | 53 | 52 | 46 | 50 | 51 | 49 | 54 | 57 | 56 |
| Cape Coral, FL | Small | 572 | 579 | 581 | 654 | 675 | 722 | 754 | 814 | 874 | 975 | 562 | 558 | 43 | 48 | 56 | 46 | 48 | 49 | 50 | 49 | 38 | 42 | 52 | 53 | 84 | 88 | 91 | 109 | 119 | 137 | 151 | 171 | 220 | 230 | 183 | 183 | 74 | 77 | 78 | 76 | 73 | 68 | 69 | 64 | 63 | 62 | 66 | 69 |
| Charleston-North Charleston, SC | Medium | 578 | 605 | 634 | 652 | 681 | 762 | 814 | 828 | 951 | 971 | 600 | 646 | 42 | 41 | 46 | 47 | 47 | 40 | 43 | 49 | 41 | 40 | 43 | 49 | 41 | 120 | 127 | 138 | 144 | 152 | 171 | 187 | 192 | 223 | 230 | 203 | 227 | 63 | 64 | 63 | 63 | 62 | 62 | 61 | 61 | 62 | 62 | 63 | 61 |
| Charlotte, NC-SC | Large | 384 | 431 | 532 | 563 | 633 | 662 | 761 | 800 | 875 | 940 | 673 | 651 | 70 | 67 | 59 | 59 | 52 | 54 | 48 | 51 | 50 | 45 | 37 | 40 | 132 | 154 | 202 | 223 | 263 | 284 | 332 | 353 | 392 | 425 | 439 | 437 | 60 | 59 | 53 | 52 | 48 | 47 | 45 | 45 | 44 | 43 | 42 | 42 |
| Chicago, IL-IN | Very large | 1,379 | 1,415 | 1,501 | 1,561 | 1,844 | 1,957 | 2,155 | 2,469 | 2,450 | 2,434 | 1,655 | 1,738 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 1 | 2 | 3 | 1 | 4,894 | 5,033 | 5,349 | 5,602 | 6,667 | 7,123 | 7,614 | 8,908 | 9,083 | 9,047 | 8,669 | 9,476 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Cincinnati, OH-KY-IN | Large | 634 | 625 | 710 | 688 | 717 | 768 | 775 | 818 | 834 | 850 | 519 | 451 | 35 | 39 | 36 | 43 | 42 | 42 | 45 | 48 | 52 | 55 | 62 | 63 | 465 | 473 | 548 | 546 | 580 | 635 | 643 | 683 | 707 | 731 | 603 | 525 | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 29 | 30 | 30 | 30 | 32 |
| Cleveland, OH | Large | 429 | 466 | 481 | 428 | 411 | 414 | 496 | 487 | 505 | 488 | 441 | 423 | 62 | 61 | 65 | 78 | 81 | 84 | 78 | 82 | 85 | 85 | 69 | 71 | 350 | 381 | 394 | 352 | 337 | 340 | 408 | 400 | 413 | 397 | 522 | 489 | 32 | 32 | 34 | 38 | 41 | 44 | 40 | 43 | 43 | 43 | 45 | 37 |
| Colorado Springs, CO | Medium | 689 | 843 | 1,031 | 1,104 | 1,099 | 1,094 | 1,042 | 1,396 | 1,379 | 1,260 | 697 | 684 | 29 | 23 | 16 | 15 | 15 | 19 | 26 | 17 | 18 | 25 | 35 | 35 | 150 | 190 | 245 | 265 | 267 | 269 | 256 | 350 | 356 | 335 | 260 | 266 | 56 | 51 | 47 | 45 | 47 | 49 | 56 | 46 | 47 | 52 | 58 | 58 |
| Columbia, SC | Small | 305 | 355 | 400 | 446 | 468 | 512 | 543 | 573 | 729 | 874 | 640 | 622 | 83 | 81 | 75 | 72 | 69 | 67 | 68 | 70 | 60 | 50 | 46 | 43 | 66 | 78 | 93 | 100 | 106 | 118 | 126 | 134 | 173 | 212 | 191 | 202 | 82 | 79 | 77 | 78 | 78 | 76 | 77 | 78 | 72 | 65 | 64 | 63 |
| Columbus, OH | Large | 379 | 384 | 390 | 410 | 421 | 454 | 530 | 556 | 564 | 546 | 436 | 388 | 71 | 70 | 66 | 70 | 79 | 79 | 79 | 69 | 72 | 78 | 81 | 70 | 79 | 182 | 189 | 196 | 211 | 222 | 244 | 286 | 300 | 307 | 302 | 366 | 33 | 52 | 52 | 54 | 54 | 53 | 54 | 49 | 53 | 55 | 57 | 47 |
| Corpus Christi, TX | Small | 179 | 215 | 221 | 266 | 257 | 274 | 296 | 327 | 282 | 337 | 249 | 245 | 94 | 93 | 93 | 92 | 94 | 94 | 94 | 94 | 97 | 96 | 95 | 98 | 33 | 39 | 40 | 49 | 47 | 51 | 55 | 61 | 53 | 63 | 60 | 63 | 94 | 93 | 95 | 93 | 93 | 93 | 93 | 95 | 96 | 95 | 96 | 96 |
| Dallas-Fort Worth-Arlington, TX | Very large | 751 | 889 | 983 | 1,024 | 1,064 | 1,145 | 1,308 | 1,448 | 1,383 | 1,578 | 1,141 | 1,077 | 24 | 18 | 17 | 18 | 16 | 18 | 13 | 14 | 11 | 11 | 10 | 8 | 1,366 | 1,683 | 1,888 | 2,006 | 2,185 | 2,373 | 2,788 | 3,172 | 3,543 | 3,613 | 3,718 | 3,649 | 12 | 10 | 8 | 9 | 9 | 9 | 8 | 7 | 6 | 6 | 5 | 5 |
| Dayton, OH | Medium | 403 | 445 | 443 | 392 | 374 | 362 | 443 | 424 | 434 | 389 | 357 | 331 | 67 | 63 | 70 | 82 | 87 | 90 | 95 | 90 | 91 | 85 | 88 | 88 | 151 | 170 | 172 | 154 | 148 | 144 | 178 | 170 | 174 | 156 | 183 | 170 | 55 | 57 | 60 | 60 | 63 | 66 | 63 | 65 | 71 | 78 | 66 | 72 |
| Denver-Aurora, CO | Large | 933 | 1,035 | 1,157 | 1,182 | 1,149 | 1,207 | 1,331 | 1,511 | 1,516 | 1,507 | 1,120 | 1,057 | 11 | 11 | 9 | 10 | 14 | 13 | 11 | 11 | 13 | 13 | 11 | 9 | 879 | 990 | 1,137 | 1,231 | 1,200 | 1,273 | 1,414 | 1,625 | 1,661 | 1,690 | 1,757 | 1,711 | 17 | 17 | 17 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 16 |
| Detroit, MI | Very large | 775 | 818 | 876 | 948 | 1,059 | 1,074 | 1,112 | 1,167 | 1,225 | 1,287 | 885 | 761 | 19 | 26 | 24 | 26 | 23 | 23 | 23 | 26 | 25 | 22 | 21 | 30 | 1,578 | 1,668 | 1,786 | 1,837 | 2,063 | 2,200 | 2,277 | 2,557 | 2,543 | 2,589 | 2,313 | 2,032 | 8 | 9 | 11 | 11 | 12 | 11 | 12 | 12 | 12 | 12 | 12 | 14 |
| El Paso, TX-NM | Medium | 320 | 405 | 509 | 555 | 574 | 603 | 729 | 799 | 856 | 818 | 601 | 501 | 79 | 72 | 62 | 62 | 61 | 62 | 53 | 52 | 51 | 56 | 46 | 59 | 107 | 138 | 174 | 191 | 199 | 211 | 257 | 284 | 306 | 299 | 285 | 242 | 66 | 61 | 59 | 59 | 57 | 58 | 55 | 55 | 56 | 58 | 55 | 59 |
| Eugene, OR | Small | 220 | 293 | 374 | 306 | 322 | 356 | 358 | 416 | 384 | 371 | 266 | 216 | 91 | 88 | 83 | 90 | 91 | 91 | 91 | 91 | 92 | 94 | 93 | 100 | 26 | 35 | 44 | 38 | 41 | 46 | 46 | 54 | 51 | 50 | 48 | 39 | 96 | 95 | 93 | 96 | 96 | 95 | 97 | 96 | 97 | 98 | 98 | 100 |
| Fresno, CA | Medium | 379 | 421 | 479 | 434 | 432 | 429 | 436 | 477 | 500 | 523 | 298 | 345 | 71 | 70 | 66 | 75 | 82 | 86 | 85 | 86 | 82 | 91 | 86 | 86 | 105 | 118 | 136 | 123 | 129 | 130 | 134 | 149 | 162 | 170 | 137 | 165 | 68 | 67 | 64 | 70 | 69 | 71 | 74 | 74 | 76 | 73 | 81 | 74 |
| Grand Rapids, MI | Medium | 413 | 434 | 444 | 450 | 450 | 492 | 512 | 534 | 546 | 515 | 427 | 440 | 65 | 64 | 69 | 71 | 76 | 78 | 73 | 77 | 80 | 82 | 80 | 74 | 88 | 106 | 115 | 121 | 126 | 126 | 135 | 152 | 160 | 169 | 167 | 183 | 102 | 67 | 68 | 69 | 69 | 70 | 70 | 67 | 70 | 75 | 76 | 66 | 66 |
| Greensboro, NC | Small | 561 | 635 | 696 | 794 | 840 | 822 | 635 | 626 | 593 | 566 | 374 | 377 | 44 | 38 | 38 | 34 | 33 | 35 | 63 | 66 | 74 | 78 | 80 | 83 | 75 | 88 | 99 | 116 | 125 | 127 | 100 | 100 | 96 | 93 | 90 | 93 | 77 | 75 | 76 | 73 | 71 | 72 | 84 | 86 | 90 | 90 | 90 | 90 |
| Hartford, CT | Medium | 492 | 545 | 612 | 597 | 610 | 618 | 703 | 750 | 880 | 891 | 563 | 541 | 53 | 54 | 50 | 56 | 57 | 59 | 55 | 54 | 49 | 48 | 51 | 55 | 203 | 228 | 257 | 252 | 259 | 264 | 302 | 324 | 382 | 387 | 331 | 321 | 45 | 46 | 45 | 49 | 50 | 51 | 48 | 49 | 45 | 46 | 51 | 52 |
| Honolulu, HI | Medium | 591 | 584 | 584 | 614 | 660 | 697 | 755 | 860 | 892 | 669 | 709 | 640 | 40 | 46 | 54 | 55 | 60 | 53 | 52 | 53 | 43 | 48 | 39 | 34 | 189 | 185 | 185 | 189 | 188 | 216 | 235 | 277 | 287 | 319 | 315 | 316 | 50 | 53 | 57 | 57 | 57 | 59 | 57 | 58 | 55 | 52 | 50 | 50 |
| Houston, TX | Very large | 880 | 958 | 1,071 | 1,179 | 1,216 | 1,228 | 1,383 | 1,552 | 1,628 | 1,669 | 1,500 | 1,322 | 13 | 13 | 13 | 11 | 10 | 12 | 8 | 8 | 7 | 7 | 3 | 4 | 1,351 | 1,509 | 1,733 | 1,978 | 2,091 | 2,128 | 2,410 | 2,719 | 2,859 | 2,943 | 3,688 | 3,403 | 13 | 13 | 12 | 10 | 11 | 12 | 11 | 11 | 11 | 10 | 6 | 6 |
| Indianapolis, IN | Large | 765 | 753 | 815 | 834 | 877 | 896 | 925 | 942 | 943 | 934 | 644 | 615 | 22 | 30 | 31 | 32 | 32 | 31 | 31 | 34 | 41 | 47 | 42 | 45 | 372 | 368 | 398 | 411 | 437 | 450 | 469 | 491 | 506 | 514 | 514 | 503 | 30 | 33 | 33 | 34 | 35 | 37 | 36 | 37 | 37 | 39 | 38 | 38 |
| Indio-Cathedral City-Palm Springs, CA | Medium | 395 | 378 | 353 | 348 | 331 | 418 | 457 | 559 | 611 | 574 | 339 | 337 | 68 | 77 | 85 | 88 | 90 | 83 | 84 | 71 | 72 | 76 | 87 | 87 | 67 | 71 | 73 | 77 | 77 | 105 | 122 | 162 | 191 | 181 | 140 | 140 | 81 | 84 | 85 | 85 | 81 | 79 | 69 | 67 | 69 | 80 | 79 | |
| Jackson, MS | Small | 294 | 357 | 331 | 410 | 458 | 455 | 562 | 644 | 775 | 788 | 542 | 515 | 88 | 86 | 87 | 79 | 72 | 75 | 67 | 63 | 56 | 57 | 57 | 57 | 158 | 187 | 175 | 94 | 106 | 109 | 133 | 155 | 185 | 189 | 194 | 164 | 161 | 83 | 84 | 82 | 80 | 78 | 79 | 72 | 68 | 68 | 71 | 75 |
| Jacksonville, FL | Medium | 597 | 595 | 617 | 616 | 713 | 793 | 867 | 889 | 928 | 988 | 675 | 601 | 39 | 43 | 48 | 52 | 43 | 39 | 37 | 42 | 44 | 40 | 36 | 47 | 265 | 267 | 282 | 290 | 341 | 388 | 442 | 465 | 498 | 543 | 492 | 445 | 40 | 40 | 41 | 43 | 39 | 38 | 38 | 38 | 38 | 37 | 39 | 41 |
| Kansas City, MO-KS | Large | 721 | 852 | 825 | 831 | 800 | 847 | 768 | 859 | 935 | 854 | 551 | 498 | 27 | 22 | 29 | 33 | 34 | 34 | 46 | 44 | 42 | 54 | 54 | 61 | 488 | 583 | 577 | 583 | 581 | 626 | 567 | 634 | 700 | 641 | 583 | 538 | 26 | 25 | 27 | 27 | 27 | 29 | 33 | 32 | 31 | 33 | 35 | 34 |
| Knoxville, TN | Small | 640 | 656 | 644 | 638 | 627 | 650 | 641 | 648 | 615 | 639 | 519 | 488 | 33 | 37 | 44 | 49 | 54 | 56 | 59 | 62 | 71 | 68 | 82 | 82 | 184 | 131 | 135 | 137 | 137 | 138 | 142 | 154 | 152 | 170 | 177 | 170 | 62 | 62 | 65 | 65 | 67 | 67 | 73 | 70 | 73 | 70 | 72 | |
| Lancaster-Palmdale, CA | Medium | 231 | 234 | 260 | 290 | 335 | 379 | 402 | 436 | 486 | 480 | 352 | 382 | 90 | 92 | 92 | 91 | 88 | 88 | 90 | 89 | 87 | 86 | 86 | 81 | 54 | 56 | 65 | 74 | 89 | 103 | 112 | 125 | 143 | 145 | 144 | 161 | 87 | 87 | 85 | 86 | 84 | 82 | 81 | 81 | 79 | 81 | 79 | 75 |
| Laredo, TX | Small | 24 | 27 | 30 | 34 | 32 | 41 | 40 | 43 | 49 | 63 | 107 | 318 | 101 | 101 | 101 | 101 | 101 | 101 | 101 | 101 | 101 | 101 | 101 | 101 | 3 | 4 | 4 | 5 | 4 | 6 | 6 | 7 | 8 | 10 | 18 | 54 | 101 | 101 | 101 | 101 | 101 | 101 | 101 | 101 | 101 | 101 | 101 | 98 |
| Las Vegas, NV | Large | 529 | 569 | 587 | 616 | 659 | 735 | 832 | 911 | 963 | 1,023 | 644 | 708 | 50 | 50 | 53 | 52 | 51 | 48 | 41 | 39 | 39 | 39 | 35 | 42 | 33 | 284 | 320 | 358 | 375 | 407 | 461 | 526 | 584 | 622 | 668 | 589 | 673 | 36 | 38 | 38 | 37 | 37 | 36 | 35 | 35 | 33 | 31 | 33 | 29 |
| Little Rock, AR | Small | 369 | 432 | 417 | 502 | 460 | 485 | 642 | 640 | 738 | 673 | 547 | 581 | 73 | 65 | 76 | 64 | 83 | 70 | 61 | 64 | 58 | 51 | 58 | 68 | 55 | 66 | 64 | 78 | 63 | 78 | 111 | 118 | 139 | 171 | 157 | 157 | 85 | 85 | 87 | 84 | 90 | 88 | 83 | 82 | 81 | 72 | 74 | 71 |
| Los Angeles-Long Beach-Santa Ana, CA | Very large | 1,606 | 1,734 | 1,827 | 1,960 | 1,996 | 2,019 | 2,204 | 2,338 | 2,485 | 2,444 | 1,448 | 1,464 | 1 | 1 | 1 | 1 | 1 | 2 | 1 | 2 | 1 | 2 | 4 | 3 | 9,087 | 9,847 | 10,468 | 11,212 | 11,467 | 11,644 | 12,778 | 13,592 | 14,504 | 14,376 | 11,630 | 11,997 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Louisville, KY-IN | Large | 543 | 580 | 617 | 561 | 623 | 651 | 716 | 717 | 718 | 688 | 525 | 521 | 48 | 47 | 48 | 60 | 55 | 55 | 54 | 56 | 61 | 67 | 59 | 57 | 241 | 260 | 280 | 258 | 291 | 316 | 359 | 370 | 380 | 373 | 376 | 389 | 42 | 41 | 42 | 47 | 45 | 45 | 44 | 44 | 46 | 47 | 46 | 45 |
| Madison, WI | Small | 133 | 155 | 166 | 181 | 189 | 203 | 226 | 249 | 243 | 237 | 241 | 287 | 98 | 98 | 98 | 98 | 98 | 98 | 98 | 98 | 98 | 96 | 94 | 92 | 23 | 27 | 29 | 32 | 34 | 37 | 42 | 41 | 46 | 45 | 63 | 79 | 97 | 97 | 97 | 97 | 98 | 98 | 98 | 99 | 99 | 99 | 93 | |
| McAllen, TX | Medium | 69 | 108 | 137 | 167 | 169 | 178 | 190 | 196 | 206 | 217 | 142 | 147 | 100 | 99 | 99 | 99 | 99 | 99 | 100 | 100 | 100 | 100 | 100 | 101 | 11 | 18 | 23 | 30 | 31 | 36 | 41 | 44 | 50 | 56 | 53 | 56 | 100 | 99 | 99 | 98 | 99 | 99 | 99 | 99 | 98 | 98 | 96 | 97 |
| Memphis, TN-MS-AR | Large | 483 | 492 | 574 | 615 | 632 | 712 | 759 | 785 | 834 | 778 | 524 | 571 | 56 | 60 | 57 | 54 | 53 | 51 | 49 | 53 | 52 | 58 | 60 | 51 | 248 | 254 | 296 | 319 | 331 | 377 | 405 | 424 | 452 | 426 | 383 | 430 | 41 | 42 | 40 | 40 | 42 | 40 | 41 | 41 | 40 | 42 | 44 | 43 |
| Miami, FL | Very Large | 630 | 732 | 880 | 951 | 1,084 | 1,017 | 1,142 | 1,227 | 1,259 | 1,361 | 815 | 892 | 36 | 32 | 23 | 25 | 23 | 22 | 22 | 23 | 23 | 23 | 26 | 18 | 1,411 | 1,674 | 2,121 | 2,339 | 2,498 | 2,719 | 2,979 | 3,238 | 3,320 | 3,387 | 2,917 | 3,272 | 11 | 8 | 7 | 6 | 6 | 6 | 6 | 6 | 7 | 7 | 8 | 8 |
| Milwaukee, WI | Large | 638 | 696 | 753 | 719 | 726 | 751 | 797 | 832 | 801 | 865 | 651 | 588 | 34 | 34 | 34 | 39 | 40 | 46 | 43 | 46 | 55 | 53 | 40 | 48 | 409 | 457 | 507 | 496 | 517 | 537 | 572 | 599 | 579 | 627 | 629 | 570 | 29 | 29 | 29 | 30 | 31 | 32 | 32 | 32 | 33 | 36 | 36 | 31 |
| Minneapolis - St. Paul, MN | Large | 1,005 | 1,075 | 1,172 | 1,308 | 1,212 | 1,249 | 1,327 | 1,507 | 1,476 | 1,474 | 1,167 | 970 | 8 | 8 | 8 | 7 | 12 | 10 | 12 | 12 | 15 | 14 | 8 | 15 | 1,073 | 1,172 | 1,289 | 1,463 | 1,360 | 1,423 | 1,521 | 1,747 | 1,745 | 1,777 | 1,984 | 1,689 | 14 | 14 | 14 | 14 | 16 | 17 | 17 | 17 | 17 | 17 | 15 | 17 |
| Nashville-Davidson, TN | Large | 738 | 801 | 913 | 954 | 1,054 | 1,156 | 1,225 | 1,293 | 1,272 | 1,271 | 822 | 831 | 25 | 28 | 21 | 24 | 18 | 17 | 18 | 20 | 22 | 24 | 25 | 22 | 275 | 315 | 375 | 409 | 479 | 548 | 596 | 649 | 645 | 657 | 587 | 624 | 38 | 39 | 36 | 36 | 32 | 31 | 31 | 31 | 32 | 32 | 34 | 32 |
| New Haven, CT | Medium | 659 | 768 | 822 | 612 | 615 | 622 | 642 | 841 | 983 | 1,001 | 672 | 678 | 31 | 29 | 30 | 28 | 30 | 30 | 40 | 35 | 37 | 38 | 38 | 38 | 175 | 206 | 227 | 256 | 262 | 266 | 247 | 281 | 296 | 307 | 277 | 285 | 53 | 50 | 50 | 48 | 49 | 50 | 57 | 56 | 57 | 56 | 55 | 55 |
| New Orleans, LA | Large | 627 | 667 | 668 | 657 | 670 | 717 | 737 | 811 | 1,029 | 987 | 716 | 772 | 38 | 36 | 41 | 45 | 49 | 50 | 51 | 50 | 34 | 41 | 33 | 27 | 328 | 349 | 350 | 345 | 347 | 368 | 375 | 409 | 445 | 450 | 459 | 511 | 34 | 34 | 39 | 39 | 38 | 41 | 43 | 42 | 41 | 41 | 41 | 36 |
| New York-Newark, NY-NJ-CT | Very large | 735 | 833 | 867 | 881 | 926 | 1,086 | 1,251 | 1,440 | 1,471 | 1,465 | 1,013 | 999 | 26 | 24 | 25 | 30 | 29 | 20 | 16 | 15 | 16 | 15 | 14 | 13 | 5,260 | 6,017 | 6,426 | 6,574 | 6,986 | 8,332 | 9,683 | 11,243 | 11,621 | 11,689 | 10,809 | 10,878 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Oklahoma City, OK | Medium | 482 | 568 | 537 | 632 | 668 | 623 | 632 | 634 | 749 | 737 | 609 | 575 | 57 | 51 | 58 | 51 | 50 | 58 | 64 | 67 | 57 | 52 | 51 | 54 | 160 | 227 | 217 | 259 | 277 | 261 | 272 | 276 | 337 | 400 | 380 | 376 | 48 | 47 | 51 | 46 | 46 | 52 | 52 | 53 | 52 | 54 | 45 | 48 |
| Omaha, NE-IA | Medium | 262 | 279 | 327 | 359 | 384 | 390 | 423 | 447 | 518 | 514 | 472 | 413 | 89 | 90 | 89 | 86 | 85 | 87 | 87 | 87 | 83 | 83 | 65 | 74 | 81 | 88 | 103 | 115 | 123 | 126 | 136 | 145 | 169 | 168 | 207 | 184 | 75 | 75 | 74 | 74 | 72 | 73 | 73 | 75 | 74 | 75 | 62 | 68 |
| Orlando, FL | Large | 1,009 | 1,048 | 1,148 | 1,231 | 1,179 | 1,173 | 1,194 | 1,240 | 1,310 | 1,332 | 908 | 963 | 7 | 10 | 10 | 9 | 13 | 15 | 20 | 22 | 20 | 19 | 19 | 16 | 578 | 612 | 696 | 775 | 760 | 775 | 807 | 863 | 922 | 958 | 884 | 962 | 23 | 23 | 22 | 22 | 24 | 24 | 26 | 26 | 25 | 26 | 26 | 24 |
| Oxnard-Ventura, CA | Medium | 300 | 378 | 401 | 464 | 483 | 521 | 593 | 677 | 681 | 775 | 444 | 443 | 84 | 77 | 79 | 70 | 67 | 66 | 65 | 60 | 63 | 59 | 69 | 68 | 67 | 79 | 101 | 110 | 131 | 144 | 156 | 185 | 218 | 226 | 259 | 209 | 216 | 76 | 73 | 73 | 66 | 64 | 63 | 62 | 61 | 61 | 59 | 61 |
| Pensacola, FL-AL | Small | 320 | 341 | 369 | 373 | 411 | 464 | 501 | 553 | 641 | 553 | 423 | 427 | 79 | 83 | 84 | 84 | 81 | 76 | 76 | 74 | 68 | 69 | 75 | 70 | 54 | 59 | 65 | 68 | 84 | 88 | 98 | 110 | 130 | 136 | 136 | 108 | 86 | 86 | 86 | 87 | 86 | 86 | 85 | 83 | 84 | 83 | 83 | 83 |
| Philadelphia, PA-NJ-DE-MD | Very large | 681 | 721 | 771 | 889 | 965 | 1,028 | 1,101 | 1,215 | 1,259 | 1,292 | 904 | 919 | 30 | 33 | 32 | 29 | 26 | 25 | 24 | 24 | 23 | 21 | 20 | 17 | 1,612 | 1,732 | 1,887 | 2,211 | 2,435 | 2,637 | 2,832 | 3,126 | 3,247 | 3,331 | 3,162 | 3,274 | 7 | 7 | 9 | 8 | 8 | 7 | 7 | 8 | 8 | 8 | 7 | 7 |
| Phoenix, AZ | Very large | 782 | 870 | 959 | 1,074 | 1,023 | 1,086 | 1,167 | 1,425 | 1,400 | 1,449 | 1,005 | 972 | 18 | 20 | 19 | 16 | 22 | 20 | 21 | 16 | 17 | 16 | 15 | 14 | 876 | 1,032 | 1,191 | 1,369 | 1,326 | 1,434 | 1,605 | 2,048 | 2,062 | 2,181 | 2,150 | 2,161 | 18 | 16 | 15 | 15 | 17 | 16 | 16 | 14 | 15 | 14 | 14 | 12 |
| Pittsburgh, PA | Large | 756 | 860 | 842 | 913 | 941 | 881 | 1,032 | 1,046 | 1,021 | 1,080 | 746 | 778 | 23 | 21 | 28 | 27 | 27 | 29 | 27 | 30 | 35 | 30 | 31 | 25 | 685 | 777 | 760 | 822 | 845 | 863 | 927 | 939 | 917 | 970 | 914 | 965 | 21 | 21 | 21 | 21 | 21 | 23 | 23 | 24 | 26 | 25 | 25 | 23 |
| Portland, OR-WA | Large | 800 | 873 | 946 | 962 | 933 | 996 | 1,084 | 1,193 | 1,238 | 1,241 | 864 | 830 | 17 | 19 | 20 | 23 | 28 | 27 | 25 | 25 | 26 | 26 | 22 | 23 | 534 | 598 | 663 | 694 | 684 | 754 | 836 | 936 | 996 | 1,013 | 977 | 958 | 24 | 24 |

**Table 1-73: Amtrak On-Time Performance Trends and Hours of Delay by Cause**

| | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| On-time performance, total percent (weighted) | 69.0 | 81.0 | 76.0 | 77.0 | 77.0 | 72.0 | 72.0 | 76.0 | 71.0 | 74.0 | 79.0 | 79.0 | 78.2 | 75.1 | 76.1 | 74.1 | 70.7 | 69.8 | 67.8 | 68.6 | 71.2 | 80.4 | 79.7 |
| Short distance (<400 miles), percent | 71.0 | 82.0 | 82.0 | 82.0 | 82.0 | 79.0 | 78.0 | 81.0 | 76.0 | 79.0 | 81.0 | 80.0 | 82.0 | 78.7 | 79.7 | 77.1 | 75.2 | 73.6 | 72.8 | 72.2 | 73.6 | 81.1 | 80.5 |
| Long distance (>=400 miles), percent | 64.0 | 78.0 | 53.0 | 59.0 | 61.0 | 47.0 | 49.0 | 57.0 | 49.0 | 53.0 | 59.0 | 54.6 | 55.0 | 52.1 | 51.6 | 52.8 | 40.7 | 42.1 | 29.9 | 39.5 | 52.0 | 75.5 | 73.7 |
| Hours of delay by cause, total[a] | N | N | 12,126 | 21,084 | 22,847 | 32,991 | 34,729 | 25,248 | 25,056 | 25,825 | 27,289 | 29,252 | 70,396 | 83,837 | 85,932 | 88,413 | 95,162 | 95,259 | 101,522 | 101,655 | 94,566 | 79,304 | 79,976 |
| Amtrak[b] | N | N | 3,565 | 5,915 | 6,433 | 8,488 | 8,538 | 5,527 | 5,193 | 5,310 | 4,796 | 4,891 | 23,337 | 27,822 | 26,575 | 25,711 | 28,328 | 25,549 | 23,968 | 22,902 | 23,223 | 21,813 | 23,404 |
| Host railroad[c] | N | N | 4,244 | 7,743 | 8,229 | 12,827 | 14,319 | 11,224 | 11,438 | 12,904 | 14,202 | 16,158 | 43,881 | 52,273 | 55,090 | 57,346 | 61,256 | 64,097 | 71,387 | 72,565 | 64,724 | 46,842 | 44,090 |
| Other[d] | N | N | 4,316 | 7,426 | 8,185 | 11,675 | 11,871 | 8,497 | 8,425 | 7,611 | 8,291 | 8,203 | 3,176 | 3,741 | 4,266 | 5,355 | 5,577 | 5,613 | 6,166 | 6,187 | 6,618 | 10,648 | 12,482 |

**KEY:** N = data do not exist.

[a] Amtrak changed its method for reporting delays in 2000. Therefore, the data for 2000 and following years are not comparable with prior years.

[b] Includes all delays that occur when operating on Amtrak owned tracks and all delays for equipment or engine failure, passenger handling, holding for connections, train servicing, and mail/baggage handling when on tracks of a host railroad.

[c] Includes all operating delays not attributable to Amtrak when operating on tracks of a host railroad, such as track and signal related delays, power failures, freight and commuter train interference, routing delays, etc.

[d] Includes delays not attributable to Amtrak or other host railroads, such as customs and immigration, law enforcement action, weather, or waiting for scheduled departure time.

**NOTES**

Host railroad is a freight or commuter railroad over which Amtrak trains operate for all or part of their trip.

Numbers may not add to totals due to rounding.

All percentages are based on Amtrak's fiscal year (October 1–September 30).

Amtrak trains are considered on time if arrival 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) | Minutes late at endpoint |
|---|---|
| 0–250 | 10 or less |
| 251–350 | 15 or less |
| 351–450 | 20 or less |
| 451–550 | 25 or less |
| > 551 | 30 or less |

**SOURCES:**

1980: Amtrak, *National Railroad Passenger Corporation Annual Report* (Washington, DC: 1981).

1985-99: Ibid., *Amtrak Annual Report,* Statistical Appendix (Washington, DC: Annual Issues).

2000-10: Amtrak, personal communication, October 2010.

# Chapter 2

# Transportation Safety

## Section A
## Multimodal

**Table 2-1: Transportation Fatalities by Mode**

| | 1960 | 1965 | 1970 | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | (R) 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL fatalities | U | U | U | U | U | U | 47,350 | 44,321 | 42,058 | 42,827 | 43,587 | 44,568 | 44,848 | 44,474 | 43,910 | 44,086 | 44,384 | 44,941 | 45,276 | 45,134 | 45,052 | (R) 45,666 | (R) 45,040 | (R) 43,330 | 39,514 | (P) 35,929 |
| Air, total | 1,286 | 1,290 | 1,456 | 1,473 | 1,382 | 1,595 | 866 | 1,005 | (R) 988 | 811 | 1,057 | (R) 963 | 1,093 | 724 | (R) 670 | 683 | 764 | 1,166 | 616 | 699 | 637 | 603 | (R) 774 | 540 | 566 | (P) 543 |
| U.S. air carrier[a] | 499 | 261 | 146 | 124 | 1 | 526 | 39 | (n) 50 | 33 | 1 | 239 | 168 | 380 | 8 | 1 | 12 | 92 | 531 | 0 | 22 | 14 | 22 | 50 | 1 | 3 | (P) 52 |
| Commuter carrier[b] | N | N | N | 28 | 37 | 37 | 6 | (n) 77 | 21 | 24 | 25 | 9 | 14 | 46 | 0 | 12 | 5 | 13 | 0 | 2 | 0 | 0 | 2 | 0 | 0 | (P) 0 |
| On-demand air taxi[c] | N | N | N | 69 | 105 | 76 | 51 | 78 | 68 | 42 | 63 | 52 | 63 | 39 | 45 | 38 | 71 | 60 | 35 | 42 | 64 | 18 | 16 | 43 | 69 | (P) 17 |
| General aviation[d] | 787 | 1,029 | 1,310 | 1,252 | 1,239 | 956 | 770 | 800 | (R) 866 | 744 | 730 | (R) 734 | 636 | 631 | (R) 624 | 621 | 596 | 562 | 581 | 633 | 559 | 563 | (R) 706 | 496 | 494 | (P) 474 |
| Highway, total | 36,399 | 47,089 | 52,627 | 44,525 | 51,091 | 43,825 | 44,599 | 41,508 | 39,250 | 40,150 | 40,716 | 41,817 | (R) 42,065 | 42,013 | 41,501 | 41,717 | 41,945 | 42,196 | 43,005 | 42,884 | 42,836 | 43,510 | 42,708 | 41,259 | 37,423 | 33,808 |
| Passenger car occupants | N | N | N | 25,929 | 27,449 | 23,212 | 24,092 | 22,385 | 21,387 | 21,566 | 21,997 | 22,423 | 22,505 | 22,199 | 21,194 | 20,862 | 20,699 | 20,320 | 20,569 | 19,725 | 19,192 | 18,512 | 17,925 | 16,614 | 14,646 | 13,095 |
| Motorcyclists | 790 | 1,650 | 2,280 | 3,189 | 5,144 | 4,564 | 3,244 | 2,806 | 2,395 | 2,449 | 2,320 | 2,227 | 2,161 | 2,116 | 2,294 | 2,483 | 2,897 | 3,197 | 3,270 | 3,714 | 4,028 | 4,576 | 4,837 | 5,174 | 5,312 | 4,462 |
| Truck occupants[e], light | N | N | N | 4,856 | 7,486 | 6,689 | 8,601 | 8,391 | 8,098 | 8,511 | 8,904 | 9,568 | 9,932 | 10,249 | 10,705 | 11,265 | 11,526 | 11,723 | 12,274 | 12,546 | 12,674 | 13,037 | 12,761 | 12,458 | 10,816 | 10,287 |
| Truck occupants[e], large | N | N | N | 961 | 1,262 | 977 | 705 | 661 | 585 | 605 | 670 | 648 | 621 | 723 | 742 | 759 | 754 | 708 | 689 | 726 | 766 | 804 | 805 | 805 | 682 | 503 |
| Bus occupants | N | N | N | 53 | 46 | 57 | 32 | 31 | 28 | 18 | 18 | 33 | 21 | 18 | 38 | 59 | 22 | 34 | 45 | 41 | 42 | 58 | 27 | 36 | 67 | 26 |
| Pedestrians | 7,210 | 7,990 | 8,950 | 7,516 | 8,070 | 6,808 | 6,482 | 5,801 | 5,549 | 5,649 | 5,489 | 5,584 | 5,449 | 5,321 | 5,228 | 4,939 | 4,763 | 4,901 | 4,851 | 4,774 | 4,675 | 4,892 | 4,795 | 4,699 | 4,414 | 4,092 |
| Pedalcyclists | 490 | 690 | 760 | 1,003 | 965 | 890 | 859 | 843 | 723 | 816 | 802 | 833 | 765 | 814 | 760 | 754 | 693 | 732 | 665 | 629 | 727 | 786 | 772 | 701 | 718 | 630 |
| Other[f] | 27,909 | 36,759 | 40,637 | 1,018 | 669 | 628 | 584 | 590 | 485 | 536 | 516 | 501 | (R) 611 | 573 | 540 | 596 | 591 | 581 | 642 | 729 | 732 | 845 | 786 | 772 | 768 | 713 |
| Railroad, total[g] | 2,345 | 2,533 | 2,225 | 1,492 | 1,417 | 1,036 | 1,297 | 1,194 | 1,170 | 1,279 | 1,226 | 1,146 | 1,039 | 1,063 | 1,008 | 932 | 937 | 971 | 951 | 865 | 891 | 884 | 903 | (R) 850 | 804 | 704 |
| Highway-rail grade crossing[h] | 1,421 | 1,610 | 1,440 | 917 | 833 | 582 | 698 | 608 | 579 | 626 | 615 | 579 | 488 | 461 | 431 | 402 | 425 | 421 | 357 | 334 | 371 | 359 | 369 | (R) 338 | 290 | 246 |
| Railroad | 924 | 923 | 785 | 575 | 584 | 454 | 599 | 586 | 591 | 653 | 611 | 567 | 551 | 602 | 577 | 530 | 512 | 550 | 594 | 531 | 520 | 525 | 534 | (R) 512 | 514 | 458 |
| Transit, total[i] | N | N | N | N | N | N | 339 | 300 | 273 | 281 | 320 | 274 | 264 | 275 | 286 | 299 | 295 | 267 | 280 | 234 | 248 | 236 | 227 | 288 | 240 | 230 |
| Highway-rail grade crossing[j] | N | N | N | N | N | N | N | N | N | N | N | 17 | 7 | 12 | 26 | 21 | 20 | 13 | 24 | 21 | 29 | 23 | 21 | 27 | 26 | 35 |
| Transit | N | N | N | N | N | N | N | N | N | N | N | 257 | 257 | 263 | 260 | 278 | 275 | 254 | 256 | 213 | 219 | 213 | 206 | 261 | 214 | 195 |
| Waterborne, total[k] | N | N | 2,016 | 2,039 | 1,847 | 1,377 | 1,051 | 1,010 | 1,032 | 1,026 | 992 | 1,016 | 906 | 989 | 1,033 | 928 | 888 | 828 | 863 | 833 | 822 | 835 | 839 | 811 | 827 | 886 |
| Vessel-related[l] | N | N | 178 | 243 | 206 | 131 | 85 | 30 | 97 | 105 | 77 | 53 | 55 | 48 | 69 | 58 | 53 | 53 | 59 | 69 | 86 | 78 | 73 | 67 | 51 | 57 |
| Not related to vessel casualties[l] | N | N | 420 | 330 | 281 | 130 | 101 | 56 | 119 | 121 | 131 | 134 | 142 | 120 | 149 | 136 | 134 | 94 | 54 | 61 | 60 | 60 | 56 | 59 | 67 | 93 |
| Recreational boating[m] | 739 | 1,360 | 1,418 | 1,466 | 1,360 | 1,116 | 865 | 924 | 816 | 800 | 784 | 829 | 709 | 821 | 815 | 734 | 701 | 681 | 750 | 703 | 676 | 697 | 710 | 685 | 709 | 736 |
| Pipeline, total | N | N | 30 | 15 | 19 | 33 | 9 | 14 | 15 | 17 | 22 | 21 | 53 | 10 | 21 | 22 | 38 | 7 | (R) 12 | 12 | 23 | (R) 14 | 21 | 15 | 8 | 14 |
| Hazardous liquid pipeline | N | N | 4 | 7 | 4 | 5 | 3 | 0 | 5 | 0 | 1 | 3 | 5 | 0 | 2 | 4 | 1 | 0 | 1 | 0 | 5 | 2 | 0 | 4 | 2 | 4 |
| Gas pipeline | N | N | 26 | 8 | 15 | 28 | 6 | 14 | 10 | 17 | 21 | 18 | 48 | 10 | 19 | 18 | 37 | 7 | (R) 11 | 12 | 18 | (R) 12 | 21 | 11 | 6 | 10 |

**KEY:** N = data do not exist; P = preliminary; R = revised; U = data are unavailable.

[a] Carriers operating under 14 CFR 121, all scheduled and nonscheduled service. Since Mar. 20, 1997, 14 CFR 121 include aircraft with 10 or more seats that formerly operated under 14 CFR 135. This change makes it difficult to compare pre-1997 data for 14 CFR 121 and 14 CFR 135 with more recent data. In 2001, other than the persons aboard the aircraft who were killed, fatalities resulting from the September 11 terrorist acts are excluded. *U.S. air carrier* figure does not include 12 persons killed aboard a commuter aircraft when it and a US Air airliner collided.

[b] All scheduled service operating under 14 CFR 135 (*Commuter air carriers*). Before Mar. 20, 1997, 14 CFR 135 applied to aircraft with 30 or fewer seats. Since Mar. 20, 1997, 14 CFR 135 includes only aircraft with fewer than 10 seats. This change makes it difficult to compare pre-1997 data for 14 CFR 121 and 14 CFR 135 with more recent data. *Commuter air carrier* figure does not include 22 persons killed aboard a US Air airliner when it and a commuter aircraft collided.

[c] Nonscheduled service operating under 14 CFR 135 (*On-demand air taxis*).

[d] All operations other than those operating under 14 CFR 121 and 14 CFR 135. 2006 includes the 154 persons killed aboard a foreign registered aircraft operated by Gol Airlines in a collision with another aircraft over Brazil.

[e] *Light trucks* are defined as trucks of 10,000 pounds gross vehicle weight rating or less, including pickups, vans, truck-based station wagons, and utility vehicles. *Large trucks* are defined as trucks over 10,000 pounds gross vehicle weight rating, including single-unit trucks and truck tractors.

[f] Includes occupants of other vehicle types, other nonmotorists, and unknown. For 1960-70, the U.S. Department of Transportation, National Highway Traffic Safety Administration did not break out fatality data to the same level of detail as in later years, so fatalities for those years also include occupants of passenger cars, trucks, and buses.

[g] Includes Amtrak. Fatalities include those resulting from train accidents, train incidents, and nontrain incidents. Railroad fatality data for 1970 and before is not comparable with post-1970 data due to a change in the reporting system.

[h] Fatalities occurring at highway-rail crossings resulting from freight and passenger rail operations including commuter rail. *Highway-rail grade crossing* fatalities, except train occupants, are also counted under highway.

[i] Fatalities include those resulting from all reportable incidents, not just from accidents.

[j] Includes motor bus, commuter rail, heavy rail, light rail, demand response, van pool, and automated guideway. Fatalities occurring at *highway-rail crossings* resulting from operations of public transit rail modes including commuter rail. Data for fatalities at light rail grade crossings are: 1995 (7); 1996 (3); 1997 (3); 1998 (10); 1999 (7); 2000 (12); 2001 (1); 2002 (1); 2003 (4); 2004 (10); 2005 (8); 2006 (7); 2007 (5); 2008 (8); and 2009 (14).

[k] *Vessel-related* casualties include those involving damage to vessels such as collisions or groundings. Fatalities not related to vessel casualties include deaths from falling overboard or from accidents involving onboard equipment.

[l] 1992-97 data come from the Marine Safety Management Information System. Between 1998 and 2001, the U.S. Coast Guard phased in a new computer system to track safety data, the Marine Information for Safety and Law Enforcement System. During that period, data come from combining entries in the Marine Safety Management Information System with entries in the Marine Information for Safety and Law Enforcement System. Data for 2002 and 2003 come from the Marine Information for Safety and Law Enforcement System. Data for prior years come from other sources and may not be directly comparable.

[m] Data are based on information provided by the States, the District of Columbia and the five U.S. Territories to the Coast Guard Boating Accident Report Database (BARD) system. Research on the level of underreporting of fatal accidents in the BARD, based on discrepancies between the BARD and the Coast Guard Search and Rescue Management Information System (SARMIS), found that approximately 6 percent of recreational boating fatalities are not captured by the BARD system. Adjusting the number of recreational boating fatalities included in the BARD in 2001 by 6 percent increases the total to 722.

**NOTES**

Modal numbers do not add to the *Total fatalities* because some fatalities are counted in more than one mode. *Total fatalities* is derived from table 2-4 and earlier editions of this table. To avoid double counting, the following adjustments are made: most (not all) *Highway-rail grade-crossing fatalities* have not been added because most (not all) such fatalities involve motor vehicles and, thus, are already included in *Highway* fatalities; for *Transit*, all commuter rail fatalities and motor-bus, trolley-bus, demand-responsive, and van-pool fatalities arising from accidents have been subtracted because they are counted as *Railroad*, *Highway*, or *Highway-rail grade-crossing fatalities*. The reader cannot reproduce the *Total fatalities* in this table by simply leaving out the number of *Highway-rail grade-crossing fatalities* in the sum and subtracting the above transit submodes, because in so doing, grade-crossing fatalities not involving motor vehicles would be left out (see table 2-35 on rail). An example of such a fatality is a bicyclist hit by a train at a grade crossing.

Caution must be exercised in comparing fatalities across modes because significantly different definitions are used. In particular, *Rail* and *Transit fatalities* include incident-related (as distinct from accident-related) fatalities, such as fatalities from falls in transit stations or railroad employee fatalities from a fire in a workshed. Equivalent fatalities for the *Air* and *Highway* modes (fatalities at airports not caused by moving aircraft or fatalities from accidents in automobile repair shops) are not counted toward the totals for these modes. Thus, fatalities not necessarily directly related to in service transportation are counted for the transit and rail modes, potentially overstating the risk for these modes.

The Federal Railroad Administration defines a grade crossing as a location where a public highway, road, street, or private roadway, including associated sidewalks and pathways, crosses one or more railroad tracks at grade. The Federal Transit Administration defines two types of grade crossings: (1) At grade, mixed, and cross traffic crossings, meaning railway right-of-way over which other traffic moving in the same direction or other cross directions may pass. This includes city street right-of-way; (2) At grade with cross traffic crossings, meaning railway right-of-way over which no other traffic may pass, except to cross at grade-level crossings. This can include median strip rights-of-way with grade level crossings at intersecting streets.

*Highway fatalities* data prior to 1975 have been adjusted to reflect the Fatality Analysis Reporting System's definition of a fatal crash as one that involves a motor vehicle on a trafficway that results in the death of a vehicle occupant or a nonmotorist within 30 days of the crash.

**SOURCES**

**Total:** Multiple sources 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/ as of January 2011.

**Air:**

*U.S. Air Carrier:*

1960: National Transportation Safety Board, *Annual Review of Aircraft Accident Data: U.S. Air Carrier Operations, Calendar Year 1967* (Washington, DC: December 1968).

1965-70: Ibid., *Annual Review of Aircraft Accident Data: U.S. Air Carrier Operations, Calendar Year 1975,* NTSB/ARC-77/1 (Washington, DC: January 1977).

1975: Ibid., *Annual Review of Aircraft Accident Data: U.S. Air Carrier Operations, Calendar Year 1983,* NTSB/ARC-87/01 (Washington, DC: February 1987), table 18.

1980: Ibid., *Annual Review of Aircraft Accident Data: U.S. Air Carrier Operations, Calendar Year 1981,* NTSB/ARC-85/01 (Washington, DC: February 1985), tables 2 and 16.

1985-2009: Ibid., *Aviation Accident Statistics* (Washington, DC: Annual Issues), table 5, available at www.ntsb.gov/aviation/aviation.htm as of Sept. 29, 2010.

*Commuter:*

1975-80: National Transportation Safety Board, *Annual Review of Aircraft Accident Data: U.S. Air Carrier Operations, Calendar Year 1980,* NTSB/ARC-83/01 (Washington, DC: January 1983), tables 26 and 40.

1985-2009: Ibid., *Aviation Accident Statistics* (Washington, DC: Annual Issues), table 8, available at www.ntsb.gov/aviation/aviation.htm as of Sept. 29, 2010.

*On-demand air taxi:*

1975-80: National Transportation Safety Board, *Annual Review of Aircraft Accident Data: U.S. Air Carrier Operations, Calendar Year 1981,* NTSB/ARC-85/01 (Washington, DC: February 1985), table 61.

1985-2009: Ibid., *Aviation Accident Statistics* (Washington, DC: Annual Issues), table 9, available at www.ntsb.gov/aviation/aviation.htm as of Sept. 28, 2010.

*General aviation:*

1960-70: National Transportation Safety Board, *Annual Review of Aircraft Accident Data: U.S. General Aviation, Calendar Year 1970,* NTSB/ARG-74/1 (Washington, DC: April 1974), table 117.

1975-80: Ibid., *Annual Review of Aircraft Accident Data: General Aviation, Calendar Year 1985,* NTSB/ARG-87/03 (Washington, DC: October 1987), table 21.

1985-2009: Ibid., *Aviation Accident Statistics* (Washington, DC: Annual Issues), table 10, available at www.ntsb.gov/aviation/aviation.htm as of Sept. 29, 2010.

**Highway:**

1960-65: U.S. Department of Transportation, National Highway Traffic Safety Administration from data supplied by U.S. Department of Health and Human Services, National Center for Health Statistics, and individual state accident reports (adjusted to 30-day deaths).

1970-1993: U.S. Department of Transportation, National Highway Traffic Safety Administration, *Traffic Safety Facts* (Annual Editions), available at http://www-nrd.nhtsa.dot.gov/cats/index.aspx as of December 2008.

1994-2009: Ibid., Fatality Analysis Reporting System (FARS), *General Trends,* available at http://www-fars.nhtsa.dot.gov/Main/reportslinks.aspx as of Sept. 29, 2010.

**Rail:**

*Highway-rail grade crossing:*

1960-70: National Safety Council, *Accident Facts, 1974* (Washington, DC: 1974).

1975-80: U.S. Department of Transportation, Federal Railroad Administration, Office of Policy and Program Development, personal communication.

1985-90: Ibid., *Rail-Highway Crossing Accident/Incident and Inventory Bulletin* (Washington, DC: Annual Issues), table S.

1991-95: Ibid., *Railroad Safety Statistics*, available at http://safetydata.fra.dot.gov/officeofsafety/ as of Sept. 9, 2008.

1996-2004: Ibid., *Railroad Safety Statistics*, table 1-3, available at http://safetydata.fra.dot.gov/officeofsafety/ as of Sept. 29, 2010.

2005-2009: Ibid., *Preliminary Railroad Safety Statistics* (Washington, DC: August Issue), table 1-1, available at http://safetydata.fra.dot.gov/officeofsafety/ as of Oct. 27, 2010.

*Railroad:*

1960-65: National Safety Council, *Accident Facts, 1974* (Washington, DC: 1974).

1970-90: U.S. Department of Transportation, Federal Railroad Administration, *Highway-Rail Crossing Accident/Incident and Inventory Bulletin* (Washington, DC: Annual Issues), table 7.

1991-95: Ibid., *Railroad Safety Statistics*, available at http://safetydata.fra.dot.gov/officeofsafety/ as of Sept. 9, 2008.

1996-2004: Ibid., *Railroad Safety Statistics*, table 1-1, available at http://safetydata.fra.dot.gov/officeofsafety/ as of Sept. 29, 2010.

2005-2009: Ibid., *Preliminary Railroad Safety Statistics* (Washington, DC: August Issue), table 1-3, available at http://safetydata.fra.dot.gov/officeofsafety/ as of Oct. 27, 2010.

**Transit:**

*Highway-rail grade crossing:*

U.S. Department of Transportation, Federal Transit Administration, Office of Program Management, personal communication, Aug. 28, 2007.

*Transit:*

1990-92: U.S. Department of Transportation, Federal Transit Administration, *Safety Management Information Statistics 1999* (Washington, DC: 2001), p. 41.

1993-2007: U.S. Department of Transportation, Federal Transit Administration, *Transit Safety and Security Statistics and Analysis Annual Report,* (Washington, DC: Annual Issues), available at http://transit-safety.volpe.dot.gov/data/SAMIS.asp as of Oct. 22, 2009.

2008-2009: U.S. Department of Transportation, Research and Innovative Technology Administration, Volpe Center, Transit Safety and Security Statistics and Analysis Program, personal communication, Nov. 4, 2010.

**Water:**

*Vessel- and nonvessel-related:*

1970-91: U.S. Department of Transportation, U.S. Coast Guard, Office of Investigations and Analysis, Compliance Analysis Division, (G-MOA-2), personal communication, Apr. 13, 1999.

1992-2008: U.S. Department of Homeland Security, U.S. Coast Guard, Data Administration Division (G-MRI-1), personal communication, Sept. 30, 2010.

*Recreational boating:*

U.S. Department of Homeland Security, U.S. Coast Guard, Office of Boating Safety, *Boating Statistics* (Washington, DC: Annual Issues), available at http://www.uscgboating.org as of Sept. 29, 2010.

**Hazardous liquid and gas pipeline:**

1970-85: U.S. Department of Transportation, Research and Special Programs Administration, Office of Pipeline Safety, *Accident and Incident Summary Statistics by Year*, available at http://ops.dot.gov as of Nov. 18, 2003.

1990-2009: U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration, Office of Pipeline Safety, *Accident and Incident Summary Statistics by Year*, available at http://phmsa.dot.gov/pipeline as of Oct. 29, 2010.

**Table 2-2: Injured Persons by Transportation Mode**

| | 1960 | 1965 | 1970 | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001[n] | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL injured persons | U | U | U | U | U | U | U | U | 3,147,561 | 3,223,298 | 3,345,263 | 3,539,389 | 3,554,305 | 3,417,846 | 3,262,309 | 3,305,649 | 3,259,673 | 3,100,080 | 2,958,911 | 2,918,528 | 2,818,446 | 2,728,327 | 2,604,648 | U |
| Air,[a] total | | | | | | | | | | | | | | | | | | | | | | | | |
| U.S. air carrier[b] | N | N | 107 | 81 | 19 | 30 | 29 | 26 | 22 | 19 | 31 | 25 | 77 | 43 | 30 | 67 | 29 | 19 | (R) 24 | (R) 31 | (R) 20 | (R) 14 | (R) 9 | 15 |
| Commuter carrier[c] | N | N | N | N | 14 | 14 | 11 | 31 | 7 | 2 | 6 | 17 | 2 | 1 | 2 | 2 | 7 | 4 | 0 | 1 | 0 | 0 | 1 | 0 |
| On-demand air taxi[d] | N | N | N | N | 43 | 44 | 36 | 26 | 19 | 24 | 32 | 14 | 22 | 23 | 10 | 15 | 12 | 24 | 16 | 12 | 17 | (R) 23 | 16 | 20 |
| General aviation[e] | N | N | 715 | 769 | 681 | 501 | 409 | 432 | 408 | 385 | 415 | 396 | 366 | 350 | 327 | 322 | 309 | 321 | 297 | 323 | 266 | (R) 267 | (R) 264 | 260 |
| Highway, total | N | N | N | N | N | N | 3,230,666 | 3,096,870 | 3,069,603 | 3,149,164 | 3,265,928 | 3,465,279 | 3,483,319 | 3,347,614 | 3,192,035 | 3,236,238 | 3,188,750 | 3,032,672 | 2,925,758 | 2,888,601 | 2,788,378 | 2,699,000 | 2,575,000 | U |
| Passenger car occupants | N | N | N | N | N | N | 2,376,439 | 2,234,594 | 2,231,703 | 2,264,809 | 2,363,595 | 2,469,358 | 2,458,080 | 2,340,612 | 2,201,375 | 2,137,503 | 2,051,609 | 1,926,625 | 1,804,788 | 1,756,495 | 1,642,549 | 1,573,000 | 1,475,000 | U |
| Motorcyclists | N | N | N | N | N | N | 84,285 | 80,435 | 65,099 | 59,436 | 57,405 | 57,480 | 55,281 | 52,574 | 48,974 | 49,986 | 57,723 | 60,236 | 64,713 | 67,103 | 76,379 | 87,000 | 88,000 | U |
| Truck occupants[f], light | N | N | N | N | N | N | 505,144 | 562,601 | 544,657 | 600,874 | 631,411 | 722,496 | 761,478 | 754,820 | 762,506 | 846,865 | 886,566 | 860,527 | 879,338 | 889,048 | 900,171 | 872,000 | 857,000 | U |
| Truck occupants[f], large | N | N | N | N | N | N | 41,822 | 28,031 | 33,778 | 32,102 | 30,208 | 30,344 | 32,760 | 30,913 | 28,767 | 32,892 | 30,832 | 29,424 | 26,242 | 26,893 | 27,287 | 27,000 | 23,000 | U |
| Bus occupants | N | N | N | N | N | N | 32,691 | 20,959 | 20,144 | 17,056 | 15,767 | 19,214 | 20,291 | 16,887 | 15,559 | 21,958 | 17,769 | 15,427 | 18,819 | 18,174 | 16,410 | 11,000 | 10,000 | U |
| Pedestrians | N | N | N | N | N | N | 104,805 | 88,446 | 89,184 | 94,001 | 91,987 | 85,837 | 81,797 | 77,011 | 68,955 | 85,235 | 77,625 | 77,619 | 70,664 | 69,949 | 67,985 | 64,000 | 61,000 | U |
| Pedalcyclists | N | N | N | N | N | N | 74,903 | 67,088 | 62,691 | 67,916 | 62,489 | 66,572 | 58,158 | 57,802 | 53,379 | 51,290 | 51,160 | 45,277 | 48,011 | 46,378 | 41,086 | 45,000 | 44,000 | U |
| Other[g] | N | N | N | N | N | N | 10,578 | 14,716 | 22,348 | 12,969 | 13,065 | 13,977 | 15,473 | 16,995 | 12,519 | 10,509 | 15,466 | 17,536 | 13,182 | 14,561 | 16,511 | 18,000 | 18,000 | U |
| Railroad, total[h] | 19,480 | 25,655 | 21,206 | 53,998 | 62,246 | 34,304 | 25,143 | 23,468 | 21,383 | 19,121 | 16,812 | 14,440 | 12,558 | 11,767 | 11,459 | 11,700 | 11,643 | 10,985 | 11,103 | (R) 9,254 | (R) 9,187 | (R) 9,495 | (R) 8,690 | 9,343 |
| Highway-rail grade crossing[i] | 3,367 | 3,725 | 3,272 | 3,860 | 3,550 | 2,687 | 2,407 | 2,094 | 1,975 | 1,837 | 1,961 | 1,894 | 1,610 | 1,540 | 1,303 | 1,396 | 1,219 | 1,157 | 999 | (R) 1,034 | (R) 1,094 | (R) 1,049 | (R) 1,067 | 1,043 |
| Railroad | 16,113 | 21,930 | 17,934 | 50,138 | 58,696 | 31,617 | 22,736 | 21,374 | 19,408 | 17,284 | 14,851 | 12,546 | 10,948 | 10,227 | 10,156 | 10,304 | 10,424 | 9,828 | 10,104 | (R) 8,220 | (R) 8,093 | (R) 8,446 | (R) 7,623 | 8,300 |
| Transit, total[j] | N | N | N | N | N | N | 54,556 | 52,125 | 55,089 | 52,668 | 58,193 | 57,196 | 55,288 | 56,132 | 55,990 | 55,325 | 56,697 | 53,945 | 19,260 | 18,235 | 18,982 | 18,131 | 18,327 | U |
| Highway-rail grade crossing[k] | N | N | N | N | N | N | N | N | N | N | N | 195 | 184 | 126 | 58 | 159 | 123 | 74 | 108 | 117 | 153 | 194 | 172 | U |
| Transit | N | N | N | N | N | N | N | N | N | N | N | 57,001 | 55,104 | 56,006 | 55,932 | 55,166 | 56,574 | 53,871 | 19,152 | 18,118 | 18,829 | 17,937 | 18,155 | U |
| Waterborne, total[l] | N | N | U | U | U | U | U | U | 5,356 | 5,128 | 6,144 | 6,165 | 6,064 | 5,737 | 5,321 | 4,992 | 5,112 | 5,008 | 4,856 | 4,666 | 4,066 | 4,095 | 5,245 | 4,335 |
| Vessel-related[m] | N | N | 105 | 97 | 180 | 172 | 175 | 110 | 170 | 171 | 182 | 154 | 254 | 120 | 130 | 152 | 150 | 210 | 192 | 227 | 198 | 140 | 177 | 167 |
| Not related to vessel casualties[m] | N | N | U | U | U | U | U | U | 1,503 | 1,398 | 1,878 | 1,870 | 1,368 | 1,062 | 579 | 525 | 607 | 524 | 602 | 551 | 505 | 504 | 594 | 495 |
| Recreational boating | 929 | 927 | 780 | 2,136 | 2,650 | 2,757 | 3,822 | 3,967 | 3,683 | 3,559 | 4,084 | 4,141 | 4,442 | 4,555 | 4,612 | 4,315 | 4,355 | 4,274 | 4,062 | 3,888 | 3,363 | 3,451 | 4,474 | 3,673 |
| Pipeline, total | N | N | 254 | 231 | 192 | 126 | 76 | 98 | 118 | 111 | 1,971 | 64 | 127 | 77 | 81 | 108 | 81 | 61 | 49 | 71 | 60 | (R) 48 | 32 | 43 |
| Hazardous liquid pipeline | N | N | 21 | 17 | 15 | 18 | 7 | 9 | 38 | 10 | 1,858 | 11 | 13 | 5 | 6 | 20 | 4 | 10 | 0 | 5 | 16 | 2 | 2 | 10 |
| Gas pipeline | N | N | 233 | 214 | 177 | 108 | 69 | 89 | 80 | 101 | 113 | 53 | 114 | 72 | 75 | 88 | 77 | 51 | 49 | 66 | 44 | (R) 46 | 31 | 43 |

**KEY:** N = data do not exist; R = revised; U = data are not available.

[a] Injuries classified as serious. See definitions of injuries in the glossar

[b] All scheduled and nonscheduled service operating under 14 CFR 121. Since March 20, 1997, 14 CFR 121 includes only aircraft with 10 or more seats formerly operated under 14 CFR 135. This change makes it difficult to compare pre-1997 data for 14 CFR 121 and 14 CFR 135 with more recent years' data.

[c] All scheduled service operating under 14 CFR 135 (commuter air carriers). Before March 20, 1997, 14 CFR 135 applied to aircraft with 30 or fewer seats. Since March 20, 1997, 14 CFR 135 includes only aircraft with fewer than 10 seats. This change makes it difficult to compare pre-1997 data for 14 CFR 121 and 14 CFR 135 with more recent years' data.

[d] Nonscheduled service operating under 14 CFR 135 (on-demand air taxis

[e] All operations other than those operating under 14 CFR 121 and 14 CFR 13!

[f] Large trucks are defined as trucks over 10,000 pounds gross vehicle weight rating, including single-unit trucks and truck tractors. Light trucks are defined as trucks of 10,000 pounds gross vehicle weight rating or less, including pickups, vans, truck-based station wagons, and utility vehic

[g] Includes occupants of other unknown vehicle types and other nonmotorist

[h] Includes Amtrak. Figures include those injuries resulting from train accidents, train incidents, and nontrain incidents. Injury figures also include occupational illness. Railroad injury data for 1970 and before are not comparable with post-1970 data due to a change in the reporting systen

[i] Injuries occurring at highway-rail crossings resulting from freight and passenger rail operations including commuter rail. Highway-rail grade crossing injuries, except train occupants, are also counted under highway.

[j] Includes motor bus, commuter rail, heavy rail, light rail, demand response, van pool, and automated guideway. Transit injuries include those resulting from all reportable incidents, not just from accidents. Directly Operated (DO) modes only. The drop in the number of injuries in 2002 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,

[k] Injuries occurring at highway-rail crossings resulting from operations of public transit rail modes including commuter rail. Data for injuries at light rail crossings are: 1995 (179); 1996 (171); 1997 (92); 1998 (42); 1999 (148); 2000 (111); 2001 (54); 2002 (76); 2003 (68); 2004 (76)

[l] Vessel-related injuries include those involving damage to vessels, such as collisions or groundings. Injuries not related to vessel casualties include those from falls overboard or from accidents involving onboard equipment

[m] 1992-97 data come from the Marine Safety Management Information System. Between 1998 and 2001 the U.S. Coast Guard phased in a new computer system to track safety data, the Marine Information for Safety and Law Enforcement System. During that period data come from combining entries in the Marine Safety Management Information System with entries in the Marine Information for Safety and Law Enforcement System. Data for 2002, 2003, and 2004 come from the Marine Information for Safety and Law Enforcement System. Data for prior years come from other sources and may not be directly comparable.

[n] Other than the persons aboard the aircraft who were killed, fatalities resulting from the September 11 terrorist acts are exclude

**NOTES**

The motor vehicle injury data in this table come from the U.S. Department of Transportation, National Highway Traffic Safety Administration's General Estimates System (GES). The data from GES, which began operation in 1988, are obtained from a nationally representative probability sample selected from all police-reported crashes. The GES sample includes only crashes where a police accident report was completed and the crash resulted in property damage, injury, or death. The resulting figures do not take into account crashes that were not reported to the police or did not result in property damage.

Numbers may not add to total because some injuries are counted in more than one mode. To avoid double counting, the following adjustments have been made Most (not all) highway-rail grade crossing injuries have not been added because most (not all) such injuries involve motor vehicles and are already included in highway injuries.

For transit, all commuter rail injuries and motor-bus, trolley-bus, demand-responsive, and van-pool injuries arising from accidents have been subtracted because they are counted as railroad, highway, or highway-rail grade crossing injuries.

The reader cannot reproduce the total injuries count in this table by simply leaving out the number of highway-rail grade crossing injuries in the sum and subtracting the above transit submodes, because in so doing, grade-crossing injuries not involving motor vehicles would be left out (see table 2-35 on rail). An example of such an injury is a bicyclist injured by a train at a grade crossing.

The Federal Railroad Administration defines a grade crossing as a location where a public highway, road, street, or private roadway, including associated sidewalks and pathways, crosses one or more railroad tracks at grade. The Federal Transit Administration defines two types of grade crossings: (1) At grade, mixed, and cross traffic crossings, meaning railway right-of-way over which other traffic moving in the same direction or other cross directions may pass. This includes city street right-of-way; (2) At grade with cross traffic crossings, meaning railway right-of-way over which no other traffic may pass, except to cross at grade-level crossings. This can include median strip rights-of-way with grade level crossings at intersecting streets.

**SOURCES**

**Air:**

1970-94: National Transportation Safety Board, *Annual Review of Aircraft Accident Data: General Aviation* (Washington, DC: Annual issues).

1995-2007: Ibid., Analysis and Data Division, personal communication, October 2008.

**Highway:**

1990-99: U.S. Department of Transportation, National Highway Traffic Safety Administration, National Center for Statistics and Analysis, *Traffic Safety Facts 1999,* DOT HS 809 100 (Washington, DC: December 2000), table 4.

2000-04: Ibid., General Estimates System Database and personal communication, Dec. 9, 2003, Oct. 12, 2004, Apr. 20, 2006.

2005-06: U.S. Department of Transportation, National Highway Traffic Safety Administration, National Center for Statistics and Analysis, *Traffic Safety Facts* (Washington, DC: Annual Issues), table 4.

**Rail:**

*Highway-rail grade crossings:*

1960-70: National Safety Council, *Accident Facts, 1974* (Washington, DC: 1974).

1975: U.S. Department of Transportation, Federal Railroad Administration, Office of Policy and Program Development, personal communication.

1980-91: Ibid., *Rail-Highway Crossing Accident/Incident and Inventory Bulletin* (Washington, DC: Annual issues), table S.

1991-99: Ibid., *Interim Railroad Safety Statistics Annual Report 2002* (Washington, DC: August 2003), table 1-1.

2000-06: Ibid., available at http://safetydata.fra.dot.gov/officeofSafety/Query/Default.asp as of Sept. 4, 2007.

*Railroad:*

1960-70: National Safety Council, *Accident Facts, 1974* (Washington, DC: 1974).

1970-91: U.S. Department of Transportation, Federal Railroad Administration, *Highway-Rail Crossing Accident/Incident and Inventory Bulletin* (Washington,

1991-99: Ibid., *Interim Railroad Safety Statistics Annual Report 2002* (Washington, DC: August 2003), table 1-1.

2000-07: Ibid., available at http://safetydata.fra.dot.gov/officeofSafety/Query/Default.asp as of November 2008.

**Transit:**

*Highway-rail grade crossings:*

U.S. Department of Transportation, Federal Transit Administration, Office of Program Management, personal communication as of June 8, 2006.

*Transit:*

1990-92: U.S. Department of Transportation, Federal Transit Administration, *Safety Management Information Statistics* (Washington, DC: Annual issues).

1993-2005: U.S. Department of Transportation, Federal Transit Administration, Transit Safety and Security Statistics and Analysis Annual Report (Washington, DC: Annual issues), available at http://transit-safety.volpe.dot.gov/data/SAMIS.asp as of Sept. 4, 2007.

2006: U.S. Department of Transportation, Research and Innovative Technology Administration, Volpe Center, Transit Safety and Security Statistics and Analysis Program, personal communication, Sept. 7, 2007.

**Water:**

*Vessel- and nonvessel-related:*

1970-91: U.S. Department of Transportation, U.S. Coast Guard, Office of Investigations and Analysis, Compliance Analysis Division, (G-MOA-2), personal communication, Apr. 13, 1999.

1992-2007: U.S. Department of Homeland Security, U.S. Coast Guard, Data Administration Division (G-MRI-1), personal communication, October 2008

*Recreational boating:*

U.S. Department of Homeland Security, U.S. Coast Guard, Office of Boating Safety, Boating Statistics (Washington, DC: Annual issues), available at available at http://www.uscgboating.org as of November 2008.

**Hazardous liquid and gas pipeline:**

1970-2007: U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration, Office of Pipeline Safety, *Accident and Incident Summary Statistics by Year*, available at http://ops.dot.gov as of November, 2008.

## Table 2-3: Transportation Accidents by Mode

| | 1960 | 1965 | 1970 | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Air | 4,883 | 5,279 | 4,767 | 4,232 | 3,818 | 2,935 | 2,388 | 2,334 | (R) 2,227 | 2,172 | (R) 2,139 | (R) 2,178 | 2,046 | (R) 1,987 | (R) 2,037 | 2,043 | 1,985 | 1,852 | 1,823 | (R) 1,870 | 1,717 | 1,781 | (R) 1,611 | (R) 1,745 | (R) 1,659 | (P) 1,553 |
| U.S. air carrier[a] | 90 | 83 | 55 | 37 | 19 | 21 | 24 | 26 | 18 | 23 | 23 | 36 | 37 | 49 | 50 | 51 | 56 | 46 | 41 | 54 | 30 | 40 | 33 | 28 | 28 | (P) 30 |
| Commuter carrier[b] | N | N | N | 48 | 38 | 18 | 15 | 23 | 23 | 16 | 10 | 12 | 11 | 16 | 8 | 13 | 12 | 7 | 7 | 2 | 4 | 6 | 3 | 3 | 7 | (P) 2 |
| On-demand air taxi[c] | N | N | N | 152 | 171 | 157 | 107 | 88 | 76 | 69 | 85 | 75 | 90 | 82 | 77 | 74 | 80 | 72 | 60 | 73 | 66 | 65 | 52 | 62 | (R) 58 | (P) 47 |
| General aviation[d] | 4,793 | 5,196 | 4,712 | 3,995 | 3,590 | 2,739 | 2,242 | 2,197 | (R) 2,110 | 2,064 | (R) 2,021 | (R) 2,055 | 1,908 | (R) 1,840 | (R) 1,902 | 1,905 | 1,837 | 1,727 | 1,715 | (R) 1,741 | 1,617 | 1,670 | (R) 1,523 | (R) 1,652 | (R) 1,566 | (P) 1,474 |
| Highway, total crashes[e] | N | N | N | N | N | N | 6,471,000 | 6,117,000 | 6,000,000 | 6,106,000 | 6,496,000 | 6,699,000 | 6,770,000 | 6,624,000 | 6,335,000 | 6,279,000 | 6,394,000 | 6,323,000 | 6,316,000 | 6,328,000 | 6,181,000 | 6,159,000 | 5,973,000 | 6,024,000 | 5,811,000 | 5,505,000 |
| Passenger car | N | N | N | N | N | N | 5,560,592 | 5,178,450 | 5,042,203 | 5,040,116 | 5,401,164 | 5,593,685 | 5,598,699 | 5,423,286 | 5,146,124 | 4,915,734 | 4,926,243 | 4,831,842 | 4,802,056 | 4,746,620 | 4,557,453 | 4,498,869 | 4,341,688 | U | U | U |
| Motorcycle | N | N | N | N | N | N | 103,114 | 105,030 | 72,177 | 74,565 | 68,752 | 66,354 | 66,224 | 61,451 | 54,477 | 57,322 | 68,783 | 73,342 | 76,004 | 79,131 | 85,557 | 100,686 | 101,474 | U | U | U |
| Truck[f], light | N | N | N | N | N | N | 2,152,486 | 2,200,134 | 2,191,171 | 2,407,212 | 2,573,701 | 2,749,596 | 2,880,782 | 2,900,896 | 2,866,729 | 3,079,617 | 3,207,738 | 3,254,105 | 3,272,326 | 3,345,367 | 3,370,062 | 3,381,985 | 3,355,291 | U | U | U |
| Truck[f], large | N | N | N | N | N | N | 371,801 | 318,637 | 362,807 | 383,220 | 444,697 | 362,883 | 378,335 | 421,377 | 391,807 | 452,444 | 437,861 | 409,372 | 416,477 | 436,161 | 399,156 | 423,016 | 367,920 | U | U | U |
| Bus | N | N | N | N | N | N | 60,412 | 56,285 | 49,705 | 51,353 | 55,818 | 58,847 | 57,185 | 53,376 | 53,385 | 62,591 | 55,594 | 54,264 | 57,958 | 57,674 | 52,148 | 50,427 | 51,554 | U | U | U |
| Railroad, total[g] | N | N | 11,654 | 20,117 | 18,817 | 10,194 | 8,594 | 8,046 | 7,269 | 7,503 | 7,483 | 7,092 | 6,700 | 6,262 | 6,083 | 6,257 | 6,485 | 6,260 | 5,815 | 5,996 | (R) 6,470 | (R) 6,331 | (R) 5,937 | (R) 5,466 | (R) 4,891 | (P) 3,807 |
| Highway-rail grade crossing[h] | 3,195 | 3,820 | 3,559 | 12,076 | 10,612 | 6,919 | 5,715 | 5,388 | 4,910 | 4,892 | 4,979 | 4,633 | 4,257 | 3,865 | 3,508 | 3,489 | 3,502 | 3,237 | 3,077 | 2,977 | (R) 3,085 | (R) 3,066 | (R) 2,942 | (R) 2,776 | (R) 2,422 | (P) 1,917 |
| Railroad[i] | N | N | 8,095 | 8,041 | 8,205 | 3,275 | 2,879 | 2,658 | 2,359 | 2,611 | 2,504 | 2,459 | 2,443 | 2,397 | 2,575 | 2,768 | 2,983 | 3,023 | 2,738 | 3,019 | (R) 3,385 | (R) 3,265 | (R) 2,995 | (R) 2,690 | (R) 2,469 | (P) 1,890 |
| Transit, total[j] | N | N | N | N | N | N | 58,002 | 46,467 | 36,380 | 30,559 | 29,972 | 25,683 | 25,166 | 24,924 | 23,937 | 23,310 | 24,261 | 23,891 | 13,968 | 7,793 | 7,842 | 8,151 | 8,851 | 9,398 | (R) 5,154 | (R) 5,360 |
| Highway-rail grade crossing[k] | N | N | N | N | N | N | N | N | N | N | N | 127 | 134 | 119 | 106 | 140 | 148 | 101 | 190 | 125 | 178 | 148 | 141 | 174 | (R) 232 | (R) 201 |
| Transit[l] | N | N | N | N | N | N | N | N | N | N | N | 25,556 | 25,032 | 24,805 | 23,831 | 23,170 | 24,113 | 23,790 | 13,778 | 7,668 | 7,664 | 8,003 | 8,710 | 9,224 | (R) 4,922 | (R) 5,159 |
| Waterborne, total | N | N | 6,385 | 9,618 | 10,137 | 9,676 | 10,024 | 8,795 | 11,631 | 12,461 | 13,649 | 13,368 | 13,286 | 13,551 | 13,828 | 13,457 | 13,143 | 11,377 | 11,713 | 10,601 | 9,866 | 9,946 | (R) 9,565 | 9,885 | 9,545 | 9,188 |
| Vessel-related[m] | N | N | 2,582 | 3,310 | 4,624 | 3,439 | 3,613 | 2,222 | 5,583 | 6,126 | 6,743 | 5,349 | 5,260 | 5,504 | 5,767 | 5,526 | 5,403 | 4,958 | 6,008 | 5,163 | 4,962 | 4,977 | (R) 4,598 | 4,694 | 4,756 | 4,458 |
| Recreational boating | 2,738 | 3,752 | 3,803 | 6,308 | 5,513 | 6,237 | 6,411 | 6,573 | 6,048 | 6,335 | 6,906 | 8,019 | 8,026 | 8,047 | 8,061 | 7,931 | 7,740 | 6,419 | 5,705 | 5,438 | 4,904 | 4,969 | 4,967 | 5,191 | 4,789 | 4,730 |
| Pipeline, total | N | N | 1,428 | 1,592 | 1,770 | 517 | 379 | 449 | 389 | 445 | 467 | 349 | 381 | 346 | 389 | 339 | 380 | 341 | (R) 334 | (R) 372 | (R) 442 | 495 | (R) 407 | (R) 405 | (R) 436 | 405 |
| Hazardous liquid pipeline | N | N | 351 | 254 | 246 | 183 | 180 | 216 | 212 | 229 | 245 | 188 | 194 | 171 | 153 | 167 | 146 | 130 | 150 | (R) 134 | (R) 146 | 143 | 120 | (R) 120 | (R) 145 | 116 |
| Gas pipeline | N | N | 1,077 | 1,338 | 1,524 | 334 | 199 | 233 | 177 | 216 | 222 | 161 | 187 | 175 | 236 | 172 | 234 | 211 | (R) 184 | 238 | 296 | 352 | (R) 287 | 285 | 291 | 289 |

**KEY:** N = data do not exist; R = revised; U = data are unavailable.

[a] Carriers operating under 14 CFR 121, all scheduled and nonscheduled service. Since Mar. 20, 1997, 14 CFR 121 includes only aircraft with 10 or more seats formerly operated under 14 CFR 135. This change makes it difficult to compare pre-1997 data for 14 CFR 121 and 14 CFR 135 with more recent data.

[b] All scheduled service operating under 14 CFR 135. Since Mar. 20, 1997, 14 CFR 121 includes only aircraft with 10 or more seats formerly operated under 14 CFR 135. This change makes it difficult to compare pre-1997 data for 14 CFR 121 and 14 CFR 135 with more recent data.

[c] Nonscheduled service operating under 14 CFR 135.

[d] All operations other than those operating under 14 CFR 121 and 14 CFR 135.

[e] The U.S. Department of Transportation, National Highway Traffic Safety Administration uses the term "crash" instead of accident in its highway safety data. Highway crashes often involve more than one motor vehicle, and hence "total highway crashes" is smaller than the sum of the components. Estimates of highway crashes are rounded to the nearest thousand in the source document.

[f] Large trucks are defined as trucks over 10,000 pounds gross vehicle weight rating, including single-unit trucks and truck tractors. Light trucks are defined as trucks of 10,000 pounds gross vehicle weight rating or less, including pickups, vans, truck-based station wagons, and utility vehicles.

[g] Includes Amtrak. Accidents and incidents resulting from freight and passenger rail operations including commuter rail. Railroad accident data for 1970 and before are not comparable with post-1970 data due to a change in the reporting system.

[h] Accidents and incidents occurring at highway-rail crossings resulting from freight and passenger rail operations including commuter rail. Data are not comparable after 1970 due to a change in reporting system. Most highway-rail grade crossing accidents are also counted under highway.

[i] Train accidents only.

[j] Accident figures include collisions with vehicles, objects, and people, derailments / vehicles going off the road. Accident figures do not include fires and personal casualties. The drop in the number of accidents in 2002 is due largely to a change in definitions by the Federal Transit Administration, particularly the definition of injuries. Beginning in 2002, only injuries requiring immediate medical treatment away from the scene qualified as reportable. In 2008, the property damage threshold was changed to $25,000. Previously, any accident with property damage equal to or greater than $7,500 was reported.

[k] Accidents occurring at highway-rail grade crossings resulting from operations of public transit rail modes including commuter rail. Data for light rail crossings are: 1995 (98); 1996 (97); 1997 (66); 1998 (66); 1999 (103); 2000 (106); 2001 (54); 2002 (112); 2003 (68); 2004 (106); 2005 (81); 2006 (95); 2007 (93); 2008 (107); and 2009 (119).

[l] Accidents occurring at highway-rail grade crossings resulting from operations of public transit rail modes excluding commuter rail.

[m] 1992-97 data are obtained from the Marine Safety Management Information System. Between 1998 and 2000, the U.S. Coast Guard phased in a new computer system to track safety data, the Marine Information for Safety and Law Enforcement System. During this period, data are obtained from combining entries in the Marine Safety Management Information System with entries in the Marine Information for Safety and Law Enforcement System. Data after 2002 comes from the Marine Information for Safety and Law Enforcement System. Statistics for prior years may not be directly comparable due to the revised method of capture.

**NOTES**

The motor vehicle crash data are from the U.S. Department of Transportation, National Highway Traffic Safety Administrations' General Estimates System (GES), which began operation in 1988. GES data are obtained from a nationally representative probability sample selected from all police-reported crashes. The GES sample includes only crashes where a police accident report was completed and the crash resulted in property damage, injury, or death. The resulting figures do not take into account crashes that were not reported to the police or did not result in property damage.

The Federal Railroad Administration defines a grade crossing as a location where a public highway, road, street, or private roadway, including associated sidewalks and pathways, crosses one or more railroad tracks at grade. The Federal Transit Administration defines two types of grade crossings: (1) At grade, mixed, and cross traffic crossings, meaning railway right-of-way over which other traffic moving in the same direction or other cross directions may pass. This includes city street right-of-way; (2) at grade with cross traffic crossings, meaning railway right-of-way over which no other traffic may pass, except to cross at grade-level crossings. This can include median strip rights-of-way with grade level crossings at intersecting streets.

**SOURCES**

**Air:**

*Air carrier:*

1960: National Transportation Safety Board, *Annual Review of Aircraft Accident Data: U.S. Air Carrier Operations, Calendar Year 1967* (Washington, DC: December 1968).

1965-70: Ibid., *Annual Review of Aircraft Accident Data: U.S. Air Carrier Operations, Calendar Year 1975,* NTSB/ARC-77/1 (Washington, DC: January 1977).

1975: Ibid., *Annual Review of Aircraft Accident Data: U.S. Air Carrier Operations, Calendar Year 1983,* NTSB/ARC-87/01 (Washington, DC: February 1987), table 18.

1980: Ibid., *Annual Review of Aircraft Accident Data: U.S. Air Carrier Operations, Calendar Year 1981,* NTSB/ARC-85/01 (Washington, DC: February 1985), tables 2 and 16.

1985-2006: Ibid., personal communication, Sept. 4, 2007.

2007-2009: National Transportation Safety Board, *Aviation Accident Statistics*, table 5, available at http://www.ntsb.gov/aviation/Stats.htm as of Sept. 30, 2010.

*Commuter air carrier:*

1975-80: National Transportation Safety Board, *Annual Review of Aircraft Accident Data: U.S. Air Carrier Operations, Calendar Year 1980,* NTSB/ARC-83/01 (Washington, DC: January 1983), tables 26 and 40.

1985-2006: Ibid., personal communication, Sept. 4, 2007.

2007-2009: National Transportation Safety Board, *Aviation Accident Statistics*, table 8, available at http://www.ntsb.gov/aviation/Stats.htm as of Sept. 30, 2010.

*On-demand air taxi:*

1975-80: National Transportation Safety Board, *Annual Review of Aircraft Accident Data: U.S. Air Carrier Operations, Calendar Year 1981,* NTSB/ARC-85/01 (Washington, DC: February 1985), table 61.

1985-2006: Ibid., personal communication, Sept. 4, 2007.

2007-2009: National Transportation Safety Board, *Aviation Accident Statistics*, table 9, available at http://www.ntsb.gov/aviation/Stats.htm as of Sept. 30, 2010.

*General aviation:*

1960-70: National Transportation Safety Board, *Annual Review of Aircraft Accident Data: General Aviation, Calendar Year 1970,* NTSB/ARG-74/1 (Washington, DC: April 1974), table 117.

1975-80: Ibid., *Annual Review of Aircraft Accident Data: General Aviation, Calendar Year 1985,* NTSB/ARG-87/03 (Washington, DC: October 1987), table 21.

1985-2006: Ibid., personal communication, Sept. 4, 2007.

2007-2009: National Transportation Safety Board, *Aviation Accident Statistics*, table 10, available at http://www.ntsb.gov/aviation/Stats.htm as of Sept. 30, 2010.

**Highway:**

*Total:*

U.S. Department of Transportation, National Highway Traffic Safety Administration, National Center for Statistics and Analysis, *Traffic Safety Facts* (Washington, DC: Annual Issues), table 1, available at http://www-nrd.nhtsa.dot.gov/cats/index.aspx as of Oct. 28, 2010.

2009: Ibid, *Traffic Safety Facts Research Note*, table 1, available at http://www-nrd.nhtsa.dot.gov/cats/index.aspx as of Oct. 28, 2010.

*Passenger car, motorcycle, light truck, large truck, and bus:*

U.S. Department of Transportation, National Highway Traffic Safety Administration, National Center for Statistics and Analysis, Fatality Analysis Reporting System Database and General Estimates System Database.

**Rail:**

*Highway-rail grade crossings:*

1960-70: U.S. Department of Transportation, Federal Railroad Administration, Office of Policy and Program Development, *Rail-Highway Grade-Crossing Accidents* (Washington, DC: Annual Issues).

1975-80: Ibid., Office of Policy and Program Development, personal communication.

1985-90: Ibid., *Rail-Highway Crossing Accident/Incident and Inventory Bulletin* (Washington, DC: Annual Issues), table S.

1991-97: Ibid., *Interim Railroad Safety Statistics Annual Report 2002* (Washington, DC: August 2003), table 1-1.

1998-2009: U.S. Department of Transportation, Federal Railroad Administration, Office of Safety Analysis, *Railroad Safety Statistics Preliminary Annual Report* (Washington, DC: August 2010), table 1-1, available at http://safetydata.fra.dot.gov/officeofsafety/Default.asp as of Dec. 14, 2010.

*Railroad:*

1970-90: U.S. Department of Transportation, Federal Railroad Administration, Office of Policy and Program Development, *Accident/Incident Bulletin* (Washington, DC: Annual Issues), table 4.

1991-97: Ibid., *Interim Railroad Safety Statistics Annual Report 2002* (Washington, DC: August 2003), table 1-1.

1998-2009: U.S. Department of Transportation, Federal Railroad Administration, Office of Safety Analysis, *Railroad Safety Statistics Preliminary Annual Report* (Washington, DC: August 2010), table 1-1, available at http://safetydata.fra.dot.gov/officeofsafety/Default.asp as of Dec. 14, 2010.

**Transit:**

*Highway-rail grade crossings:*

1960-2007: U.S. Department of Transportation, Federal Transit Administration, Office of Program Management, personal communication, Sept. 4, 2007.

2008-2009: U.S. Department of Transportation, Federal Transit Administration, personal communication, Oct. 14, 2010.

*Transit:*

1990-92: U.S. Department of Transportation, Federal Transit Administration, *Safety Management Information Statistics 2000* (Washington, DC: 2000), pp. 51-54 and personal communication, July 28, 2003.

1993-2005: U.S. Department of Transportation, Federal Transit Administration, *Transit Safety and Security Statistics and Analysis Annual Report* (Washington, DC: Annual Issues) available at http://transit-safety.volpe.dot.gov/data/SAMIS.asp as of Sept. 4, 2007.

2006-2007: U.S. Department of Transportation, Research and Innovative Technology Administration, Volpe Center, *Transit Safety and Security Statistics and Analysis Program*, personal communication, Oct. 20, 2009.

2008-2009: U.S. Department of Transportation, Federal Transit Administration, personal communication, Oct. 14, 2010.

**Water:**

*Vessel-related:*

1970-91: U.S. Department of Transportation, U.S. Coast Guard, Office of Investigations and Analysis, Compliance Analysis Division, personal communication, Apr. 13, 1999.

1992-2005: U.S Department of Homeland Security, U.S. Coast Guard, Data Administration Division (G-MRI-1), personal communication, June 8, 2005.

2006-2009: U.S Department of Homeland Security, U.S. Coast Guard, Office of Investigations and Analysis, Compliance Analysis Division, personal communication, Dec. 15, 2010.

*Recreational boating:*

U.S. Department of Homeland Security, U.S. Coast Guard, Office of Boating Safety, *Boating Statistics* (Washington, DC: Annual Issues), table 28, available at http://www.uscgboating.org/statistics/accident_statistics.aspx as of Sept. 30, 2010.

**Hazardous liquid and gas pipeline:**

1970-85: U.S. Department of Transportation, Research and Special Programs Administration, Office of Pipeline Safety, *Accident and Incident Summary Statistics by Year*, available at http://ops.dot.gov as of Nov. 18, 2003.

1990-2009: U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration, Office of Pipeline Safety, *Accident and Incident Summary Statistics by Year*, available at http://phmsa.dot.gov/pipeline as of Sept. 30, 2010.

**Table 2-4: Distribution of Transportation Fatalities by Mode**

| | 1999 | | 2000 | | 2001 | | 2002 | | 2003 | | 2004 | | 2005 | | 2006 | | 2007 | | (R) 2008 | | 2009 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Percent | Number | Percent | Number | Percent | Number | Percent | Number | Percent | Number | Percent | Number | Percent | Number | Percent | Number | Percent | Number | Percent | Number | Percent |
| TOTAL of all modes[a] | 44,086 | 100.00 | 44,384 | 100.00 | 44,941 | 100.00 | (R) 45,276 | 100.00 | 45,134 | 100.00 | 45,052 | 100.00 | (R) 45,666 | 100.00 | (R) 45,040 | 100.00 | (R) 43,330 | 100.00 | 39,514 | 100.00 | (P) 35,929 | 100.00 |
| Passenger car occupants | 20,862 | 47.32 | 20,699 | 46.64 | 20,320 | 45.21 | 20,569 | 45.43 | 19,725 | 43.70 | 19,192 | 42.60 | 18,512 | 40.54 | 17,925 | 39.80 | 16,614 | (R) 38.34 | 14,646 | 37.07 | 13,095 | 36.45 |
| Light-truck occupants | 11,265 | 25.55 | 11,526 | 25.97 | 11,723 | 26.09 | 12,274 | 27.11 | 12,546 | 27.80 | 12,674 | 28.13 | 13,037 | 28.55 | 12,761 | 28.33 | 12,458 | 28.75 | 10,816 | 27.37 | 10,287 | 28.63 |
| Pedestrians struck by motor vehicles | 4,939 | 11.20 | 4,763 | 10.73 | 4,901 | 10.91 | 4,851 | 10.71 | 4,774 | 10.58 | 4,675 | 10.38 | 4,892 | 10.71 | 4,795 | 10.65 | 4,699 | 10.84 | 4,414 | 11.17 | 4,092 | 11.39 |
| Motorcyclists | 2,483 | 5.63 | 2,897 | 6.53 | 3,197 | 7.11 | 3,270 | 7.22 | 3,714 | 8.23 | 4,028 | 8.94 | 4,576 | 10.02 | 4,837 | 10.74 | 5,174 | 11.94 | 5,312 | 13.44 | 4,462 | 12.42 |
| Large-truck occupants | 759 | 1.72 | 754 | 1.70 | 708 | 1.58 | 689 | 1.52 | 726 | 1.61 | 766 | 1.70 | 804 | 1.76 | 805 | 1.79 | 805 | 1.86 | 682 | 1.73 | 503 | 1.40 |
| Pedalcyclists struck by motor vehicles | 754 | 1.71 | 693 | 1.56 | 732 | 1.63 | 665 | 1.47 | 629 | 1.39 | 727 | 1.61 | 786 | 1.72 | 772 | 1.71 | 701 | 1.62 | 718 | 1.82 | 630 | 1.75 |
| Recreational boating | 734 | 1.66 | 701 | 1.58 | 681 | 1.52 | 750 | 1.66 | 703 | 1.56 | 676 | 1.50 | 697 | 1.53 | 710 | 1.58 | 685 | 1.58 | 709 | 1.79 | 736 | 2.05 |
| Other and unknown motor vehicle occupants | 447 | 1.01 | 450 | 1.01 | 458 | 1.02 | 528 | 1.17 | 589 | 1.31 | 602 | 1.34 | 659 | 1.44 | 601 | 1.33 | 614 | 1.42 | 580 | 1.47 | 563 | 1.57 |
| General aviation | 621 | 1.41 | 596 | 1.34 | 562 | 1.25 | 581 | 1.28 | 633 | 1.40 | 559 | 1.24 | 563 | 1.23 | (R) 706 | 1.57 | 496 | 1.14 | 494 | 1.25 | (P) 474 | 1.32 |
| Railroad trespassers[b] (excluding grade crossings) | 479 | 1.09 | 463 | 1.04 | 511 | 1.14 | 540 | 1.19 | 498 | 1.10 | 472 | 1.05 | 458 | 1.00 | 511 | 1.13 | 470 | 1.08 | 457 | 1.16 | (P) 428 | 1.19 |
| Other nonoccupants struck by motor vehicles[c] | 149 | 0.34 | 141 | 0.32 | 123 | 0.27 | 114 | 0.25 | 140 | 0.31 | 130 | 0.29 | 186 | 0.41 | 185 | 0.41 | 158 | 0.36 | 188 | 0.48 | 150 | 0.42 |
| Grade crossings, not involving motor vehicles[d] | 57 | 0.13 | 64 | 0.14 | 76 | 0.17 | 47 | 0.10 | 62 | 0.14 | 85 | 0.19 | 76 | 0.17 | 65 | 0.14 | 73 | 0.17 | 69 | 0.17 | (P) 66 | 0.18 |
| Air taxi | 38 | 0.09 | 71 | 0.16 | 60 | 0.13 | 35 | 0.08 | 42 | 0.09 | 64 | 0.14 | 18 | 0.04 | 16 | 0.04 | 43 | 0.10 | 69 | 0.17 | (P) 17 | 0.05 |
| Heavy rail transit (subway) | 84 | 0.19 | 80 | 0.18 | 59 | 0.13 | 73 | 0.16 | 49 | 0.11 | 59 | 0.13 | 35 | 0.08 | 23 | 0.05 | 32 | 0.07 | 61 | 0.15 | 96 | 0.27 |
| Waterborne transportation (nonvessel-related) | 136 | 0.31 | 134 | 0.30 | 94 | 0.21 | 54 | 0.12 | 61 | 0.14 | 60 | 0.13 | 60 | 0.13 | 56 | 0.12 | 59 | 0.14 | 67 | 0.17 | 93 | 0.26 |
| Bus occupants (school, intercity, and transit) | 59 | 0.13 | 22 | 0.05 | 34 | 0.08 | 45 | 0.10 | 41 | 0.09 | 42 | 0.09 | 58 | 0.13 | 27 | 0.06 | 36 | 0.08 | 67 | 0.17 | (P) 26 | 0.07 |
| Waterborne transportation (vessel-related) | 58 | 0.13 | 53 | 0.12 | 53 | 0.12 | 59 | 0.13 | 69 | 0.15 | 86 | 0.19 | 78 | 0.17 | 73 | 0.16 | 67 | 0.15 | 51 | 0.13 | 57 | 0.16 |
| Private grade crossings, with motor vehicles | 36 | 0.08 | 55 | 0.12 | 30 | 0.07 | 39 | 0.09 | 30 | 0.07 | 30 | 0.07 | 26 | 0.06 | 38 | 0.08 | 37 | 0.09 | 22 | 0.06 | (P) 19 | 0.05 |
| Railroad employees, contractors, and volunteers on duty (excluding grade crossings) | 31 | 0.07 | 22 | 0.05 | 23 | 0.05 | 22 | 0.05 | 20 | 0.04 | 27 | 0.06 | 28 | 0.06 | 19 | 0.04 | 21 | 0.05 | 28 | 0.07 | (P) 18 | 0.05 |
| Light rail transit | 17 | 0.04 | 30 | 0.07 | 21 | 0.05 | 13 | 0.03 | 17 | 0.04 | 22 | 0.05 | 19 | 0.04 | 17 | 0.04 | 32 | 0.07 | 15 | 0.04 | 33 | 0.09 |
| Railroad-related, not otherwise specified (excluding grade crossings) | 17 | 0.04 | 23 | 0.05 | 13 | 0.03 | 25 | 0.06 | 11 | 0.02 | 20 | 0.04 | 26 | 0.06 | 5 | 0.01 | 21 | 0.05 | 7 | 0.02 | 10 | 0.03 |
| Gas distribution pipelines | 16 | 0.04 | 22 | 0.05 | 5 | 0.01 | (R) 10 | 0.02 | 11 | 0.02 | 18 | 0.04 | (R) 12 | 0.03 | 18 | 0.04 | 9 | 0.02 | 6 | 0.02 | 9 | 0.03 |
| Transit buses, fatalities not related to accidents[e] | 12 | 0.03 | 8 | 0.02 | 6 | 0.01 | 14 | 0.03 | 14 | 0.03 | 16 | 0.04 | 17 | 0.04 | 18 | 0.04 | 14 | 0.03 | 5 | 0.01 | 4 | 0.01 |
| Air carriers[f] | 12 | 0.03 | 92 | 0.21 | 531 | 1.18 | 0 | 0.00 | 22 | 0.05 | 14 | 0.03 | 22 | 0.05 | 50 | 0.11 | 1 | 0.00 | 3 | 0.01 | (P) 52 | 0.14 |
| Hazardous liquid pipelines | 4 | 0.01 | 1 | 0.00 | 0 | 0.00 | 1 | 0.00 | 0 | 0.00 | 5 | 0.01 | 2 | 0.00 | 0 | 0.00 | 4 | 0.01 | 2 | 0.01 | 4 | 0.01 |
| Passengers on railroad trains (excluding grade crossings) | 3 | 0.01 | 4 | 0.01 | 3 | 0.01 | 7 | 0.02 | 2 | 0.00 | 3 | 0.01 | 16 | 0.04 | 2 | 0.00 | 5 | 0.01 | 24 | 0.06 | (P) 3 | 0.01 |
| Demand response transit, fatalities not related to accidents[e] | 0 | 0.00 | 0 | 0.00 | 2 | 0.00 | 0 | 0.00 | 3 | 0.01 | 0 | 0.00 | 1 | 0.00 | 0 | 0.00 | 0 | 0.00 | 2 | 0.01 | 2 | 0.01 |
| Commuter air | 12 | 0.03 | 5 | 0.01 | 13 | 0.03 | 0 | 0.00 | 2 | 0.00 | 0 | 0.00 | 2 | 0.00 | 2 | 0.00 | 0 | 0.00 | 0 | 0.00 | (P) 0 | 0.00 |
| Gas transmission pipelines | 2 | 0.00 | 15 | 0.03 | 2 | 0.00 | 1 | 0.00 | 1 | 0.00 | 0 | 0.00 | 0 | 0.00 | 3 | 0.01 | 2 | 0.00 | 0 | 0.00 | 0 | 0.00 |
| Other counts, redundant with above[g] | | | | | | | | | | | | | | | | | | | | | | |
| Large-truck occupants and nonoccupants | 5,380 | 12.20 | 5,282 | 11.90 | 5,111 | 11.37 | 4,939 | 10.91 | 5,036 | 11.16 | 5,235 | 11.62 | 5,240 | 11.47 | 5,027 | 11.16 | 4,822 | 11.13 | 4,245 | 10.74 | 3,380 | 9.41 |
| Public grade crossings, with motor vehicles | 309 | 0.70 | 306 | 0.69 | 315 | 0.70 | 271 | 0.60 | 241 | 0.53 | 249 | 0.55 | 255 | 0.56 | 266 | 0.59 | 225 | 0.52 | 198 | 0.50 | (P) 161 | 0.45 |
| Commuter rail | 95 | 0.22 | 87 | 0.20 | 87 | 0.19 | 116 | 0.26 | 77 | 0.17 | 86 | 0.19 | 105 | 0.23 | 85 | 0.19 | 124 | 0.29 | 93 | 0.24 | 67 | 0.19 |
| Transit buses, accident-related fatalities | 90 | 0.20 | 82 | 0.18 | 89 | 0.20 | 64 | 0.14 | 73 | 0.16 | 61 | 0.14 | 49 | 0.11 | 76 | 0.17 | 76 | 0.18 | 72 | 0.18 | 63 | 0.18 |
| Outside planes in crashes[h] | 5 | 0.01 | 14 | 0.03 | 11 | 0.02 | 6 | 0.01 | 6 | 0.01 | 1 | 0.00 | U | U | U | U | U | U | U | U | U | U |
| Demand response transit, accident-related fatalities | 1 | 0.00 | 8 | 0.02 | 3 | 0.01 | 0 | 0.00 | 1 | 0.00 | 0 | 0.00 | 7 | 0.02 | 7 | 0.02 | 8 | 0.02 | 5 | 0.01 | 5 | 0.01 |

**KEY:** NA = not applicable; P = preliminary; R = revised; U = data are unavailable.

[a] Includes fatalities outside the vehicle, unless otherwise specified.
[b] Includes fatalities outside trains, except at grade crossings.
[c] Includes all nonoccupant fatalities, except pedalcyclists and pedestrians.
[d] *Public grade-crossing fatalities involving motor vehicles* are included in counts for motor vehicles.
[e] Fatalities not related to *Transit bus* and *Demand responsive transit* accidents are not included under highway submodes.
[f] In 2001, other than the persons aboard the aircraft who were killed, fatalities resulting from the September 11 terrorist acts are excluded.
[g] Fatalities at grade crossings with motor vehicles are included under relevant motor vehicle modes. *Commuter rail* fatalities are counted under railroad. For *Transit bus* and *Demand responsive transit* accidents, occupant fatalities are counted under "bus" and nonoccupant fatalities are counted under "*Pedestrians*," "*Pedalcyclists*," or other motor vehicle categories.
[h] Includes nonoccupant fatalities resulting from aviation accidents.

**SOURCES**

**Air:**
National Transportation Safety Board, *Aviation Accident Statistics*, available at www.ntsb.gov/aviation/Stats.htm as of Nov. 2, 2010.

**Highway:**
U.S. Department of Transportation, National Highway Traffic Safety Administration, *Fatality Analysis Reporting System (FARS), General Trends*, available at http://www-fars.nhtsa.dot.gov/Main/reportslinks.aspx as of Nov. 2, 2010.

**Railroad:**
1999-2005: U.S. Department of Transportation, Federal Railroad Administration, Office of Safety and Analysis, *Railroad Safety Statistics Annual Report* (Annual Issues), available at http://safetydata.fra.dot.gov/officeofsafety/ as of Oct. 28, 2009.
2006-09: U.S. Department of Transportation, Federal Railroad Administration, Office of Safety and Analysis, *Railroad Safety Statistics Preliminary Annual Report*, tables 1-3 and 7-4, available at http://safetydata.fra.dot.gov/officeofsafety/ as of Nov. 3, 2010.

**Transit:**
U.S. Department of Transportation, Federal Transit Administration, *Transit Safety and Security Statistics and Analysis* (Washington, DC: Annual Issues) and personal communication, Nov. 12, 2010.

**Waterborne transportation:**
U.S. Department of Homeland Security, U.S. Coast Guard, Data Administration Division (G-MRI-1), personal communications, Oct. 27, 2009 and Sept. 30, 2010.

**Recreational boating:**
U.S. Department of Homeland Security, U.S. Coast Guard, Office of Boating Safety, *Boating Statistics,* table 30, available at http://www.uscgboating.org as of Nov. 2, 2010.

**Pipeline:**
U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration, Office of Pipeline Safety, *Pipeline Incidents and Mileage Reports*, available at http://ops.dot.gov/stats/stats.htm as of Nov. 3, 2010.

## Table 2-5: Highway-Rail Grade-Crossing Safety

| | 1970 | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | (R) 2004 | (R) 2005 | (R) 2006 | (R) 2007 | (R) 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fatalities[a] | 1,440 | 917 | 833 | 582 | 698 | 608 | 579 | 626 | 615 | 579 | 488 | 461 | 431 | 402 | 425 | 421 | 357 | 334 | 371 | 359 | 369 | 337 | 289 | 247 |
| Injured persons | 3,272 | 3,860 | 3,890 | 2,687 | 2,407 | 2,094 | 1,975 | 1,837 | 1,961 | 1,894 | 1,610 | 1,540 | 1,303 | 1,396 | 1,219 | 1,157 | 999 | 1,035 | 1,094 | 1,050 | 1,069 | 1055 | 965 | 705 |
| Accidents[a] | 3,559 | 12,126 | 10,796 | 7,073 | 5,715 | 5,388 | 4,910 | 4,892 | 4,979 | 4,633 | 4,257 | 3,865 | 3,508 | 3,489 | 3,502 | 3,237 | 3,077 | 2,977 | 3,085 | 3,064 | 2,941 | 2,772 | 2,409 | 1,896 |

**KEY:** R = revised

[a] 1970 data are not comparable to later years due to a change in the reporting system.

**NOTE**

The Federal Railroad Administration recommended not to report property damage statistics, which had been done in previous editions of NTS, due to inconsistencies in the reporting of data.

**SOURCES**

1970: U.S. Department of Transportation, Federal Railroad Administration, Office of Policy and Program Development, *Rail-Highway Crossing Accident/Incident and Inventory Bulletin* (Washington, DC: Annual Issue), tables S and 11.

1975-1998: *FRA Accident/Incident Database*, available at http://safetydata.fra.dot.gov/OfficeofSafety/ as of June 28, 2010.

1998-2009: Ibid., Office of Safety Analysis, *2009 Preliminary Railroad Safety Statistics* (Washington, DC: June 2010), table 1-1, available at http://safetydata.fra.dot.gov/OfficeofSafety/publicsite/Prelim.aspx as of June 17, 2010.

**Table 2-6: Hazardous Materials Fatalities, Injuries, Accidents, and Property Damage Data**

| | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total fatalities | 27 | 19 | 8 | 8 | 10 | 16 | 15 | 11 | 7 | 120 | 12 | 13 | 9 | 16 | 12 | 10 | 15 | (R) 14 | 34 | 6 | (R) 9 | (R) 7 | 13 |
| Accident-related | 21 | 14 | 7 | 7 | 10 | 15 | 14 | 11 | 6 | 7 | 10 | 8 | 7 | 11 | 8 | 9 | 9 | (R) 13 | 29 | 6 | 8 | (R) 6 | 8 |
| Air fatalities[a] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 110 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Accident-related | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Highway fatalities | 27 | 17 | 8 | 8 | 10 | 16 | 15 | 11 | 7 | 8 | 12 | 13 | 9 | 16 | 9 | 9 | 15 | (R) 11 | 24 | 6 | (R) 9 | (R) 6 | 12 |
| Accident-related | 21 | 12 | 7 | 7 | 10 | 15 | 14 | 11 | 6 | 5 | 10 | 8 | 7 | 11 | 8 | 8 | 9 | (R) 10 | 19 | 6 | 8 | (R) 6 | 7 |
| Rail fatalities | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 3 | 1 | 0 | 3 | 10 | 0 | 0 | 1 | 1 |
| Accident-related | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 3 | 10 | 0 | 0 | 0 | 1 |
| Water[b] fatalities | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Accident-related | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other[c] fatalities | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Accident-related | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total injured persons | 648 | 626 | 253 | 423 | 439 | 604 | 627 | 577 | 400 | 1,175 | 221 | 195 | 265 | 251 | 168 | 136 | 119 | 288 | (R) 949 | (R) 234 | 228 | (R) 223 | 201 |
| Accident-related | 168 | 47 | 16 | 18 | 40 | 98 | 62 | 111 | 18 | 864 | 16 | 13 | 15 | 16 | 12 | 15 | 16 | 96 | 700 | 13 | 45 | (R) 9 | 44 |
| Air injured persons | 5 | 8 | 4 | 39 | 31 | 23 | 50 | 57 | 33 | 33 | 24 | 20 | 12 | 5 | 13 | 4 | 1 | 11 | 78 | 2 | 8 | 7 | 10 |
| Accident-related | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Highway injured persons | 527 | 493 | 195 | 311 | 333 | 465 | 511 | 425 | 296 | 216 | 152 | 151 | 218 | 164 | 109 | 118 | 105 | 155 | (R) 178 | 192 | 161 | (R) 153 | 153 |
| Accident-related | 156 | 43 | 9 | 9 | 27 | 34 | 61 | 95 | 14 | 22 | 11 | 9 | 15 | 15 | 12 | 14 | 16 | 12 | 45 | 11 | 45 | (R) 9 | 34 |
| Rail injured persons[d,e] | 99 | 121 | 53 | 73 | 75 | 116 | 66 | 95 | 71 | 926 | 45 | 22 | 35 | 82 | 46 | 14 | 13 | 122 | 693 | (R) 25 | 56 | 63 | 38 |
| Accident-related | 12 | 4 | 7 | 9 | 13 | 64 | 1 | 16 | 4 | 842 | 5 | 4 | 0 | 1 | 0 | 1 | 0 | 84 | 655 | 2 | 0 | 0 | 10 |
| Water[b] injured persons | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15 | 3 | 0 | 0 |
| Accident-related | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other[c] injured persons | 15 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Accident-related | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total incidents | 10,951 | 15,719 | 6,019 | 8,879 | 9,110 | 9,393 | 12,838 | 16,105 | 14,853 | 14,077 | 14,065 | 15,495 | 17,616 | 17,557 | 17,792 | 15,114 | 15,156 | (R) 14,844 | 15,929 | (R) 20,339 | (R) 19,301 | (R) 16,934 | 14,819 |
| Accident-related | 440 | 486 | 364 | 297 | 303 | 283 | 266 | 296 | 303 | 338 | 320 | 332 | 398 | 394 | 413 | 362 | 342 | (R) 327 | (R) 382 | (R) 358 | (R) 381 | (R) 336 | 291 |
| Air incidents | 147 | 223 | 114 | 297 | 299 | 414 | 622 | 931 | 817 | 925 | 1,029 | 1,387 | 1,582 | 1,419 | 1,083 | 732 | 750 | 993 | 1,655 | 2,408 | (R) 1,556 | 1,278 | 1,358 |
| Accident-related | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 3 | 2 | 3 | 2 | 2 | 0 | 0 | 9 | 7 | 7 | 8 | 2 |
| Highway incidents | 10,063 | 14,161 | 4,752 | 7,296 | 7,644 | 7,843 | 11,095 | 14,011 | 12,869 | 12,034 | 11,929 | 13,108 | 14,953 | 15,063 | 15,804 | 13,502 | 13,594 | (R) 13,069 | 13,460 | (R) 17,160 | (R) 16,932 | (R) 14,808 | 12,728 |
| Accident-related | 330 | 347 | 302 | 249 | 249 | 245 | 217 | 244 | 253 | 294 | 267 | 277 | 331 | 329 | 357 | 319 | 300 | (R) 281 | (R) 322 | (R) 307 | (R) 321 | (R) 302 | 252 |
| Rail incidents | 694 | 1,271 | 842 | 1,279 | 1,155 | 1,128 | 1,113 | 1,157 | 1,155 | 1,112 | 1,102 | 989 | 1,073 | 1,058 | 899 | 870 | 802 | 765 | 745 | (R) 703 | (R) 752 | (R) 750 | 643 |
| Accident-related | 109 | 134 | 61 | 48 | 54 | 36 | 49 | 52 | 50 | 44 | 52 | 52 | 65 | 62 | 54 | 41 | 42 | 46 | 51 | 44 | (R) 53 | 26 | 37 |
| Water[b] incidents | 28 | 34 | 7 | 7 | 12 | 8 | 8 | 6 | 12 | 6 | 5 | 11 | 8 | 17 | 6 | 10 | 10 | 17 | 69 | 68 | 61 | 98 | 90 |
| Accident-related | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other[c] incidents | 19 | 30 | 304 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Accident-related | 1 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total property damage (current $ thousands)[f] | 8,091 | 10,828 | 22,994 | 32,354 | 38,350 | 36,229 | 22,816 | 44,196 | 30,900 | 46,849 | 33,533 | 46,312 | 65,369 | 78,132 | 69,442 | 58,177 | 53,597 | (R) 62,903 | (R) 55,946 | (R) 70,971 | (R) 74,646 | (R) 53,481 | 69,117 |
| Accident-related | 6,051 | 6,236 | 20,269 | 24,792 | 30,184 | 28,708 | 13,179 | 25,552 | 23,602 | 37,775 | 25,318 | 37,049 | 51,710 | 62,636 | 56,546 | 41,113 | 40,824 | (R) 44,517 | (R) 44,115 | (R) 56,689 | (R) 63,570 | (R) 42,285 | 57,960 |
| Air property damage | 8.9 | 12.3 | 12.3 | 142 | 77 | 99 | 88 | 178 | 100 | 87 | 336 | 267 | 286 | 272 | 309 | 109 | 100 | 188 | 198 | 671 | 88 | 191 | 716 |
| Accident-related | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 42 | 50 | 61 | 0 | 0 | 0 | 0 | 0 | 7 | 327 |
| Highway property damage | 5,584 | 7,324 | 12,690 | 20,190 | 29,650 | 24,130 | 19,866 | 25,253 | 22,141 | 29,257 | 24,741 | 28,669 | 34,359 | 51,030 | 47,737 | 48,076 | 49,109 | (R) 47,159 | (R) 40,179 | (R) 59,502 | (R) 47,237 | (R) 43,078 | 50,743 |
| Accident-related | 3,694 | 3,782 | 10,175 | 14,132 | 23,953 | 18,350 | 11,263 | 13,539 | 16,342 | 22,315 | 17,871 | 21,597 | 23,085 | 37,837 | 36,404 | 33,529 | 37,650 | (R) 34,322 | (R) 31,052 | (R) 47,467 | (R) 38,414 | (R) 34,661 | 42,507 |
| Rail property damage | 2,488 | 2,952 | 10,274 | 11,952 | 8,469 | 11,857 | 2,649 | 18,673 | 8,485 | 17,385 | 8,418 | 16,362 | 30,663 | 26,547 | 21,248 | 9,745 | 4,126 | 13,901 | 15,455 | 10,740 | 27,301 | 10,073 | 17,557 |
| Accident-related | 2,357 | 2,357 | 10,094 | 10,660 | 6,231 | 10,233 | 1,916 | 12,014 | 7,260 | 15,460 | 7,446 | 15,452 | 28,625 | 24,756 | 20,092 | 7,524 | 3,175 | 10,195 | 13,063 | 9,222 | 25,157 | 7,617 | 15,126 |
| Water[b] property damage | 6.1 | 505 | 3.2 | 70 | 154 | 143 | 213 | 92 | 174 | 120 | 38 | 1,015 | 61 | 283 | 147 | 248 | 261 | 1,655 | 114 | 59 | 19 | 138 | 101 |
| Accident-related | 0 | 81 | 0 | 0 | 0 | 125 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other[c] property damage | 3.5 | 35 | 14.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Accident-related | 0.3 | 15.6 | <0.1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

**KEY:** R = revised.

[a] The 1996 spike in *Air Fatalities* was due to the ignition of an undeclared cache of chemical oxygen generators in a flight over Florida that killed 110 people, according to the U.S. Department of Transportation Biennial Report on Hazardous Materials Transportation, 1996-1997.
[b] *Water* category includes only nonbulk marine. Bulk marine hazardous materials incidents are reported to the U.S. Coast Guard and are not includ
[c] *Other* category includes freight forwarders and modes not otherwise specifie
[d] The 1996 spike in *Rail Injured Persons* is due to a train derailment in Alberton, Montana, which caused 787 minor injuries from chlorine gas inhalation, according to the U.S. Department of Transportation Biennial Report on Hazardous Materials Transportation, 1996-1997. For more information, see http://www.phmsa.dot.gov/staticfiles/PHMSA/DownloadableFiles/Files/96_97biennial.rpt.pdf.
[e] The 2005 spike in *Rail Injured Persons* is due to a chlorine accident by a train operated by the Norfolk Southern Railway Co. in Graniteville, South Carolina, on January 6, 2005. 9 people died and 631 people were injured. For more information, see the PHMSA Incident Report Database at https://hazmatonline.phmsa.dot.gov/IncidentReportsSearch/.
[f] Property damage under $30,000 is reported to the nearest $100. Property damage $30,000 or greater is reported to the nearest $1,000; therefore the components may add to the totals. Different cost thresholds for reporting property damage exist by property type. See NTS table 2-8 for the various thresholds.

**NOTE**

Hazardous materials transportation incidents required to be reported are defined in the Code of Federal Regulations (CFR), 49 CFR 171.15, 171.16 (Form F 5800.1).
Hazardous materials deaths and injuries are caused by the hazardous material in commerce.

**SOURCES**

1975-85: U.S. Department of Transportation, Research and Special Programs Administration, Office of Hazardous Materials Safety, *Hazardous Materials Information System Database*, 1999.
1990-2009: Ibid., Pipeline and Hazardous Materials Safety Administration, Office of Hazardous Material Safety, available at http://www.phmsa.dot.gov/hazmat/library/data-stats/incidents as of Dec. 15, 2010.

Table 2-7: Transportation-Related Occupational Fatalities[a]

| | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001[h] | 2002 | 2003 | 2004 | 2005 | 2006 | (R) 2,007 | (P) 2,008 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| All occupational fatalities | 6,217 | 6,331 | 6,632 | 6,275 | 6,202 | 6,238 | 6,055 | 6,054 | 5,920 | 5,915 | 5,534 | 5,575 | 5,764 | 5,734 | 5,840 | 5,657 | 5,071 |
| Transportation-related fatalities, total[b] | 2,484 | 2,499 | 2,762 | 2,587 | 2,601 | 2,605 | 2,645 | 2,618 | 2,573 | 2,524 | 2,385 | 2,364 | 2,490 | 2,493 | 2,459 | 2,351 | 2,053 |
| Highway[c] | 1,158 | 1,242 | 1,343 | 1,346 | 1,346 | 1,393 | 1,442 | 1,496 | 1,365 | 1,409 | 1,373 | 1,353 | 1,398 | 1,437 | 1,356 | 1,414 | 1,149 |
| Nonhighway[d] | 436 | 392 | 409 | 387 | 374 | 377 | 388 | 352 | 399 | 326 | 323 | 347 | 338 | 340 | 345 | 296 | 283 |
| Aircraft | 353 | 282 | 426 | 283 | 324 | 261 | 224 | 228 | 280 | 247 | 194 | 211 | 231 | 149 | 217 | 174 | 189 |
| Pedestrian struck by vehicle[e] | 346 | 365 | 391 | 388 | 353 | 367 | 413 | 377 | 370 | 383 | 356 | 337 | 378 | 391 | 379 | 345 | 322 |
| Water vehicle[f] | 109 | 119 | 94 | 87 | 119 | 109 | 112 | 102 | 84 | 90 | 71 | 69 | 91 | 88 | 96 | 71 | 75 |
| Railway[g] | 66 | 86 | 81 | 82 | 74 | 93 | 60 | 56 | 71 | 62 | 64 | 43 | 50 | 83 | 65 | 49 | 34 |
| As a percent of all occupational fatalities | | | | | | | | | | | | | | | | | |
| Transportation-related fatalities, total[b] | 40.0 | 39.5 | 41.6 | 41.2 | 41.9 | 41.8 | 43.7 | 43.2 | 43.5 | 42.7 | 43.1 | 42.4 | 43.2 | 43.5 | 42.1 | 41.6 | 40.5 |
| Highway | 18.6 | 19.6 | 20.3 | 21.5 | 21.7 | 22.3 | 23.8 | 24.7 | 23.1 | 23.8 | 24.8 | 24.3 | 24.3 | 25.1 | 23.2 | 25.0 | 22.7 |
| Nonhighway | 7.0 | 6.2 | 6.2 | 6.2 | 6.0 | 6.0 | 6.4 | 5.8 | 6.7 | 5.5 | 5.8 | 6.2 | 5.9 | 5.9 | 5.9 | 5.2 | 5.6 |
| Aircraft | 5.7 | 4.5 | 6.4 | 4.5 | 5.2 | 4.2 | 3.7 | 3.8 | 4.7 | 4.2 | 3.5 | 3.8 | 4.0 | 2.6 | 3.7 | 3.1 | 3.7 |
| Pedestrian struck by vehicle | 5.6 | 5.8 | 5.9 | 6.2 | 5.7 | 5.9 | 6.8 | 6.2 | 6.3 | 6.5 | 6.4 | 6.0 | 6.6 | 6.8 | 6.5 | 6.1 | 6.3 |
| Water vehicle | 1.8 | 1.9 | 1.4 | 1.4 | 1.9 | 1.7 | 1.8 | 1.7 | 1.4 | 1.5 | 1.3 | 1.2 | 1.6 | 1.5 | 1.6 | 1.3 | 1.5 |
| Railway | 1.1 | 1.4 | 1.2 | 1.3 | 1.2 | 1.5 | 1.0 | 0.9 | 1.2 | 1.0 | 1.2 | 0.8 | 0.9 | 1.4 | 1.1 | 0.9 | 0.7 |

**KEY**: P = preliminary; R = revised.

[a] Based on the 1992 Bureau of Labor Statistics,*Occupational Injury and Illness Classification Manual.*

[b] Numbers may not add to totals because transportation categories may include subcategories not shown separately.

[c] Includes collisions between vehicles/mobile equipment moving in the same or opposite directions, such as in an intersection; between moving and standing vehicles/mobile equipment at the side of a roadway; or a vehicle striking a stationary object. Also includes noncollisions, e.g., jack-knifed or overturned vehicle/mobile equipment–no collision; ran off highway–no collision; struck by shifting load; sudden start or stop; not elsewhere classified.

[d] Refers to farms and industrial premises. Includes collisions between vehicles/mobile equipment; vehicles/mobile equipment striking a stationary object. Also includes noncollisions such as a fall from a moving vehicle/mobile equipment, fall from and struck by vehicle/mobile equipment, overturned vehicle/mobile equipment, and loss of control of vehicle/mobile equipment.

[e] Includes worker struck by vehicle/mobile equipment in roadway, on side of road, in a parking lot, or nonroad area.

[f] Includes collisions, explosions, fires, fall from or on ship/boat, and sinking/capsized water vehicles involved in transportation. Does not include fishing boats.

[g] Includes collisions between railway vehicles, railway vehicle and other vehicle, railway vehicle and other object, and derailment.

[h] Data do not include fatalities from the terrorist attacks of September 11 which totaled 2,886.

**NOTES**

Percentages may not add to totals due to rounding.

The above categories do not define the types of jobs people had, nor the industries in which they worked. The categories define the ways in which they died. I example, a representative traveling for business reasons who is killed in a rail accident would be listed under rail.

**SOURCE**

U.S. Department of Labor, Bureau of Labor Statistics,*Census of Fatal Occupational Injuries (CFOI)*, available at http://www.bls.gov/iif/home.htm#news as of Dec. 2009.

**Table 2-8: Reporting Thresholds for Property Damage by U.S. Department of Transportation Modal Administrations**

| Modal administration | Reporting threshold |
|---|---|
| Federal Aviation Administration | More than $25,000 damage to property other than the aircraft. |
| Federal Highway Administration | None; each state defines its own threshold and FHWA collects state reports. |
| Federal Railroad Administration | More than $7,700 in damages to railroad on-track equipment, signals, track, track structures, and roadbed for accidents other than at grade-crossings. No threshold for grade-crossing accidents. |
| National Highway Traffic Safety Administration | None; property-damage-only crashes are recorded through the General Estimates System, a nationally representative sample of police-reported crashes of all |
| Federal Transit Administration | More than $7,500. |
| Pipeline and Hazardous Materials Safety Administration | More than $50,000 for gas pipelines.<br>More than $50,000 for hazardous liquid pipelines. |
| U. S. Coast Guard | More than $25,000 for commercial vessels.<br>More than $2,000 or complete loss of vessel for recreational boats. |

**SOURCES**

**Federal Aviation Administration:** 49 CFR 830.5 (as of Nov. 23, 2007).

**Federal Highway Administration:** U.S. Department of Transportation, Federal Highway Administration, personal communication, Dec 2007.

**Federal Railroad Administration:** 49 CFR 225.19 (as of Nov.23, 2007).

**National Highway Traffic Safety Administration:** U.S. Department of Transportation, National Highway Traffic Safety Administration, *Traffic Safety Facts 2005* , DOT HS 809 775 (Washington, DC: 2005).

**Federal Transit Administration:** U.S. Department of Transportation, Federal Transit Administration, National Transit Database, *Safety and Security Reporting Manual* (Washington, DC: 2004), Internet site http://www.ntdprogram.com/ntdprogram/safety.htm as of dec. 6, 2007.

**Pipeline and Hazardous Materials Safety Administration:**

Gas pipeline: 49 CFR 191.3 (as of Nov. 23, 2007).

Hazardous liquid pipelines: 49 CFR 195.50 (as of Nov. 23, 2007).

**U.S. Coast Guard:**

Commercial shipping: 46 CFR 4.05-1 (as of Nov.23, 2007).

Recreational boating: 33 CFR 173.55 (as of Nov. 23, 2007).

# Section B
# Air

**Table 2-9: U.S. Air Carrier[a] Safety Data**

| | 1960 | 1965 | 1970 | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | (R) 2007 | 2008 | (P) 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total fatalities | 499 | 261 | 146 | 124 | 1 | 526 | 39 | 50 | 33 | 1 | 239 | 168 | 380 | 8 | 1 | 12 | 92 | 531 | 0 | 22 | 14 | 22 | 50 | 1 | 3 | 52 |
| Total seriously injured persons | N | N | 107 | 81 | 19 | 30 | 29 | 26 | 22 | 19 | 31 | 25 | 77 | 43 | 30 | 67 | 29 | 19 | 24 | 31 | 20 | 14 | 9 | 16 | 22 | 23 |
| Total accidents | 90 | 83 | 55 | 37 | 19 | 21 | 24 | 26 | 18 | 23 | 23 | 36 | 37 | 49 | 50 | 51 | 56 | 46 | 41 | 54 | 30 | 40 | 33 | 28 | 28 | 30 |
| Fatal accidents | 17 | 9 | 8 | 3 | 1 | 7 | 6 | 4 | 4 | 1 | 4 | 3 | 5 | 4 | 1 | 2 | 3 | 6 | 0 | 2 | 2 | 3 | 2 | 1 | 2 | 2 |
| Aircraft-miles (millions) | 1,130 | 1,536 | 2,685 | 2,478 | 2,924 | 3,631 | 4,948 | 4,825 | 5,039 | 5,249 | 5,478 | 5,654 | 5,873 | 6,697 | 6,737 | 7,101 | 7,524 | 7,294 | 7,193 | 7,280 | 7,930 | 8,166 | 8,139 | 8,136 | 8,068 | 7,557 |
| Rates per 100 million aircraft-miles | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Fatalities | 44.159 | 16.992 | 5.438 | 5.004 | 0.034 | 14.486 | 0.788 | 1.036 | 0.655 | 0.019 | 4.363 | 2.971 | 6.470 | 0.119 | 0.015 | 0.169 | 1.223 | 7.280 | 0.000 | 0.302 | 0.177 | 0.269 | 0.614 | 0.012 | 0.037 | 0.688 |
| Seriously injured persons | N | N | 3.985 | 3.269 | 0.650 | 0.826 | 0.586 | 0.539 | 0.437 | 0.362 | 0.566 | 0.442 | 1.311 | 0.642 | 0.445 | 0.943 | 0.385 | 0.260 | 0.334 | 0.426 | 0.252 | 0.171 | 0.111 | 0.197 | 0.273 | 0.304 |
| Total accidents | 7.965 | 5.404 | 2.048 | 1.493 | 0.650 | 0.578 | 0.485 | 0.539 | 0.357 | 0.438 | 0.420 | 0.637 | 0.630 | 0.732 | 0.742 | 0.718 | 0.744 | 0.631 | 0.570 | 0.742 | 0.378 | 0.490 | 0.405 | 0.344 | 0.347 | 0.397 |
| Total accidents, fatal | 1.504 | 0.586 | 0.298 | 0.121 | 0.034 | 0.193 | 0.121 | 0.083 | 0.079 | 0.019 | 0.073 | 0.053 | 0.085 | 0.060 | 0.015 | 0.028 | 0.040 | 0.082 | 0.000 | 0.027 | 0.025 | 0.037 | 0.025 | 0.012 | 0.025 | 0.026 |
| Aircraft departures (thousands) | N | N | N | N | 5,479 | 6,307 | 8,092 | 7,815 | 7,881 | 8,073 | 8,238 | 8,457 | 8,229 | 10,318 | 10,980 | 11,309 | 11,468 | 10,955 | 10,508 | 10,433 | 11,023 | 11,130 | 10,821 | 10,928 | 10,437 | 10,349 |
| Rates per 100,000 aircraft departures | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Fatalities | N | N | N | N | 0.018 | 8.340 | 0.482 | 0.640 | 0.419 | 0.012 | 2.901 | 1.986 | 4.618 | 0.078 | 0.009 | 0.106 | 0.802 | 4.847 | 0.000 | 0.211 | 0.127 | 0.198 | 0.462 | 0.009 | 0.029 | 0.502 |
| Seriously injured persons | N | N | N | N | 0.347 | 0.476 | 0.358 | 0.333 | 0.279 | 0.235 | 0.376 | 0.296 | 0.936 | 0.417 | 0.273 | 0.592 | 0.253 | 0.173 | 0.228 | 0.297 | 0.181 | 0.126 | 0.083 | 0.146 | 0.211 | 0.222 |
| Total accidents | N | N | N | N | 0.347 | 0.333 | 0.297 | 0.333 | 0.228 | 0.285 | 0.279 | 0.426 | 0.450 | 0.475 | 0.455 | 0.451 | 0.488 | 0.420 | 0.390 | 0.518 | 0.272 | 0.359 | 0.305 | 0.256 | 0.268 | 0.290 |
| Total accidents, fatal | N | N | N | N | 0.018 | 0.111 | 0.074 | 0.051 | 0.051 | 0.012 | 0.049 | 0.035 | 0.061 | 0.039 | 0.009 | 0.018 | 0.026 | 0.055 | 0.000 | 0.019 | 0.018 | 0.027 | 0.025 | 0.012 | 0.025 | 0.026 |
| Flight hours (thousands) | N | 4,691 | 6,470 | 5,607 | 7,067 | 8,710 | 12,150 | 11,781 | 12,360 | 12,706 | 13,124 | 13,505 | 13,746 | 15,838 | 16,817 | 17,555 | 18,299 | 17,814 | 17,290 | 17,468 | 18,883 | 19,390 | 19,263 | 19,637 | 19,098 | 18,001 |
| Rates per 100,000 flight hours | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Fatalities | N | 5.564 | 2.257 | 2.212 | 0.014 | 6.039 | 0.321 | 0.424 | 0.267 | 0.008 | 1.821 | 1.244 | 2.764 | 0.051 | 0.006 | 0.068 | 0.503 | 2.981 | 0.000 | 0.126 | 0.074 | 0.113 | 0.260 | 0.005 | 0.016 | 0.289 |
| Seriously injured persons | N | N | 1.654 | 1.445 | 0.269 | 0.344 | 0.239 | 0.221 | 0.178 | 0.150 | 0.236 | 0.185 | 0.560 | 0.271 | 0.178 | 0.382 | 0.158 | 0.107 | 0.139 | 0.177 | 0.106 | 0.072 | 0.047 | 0.081 | 0.115 | 0.128 |
| Total accidents | N | 1.769 | 0.850 | 0.660 | 0.269 | 0.241 | 0.198 | 0.221 | 0.146 | 0.181 | 0.175 | 0.267 | 0.269 | 0.309 | 0.297 | 0.291 | 0.306 | 0.258 | 0.237 | 0.309 | 0.159 | 0.206 | 0.171 | 0.143 | 0.147 | 0.167 |
| Total accidents, fatal | N | 0.192 | 0.124 | 0.054 | 0.014 | 0.080 | 0.049 | 0.034 | 0.032 | 0.007 | 0.030 | 0.022 | 0.036 | 0.025 | 0.006 | 0.011 | 0.016 | 0.034 | 0.000 | 0.011 | 0.011 | 0.015 | 0.010 | 0.005 | 0.010 | 0.011 |

**KEY:** N = data do not exist; P = preliminary; R = revised.

[a] Air carriers operating under 14 CFR 121, scheduled and nonscheduled service. Includes all scheduled and nonscheduled service accidents involving all-cargo carriers and commercial operators of large aircraft when those accidents occurred during 14 CFR 121 operations. Since Mar. 20, 1997, 14 CFR 121 includes aircraft with 10 or more seats formerly operated under 14 CFR 135. This change makes it difficult to compare pre-1997 data fo CFR 121 and 14 CFR 135 with more recent data.

**NOTES**

*Aircraft-miles*, *Aircraft departures*, and *Flight hours* are compiled by the U.S. Department of Transportation, Federal Aviation Administratio *Rates* are computed by dividing the number of *Fatalities*, *Seriously injured persons*, *Total accidents*, and *Fatal accidents* by the number of *Aircraft-miles*, *Aircraft departures*, or *Flight hours*. These figures are based on information provided by airlines to the U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, Office of Airline Information. 1991 data do not include the 12 persons killed aboard a SkyWest commuter aircraft when it and a U.S. Air aircraft collided. For 2001, fatalities resulting from the September 11 terrorist acts are excluded, other than the persons aboard the aircraft who were killed.

**SOURCES**

**Fatalities, accidents, miles, departures, and flight hours:**

1960: National Transportation Safety Board *Annual Review of Aircraft Accident Data: U.S. Air Carrier Operations, Calendar Year 1967* (Washington, DC: December 1968).
1965-70: Ibid., *Calendar Year 1975,* NTSB/ARC-77/1 (Washington, DC: January 1977).
1975 (all categories except miles): Ibid. *Calendar Year 1983, NTSB/ARC-87/01* (Washington, DC: February 1987), table 18.
1975 (miles): Ibid., *Calendar Year 1975,* NTSB/ARC-77/1 (Washington, DC: January 1977 ).
1980: Ibid., *Calendar Year 1981,* NTSB/ARC-85/01 (Washington, DC: February 1985), tables 2 and 16.
1985-2009: Ibid., *Aviation Accident Statistics*, available at http://www.ntsb.gov/aviation/Stats.htm as of Apr. 26, 2010.

**Serious injuries:**

1970-85: Ibid., *Annual Review of Aircraft Accident Data: U.S. Air Carrier Operations* (Washington, DC: Annual Issues).
1990-2009: Ibid., Analysis and Data Division, personal communication, April 2010.

## Table 2-10: U.S. Commuter Air Carrier[a] Safety Data

| | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | (P) 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total fatalities[b] | 37 | 37 | 6 | 77 | 21 | 24 | 25 | 9 | 14 | 46 | 0 | 12 | 5 | 13 | 0 | 2 | 0 | 0 | 2 | 0 | 0 | 0 |
| Total seriously injured persons | 14 | 14 | 11 | 31 | 7 | 2 | 6 | 17 | 2 | 1 | 2 | 2 | 7 | 4 | 0 | 1 | 0 | 0 | 1 | 0 | 2 | 1 |
| Total accidents[c] | 38 | 18 | 15 | 23 | 23 | 16 | 10 | 12 | 11 | 16 | 8 | 13 | 12 | 7 | 7 | 2 | 4 | 6 | 3 | 3 | 7 | 2 |
| Total accidents, fatal | 8 | 7 | 3 | 8 | 7 | 4 | 3 | 2 | 1 | 5 | 0 | 5 | 1 | 2 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| Aircraft-miles (millions) | 192 | 301 | 450 | 434 | 508 | 555 | 594 | 550 | 591 | 246 | 51 | 52 | 45 | 43 | 42 | 47 | 47 | 46 | 47 | 46 | (R) 46 | 46 |
| Rates per 100 million aircraft-miles | | | | | | | | | | | | | | | | | | | | | | |
| Fatalities | 19.27 | 12.30 | 1.33 | 17.75 | 4.13 | 4.33 | 4.21 | 1.64 | 2.37 | 18.70 | 0.00 | 22.90 | 11.13 | 30.16 | 0.00 | 4.22 | 0.00 | 0.00 | 4.30 | 0.00 | 0.00 | 0.00 |
| Seriously injured persons | 7.29 | 4.65 | 2.44 | 7.14 | 1.38 | 0.36 | 1.01 | 3.09 | 0.34 | 0.41 | 3.94 | 3.82 | 15.58 | 9.28 | 0.00 | 2.11 | 0.00 | 0.00 | 2.15 | 0.00 | (R) 4.31 | 2.16 |
| Total accidents[d] | 19.79 | 5.98 | 3.33 | 5.30 | 4.53 | 2.89 | 1.68 | 2.18 | 1.86 | 6.50 | 15.76 | 24.81 | 26.70 | 16.24 | 16.81 | 4.22 | 8.55 | 13.12 | 6.45 | 6.51 | (R) 15.08 | 4.32 |
| Total accidents[d], fatal | 4.17 | 2.33 | 0.67 | 1.84 | 1.38 | 0.72 | 0.50 | 0.36 | 0.17 | 2.03 | 0.00 | 9.54 | 2.23 | 4.64 | 0.00 | 2.11 | 0.00 | 0.00 | 2.15 | 0.00 | 0.00 | 0.00 |
| Aircraft departures (thousands) | 1,777 | 2,561 | 3,160 | 2,820 | 3,115 | 3,602 | 3,581 | 3,220 | 3,515 | 1,394 | 707 | 672 | 604 | 558 | 513 | 572 | 538 | 527 | 568 | 593 | (R) 576 | 566 |
| Rates per 100 thousand aircraft departures | | | | | | | | | | | | | | | | | | | | | | |
| Fatalities | 2.08 | 1.44 | 0.19 | 2.73 | 0.67 | 0.67 | 0.70 | 0.28 | 0.40 | 3.30 | 0.00 | 1.78 | 0.83 | 2.33 | 0.00 | 0.35 | 0.00 | 0.00 | 0.35 | 0.00 | 0.00 | 0.00 |
| Seriously injured persons | 0.79 | 0.55 | 0.35 | 1.10 | 0.22 | 0.06 | 0.17 | 0.53 | 0.06 | 0.07 | 0.28 | 0.30 | 1.16 | 0.72 | 0.00 | 0.17 | 0.00 | 0.00 | 0.18 | 0.00 | (R) 0.35 | 0.18 |
| Total accidents[d] | 2.14 | 0.70 | 0.47 | 0.82 | 0.74 | 0.44 | 0.28 | 0.37 | 0.31 | 1.15 | 1.13 | 1.93 | 1.99 | 1.25 | 1.36 | 0.35 | 0.74 | 1.14 | 0.53 | 0.51 | (R) 1.21 | 0.35 |
| Total accidents[d], fatal | 0.45 | 0.27 | 0.09 | 0.28 | 0.22 | 0.11 | 0.08 | 0.06 | 0.03 | 0.36 | 0.00 | 0.74 | 0.17 | 0.36 | 0.00 | 0.17 | 0.00 | 0.00 | 0.18 | 0.00 | 0.00 | 0.00 |
| Flight hours (thousands) | 1,176 | 1,737 | 2,342 | 2,292 | 2,335 | 2,638 | 2,784 | 2,628 | 2,757 | 983 | 354 | 343 | 370 | 300 | 274 | 319 | 302 | 300 | 301 | 292 | (R) 293 | 292 |
| Rates per 100 thousand flight hours | | | | | | | | | | | | | | | | | | | | | | |
| Fatalities | 3.15 | 2.13 | 0.26 | 3.36 | 0.90 | 0.91 | 0.90 | 0.34 | 0.51 | 4.68 | 0.00 | 3.50 | 1.35 | 4.33 | 0.00 | 0.63 | 0.00 | 0.00 | 0.66 | 0.00 | 0.00 | 0.00 |
| Seriously injured persons | 1.19 | 0.81 | 0.47 | 1.35 | 0.30 | 0.08 | 0.22 | 0.65 | 0.07 | 0.10 | 0.57 | 0.58 | 1.89 | 1.33 | 0.00 | 0.31 | 0.00 | 0.00 | 0.33 | 0.00 | (R) 0.68 | 0.34 |
| Total accidents[d] | 3.23 | 1.04 | 0.64 | 1.00 | 0.98 | 0.61 | 0.36 | 0.46 | 0.40 | 1.63 | 2.26 | 3.79 | 3.25 | 2.33 | 2.56 | 0.63 | 1.32 | 2.00 | 1.00 | 1.03 | (R) 2.39 | 0.68 |
| Total accidents[u], fatal | 0.68 | 0.40 | 0.13 | 0.35 | 0.30 | 0.15 | 0.11 | 0.08 | 0.04 | 0.51 | 0.00 | 1.46 | 0.27 | 0.67 | 0.00 | 0.31 | 0.00 | 0.00 | 0.33 | 0.00 | 0.00 | 0.00 |

**KEY:** P= preliminary; R = revised.

[a] Air carriers operating under 14 CFR 135, scheduled service. Includes accidents involving all-cargo air carriers when those accidents occurred during scheduled 14 CFR 135 operations. Before Mar. 20, 1997, 14 CFR 135 applied to aircraft with 30 or fewer seats. Since Mar. 20, 1997, 14 CFR 135 includes only aircraft with fewer than 10 seats. This change makes it difficult to compare pre-1997 data with more recent years' data.

[b] Total fatalities for 1991 on U.S. air carriers operating under 14 CFR 135, scheduled service do not include the 22 persons killed aboard a large-certificated aircraft when it collided with a commuter aircraft.

[c] An attempted suicide case in 1992 is included in accidents but excluded in accident rates in this table.

[d] Rates are based on all accidents, including some that involve operators not reporting mileage or other traffic data to the U.S. Department of Transportation.

**NOTES**

Miles, departures, and hours are compiled by the U.S. Department of Transportation, Federal Aviation Administration. Rates are computed by dividing the number of fatalities, serious injuries, total accidents, and fatal accidents by the number of miles, departures, or flight hours. These figures are based on information provided by airlines to the U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, Office of Airline Information.

**SOURCES**

**Fatalities, accidents, aircraft-miles, aircraft departures, and flight hours:**

1980: National Transportation Safety Board, *Annual Review of Aircraft Accident Data: U.S. Air Carrier Operations, Calendar Year 1980,* NTSB/ARC-83/01 (Washington, DC: January 1983), tables 26 and 40.

1985-2009: National Transportation Safety Board, *Aviation Accident Statistics*, table 8, available at http://www.ntsb.gov/aviation/stats.htm as of Apr. 22, 2010.

**Serious injuries:**

1980-85: Ibid., *Annual Review of Aircraft Accident Data: U.S. Air Carrier Operations* (Washington, DC: Annual Issues).

1990-2009: Ibid., Analysis and Data Division, personal communication, Apr. 28, 2010.

## Table 2-11: U.S. Air Carrier[a] Fatal Accidents by First Phase of Operation[b]

| | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total fatal accidents | 6 | 4 | 4 | 1 | 4 | 3 | 5 | 4 | 1 | 2 | 3 | 6 | 0 | 2 | 2 | 3 | 2 | 1 | 2 |
| Phase of operation | | | | | | | | | | | | | | | | | | | |
| Approach / descent / landing | 1 | 2 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 |
| Taxi/takeoff / climb | 3 | 1 | 2 | 0 | 1 | 0 | 3 | 2 | 0 | 0 | 2 | 2 | 0 | 1 | 0 | 1 | 1 | 0 | 0 |
| Cruise (in-flight)[c] | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Standing (static) | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | (R) 1 | 0 |
| Maneuvering | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other / not reported | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | (R) 0 | 2 |

**KEY:** R = revised.

[a] Carriers operating under 14 CFR 121. Before Mar. 20, 1997, 14 CFR 121 applied only to aircraft with more than 30 seats or a maximum payload capacity of more than 7,500 pounds. Since Mar. 20, 1997, 14 CFR 121 includes aircraft with 10 or more seats that formerly operated under 14 CFR 135. This change makes it difficult to compare pre-1997 data with more recent data.

[b] First phase of operation is the phase of flight in which the first occurrence leading to the accident happened.

[c] Cruise (in-flight) numbers for 2001 are unusually high because of the incidents occurring on September 11, 2001.

**NOTE**

2008 data are preliminary.

**SOURCE**

National Transportation Safety Board, personal communications, July 2, 2009.

## Table 2-12: U.S. Commuter Air Carrier[a] Fatal Accidents by First Phase of Operation

| | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL fatal accidents | 3 | 8 | 7 | 4 | 3 | 2 | 1 | 5 | 0 | 5 | 1 | 2 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| Phase of operation | | | | | | | | | | | | | | | | | | | |
| Approach / descent / landing | 0 | 3 | 5 | 1 | 2 | 0 | 1 | 2 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| Taxi/takeoff / climb | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Cruise (in-flight) | 2 | 2 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | (R) 1 | 0 | 0 |
| Standing (static) | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Maneuvering[b] | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other / not reported | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | (R) 0 | 0 | 0 |

**KEY:** R = revised.

[a] 14 CFR 135, scheduled operations. Before Mar. 20, 1997, 14 CFR applied to aircraft with 30 or fewer seats. Since Mar. 20, 1997, 14 CFR 135 includes only aircraft with fewer than 10 seats. This change makes it difficult to compare pre-1997 data with more recent years' data.

[b] Includes instructional flights performing turns and agricultural flights for spraying and buzzing (repeated passes over a particular location).

**NOTE**

First Phase of Operation is the part of the flight where the problem leading to the accident first occurs.

**SOURCE**

National Transportation Safety Board, personal communications, July 2, 2009.

**Table 2-13: U.S. On-Demand Air Taxi[a] Safety Data**

| | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | (R) 2008 | (P) 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total fatalities | 69 | 105 | 76 | 51 | 78 | 68 | 42 | 63 | 52 | 63 | 39 | 45 | 38 | 71 | 60 | 35 | 42 | 64 | 18 | 16 | 43 | 69 | 17 |
| Total seriously injured persons | U | 43 | 44 | 36 | 26 | 19 | 24 | 32 | 14 | 22 | 23 | 10 | 15 | 12 | 24 | 16 | 12 | 17 | 20 | 11 | 20 | 12 | 4 |
| Total accidents | 152 | 171 | 157 | 107 | 88 | 76 | 69 | 85 | 75 | 90 | 82 | 77 | 74 | 80 | 72 | 60 | 73 | 66 | 65 | 52 | 62 | 58 | 47 |
| Total accidents, fatal | 24 | 46 | 35 | 29 | 28 | 24 | 19 | 26 | 24 | 29 | 15 | 17 | 12 | 22 | 18 | 18 | 18 | 23 | 11 | 10 | 14 | 20 | 2 |
| Flight hours (thousands) | 2,526 | 3,618 | 2,570 | 2,249 | 2,241 | 2,844 | 2,324 | 2,465 | 2,486 | 3,220 | 3,098 | 3,802 | 3,204 | 3,930 | 2,997 | 2,911 | 2,927 | 3,238 | 3,815 | 3,742 | 4,033 | 3,205 | 2,875 |
| Rates per 100,000 flight hours[b] | | | | | | | | | | | | | | | | | | | | | | | |
| Fatalities | 2.73 | 2.90 | 2.96 | 2.27 | 3.48 | 2.39 | 1.81 | 2.56 | 2.09 | 1.96 | 1.26 | 1.18 | 1.19 | 1.81 | 2.00 | 1.20 | 1.43 | 1.98 | 0.47 | 0.43 | 1.07 | 2.15 | 0.59 |
| Seriously injured persons | U | 1.19 | 1.71 | 1.60 | 1.16 | 0.67 | 1.03 | 1.30 | 0.56 | 0.68 | 0.74 | 0.26 | 0.47 | 0.31 | 0.80 | 0.55 | 0.41 | 0.53 | 0.52 | 0.29 | 0.50 | 0.37 | 0.14 |
| Total accidents | 6.02 | 4.73 | 6.11 | 4.76 | 3.93 | 2.67 | 2.97 | 3.45 | 3.02 | 2.80 | 2.65 | 2.03 | 2.31 | 2.04 | 2.40 | 2.06 | 2.49 | 2.04 | 1.70 | 1.39 | 1.54 | 1.81 | 1.63 |
| Total accidents, fatal | 0.95 | 1.27 | 1.36 | 1.29 | 1.25 | 0.84 | 0.82 | 1.05 | 0.97 | 0.90 | 0.48 | 0.45 | 0.37 | 0.56 | 0.60 | 0.62 | 0.61 | 0.71 | 0.29 | 0.27 | 0.35 | 0.62 | 0.07 |

**KEY:** P = preliminary; R = revised; U = data are unavailable.

[a] Air carriers operating under 14 CFR 135, nonscheduled service. Accidents on foreign soil and in foreign waters are excluded.

[b] Rates are computed by dividing the number of fatalities, serious injuries, total accidents, and fatal accidents by the number of flight hours.

**NOTE**

Hours are estimated by the U.S. Department of Transportation, Federal Aviation Administration.

**SOURCES**

**Fatalities, accidents and flight hours:**

1975-80: National Transportation Safety Board, *Annual Review of Aircraft Accident Data*: *U.S. Air Carrier Operations, Calendar Year 1981,* NTSB/ARC-85/01 (Washington, DC: February 1985), table 61.

1985-2009: National Transportation Safety Board, *Aviation Accident Statistics*, table 9, available at http://www.ntsb.gov/aviation/Stats.htm as of July 6, 2010.

**Serious injuries:**

1980-85: Ibid., *Annual Review of Aircraft Accident Data: U.S. Air Carrier Operations* (Washington, DC: Annual Issues).

1990-2009: Ibid., Analysis and Data Division, personal communication, July 1, 2010.

**Table 2-14: U.S. General Aviation[a] Safety Data**

| | 1960[d] | 1965[d] | 1970[d] | 1975 | 1980 | 1985 | 1990 | 1991 | (R) 1992 | 1993 | 1994 | (R) 1995 | 1996 | 1997 | (R) 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | (R) 2006 | 2007 | (R) 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total fatalities | 787 | 1,029 | 1,310 | 1,252 | 1,239 | 956 | 770 | 800 | 866 | 744 | 730 | 734 | 636 | 631 | 624 | 621 | 596 | 562 | 581 | 633 | 559 | 563 | 706 | 496 | 494 | 474 |
| Total seriously injured persons | U | U | 715 | 769 | 681 | 501 | 409 | 431 | 408 | 385 | 415 | 396 | 366 | 350 | 327 | 322 | 309 | 321 | 297 | 323 | 265 | 271 | 265 | 255 | 258 | 278 |
| Total accidents[a,b] | 4,793 | 5,196 | 4,712 | 3,995 | 3,590 | 2,739 | 2,242 | 2,197 | 2,110 | 2,064 | 2,021 | 2,055 | 1,908 | (R) 1,840 | 1,902 | 1,905 | 1,837 | 1,727 | 1,715 | (R) 1,741 | 1,617 | 1,670 | 1,523 | (R) 1,652 | 1,566 | 1,474 |
| Total accidents[a,b], fatal | 429 | 538 | 641 | 633 | 618 | 498 | 444 | 439 | 450 | 401 | 404 | 412 | 361 | 350 | 364 | 340 | 345 | 325 | 345 | 352 | 314 | 321 | 308 | 288 | 275 | 272 |
| Flight hours (thousands) | 13,121 | 16,733 | 26,030 | 28,799 | 36,402 | 28,322 | 28,510 | 27,678 | 24,780 | 22,796 | 22,235 | 24,906 | 24,881 | 25,591 | 25,518 | 29,246 | 27,838 | 25,431 | 25,545 | 25,998 | 24,888 | 23,168 | 23,963 | 23,819 | 22,805 | 20,456 |
| Rates per 100,000 flight hours[c] | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Fatalities | 6.00 | 6.15 | 5.03 | 4.35 | 3.40 | 3.38 | 2.70 | 2.89 | 3.49 | 3.26 | 3.28 | 2.95 | 2.56 | 2.47 | 2.45 | 2.12 | 2.14 | 2.21 | 2.27 | 2.43 | 2.25 | 2.43 | 2.95 | 2.08 | 2.17 | 2.32 |
| Seriously injured persons | U | U | 2.75 | 2.67 | 1.87 | 1.77 | 1.43 | 1.56 | 1.65 | 1.69 | 1.87 | 1.59 | 1.47 | 1.37 | 1.28 | 1.10 | 1.11 | 1.27 | 1.16 | 1.24 | 1.06 | 1.17 | 1.11 | 1.07 | 1.13 | 1.36 |
| Total accidents[a,b] | 36.53 | 31.05 | 18.10 | 13.87 | 9.86 | 9.67 | 7.86 | 7.94 | 8.51 | 9.05 | 9.09 | 8.25 | 7.67 | (R) 7.19 | 7.45 | 6.51 | 6.60 | 6.79 | 6.71 | (R) 6.70 | 6.50 | 7.21 | 6.36 | (R) 6.94 | 6.87 | 7.21 |
| Total accidents, fatal[a,b] | 3.27 | 3.22 | 2.46 | 2.20 | 1.70 | 1.76 | 1.56 | 1.59 | 1.82 | 1.76 | 1.82 | 1.65 | 1.45 | 1.37 | 1.43 | 1.16 | 1.24 | 1.28 | 1.35 | 1.35 | 1.26 | 1.39 | 1.29 | 1.21 | 1.21 | 1.33 |

**KEY:** U = data are unavailable; R = revised.

[a] U.S. registered civil aircraft not operated under 14 CFR 121 or 14 CFR 135. Accidents on foreign soil and in foreign waters are excluded. Suicide, sabotage, and stolen/unauthorized cases included in accidents and fatalities but excluded from accident rates in this table are: 1985 (11 accidents, 6 fatal accidents); 1990 (4,1); 1991 (8,5); 1992 (2,1); 1993 (5,4); 1994 (3,2); 1995 (10,6); 1996 (4,0); 1997 (5,2); 1998 (6,4); 1999 (3,1); 2000 (7,7); 2001 (3,1); 2002 (7,6); 2003 (4,3); 2004 (3,0); 2005 (2,1); 2006 (2,1); 2007 (2,2); 2008 (2,0); 2009 (2,0).

[b] Since April 1995, the National Transportation Safety Board has been required by law to investigate all public-use accidents, increasing the number of NTSB reported general aviation accidents by approximately 1.75%.

[c] Rates are computed by dividing the number of fatalities, serious injuries, total accidents, and fatal accidents by the number of flight hours, except for the exclusions mentioned in footnote a.

[d] Data for 1960, 1965, and 1970 include air taxi.

**NOTES**

Flight hours are estimated by the U.S. Department of Transportation, Federal Aviation Administration.

2009 data are preliminary.

**SOURCES**

**Fatalities, accidents, flight hours and rates per 100,000 flight hours:**

1960-70: National Transportation Safety Board, *Annual Review of Aircraft Accident Data: U.S. General Aviation, Calendar Year 1970,* NTSB/ARG-74/1 (Washington, DC: April 1974), table 117.

1975-2009: National Transportation Safety Board, *Aviation Accident Statistics: U.S. General Aviation,* table 10, available at http://www.ntsb.gov/aviation/Stats.htm as of July 23, 2010.

**Serious injuries:**

1970-85: National Transportation Safety Board, *Annual Review of Aircraft Accident Data: General Aviation* (Washington, DC: Annual Issues).

1990-2009: Ibid., Analysis and Data Division, personal communication, July 1, 2010.

## Table 2-15: Number of Pilot-Reported Near Midair Collisions (NMAC) by Degree of Hazard

| | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total, all degrees of hazard | 568 | 758 | 454 | 348 | 311 | 254 | 275 | 238 | 194 | 238 | 211 | 257 | 239 | 211 | 180 | (R) 161 | (R) 144 | (R) 138 | (R) 106 | (R) 110 | 93 |
| Critical[a] | 118 | 180 | 74 | 52 | 46 | 35 | 47 | 32 | 26 | 31 | 22 | 28 | 30 | 37 | 26 | 15 | 16 | 14 | (R) 6 | (R) 14 | 10 |
| Potential[b] | 319 | 423 | 266 | 197 | 195 | 158 | 139 | 139 | 101 | 105 | 100 | 110 | 130 | 96 | 85 | 88 | 62 | (R) 78 | (R) 55 | (R) 53 | 43 |
| No hazard[c] | 122 | 133 | 114 | 99 | 70 | 61 | 71 | 63 | 55 | 70 | 53 | 55 | 49 | 51 | 42 | (R) 37 | 31 | 20 | (R) 17 | (R) 21 | 12 |
| Unclassified[d] | 9 | 22 | 0 | 0 | 0 | 0 | 18 | 4 | 12 | 32 | 36 | 64 | 30 | 27 | 27 | 21 | (R) 35 | (R) 26 | (R) 28 | (R) 22 | 28 |
| NMAC involving aircraft operating under 14 CFR 121[e] | U | U | 136 | 117 | 76 | 60 | 71 | 50 | 56 | 82 | 70 | 66 | 75 | 48 | 53 | (R) 55 | (R) 44 | (R) 42 | 24 | (R) 24 | 8 |

**KEY:** R = revised; U = data are not available.

[a] A situation where collision avoidance was due to chance, rather than an act on the part of the pilot. Less than 100 feet of aircraft separation would be considered critical.

[b] An incident that would probably have resulted in a collision if no action had been taken by either pilot. Less than 500 feet would usually be required in this case.

[c] When direction and altitude would have made a midair collision improbable regardless of evasive action taken.

[d] No determination could be made due to insufficient evidence or unusual circumstances, or because incident is still under investigation.

[e] Before Mar. 20, 1997, 14 CFR 121 applied only to aircraft with more than 30 seats or a maximum payload capacity of more than 7,500 pounds. Since Mar. 20, 1997, 14 CFR 121 includes aircraft with 10 or more seats that formerly operated under 14 CFR 125. This change makes it difficult to compare pre-1997 data with more recent years' data.

**NOTES**

NMACs are reported voluntarily to the FAA so these numbers may not be representative. Reporters consist of pilots of air carriers, general aviation and other aircraft involved in public-use operations. Incidents involving military aircraft may be included if they also involved a civilian aircraft.

**SOURCES**

**All data except NMAC involving 121 aircraft:**

1980-85: U.S. Department of Transportation, Federal Aviation Administration, *Aviation Safety Statistical Handbook Annual Report* (Washington, DC: Annual issues) and personal communication, Aug. 6, 2002.

1990-2008: Ibid., *Aviation Safety Information Analysis and Sharing (ASIAS) System*, *database query*, available at https://www.nasdac.faa.gov/ as of July 27, 2009.

**NMAC involving 121 aircraft:**

1980-85: U.S. Department of Transportation, Federal Aviation Administration, Air Traffic Resource Management, personal communication, Aug. 6, 2002.

1990-2008: Ibid., *Aviation Safety Information Analysis and Sharing (ASIAS) System, database query,* available at https://www.nasdac.faa.gov/ as of July 27, 2009.

## Table 2-16b: Prohibited Items Intercepted at Airport Screening Checkpoints[a]

| | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|
| Enplanements | (R) 551,960,680 | (R) 583,293,766 | (R) 629,769,620 | (R) 657,261,487 | (R) 658,362,620 | (R) 679,185,450 | (R) 651,721,539 | 617,977,733 |
| Total prohibited items | 3,775,345 | 6,114,612 | 7,089,599 | 15,887,596 | 13,711,759 | 6,516,022 | 972,810 | 129,461 |
| Firearms | 927 | 683 | 650 | 2,217 | 2,075 | 1,416 | 902 | 889 |
| Knives[b] | 1,036,697 | 1,961,849 | 2,058,652 | 1,822,752 | 1,607,125 | 1,056,687 | 626,182 | U |
| Box cutters[b] | 32,788 | 20,991 | 22,350 | 21,315 | 15,999 | 11,908 | 6,284 | U |
| Other cutting instruments[b] | 1,846,207 | 2,973,413 | 3,567,731 | 3,276,691 | 163,419 | 101,387 | 59,459 | U |
| Clubs[b] | 11,131 | 25,139 | 28,813 | 20,531 | 12,296 | 9,443 | 6,447 | U |
| Incendiaries | 79,341 | 494,123 | 693,649 | 398,830 | 113,700 | 89,623 | 116,200 | 127,176 |
| Other[b] | 768,254 | 638,414 | 717,754 | 10,345,260 | 11,797,145 | 5,245,558 | 157,336 | 1,396 |

**KEY:** R = revised; U = data are unavailable.

[a] All data for 2002, except enplanements, are for April through December.
[b] 2008 consists of data up to Aug. 8, 2008 with the exception of *Firearms* and *Incendiaries*. TSA has stopped the collection of data on all prohibited items except for *Firearms* and *Incendiaries* as of Aug. 8, 2008.

**NOTES:**
The large increase in 2005 and decrease in 2007 was primarily due to the prohibition of lighters on board from April 2005 to August 2007. Fluctuations in counts can be attributed to changes in definitions and regulations governing prohibited items, in addition to the proportion of passengers carrying prohibited items and the intensity of search.
*Other cutting instruments* include scissors, hatchets, swords, sabers, meat cleavers, ice axes, and picks. Effective Dec. 22, 2005, scissors less than 4 inches and tools less than 7 inches were no longer prohibited.
*Knives* include any length and type except round-bladed, butter, and plastic cutlery.
*Clubs* includes martial arts items, baseball bats, night sticks, hammers, pool cues, and billy clubs.
*Firearms* includes any weapon (including a starter gun) that is designed to or may readily be converted to expel a projectile by the action of an explosive, as well as spear guns, BB guns, flare pistols, compressed air guns, and stunning devices.
*Other* refers to tools, self-defense items, compressed gas cylinders, bleach, lighters, and certain sporting goods. Lighters (except for torch lighters and micro torches) were removed from the prohibited items list effective Aug. 4, 2007.

**SOURCES**
**All data, except enplanements:**
U.S. Department of Homeland Security, Transportation Security Administration, *Performance Measurement Information System* (PMIS) and personal communication, November 2010.
**Enplanements:**
U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, Office of Airline Information, *T-100 Domestic Market Data*, as of November 2010.

**Table 2-16b: Prohibited Items Intercepted at Airport Screening Checkpoints[a]**

| | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|
| Enplanements | (R) 551,960,680 | (R) 583,293,766 | (R) 629,769,620 | (R) 657,261,487 | (R) 658,362,620 | (R) 679,185,450 | (R) 651,721,539 | 617,977,733 |
| Total prohibited items | 3,775,345 | 6,114,612 | 7,089,599 | 15,887,596 | 13,711,759 | 6,516,022 | 972,810 | 129,461 |
| Firearms | 927 | 683 | 650 | 2,217 | 2,075 | 1,416 | 902 | 889 |
| Knives[b] | 1,036,697 | 1,961,849 | 2,058,652 | 1,822,752 | 1,607,125 | 1,056,687 | 626,182 | U |
| Box cutters[b] | 32,788 | 20,991 | 22,350 | 21,315 | 15,999 | 11,908 | 6,284 | U |
| Other cutting instruments[b] | 1,846,207 | 2,973,413 | 3,567,731 | 3,276,691 | 163,419 | 101,387 | 59,459 | U |
| Clubs[b] | 11,131 | 25,139 | 28,813 | 20,531 | 12,296 | 9,443 | 6,447 | U |
| Incendiaries | 79,341 | 494,123 | 693,649 | 398,830 | 113,700 | 89,623 | 116,200 | 127,176 |
| Other[b] | 768,254 | 638,414 | 717,754 | 10,345,260 | 11,797,145 | 5,245,558 | 157,336 | 1,396 |

**KEY:** R = revised; U = data are unavailable.

[a] All data for 2002, except enplanements, are for April through December.
[b] 2008 consists of data up to Aug. 8, 2008 with the exception of *Firearms* and *Incendiaries*. TSA has stopped the collection of data on all prohibited items except for *Firearms* and *Incendiaries* as of Aug. 8, 2008.

**NOTES:**
The large increase in 2005 and decrease in 2007 was primarily due to the prohibition of lighters on board from April 2005 to August 2007. Fluctuations in counts can be attributed to changes in definitions and regulations governing prohibited items, in addition to the proportion of passengers carrying prohibited items and the intensity of search.
*Other cutting instruments* include scissors, hatchets, swords, sabers, meat cleavers, ice axes, and picks. Effective Dec. 22, 2005, scissors less than 4 inches and tools less than 7 inches were no longer prohibited.
*Knives* include any length and type except round-bladed, butter, and plastic cutlery.
*Clubs* includes martial arts items, baseball bats, night sticks, hammers, pool cues, and billy clubs.
*Firearms* includes any weapon (including a starter gun) that is designed to or may readily be converted to expel a projectile by the action of an explosive, as well as spear guns, BB guns, flare pistols, compressed air guns, and stunning devices.
*Other* refers to tools, self-defense items, compressed gas cylinders, bleach, lighters, and certain sporting goods. Lighters (except for torch lighters and micro torches) were removed from the prohibited items list effective Aug. 4, 2007.

**SOURCES**
**All data, except enplanements:**
U.S. Department of Homeland Security, Transportation Security Administration, *Performance Measurement Information System* (PMIS) and personal communication, November 2010.
**Enplanements:**
U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, Office of Airline Information, *T-100 Domestic Market Data*, as of November 2010.

# Section C
# Highway

**Table 2-17: Motor Vehicle Safety Data**

| | 1960 | 1965 | 1970 | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fatalities | 36,399 | 47,089 | 52,627 | 44,525 | 51,091 | 43,825 | 44,599 | 41,508 | 39,250 | 40,150 | 40,716 | 41,817 | 42,065 | 42,013 | 41,501 | 41,717 | 41,945 | 42,196 | 43,005 | 42,884 | 42,836 | (R) 43,510 | 42,642 |
| Injured persons[E] | N | N | N | N | N | N | 3,230,666 | 3,096,870 | 3,069,603 | 3,149,164 | 3,265,928 | 3,465,279 | 3,483,319 | 3,347,614 | 3,192,035 | 3,236,238 | 3,188,750 | 3,032,672 | 2,926,000 | 2,889,000 | 2,788,000 | 2,699,000 | 2,575,000 |
| Crashes[E] | N | N | N | N | N | N | 6,471,202 | 6,117,359 | 6,000,310 | 6,105,915 | 6,495,988 | 6,699,415 | 6,769,583 | 6,624,149 | 6,334,573 | 6,279,036 | 6,393,624 | 6,322,896 | 6,316,000 | 6,328,000 | 6,181,000 | 6,159,000 | 5,973,000 |
| Vehicle-miles (millions) | 718,763 | 887,811 | 1,109,724 | 1,327,664 | 1,527,295 | 1,774,827 | 2,144,362 | 2,172,050 | 2,247,151 | 2,296,378 | 2,357,588 | 2,422,696 | 2,485,848 | 2,561,695 | 2,631,522 | 2,691,056 | 2,746,925 | 2,797,287 | 2,855,508 | 2,890,450 | 2,964,788 | (R) 2,989,430 | 3,014,116 |
| Rates per 100 million vehicle-miles | | | | | | | | | | | | | | | | | | | | | | | |
| Fatalities | 5.1 | 5.3 | 4.7 | 3.4 | 3.3 | 2.5 | 2.1 | 1.9 | 1.7 | 1.7 | 1.7 | 1.7 | 1.7 | 1.6 | 1.6 | 1.6 | 1.5 | 1.5 | 1.5 | 1.5 | 1.4 | (R) 1.5 | 1.4 |
| Injured persons[E] | N | N | N | N | N | N | 151 | 143 | 137 | 137 | 139 | 143 | 140 | 131 | 121 | 120 | 116 | 108 | 102 | 100 | 94 | (R) 90 | 85 |
| Crashes[E] | N | N | N | N | N | N | 302 | 282 | 267 | 266 | 276 | 277 | 272 | 259 | 241 | 233 | 233 | 226 | 221 | 219 | 208 | (R) 206 | 198 |

**KEY:** E = estimated; N = data do not exist; R = revised.

**SOURCES**

**Fatalities:**

1960-70: Estimated by U.S. Department of Transportation, National Highway Traffic Safety Administration from data supplied by U.S. Department of Health and Human Services, National Center for Health Statistics, and individual state accident reports (adjusted to 30-day deaths). Fatalities data prior to 1975 have been adjusted to reflect the Fatality Analysis Reporting System's definition of a fatal crash as one that involves a motor vehicle on a trafficway, which results in the death of a vehicle occupant or a nonmotorist within 30 days of the crash.

1975-2006: U.S. Department of Transportation, National Highway Traffic Safety Administration, National Center for Statistics and Analysis, *Traffic Safety Facts 2006,* DOT HS 809 919 (Washington, DC: December 2006), table 2.

**Injured persons:**

1990-2001: Ibid., *Traffic Safety Facts 2002,* DOT HS 809 620 (Washington, DC: January 2004), table 2.

2002-06: Ibid., *Traffic Safety Facts 2006,* DOT HS 809 919 (Washington, DC: December 2006), table 2.

**Crashes:**

1990-2006: Ibid., *Traffic Safety Facts 2006,* DOT HS 809 919 (Washington, DC: December 2006), table 1.

1960-65: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1995*, FHWA-PL-97-009 (Washington, DC: July 1997), table VM-201A.

**Vehicle-miles:**

1970-2006: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics 2006* (Washington, DC: 2006), table VM1, and similar tables in earlier editions.

**Fatality, injury, and crash rates:**

Calculated by U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics.

**Table 2-18: Motor Vehicle Fatalities, Vehicle-Miles, and Associated Rates by Highway Functional System**

| | 1980 | 1985 | 1990 | 1995 | 1996 | 1997 | 1998 | 1999 | (R) 2000 | (R) 2001 | (R) 2002 | (R) 2003 | (R) 2004 | (R) 2005 | (R) 2006 | 2007 | 2008 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fatalities | | | | | | | | | | | | | | | | | |
| Rural, total | 29,545 | 24,492 | 25,786 | 23,978 | 24,510 | 24,889 | 24,751 | 25,185 | 23,640 | 23,396 | 25,693 | 25,203 | 24,740 | 23,549 | 23,099 | 22,707 | 20,807 |
| Interstate | 2,263 | 2,141 | 2,707 | 2,675 | 2,905 | 3,033 | 3,105 | 3,244 | 3,199 | 3,105 | 3,297 | 3,241 | 3,246 | 3,216 | 2,870 | 2,658 | 2,416 |
| Other arterials[a] | 12,268 | 9,940 | 9,893 | 9,947 | 9,458 | 9,821 | 9,594 | 9,573 | 8,913 | 8,692 | 9,358 | 9,823 | 10,061 | 8,968 | 8,768 | 8,758 | 7,873 |
| Collector[b] | 10,004 | 8,209 | 8,852 | 7,401 | 7,481 | 7,578 | 7,593 | 7,595 | 7,147 | 7,305 | 7,974 | 7,726 | 7,353 | 7,154 | 7,242 | 7,027 | 6,491 |
| Local | 5,010 | 4,202 | 4,334 | 3,955 | 4,666 | 4,457 | 4,459 | 4,773 | 4,381 | 4,294 | 5,064 | 4,413 | 4,080 | 4,211 | 4,219 | 4,264 | 4,027 |
| Urban, total | 21,546 | 19,333 | 18,813 | 17,839 | 17,555 | 17,078 | 16,143 | 15,970 | 15,695 | 15,219 | 16,759 | 16,825 | 17,161 | 17,752 | 18,309 | 17,467 | 15,956 |
| Interstate | 2,184 | 2,025 | 2,252 | 2,154 | 2,323 | 2,281 | 2,283 | 2,353 | 2,388 | 2,371 | 2,452 | 2,374 | 2,516 | 2,658 | 2,619 | 2,608 | 2,259 |
| Other arterials[a] | 12,752 | 12,521 | 11,742 | 10,916 | 10,756 | 10,243 | 9,902 | 9,628 | 9,442 | 8,838 | 9,702 | 9,827 | 10,003 | 10,413 | 10,672 | 9,876 | 9,056 |
| Collector | 2,226 | 1,696 | 1,427 | 1,441 | 1,290 | 1,399 | 1,037 | 1,031 | 987 | 1,007 | 1,136 | 1,197 | 1,339 | 1,361 | 1,478 | 1,437 | 1,239 |
| Local | 4,384 | 3,091 | 3,392 | 3,328 | 3,186 | 3,155 | 2,921 | 2,958 | 2,878 | 3,003 | 3,469 | 3,427 | 3,303 | 3,320 | 3,540 | 3,546 | 3,402 |
| Vehicle-miles of travel (VMT) (millions) | | | | | | | | | | | | | | | | | |
| Rural, total | 672,030 | 730,728 | 868,878 | 933,289 | 960,194 | 999,277 | 1,032,528 | 1,062,623 | 1,083,152 | 1,109,363 | 1,127,394 | 1,084,443 | 1,068,426 | 1,032,426 | 1,037,146 | 1,035,303 | 990,418 |
| Interstate | 135,084 | 154,357 | 200,173 | 223,382 | 232,565 | 240,255 | 251,520 | 260,166 | 268,180 | 273,619 | 280,609 | 269,650 | 266,245 | 256,642 | 257,915 | 256,438 | 243,290 |
| Other arterials[a] | 262,774 | 282,803 | 330,866 | 368,595 | 378,847 | 392,057 | 403,484 | 413,320 | 420,599 | 427,482 | 433,930 | 417,299 | 409,413 | 396,455 | 394,582 | 393,465 | 374,273 |
| Collector[b] | 189,468 | 206,669 | 240,460 | 236,148 | 241,030 | 254,100 | 257,868 | 264,453 | 267,231 | 272,074 | 274,869 | 262,799 | 260,664 | 250,701 | 251,367 | 251,514 | 241,158 |
| Local | 84,704 | 86,899 | 97,379 | 105,164 | 107,752 | 112,865 | 119,656 | 124,684 | 127,142 | 136,188 | 137,986 | 134,695 | 132,104 | 128,628 | 133,282 | 133,886 | 131,697 |
| Urban, total | 855,265 | 1,044,098 | 1,275,484 | 1,489,534 | 1,523,886 | 1,552,956 | 1,595,620 | 1,627,618 | 1,663,773 | 1,686,247 | 1,728,114 | 1,805,778 | 1,896,362 | 1,957,004 | 1,977,225 | 1,994,519 | 1,983,091 |
| Interstate | 161,242 | 216,188 | 278,901 | 341,528 | 351,579 | 361,433 | 374,622 | 383,259 | 393,465 | 399,986 | 409,208 | 432,757 | 455,538 | 470,925 | 477,287 | 483,315 | 476,091 |
| Other arterials[a] | 484,189 | 578,270 | 699,233 | 815,170 | 834,623 | 846,627 | 862,996 | 878,153 | 900,392 | 913,936 | 937,935 | 974,933 | 1,021,705 | 1,051,088 | 1,060,266 | 1,068,130 | 1,062,226 |
| Collector | 83,043 | 89,578 | 106,297 | 126,929 | 129,310 | 130,146 | 131,905 | 131,603 | 135,372 | 137,921 | 141,964 | 154,453 | 162,218 | 170,265 | 173,216 | 174,661 | 175,389 |
| Local | 126,791 | 160,062 | 191,053 | 205,907 | 208,374 | 214,750 | 226,097 | 234,603 | 234,544 | 234,404 | 239,007 | 243,635 | 256,901 | 264,726 | 266,456 | 268,413 | 269,385 |
| Fatality rates per 100 million vehicle miles | | | | | | | | | | | | | | | | | |
| Rural, total | 4.40 | 3.35 | 2.97 | 2.57 | 2.55 | 2.49 | 2.40 | 2.37 | 2.18 | 2.11 | 2.28 | 2.32 | 2.32 | 2.28 | 2.23 | 2.19 | 2.10 |
| Interstate | 1.68 | 1.39 | 1.35 | 1.20 | 1.25 | 1.26 | 1.23 | 1.25 | 1.19 | 1.13 | 1.17 | 1.20 | 1.22 | 1.25 | 1.11 | 1.04 | 0.99 |
| Other arterials[a] | 4.67 | 3.51 | 2.99 | 2.70 | 2.50 | 2.50 | 2.38 | 2.32 | 2.12 | 2.03 | 2.16 | 2.35 | 2.46 | 2.26 | 2.22 | 2.23 | 2.10 |
| Collector[b] | 5.28 | 3.97 | 3.68 | 3.13 | 3.10 | 2.98 | 2.94 | 2.87 | 2.67 | 2.68 | 2.90 | 2.94 | 2.82 | 2.85 | 2.88 | 2.79 | 2.69 |
| Local | 5.91 | 4.84 | 4.45 | 3.76 | 4.33 | 3.95 | 3.73 | 3.83 | 3.45 | 3.15 | 3.67 | 3.28 | 3.09 | 3.27 | 3.17 | 3.18 | 3.06 |
| Urban, total | 2.52 | 1.85 | 1.47 | 1.20 | 1.15 | 1.10 | 1.01 | 0.98 | 0.94 | 0.90 | 0.97 | 0.93 | 0.90 | 0.91 | 0.93 | 0.88 | 0.80 |
| Interstate | 1.35 | 0.94 | 0.81 | 0.63 | 0.66 | 0.63 | 0.61 | 0.61 | 0.61 | 0.59 | 0.60 | 0.55 | 0.55 | 0.56 | 0.55 | 0.54 | 0.47 |
| Other arterials[a] | 2.63 | 2.17 | 1.68 | 1.34 | 1.29 | 1.21 | 1.15 | 1.10 | 1.05 | 0.97 | 1.03 | 1.01 | 0.98 | 0.99 | 1.01 | 0.92 | 0.85 |
| Collector | 2.68 | 1.89 | 1.34 | 1.14 | 1.00 | 1.07 | 0.79 | 0.78 | 0.73 | 0.73 | 0.80 | 0.77 | 0.83 | 0.80 | 0.85 | 0.82 | 0.71 |
| Local | 3.46 | 1.93 | 1.78 | 1.62 | 1.53 | 1.47 | 1.29 | 1.26 | 1.23 | 1.28 | 1.45 | 1.41 | 1.29 | 1.25 | 1.33 | 1.32 | 1.26 |

[a] *Urban Other arterials* is the sum of other freeways and expressways, other principal arterials, and minor arterials. *Rural Other arterials* is the sum of other principal arterials and minor arterials.

[b] *Rural Collector* is the sum of major and minor collectors.

**KEY:** R = revised.

**NOTES**

Includes the 50 states and the District of Columbia.

*Fatalities* data reflect original numbers received by the Federal Highway Administration (FHWA) from the National Highway Traffic Safety Administration (NHTSA). Thus, the *Fatalities* data in this table could be slightly different from the revised NHTSA numbers that appear in other tables in this volume.

**SOURCES**

**Fatalities:**

1980-95: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1995* (Washington, DC: July 1997), table FI-220, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of March 2009.

1996-97: Ibid., *Highway Statistics* (Washington, DC: Annual Issues), table FI-1, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of March 2009.

1998-2008: Ibid., *Highway Statistics* (Washington, DC: Annual Issues), table FI-20, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of April 2010.

**Vehicle miles:**

U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics* (Washington, DC: Annual Issues), table VM-202, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of April 2010.

**Fatality rates:**

Calculated by the U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics.

**Table 2-19: Occupant Fatalities by Vehicle Type and Nonoccupant Fatalities**

| | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total traffic fatalities | 44,525 | 51,091 | 43,825 | 44,599 | 41,508 | 39,250 | 40,150 | 40,716 | 41,817 | (f) 42,065 | 42,013 | 41,501 | 41,717 | 41,945 | 42,196 | 43,005 | 42,884 | 42,836 | (R) 43,510 | 42,642 |
| Occupant fatalities (by vehicle type) | 35,925 | 41,927 | 36,043 | 37,134 | 34,740 | 32,880 | 33,574 | 34,318 | 35,291 | 35,695 | 35,725 | 35,382 | 35,875 | 36,348 | 36,440 | 37,375 | 37,341 | (R) 37,203 | (R) 37,574 | 36,902 |
| Passenger car, total | 25,929 | 27,449 | 23,212 | 24,092 | 22,385 | 21,387 | 21,566 | 21,997 | 22,423 | 22,505 | 22,199 | 21,194 | 20,862 | 20,699 | 20,320 | 20,569 | 19,725 | (R) 19,091 | (R) 18,440 | 17,800 |
| Subcompact[a] | 3,834 | 7,299 | 7,993 | 8,309 | 7,694 | 7,028 | 6,968 | 7,060 | 6,791 | 6,618 | 6,838 | 6,012 | 5,504 | 5,291 | 4,886 | 4,674 | 4,073 | 3,681 | (R) 2,979 | 2,630 |
| Compact[b] | 614 | 927 | 2,635 | 5,310 | 5,338 | 5,354 | 5,707 | 6,322 | 6,899 | 7,288 | 7,992 | 7,589 | 7,432 | 7,525 | 7,211 | 7,348 | 7,013 | 6,807 | (R) 6,245 | 6,044 |
| Intermediate[c] | 1,869 | 3,878 | 4,391 | 4,849 | 4,681 | 4,418 | 4,483 | 4,407 | 4,666 | 4,670 | 3,308 | 3,273 | 3,556 | 4,115 | 4,426 | 4,709 | 4,857 | 4,900 | (R) 5,548 | 5,420 |
| Full[d] | 10,800 | 11,580 | 6,586 | 4,635 | 4,040 | 3,796 | 3,675 | 3,560 | 3,413 | 3,417 | 3,924 | 4,303 | 4,365 | 3,744 | 3,765 | 3,775 | 3,682 | 3,603 | (R) 3,276 | 3,277 |
| Unknown | 8,812 | 3,765 | 1,607 | 989 | 632 | 791 | 733 | 648 | 654 | 512 | 137 | 17 | 5 | 24 | 32 | 63 | 100 | 100 | (R) 392 | 429 |
| Truck[e], total | 5,817 | 8,748 | 7,666 | 9,306 | 9,052 | 8,683 | 9,116 | 9,574 | 10,216 | 10,553 | 10,972 | 11,447 | 12,024 | 12,280 | 12,431 | 12,963 | 13,272 | 13,440 | (R) 13,841 | 13,526 |
| Light | 4,856 | 7,486 | 6,689 | 8,601 | 8,391 | 8,098 | 8,511 | 8,904 | 9,568 | 9,932 | 10,249 | 10,705 | 11,265 | 11,526 | 11,723 | 12,274 | 12,546 | 12,674 | (R) 13,037 | 12,721 |
| Large | 961 | 1,262 | 977 | 705 | 661 | 585 | 605 | 670 | 648 | 621 | 723 | 742 | 759 | 754 | 708 | 689 | 726 | 766 | (R) 804 | 805 |
| Other vehicles, total | 4,179 | 5,730 | 5,165 | 3,736 | 3,303 | 2,810 | 2,892 | 2,747 | 2,652 | 2,637 | 2,554 | 2,741 | 2,989 | 3,369 | 3,689 | 3,843 | 4,344 | 4,672 | (R) 5,293 | 5,576 |
| Motorcycle | 3,189 | 5,144 | 4,564 | 3,244 | 2,806 | 2,395 | 2,449 | 2,320 | 2,227 | 2,161 | 2,116 | 2,294 | 2,483 | 2,897 | 3,197 | 3,270 | 3,714 | 4,028 | (R) 4,576 | 4,810 |
| Bus | 53 | 46 | 57 | 32 | 31 | 28 | 18 | 18 | 33 | 21 | 18 | 38 | 59 | 22 | 34 | 45 | 41 | 42 | 57 | |
| Other / unknown vehicle type | 937 | 540 | 544 | 460 | 466 | 387 | 425 | 409 | 392 | 455 | 420 | 409 | 447 | 450 | 458 | 528 | 589 | 602 | (R) 659 | 739 |
| Nonoccupant fatalities, total | 8,600 | 9,164 | 7,782 | 7,465 | 6,768 | 6,370 | 6,576 | 6,398 | 6,526 | 6,368 | 6,288 | 6,119 | 5,842 | 5,597 | 5,756 | 5,630 | 5,543 | 5,532 | (R) 5,864 | 5,740 |
| Pedestrian | 7,516 | 8,070 | 6,808 | 6,482 | 5,801 | 5,549 | 5,649 | 5,489 | 5,584 | 5,449 | 5,321 | 5,228 | 4,939 | 4,763 | 4,901 | 4,851 | 4,774 | 4,675 | (R) 4,892 | 4,784 |
| Pedalcyclist | 1,003 | 965 | 890 | 859 | 843 | 723 | 816 | 802 | 833 | 765 | 814 | 760 | 754 | 693 | 732 | 665 | 629 | 727 | (R) 786 | 773 |
| Other | 81 | 129 | 84 | 124 | 124 | 98 | 111 | 107 | 109 | 154 | 153 | 131 | 149 | 141 | 123 | 114 | 140 | 130 | (R) 186 | 183 |

**KEY:** R = revised; U = data are not available

[a] Includes minicompact cars (wheelbase under 95 inches) and subcompact cars (wheelbase between 95 and 99 inches).
[b] Includes cars with a wheelbase of between 100 and 104 inches.
[c] Includes cars with a wheelbase of between 105 and 109 inches.
[d] Includes cars with a wheelbase of 110 inches or greater.
[e] Large trucks - trucks over 10,000 pounds gross vehicle weight rating, including single-unit trucks and truck tractors. Light trucks - trucks of 10,000 pounds gross vehicle weight rating or less, including pickups, vans, truck-based station wagons, and utility vehicles.
[f] Includes two fatalities that could not be assigned to a category below.

**SOURCES**
1975-2006: U.S. Department of Transportation, National Highway Traffic Safety Administration, National Center for Statistics and Analysis*Traffic Safety Facts 2006*, DOT HS 809 919 (Washington, DC: 2006), table 4.

**Breakout of passenger car types:**
1975-96: Ibid., personal communications, Dec. 18, 2003, Nov. 17, 2004, and Mar. 15, 2005.

1997-2004: Ibid., *Traffic Safety Facts, Research Note: Passenger Vehicle Occupant Fatality Rates by Type and Size of Vehicle,* DOT HS 809 979 (Washington, DC: 2006), table 4, Internet site http://www-nrd.nhtsa.dot.gov/pdf/nrd-30/NCSA/RNotes/2006/809979.pdf as of Mar. 25, 2008.
2005 - 2006:Ibid, Traffic Safety Facts, A Compilation of Motor Vehicle Crash Data from the Fatality Analysis Reporting System and the General Estimates System DOT HS 810 631and DOT HS 810 818, Table 75, Internet site http://www-nrd.nhtsa.dot.gov/Pubs/TSF2005.PDF and http://www-nrd.nhtsa.dot.gov/Pubs/TSF2006.PDF as of April 21, 2008

**Table 2-20: Occupant and Nonmotorist Fatalities in Crashes by Number of Vehicles and Alcohol Involvement (AI)**

| | 1985 | | 1990 | | 1991 | | 1992 | | 1993 | | 1994 | | 1995 | | 1996 | | 1997 | | 1998 | | 1999 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Fatal | AI | Fatal | AI | Fatal | AI | Fatal | AI | Fatal | AI | Fatal | AI | Fatal | AI | Fatal | AI | Fatal | AI | Fatal | AI | Fatal | AI |
| TOTAL fatalities | 43,825 | 23,167 | 44,599 | 22,587 | 41,508 | 20,159 | 39,250 | 18,290 | 40,150 | 17,908 | 40,716 | 17,308 | 41,817 | 17,732 | 42,065 | 17,749 | 42,013 | 16,711 | 41,501 | 16,673 | 41,717 | 16,572 |
| AI as a percent of total fatalities | | 52.9 | | 50.6 | | 48.6 | | 46.6 | | 44.6 | | 42.5 | | 42.4 | | 42.2 | | 39.8 | | 40.2 | | 39.7 |
| Motorist fatalities, TOTAL | 36,043 | 19,271 | 37,134 | 18,953 | 34,740 | 16,917 | 32,880 | 15,301 | 33,574 | 14,857 | 34,318 | 14,437 | 35,291 | 14,796 | 35,695 | 14,830 | 35,725 | 14,051 | 35,382 | 13,896 | 35,875 | 13,958 |
| Single-vehicle crashes | 17,130 | 10,882 | 18,159 | 11,162 | 17,280 | 10,208 | 15,958 | 9,045 | 15,932 | 8,761 | 15,997 | 8,330 | 16,732 | 8,868 | 16,723 | 8,781 | 16,529 | 8,244 | 16,666 | 8,417 | 17,075 | 8,516 |
| Two-vehicle crashes | 16,467 | 7,296 | 16,262 | 6,676 | 15,025 | 5,821 | 14,449 | 5,341 | 15,161 | 5,205 | 15,664 | 5,219 | 15,744 | 5,017 | 15,935 | 5,084 | 16,218 | 4,904 | 15,742 | 4,638 | 15,726 | 4,562 |
| More than two-vehicle crashes | 2,446 | 1,093 | 2,713 | 1,115 | 2,435 | 888 | 2,473 | 916 | 2,481 | 891 | 2,657 | 888 | 2,815 | 911 | 3,037 | 965 | 2,978 | 904 | 2,974 | 841 | 3,074 | 880 |
| Nonmotorist fatalities, TOTAL | 7,782 | 3,897 | 7,465 | 3,636 | 6,768 | 3,241 | 6,370 | 2,989 | 6,576 | 3,051 | 6,398 | 2,871 | 6,526 | 2,936 | 6,368 | 2,919 | 6,288 | 2,660 | 6,119 | 2,777 | 5,842 | 2,613 |
| Pedestrians fatalities, total | 6,808 | 3,575 | 6,482 | 3,264 | 5,801 | 2,891 | 5,549 | 2,721 | 5,649 | 2,735 | 5,489 | 2,578 | 5,584 | 2,607 | 5,449 | 2,593 | 5,321 | 2,350 | 5,228 | 2,463 | 4,939 | 2,314 |
| Pedestrians, single-vehicle crashes | 6,342 | 3,278 | 5,990 | 2,966 | 5,302 | 2,588 | 5,099 | 2,454 | 5,180 | 2,464 | 5,027 | 2,308 | 5,110 | 2,364 | 5,024 | 2,358 | 4,876 | 2,112 | 4,801 | 2,228 | 4,516 | 2,074 |
| Pedestrians, multiple-vehicle crashes | 466 | 297 | 492 | 298 | 499 | 303 | 450 | 267 | 469 | 271 | 462 | 270 | 474 | 243 | 425 | 235 | 445 | 239 | 427 | 235 | 423 | 240 |
| Pedalcyclists fatalities, total | 890 | 284 | 859 | 315 | 843 | 305 | 723 | 228 | 816 | 279 | 802 | 262 | 833 | 290 | 765 | 265 | 814 | 252 | 760 | 268 | 754 | 270 |
| Pedalcyclists, single-vehicle crashes | 864 | 271 | 832 | 301 | 815 | 296 | 690 | 211 | 792 | 264 | 781 | 252 | 807 | 279 | 739 | 253 | 788 | 244 | 736 | 259 | 718 | 253 |
| Pedalcyclists, multiple-vehicle crashes | 26 | 13 | 27 | 14 | 28 | 9 | 33 | 17 | 24 | 15 | 21 | 10 | 26 | 11 | 26 | 12 | 26 | 8 | 24 | 9 | 36 | 17 |
| Others/unknown | 84 | 38 | 124 | 57 | 124 | 45 | 98 | 39 | 111 | 37 | 107 | 31 | 109 | 39 | 154 | 61 | 153 | 58 | 131 | 47 | 149 | 29 |

| | 2000 | | 2001 | | 2002 | | 2003 | | 2004 | | 2005 | | 2006 | | 2007 | | (R) 2008 | | 2009 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Fatal | AI | Fatal | AI | Fatal | AI | Fatal | AI | Fatal | AI | Fatal | AI | Fatal | AI | Fatal | AI | Fatal | AI | Fatal | AI |
| TOTAL fatalities | 41,945 | 17,380 | 42,196 | 17,400 | 43,005 | 17,524 | 42,643 | 17,013 | 42,636 | 16,694 | 43,443 | 16,885 | 42,708 | 17,738 | 41,259 | 17,158 | 37,423 | 15,449 | 33,808 | 14,188 |
| AI as a percent of total fatalities | | 41.4 | | 41.2 | | 40.7 | | 39.9 | | 39.2 | | 38.9 | | 41.5 | | 41.6 | | 41.3 | | 42.0 |
| Motorist fatalities, TOTAL | 36,348 | 14,834 | 36,440 | 14,708 | 37,375 | 14,954 | 37,132 | 14,476 | 37,142 | 14,196 | 37,594 | 14,370 | 36,956 | 14,959 | 35,701 | 14,487 | 32,103 | 12,962 | 28,936 | 11,890 |
| Single-vehicle crashes | 17,471 | 8,964 | 17,753 | 8,973 | 18,600 | 9,238 | 18,175 | 8,939 | 18,288 | 8,808 | 18,806 | 9,016 | 18,890 | 9,376 | 18,472 | 9,246 | 17,121 | 8,554 | 15,386 | 7,806 |
| Two-vehicle crashes | 15,758 | 4,854 | 15,618 | 4,739 | 15,628 | 4,744 | 15,795 | 4,606 | 15,737 | 4,492 | 15,649 | 4,449 | 15,070 | 4,622 | 14,349 | 4,313 | 12,648 | 3,684 | 11,458 | 3,443 |
| More than two-vehicle crashes | 3,119 | 1,016 | 3,069 | 996 | 3,147 | 972 | 3,162 | 931 | 3,117 | 896 | 3,139 | 905 | 2,996 | 961 | 2,880 | 929 | 2,334 | 723 | 2,092 | 641 |
| Nonmotorist fatalities, TOTAL | 5,597 | 2,546 | 5,756 | 2,693 | 5,630 | 2,571 | 5,511 | 2,535 | 5,494 | 2,498 | 5,849 | 2,515 | 5,752 | 2,779 | (R) 5,558 | (R) 2,670 | 5,320 | 2,488 | 4,872 | 2,298 |
| Pedestrians fatalities, total | 4,763 | 2,254 | 4,901 | 2,371 | 4,851 | 2,292 | 4,749 | 2,253 | 4,641 | 2,211 | 4,881 | 2,180 | 4,795 | 2,401 | 4,699 | 2,334 | 4,414 | 2,168 | 4,092 | 1,997 |
| Pedestrians, single-vehicle crashes | 4,340 | 2,015 | 4,480 | 2,123 | 4,445 | 2,069 | 4,292 | 2,014 | 4,207 | 1,976 | 4,443 | 1,946 | 4,332 | 2,138 | 4,305 | 2,110 | 4,006 | 1,930 | 3,736 | 1,806 |
| Pedestrians, multiple-vehicle crashes | 423 | 239 | 421 | 248 | 406 | 223 | 457 | 239 | 434 | 234 | 438 | 234 | 463 | 263 | 394 | 224 | 408 | 237 | 356 | 191 |
| Pedalcyclists fatalities, total | 693 | 246 | 732 | 283 | 665 | 243 | 622 | 238 | 725 | 248 | 784 | 281 | 772 | 311 | 701 | 281 | 718 | 265 | 630 | 252 |
| Pedalcyclists, single-vehicle crashes | 668 | 236 | 709 | 271 | 628 | 229 | 589 | 220 | 697 | 237 | 755 | 268 | 732 | 292 | 673 | 270 | 690 | 249 | 600 | 237 |
| Pedalcyclists, multiple-vehicle crashes | 25 | 10 | 23 | 12 | 37 | 14 | 33 | 19 | 28 | 11 | 29 | 14 | 40 | 19 | 28 | 11 | 28 | 16 | 30 | 16 |
| Others/unknown | 141 | 46 | 123 | 39 | 114 | 36 | 140 | 46 | 128 | 39 | 184 | 54 | 185 | 67 | 158 | 55 | 188 | 55 | 150 | 49 |

**KEY:** AI = Alcohol involvement; Fatal = fatalities; R = revised.

**NOTES**

Alcohol involvement pertains to any driver, pedestrian, or pedalcyclist involved in the accident. Alcohol results are determined from positive blood alcohol concentration tests and police-reported alcohol involvement and are adjusted by the U.S. Department of Transportation, National Highway Traffic Safety Administration.

In 2001, the National Highway Traffic Safety Administration (NHTSA) adopted a new method, i.e., multiple imputation, to estimate missing blood alcohol concentration (BAC) test result data. This new method is being used by NHTSA's National Center for Statistics and Analysis (NCSA) to improve the scope of alcohol involvement statistics by the Fatality Analysis Reporting System (FARS). As a result, alcohol involvement fatalities have undergone a complete revision.

The sum of individual categories may not add to totals because NCSA generates a separate estimate for each category of fatalities, including total fatalities. The estimates are rounded to the nearest whole number.

The total motorist and nonmotorist fatalities data in this table are not comparable to total motorist and nonmotorist fatality data in other NTS tables that cite the U.S. Department of Transportation, National Highway Traffic Safety Administration's *Traffic Safety Facts* publication as a source.

**SOURCES**

U.S. Department of Transportation, National Highway Traffic Safety Administration, National Center for Statistics and Analysis *Fatality Analysis Reporting System (FARS) Database* , personal communications, Sept. 6, 2006, Dec. 9, 2008, Oct. 20, 2009, and Nov. 22, 2010

**Table 2-21: Passenger Car Occupant Safety Data**

| | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | (R) 2007 | 2008 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fatalities | 25,929 | 27,449 | 23,212 | 24,092 | 22,385 | 21,387 | 21,566 | 21,997 | 22,423 | 22,505 | 22,199 | 21,194 | 20,862 | 20,699 | 20,320 | 20,569 | 19,725 | 19,192 | 18,512 | 17,925 | 16,614 | 14,587 |
| Injured persons | N | N | N | 2,376,439 | 2,234,594 | 2,231,703 | 2,264,809 | 2,363,595 | 2,469,358 | 2,458,080 | 2,340,612 | 2,201,375 | 2,137,503 | 2,051,609 | 1,926,625 | 1,804,788 | 1,756,495 | 1,642,549 | 1,573,000 | 1,475,000 | 1,379,000 | 1,304,000 |
| Vehicles involved in crashes | N | N | N | (R) 8,357,085 | (R) 7,730,291 | (R) 7,521,817 | (R) 7,450,233 | (R) 7,941,273 | (R) 8,279,940 | (R) 8,195,727 | (R) 7,882,059 | (R) 7,470,040 | (R) 6,935,027 | (R) 6,890,802 | (R) 6,705,586 | (R) 6,606,374 | (R) 6,511,562 | (R) 6,231,682 | (R) 6,087,169 | (R) 5,864,260 | 5,744,856 | (P) 5,575,376 |
| Vehicle-miles (millions) | 1,030,376 | 1,107,056 | 1,248,981 | 1,427,178 | 1,411,655 | 1,436,035 | 1,445,106 | 1,459,208 | 1,478,352 | 1,499,139 | 1,528,399 | 1,555,901 | 1,566,808 | 1,580,735 | 1,595,443 | 1,611,860 | 1,612,237 | 1,628,266 | 1,615,225 | 1,614,564 | 1,608,808 | 1,578,948 |
| Rates per 100 million vehicle-miles | | | | | | | | | | | | | | | | | | | | | | |
| Fatalities | 2.5 | 2.5 | 1.9 | 1.7 | 1.6 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.4 | 1.3 | 1.3 | 1.3 | 1.3 | 1.2 | 1.2 | 1.1 | 1.1 | 1.0 | 0.9 |
| Injured persons | N | N | N | 167 | 158 | 155 | 157 | 162 | 167 | 164 | 153 | 141 | 136 | 130 | 121 | 112 | 109 | 101 | 97 | 91 | 86 | 83 |
| Vehicles involved in crashes | N | N | N | (R) 586 | (R) 548 | (R) 524 | (R) 516 | (R) 544 | (R) 560 | (R) 547 | (R) 516 | (R) 480 | (R) 443 | (R) 436 | (R) 420 | (R) 410 | (R) 404 | (R) 383 | (R) 377 | (R) 363 | 357 | (P) 353 |

**KEY:** N = data do not exist; P = preliminary; R = revised.

**NOTES**

*Vehicle-miles* in this table and in table 2-23 are taken from NHTSA revised data and are not based exclusively on USDOT, Federal Highway Administration (FHWA) data. The change was made to reflect the different vehicle classification schemes used by FHWA and NHTSA. Thus, *Vehicle-miles* for passenger cars, and light and large trucks in this table and table 2-23 should not be compared with *Vehicle-miles* in chapter 1, which are taken directly from FHWA. *Rates per 100 million vehicle-miles* figures may differ from those in the source data due to rounding by the source. *Vehicles involved in crashes* figures in this table are not comparable to figures in previous editions due to a change in the source.

**SOURCES**

**All, except Vehicles involved in crashes** : U.S. Department of Transportation, National Highway Traffic Safety Administration, National Center for Statistics and Analysis *Traffic Safety Facts (Final Edition)* (Washington, DC: Annual Issues), tables 4 and 7 and similar tables in previous editions, available at http://www-nrd.nhtsa.dot.gov/cats/listpublications.aspx?Id=E&ShowBy=DocType as of July 23, 2010.

**Vehicles involved in crashes:** Ibid., *Fatality Analysis Reporting System (FARS) Database* , *National Automotive Sampling System General Estimates System (NASS GES) Database,* personal communication, July 23, 2010.

## Table 2-22: Motorcycle Rider Safety Data

| | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fatalities | 3,189 | 5,144 | 4,564 | 3,244 | 2,806 | 2,395 | 2,449 | 2,320 | 2,227 | 2,161 | 2,116 | 2,294 | 2,483 | 2,897 | 3,197 | 3,270 | 3,714 | 4,028 | 4,576 | 4,837 | 5,154 | 5,290 |
| Injured persons | N | N | N | 84,285 | 80,435 | 65,099 | 59,436 | 57,405 | 57,480 | 55,281 | 52,574 | 48,974 | 49,986 | 57,723 | 60,236 | 64,713 | 67,103 | 76,379 | 87,000 | 88,000 | 103,000 | 96,000 |
| Motorcycles involved in crashes | N | N | N | 103,114 | 105,030 | 72,177 | 74,565 | 68,752 | 66,354 | 66,224 | 61,451 | 54,477 | 57,322 | 68,783 | 73,342 | 76,004 | 79,131 | 85,538 | 103,000 | 104,000 | 123,000 | 114,000 |
| Vehicle-miles (millions) | 5,629 | 10,214 | 9,086 | 9,557 | 9,178 | 9,557 | 9,906 | 10,240 | 9,797 | 9,920 | 10,081 | 10,283 | 10,584 | 10,469 | 9,639 | 9,552 | 9,577 | 10,122 | 10,454 | 12,049 | 13,612 | U |
| Rates per 100 million vehicle-miles | | | | | | | | | | | | | | | | | | | | | | |
| Fatalities | 56.7 | 50.4 | 50.2 | 33.9 | 30.6 | 25.1 | 24.7 | 22.7 | 22.7 | 21.8 | 21.0 | 22.3 | 23.5 | 27.7 | 33.2 | 34.2 | 38.8 | 39.8 | 43.8 | 40.1 | 37.9 | U |
| Injured persons | N | N | N | 882 | 876 | 681 | 600 | 561 | 587 | 557 | 522 | 476 | 472 | 551 | 625 | 677 | 701 | 755 | 832 | 730 | 757 | U |
| Motorcycles involved in crashes | N | N | N | 1,079 | 1,144 | 755 | 753 | 671 | 677 | 668 | 610 | 530 | 542 | 657 | 761 | 796 | 826 | 845 | 985 | 863 | 904 | U |

**KEY:** N = data do not exist; U = data are unavailable.

**NOTES**

The injury and crash data in this table are from NHTSA's General Estimates System (GES). The data from the GES, which began operation in 1988, are obtained from a nationally representative probability sample selected from all police-reported crashes. The GES sample includes only crashes where a police accident report was completed and the crash resulted in property damage, injury, or death. The resulting figures do not take into account crashes that were not reported to the police or that did not result in property damage.

**SOURCES**

**Fatalities, injuries and vehicle-miles:**

1975-2007: U.S. Department of Transportation, National Highway Traffic Safety Administration, National Center for Statistics and Analysis,*Traffic Safety Facts*, *Final Edition*, (Washington, DC: Annual issues), table 10, available at http://www-nrd.nhtsa.dot.gov/ as of March 2009.

2008: U.S. Department of Transportation, National Highway Traffic Safety Administration, National Center for Statistics and Analysis,*Traffic Safety Facts*, *Early Edition*, (Washington, DC: Annual issues), table 10, available at http://www-nrd.nhtsa.dot.gov/ as of December 2, 2009.

**Motorcycles involved in crashes:**

1975-2004: U.S. Department of Transportation, National Highway Traffic Safety Administration, National Center for Statistics and Analysis,*Fatality Analysis Reporting System Database and General Estimates System Database*, personal communication, May 25, 2006.

2005-07: U.S. Department of Transportation, National Highway Traffic Safety Administration, National Center for Statistics and Analysis,*Traffic Safety Facts*, *Final Edition*, (Washington, DC: Annual issues), table 35, available at http://www-nrd.nhtsa.dot.gov/ as of March 2009.

2008: U.S. Department of Transportation, National Highway Traffic Safety Administration, National Center for Statistics and Analysis,*Traffic Safety Facts, Early Edition*, (Washington, DC: Annual issues), table 36, available at http://www-nrd.nhtsa.dot.gov/ as of December 2, 2009.

**Table 2-23: Truck Occupant Safety Data**

| | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | (R) 2007 | 2008 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fatalities, total | 5,817 | 8,748 | 7,666 | 9,306 | 9,052 | 8,683 | 9,116 | 9,574 | 10,216 | 10,553 | 10,972 | 11,447 | 12,024 | 12,280 | 12,431 | 12,963 | 13,272 | 13,440 | 13,841 | 13,566 | 13,263 | 11,441 |
| Light | 4,856 | 7,486 | 6,689 | 8,601 | 8,391 | 8,098 | 8,511 | 8,904 | 9,568 | 9,932 | 10,249 | 10,705 | 11,265 | 11,526 | 11,723 | 12,274 | 12,546 | 12,674 | 13,037 | 12,761 | 12,458 | 10,764 |
| Large | 961 | 1,262 | 977 | 705 | 661 | 585 | 605 | 670 | 648 | 621 | 723 | 742 | 759 | 754 | 708 | 689 | 726 | 766 | 804 | 805 | 805 | 677 |
| Injured persons, total | N | N | N | 546,966 | 590,632 | 578,435 | 632,976 | 661,619 | 752,840 | 794,238 | 785,733 | 791,273 | 879,757 | 917,398 | 889,951 | 905,580 | 915,941 | 927,458 | 899,000 | 880,000 | 864,000 | 791,000 |
| Light | N | N | N | 505,144 | 562,601 | 544,657 | 600,874 | 631,411 | 722,496 | 761,478 | 754,820 | 762,506 | 846,865 | 886,566 | 860,527 | 879,338 | 889,048 | 900,171 | 872,000 | 857,000 | 841,000 | 768,000 |
| Large | N | N | N | 41,822 | 28,031 | 33,778 | 32,102 | 30,208 | 30,344 | 32,760 | 30,913 | 28,767 | 32,892 | 30,832 | 29,424 | 26,242 | 26,893 | 27,287 | 27,000 | 23,000 | 23,000 | 23,000 |
| Trucks involved in crashes, total | N | N | N | 2,783,396 | 2,809,179 | 2,852,683 | 3,139,660 | 3,411,997 | 3,568,059 | 3,757,001 | 3,834,545 | 3,805,318 | 4,150,879 | 4,307,493 | 4,347,654 | 4,423,255 | 4,516,020 | 4,570,388 | 4,591,915 | 4,541,177 | 4,605,443 | 4,341,138 |
| Light | N | N | N | 2,398,620 | 2,478,832 | 2,476,648 | 2,742,332 | 2,951,353 | 3,190,587 | 3,363,246 | 3,396,628 | 3,393,363 | 3,675,959 | 3,850,498 | 3,917,831 | 3,988,668 | 4,059,299 | 4,154,486 | 4,150,964 | 4,156,411 | 4,191,810 | 3,962,072 |
| Large | N | N | N | 384,776 | 330,347 | 376,035 | 397,328 | 460,644 | 377,472 | 393,755 | 437,917 | 411,955 | 474,920 | 456,995 | 429,823 | 434,587 | 456,721 | 415,902 | 440,951 | 384,766 | 413,633 | 379,066 |
| Vehicle-miles (millions) | | | | | | | | | | | | | | | | | | | | | | |
| Light | 204,274 | 295,475 | 388,778 | 555,659 | 595,924 | 642,397 | 675,353 | 711,515 | 749,971 | 787,255 | 824,896 | 861,951 | 903,314 | 942,611 | 976,096 | 1,012,648 | 1,043,936 | 1,098,807 | 1,134,247 | 1,158,460 | 1,175,930 | 1,145,505 |
| Large | 81,330 | 108,491 | 123,504 | 146,242 | 149,543 | 153,384 | 159,888 | 170,216 | 178,156 | 182,971 | 191,477 | 196,380 | 202,688 | 205,520 | 209,032 | 214,603 | 217,917 | 220,792 | 222,523 | 222,513 | 227,060 | 227,458 |
| Rates per 100 million vehicle-miles | | | | | | | | | | | | | | | | | | | | | | |
| Fatalities | | | | | | | | | | | | | | | | | | | | | | |
| Light | 2.4 | 2.5 | 1.7 | 1.5 | 1.4 | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 | 0.9 |
| Large | 1.2 | 1.2 | 0.8 | 0.5 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.3 | 0.4 | 0.4 | 0.4 | 0.4 | 0.3 | 0.3 | 0.3 | 0.3 | 0.4 | 0.4 | 0.4 | 0.3 |
| Injured persons | | | | | | | | | | | | | | | | | | | | | | |
| Light | N | N | N | 90.9 | 94.4 | 84.8 | 89.0 | 88.7 | 96.3 | 96.7 | 91.5 | 88.5 | 93.8 | 94.1 | 88.2 | 86.8 | 85.2 | 81.9 | 76.9 | 74.0 | 71.5 | 67.0 |
| Large | N | N | N | 28.6 | 18.7 | 22.0 | 20.1 | 17.7 | 17.0 | 17.9 | 16.1 | 14.6 | 16.2 | 15.0 | 14.1 | 12.2 | 12.3 | 12.4 | 12.1 | 10.3 | 10.1 | 10.1 |
| Trucks involved in crashes | | | | | | | | | | | | | | | | | | | | | | |
| Light | N | N | N | 432 | 416 | 386 | 406 | 415 | 425 | 427 | 412 | 394 | 407 | 408 | 401 | 394 | 389 | 378 | 366 | 359 | 356 | 346 |
| Large | N | N | N | 263 | 221 | 245 | 249 | 271 | 212 | 215 | 229 | 210 | 234 | 222 | 206 | 203 | 210 | 188 | 198 | 173 | 182 | 167 |

**KEY:** N = data do not exist; R = revised.

**NOTES**

*Large* trucks - trucks over 10,000 pounds gross vehicle weight rating, including single-unit trucks and truck tractors.*Light* trucks - trucks of 10,000 pounds gross vehicle weight rating or less, including pickups, vans, truck-based station wagons, and utility vehicles. The injury and crash data in this table are from the U.S. Department of Transportation (USDOT), National Highway Traffic Safety Administration's (NHTSA) General Estimates System (GES). The data from GES, which began operation in 1988, are obtained from a nationally representative probability sample selected from all police-reported crashes. The GES sample includes only crashes where a police accident report was completed and the crash resulted in property damage, injury, or death. The resulting figures do not take into account crashes that were not reported to the police or that did not result in property damage.

*Vehicle-miles* in this table and in table 2-19 are taken from NHTSA revised data and are not based exclusively on USDOT, Federal Highway Administration (FHWA) data, as they have been in earlier reports. The change was made to reflect the different vehicle classification schemes used by FHWA and NHTSA. Thus,*Vehicle-miles* for passenger cars and *Light* and *Large* trucks in table 2-19 and this table should not be compared with *Vehicle-miles* in Chapter 1, which are taken directly from FHWA.

*Rates per 100 million vehicle-miles* figures may not match those in the source data due to rounding by the source. The category*Trucks involved in crashes, total* , is not comparable to the category*Crashes* , that appeared in this table in 2008 and previous editions.

**SOURCES**

**Fatalities, injuries, and vehicle-miles:**

1975-2008: U.S. Department of Transportation, National Highway Traffic Safety Administration, National Center for Statistics and Analysis,*Traffic Safety Facts 2008 (Final Edition)* (Washington, DC: Annual Issues), tables 8 and 9, available at http://www-nrd.nhtsa.dot.gov/ as of April 2010.

**Trucks involved in crashes:**

1975-2008: Ibid., National Center for Statistics and Analysis,*Fatality Analysis Reporting System (FARS) Database* and *General Estimates System (NASS GES) Database* , personal communications, May 25, 2006 and July 23, 2010.

**Table 2-24: Bus Occupant Safety Data[a]**

| | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | (R) 2007 | 2008 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fatalities | 53 | 46 | 57 | 32 | 31 | 28 | 18 | 18 | 33 | 21 | 18 | 38 | 59 | 22 | 34 | 45 | 41 | 42 | 58 | 27 | 36 | 67 |
| Injured persons | N | N | N | 32,691 | 20,959 | 20,144 | 17,056 | 15,767 | 19,214 | 20,291 | 16,887 | 15,559 | 21,958 | 17,769 | 15,427 | 18,819 | 18,174 | 16,410 | 11,000 | 10,000 | 12,000 | 15,000 |
| Vehicles involved in crashes | N | N | N | (R) 61,289 | (R) 56,274 | (R) 49,285 | (R) 52,263 | (R) 56,258 | (R) 58,271 | (R) 57,326 | (R) 54,297 | (R) 53,289 | (R) 62,319 | (R) 56,325 | (R) 54,292 | (R) 58,274 | (R) 58,291 | (R) 52,279 | (R) 51,280 | (R) 52,305 | 57,281 | (P) 60,247 |
| Vehicle-miles (millions) | 6,055 | 6,059 | 4,478 | 5,726 | 5,750 | 5,778 | 6,125 | 6,409 | 6,420 | 6,563 | 6,842 | 7,007 | 7,662 | 7,590 | 7,077 | 6,845 | 6,783 | 6,801 | 6,980 | 6,783 | 6,980 | 7,114 |
| Rates per 100 million vehicle-miles | | | | | | | | | | | | | | | | | | | | | | |
| Fatalities | 0.9 | 0.8 | 1.3 | 0.6 | 0.5 | 0.5 | 0.3 | 0.3 | 0.5 | 0.3 | 0.3 | 0.5 | 0.8 | 0.3 | 0.5 | 0.7 | 0.6 | 0.6 | 0.8 | 0.4 | 0.5 | 0.9 |
| Injured persons | N | N | N | 571 | 365 | 349 | 278 | 246 | 299 | 309 | 247 | 222 | 287 | 234 | 218 | 275 | 268 | 241 | 158 | 147 | 172 | 211 |
| Vehicles involved in crashes | N | N | N | (R) 1,070 | (R) 979 | (R) 853 | (R) 853 | (R) 878 | (R) 908 | (R) 873 | (R) 794 | (R) 761 | (R) 813 | (R) 742 | (R) 767 | (R) 851 | (R) 859 | (R) 769 | (R) 735 | (R) 771 | 821 | (P) 847 |

**KEY:** N = data do not exist; P = preliminary; R = revised.

[a] Bus includes school, transit, and intercity buses.

**NOTES**

The injury and crash data in this table are from the U.S. Department of Transportation (USDOT), National Highway Traffic Safety Administration's (NHTSA) General Estimates System (GES). The data from GES, which began operation in 1988, are obtained from a nationally representative probability sample selected from all police-reported crashes. The GES sample includes only crashes where a police accident report was completed and the crash resulted in property damage, injury, or death. The resulting figures do not take into account crashes that were not reported to the police or that did not result in property damage.

*Rates per 100 million vehicle-miles* figures may differ from those in the source data due to rounding by the source.

**SOURCES**

**Fatalities, and injuries:**

1975-2008: U.S. Department of Transportation, National Highway Traffic Safety Administration, National Center for Statistics and Analysis, *Traffic Safety Facts 2008 (Final Edition)* (Washington, DC: Annual Issues), table 4, available at http://www-nrd.nhtsa.dot.gov/Cats/listpublications.aspx?Id=E&ShowBy=DocType as of April 2010.

**Vehicle-miles:**

1975-94: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1995* (Washington, DC: July 1997), table VM-201A, available at http://www.fhwa.dot.gov/policy/ohpi/hss/index.cfm as of March 2009.

1995-2008: Ibid., *Highway Statistics* (Washington, DC: Annual Issues), table VM-1, available at http://www.fhwa.dot.gov/policy/ohpi/hss/index.cfm as of April 2010.

**Vehicles involved in crashes:**

U.S. Department of Transportation, National Highway Traffic Safety Administration, National Center for Statistics and Analysis, *Fatality Analysis Reporting System (FARS) Database*, *National Automotive Sampling System General Estimates System (NASS GES) Database*, personal communications, May 25, 2006, and July 23, 2010.

**Table 2-25: State Laws on Distracted Driving- Ban on Hand-Held Devices and Texting While Driving: 2010**

| State | AL | AK | AZ | AR | CA | CO | CT | DE | DC | FL | GA | HI | ID | IL | IN | IA | KS | KY | LA | ME | MD | MA | MI | MN | MS | MO | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ban on hand-held devices | | | | | Y | | Y | Y | Y | | | | | | | | | | | | Y | | | | | | |
| Ban on texting | | Y | | Y | Y | Y | Y | Y | Y | | Y | | | Y | | Y | Y | Y | Y | | Y | Y | Y | Y | | | |

| State | MT | NE | NV | NH | NJ | NM | NY | NC | ND | OH | OK | OR | PA | RI | SC | SD | TN | TX | UT | VT | VA | WA | WV | WI | WY | PR | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ban on hand-held devices | | | | | Y | | Y | | | | | Y | | | | | | | Y | | | Y | | | | | 10 |
| Ban on texting | | Y | | Y | Y | | Y | Y | | | | Y | | Y | | | Y | | Y | Y | Y | Y | | Y | Y | | 31 |

**NOTES:** While nine states have universal bans on hand-held devices and texting, many other states have partial bans on either or both that restrict use for novice drivers or bus drivers. In Iowa and Virginia, secondary enforcement is applied to texting while driving. In Maryland, secondary enforcement is applied to using hand-held devices while driving. Delaware's bans, while passed in 2010, are in effect as of Jan. 2, 2011.

**SOURCE:** U.S. Department of Transportation, National Highway Traffic Safety Administration, *State Laws on Distracted Driving* , available at http://www.distraction.gov/state-laws/ as of Mar. 18, 2011.

**Table 2-26: Fatalities by Highest Blood Alcohol Concentration (BAC) in Highway Crashes**

| | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | (R) 2008 | (P) 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total fatalities | 43,825 | 44,599 | 41,508 | 39,250 | 40,150 | 40,716 | 41,817 | 42,065 | 42,013 | 41,501 | 41,717 | 41,945 | 42,196 | 43,005 | 42,884 | 42,836 | 43,510 | 42,708 | 41,259 | 37,423 | 33,808 |
| Fatalities in alcohol-related crashes (BAC = .01+) | 21,098 | 20,607 | 18,307 | 16,401 | 16,039 | 15,626 | 15,893 | 15,866 | 14,973 | 14,899 | 14,790 | 15,746 | 15,731 | 15,793 | 15,423 | 15,311 | 15,985 | 15,970 | 15,534 | 13,826 | 12,744 |
| Percent | 48.1 | 46.2 | 44.1 | 41.8 | 39.9 | 38.4 | 38.0 | 37.7 | 35.6 | 35.9 | 35.5 | 37.5 | 37.3 | 36.7 | 36.0 | 35.7 | 36.7 | 37.4 | 37.6 | 36.9 | 37.7 |
| BAC = 0.00 | | | | | | | | | | | | | | | | | | | | | |
| Number | 22,589 | 23,823 | 23,025 | 22,726 | 23,979 | 24,948 | 25,768 | 26,052 | 26,902 | 26,477 | 26,798 | 26,082 | 26,334 | 27,080 | 27,328 | 27,413 | 27,423 | 26,633 | 25,611 | 23,499 | 20,961 |
| Percent | 51.5 | 53.4 | 55.5 | 57.9 | 59.7 | 61.3 | 61.6 | 61.9 | 64.0 | 63.8 | 64.2 | 62.2 | 62.4 | 63.0 | 63.7 | 64.0 | 63.0 | 62.4 | 62.1 | 62.8 | 62.0 |
| BAC = 0.01 - 0.07 | | | | | | | | | | | | | | | | | | | | | |
| Number | 2,974 | 2,901 | 2,480 | 2,352 | 2,300 | 2,236 | 2,416 | 2,415 | 2,216 | 2,353 | 2,235 | 2,422 | 2,441 | 2,321 | 2,327 | 2,212 | 2,404 | 2,479 | 2,494 | 2,115 | 1,905 |
| Percent | 6.8 | 6.5 | 6.0 | 6.0 | 5.7 | 5.5 | 5.8 | 5.7 | 5.3 | 5.7 | 5.4 | 5.8 | 5.8 | 5.4 | 5.4 | 5.2 | 5.5 | 5.8 | 6.0 | 5.7 | 5.6 |
| BAC = 0.08+ | | | | | | | | | | | | | | | | | | | | | |
| Number | 18,125 | 17,705 | 15,827 | 14,049 | 13,739 | 13,390 | 13,478 | 13,451 | 12,757 | 12,546 | 12,555 | 13,324 | 13,290 | 13,472 | 13,096 | 13,099 | 13,582 | 13,491 | 13,041 | 11,711 | 10,839 |
| Percent | 41.4 | 39.7 | 38.1 | 35.8 | 34.2 | 32.9 | 32.2 | 32.0 | 30.4 | 30.2 | 30.1 | 31.8 | 31.5 | 31.3 | 30.5 | 30.6 | 31.2 | 31.6 | 31.6 | 31.3 | 32.1 |

**KEY:** BAC = blood alcohol concentration; P = preliminary; R = revised.

**NOTES**

*BAC* values have been assigned by U.S. Department of Transportation, National Highway Traffic Safety Administration (NHTSA) when alcohol test results are unknown. Alcohol-related crashes pertain to the BAC of the driver and nonoccupants struck by motor vehicles. For some years, numbers for *Fatalities in alcohol-related crashes (BAC = .01+)* may not add to totals due to rounding.

In 2001, the NHTSA adopted a new method to estimate missing blood alcohol concentration (*BAC*) test result data. This new method, multiple imputation, is being used by NHTSA's National Center for Statistics and Analysis (NCSA) to improve the scope of alcohol involvement statistics by the Fatality Analysis Reporting System. As a result of the methodology change, BAC 0.08 breakouts, which coincide with many state laws, can now be determined. Thus, NHTSA's general reporting categories have been modified to reflect this and are now *BAC 0.00*, *BAC 0.01-0.07*, and *BAC 0.08+*.

**SOURCE**

U.S. Department of Transportation, National Highway Traffic Safety Administration, National Center for Statistics and Analysis, *Traffic Safety Facts 2009: Early Edition* (Washington, DC: Annual Issues), table 13, available at http://www-nrd.nhtsa.dot.gov/cats/Index.aspx as of Feb. 1, 2011.

## Table 2-27: Number of States with Different Types of Anti-DUI / DWI Legislation in Effect as of January 1 of the Listed Year

| | 1986 | 1990 | 1992 | 1994 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BAC = 0.08 per se laws[a] | 2 | 4 | 5 | 10 | 13 | 13 | 15 | 16 | (c) 18 | (c) 20 | (d, R) 29 | (d) 33 | (d) 47 | (d) 52 | (d) 52 |
| BAC level 0.02 or less for persons younger than 21 years | 0 | 0 | 3 | 12 | (c) 28 | (c) 38 | (c) 51 | (c) 51 | (c) 51 | (c) 51 | (c) 51 | (c) 51 | (c) 51 | (c) 51 | (c) 51 |
| Administrative license revocation (ALR) for DUI / DWI offenders[b] | (c) 21 | (c) 27 | (c) 30 | (c) 33 | (c) 38 | (c) 40 | (c) 41 | (c) 41 | (c) 41 | (c) 41 | (c) 41 | (c) 41 | (c) 42 | (c) 42 | (c) 42 |

**KEY:** BAC = blood alcohol concentration; DUI = driving under the influence; DWI = driving while intoxicated; R = revised.

[a] Per se law makes it illegal in and of itself to drive with an alcohol concentration measured at or above a certain level.

[b] States that impose additional thresholds for ALR beyond those imposed for DUI/DWI are not included in these figures.
[c] Includes the District of Columbia.
[d] Includes the District of Columbia and Puerto Rico.

**NOTE**

National Uniform Minimum Drinking Age Act, which standardized the minimum drinking age at 21, was enacted in 1984.

**SOURCES**
**0.02 BAC and Administrative license revocation:**
1986-98: U.S. Department of Transportation, National Highway Traffic Safety Administration, Traffic Safety Programs, Research and Evaluation Division, personal communications, Apr. 9, 1999 and Oct. 4, 1999.
1999-2000, 2002-03: Ibid., Impaired Driving Division, personal communications, May 22, 2000, Feb. 5, 2004, and Oct. 15, 2004.
2001: Ibid., *Setting Limits, Saving Lives* (Washington, DC: April 2001), DOT HS 809-241.
**0.08 BAC:**
1986-2000: Ibid., *Presidential Initiative for Making 0.08 BAC the National Legal Limit, A Progress Report* , Internet site http://www.nhtsa.dot.gov/people/injury/alcohol/limit.08/08progressreport/index.html as of Aug. 13, 2001.
2001: Ibid., *Setting Limits, Saving Lives* (Washington, DC: April 2001), DOT HS 809-241.
2002: Ibid., Impaired Driving Division, personal communication, Feb. 5, 2004.
2003-06: Ibid., *.08 BAC Laws* (Washington, DC: 2004), Internet site http://www.nhtsa.dot.gov/people/injury/alcohol/blood.htm as Oct. 19, 2004 and personal communication, Aug. 21, 2004, and Aug. 17, 2007.

**Table 2-28: Motor Vehicle Fatal Crashes by Day of Week, Time of Day, and Weather and Light Conditions (percent)**

| | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL fatal crashes | 39,836 | 36,937 | 34,942 | 35,780 | 36,254 | 37,241 | 37,494 | 37,324 | 37,107 | 37,140 | 37,526 | 37,862 | 38,491 | 38,477 | 38,444 | 39,252 | 38,648 | 37,435 | 34,016 |
| Day of week | | | | | | | | | | | | | | | | | | | |
| Sunday | 16.1 | 16.2 | 15.9 | 15.8 | 15.9 | 15.7 | 15.2 | 15.8 | 15.4 | 15.7 | 16.1 | 16.0 | 15.9 | 16.0 | 16.2 | 15.9 | 16.8 | 16.6 | 16.3 |
| Monday | 11.7 | 11.5 | 11.6 | 12.1 | 12.4 | 12.4 | 12.7 | 12.1 | 12.4 | 12.6 | 12.3 | 12.6 | 12.2 | 12.3 | 12.4 | 12.6 | 12.2 | 12.8 | 12.1 |
| Tuesday | 11.5 | 11.5 | 11.5 | 11.8 | 11.7 | 11.8 | 12.4 | 11.9 | 12.4 | 11.9 | 12.0 | 12.1 | 12.4 | 12.2 | 11.6 | 11.8 | 12.2 | 11.6 | 12.4 |
| Wednesday | 11.5 | 11.9 | 12.3 | 12.0 | 12.3 | 11.9 | 12.2 | 13.0 | 12.4 | 12.5 | 12.2 | 12.2 | 12.6 | 12.6 | 12.4 | 12.4 | 12.2 | 12.5 | 12.3 |
| Thursday | 12.6 | 12.5 | 13.3 | 13.0 | 12.7 | 13.0 | 13.3 | 13.0 | 12.1 | 12.9 | 13.0 | 12.7 | 12.8 | 12.8 | 13.3 | 12.9 | 12.8 | 12.4 | 12.7 |
| Friday | 16.7 | 16.5 | 16.1 | 16.3 | 16.3 | 16.6 | 16.1 | 16.1 | 15.8 | 15.9 | 16.0 | 16.2 | 15.8 | 15.7 | 16.0 | 15.7 | 15.5 | 15.5 | 15.8 |
| Saturday | 20.0 | 19.9 | 19.3 | 19.0 | 18.6 | 18.5 | 18.2 | 18.0 | 18.0 | 18.5 | 18.5 | 18.2 | 18.2 | 18.4 | 18.1 | 18.6 | 18.3 | 18.5 | 18.5 |
| Unknown | 0.02 | 0.03 | 0.01 | 0.02 | 0.04 | 0.03 | 0.04 | 0.05 | 0.0 | 0.01 | 0.01 | 0.04 | 0.02 | 0.05 | 0.05 | 0.03 | 0.00 | 0.00 | 0.00 |
| Time of day | | | | | | | | | | | | | | | | | | | |
| Midnight to 3 a.m. | 15.7 | 15.3 | 14.3 | 13.8 | 13.1 | 12.8 | 12.6 | 12.2 | 12.3 | 12.2 | 12.5 | 12.5 | 13.1 | 12.5 | 12.4 | 12.8 | 13.0 | 13.3 | 13.2 |
| 3 a.m. to 6 a.m. | 7.7 | 7.9 | 7.4 | 7.4 | 7.3 | 7.5 | 7.4 | 7.2 | 7.3 | 7.6 | 8.0 | 7.6 | 8.1 | 7.8 | 7.9 | 8.1 | 8.3 | 8.5 | 8.2 |
| 6 a.m. to 9 a.m. | 8.6 | 8.6 | 8.5 | 8.9 | 9.3 | 9.2 | 9.5 | 9.9 | 9.7 | 10.1 | 9.9 | 9.8 | 9.7 | 9.7 | 9.7 | 9.9 | 10.0 | 9.6 | 9.5 |
| 9 a.m. to noon | 8.5 | 8.6 | 8.8 | 9.7 | 9.6 | 9.4 | 9.7 | 9.9 | 10.2 | 10.1 | 9.9 | 10.0 | 9.7 | 9.9 | 9.9 | 9.5 | 9.5 | 9.3 | 9.7 |
| Noon to 3 p.m. | 11.6 | 11.7 | 12.4 | 12.5 | 13.1 | 12.9 | 12.7 | 13.3 | 13.4 | 13.2 | 13.1 | 13.2 | 13.1 | 13.1 | 13.4 | 12.9 | 12.9 | 12.8 | 12.8 |
| 3 p.m. to 6 p.m. | 15.7 | 15.7 | 16.0 | 16.0 | 16.6 | 16.8 | 16.9 | 16.6 | 16.8 | 16.8 | 16.7 | 16.6 | 16.0 | 16.6 | 16.3 | 16.5 | 15.6 | 16.0 | 15.7 |
| 6 p.m. to 9 p.m. | 15.6 | 15.6 | 16.5 | 16.2 | 15.7 | 15.9 | 15.7 | 15.9 | 15.6 | 15.4 | 15.3 | 15.4 | 15.4 | 15.3 | 15.7 | 15.7 | 15.6 | 15.5 | 15.7 |
| 9 p.m. to midnight | 15.9 | 15.8 | 15.3 | 14.7 | 14.3 | 14.6 | 14.6 | 14.1 | 13.8 | 13.8 | 13.7 | 14.1 | 14.1 | 14.0 | 13.8 | 13.8 | 14.3 | 14.1 | 14.6 |
| Unknown | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.9 | 0.9 | 0.9 | 0.9 | 0.8 | 0.9 | 0.8 | 0.9 | 1.0 | 0.9 | 0.8 | 0.8 | 0.9 | 0.8 |
| Atmospheric condition | | | | | | | | | | | | | | | | | | | |
| Normal | 86.7 | 86.7 | 85.7 | 87.0 | 87.3 | 86.7 | 86.3 | 86.4 | 87.2 | 89.0 | 88.0 | 88.4 | 88.0 | 87.3 | 87.0 | 88.2 | 89.5 | 89.4 | 88.1 |
| Rain | 9.3 | 9.0 | 10.0 | 8.7 | 8.3 | 8.6 | 8.4 | 8.8 | 8.8 | 7.3 | 7.1 | 7.5 | 7.8 | 7.8 | 8.3 | 7.4 | 7.3 | 6.4 | 7.1 |
| Snow/sleet | 1.6 | 1.9 | 2.0 | 2.2 | 1.8 | 2.4 | 2.7 | 2.5 | 1.7 | 1.6 | 2.3 | 1.8 | 1.9 | 2.2 | 1.9 | 2.0 | 1.2 | 2.2 | 2.5 |
| Other/unknown | 2.3 | 2.4 | 2.3 | 2.1 | 2.5 | 2.3 | 2.6 | 2.3 | 2.3 | 2.0 | 2.6 | 2.3 | 2.2 | 2.7 | 2.7 | 2.4 | 2.1 | 2.1 | 2.3 |
| Light condition | | | | | | | | | | | | | | | | | | | |
| Daylight | 45.0 | 45.4 | 46.0 | 47.7 | 49.5 | 48.7 | 49.3 | 50.3 | 50.5 | 50.7 | 50.5 | 50.8 | 49.2 | 50.2 | 50.0 | 49.5 | 48.4 | 48.5 | 48.3 |
| Dark, but lighted | 17.7 | 17.4 | 17.4 | 16.4 | 15.6 | 16.0 | 15.9 | 15.6 | 14.9 | 15.0 | 15.9 | 15.7 | 16.1 | 15.7 | 15.8 | 15.9 | 16.5 | 16.8 | 17.1 |
| Dark | 32.7 | 33.0 | 32.4 | 31.5 | 30.3 | 30.7 | 30.3 | 29.5 | 30.0 | 29.7 | 29.2 | 29.0 | 30.2 | 29.7 | 29.6 | 30.0 | 30.3 | 30.3 | 30.1 |
| Dawn or dusk | 4.2 | 3.9 | 3.9 | 4.2 | 4.2 | 4.2 | 4.2 | 4.2 | 4.3 | 4.3 | 4.1 | 4.1 | 4.0 | 3.9 | 4.1 | 4.1 | 4.2 | 3.9 | 4.0 |
| Unknown | 0.3 | 0.3 | 0.3 | 0.2 | 0.3 | 0.4 | 0.3 | 0.4 | 0.3 | 0.3 | 0.4 | 0.4 | 0.5 | 0.5 | 0.4 | 0.5 | 0.5 | 0.5 | 0.5 |

**SOURCE**

U.S. Department of Transportation, National Highway Traffic Safety Administration, National Center for Statistics and Analysis, Fatality Analysis Reporting System (FARS),*Web-Based Encyclopedia*, available at http://www-fars.nhtsa.dot.gov/ as of August 31, 2009.

**Table 2-29: Motor Vehicle Fatal Crashes by Posted Speed Limit**

| | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | (R) 2007 | 2008 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL fatal crashes | 39,161 | 45,284 | 39,196 | 39,836 | 36,937 | 34,942 | 35,780 | 36,254 | 37,241 | 37,494 | 37,324 | 37,107 | 37,140 | 37,526 | 37,862 | 38,491 | 38,477 | 38,444 | 39,252 | 38,648 | 37,434 | 34,009 |
| Under 55 mph, total | 15,233 | 20,079 | 19,278 | 19,136 | 17,507 | 16,827 | 16,985 | 16,948 | 17,439 | 17,345 | 17,258 | 17,018 | 16,963 | 17,054 | 17,582 | 17,651 | 17,422 | 17,758 | 18,461 | 18,327 | 17,767 | 16,407 |
| 5,10,15, 20, 25 mph[a] | 2,617 | 2,865 | 2,504 | 2,234 | 2,097 | 1,911 | 1,895 | 1,890 | 1,893 | 1,896 | 1,955 | 1,873 | 1,863 | 1,827 | 1,919 | 1,897 | 1,883 | 1,904 | 1,947 | 1,972 | 2,054 | 1,874 |
| 30, 35 mph | 6,099 | 8,527 | 7,890 | 7,756 | 6,908 | 6,696 | 6,759 | 6,565 | 6,681 | 6,445 | 6,383 | 6,025 | 5,946 | 6,079 | 6,260 | 6,090 | 5,995 | 6,064 | 6,337 | 6,347 | 5,946 | 5,725 |
| 40, 45 mph | 4,276 | 6,256 | 6,812 | 7,092 | 6,608 | 6,345 | 6,454 | 6,632 | 6,938 | 7,096 | 7,132 | 7,349 | 7,245 | 7,315 | 7,576 | 7,784 | 7,717 | 7,964 | 8,359 | 8,172 | 7,994 | 7,288 |
| 50 mph | 2,241 | 2,431 | 2,072 | 2,054 | 1,894 | 1,875 | 1,877 | 1,861 | 1,927 | 1,908 | 1,788 | 1,771 | 1,909 | 1,833 | 1,827 | 1,880 | 1,827 | 1,826 | 1,818 | 1,836 | 1,773 | 1,520 |
| 55 mph and above, total | 16,095 | 20,352 | 18,871 | 19,749 | 18,630 | 17,450 | 18,144 | 18,698 | 19,140 | 19,460 | 19,251 | 19,333 | 19,373 | 19,735 | 19,416 | 19,898 | 19,995 | 19,780 | 19,857 | 19,252 | 18,675 | 16,702 |
| 55 mph | 16,094 | 20,352 | 18,863 | 17,556 | 16,543 | 15,444 | 15,980 | 16,512 | 16,753 | 14,097 | 12,897 | 12,522 | 12,184 | 12,143 | 11,847 | 12,268 | 12,155 | 11,893 | 11,760 | 11,337 | 10,997 | 9,794 |
| 60 mph | 0 | 0 | 2 | 18 | 9 | 4 | 9 | 13 | 16 | 523 | 935 | 1,073 | 1,069 | 1,163 | 1,221 | 1,270 | 1,364 | 1,296 | 1,347 | 1,359 | 1,332 | 1,210 |
| 65 mph | 1 | 0 | 2 | 2,175 | 2,078 | 2,002 | 2,155 | 2,173 | 2,323 | 3,214 | 3,311 | 3,421 | 3,537 | 3,686 | 3,721 | 3,742 | 3,848 | 3,856 | 3,966 | 3,960 | 3,816 | 3,412 |
| 70 mph | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 38 | 1,282 | 1,633 | 1,835 | 2,079 | 2,230 | 2,116 | 2,027 | 2,039 | 2,127 | 2,198 | 2,077 | 2,074 | 1,832 |
| Over 70 mph | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 10 | 344 | 475 | 482 | 504 | 513 | 511 | 591 | 589 | 608 | 586 | 519 | 456 | 454 |
| Unknown[b] | 7,833 | 4,853 | 1,047 | 951 | 800 | 665 | 651 | 608 | 662 | 689 | 815 | 756 | 804 | 737 | 864 | 942 | 1,060 | 906 | 934 | 1,069 | 992 | 900 |

**KEY:** mph = miles per hour; R = revised.

[a] The "No Statutory Limit" speed limit designation is included in this category.
[b] The "blank" designation is included in this category

**NOTES**
In 1974, Congress enacted a national maximum speed limit of 55 miles per hour (mph). Amendments in 1987 and 1991 allowed states to increase speed limits to 65 mph on rural Interstates and similar highways.
The National Maximum Speed Limit was repealed in late 1995; speed limits are again set by the states, some of which have raised their maximum speed limits to 70 mph or above.

**SOURCES**
1975-93: U.S. Department of Transportation, National Highway Traffic Safety Administration, National Center for Statistics and Analysis, *Traffic Safety Facts 2000* , DOT HS 809 337 (Washington, DC: December 2001), table 30, and the Fatality Analysis Reporting System (FARS) *Web-Based Encyclopedia* , available at http://www-fars.nthsa.dot.gov as of November 2003.
1994-2008: U.S. Department of Transportation, National Highway Traffic Safety Administration, National Center for Statistics and Analysis, Fatality Analysis Reporting System (FARS), *Web-Based Encyclopedia* , available at http://www-fars.nhtsa.dot.gov/ as of August 31, 2009.

**Table 2-31: Estimated Number of Lives Saved by Occupant Protection, Motorcycle Helmets, and Drinking Age Law**

| | 1975-1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | (R) 2007 | 2008 | Total 1975-2008 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Safety belts[a,b] | 68,940 | 9,882 | 10,710 | 11,259 | 11,680 | 11,941 | 12,882 | 13,295 | 14,264 | 15,095 | 15,548 | 15,688 | 15,458 | 15,223 | 13,250 | 255,115 |
| Air bags[c] | 730 | 536 | 783 | 973 | 1,208 | 1,491 | 1,716 | 1,978 | 2,324 | 2,519 | 2,660 | 2,752 | 2,824 | 2,800 | 2,546 | 27,840 |
| Motorcycle helmets | 15,076 | 624 | 617 | 627 | 660 | 745 | 872 | 947 | 992 | 1,173 | 1,324 | 1,554 | 1,667 | 1,788 | 1,829 | 30,495 |
| Age 21 minimum legal drinking age | 14,816 | 851 | 846 | 846 | 861 | 901 | 922 | 927 | 922 | 918 | 927 | 882 | 888 | 831 | 714 | 27,052 |
| Child restraints | 3,107 | 408 | 480 | 444 | 438 | 447 | 479 | 388 | 383 | 447 | 455 | 424 | 427 | 388 | 244 | 8,959 |

**KEY:** R = revised.

[a] Represents all adults and children age 5 and older. Data are for passenger vehicles, which include cars, light trucks, vans, pickups, and utility vehicles. Excludes medium and heavy trucks.

[b] In 2002, the National Highway Traffic Safety Administration (NHTSA) revised its method for estimating lives saved by safety belts. The previous method included survey data from states with and without belt use laws. The current method relies on police-reported restraint use information for each individual occupant fatality. Also, the estimate now includes lives saved in passenger vehicles at all seating positions, where previously it had been front outboard positions only.

[c] In 2002, the National Highway Traffic Safety Administration revised the method for calculating lives saved by air bags.

**SOURCE**

U.S. Department of Transportation, National Highway Traffic Safety Administration, *Traffic Safety Facts 2008 (Final Edition)* (Washington DC: 2009), http://www-nrd.nhtsa.dot.gov/cats/listpublications.aspx?Id=E&ShowBy=DocType as of July 6, 2010.

# Section D
# Transit

## Table 2-32: Transit Safety and Property Damage Data

| | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fatalities[a] | 339 | 300 | 273 | 281 | 320 | 274 | 264 | 275 | 286 | 299 | 295 | 267 | 280 | 234 | 248 | 236 | 227 | 288 | 240 |
| Injuries[a,b] | 54,556 | 52,125 | 55,089 | 52,668 | 58,193 | 57,196 | 55,288 | 56,132 | 55,990 | 55,325 | 56,697 | 53,945 | 19,260 | 18,235 | 18,982 | 18,131 | 19,238 | 20,625 | 23,222 |
| Accidents[b,c] | 58,002 | 46,467 | 36,380 | 30,559 | 29,972 | 25,683 | 25,166 | 24,924 | 23,937 | 23,310 | 24,261 | 23,891 | 13,968 | 7,793 | 7,842 | 8,151 | 8,970 | 9,398 | 3,452 |
| Incidents[a,b,c] (includes accidents) | 90,163 | 83,139 | 73,531 | 64,986 | 70,693 | 62,471 | 59,392 | 61,561 | 60,094 | 58,703 | 59,898 | 58,149 | 30,331 | 19,797 | 20,939 | 21,016 | 22,593 | 23,935 | 22,248 |
| Vehicle-miles (millions) | 2,490 | 2,478 | 2,510 | 2,535 | 2,581 | 2,620 | 2,605 | 2,702 | 2,833 | 2,927 | 3,002 | 3,090 | 3,084 | 3,071 | 3,139 | 3,098 | 3,126 | 3,166 | 3,228 |
| Rates per 100 million vehicle-miles[d] | | | | | | | | | | | | | | | | | | | |
| Fatalities (all reportable incidents) | 13.6 | 12.1 | 10.9 | 11.1 | 12.4 | 10.5 | 10.1 | 10.2 | 10.1 | 10.2 | 9.8 | 8.6 | 9.1 | 7.6 | 7.9 | 7.6 | 7.3 | 9.1 | 7.4 |
| Injuries (all reportable incidents) | 2,191 | 2,103 | 2,195 | 2,077 | 2,254 | 2,183 | 2,122 | 2,078 | 1,976 | 1,890 | 1,889 | 1,746 | 624 | 594 | 605 | 585 | 615 | 651 | 719 |
| Accidents | 2,329 | 1,875 | 1,450 | 1,205 | 1,161 | 980 | 966 | 922 | 845 | 796 | 808 | 773 | 453 | 254 | 250 | 263 | 287 | 297 | 107 |
| Property damage[b,e] (current $ millions) | 38.0 | 37.5 | 37.5 | 44.9 | 38.4 | 46.3 | 57.6 | 55.5 | 61.5 | 55.3 | 58.9 | 73.1 | 32.2 | 59.2 | 43.4 | 71.7 | 37.9 | 39.7 | 52.7 |

[a] Totals do not include data for cable car, inclined plane, jitney, and ferry boat. These data appear in the footnotes for table 2-33.

[b] The drop in the number of *Incidents, Accidents, Injuries*, and *Property damage* beginning from 2002 is due largely to a change in definitions by the Federal Transit Administration, particularly the definition of *Injuries*. Only *Injuries* requiring immediate medical treatment away from the scene now qualify as reportable. Previously, any *injury* was reportable. Commuter rail data are now derived from the Federal Railroad Administration's Rail Accident Incident Reporting System (RAIRS). The threshold for reporting *Property damage* was changed from $1,000 in transit *Property damage* to $7,500 in total *property damage* from 2002 to 2007.

[c] *Accidents* include collisions with other vehicles, objects, and people (except suicides), and derailments/buses going off the road. *Incidents* include *Accidents* plus personal casualties (inside vehicles, inside stations, and boarding and alighting vehicle) and fires.

[d] *Fatality* and *Injury rates* are based on total *Incidents* including *Accidents* and were calculated by dividing the number of *Fatalities, Injuries*, and *Incidents* in this table by the number of *Vehicle miles*.

[e] Total does not include *Property damage* for cable car, inclined plane, jitney, and ferry boat, which were: 1990–$335,000; 1991–$410,000; 1992–$288,000; 1993–$221,000; 1994–$322,000; 1995–$3,263,000; 1996–$157,000; 1997–$67,000; 1998–$24,000; 1999–$104,000; 2000–$77,000; 2001–$1,605,000; 2002–$254,000; 2003–$15,348,000; 2004–$604,000; 2005–$44,000; 2006– $555,000; 2007–$1,234,000; 2008–$1,065,000. The large increase in excluded *Property damage* reported in 2003 is a result of the Staten Island Ferry Incident on Oct. 16, 2003 which resulted in $15,000,000 of *Property damage.*

**NOTES**

Data are provided only for transit systems that furnished safety data for inclusion in the U.S. Department of Transportation, Federal Transit Administration, *Transit Safety and Security Statistics and Analysis,* annual reports.

Transit *vehicle-miles* in this table differ from those reported in Chapter 1. The American Public Transit Association, which is the source for the *vehicle-miles* table in Chapter 1, includes all transit systems, while *Transit Safety and Security Statistics and Analysis Annual Report* covers only directly operated urban transit systems.

Prior to the 2000 edition, *Transit Safety and Security Statistics and Analysis Report* was entitled *Safety Management Information Statistics* (SAMIS) annual report.

In 2008, the property damage threshold was changed to $25,000. Previously, any accident with property damage equal to or greater than $7,500 was reported. This change in coverage caused a large drop in the number of accidents in 2008.

**SOURCES**

1990-2007: U.S. Department of Transportation, Federal Transit Administration, *Transit Safety and Security Statistics and Analysis Report* (Cambridge, MA: Annual Issues), available at http://transit-safety.volpe.dot.gov/Data/Samis.asp as of Mar. 23, 2009.

2008: U.S. Department of Transportation, Federal Transit Administration, personal communication on May 13, 2010.

**Table 2-33: Transit Safety Data by Mode[a] for All Reported Accidents[b]**

| | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fatalities, total | 212 | 215 | 173 | 191 | 225 | 179 | 152 | 185 | 192 | 190 | 183 | 197 | 109 | 120 | 111 | 106 | 121 | 149 | 144 |
| Motor bus[c] | 92 | 80 | 91 | 79 | 90 | 69 | 82 | 100 | 90 | 91 | 82 | 89 | 64 | 73 | 61 | 49 | 76 | 76 | 63 |
| Light rail | 5 | 11 | 6 | 14 | 10 | 10 | 5 | 3 | 14 | 13 | 22 | 15 | 8 | 13 | 14 | 15 | 11 | 18 | 14 |
| Heavy rail | 51 | 59 | 33 | 37 | 41 | 43 | 32 | 28 | 18 | 21 | 19 | 26 | 30 | 17 | 15 | 7 | 12 | 25 | 31 |
| Commuter rail | 63 | 63 | 43 | 59 | 82 | 56 | 30 | 52 | 67 | 64 | 56 | 64 | 7 | 16 | 18 | 28 | 14 | 22 | 33 |
| Demand responsive | 0 | 2 | 0 | 2 | 2 | 1 | 3 | 2 | 2 | 1 | 4 | 3 | 0 | 1 | 0 | 7 | 7 | 8 | 3 |
| Van pool | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 1 | 0 | 0 |
| Automated guideway | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Injured persons, total[d] | 20,023 | 20,594 | 21,653 | 22,081 | 20,939 | 22,159 | 22,950 | 21,452 | 21,341 | 21,727 | 22,140 | 21,260 | 7,771 | 10,271 | 7,829 | 8,102 | 8,062 | 8,719 | 6,576 |
| Motor bus[c] | 18,876 | 19,016 | 20,556 | 20,862 | 19,663 | 20,879 | 21,222 | 20,145 | 20,136 | 20,291 | 20,329 | 19,532 | 7,211 | 8,905 | 7,164 | 7,187 | 7,186 | 7,775 | 5,805 |
| Light rail | 465 | 474 | 468 | 361 | 327 | 355 | 680 | 320 | 332 | 427 | 415 | 305 | 177 | 192 | 245 | 268 | 255 | 373 | 269 |
| Heavy rail | 296 | 308 | 273 | 365 | 309 | 348 | 431 | 336 | 261 | 286 | 425 | 598 | 90 | 218 | 158 | 86 | 94 | 102 | 62 |
| Commuter rail | 84 | 560 | 110 | 210 | 216 | 159 | 213 | 99 | 66 | 54 | 53 | 108 | 50 | 102 | 51 | 263 | 100 | 60 | 180 |
| Demand responsive | 286 | 200 | 233 | 224 | 399 | 395 | 379 | 499 | 492 | 632 | 869 | 679 | 200 | 836 | 174 | 280 | 373 | 383 | 240 |
| Van pool | 16 | 36 | 13 | 58 | 24 | 23 | 25 | 52 | 53 | 37 | 49 | 38 | 43 | 18 | 37 | 18 | 47 | 25 | 20 |
| Automated guideway | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 1 | 0 |
| Accidents, total[d] | 58,002 | 46,468 | 36,380 | 30,559 | 29,972 | 25,683 | 25,166 | 24,924 | 23,937 | 23,310 | 24,261 | 23,891 | 13,968 | 7,793 | 7,838 | 8,152 | 8,970 | 8,288 | 3,452 |
| Motor bus[c] | 55,289 | 44,467 | 34,282 | 28,596 | 27,754 | 23,819 | 23,425 | 22,995 | 22,277 | 21,407 | 22,127 | 21,799 | 12,821 | 6,720 | 6,837 | 6,983 | 7,738 | 7,233 | 2,921 |
| Light rail | 699 | 671 | 600 | 449 | 512 | 309 | 341 | 363 | 328 | 300 | 357 | 344 | 558 | 556 | 490 | 625 | 634 | 623 | 189 |
| Heavy rail | 144 | 188 | 613 | 662 | 744 | 637 | 346 | 325 | 293 | 396 | 364 | 328 | 183 | 152 | 171 | 117 | 131 | 142 | 74 |
| Commuter rail | 175 | 248 | 181 | 208 | 266 | 216 | 201 | 192 | 193 | 215 | 258 | 237 | 89 | 89 | 93 | 68 | 77 | 128 | 103 |
| Demand responsive | 1,613 | 814 | 668 | 524 | 659 | 647 | 774 | 886 | 664 | 862 | 997 | 976 | 283 | 267 | 219 | 249 | 356 | 130 | 158 |
| Van pool | 81 | 79 | 35 | 119 | 36 | 54 | 78 | 160 | 179 | 130 | 157 | 207 | 34 | 9 | 28 | 110 | 32 | 31 | 7 |
| Automated guideway | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 3 | 3 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 |
| Vehicle-miles (millions), total | 2,490 | 2,478 | 2,510 | 2,535 | 2,581 | 2,620 | 2,605 | 2,702 | 2,833 | 2,927 | 3,002 | 3,090 | 3,084 | 3,071 | 3,139 | 3,098 | 3,126 | 3,166 | 3,228 |
| Motor bus[c] | 1,668 | 1,661 | 1,688 | 1,690 | 1,702 | 1,702 | 1,687 | 1,719 | 1,779 | 1,835 | 1,868 | 1,911 | 1,919 | 1,876 | 1,891 | 1,853 | 1,849 | 1,872 | 1,907 |
| Light rail | 24 | 27 | 28 | 27 | 34 | 34 | 37 | 41 | 43 | 48 | 52 | 53 | 60 | 64 | 63 | 67 | 72 | 80 | 84 |
| Heavy rail | 529 | 522 | 520 | 518 | 522 | 537 | 543 | 558 | 566 | 578 | 595 | 608 | 621 | 630 | 643 | 645 | 649 | 654 | 671 |
| Commuter rail | 187 | 188 | 188 | 206 | 210 | 217 | 203 | 216 | 242 | 249 | 253 | 257 | 255 | 256 | 279 | 271 | 283 | 289 | 275 |
| Demand responsive | 74 | 71 | 72 | 77 | 94 | 109 | 108 | 134 | 157 | 167 | 179 | 205 | 172 | 189 | 203 | 196 | 196 | 181 | 191 |
| Van pool | 8 | 8 | 13 | 16 | 18 | 19 | 25 | 33 | 44 | 49 | 52 | 54 | 56 | 55 | 58 | 65 | 77 | 87 | 99 |
| Automated guideway | 0.6 | 0.5 | 1.0 | 1.0 | 1.2 | 1.1 | 1.4 | 1.4 | 1.4 | 1.4 | 1.6 | 1.8 | 1.8 | 1.5 | 1.5 | 1.7 | 1.8 | 1.8 | 2 |
| Rates per 100 million vehicle-miles[e] | | | | | | | | | | | | | | | | | | | |
| Fatalities, all modes | 8.5 | 8.7 | 6.9 | 7.5 | 8.7 | 6.8 | 5.8 | 6.8 | 6.8 | 6.5 | 6.1 | 6.4 | 3.5 | 3.9 | 3.5 | 3.4 | 3.9 | 4.7 | 4.5 |
| Motor bus[c] | 5.5 | 4.8 | 5.4 | 4.7 | 5.3 | 4.1 | 4.9 | 5.8 | 5.1 | 5.0 | 4.4 | 4.7 | 3.3 | 3.9 | 3.2 | 2.6 | 4.1 | 4.1 | 3.3 |
| Light rail | 20.8 | 40.3 | 21.2 | 51.1 | 29.6 | 29.0 | 13.3 | 7.4 | 32.3 | 27.1 | 42.3 | 28.5 | 13.3 | 20.4 | 22.1 | 22.3 | 15.4 | 22.5 | 16.7 |
| Heavy rail | 9.6 | 11.3 | 6.3 | 7.1 | 7.9 | 8.0 | 5.9 | 5.0 | 3.2 | 3.6 | 3.2 | 4.3 | 4.8 | 2.7 | 2.3 | 1.1 | 1.8 | 3.8 | 4.6 |
| Commuter rail | 33.6 | 33.4 | 22.9 | 28.6 | 39.0 | 25.8 | 14.8 | 24.1 | 27.6 | 25.7 | 22.1 | 24.9 | 2.7 | 6.2 | 6.5 | 10.3 | 5.0 | 7.6 | 12.0 |
| Demand responsive | 0.0 | 2.8 | 0.0 | 2.6 | 2.1 | 0.9 | 2.8 | 1.5 | 1.3 | 0.6 | 2.2 | 1.5 | 0.0 | 0.5 | 0.0 | 3.6 | 3.6 | 4.4 | 1.6 |
| Van pool | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.2 | 0.0 | 1.3 | 0.0 | 0.0 |
| Automated guideway | 162.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 69.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Injured persons, all modes[d] | 804 | 831 | 863 | 871 | 811 | 846 | 881 | 794 | 753 | 742 | 738 | 688 | 252 | 334 | 249 | 262 | 258 | 275 | 204 |
| Motor bus[c] | 1,132 | 1,145 | 1,218 | 1,234 | 1,155 | 1,227 | 1,258 | 1,172 | 1,132 | 1,106 | 1,088 | 1,022 | 376 | 475 | 379 | 388 | 389 | 415 | 304 |
| Light rail | 1,933 | 1,735 | 1,654 | 1,318 | 968 | 1,030 | 1,815 | 785 | 767 | 889 | 798 | 580 | 293 | 302 | 386 | 398 | 357 | 466 | 320 |
| Heavy rail | 56 | 59 | 52 | 71 | 59 | 65 | 79 | 60 | 46 | 50 | 71 | 98 | 14 | 35 | 25 | 13 | 14 | 16 | 9 |
| Commuter rail | 45 | 297 | 59 | 102 | 103 | 73 | 105 | 46 | 27 | 22 | 21 | 42 | 20 | 40 | 18 | 97 | 35 | 21 | 65 |
| Demand responsive | 386 | 282 | 324 | 292 | 425 | 361 | 349 | 372 | 313 | 379 | 485 | 331 | 117 | 443 | 86 | 143 | 191 | 211 | 125 |
| Van pool | 208 | 430 | 103 | 363 | 132 | 123 | 101 | 158 | 121 | 75 | 94 | 70 | 77 | 33 | 64 | 28 | 61 | 29 | 20 |
| Automated guideway | 0 | 0 | 0 | 104 | 85 | 0 | 0 | 70 | 69 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 389 | 56 | 0 |
| Accidents, all modes[d] | 2,329 | 1,875 | 1,450 | 1,205 | 1,161 | 980 | 966 | 922 | 845 | 796 | 808 | 773 | 453 | 254 | 250 | 263 | 287 | 262 | 107 |
| Motor bus[c] | 3,315 | 2,678 | 2,031 | 1,692 | 1,631 | 1,400 | 1,389 | 1,338 | 1,252 | 1,166 | 1,184 | 1,141 | 668 | 358 | 362 | 377 | 418 | 386 | 153 |
| Light rail | 2,906 | 2,456 | 2,121 | 1,639 | 1,516 | 897 | 910 | 891 | 758 | 624 | 687 | 654 | 925 | 874 | 773 | 928 | 886 | 778 | 225 |
| Heavy rail | 27 | 36 | 118 | 128 | 142 | 119 | 64 | 58 | 52 | 69 | 61 | 54 | 29 | 24 | 27 | 18 | 20 | 22 | 11 |
| Commuter rail | 93 | 132 | 96 | 101 | 127 | 100 | 99 | 89 | 80 | 86 | 102 | 92 | 35 | 35 | 33 | 25 | 27 | 44 | 37 |
| Demand response | 2,177 | 1,147 | 928 | 682 | 702 | 591 | 714 | 661 | 423 | 516 | 557 | 476 | 165 | 141 | 108 | 127 | 182 | 72 | 83 |
| Van pool | 1,052 | 944 | 278 | 744 | 198 | 289 | 314 | 485 | 408 | 263 | 301 | 380 | 61 | 16 | 48 | 170 | 42 | 36 | 7 |
| Automated guideway | 162 | 204 | 102 | 104 | 85 | 87 | 69 | 209 | 207 | 0 | 62 | 0 | 0 | 0 | 0 | 0 | 111 | 56 | 0 |

[a] *Accident* statistics for cable car, inclined plane, jitney, and ferry boat are not available. The number of incidents, *Fatalities*, and *Injuries* for these modes appear in the footnotes for table 2-33a

[b] *Accidents* includes collisions with vehicles, objects, people (except suicides), and derailments/vehicles going off road.

[c] *Motor bus* also includes trolley bus

[d] In 2002 the drop in the number of *Accidents* and *Injuries* is due largely to a change in definitions by the Federal Transit Administration, particularly the definition of *Injuries*. Only *Injuries* requiring immediate medical treatment away from the scene now qualify as reportable. Previously, any *Injury* was reportable. *Commuter rail* data are now derived from the Federal Railroad Administration's Rail Accident Incident Reporting System (RAIRS).

[e] Rates are based on total incidents including *Accidents* and were calculated by dividing the number of *Fatalities*, *Injuries*, and *Accidents* in this table by the number of *Vehicle-miles*.

**NOTES**

Data are provided only for transit systems that furnished safety data for inclusion in the U.S. Department of Transportation, Federal Transit Administration *Transit Safety and Security Statistics and Analysis* annual reports. Data covers only directly operated urban transit systems *Vehicle-miles* for all transit systems including nonurban and purchased can be found in the *Vehicle-miles* table in chapter 1.

Prior to the 2000 edition, *Transit Safety and Security Statistics and Analysis Report* was entitled *Safety Management Information Statistics* (SAMIS) annual report.

Analysts for the FTA believe the change in reporting requirements in 2002 may have resulted in unreliable data in that year, particularly for *Injuries* and *Accidents*. The reliability of reporting is believed to be much better in 2003 and is expected to improve in the future.

Details may not add to totals due to rounding.

**SOURCE**

1990-2008: U.S. Department of Transportation, Federal Transit Administration *Transit Safety and Security Statistics*, available at http://transit-safety.volpe.dot.gov/Data/Samis.asp as of Sept. 15, 2009, and personal communications, Oct. 8, 2004, Apr. 22, 2005, Apr. 24, 2006, June 14, 2007, June 18, 2008, and Sept. 1, 2010.

**Table 2-34: Transit Safety Data by Mode[a] for All Reported Incidents[b]**

| | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fatalities, total | 339 | 300 | 273 | 281 | 320 | 274 | 264 | 275 | 286 | 299 | 295 | 267 | (R) 289 | (R) 259 | (R) 263 | (R) 249 | (R) 246 | (R) 307 | 171 | 224 |
| Motor bus[c] | 110 | 88 | 99 | 83 | 108 | 82 | 101 | 109 | 109 | 102 | 90 | 95 | (R) 80 | (R) 109 | (R) 82 | (R) 75 | (R) 108 | (R) 105 | 81 | 78 |
| Light rail | 7 | 13 | 9 | 15 | 13 | 15 | 6 | 3 | 23 | 17 | 30 | 21 | 13 | (R) 15 | (R) 21 | 19 | 17 | (R) 33 | 16 | 34 |
| Heavy rail | 117 | 103 | 91 | 83 | 85 | 79 | 74 | 77 | 54 | 84 | 80 | 59 | 73 | (R) 47 | (R) 60 | 35 | 23 | 32 | 67 | 100 |
| Commuter rail | 104 | 93 | 74 | 98 | 112 | 92 | 72 | 79 | 94 | 95 | 87 | 87 | 116 | 77 | 86 | 105 | 85 | 124 | U | U |
| Demand responsive | 0 | 3 | 0 | 2 | 2 | 6 | 11 | 7 | 4 | 1 | 8 | 5 | (R) 6 | (R) 11 | (R) 6 | (R) 12 | (R) 12 | (R) 11 | 7 | 7 |
| Van pool | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | (R) 1 | 0 | (R) 7 | 0 | 1 | 1 | 0 | 4 |
| Automated guideway | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 0 | 1 | 0 | 1 |
| Injured persons, total[f] | 54,556 | 52,125 | 55,089 | 52,668 | 58,193 | 57,196 | 55,288 | 56,132 | 55,990 | 55,325 | 56,697 | 53,945 | (R) 20,313 | (R) 20,175 | (R) 20,794 | (R) 19,696 | (R) 21,433 | (R) 23,350 | 24,561 | 26,064 |
| Motor bus[c] | 40,006 | 38,619 | 40,090 | 38,873 | 42,195 | 41,297 | 39,709 | 39,181 | 41,035 | 41,221 | 40,925 | 38,840 | (R) 12,323 | (R) 12,537 | (R) 12,925 | (R) 12,385 | (R) 12,852 | (R) 14,126 | 14,267 | 15,472 |
| Light rail | 1,244 | 1,251 | 1,268 | 982 | 1,181 | 1,319 | 1,604 | 1,087 | 1,076 | 1,271 | 1,338 | 1,201 | (R) 539 | (R) 556 | (R) 654 | (R) 614 | (R) 656 | (R) 843 | 1,006 | 1,054 |
| Heavy rail | 10,036 | 9,285 | 10,446 | 10,532 | 11,673 | 11,238 | 11,093 | 12,285 | 11,059 | 9,665 | 10,848 | 10,641 | (R) 4,833 | (R) 4,154 | (R) 4,759 | 3,814 | (R) 4,820 | (R) 5,015 | 7,264 | 7,536 |
| Commuter rail | 2,438 | 2,308 | 2,546 | 1,560 | 2,374 | 2,374 | 1,953 | 2,388 | 1,677 | 1,761 | 1,783 | 1,813 | 1,483 | 1,597 | 1,364 | 1,672 | 1,426 | 1,548 | U | U |
| Demand responsive | 807 | 622 | 713 | 652 | 731 | 935 | 882 | 1,121 | 1,064 | 1,345 | 1,736 | 1,374 | (R) 1,070 | (R) 1,283 | (R) 1,031 | (R) 1,180 | (R) 1,607 | (R) 1,768 | 1,979 | 1,896 |
| Van pool | 21 | 40 | 19 | 59 | 29 | 25 | 27 | 54 | 67 | 41 | 52 | 40 | (R) 37 | (R) 19 | (R) 46 | (R) 29 | (R) 55 | (R) 39 | 23 | 69 |
| Automated guideway | 4 | 0 | 7 | 10 | 10 | 8 | 20 | 16 | 12 | 21 | 15 | 36 | 28 | 29 | 15 | 2 | (R) 17 | 11 | 22 | 37 |
| All incidents, total[f] | 90,163 | 83,139 | 73,531 | 64,986 | 70,693 | 62,471 | 59,392 | 61,561 | 60,094 | 58,703 | 59,898 | 58,149 | (R) 25,827 | (R) 22,490 | (R) 23,490 | (R) 23,828 | (R) 26,109 | (R) 25,468 | 23,229 | 23,961 |
| Motor bus[c] | 70,437 | 63,453 | 52,182 | 45,580 | 49,185 | 42,780 | 40,456 | 40,524 | 41,616 | 41,094 | 41,677 | 40,321 | (R) 13,883 | (R) 12,006 | (R) 12,593 | (R) 12,767 | (R) 14,274 | (R) 13,601 | 11,556 | 12,497 |
| Light rail | 1,465 | 1,543 | 1,492 | 1,136 | 1,413 | 1,276 | 1,350 | 1,173 | 1,121 | 1,182 | 1,319 | 1,299 | (R) 1,056 | (R) 985 | (R) 939 | (R) 1,129 | (R) 1,130 | (R) 1,181 | 1,009 | 986 |
| Heavy rail | 12,178 | 14,102 | 15,512 | 15,082 | 15,869 | 14,327 | 13,748 | 15,151 | 13,516 | 12,196 | 12,782 | 12,406 | (R) 6,919 | (R) 5,534 | (R) 6,270 | (R) 5,738 | (R) 6,267 | (R) 6,963 | 8,902 | 8,697 |
| Commuter rail | 3,031 | 2,716 | 3,160 | 2,111 | 3,115 | 2,847 | 2,449 | 3,078 | 2,410 | 2,499 | 2,072 | 2,159 | 1,720 | 1,749 | 1,598 | 1,663 | 1,575 | 1,732 | U | U |
| Demand responsive | 2,965 | 1,241 | 1,137 | 946 | 1,062 | 1,173 | 1,284 | 1,454 | 1,221 | 1,577 | 1,871 | 1,719 | (R) 2,195 | (R) 2,171 | (R) 2,037 | (R) 2,402 | (R) 2,816 | (R) 1,924 | 1,724 | 1,716 |
| Van pool | 84 | 83 | 40 | 121 | 39 | 58 | 80 | 162 | 194 | 135 | 160 | 209 | (R) 31 | (R) 12 | (R) 34 | (R) 123 | (R) 36 | (R) 46 | 12 | 25 |
| Automated guideway | 3 | 1 | 8 | 10 | 10 | 10 | 25 | 19 | 16 | 20 | 17 | 36 | 23 | 33 | 19 | 6 | (R) 11 | 21 | 26 | 40 |
| Unlinked passenger trips (millions)[d], total | 7,646 | 7,380 | 7,318 | 7,059 | 7,335 | 7,172 | 7,211 | 7,615 | 7,774 | 8,149 | 8,337 | 8,554 | (R) 8,836 | (R) 8,738 | (R) 8,782 | (R) 9,020 | (R) 9,234 | (R) 9,801 | 9,684 | U |
| Motor bus[c] | 4,912 | 4,780 | 4,728 | 4,585 | 4,567 | 4,539 | 4,464 | 4,554 | 4,712 | 4,926 | 4,959 | 5,065 | (R) 5,333 | (R) 5,255 | (R) 5,200 | (R) 5,333 | (R) 5,374 | (R) 5,375 | 5,548 | U |
| Light rail | 174 | 184 | 187 | 187 | 274 | 249 | 259 | 259 | 273 | 289 | 316 | 327 | (R) 337 | (R) 338 | (R) 350 | (R) 381 | (R) 407 | (R) 418 | 451 | U |
| Heavy rail | 2,252 | 2,123 | 2,119 | 1,960 | 2,149 | 2,034 | 2,157 | 2,429 | 2,393 | 2,521 | 2,632 | 2,728 | 2,688 | 2,667 | 2,748 | (R) 2,808 | (R) 2,927 | (R) 3,460 | 3,547 | U |
| Commuter rail | 286 | 274 | 262 | 303 | 318 | 322 | 302 | 311 | 360 | 374 | 388 | 390 | 380 | 375 | 377 | 383 | 399 | 413 | U | U |
| Demand responsive | 14 | 13 | 13 | 15 | 17 | 18 | 17 | 48 | 22 | 23 | 24 | 27 | (R) 78 | (R) 82 | (R) 83 | (R) 87 | (R) 88 | (R) 91 | 96 | U |
| Van pool | 2 | 2 | 3 | 4 | 5 | 5 | 6 | 8 | 9 | 10 | 10 | 10 | (R) 12 | (R) 13 | (R) 15 | (R) 17 | (R) 20 | (R) 23 | 30 | U |
| Automated guideway | 6 | 4 | 5 | 5 | 6 | 6 | 6 | 6 | 6 | 5 | 6 | 8 | 8 | 8 | 9 | 12 | (R) 18 | (R) 21 | 12 | U |
| Rates per 100 million unlinked passenger trips (millions)[e] | | | | | | | | | | | | | | | | | | | | |
| Fatalities, all modes | 4.4 | 4.1 | 3.7 | 4.0 | 4.4 | 3.8 | 3.7 | 3.6 | 3.7 | 3.7 | 3.5 | 3.1 | (R) 3.3 | (R) 3.0 | (R) 3.0 | (R) 2.8 | (R) 2.7 | (R) 3.1 | (R) 1.8 | U |
| Motor bus[c] | 2.2 | 1.8 | 2.1 | 1.8 | 2.4 | 1.8 | 2.3 | 2.4 | 2.3 | 2.1 | 1.8 | 1.9 | (R) 1.5 | (R) 2.1 | (R) 1.6 | (R) 1.4 | (R) 2.0 | (R) 2.0 | (R) 1.5 | U |
| Light rail | 4.0 | 7.1 | 4.8 | 8.0 | 4.7 | 6.0 | 2.3 | 1.2 | 8.4 | 5.9 | 9.5 | 6.4 | (R) 3.9 | (R) 4.4 | (R) 6.0 | (R) 5.0 | (R) 4.2 | (R) 7.9 | (R) 3.5 | U |
| Heavy rail | 5.2 | 4.9 | 4.3 | 4.2 | 4.0 | 3.9 | 3.4 | 3.2 | 2.3 | 3.3 | 3.0 | 2.2 | 2.7 | (R) 1.8 | (R) 2.2 | (R) 1.2 | (R) 0.8 | (R) 0.9 | (R) 1.9 | U |
| Commuter rail | 36.4 | 33.9 | 28.3 | 32.4 | 35.2 | 28.6 | 23.8 | 25.4 | 26.1 | 25.4 | 22.4 | 22.3 | 30.6 | 20.5 | 22.8 | 27.4 | 21.3 | 30.0 | U | U |
| Demand responsive | 0.0 | 22.6 | 0.0 | 13.5 | 12.0 | 33.9 | 65.5 | 14.6 | 18.1 | 4.3 | 32.8 | 18.6 | (R) 7.7 | (R) 13.5 | (R) 7.2 | (R) 13.9 | (R) 13.6 | (R) 12.1 | 7.3 | U |
| Van pool | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | (R) 8.2 | (R) 0 | (R) 47.1 | (R) 0 | (R) 4.9 | (R) 4.4 | 0.0 | U |
| Automated guideway | 17.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 32.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 10.7 | 26.0 | (R) 0 | 4.8 | 0.0 | U |
| Injured persons, all modes[f] | 714 | 706 | 753 | 746 | 793 | 798 | 767 | 737 | 720 | 679 | 680 | 631 | (R) 230 | (R) 231 | (R) 237 | (R) 218 | (R) 232 | (R) 238 | 254 | U |
| Motor bus[c] | 815 | 808 | 848 | 848 | 924 | 910 | 890 | 860 | 871 | 837 | 825 | 767 | (R) 231 | (R) 239 | (R) 249 | (R) 232 | (R) 239 | (R) 263 | 257 | U |
| Light rail | 715 | 682 | 677 | 524 | 432 | 529 | 620 | 419 | 394 | 440 | 423 | 368 | (R) 160 | (R) 165 | (R) 187 | (R) 161 | (R) 161 | (R) 202 | 223 | U |
| Heavy rail | 446 | 437 | 493 | 537 | 543 | 553 | 514 | 506 | 462 | 383 | 412 | 390 | (R) 180 | (R) 156 | (R) 173 | 136 | (R) 165 | (R) 145 | 205 | U |
| Commuter rail | 853 | 843 | 972 | 516 | 747 | 738 | 646 | 769 | 466 | 471 | 459 | 465 | 391 | 425 | 362 | 437 | 357 | 374 | U | U |
| Demand responsive | 5,835 | 4,678 | 5,393 | 4,401 | 4,390 | 5,286 | 5,251 | 2,336 | 4,821 | 5,846 | 7,113 | 5,117 | 1,369 | 1,569 | 1,242 | 1,363 | 1,820 | 1,943 | 2,072 | U |
| Van pool | 1,037 | 1,721 | 584 | 1,398 | 638 | 537 | 461 | 701 | 773 | 411 | 524 | 405 | 302 | 141 | 309 | 168 | 269 | 173 | 77 | U |
| Automated guideway | 68 | 0 | 127 | 194 | 160 | 123 | 317 | 272 | 195 | 389 | 239 | 464 | 364 | 353 | 160 | 17 | 94 | 53 | 189 | U |
| All incidents, all modes[f] | 1,179 | 1,126 | 1,005 | 921 | 964 | 871 | 824 | 808 | 773 | 720 | 718 | 680 | (R) 292 | (R) 257 | (R) 267 | (R) 264 | (R) 283 | (R) 260 | 240 | U |
| Motor bus[c] | 1,434 | 1,327 | 1,104 | 994 | 1,077 | 943 | 906 | 890 | 883 | 834 | 840 | 796 | (R) 260 | (R) 228 | (R) 242 | (R) 239 | (R) 266 | (R) 253 | 208 | U |
| Light rail | 842 | 841 | 796 | 606 | 516 | 512 | 522 | 452 | 411 | 410 | 417 | 398 | (R) 314 | (R) 292 | (R) 268 | (R) 297 | (R) 278 | (R) 282 | 224 | U |
| Heavy rail | 541 | 664 | 732 | 769 | 738 | 705 | 637 | 624 | 565 | 484 | 486 | 455 | (R) 257 | (R) 208 | (R) 228 | (R) 204 | (R) 214 | (R) 201 | 251 | U |
| Commuter rail | 1,060 | 991 | 1,207 | 698 | 980 | 885 | 810 | 991 | 670 | 668 | 533 | 554 | 453 | 466 | 424 | 435 | 394 | 419 | U | U |
| Demand responsive | 21,440 | 9,333 | 8,600 | 6,385 | 6,378 | 6,632 | 7,644 | 3,030 | 5,532 | 6,854 | 7,666 | 6,402 | (R) 2,808 | (R) 2,655 | (R) 2,454 | (R) 2,774 | (R) 3,190 | (R) 2,115 | 1,805 | U |
| Van pool | 4,147 | 3,570 | 1,229 | 2,867 | 858 | 1,245 | 1,366 | 2,104 | 2,238 | 1,353 | 1,611 | 2,116 | (R) 253 | (R) 89 | (R) 229 | (R) 714 | (R) 176 | (R) 204 | 40 | U |
| Automated guideway | 51 | 28 | 145 | 194 | 160 | 154 | 396 | 323 | 260 | 371 | 271 | 464 | 299 | 401 | 203 | 52 | (R) 61 | 101 | 223 | U |

KEY: R = revised; U = data are unavailable.

[a] The figures for cable car, inclined plane, jitney, and ferry boat are lumped together and appear in this footnote. Note that the 2003 data include 11 fatalities and 70 injuries that resulted from the Oct. 16, 2003 Staten Island Ferry incident.

| **Other Modes** | **1990** | **1991** | **1992** | **1993** | **1994** | **1995** | **1996** | **1997** | **1998** | **1999** | **2000** | **2001** | **2002** | **2003** | **2004** | **2005** | **2006** | **2007** | **2008** | **2009** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Fatalities:** | **2** | **1** | **0** | **1** | **0** | **0** | **1** | **0** | **0** | **0** | **0** | **1** | **2** | **10** | **0** | **0** | **1** | **2** | **1** | **0** |
| **Injuries:** | **378** | **327** | **399** | **383** | **616** | **598** | **354** | **357** | **379** | **1,091** | **762** | **897** | **58** | **156** | **58** | **18** | **54** | **106** | **58** | **77** |
| **Incidents:** | **186** | **411** | **400** | **411** | **650** | **536** | **301** | **353** | **253** | **1,078** | **745** | **891** | **99** | **99** | **60** | **25** | **48** | **113** | **63** | **75** |

[b] Incidents include accidents (collisions with vehicles, objects, people (except suicides), derailments/vehicles going off road), plus personal casualties, fires, and property damage associated with transit agency revenue vehicles and all transit facilities.

[c] Motor bus also includes trolley bus.

[d] The number of unlinked passenger trips is equivalent to the number of passengers who board public transit vehicles. Passengers are counted each time they board a vehicle regardless of how many vehicles are necessary for a passenger to get to their destination.

[e] Rates are based on total incidents including accidents and were calculated by dividing the number of fatalities, injuries, and incidents in this table by the number of unlinked passenger trips.

[f] In 2002 the drop in the number of incidents and injuries is due largely to a change in definitions by the Federal Transit Administration, particularly the definition of injuries. Only injuries requiring immediate medical treatment away from the scene now qualify as reportable. Previously, any injury was reportable. Commuter rail data are now derived from the Federal Railroad Administration's Rail Accident Incident Reporting System (RAIRS).

**NOTES**

Data are provided only for transit systems that furnished safety data for inclusion in the U.S. Department of Transportation, Federal Transit Administration *Transit Safety and Security Statistics and Analysis* annual reports. Data covers only directly operated urban transit systems. Vehicle-miles for all transit systems including nonurban and purchased can be found in the vehicle-miles table in chapter 1.

Prior to the 2000 edition, *Transit Safety and Security Statistics and Analysis Report* was entitled *Safety Management Information Statistics* (SAMIS) annual report.

Analysts for the FTA believe the change in reporting requirements in 2002 may have resulted in unreliable data in that year, particularly for injuries and incidents. The reliability of reporting is believed to be much better in 2003 and is expected to improve in the future.

Commuter rail are not required to submit safety and security data for the *National Transportation Database* .

**SOURCES**

1990-2001: U.S. Department of Transportation, Federal Transit Administration, *2004 Transit Safety and Security Statistics and Analysis Report* (Cambridge, MA: 2005).
2002-09: Ibid, National Transit Database, *Safety and Security Time Series Data* (Washington, DC: March 2010 Issue), available at http://www.ntdprogram.gov/ntdprogram/data.htm as of Aug. 20, 2010.

## Table 2-35: Transit and Grade-Crossing Fatalities by Rail Transit Mode

| | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | (P) 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| All transit rail, total | 186 | 152 | 159 | 171 | 196 | 197 | 167 | 202 | 143 | 167 | 159 | 125 | 184 | 169 | 157 |
| Transit only | 169 | 145 | 147 | 145 | 175 | 177 | 154 | 178 | 122 | 138 | 101 | 92 | 140 | 142 | 129 |
| Grade crossing | 17 | 7 | 12 | 26 | 21 | 20 | 13 | 24 | 21 | 29 | 58 | 33 | 44 | 27 | 28 |
| Light rail, total | 15 | 6 | 3 | 23 | 17 | 30 | 21 | 13 | 17 | 22 | 19 | 17 | 32 | 15 | 26 |
| Transit only | N | N | N | N | N | 18 | 20 | 12 | 13 | 12 | 9 | 9 | 21 | 7 | 15 |
| Grade crossing | N | N | N | N | N | 12 | 1 | 1 | 4 | 10 | 10 | 8 | 11 | 8 | 11 |
| Heavy rail, total | 79 | 74 | 77 | 54 | 84 | 80 | 59 | 73 | 49 | 59 | 35 | 23 | 32 | 60 | 78 |
| Transit only | N | N | N | N | N | 80 | 58 | 73 | 48 | 58 | 35 | 22 | 30 | 58 | 77 |
| Grade crossing | N | N | N | N | N | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 2 | 2 | 1 |
| Commuter rail, total | 92 | 72 | 79 | 94 | 95 | 87 | 87 | 116 | 77 | 86 | 105 | 85 | 120 | 93 | 53 |
| Transit only | N | N | N | N | N | 79 | 76 | 93 | 61 | 68 | 57 | 61 | 89 | 77 | 37 |
| Grade crossing | N | N | N | N | N | 8 | 11 | 23 | 16 | 18 | 48 | 24 | 31 | 16 | 16 |

**KEY:** N = data do not exist; P = preliminary.

**NOTES**

*Light rail* and *Heavy rail Grade crossings* are regulated by the Federal Transit Administration. The Federal Transit Administration defines two types of *Grade crossings* : (1) At grade, mixed, and cross traffic crossings, meaning railway right-of-way over which other traffic moving in the same direction or other cross directions may pass. This includes city street right-of-way; (2) At grade with cross traffic crossings, meaning railway right-of-way over which no other traffic may pass, except to cross at grade-level crossings. This can include median strip rights-of-way with grade level crossings at intersecting streets.

*Commuter rail Grade crossings* are regulated by the Federal Railroad Administration. The Federal Railroad Administration defines a *Grade crossing* as a location where a public highway, road, street, or private roadway, including associated sidewalks and pathways, crosses one or more railroad tracks at grade.

**SOURCE**

U.S. Department of Transportation, Federal Transit Administration, *Transit Safety and Security Statistics and Analysis Annual Report* (Washington, DC: Annual Issues), available at http://transit-safety.volpe.dot.gov/ as of Apr. 5, 2006, and personal communications on June 8, 2005, Apr. 5, 2006, June 14, 2007, June 18, 2008, Aug. 20, 2010.

## Table 2-36: Transit and Grade-Crossing Injuries by Rail Transit Mode

| | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | (P) 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| All transit rail, total | 14,931 | 14,650 | 15,760 | 13,812 | 12,697 | 13,969 | 13,655 | 6,846 | 6,294 | 6,735 | 6,104 | 6,806 | 7,494 | 9,868 | 8,710 |
| Transit only | 14,736 | 14,466 | 15,634 | 13,754 | 12,538 | 13,846 | 13,581 | 6,738 | 6,177 | 6,582 | 5,910 | 6,598 | 7,281 | 9,689 | 8,487 |
| Grade crossing | 195 | 184 | 126 | 58 | 159 | 123 | 74 | 108 | 117 | 153 | 194 | 208 | 213 | 179 | 223 |
| Light rail, total | 1,319 | 1,604 | 1,087 | 1,076 | 1,271 | 1,338 | 1,201 | 557 | 539 | 633 | 618 | 659 | 838 | 959 | 901 |
| Transit only | N | N | N | N | N | 1,227 | 1,147 | 481 | 471 | 519 | 458 | 505 | 669 | 791 | 702 |
| Grade crossing | N | N | N | N | N | 111 | 54 | 76 | 68 | 114 | 160 | 154 | 169 | 168 | 199 |
| Heavy rail, total | 11,238 | 11,093 | 12,285 | 11,059 | 9,665 | 10,848 | 10,641 | 4,806 | 4,158 | 4,738 | 3,814 | 4,721 | 4,789 | 7,183 | 5,956 |
| Transit only | N | N | N | N | N | 10,847 | 10,634 | 4,801 | 4,158 | 4,738 | 3,813 | 4,721 | 4,773 | 7,180 | 5,956 |
| Grade crossing | N | N | N | N | N | 1 | 7 | 5 | 0 | 0 | 1 | 0 | 16 | 3 | 0 |
| Commuter rail, total | 2,374 | 1,953 | 2,388 | 1,677 | 1,761 | 1,783 | 1,813 | 1,483 | 1,597 | 1,364 | 1,672 | 1,426 | 1,867 | 1,700 | 1,808 |
| Transit only | N | N | N | N | N | 1,772 | 1,800 | 1,456 | 1,548 | 1,325 | 1,639 | 1,372 | 1,839 | 1,694 | 1,784 |
| Grade crossing | N | N | N | N | N | 11 | 13 | 27 | 49 | 39 | 33 | 54 | 28 | 6 | 24 |

**KEY:** N = data do not exist; P = preliminary.

**NOTES**

*Light rail* and *Heavy rail Grade crossings* are regulated by the Federal Transit Administration. The Federal Transit Administration defines two types of *Grade crossings*: (1) At grade, mixed, and cross traffic crossings, meaning railway right-of-way over which other traffic moving in the same direction or other cross directions may pass. This includes city street right-of-way; (2) At grade with cross traffic crossings, meaning railway right-of-way over which no other traffic may pass, except to cross at grade-level crossings. This can include median strip rights-of-way with grade level crossings at intersecting streets.

*Commuter rail Grade crossings* are regulated by the Federal Railroad Administration. The Federal Railroad Administration defines a *Grade crossing* as a location where a public highway, road, street, or private roadway, including associated sidewalks and pathways, crosses one or more railroad tracks at grade.

Data thresholds changed for certain elements beginning with 2002. The extreme drop in the incidents, injuries, collisions, and not otherwise classifieds (personal casualties) for 2002 is due to the change of the incident thresholds, specifically the definition of injuries, in the NTD. The injury definition was changed for the 2002 revision of the NTD to coincide with other USDOT modes. Only incidents involving immediate medical treatment away from the scene now qualify as reportable injuries. Previously, any reported incident/injury was reported to NTD. It was felt that this resulted in the collection of claims-based as opposed to safety-based data.

**SOURCE**

U.S. Department of Transportation, Federal Transit Administration, *Transit Safety and Security Statistics and Analysis Annual Report*, (Washington, DC: Annual Issues), available at http://transit-safety.volpe.dot.gov/ as of Apr. 5, 2006, and personal communications on June 8, 2005, Apr. 5, 2006, June 14, 2007, June 18, 2008, Aug. 20, 2010.

## Table 2-37: Transit and Grade-Crossing Incidents by Rail Transit Mode

| | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | (P) 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| All transit rail, total | 18,450 | 17,547 | 19,402 | 17,047 | 15,877 | 16,173 | 15,864 | 9,903 | 8,286 | 8,751 | 8,534 | 8,889 | 9,883 | 11,517 | 9,830 |
| Transit only | 18,323 | 17,413 | 19,283 | 16,941 | 15,737 | 16,025 | 15,763 | 9,505 | 8,010 | 8,440 | 7,999 | 8,713 | 9,700 | 11,334 | 9,658 |
| Grade crossing | 127 | 134 | 119 | 106 | 140 | 148 | 101 | 398 | 276 | 311 | 535 | 176 | 183 | 183 | 172 |
| Light rail, total | 1,276 | 1,350 | 1,173 | 1,121 | 1,182 | 1,319 | 1,299 | 1,105 | 983 | 931 | 1,130 | 1,138 | 1,190 | 960 | 831 |
| Transit only | 1,178 | 1,253 | 1,107 | 1,055 | 1,079 | 1,213 | 1,245 | 785 | 766 | 693 | 689 | 1,041 | 1,090 | 846 | 726 |
| Grade crossing | 98 | 97 | 66 | 66 | 103 | 106 | 54 | 320 | 217 | 238 | 441 | 97 | 100 | 114 | 105 |
| Heavy rail, total | 14,327 | 13,748 | 15,151 | 13,516 | 12,196 | 12,782 | 12,406 | 7,078 | 5,554 | 6,222 | 5,741 | 6,176 | 6,753 | 8,820 | 7,030 |
| Transit only | 14,325 | 13,746 | 15,146 | 13,513 | 12,195 | 12,781 | 12,398 | 7,076 | 5,553 | 6,221 | 5,740 | 6,173 | 6,748 | 8,815 | 7,028 |
| Grade crossing | 2 | 2 | 5 | 3 | 1 | 1 | 8 | 2 | 1 | 1 | 1 | 3 | 5 | 5 | 2 |
| Commuter rail, total | 2,847 | 2,449 | 3,078 | 2,410 | 2,499 | 2,072 | 2,159 | 1,720 | 1,749 | 1,598 | 1,663 | 1,575 | 1,940 | 1,707 | 1,924 |
| Transit only | 2,820 | 2,414 | 3,030 | 2,373 | 2,463 | 2,031 | 2,120 | 1,644 | 1,691 | 1,526 | 1,570 | 1,499 | 1,862 | 1,646 | 1,859 |
| Grade crossing | 27 | 35 | 48 | 37 | 36 | 41 | 39 | 76 | 58 | 72 | 93 | 76 | 78 | 61 | 65 |

**KEY:** P = preliminary.

**NOTES**

*Light rail* and *heavy rail Grade crossings* are regulated by the Federal Transit Administration. The Federal Transit Administration defines two types of *Grade crossings* : (1) At grade, mixed, and cross traffic crossings, meaning railway right-of-way over which other traffic moving in the same direction or other cross directions may pass. This includes city street right-of-way; (2) At grade with cross traffic crossings, meaning railway right-of-way over which no other traffic may pass, except to cross at grade-level crossings. This can include median strip rights-of-way with grade level crossings at intersecting streets.

*Commuter rail Grade crossings* are regulated by the Federal Railroad Administration. The Federal Railroad Administration defines a *Grade crossing* as a location where a public highway, road, street, or private roadway, including associated sidewalks and pathways, crosses one or more railroad tracks at grade.

Data thresholds changed for certain elements beginning with 2002. The extreme drop in the incidents, injuries, collisions, and not otherwise classifieds (personal casualties) for 2002 is due to the change of the incident thresholds, specifically the definition of injuries, in the NTD. The injury definition was changed for the 2002 revision of the NTD to coincide with other USDOT modes. Only incidents involving immediate medical treatment away from the scene now qualify as reportable injuries. Previously, any reported incident/injury was reported to NTD. It was felt that this resulted in the collection of claims-based as opposed to safety-based data.

**SOURCE**

U.S. Department of Transportation, Federal Transit Administration, *Transit Safety and Security Statistics and Analysis Annual Report* , (Washington, DC: Annual Issues), available at http://transit-safety.volpe.dot.gov/ as of Apr. 5, 2006, and personal communications on June 8, 2005, Apr. 5, 2006, June 14, 2007, June 18, 2008, Aug. 20, 2010.

**Table 2-38: Reports of Violent Crime, Property Crime, and Arrests by Transit Mode**

| | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Reported Offenses, Violent Crime | | | | | | | | | | | | | |
| Homicide[a] | 19 | 20 | 19 | 51 | 21 | 12 | 16 | 0 | 4 | 1 | 1 | 2 | 4 |
| Motor bus | 8 | 9 | 6 | 40 | 7 | 7 | 8 | 0 | 2 | 0 | 1 | 0 | 4 |
| Commuter rail | 1 | 1 | 4 | 1 | 3 | 1 | 2 | 0 | 1 | 0 | 0 | 2 | 0 |
| Demand responsive | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Heavy rail | 8 | 9 | 8 | 6 | 11 | 4 | 4 | 0 | 1 | 1 | 0 | 0 | 0 |
| Light rail | 2 | 1 | 1 | 4 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other[b] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Forcible rape[c] | 29 | 38 | 31 | 47 | 27 | 37 | 37 | 65 | 25 | 24 | 23 | 5 | 1 |
| Motor bus | 11 | 13 | 10 | 16 | 14 | 10 | 7 | 40 | 2 | 7 | 11 | 1 | 0 |
| Commuter rail | 5 | 4 | 7 | 1 | 3 | 3 | 5 | 1 | 3 | 0 | 2 | 0 | 0 |
| Demand responsive | 0 | 0 | 2 | 4 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| Heavy rail | 13 | 19 | 8 | 24 | 8 | 20 | 9 | 20 | 15 | 12 | 4 | 3 | 0 |
| Light rail | 0 | 2 | 4 | 2 | 0 | 4 | 2 | 4 | 5 | 4 | 6 | 1 | 1 |
| Other[b] | 0 | 0 | 0 | 0 | 1 | 0 | 13 | 0 | 0 | 0 | 0 | 0 | 0 |
| Robbery[d] | 2,811 | 4,563 | 4,760 | 3,684 | 3,789 | 3,480 | 3,308 | 1,641 | 1,408 | 1,561 | 1,656 | 2,222 | 2,634 |
| Motor bus | 909 | 871 | 870 | 605 | 764 | 916 | 953 | 386 | 369 | 476 | 535 | 730 | 800 |
| Commuter rail | 181 | 242 | 187 | 133 | 183 | 144 | 144 | 89 | 29 | 44 | 107 | 126 | 110 |
| Demand responsive | 1 | 3 | 0 | 1 | 3 | 4 | 4 | 7 | 1 | 0 | 2 | 14 | 1 |
| Heavy rail | 1,490 | 3,164 | 3,394 | 2,686 | 2,588 | 2,174 | 1,966 | 864 | 762 | 676 | 630 | 861 | 1,196 |
| Light rail | 181 | 238 | 222 | 220 | 200 | 213 | 217 | 287 | 236 | 353 | 377 | 463 | 486 |
| Other[b] | 49 | 45 | 87 | 39 | 51 | 29 | 24 | 8 | 11 | 12 | 5 | 28 | 41 |
| Aggravated assault[e] | 2,701 | 3,084 | 3,105 | 2,314 | 2,448 | 2,217 | 2,286 | 2,560 | 1,638 | 1,330 | 1,332 | 1,768 | 2,066 |
| Motor bus | 1,941 | 1,677 | 1,294 | 1,186 | 1,268 | 1,070 | 1,146 | 1,383 | 957 | 774 | 760 | 1,007 | 1,263 |
| Commuter rail | 133 | 69 | 92 | 80 | 97 | 58 | 109 | 102 | 33 | 78 | 115 | 172 | 107 |
| Demand responsive | 6 | 13 | 13 | 13 | 14 | 16 | 8 | 24 | 4 | 3 | 6 | 19 | 11 |
| Heavy rail | 437 | 1,074 | 1,051 | 837 | 903 | 839 | 786 | 815 | 395 | 279 | 249 | 334 | 421 |
| Light rail | 157 | 199 | 143 | 170 | 135 | 208 | 187 | 227 | 220 | 184 | 177 | 217 | 235 |
| Other[b] | 27 | 52 | 512 | 28 | 31 | 26 | 50 | 9 | 29 | 12 | 25 | 19 | 29 |
| Reported Offenses, Property Crime | | | | | | | | | | | | | |
| Theft[f] | 10,596 | 13,238 | 14,486 | 11,830 | 12,896 | 13,393 | 13,636 | 12,843 | 8,146 | 7,847 | 6,007 | 6,409 | 7,943 |
| Motor bus | 2,738 | 3,408 | 2,920 | 2,327 | 2,487 | 2,548 | 2,826 | 2,631 | 1,846 | 1,787 | 1,593 | 1,520 | 1,560 |
| Commuter rail | 2,238 | 2,262 | 2,345 | 2,021 | 1,872 | 2,139 | 2,001 | 1,912 | 563 | 730 | 1,224 | 1,449 | 1,293 |
| Demand responsive | 2 | 8 | 40 | 15 | 4 | 19 | 5 | 42 | 8 | 4 | 2 | 13 | 1 |
| Heavy rail | 4,625 | 6,794 | 8,321 | 6,807 | 7,789 | 7,856 | 7,807 | 7,158 | 4,802 | 4,396 | 2,204 | 2,527 | 4,121 |
| Light rail | 451 | 609 | 479 | 496 | 530 | 724 | 706 | 1,055 | 877 | 915 | 856 | 847 | 919 |
| Other[b] | 542 | 157 | 381 | 164 | 214 | 107 | 291 | 45 | 50 | 15 | 128 | 53 | 49 |
| Vehicle theft[g] | 2,182 | 2,261 | 2,276 | 2,225 | 1,876 | 2,112 | 1,909 | 2,117 | 1,800 | 1,584 | 1,361 | 1,051 | 1,756 |
| Motor bus | 263 | 306 | 198 | 208 | 198 | 169 | 213 | 222 | 149 | 169 | 382 | 229 | 206 |
| Commuter rail | 253 | 125 | 262 | 470 | 272 | 367 | 308 | 152 | 67 | 63 | 54 | 126 | 84 |
| Demand responsive | 0 | 1 | 3 | 9 | 28 | 6 | 6 | 5 | 3 | 1 | 0 | 8 | 0 |
| Heavy rail | 1,536 | 1,694 | 1,630 | 1,234 | 1,203 | 1,285 | 1,143 | 1,426 | 1,267 | 966 | 490 | 388 | 1,140 |
| Light rail | 128 | 135 | 179 | 273 | 156 | 279 | 226 | 310 | 306 | 385 | 434 | 298 | 322 |
| Other[b] | 2 | 0 | 4 | 31 | 19 | 6 | 13 | 2 | 8 | 0 | 1 | 2 | 4 |
| Burglary[h] | 1,759 | 1,650 | 1,757 | 491 | 415 | 563 | 625 | 467 | 429 | 601 | 393 | 681 | 2,947 |
| Motor bus | 156 | 104 | 94 | 75 | 86 | 142 | 120 | 95 | 79 | 160 | 142 | 100 | 2,125 |
| Commuter rail | 178 | 177 | 260 | 217 | 170 | 191 | 188 | 78 | 83 | 96 | 112 | 154 | 94 |
| Demand responsive | 2 | 0 | 4 | 3 | 1 | 6 | 2 | 2 | 2 | 1 | 1 | 1 | 1 |
| Heavy rail | 1,367 | 1,278 | 1,343 | 110 | 91 | 82 | 119 | 95 | 53 | 40 | 25 | 54 | 525 |
| Light rail | 43 | 78 | 48 | 70 | 42 | 131 | 180 | 197 | 212 | 303 | 105 | 367 | 195 |
| Other[b] | 13 | 13 | 8 | 16 | 25 | 11 | 16 | 0 | 0 | 1 | 8 | 5 | 7 |
| Arson[i] | 63 | 96 | 75 | 60 | 53 | 50 | 44 | 23 | 23 | 42 | 27 | 26 | 26 |
| Motor bus | 29 | 67 | 33 | 21 | 15 | 24 | 12 | 8 | 9 | 23 | 11 | 13 | 8 |
| Commuter rail | 14 | 1 | 21 | 10 | 12 | 6 | 9 | 8 | 3 | 2 | 2 | 1 | 3 |
| Demand responsive | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Heavy rail | 14 | 22 | 16 | 27 | 20 | 16 | 15 | 4 | 10 | 7 | 2 | 5 | 8 |
| Light rail | 6 | 6 | 5 | 2 | 6 | 4 | 8 | 0 | 1 | 10 | 12 | 6 | 5 |
| Other[b] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 1 | 1 |

| Reported Offenses, Arrests | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Other assaults[j] | 2,991 | 3,088 | 2,697 | 2,787 | 2,641 | 2,799 | 2,441 | 1,589 | 1,752 | 1,546 | 1,530 | 2,141 | 2,266 |
| Motor bus | 1,896 | 1,571 | 1,439 | 1,400 | 1,217 | 1,159 | 1,024 | 715 | 800 | 710 | 703 | 1,023 | 954 |
| Commuter rail | 144 | 106 | 140 | 122 | 164 | 142 | 156 | 72 | 37 | 136 | 181 | 196 | 245 |
| Demand responsive | 4 | 0 | 16 | 3 | 4 | 3 | 6 | 12 | 2 | 3 | 3 | 29 | 47 |
| Heavy rail | 645 | 932 | 881 | 898 | 888 | 1,085 | 999 | 662 | 750 | 572 | 462 | 630 | 708 |
| Light rail | 181 | 330 | 195 | 282 | 269 | 354 | 204 | 101 | 153 | 107 | 164 | 214 | 248 |
| Other[b] | 121 | 149 | 26 | 82 | 99 | 56 | 52 | 27 | 10 | 18 | 17 | 49 | 64 |
| Vandalism[k] | 17,228 | 8,627 | 9,539 | 6,571 | 6,895 | 7,312 | 2,971 | 1,130 | 953 | 994 | 1,298 | 1,748 | 1,751 |
| Motor bus | 13,343 | 6,167 | 5,262 | 3,656 | 4,178 | 4,579 | 1,410 | 523 | 456 | 429 | 568 | 589 | 673 |
| Commuter rail | 1,071 | 309 | 659 | 778 | 507 | 264 | 293 | 145 | 9 | 122 | 276 | 507 | 371 |
| Demand responsive | 12 | 17 | 8 | 10 | 16 | 7 | 9 | 7 | 2 | 0 | 5 | 5 | 3 |
| Heavy rail | 1,157 | 1,339 | 1,128 | 1,067 | 1,222 | 1,200 | 984 | 190 | 220 | 201 | 209 | 213 | 327 |
| Light rail | 1,505 | 609 | 2,084 | 947 | 892 | 1,215 | 246 | 256 | 246 | 235 | 233 | 408 | 346 |
| Other[b] | 140 | 186 | 398 | 113 | 80 | 47 | 29 | 9 | 20 | 7 | 7 | 26 | 31 |
| Sex offenses[l] | 664 | 803 | 1,047 | 962 | 1,009 | 844 | 798 | N | N | N | N | N | N |
| Motor bus | 242 | 260 | 363 | 258 | 321 | 220 | 178 | N | N | N | N | N | N |
| Commuter rail | 100 | 41 | 82 | 91 | 85 | 84 | 80 | N | N | N | N | N | N |
| Demand responsive | 5 | 0 | 6 | 2 | 5 | 1 | 3 | N | N | N | N | N | N |
| Heavy rail | 249 | 430 | 517 | 541 | 515 | 477 | 474 | N | N | N | N | N | N |
| Light rail | 59 | 71 | 79 | 68 | 80 | 58 | 60 | N | N | N | N | N | N |
| Other[b] | 9 | 1 | 0 | 2 | 3 | 4 | 3 | N | N | N | N | N | N |
| Drug abuse violations[m] | 2,578 | 3,944 | 4,355 | 3,792 | 4,131 | 4,083 | 4,339 | N | N | N | N | N | N |
| Motor bus | 1,037 | 2,122 | 1,970 | 1,414 | 1,705 | 1,443 | 1,179 | N | N | N | N | N | N |
| Commuter rail | 303 | 393 | 477 | 495 | 303 | 196 | 389 | N | N | N | N | N | N |
| Demand responsive | 1 | 0 | 15 | 21 | 8 | 1 | 2 | N | N | N | N | N | N |
| Heavy rail | 1,078 | 1,130 | 1,530 | 1,550 | 1,606 | 1,915 | 2,015 | N | N | N | N | N | N |
| Light rail | 151 | 298 | 336 | 271 | 501 | 520 | 739 | N | N | N | N | N | N |
| Other[b] | 8 | 1 | 27 | 41 | 8 | 8 | 15 | N | N | N | N | N | N |
| Driving under the influence[n] | 466 | 129 | 205 | 176 | 204 | 194 | 284 | N | N | N | N | N | N |
| Motor bus | 91 | 82 | 101 | 101 | 132 | 67 | 156 | N | N | N | N | N | N |
| Commuter rail | 26 | 21 | 22 | 21 | 12 | 44 | 26 | N | N | N | N | N | N |
| Demand responsive | 0 | 0 | 1 | 4 | 0 | 0 | 1 | N | N | N | N | N | N |
| Heavy rail | 52 | 8 | 22 | 21 | 42 | 39 | 57 | N | N | N | N | N | N |
| Light rail | 292 | 16 | 31 | 21 | 15 | 33 | 22 | N | N | N | N | N | N |
| Other[b] | 5 | 2 | 28 | 8 | 3 | 11 | 22 | N | N | N | N | N | N |
| Drunkenness[o] | 10,479 | 6,921 | 8,632 | 12,643 | 11,487 | 6,087 | 8,033 | N | N | N | N | N | N |
| Motor bus | 6,457 | 3,936 | 5,346 | 3,046 | 3,609 | 3,337 | 4,693 | N | N | N | N | N | N |
| Commuter rail | 71 | 23 | 226 | 156 | 112 | 170 | 108 | N | N | N | N | N | N |
| Demand responsive | 2 | 2 | 46 | 34 | 2 | 1 | 4 | N | N | N | N | N | N |
| Heavy rail | 1,511 | 1,617 | 1,601 | 7,340 | 5,831 | 1,240 | 1,308 | N | N | N | N | N | N |
| Light rail | 2,255 | 1,305 | 1,258 | 1,844 | 1,913 | 1,316 | 1,598 | N | N | N | N | N | N |
| Other[b] | 183 | 38 | 155 | 223 | 20 | 23 | 322 | N | N | N | N | N | N |
| Disorderly conduct[p] | 22,206 | 26,178 | 25,325 | 15,897 | 15,971 | 27,314 | 32,569 | N | N | N | N | N | N |
| Motor bus | 4,681 | 5,025 | 6,978 | 4,521 | 5,471 | 3,745 | 3,253 | N | N | N | N | N | N |
| Commuter rail | 810 | 1,085 | 1,399 | 1,525 | 797 | 706 | 607 | N | N | N | N | N | N |
| Demand responsive | 5 | 8 | 47 | 5 | 5 | 6 | 2 | N | N | N | N | N | N |
| Heavy rail | 15,258 | 19,183 | 15,309 | 8,227 | 7,856 | 21,087 | 27,626 | N | N | N | N | N | N |
| Light rail | 1,164 | 800 | 1,177 | 1,408 | 1,767 | 1,737 | 1,046 | N | N | N | N | N | N |
| Other[b] | 288 | 77 | 415 | 211 | 75 | 33 | 35 | N | N | N | N | N | N |
| Trespassing[q] | 3,362 | 3,497 | 7,444 | 6,049 | 3,670 | 4,303 | 4,597 | 2,278 | 4,126 | 3,162 | 3,220 | 4,503 | 4,919 |
| Motor bus | 928 | 604 | 1,225 | 1,283 | 1,065 | 1,329 | 1,040 | 937 | 1,262 | 1,115 | 1,138 | 1,392 | 1,290 |
| Commuter rail | 845 | 674 | 4,150 | 2,850 | 1,080 | 709 | 1,034 | 475 | 270 | 664 | 730 | 1,033 | 1,150 |
| Demand responsive | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 13 | 2 | 1 | 12 | 36 | 6 |
| Heavy rail | 1,155 | 1,208 | 1,398 | 1,254 | 1,044 | 1,267 | 1,228 | 483 | 616 | 663 | 634 | 853 | 1,058 |
| Light rail | 400 | 653 | 463 | 443 | 436 | 985 | 1,278 | 349 | 1,951 | 699 | 677 | 1,151 | 1,376 |
| Other[b] | 34 | 358 | 206 | 217 | 45 | 13 | 17 | 21 | 25 | 20 | 29 | 38 | 39 |
| Fare evasion[r] | 33,903 | 47,873 | 53,406 | 58,856 | 55,194 | 53,863 | 47,258 | 74,385 | 69,950 | 103,156 | 129,590 | 126,092 | 135,602 |
| Motor bus | 3,172 | 2,372 | 1,819 | 1,694 | 2,388 | 591 | 847 | 3,089 | 7,427 | 10,270 | 21,787 | 4,372 | 5,181 |
| Commuter rail | 140 | 334 | 310 | 204 | 167 | 179 | 566 | 3,849 | 3,873 | 73 | 194 | 11,768 | 346 |
| Demand responsive | 1 | 1 | 2 | 5 | 1 | 3 | 5 | 201 | 1 | 43 | 2 | 448 | 5 |
| Heavy rail | 8,247 | 39,957 | 46,106 | 40,350 | 35,033 | 28,933 | 24,852 | 20,469 | 16,459 | 25,775 | 15,901 | 12,611 | 21,666 |
| Light rail | 22,212 | 1,185 | 912 | 12,798 | 17,320 | 24,124 | 20,945 | 46,766 | 42,187 | 66,991 | 91,701 | 96,868 | 108,388 |
| Other[b] | 131 | 4,024 | 4,257 | 3,805 | 285 | 33 | 43 | 11 | 3 | 4 | 5 | 25 | 16 |
| Curfew and loitering laws[s] | 1,878 | 872 | 1,960 | 1,161 | 3,022 | 3,630 | 3,391 | N | N | N | N | N | N |
| Motor bus | 1,201 | 241 | 1,112 | 291 | 495 | 469 | 403 | N | N | N | N | N | N |
| Commuter rail | 19 | 27 | 223 | 72 | 172 | 329 | 330 | N | N | N | N | N | N |
| Demand responsive | 0 | 1 | 5 | 0 | 0 | 0 | 0 | N | N | N | N | N | N |
| Heavy rail | 462 | 493 | 530 | 680 | 1,789 | 2,324 | 2,396 | N | N | N | N | N | N |
| Light rail | 161 | 95 | 80 | 106 | 509 | 498 | 251 | N | N | N | N | N | N |
| Other[b] | 35 | 15 | 10 | 12 | 57 | 10 | 11 | N | N | N | N | N | N |

**KEY:** N = data do not exist.

[a] The killing of one or more human beings by another. This includes murder, non-negligent manslaughter, and manslaughter by negligence.

[b] Other transit mode includes automated guideway, cable car, ferryboat, trolleybus, vanpool, monorail, inclined plane, and starting in 2001, the Alaska Railroad.

[c] The carnal knowledge of a female forcibly and against her will. This includes assault to rape or attempt to rape. Beginning in 2006 a higher threshold was required for an incident to be recorded, this led to a significant decrease compared to previous years.

[d] The taking or attempting to take anything of value from the care, custody, or control of a person or persons by force or threat of force or violence and/or by putting the victim in fear. The use or threat of force includes firearms, knives or cutting instruments, other dangerous weapons (clubs, acid, explosives), and strong-arm techniques (hands, fists, feet).

[e] An unlawful attack by one person upon another for the purpose of inflicting severe or aggravated bodily injury. This type of assault usually is accompanied by the use of a weapon or by means likely to produce death or great bodily harm.

[f] The unlawful taking, carrying, leading, or riding away of property from the possession or constructive possession of another. This includes pocket-picking, purse-snatching, shoplifting, thefts from motor vehicles, thefts of motor vehicle parts and accessories, theft of bicycles, theft from buildings, theft from coin-operated devices or machines, and all other theft not specifically classified.

[g] The theft or attempted theft of a motor vehicle. A motor vehicle is a self-propelled vehicle that runs on the surface of land and not on rails. Examples of motor vehicles are automobiles, trucks, buses, motor cycles, and motor scooters.

[h] The unlawful entry of a structure to commit a felony or a theft. This includes offenses known locally as burglary (any degree), unlawful entry with intent to commit a larceny or felony, breaking and entering with intent to commit a larceny, housebreaking, safe-cracking, and all attempts at these offenses.

[i] To unlawfully and intentionally damage, or attempt to damage, any real or personal property by fire or incendiary device.

[j] An unlawful attack or attempt by one person upon another where no weapon was used or which did not result in serious or aggravated injury to the victim. This includes simple assault, minor assault, assault and battery, injury by culpable negligence, intimidation, coercion, hazing, and all attempts to commit these offenses.

[k] The willful or malicious destruction, injury, disfigurement, or defacement of any public or private property, real or personal, without consent of the owner or person having custody or control by cutting, tearing, breaking, marking, painting, drawing, covering with filth, or any other such means as may be specified by local law.

[l] Any sexual acts except forcible rape, prostitution, and commercialized vice. This includes offenses against chastity, common decency, morals, and the like, such as: adultery and fornication, buggery, incest, indecent exposure, indecent liberties, seduction, sodomy or crime against nature, statutory rape (no force), and all attempts to commit any of the above.

[m] Arrests requested based on the narcotics used. This includes all arrests for violations of state and local laws, specifically those relating to the unlawful possession, sale, use, growing, manufacturing, and making of narcotic drugs.

[n] The driving or operating of any vehicle or common carrier while drunk or under the influence of liquor or narcotics.

[o] Arrests for all offenses of drunkenness, which is the consumption of alcoholic beverages to the extent that one's mental faculties and physical coordination are substantially impaired. This includes drunkenness, drunk and disorderly, common or habitual drunkard, and intoxication.

[p] All charges of committing a breach of the peace. This includes, affray; unlawful assembly; disturbing the peace; disturbing meetings; disorderly conduct in state institutions, at court, at fairs, on trains or public conveyances, etc.; blasphemy, profanity, and obscene language; desecrating the flag; refusing to assist an officer; and all attempts to commit any of the above.

[q] To unlawfully enter land, a dwelling, or other real property.

[r] The unlawful use of transit facilities by riding without paying the applicable fare.

[s] All arrests for violations of local curfew or loitering ordinances where such laws exist.

**NOTES**

Data are from transit agencies in urbanized areas over 200,000 population and include patrons, employees, and others.

The figures for violent and property crime follow the *FBI Uniform Crime Reporting Handbook* (Washington, DC: 1984) and are based on records of calls for service, complaints, and/or investigations. These figures are for reported offenses and do not reflect the findings of a court, coroner, jury, or decision of a prosecutor.

Security data was first reported to the Federal Transit Administration in 1995 and was not compiled for earlier years.

Beginning in 2002, data are no longer collected for the following offenses: sex offenses, drug abuse violations, driving under the influence, drunkenness, disorderly conduct, and curfew and loitering laws.

Analysts for the FTA believe the change in reporting requirements in 2002 may have resulted in unreliable data in that year. The reliability of reporting is believed to be much better in 2003 and is expected to improve in the future.

**SOURCES**

1995-2001: U.S. Department of Transportation, Federal Transit Administration, *National Transit Database,* available at http://www.ntdprogram.gov/ntdprogram as of May 6, 2003, tables 25-27 and similar tables in earlier editions.

2002-05: Ibid., personal communications June 14, 2007.

2006-07: Federal Transit Administration, Office of Safety and Security, personal communication, as of Oct. 1, 2009.

# Section E
# Railroad

**Table 2-39: Railroad and Grade-Crossing Fatalities by Victim Class**

| | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Passengers on trains | 4 | 3 | 3 | 8 | 3 | 58 | 5 | 0 | 12 | 6 | 4 | 14 | 4 | 3 | 7 | 3 | 3 | 16 | 2 | 5 | 24 | 3 |
| Railroad only | 4 | 3 | 3 | 8 | 3 | 58 | 5 | 0 | 12 | 6 | 2 | 3 | 4 | 3 | 7 | 2 | 3 | 16 | 2 | 5 | 24 | 3 |
| Grade crossing | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 11 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Employees on duty | 97 | 46 | 40 | 35 | 34 | 47 | 31 | 34 | 33 | 37 | 27 | 31 | 24 | 22 | 20 | 19 | 25 | 25 | 16 | 17 | 25 | 16 |
| Railroad only | 97 | 44 | 35 | 34 | 32 | 44 | 30 | 32 | 32 | 37 | 23 | 29 | 22 | 21 | 19 | 18 | 23 | 23 | 12 | 16 | 22 | 16 |
| Grade crossing | 0 | 2 | 5 | 1 | 2 | 3 | 1 | 2 | 1 | 0 | 4 | 2 | 2 | 1 | 1 | 1 | 2 | 2 | 4 | 1 | 3 | 0 |
| Employees not on duty | 4 | 2 | 0 | 1 | 1 | 4 | 0 | 2 | 0 | 0 | 2 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Railroad only | 3 | 2 | 0 | 1 | 1 | 4 | 0 | 2 | 0 | 0 | 2 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Grade crossing | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Contractor employees | 7 | 4 | 3 | 3 | 11 | 6 | 3 | 7 | 9 | 11 | 5 | 12 | 3 | 4 | 10 | 5 | 4 | 5 | 7 | 5 | 5 | 4 |
| Railroad only | 7 | 4 | 3 | 3 | 10 | 6 | 3 | 7 | 9 | 11 | 5 | 11 | 3 | 4 | 9 | 4 | 4 | 5 | 7 | 5 | 5 | 4 |
| Grade crossing | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Nontrespassers[a] | 739 | 507 | 551 | 484 | 475 | 489 | 505 | 443 | 365 | 363 | 326 | 305 | 335 | 269 | 267 | 205 | 242 | (R) 250 | 237 | 196 | (R) 151 | 115 |
| Railroad only | 16 | 10 | 15 | 16 | 12 | 18 | 44 | 32 | 27 | 15 | 9 | 8 | 19 | 11 | 18 | 8 | 18 | 23 | 2 | 16 | 5 | 7 |
| Grade crossing | 723 | 497 | 536 | 468 | 463 | 471 | 461 | 411 | 338 | 348 | 317 | 297 | 316 | 258 | 249 | 197 | 224 | (R) 227 | 235 | 180 | (R) 146 | 108 |
| Trespassers | 566 | 474 | 700 | 663 | 646 | 675 | 682 | 660 | 620 | 646 | 644 | 570 | 570 | 673 | 646 | 635 | 621 | (R) 588 | 641 | 626 | (R) 596 | 570 |
| Railroad only | 457 | 391 | 543 | 524 | 533 | 523 | 529 | 494 | 471 | 533 | 536 | 479 | 463 | 511 | 540 | 501 | 475 | (R) 458 | 511 | 470 | (R) 456 | 431 |
| Grade crossing | 109 | 83 | 157 | 139 | 113 | 152 | 153 | 166 | 149 | 113 | 108 | 91 | 107 | 162 | 106 | 134 | 146 | 130 | 130 | 156 | (R) 140 | 139 |
| Volunteer employees | N | N | N | N | N | N | N | N | N | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Railroad only | N | N | N | N | N | N | N | N | N | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Grade crossing | N | N | N | N | N | N | N | N | N | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Railroad only and grade crossing, total | 1,417 | 1,036 | 1,297 | 1,194 | 1,170 | 1,279 | 1,226 | 1,146 | 1,039 | 1,063 | 1,008 | 932 | 937 | 971 | 951 | 868 | 895 | (R) 884 | (R) 903 | 849 | (R) 801 | 708 |
| Railroad only | 584 | 454 | 599 | 586 | 591 | 653 | 611 | 567 | 551 | 602 | 577 | 530 | 512 | 550 | 594 | 534 | 523 | (R) 525 | 534 | 512 | (R) 512 | 461 |
| Grade crossing | 833 | 582 | 698 | 608 | 579 | 626 | 615 | 579 | 488 | 461 | 431 | 402 | 425 | 421 | 357 | 334 | 372 | 359 | (R) 369 | 337 | (R) 289 | 247 |
| Motor vehicles | 748 | 521 | 614 | 535 | 506 | 554 | 542 | 508 | 415 | 419 | 369 | 345 | 361 | 345 | 310 | 281 | 290 | (R) 284 | (R) 305 | (R) 263 | (R) 220 | 182 |
| Nonmotor vehicles | 85 | 61 | 84 | 73 | 73 | 72 | (R) 72 | (R) 72 | (R) 72 | 42 | 62 | 57 | 64 | 76 | 47 | 53 | 82 | 75 | (R) 64 | (R) 74 | (R) 69 | 65 |

**KEY:** N = data do not exist; R = revised.

[a] Beginning in 1997, nontrespassers off railroad property are also included.

**NOTES**

*Railroad only* includes fatalities from train accidents, train incidents, and nontrain incidents (excludes highway-rail grade crossings). This table includes information for both freight and passenger railroad operations. Details may not add to totals due to rounding.

**SOURCES**

**All, except grade crossing total, motor vehicles, nonmotor vehicles:**

1980-94: U.S. Department of Transportation, Federal Railroad Administration *Highway-Rail Crossing Accident/Incident and Inventory Bulletin* (Washington, DC: Annual Issues), and the Accident/Incident Bulletin (Washington DC: Annual Issues).

1995-2004: Ibid., personal communication, May 14, 2008, and table 4.08, available at http://safetydata.fra.dot.gov/OfficeofSafety as of Sept. 16, 2009.

2005-09: Ibid., *Railroad Safety Statistics Preliminary Annual Report* (Washington, DC: June 2010 Issue), table 1-3, available at http://safetydata.fra.dot.gov/OfficeofSafety/publicsite/Prelim.aspx as of June 23, 2010.

**Grade crossing total, motor vehicles, nonmotor vehicles:**

1980-94: U.S. Department of Transportation, Federal Railroad Administration *Highway-Rail Crossing Accident/Incident and Inventory Bulletin* (Washington, DC: Annual Issues), and the Accident/Incident Bulletin (Washington DC: Annual Issues).

1995-2004: Ibid., personal communication, May 14, 2008, and table 4.08, available at http://safetydata.fra.dot.gov/OfficeofSafety as of Sept. 16, 2009.

2005-09: Ibid., *Highway-Rail Incidents by Type Major User from Form FRA F 6180.57*, table 5.11, Hwy/Rail Incidents Summary Tables, available at http://safetydata.fra.dot.gov/OfficeofSafety/publicsite/Prelim.aspx as of June 23, 2010.

**Table 2-40: Railroad and Grade-Crossing Injured Persons by Victim Class**

| | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | (R) 2007 | (R) 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Passengers on trains | 593 | 657 | 473 | 382 | 411 | 559 | 497 | 573 | 513 | 601 | 535 | 481 | 658 | 746 | 877 | 727 | 703 | (R) 958 | (R) 935 | 1,508 | 1,289 | 1,075 |
| Railroad only | 569 | 646 | 462 | 360 | 329 | 515 | 413 | 543 | 489 | 558 | 516 | 438 | 648 | 726 | 851 | 653 | 675 | (R) 925 | (R) 840 | 1,437 | 1,200 | 1,028 |
| Grade crossing | 24 | 11 | 11 | 22 | 82 | 44 | 84 | 30 | 24 | 43 | 19 | 43 | 10 | 20 | 26 | 74 | 28 | 33 | 95 | 71 | 89 | 47 |
| Employees on duty | 56,331 | 29,822 | 20,970 | 19,626 | 17,755 | 15,363 | 13,080 | 10,777 | 9,199 | 8,595 | 8,398 | 8,622 | 8,423 | 7,815 | 6,644 | 6,258 | (R) 6,022 | (R) 5,823 | (R) 5,271 | 5,446 | 4,946 | 4,376 |
| Railroad only | 56,186 | 29,667 | 20,801 | 19,479 | 17,598 | 15,220 | 12,955 | 10,654 | 9,120 | 8,484 | 8,276 | 8,482 | 8,323 | 7,718 | 6,534 | 6,182 | (R) 5,906 | (R) 5,712 | (R) 5,175 | 5,341 | 4,873 | 4,308 |
| Grade crossing | 145 | 155 | 169 | 147 | 157 | 143 | 125 | 123 | 79 | 111 | 122 | 140 | 100 | 97 | 110 | 76 | 116 | (R) 111 | 96 | 105 | 73 | 68 |
| Employees not on duty | 671 | 419 | 326 | 362 | 310 | 348 | 306 | 252 | 228 | 263 | 219 | 216 | 286 | 209 | 213 | 226 | 200 | 172 | 169 | 178 | 165 | 150 |
| Railroad only | 669 | 418 | 324 | 362 | 309 | 347 | 305 | 248 | 226 | 260 | 216 | 215 | 283 | 208 | 213 | 226 | 196 | 169 | 167 | 177 | 162 | 150 |
| Grade crossing | 2 | 1 | 2 | 0 | 1 | 1 | 1 | 4 | 2 | 3 | 3 | 1 | 3 | 1 | 0 | 0 | 4 | 3 | 2 | 1 | 3 | 0 |
| Contractor employees | 74 | 110 | 242 | 219 | 226 | 262 | 252 | 269 | 208 | 334 | 380 | 384 | 368 | 383 | 375 | 372 | 360 | 415 | 408 | 445 | 437 | 351 |
| Railroad only | 74 | 109 | 240 | 216 | 224 | 261 | 251 | 268 | 208 | 333 | 379 | 384 | 367 | 380 | 374 | 370 | 359 | 413 | 408 | 415 | 434 | 348 |
| Grade crossing | 0 | 1 | 2 | 3 | 2 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 3 | 1 | 2 | 1 | 2 | 0 | 30 | 3 | 3 |
| Nontrespassers[a] | 3,849 | 2,562 | 2,339 | 2,110 | 1,909 | 1,856 | 1,913 | 1,869 | 1,660 | 1,540 | 1,236 | 1,342 | 1,294 | 1,201 | 2,380 | 1,058 | 1,247 | (R) 1,495 | (R) 1,292 | 1,354 | 1,365 | 1,138 |
| Railroad only | 384 | 285 | 349 | 423 | 408 | 432 | 475 | 372 | 431 | 370 | 243 | 335 | 381 | 388 | 1,732 | 393 | 553 | (R) 858 | (R) 641 | 785 | 833 | 791 |
| Grade crossing | 3,465 | 2,277 | 1,990 | 1,687 | 1,501 | 1,424 | 1,438 | 1,497 | 1,229 | 1,170 | 993 | 1,007 | 913 | 813 | 648 | 665 | 694 | 637 | 651 | 569 | 532 | 347 |
| Trespassers | 728 | 734 | 793 | 769 | 772 | 733 | 764 | 700 | 750 | 728 | 677 | 650 | 606 | 627 | 609 | 616 | (R) 657 | (R) 684 | (R) 705 | 687 | 696 | 583 |
| Railroad only | 474 | 492 | 560 | 534 | 540 | 509 | 452 | 461 | 474 | 516 | 513 | 445 | 414 | 404 | 395 | 398 | (R) 406 | (R) 420 | (R) 480 | 408 | 431 | 343 |
| Grade crossing | 254 | 242 | 233 | 235 | 232 | 224 | 312 | 239 | 276 | 212 | 164 | 205 | 192 | 223 | 214 | 218 | (R) 251 | 264 | 225 | 279 | 265 | 240 |
| Volunteer employees | N | N | N | N | N | N | N | N | N | 6 | 14 | 5 | 8 | 4 | 5 | 7 | 5 | 1 | 7 | 8 | 7 | 6 |
| Railroad only | N | N | N | N | N | N | N | N | N | 6 | 13 | 5 | 8 | 4 | 5 | 7 | 5 | 1 | 7 | 8 | 7 | 6 |
| Grade crossing | N | N | N | N | N | N | N | N | N | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Railroad only and grade crossing, total | 62,246 | 34,304 | 25,143 | 23,468 | 21,383 | 19,121 | 16,812 | 14,440 | 12,558 | 12,067 | 11,459 | 11,700 | 11,643 | 10,985 | 11,103 | 9,264 | (R) 9,194 | (R) 9,548 | (R) 8,787 | 9,626 | 8,905 | 7,679 |
| Railroad only | 58,356 | 31,617 | 22,736 | 21,374 | 19,408 | 17,284 | 14,851 | 12,546 | 10,948 | 10,527 | 10,156 | 10,304 | 10,424 | 9,828 | 10,104 | 8,229 | (R) 8,100 | (R) 8,498 | (R) 7,718 | 8,571 | 7,940 | 6,974 |
| Grade crossing | 3,890 | 2,687 | 2,407 | 2,094 | 1,975 | 1,837 | 1,961 | 1,894 | 1,610 | 1,540 | 1,302 | 1,396 | 1,219 | 1,157 | 999 | 1,035 | (R) 1,094 | (R) 1,050 | 1,069 | 1,055 | 965 | 705 |
| Motor vehicles[b] | 3,739 | 2,561 | 2,332 | 2,029 | 1,891 | 1,760 | 1,885 | 1,825 | 1,545 | 1,494 | 1,257 | 1,338 | 1,169 | 1,110 | 939 | 1,000 | (R) 1,058 | (R) 1,007 | 1,037 | 1,020 | 907 | 666 |
| Non-motor vehicles[b] | 151 | 126 | 75 | 65 | 84 | 77 | 76 | 69 | 65 | 46 | 46 | 58 | 50 | 47 | 60 | 35 | 36 | 45 | 34 | 39 | 61 | 40 |

**KEY:** N = data do not exist; R = revised.

[a] Beginning in 1997, *Nontrespassers* off railroad property are also included.
[b] The components of grade crossing injuries were collected at a different point in time than the total grade crossing injuries and may not sum to the total of grade crossing injuries.

**NOTES**

*Railroad only* includes fatalities from train accidents, train incidents, and nontrain incidents (excludes *Highway-rail grade crossings*). This table includes information for both freight and passenger railroad operations.

**SOURCES**

**Railroad only and grade crossing:**

1980-94: U.S. Department of Transportation, Federal Railroad Administration, Office of Safety Analysis, *Highway-Rail Crossing Accident/Incident and Inventory Bulletin* (Washington, DC: Annual Issues), and *Accident/Incident Bulletin* (Washington, DC: Annual Issues).

1995-2003: Ibid., personal communication as of Apr. 10, 2008 and table 4.08 available at http://safetydata.fra.dot.gov/OfficeofSafety/ as of Sept. 16, 2009.

2004-09: Ibid., *Preliminary Railroad Safety Statistics,* table 1-3, available at http://safetydata.fra.dot.gov/OfficeofSafety/publicsite/Prelim.aspx as of June 17, 2010.

**Motor vehicle and non-motor vehicle:**

U.S. Department of Transportation, Federal Railroad Administration, Office of Safety Analysis, *Hwy/Rail Incidents Summary Tables*, table 5.11, available at http://safetydata.fra.dot.gov/OfficeofSafety/ as of June 17, 2010.

**Table 2-41: Train Fatalities, Injuries, and Accidents by Type of Accident[a]**

| | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | (R) 2007 | (R) 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fatalities, total | 29 | 8 | 10 | 19 | 6 | 67 | 12 | 14 | 25 | 18 | 4 | 9 | 10 | 6 | 15 | 4 | 13 | 33 | 6 | 9 | 27 | 4 |
| Derailments | 8 | 2 | 2 | 10 | 2 | 53 | 2 | 2 | 6 | 2 | 1 | 1 | 2 | 1 | 7 | 1 | 2 | 2 | 3 | 1 | 0 | 1 |
| Collisions | 20 | 6 | 8 | 5 | 1 | 14 | 8 | 7 | 16 | 10 | 1 | 7 | 1 | 4 | 4 | 0 | 8 | 6 | 0 | 4 | 26 | 0 |
| Other | 1 | 0 | 0 | 4 | 3 | 0 | 2 | 5 | 3 | 6 | 2 | 1 | 7 | 1 | 4 | 3 | 3 | 25 | 3 | 4 | 1 | 3 |
| Injuries, total | 665 | 476 | 451 | 326 | 171 | 308 | 262 | 294 | 281 | 185 | 129 | 129 | 275 | 310 | 1,884 | 232 | 347 | 790 | 222 | 310 | 331 | 106 |
| Derailments[b] | 286 | 197 | 272 | 174 | 71 | 179 | 120 | 90 | 98 | 111 | 61 | 41 | 121 | 113 | 1,691 | 121 | 104 | 236 | 97 | 71 | 38 | 30 |
| Collisions | 341 | 223 | 139 | 103 | 59 | 87 | 118 | 151 | 146 | 55 | 32 | 62 | 89 | 145 | 151 | 56 | 160 | 101 | 85 | 188 | 108 | 33 |
| Other | 38 | 56 | 40 | 49 | 41 | 42 | 24 | 53 | 37 | 19 | 36 | 26 | 65 | 52 | 42 | 55 | 83 | 453 | 40 | 51 | 185 | 43 |
| Accidents, total | 8,205 | 3,275 | 2,879 | 2,658 | 2,359 | 2,611 | 2,504 | 2,459 | 2,443 | 2,397 | 2,575 | 2,768 | 2,983 | 3,023 | 2,738 | 3,019 | 3,385 | 3,266 | (R) 2,994 | 2,687 | 2,454 | 1,850 |
| Derailments | 6,442 | 2,495 | 2,146 | 1,936 | 1,734 | 1,930 | 1,825 | 1,742 | 1,816 | 1,741 | 1,757 | 1,961 | 2,112 | 2,234 | 1,989 | 2,133 | (R) 2,435 | (R) 2,304 | (R) 2,193 | 1,929 | 1,772 | 1,313 |
| Collisions | 1,201 | 366 | 315 | 261 | 207 | 205 | 240 | 235 | 205 | 202 | 168 | 205 | 238 | 220 | 192 | 198 | (R) 237 | (R) 274 | (R) 202 | 211 | 188 | 135 |
| Other | 562 | 414 | 418 | 461 | 418 | 476 | 439 | 482 | 422 | 454 | 650 | 602 | 633 | 569 | 557 | 688 | 713 | 688 | (R) 599 | 547 | 494 | 402 |

**KEY:** R = revised.

[a] Excludes highway-rail grade crossing accidents.

[b] In 2002, 1,441 injures were due to a single derailment in North Dakota involving hazardous materials.

**NOTE**

This table includes information for both freight and passenger railroad operations. It is train accidents only.

**SOURCE**

U.S. Department of Transportation, Federal Railroad Administration, Office of Safety Analysis, *Train Accidents by Type and Major Cause from Form FRA F 6180.54*, table 3.09, Accident Summary Tables, available at http://safetydata.fra.dot.gov/OfficeofSafety/ as of Apr. 27, 2010.

**Table 2-38: Railroad Passenger Safety Data**

| | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | (R) 2008 | (P) 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Passenger fatalities[a] | 3 | 8 | 3 | 58 | 5 | 0 | 12 | 6 | 4 | 14 | 4 | 3 | 7 | 3 | 3 | 16 | 2 | 5 | 24 | 3 |
| Injured persons | 473 | 382 | 411 | 559 | 497 | 573 | 513 | 601 | 535 | 481 | 658 | 746 | 877 | 727 | 703 | (R) 957 | (R) 935 | (R) 1,510 | 1,297 | 1,096 |
| Train-miles, passenger trains (millions) | 72 | 74 | 74 | 75 | 75 | 76 | 77 | 78 | 78 | 82 | 84 | 88 | 90 | 89 | 89 | 90 | 92 | 95 | 98 | 103 |
| Fatalities per 100 million passenger train-miles | 4.2 | 10.8 | 4.1 | 77.3 | 6.7 | 0.0 | (R) 15.6 | 7.7 | 5.1 | 17.0 | 4.7 | 3.4 | 7.8 | 3.4 | 3.4 | 17.8 | 2.2 | 5.2 | 24.5 | 2.9 |
| Injuries per 100 million passenger train-miles | 656.9 | 516.2 | 555.4 | 745.3 | 662.7 | 753.9 | 666.2 | 770.2 | 682.5 | 583.6 | 780.7 | 850.1 | 979.1 | 813.3 | 787.0 | (R) 1,064.5 | (R) 1,016.8 | (R) 1,583.7 | 1,322.8 | 1,064.9 |

**KEY:** P = preliminary; R = revised.

[a] There were three major train accidents that account for the increase number of deaths in 1993, 2005 and 2008. In 1993 a barge struck a rail bridge in Alabama causing an Amtrak train to derail into the waterway below leading to 42 passenger deaths. In 2005, a Southern California Regional Rail Authority train struck a jeep at a non-grade crossing location, derailed and struck a UPRR locomotive, which caused the train to strike another Southern California Regional Rail Authority train. The total passenger fatalities from both trains were 10. In 2008, a Southern California Regional Rail Authority train ran a red signal and collided head-on with a Union Pacific RR Co. freight, which lead to 24 passenger deaths.

**NOTES**

A *Train-mile* is the movement of a train (which can consist of many cars) the distance of 1 mile. A *Train-mile* differs from a vehicle-mile, which is the movement of 1 car (vehicle) the distance of 1 mile. A 10-car (vehicle) train traveling 1 mile would be measured as 1 *Train-mile* and 10 vehicle-miles. Caution should be used when comparing *Train-miles* to vehicle miles.

*Passenger fatalities* and *Injured persons* include passengers on trains only.

**SOURCES**

**Fatalities and injuries:**

1990-97: U.S. Department of Transportation, Federal Railroad Administration, Office of Safety, *Railroad Safety Statistics Annual Report* (Washington, DC: Annual Issues), table 1-2, available at http://safetydata.fra.dot.gov/OfficeofSafety/publicsite/Publications.aspx as of Sept. 8, 2010.

1998-2009: U.S. Department of Transportation, Federal Railroad Administration, Office of Safety, *Railroad Safety Statistics 2009 Preliminary Annual Report* (Washington, DC: Reporting month of May 2010), table 1-2, available at http://safetydata.fra.dot.gov/OfficeofSafety/publicsite/Prelim.aspx as of Sept. 8, 2010.

**Train-miles, passenger trains:**

1990-96: U.S. Department of Transportation, Bureau of Transportation Statistics calculations (sum of all commuter rail train-miles reported to USDOT, Federal Transit Administration, plus Amtrak train-miles).

1997-2007: U.S. Department of Transportation, Federal Railroad Administration, Office of Safety, *Railroad Safety Statistics Annual Report* (Washington, DC: Annual Issues), table 2-4, available at http://safetydata.fra.dot.gov/OfficeofSafety/publicsite/Publications.aspx as of Sept. 8, 2010.

2008: U.S. Department of Transportation, Federal Railroad Administration, Office of Safety, *Railroad Safety Statistics 2008 Preliminary Annual Report* (Washington, DC: Reporting month of December 2009), table 2-4, available at http://safetydata.fra.dot.gov/OfficeofSafety/publicsite/Prelim.aspx as of Sept. 8, 2010.

2009: U.S. Department of Transportation, Federal Railroad Administration, Office of Safety, *Railroad Safety Statistics 2009 Preliminary Annual Report* (Washington, DC: Reporting month of May 2010), table 2-4, available at http://safetydata.fra.dot.gov/OfficeofSafety/publicsite/Prelim.aspx as of Sept. 8, 2010.

## Table 2-43: Railroad System Safety and Property Damage Data (Excludes highway-rail grade-crossing accidents)

| | 1970 | 1975 | 1980 | 1985 | 1990 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | (R) 2003 | (R) 2004 | (R) 2005 | (R) 2006 | (R) 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fatalities | 785 | 575 | 584 | 454 | 599 | 567 | 551 | 602 | 577 | 530 | 512 | 550 | 594 | 531 | 520 | 525 | 534 | 512 | 511 | 458 |
| Injured persons[a] | 17,934 | 50,138 | 58,696 | 31,617 | 22,736 | 12,546 | 10,948 | 10,227 | 10,156 | 10,304 | 10,424 | 9,828 | 10,104 | 8,229 | 8,100 | 8,497 | 7,719 | 8,573 | 7,977 | 7,043 |
| Accidents[b] | 8,095 | 8,041 | 8,205 | 3,275 | 2,879 | 2,459 | 2,443 | 2,397 | 2,575 | 2,768 | 2,983 | 3,023 | 2,738 | 3,019 | 3,385 | 3,265 | 2,994 | 2,688 | 2,464 | 1,883 |
| Train-miles (millions)[c,d] | 839 | 755 | 718 | 571 | 609 | 670 | 671 | 677 | 683 | 712 | 723 | 712 | 729 | 743 | 770 | 789 | 809 | 789 | 770 | 664 |
| Rate per 100 million train-miles | | | | | | | | | | | | | | | | | | | | |
| Fatalities | 94 | 76 | 81 | 80 | 98 | 85 | 82 | 89 | 84 | 74 | 71 | 77 | 82 | 71 | 68 | 67 | 66 | 65 | 66 | 69 |
| Injuries | N | 6,641 | 8,179 | 5,538 | 3,735 | 1,873 | 1,632 | 1,511 | 1,487 | 1,446 | 1,442 | 1,381 | 1,387 | 1,107 | 1,052 | 1,077 | 954 | 1,086 | 1,036 | 1,061 |
| Accidents | 965 | 1,065 | 1,143 | 574 | 473 | 367 | 364 | 354 | 377 | 389 | 413 | 425 | 376 | 406 | 440 | 414 | 370 | 341 | 320 | 284 |
| Property damage (current $ millions) | 121.6 | 177.4 | 267.4 | 179.3 | 198.7 | 189.2 | 212.3 | 210.7 | 233.9 | 245.1 | 263.2 | 314.5 | 266.5 | 298.3 | 325.9 | 339.8 | 322.5 | 314.8 | 298.7 | 221.8 |

**KEY:** N = data do not exist; R = revised.

[a] 1970 injuries are not comparable to later years due to a change in reporting system.

[b] Train accidents only; excludes highway-rail grade-crossing accidents.

[c] *Train-miles* in this table differ from *Train-miles* in the vehicle-miles table in Chapter 1. *Train-miles* reported in Chapter 1 include only Class I rail (see glossary for definition), while this table includes Class I rail, Group II rail, and other rail. In 2005, Group II rail accounted for 78 million *Train-miles* , and other rail for 29 million *Train-miles* . Moreover, the vehicle-miles table in Chapter 1 includes only *Train-miles* between terminals and/or stations, thus excluding yard and switching miles. In 2009, Class I yard/switching *Train-miles* totaled 63 million *Train-miles* . Note that commuter rail safety data are reported in the rail mode and the transit mode. Commuter rail *Train-miles* are included in Class I rail and Group II rail in this table.

[d] A *Train-mile* is the movement of a train (which can consist of many cars) the distance of 1 mile. A *Train-mile* differs from a vehicle-mile, which is the movement of 1 car (vehicle) the distance of 1 mile. A 10-car (vehicle) train traveling 1 mile would be measured as 1 *Train-mile* and 10 vehicle-miles. Caution should be used when comparing *Train-miles* to vehicle-miles.

**NOTE**

This table includes information for both freight and passenger railroad operations.

**SOURCES**

**Fatalities, injuries, accidents, and property damage:**

1970-90: U.S. Department of Transportation, Federal Railroad Administration, Office of Policy and Program Development, *Accident/Incident Bulletin* (Washington, DC: Annual Issues), tables 14 and 15.

1995-99: Ibid., *Railroad Safety Statistics Annual Report 2000* (Washington, DC: July 2001), tables 1-1 and 3-1, available at http://safetydata.fra.dot.gov/OfficeofSafety/publicsite/Publications.aspx as of Sept. 7, 2010.

2000-09: Ibid., tables 1.06 and 3.09, available at http://safetydata.fra.dot.gov/OfficeofSafety/ as of Sept. 7, 2010.

**Train-miles:**

1970-90: U.S. Department of Transportation, Federal Transit Administration, *National Transit Database* (Washington, DC: Annual Issues), form 406.

1995-99: U.S. Department of Transportation, Federal Railroad Administration, available at http://safetydata.fra.dot.gov/OfficeofSafety/Forms/Default.asp as of Aug. 22, 2002.

2000-09: Ibid., table 1.06, available at http://safetydata.fra.dot.gov/OfficeofSafety/ as of Sept. 7, 2010.

**Table 2-44: Fatalities and Injuries of On-Duty Railroad Employees**

| | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Employee fatalities, total | 40 | 35 | 34 | 47 | 31 | 34 | 33 | 37 | 27 | 31 | 24 | 22 | 20 | 19 | 25 | 25 | 16 | 17 | 25 | 16 |
| Grade-crossing accidents and incidents | 5 | 1 | 2 | 3 | 1 | 2 | 1 | 0 | 4 | 2 | 2 | 1 | 1 | 1 | 2 | 2 | 4 | 1 | 3 | 0 |
| Train accidents and incidents only (grade-crossing excluded) | 35 | 34 | 32 | 44 | 30 | 32 | 32 | 37 | 23 | 29 | 22 | 21 | 19 | 18 | 23 | 23 | 12 | 16 | 22 | 16 |
| Employee injuries, total | 20,970 | 19,626 | 17,755 | 15,363 | 13,080 | 10,777 | 9,199 | 8,295 | 8,398 | 8,622 | 8,423 | 7,815 | 6,644 | 6,248 | (R) 6,022 | (R) 5,822 | (R) 5,268 | (R) 5,440 | 4,938 | 4,295 |
| Grade-crossing accidents and incidents | 169 | 147 | 157 | 143 | 126 | 123 | 79 | 111 | 122 | 140 | 100 | 97 | 110 | 76 | 116 | (R) 111 | (R) 96 | (R) 104 | 73 | 68 |
| Train accidents and incidents only (grade-crossing excluded) | 20,801 | 19,479 | 17,598 | 15,220 | 12,954 | 10,654 | 9,120 | 8,184 | 8,276 | 8,482 | 8,323 | 7,718 | 6,534 | 6,172 | (R) 5,906 | (R) 5,711 | (R) 5,172 | (R) 5,336 | 4,865 | 4,227 |
| Employee hours (millions) | 553.6 | 530.7 | 517.0 | 519.7 | 518.6 | 510.3 | 504.6 | 503.9 | 514.9 | 510.0 | 490.9 | 475.1 | 454.1 | 451.1 | 458.4 | (R) 478.5 | (R) 485.8 | (R) 483.2 | 478.0 | 430.3 |
| Fatality rates per million employee hours | | | | | | | | | | | | | | | | | | | | |
| All accidents / incidents | 0.07 | 0.07 | 0.07 | 0.09 | 0.06 | 0.07 | 0.07 | 0.07 | 0.05 | 0.06 | 0.05 | 0.05 | 0.04 | 0.04 | 0.05 | 0.05 | 0.03 | 0.04 | 0.05 | 0.04 |
| Grade-crossing accidents and incidents | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Train accidents and incidents only (grade-crossing excluded) | 0.06 | 0.06 | 0.06 | 0.08 | 0.06 | 0.06 | 0.06 | 0.07 | 0.04 | 0.06 | 0.04 | 0.04 | 0.04 | 0.04 | 0.05 | 0.05 | 0.02 | 0.03 | 0.05 | 0.04 |
| Injury rates per million employee hours | | | | | | | | | | | | | | | | | | | | |
| All accidents / incidents | 37.9 | 37.0 | 34.3 | 29.6 | 25.2 | 21.1 | 18.2 | 16.5 | 16.3 | 16.9 | 17.2 | 16.4 | 14.6 | 13.8 | 13.1 | (R) 12.2 | (R) 10.8 | (R) 11.3 | 10.3 | 10.0 |
| Grade-crossing accidents and incidents | 0.3 | 0.3 | 0.3 | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | (R) 0.2 | (R) 0.2 | (R) 0.2 | 0.2 | 0.2 |
| Train accidents and incidents only (grade-crossing excluded) | 37.6 | 36.7 | 34.0 | 29.3 | 25.0 | 20.9 | 18.1 | 16.2 | 16.1 | 16.6 | 17.0 | 16.2 | 14.4 | 13.7 | 12.9 | (R) 11.9 | (R) 10.6 | (R) 11.0 | 10.2 | 9.8 |
| Train-miles (millions)[a,b] | 609 | 577 | 594 | 614 | 655 | 670 | 671 | 677 | 683 | 712 | 723 | 712 | 729 | 744 | 770 | (R) 789 | 809 | (R) 789 | 770 | 663 |
| Fatality rates per million train-miles | | | | | | | | | | | | | | | | | | | | |
| All accidents / incidents | 0.07 | 0.06 | 0.06 | 0.08 | 0.05 | 0.05 | 0.05 | 0.05 | 0.04 | 0.04 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.02 | 0.02 | 0.03 | 0.02 |
| Grade-crossing accidents and incidents | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Train accidents and incidents only (grade-crossing excluded) | 0.06 | 0.06 | 0.05 | 0.07 | 0.05 | 0.05 | 0.05 | 0.05 | 0.03 | 0.04 | 0.03 | 0.03 | 0.03 | 0.02 | 0.03 | 0.03 | 0.01 | 0.02 | 0.03 | 0.02 |
| Injury rates per million train-miles | | | | | | | | | | | | | | | | | | | | |
| All accidents/incidents | 34.4 | 34.0 | 29.9 | 25.0 | 20.0 | 16.1 | 13.7 | 12.3 | 12.3 | 12.1 | 11.7 | 11.0 | 9.1 | 8.4 | 7.8 | (R) 7.4 | (R) 6.5 | (R) 6.9 | 6.4 | 6.5 |
| Grade-crossing accidents and incidents | 0.3 | 0.3 | 0.3 | 0.2 | 0.2 | 0.2 | 0.1 | 0.2 | 0.2 | 0.2 | 0.1 | 0.1 | 0.2 | 0.1 | 0.2 | (R) 0.1 | (R) 0.1 | (R) 0.1 | 0.1 | 0.1 |
| Train accidents and incidents only (grade-crossing excluded) | 34.2 | 33.8 | 29.6 | 24.8 | 19.8 | 15.9 | 13.6 | 12.1 | 12.1 | 11.9 | 11.5 | 10.8 | 9.0 | 8.3 | 7.7 | (R) 7.2 | (R) 6.4 | (R) 6.8 | 6.3 | 6.4 |

**KEY:** R = revised.

[a] *Train-miles* in this table differ from *Train-miles* in the vehicle-miles table in Chapter 1. *Train-miles* reported in Chapter 1 include only Class I rail (see glossary for definition), while this table includes Class I rail, Group II rail, and other rail. In 2005, Group II rail accounted for 78 million train-miles, and other rail for 29 million train-miles. Moreover, the vehicle-miles table in Chapter 1 includes only *Train-miles* between terminals and/or stations, thus excluding yard and switching miles. In 2005, Class I yard/switching train miles totaled 67 million train-miles. Note that commuter rail safety data are reported in the rail mode and in the transit mode. Commuter rail train-miles are included in Class I rail and Group II rail in this table.

[b] A *Train-mile* is the movement of a train (which can consist of many cars) the distance of 1 mile. A *Train-mile* differs from a vehicle-mile, which is the movement of 1 car (vehicle) the distance of 1 mile. A 10-car (vehicle) train traveling 1 mile would be measured as 1 train-mile and 10 vehicle-miles. Caution should be used when comparing train-miles to vehicle-miles.

**NOTE**

This table includes information for both freight and passenger railroad operations.

**SOURCES**

1990-95: U.S. Department of Transportation, Federal Railroad Administration, *Highway-Rail Crossing Accident/Incident and Inventory Bulletin* (Washington, DC: Annual Issues).

1996-2003: Ibid., *Railroad Safety Statistics Annual Report* (Washington, DC: Annual Issues), tables 1-3, 2-4, and 3-1, available at http://safetydata.fra.dot.gov/OfficeofSafety/publicsite/Publications.aspx as of Apr. 9, 2010.

2004-08: Ibid., *Railroad Safety Statistics Preliminary Annual Report*, (Washington, DC: Monthly Issue), tables 1-3 and 2-4, available at http://safetydata.fra.dot.gov/OfficeofSafety/publicsite/Prelim.aspx as of Apr. 9, 2010.

# Section F
# Water

**Table 2-45: Waterborne Transportation Safety and Property Damage Data Related to Vessel Casualties**

| | 1970 | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | (R) 2002 | (R) 2003 | (R) 2004 | (R) 2005 | (R) 2006 | (R) 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fatalities[a] | 178 | 243 | 206 | 131 | 85 | 30 | 97 | 105 | 77 | 53 | 55 | 48 | 69 | 58 | 53 | 53 | 68 | 67 | 94 | 92 | 87 | 76 | 75 | 49 |
| Injuries | 105 | 97 | 180 | 172 | 175 | 110 | 170 | 171 | 182 | 154 | 254 | 120 | 130 | 152 | 150 | 210 | 175 | 213 | 244 | 169 | 373 | 190 | 154 | 140 |
| Accidents[b] | 2,582 | 3,310 | 4,624 | 3,439 | 3,613 | 2,222 | 5,583 | 6,126 | 6,743 | 5,349 | 5,260 | 5,504 | 5,767 | 5,526 | 5,403 | 4,958 | 6,139 | 5,254 | 5,125 | 5,190 | 5,785 | 6,014 | 5,786 | 4,830 |
| Vessels[c] | 4,063 | 5,685 | 7,694 | 5,694 | 5,494 | 3,514 | 7,190 | 7,913 | 9,030 | 7,802 | 7,695 | 7,802 | 7,824 | 7,265 | 7,103 | 6,439 | 7,437 | 6,054 | 6,257 | 6,599 | 7,149 | 7,801 | 7,615 | 5,854 |
| Property damage (current $ millions) | U | U | U | U | U | U | 201.7 | 181.5 | 264.4 | 159.0 | 200.8 | 158.2 | 234.9 | 177.1 | 180.5 | 100.9 | 335.1 | 126.7 | 151.7 | 719.5 | 129.7 | 85.4 | 126.4 | 47.0 |

**KEY:** R = revised; U = data are unavailable.

[a] Fatalities include the number of people who died or were declared missing subsequent to a marine accide

[b] Accidents in this table include the number of "marine casualty cases" reported to the U.S. Coast Guard in accordance with 46 U.S.C. 4.05.

[c] More than one vessel may be involved in a marine accident. Data from 1992 to 2003 has been revised to include vessels involved in pollution incidents, which the United States Coast Guard considers to be a vessel casualty. Data includes all vessel mishaps involving marine pollution discharges.

**NOTES**

All deaths and injuries cited result from vessel casualties, such as groundings, collisions, fires, or explosions. The data are for all commercial vessels under U.S. jurisdiction, including U.S. flag vessels anywhere in the world and foreign flag vessels within the jurisdiction of the United States (within 12 miles, or having an interaction with a U.S. entity, such as a platform within 200 miles, or a collision with a U.S. ship). Commercial fishing vessels are included.

For 1992-97, data are obtained from the Marine Safety Management Information System. Between 1998 and 2001, the U.S. Coast Guard phased in a new computer system to track safety data, the Marine Information for Safety and Law Enforcement System. During this period, data are derived by combining entries in the Marine Safety Management Information System with entries in the Marine Information for Safety and Law Enforcement System. Data for 2002 and after are from the Marine Information for Safety and Law Enforcement System. Data prior to 1992 come from other sources and may not be directly comparable to the data from later years.

**SOURCES**

1970-2002: U.S. Department of Transportation, U.S. Coast Guard, Data Administration Division (G-MRI-1), personal communication, November 2008.

2003-09: U.S. Department of Homeland Security (formerly U.S. Department of Transportation), U.S. Coast Guard, Compliance Analysis Division (CG-545), personal communication, February 2010.

## Table 2-46: Waterborne Transportation Safety Data not Related to Vessel Casualties

| | 1970 | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | (R) 2004 | (R) 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fatalities[a] | 420 | 330 | 281 | 130 | 101 | 56 | 89 | 79 | 89 | 92 | 86 | 84 | 95 | 74 | 69 | 49 | 41 | 50 | 62 | 60 | 65 | 59 | 61 | 53 |
| Injuries | U | U | U | U | U | U | 936 | 919 | 1,081 | 1,170 | 951 | 779 | 520 | 429 | 509 | 412 | 475 | 472 | 495 | 580 | 678 | 562 | 483 | 411 |
| Vessels[b] | U | 321 | 274 | 128 | 98 | 51 | 1,427 | 1,378 | 1,592 | 1,726 | 1,283 | 968 | 526 | 445 | 514 | 440 | 594 | 562 | 537 | 614 | 725 | 605 | 522 | 451 |

**KEY:** R = revised; U = data are unavailable.

[a] Fatalities include people who were declared missing

[b] Figures represent the number of vessels involved in nonvessel casualties. These vessels were not part of the accident, but the accident may have occurred on the vessel (e.g., crewmembers swept overboard by a wave).

**NOTES**

Figures reflect the number of deaths and injuries to people on commercial vessels not resulting from a casualty to the vessel. These injuries and fatalities result from such incidents as slips, falls, or electrocutions. Deaths and injuries from disease, homicides, suicides, fights, and diving accidents have been excluded. The data reflect deaths and injuries to people on both U.S. and foreign flag vessels within the jurisdiction of the United States (within 12 miles of U.S. coast) and on U.S. flag vessels anywhere in the world.

1992-97 data come from the Marine Safety Management Information System. Between 1998 and 2001 the U.S. Coast Guard phased in a new computer system to track safety data, the Marine Information for Safety and Law Enforcement System. During that period data come from combining entries in the Marine Safety Management Information System with entries in the Marine Information for Safety and Law Enforcement System. Data for 2002 to 2005 come from the Marine Information for Safety and Law Enforcement System. Data prior to 1992 come from other sources and may not be directly comparable to the data from later years.

**SOURCES**

1970-2002: U.S. Department of Transportation, U.S. Coast Guard, Data Administration Division (G-MRI-1), personal communications, June 29, 2004, June 8, 2005, and June 22, 2007.

2003-08: U.S. Department of Homeland Security, U.S. Coast Guard, Office of Investigations and Analysis CG-545, personal communication, Feb. 18, 2010.

**Table 2-47: Recreational Boating Safety, Alcohol Involvement, and Property Damage Data**

| | 1960 | 1965 | 1970 | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fatalities[a] | 739 | 1,360 | 1,418 | 1,466 | 1,360 | 1,116 | 865 | 924 | 816 | 800 | 784 | 829 | 709 | 821 | 815 | 734 | 701 | 681 | 750 | 703 | 676 | 697 | 710 | 685 | 709 | 736 |
| Injuries | 929 | 927 | 780 | 2,136 | 2,650 | 2,757 | 3,822 | 3,967 | 3,683 | 3,559 | 4,084 | 4,141 | 4,442 | 4,555 | 4,612 | 4,315 | 4,355 | 4,274 | 4,062 | 3,888 | 3,363 | 3,451 | 3,474 | 3,673 | 3,331 | 3,358 |
| Accidents | 2,738 | 3,752 | 3,803 | 6,308 | 5,513 | 6,237 | 6,411 | 6,573 | 6,048 | 6,335 | 6,906 | 8,019 | 8,026 | 8,047 | 8,061 | 7,931 | 7,740 | 6,419 | 5,705 | 5,438 | 4,904 | 4,969 | 4,967 | 5,191 | 4,789 | 4,730 |
| Vessels involved | 3,562 | 4,778 | 4,762 | 8,002 | 6,954 | 8,305 | 8,591 | 8,821 | 8,206 | 8,688 | 9,722 | 11,534 | 11,306 | 11,396 | 11,368 | 11,190 | 10,984 | 8,974 | 7,907 | 7,363 | 6,725 | 6,628 | 6,753 | 6,932 | 6,347 | 6,190 |
| Numbered boats (thousands)[b] | 2,500 | 4,138 | 5,128 | 7,303 | (R) 8,578 | 9,589 | 10,996 | 11,068 | 11,132 | 11,283 | 11,430 | 11,735 | 11,878 | 12,313 | 12,566 | 12,738 | 12,782 | 12,876 | 12,854 | 12,795 | 12,781 | 12,942 | 12,746 | (R) 12,873 | 12,693 | 12,722 |
| Rates per 100,000 numbered boats | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Fatalities | 29.6 | 32.9 | 27.7 | 20.1 | 15.9 | 11.6 | 7.9 | 8.3 | 7.3 | 7.1 | 6.9 | 7.1 | 6.0 | 6.7 | 6.5 | 5.8 | 5.5 | 5.3 | 5.8 | 5.5 | 5.3 | 5.4 | 5.6 | 5.3 | 5.6 | 5.8 |
| Injuries | 37.2 | 22.4 | 15.2 | 29.2 | 30.9 | 28.8 | 34.8 | 35.8 | 33.1 | 31.5 | 35.7 | 35.3 | 37.4 | 37.0 | 36.7 | 33.9 | 34.1 | 33.2 | 31.6 | 30.4 | 26.3 | 26.7 | 27.3 | 28.5 | 26.2 | 26.4 |
| Accidents | 109.5 | 90.7 | 74.2 | 86.4 | 64.3 | 65.0 | 58.3 | 59.4 | 54.3 | 56.1 | 60.4 | 68.3 | 67.6 | 65.4 | 64.1 | 62.3 | 60.6 | 49.9 | 44.4 | 42.5 | 38.4 | 38.4 | 39.0 | 40.3 | 37.7 | 37.2 |
| Accident reports citing alcohol involvement[c] | N | N | N | N | N | 279 | 568 | 513 | 504 | 381 | 389 | 472 | 601 | 698 | 704 | 633 | 696 | 375 | 357 | 362 | 331 | 402 | 403 | (R) 421 | (R) 387 | 397 |
| Property damage (current $ millions)[d] | 3.2 | 4.7 | 8.2 | 10.4 | 16.4 | 20.0 | 23.8 | 24.8 | 34.8 | 20.2 | 25.9 | 21.5 | 23.2 | 29.0 | 31.0 | 28.9 | 34.7 | 31.3 | 39.2 | 40.4 | 35.0 | 38.7 | 43.7 | 53.1 | 54.3 | 35.9 |

**KEY:** N = data do not exist; R = revised.

[a] The numbers for recreational boating safety fatalities in 2000 are raw numbers. Coast Guard reports a 6% addition as instructed by the DOT Inspector General because it found a discrepancy in a review of the Search and Rescue Management Information System (SARMIS) and BARD data. (See the discussion found in the DOT FY2003 Performance Plan/2001 Performance Report on pg. 135 under data details of recreational boating fatalities, available at http://www.dot.gov/performance/ as of Feb 10, 2010).

[b] *Numbered boats* in 1960 is an estimate.

[c] Starting in 2001 only cases where alcohol is determined to be a direct or indirect cause of an accident are reported. Previous years include cases where alcohol was present but played no role in the accident.

[d] 1992 data includes $11 million damage due to a boat fire

**NOTES**

Only a small fraction of property damages and nonfatal accidents are reported to the U.S. Coast Guard.

On July 2, 2001, the Federal threshold of property damage for reports of accidents involving recreational vessels changed from $500 to $2,000.

**SOURCE**

**Vessels involved for 1960 and 1965, and property damage for 1994 and 1995:**

U.S. Department of Transportation, U.S. Coast Guard (CG), Office of Boating Safety, personal communication, May 15, 2002.

**All other data:**

U.S. Department of Homeland Security, U.S. Coast Guard, Office of Boating Safety,*Boating Statistics* (Washington, DC: Annual Issues), tables 8, 9, 16, 17, 28 and 35, available at http://www.uscgboating.org/statistics/accident_statistics.aspx as of Feb. 4, 2011.

**Table 2-48: Personal Watercraft Safety Data**

| | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fatalities | 5 | 20 | 20 | 28 | 26 | 34 | 35 | 56 | 68 | 57 | 84 | 78 | 66 | 68 | 50 | 71 | 57 | 56 | 65 | 68 | 67 | 45 | 42 |
| Injured persons | 156 | 254 | 402 | 532 | 708 | 730 | 915 | 1,338 | 1,617 | 1,837 | 1,812 | 1,743 | 1,614 | 1,580 | 1,424 | 1,362 | 1,228 | 952 | 1,007 | 919 | 982 | 920 | 878 |
| Accidents[a] | 376 | 650 | 844 | 1,162 | 1,513 | 1,650 | 2,236 | 3,002 | 3,986 | 4,099 | 4,070 | 3,607 | 3,374 | 3,268 | 2,562 | 2,225 | 1,994 | 1,664 | 1,692 | 1,631 | 1,655 | 1,459 | 1,332 |
| Sales | 29,000 | 48,000 | 64,000 | 72,000 | 68,000 | 79,000 | 107,000 | 142,000 | 200,000 | 191,000 | 176,000 | 130,000 | 106,000 | 92,000 | 80,900 | 79,300 | 80,600 | 79,500 | 80,200 | 82,200 | 79,900 | 62,600 | 44,500 |
| Number in use | 92,756 | 126,881 | 178,510 | 241,376 | 305,915 | 372,283 | 454,545 | 600,000 | 760,000 | 900,000 | 1,000,000 | 1,180,000 | 1,200,000 | 1,230,000 | 1,220,000 | 1,220,000 | 1,170,000 | 1,250,000 | 1,230,000 | 1,190,000 | 1,190,000 | (R) 1,310,000 | 1,290,000 |

**KEY:** R = revised.

[a] Total vessels involved

**NOTES**

Personal watercraft are less than 13 feet in length and are designed to be operated by a person or persons sitting, standing, or kneeling on the craft rather than within the confines of the hull.

Watercraft number in use for 2009 is an estimate.

**SOURCES**

**Fatalities, injuries, and accidents:**

U.S. Department of Homeland Security, United States Coast Guard, Office of Boating Safety, *Boating Statistics* (Washington, DC: Annual Issues), table 19 and similar tables in earlier editions, available at http://www.uscgboating.org/statistics/accident_statistics.aspx as of Oct. 19, 2010.

**Sales:**

1987-90: Personal Watercraft Industry Association, available at http://www.pwia.org/faq/ as of June 19, 2000.

1991-2009: National Marine Manufacturers Association, *Recreational Boating Statistical Abstract* (Annual Issues), table 3.1 and similar tables in earlier editions, available at http://www.nmma.org/statistics/publications/statisticalabstract.aspx as of Oct. 19, 2010.

**Use:**

1987-96: National Marine Manufacturers Association, data compiled by the United States Coast Guard, personal communications.

1997-98: Ibid., available at http://www.nmma.org/facts/boatingstats/statistic98.html as of June 19, 2000.

1999-2009: National Marine Manufacturers Association, *Recreational Boating Statistical Abstract* (Annual Issues), table 1.3 and similar tables in earlier editions, available at http://www.nmma.org/statistics/publications/statisticalabstract.aspx as of Oct. 19, 2010.

**Table 2-49: U.S. Coast Guard Search and Rescue Statistics, Fiscal Year**

| | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cases | 60,775 | 53,097 | 52,782 | 53,294 | 53,026 | 53,899 | 49,704 | 43,553 | 41,096 | 37,218 | 39,844 | 40,214 | 39,457 | 36,763 | 31,622 | 32,540 | 29,799 | 28,320 | 27,092 | 24,209 | 23,530 |
| Responses[a] | 70,237 | 64,971 | 66,409 | 69,856 | 69,784 | 70,337 | 63,679 | 55,710 | 52,141 | 46,602 | 50,622 | 48,226 | 49,502 | 46,643 | U | U | U | U | U | U | U |
| Sorties[a] | 88,449 | 84,033 | 84,872 | 88,388 | 88,147 | 108,758 | 110,267 | 98,423 | 91,722 | 83,307 | 89,635 | 57,697 | 59,015 | 54,609 | 33,426 | 33,107 | 29,860 | 29,826 | 25,411 | 25,507 | 24,654 |
| Search and Rescue resource hours[b] | U | 108,282 | 109,351 | 108,639 | 107,441 | 102,749 | 93,984 | 85,150 | 80,507 | 80,116 | 84,635 | 80,533 | 85,008 | 75,841 | 65,182 | 65,876 | 77,888 | 60,248 | 55,312 | 62,713 | 59,245 |
| Lives saved[c] | 6,497 | 4,407 | 5,465 | 17,543 | 5,826 | 23,211 | 4,453 | 5,047 | 3,897 | 3,194 | 3,743 | 3,400 | 4,010 | 3,661 | 5,196 | 5,565 | 5,650 | 5,298 | 5,216 | 4,898 | 4,861 |
| Lives lost, total | 1,335 | 1,085 | 1,116 | 939 | 1,215 | 931 | 772 | 978 | 744 | 606 | 533 | 1,018 | 710 | 635 | 673 | 783 | 846 | 787 | 795 | 825 | 816 |
| Lives lost before notification[d,e] | 259 | 622 | 748 | 540 | 800 | 593 | 468 | 611 | 454 | 418 | 353 | 779 | 413 | 399 | 412 | 502 | 523 | 479 | 492 | 534 | 555 |
| Lives lost after notification[f] | 1,076 | 463 | 368 | 399 | 415 | 338 | 304 | 367 | 290 | 188 | 180 | 239 | 297 | 236 | 261 | 281 | 323 | 308 | 303 | 291 | 261 |
| Lives unaccounted for[g] | U | U | U | U | U | U | U | U | U | U | U | 304 | 515 | 344 | 496 | 691 | 603 | 664 | 733 | 435 | 579 |
| Persons otherwise assisted | 138,791 | 117,327 | 113,704 | 121,826 | 119,069 | 116,912 | 101,357 | 85,869 | 75,357 | 66,138 | 70,255 | 54,866 | 59,910 | 46,503 | 38,579 | 42,008 | 41,551 | 44,757 | 35,797 | 31,841 | 34,425 |
| Value of property lost ($ million)[h,i] | 424.3 | 368.5 | 213.6 | 314.5 | 316.2 | 435.5 | 222.6 | 273.8 | 414.8 | 84.3 | 262.3 | 415.2 | 441.0 | 76.0 | 19.6 | 53.5 | 97.0 | 32.8 | 121.7 | 1,141.5 | 114.4 |
| Value of property assisted ($ million) | 2,376.8 | 2,044.9 | 2,282.4 | 1,951.4 | 2,491.8 | 2,891.2 | 4,467.2 | 3,494.2 | 1,762.1 | 1,288.2 | 1,235.0 | 778.8 | 1,501.0 | 1,589.0 | 478.8 | 778.4 | 1,661.8 | 778.4 | 995.6 | 1,249.0 | 915.9 |
| Property loss prevented ($ million) | 905.4 | 1,673.4 | 1,799.3 | 1,550.1 | 2,144.7 | 2,628.4 | 3,882.8 | 3,087.3 | 1,353.5 | 996.8 | 1,019.0 | 84.3 | 73.0 | 68.0 | 106.7 | 238.7 | 146.4 | 111.0 | 113.1 | 148.0 | 94.9 |
| Value of property unaccounted for ($ million)[j] | U | U | U | U | U | U | U | U | U | U | U | 2.1 | 4.4 | 3.2 | 4.8 | 2.9 | 2.1 | 3.6 | 5.9 | 2.4 | 10.2 |

**KEY:** U = data are unavailable.

[a] *Responses* are the number of U.S. Coast Guard units involved. *Sorties* are the number of trips made by boat, aircraft, or cutter.

[b] *Search and Rescue resource hours* represent the time that Coast Guard assets (i.e., aircraft, boats, and cutters) perform search and rescue operations.

[c] The Search and Rescue Management Information System's reporting policy has been revised and now requires complete reporting on all *Lives saved*. This policy also includes reporting on *Lives saved* in connection with Coast Guard Law Enforcement Activity (i.e., Alien Migrant Interdiction Operations (AMIO)). AMIO *Lives saved* in fiscal year 1992 was determined to be approximately 12,000. AMIO *Lives saved* in fiscal year 1994 was determined to be 15,179.

[d] Those persons whose lives were lost before the U.S. Coast Guard was notified of an incident.

[e] The Egypt Air (217 fatalities) and Alaska Air (88 fatalities) crashes account for the increase in 2000.

[f] Those persons whose lives were lost in an incident to which the U.S. Coast Guard was responding, but who were alive at the time the U.S. Coast Guard was notified of the incident.

[g] Added category; completes the accounting for all lives associated with USCG Search and Rescue (SAR) responses.

[h] Includes several out of the normal high cost incidents.

[i] The B-52 crash in Guam accounts for the increase ($1,040 million) in 2008.

[j] Added category; completes the accounting for all property associated with USCG SAR responses.

**SOURCES**

**All data except Search and Rescue resource hours, lives unccounted for and value of property unaccounted for:**

1985-1993: U.S. Department of Transportation, U.S. Coast Guard, Search and Rescue Management Information Systems (SARMIS II) Database, available at www.uscg.mil/hq/g-o/g-opr/92-01summary.htm as of Aug. 8, 2002.

1994-2002: U.S. Department of Transportation, U.S. Coast Guard, ON SCENE The Journal of U.S. Coast Guard Search Rescue, available at www.uscg.mil/hq/g-o/g-opr/On%20Scene/onscene.htm as of July 28, 2004.

2003-09: U.S. Department of Homeland Security, U.S. Coast Guard, Office of Search and Rescue, personal communications, Apr. 1, 2008, and July 2, 2010.

**Search and Rescue resource hours:**

1990-2002: U.S. Department of Transportation, U.S. Coast Guard, Office of Command and Control Architecture, personal communications, Sept. 30, 2003 and July 28, 2004.

2003-09: U.S. Department of Homeland Security, U.S. Coast Guard, Office of Search and Rescue, personal communications, Apr. 1, 2008, and July 2, 2010.

**Lives unccounted for and value of property unaccounted for:**

2000-09: U.S. Department of Homeland Security, U.S. Coast Guard, Office of Search and Rescue, personal communication, July 2, 2010.

# Section G
# Pipeline

## Table 2-50: Hazardous Liquid and Natural Gas Pipeline Safety and Property Damage Data

| | 1970 | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | (R) 2008 | (R) 2009 | 2010 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fatalities | | | | | | | | | | | | | | | | | | | | | | | | | |
| Total hazardous liquid | 4 | 7 | 4 | 5 | 3 | 0 | 5 | 0 | 1 | 3 | 5 | 0 | 2 | 4 | 1 | 0 | 1 | 0 | 5 | 2 | 0 | 4 | 2 | 4 | 1 |
| Total gas | 26 | 8 | 15 | 28 | 6 | 14 | 10 | 17 | 21 | 18 | 48 | 10 | 19 | 18 | 37 | 7 | (R) 11 | 12 | 18 | 12 | 21 | 11 | 7 | 9 | 23 |
| Gas transmission | U | U | 1 | 6 | 0 | 0 | 3 | 1 | 0 | 2 | 1 | 1 | 1 | 2 | 15 | 2 | 1 | 1 | 0 | 0 | 3 | 2 | 0 | 0 | 10 |
| Gas distribution | U | U | 14 | 22 | 6 | 14 | 7 | 16 | 21 | 16 | 47 | 9 | 18 | 16 | 22 | 5 | (R) 10 | 11 | 18 | 12 | 18 | 9 | 7 | 9 | 13 |
| Injured persons | | | | | | | | | | | | | | | | | | | | | | | | | |
| Total hazardous liquid[a] | 21 | 17 | 15 | 18 | 7 | 9 | 38 | 10 | 1,858 | 11 | 13 | 5 | 6 | 20 | 4 | 10 | 0 | 5 | 16 | 2 | 2 | 10 | 2 | 4 | 4 |
| Total gas | 233 | 214 | 177 | 108 | 69 | 89 | 80 | 101 | 113 | 53 | 114 | 72 | 75 | 88 | 77 | 51 | 49 | 66 | 44 | 46 | 34 | 43 | 61 | 63 | 103 |
| Gas transmission | U | U | 13 | 12 | 17 | 12 | 15 | 17 | 22 | 10 | 5 | 5 | 11 | 8 | 18 | 5 | 5 | 8 | 3 | 7 | 4 | 7 | 5 | 11 | 61 |
| Gas distribution | U | U | 164 | 96 | 52 | 77 | 65 | 84 | 91 | 43 | 109 | 67 | 64 | 80 | 59 | 46 | 44 | 58 | 41 | 39 | 30 | 36 | 56 | 52 | 42 |
| Incidents | | | | | | | | | | | | | | | | | | | | | | | | | |
| Total hazardous liquid | 351 | 254 | 246 | 183 | 180 | 216 | 212 | 229 | 245 | 188 | 194 | 171 | 153 | 167 | 146 | 130 | 150 | (R) 134 | (R) 146 | 143 | 120 | (R) 120 | 145 | 117 | U |
| Total gas | 1,077 | 1,338 | 1,524 | 334 | 199 | 233 | 177 | 216 | 222 | 161 | 187 | 175 | 236 | 172 | 234 | 211 | (R) 184 | 238 | (R) 297 | 352 | (R) 287 | 285 | 290 | 287 | 229 |
| Gas transmission | U | U | 389 | 129 | 89 | 71 | 74 | 95 | 81 | 64 | 77 | 73 | 99 | 54 | 80 | 87 | 82 | 97 | 123 | 182 | (R) 145 | 132 | 141 | 129 | 113 |
| Gas distribution | U | U | 1,135 | 205 | 110 | 162 | 103 | 121 | 141 | 97 | 110 | 102 | 137 | 118 | 154 | 124 | (R) 102 | 141 | (R) 174 | 170 | 142 | 153 | 149 | 158 | 116 |
| Property damage (Millions of current dollar) | | | | | | | | | | | | | | | | | | | | | | | | | |
| Total hazardous liquid | 1.2 | 2.2 | 5.7 | 5.1 | 15.7 | 37.8 | 39.1 | 28.9 | 62.2 | 32.5 | 85.1 | 55.2 | 63.3 | 86.4 | 150.6 | 25.3 | (R) 51.6 | (R) 67.4 | (R) 165.9 | (R) 306.3 | (R) 75.2 | (R) 60.3 | 126.3 | 67.0 | 567.5 |
| Total gas | 3.3 | 5.0 | 10.0 | 22.9 | 19.0 | 19.7 | 31.4 | 38.4 | 98.4 | 20.9 | 29.3 | 24.6 | 63.5 | (R) 43.8 | 41.3 | 37.7 | (R) 50.5 | 71.6 | (R) 106.8 | (R) 940.4 | (R) 75.9 | 94.3 | 437.1 | 99.3 | 46.6 |
| Gas transmission | U | U | 8.8 | 13.4 | 11.3 | 11.9 | 24.6 | 23.0 | 45.2 | 10.0 | 13.1 | 12.1 | 44.5 | (R) 17.8 | 17.9 | 23.7 | 26.7 | 50.6 | 68.2 | (R) 441.0 | (R) 52.1 | 68.1 | 378.7 | 67.4 | 30.5 |
| Gas distribution | U | U | 1.2 | 9.5 | 7.7 | 7.8 | 6.8 | 15.3 | 53.3 | 11.0 | 16.3 | 12.5 | 19.1 | 25.9 | 23.4 | 14.1 | (R) 23.8 | 21.0 | (R) 38.6 | (R) 499.3 | (R) 23.9 | 26.1 | 58.4 | 32.0 | 16.1 |

**KEY:** R = revised; U = data are unavailable.

[a] 1994 total *Injured persons* from *hazardous liquid* Includes 1,851 injuries requiring medical treatment reported for accidents caused by severe flooding near Houston, TX, in October 1994.

**NOTES**

Beginning with 1985 data, pipeline incidents are credited to the year in which they occurred, not the year in which the report was received. Gas numbers represent the sum of transmission and gathering and distribution operators.

*Property damage* includes, but is not limited to, damage to the operator's facilities and to the property of others; gas lost; restoration of service and relighting; facility repair and replacement; leak locating; right-of-way cleanup; and environmental cleanup and damage.

Numbers may not add to totals due to rounding.

Beginning in 2002, only accidents with gross loss greater than or equal to 50 barrels; those involving any fatality or injury; fire/explosion not intentionally set; highly volatile liquid releases with gross loss of 5 or more barrels; or those involving total costs greater than or equal to $50,000 are reported. Due to this change in reporting criteria, accident data for 2002 and later are not comparable with the previous years.

**SOURCES**

1970-85: U.S. Department of Transportation, Research and Special Programs Administration, Office of Pipeline Safety, personal communication.

1990-2010: U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration, Office of Pipeline Safety, available at http://ops.dot.gov/stats/stats.htm as of Feb. 1, 2011.

# Chapter 3

# Transportation and the Economy

## Section A
## Transportation and the Total Economy

**Table 3-1: U.S. Gross Domestic Product (GDP) Attributed to For-Hire Transportation Services (Billions of current dollars)**

| | (R) 1980 | (R) 1985 | (R) 1990 | (R) 1995 | (R) 1996 | (R) 1997 | (R) 1998 | (R) 1999 | (R) 2000 | (R) 2001 | (R) 2002 | (R) 2003 | (R) 2004 | (R) 2005 | (R) 2006 | (R) 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL U.S. GDP | 2,788.1 | 4,217.5 | 5,800.5 | 7,414.7 | 7,838.5 | 8,332.4 | 8,793.5 | 9,353.5 | 9,951.5 | 10,286.2 | 10,642.3 | 11,142.1 | 11,867.8 | 12,638.4 | 13,398.9 | 14,077.6 | 14,369.1 | 14,119.0 |
| For-hire transportation services GDP, total | 102.6 | 137.1 | 172.8 | 231.7 | 241.3 | 261.8 | 275.6 | 287.1 | 301.4 | 302.6 | 302.4 | 319.8 | 347 | 369.7 | 395.5 | 405.4 | 418.7 | 389.5 |
| Air transportation | 13.1 | 19.3 | 31.3 | 46.2 | 46.9 | 53.6 | 52.4 | 54.3 | 53.1 | 45.2 | 46.8 | 53.2 | 56.1 | 55.7 | 59.7 | 60.2 | 61.0 | 61.9 |
| Rail transportation | 20.2 | 21.0 | 18.6 | 21.1 | 20.9 | 19.7 | 21.2 | 21.8 | 22.8 | 22.6 | 21.7 | 23.1 | 24.3 | 27.0 | 30.6 | 31.7 | 34.8 | 30.8 |
| Water transportation | 3.5 | 4.0 | 5.1 | 6.3 | 6.6 | 7.0 | 6.8 | 6.8 | 8.1 | 8.2 | 7.4 | 8.3 | 8.7 | 9.3 | 12.4 | 13.5 | 14.8 | 14.3 |
| Truck transportation | 28.4 | 39.4 | 49.7 | 69.3 | 73.1 | 80.3 | 86.9 | 93.4 | 97.0 | 97.8 | 97.2 | 102.0 | 110.2 | 118.9 | 125.3 | 127.0 | 124.7 | 113.1 |
| Transit and ground passenger transportation | 5.8 | 7.3 | 9.0 | 11.8 | 12.8 | 14.8 | 16.0 | 17.2 | 17.8 | 18.4 | 19.2 | 19.6 | 20.9 | 21.2 | 22.6 | 24.0 | 23.4 | 23.4 |
| Pipeline transportation | 5.1 | 7.3 | 6.0 | 6.7 | 7.1 | 7.2 | 7.8 | 8.9 | 9.1 | 14.7 | 10.3 | 10.2 | 11.5 | 10.4 | 11.3 | 12.4 | 16.2 | 12.0 |
| Other transportation and support activities | 20.2 | 29.3 | 39.9 | 51.6 | 54.3 | 57.2 | 61.1 | 61.4 | 67.5 | 70.3 | 73.4 | 76.0 | 83.9 | 91.9 | 96.4 | 96.5 | 102.0 | 94.7 |
| Warehousing and storage | 6.4 | 9.5 | 13.0 | 18.8 | 19.6 | 21.9 | 23.4 | 23.4 | 25.8 | 25.3 | 26.3 | 27.2 | 31.4 | 35.3 | 37.2 | 40.0 | 41.7 | 39.4 |
| Percent of U.S. GDP | | | | | | | | | | | | | | | | | | |
| For-hire transportation services | 3.68 | 3.25 | 2.98 | 3.12 | 3.08 | 3.14 | 3.13 | 3.07 | 3.03 | 2.94 | 2.84 | 2.87 | 2.92 | 2.93 | 2.95 | 2.88 | 2.91 | 2.76 |
| Air transportation | 0.47 | 0.46 | 0.54 | 0.62 | 0.60 | 0.64 | 0.60 | 0.58 | 0.53 | 0.44 | 0.44 | 0.48 | 0.47 | 0.44 | 0.45 | 0.43 | 0.42 | 0.44 |
| Rail transportation | 0.72 | 0.50 | 0.32 | 0.28 | 0.27 | 0.24 | 0.24 | 0.23 | 0.23 | 0.22 | 0.20 | 0.21 | 0.20 | 0.21 | 0.23 | 0.23 | 0.24 | 0.22 |
| Water transportation | 0.13 | 0.09 | 0.09 | 0.08 | 0.08 | 0.08 | 0.08 | 0.07 | 0.08 | 0.08 | 0.07 | 0.07 | 0.07 | 0.07 | 0.09 | 0.10 | 0.10 | 0.10 |
| Truck transportation | 1.02 | 0.93 | 0.86 | 0.93 | 0.93 | 0.96 | 0.99 | 1.00 | 0.97 | 0.95 | 0.91 | 0.92 | 0.93 | 0.94 | 0.94 | 0.90 | 0.87 | 0.80 |
| Transit and ground passenger transportation | 0.21 | 0.17 | 0.16 | 0.16 | 0.16 | 0.18 | 0.18 | 0.18 | 0.18 | 0.18 | 0.18 | 0.18 | 0.18 | 0.17 | 0.17 | 0.17 | 0.16 | 0.17 |
| Pipeline transportation | 0.18 | 0.17 | 0.10 | 0.09 | 0.09 | 0.09 | 0.09 | 0.10 | 0.09 | 0.14 | 0.10 | 0.09 | 0.10 | 0.08 | 0.08 | 0.09 | 0.11 | 0.08 |
| Other transportation and support activities | 0.72 | 0.69 | 0.69 | 0.70 | 0.69 | 0.69 | 0.69 | 0.66 | 0.68 | 0.68 | 0.69 | 0.68 | 0.71 | 0.73 | 0.72 | 0.69 | 0.71 | 0.67 |
| Warehousing and storage | 0.23 | 0.23 | 0.22 | 0.25 | 0.25 | 0.26 | 0.27 | 0.25 | 0.26 | 0.25 | 0.25 | 0.24 | 0.26 | 0.28 | 0.28 | 0.28 | 0.29 | 0.28 |
| Percent of for-hire transportation services GDP | | | | | | | | | | | | | | | | | | |
| Air transportation | 12.77 | 14.08 | 18.11 | 19.94 | 19.44 | 20.47 | 19.01 | 18.91 | 17.62 | 14.94 | 15.48 | 16.64 | 16.17 | 15.07 | 15.09 | 14.85 | 14.57 | 15.89 |
| Rail transportation | 19.69 | 15.32 | 10.76 | 9.11 | 8.66 | 7.52 | 7.69 | 7.59 | 7.56 | 7.47 | 7.18 | 7.22 | 7.00 | 7.30 | 7.74 | 7.82 | 8.31 | 7.91 |
| Water transportation | 3.41 | 2.92 | 2.95 | 2.72 | 2.74 | 2.67 | 2.47 | 2.37 | 2.69 | 2.71 | 2.45 | 2.60 | 2.51 | 2.52 | 3.14 | 3.33 | 3.53 | 3.67 |
| Truck transportation | 27.68 | 28.74 | 28.76 | 29.91 | 30.29 | 30.67 | 31.53 | 32.53 | 32.18 | 32.32 | 32.14 | 31.89 | 31.76 | 32.16 | 31.68 | 31.33 | 29.78 | 29.04 |
| Transit and ground passenger transportation | 5.65 | 5.32 | 5.21 | 5.09 | 5.30 | 5.65 | 5.81 | 5.99 | 5.91 | 6.08 | 6.35 | 6.13 | 6.02 | 5.73 | 5.71 | 5.92 | 5.59 | 6.01 |
| Pipeline transportation | 4.97 | 5.32 | 3.47 | 2.89 | 2.94 | 2.75 | 2.83 | 3.10 | 3.02 | 4.86 | 3.41 | 3.19 | 3.31 | 2.81 | 2.86 | 3.06 | 3.87 | 3.08 |
| Other transportation and support activities | 19.69 | 21.37 | 23.09 | 22.27 | 22.50 | 21.85 | 22.17 | 21.39 | 22.40 | 23.23 | 24.27 | 23.76 | 24.18 | 24.86 | 24.37 | 23.80 | 24.36 | 24.31 |
| Warehousing and storage | 6.24 | 6.93 | 7.52 | 8.11 | 8.12 | 8.37 | 8.49 | 8.15 | 8.56 | 8.36 | 8.70 | 8.51 | 9.05 | 9.55 | 9.41 | 9.87 | 9.96 | 10.12 |

**KEY**: R = revised.

**NOTE**

Numbers may not add to totals due to rounding.

**SOURCE**

U.S. Department of Commerce, Bureau of Economic Analysis, *Industry Economic Accounts*, *Interactive tables* , available at http://www.bea.gov/industry/index.htm as of Dec. 14, 2010.

**Table 3-2: U.S. Gross Domestic Product (GDP) Attributed to For-Hire Transportation Services (Billions of chained 2005 dollars)**

| | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL U.S. GDP | 7,313.3 | 7,613.9 | 7,886.0 | 8,034.0 | 8,015.1 | 8,287.1 | 8,523.5 | 8,870.6 | 9,093.7 | 9,433.9 | 9,854.3 | 10,283.5 | 10,779.9 | 11,226.0 | 11,347.1 | 11,553.0 | 11,840.6 | 12,263.8 | 12,638.4 | 12,976.2 | 13,228.9 | 13,228.8 | 12,880.6 |
| For-hire transportation services GDP, total | 180.8 | 186.2 | 193.4 | 203.6 | 212.9 | 226.4 | 236.4 | 255.4 | 263.0 | 277.4 | 291.7 | 288.2 | 298.3 | 318.2 | 306.8 | 302.6 | 317.9 | 346.8 | 369.7 | 386.1 | 389.5 | 392.7 | 341.6 |
| Air transportation | 19.0 | 21.1 | 22.7 | 26.1 | 24.8 | 28.2 | 29.4 | 34.1 | 36.0 | 39.9 | 43.1 | 38.3 | 40.4 | 43.4 | 37.8 | 41.8 | 48.7 | 54.9 | 55.7 | 57.5 | 57.1 | 54.8 | 50.2 |
| Rail transportation | 20.5 | 21.1 | 19.7 | 20.7 | 23.4 | 23.9 | 23.9 | 24.8 | 25.2 | 25.5 | 24.0 | 24.5 | 25.7 | 27.3 | 26.1 | 24.2 | 25.7 | 26.9 | 27.0 | 27.3 | 27.0 | 26.7 | 22.7 |
| Water transportation | 4.2 | 4.4 | 4.9 | 5.9 | 6.4 | 7.0 | 7.4 | 8.0 | 7.8 | 8.4 | 9.1 | 7.1 | 5.8 | 7.2 | 6.1 | 4.9 | 4.8 | 6.2 | 9.3 | 14.9 | 18.1 | 22.0 | 22.3 |
| Truck transportation | 56.7 | 57.3 | 59.9 | 59.9 | 64.4 | 69.5 | 74.0 | 81.8 | 84.7 | 90.2 | 95.4 | 96.3 | 103.0 | 106.7 | 101.7 | 99.0 | 102.7 | 110.2 | 118.9 | 125.3 | 127.9 | 124.5 | 105.0 |
| Transit and ground passenger transportation | 13.1 | 12.5 | 13.7 | 14.6 | 13.7 | 13.4 | 14.3 | 15.3 | 15.7 | 16.0 | 18.3 | 18.9 | 20.5 | 21.0 | 20.9 | 21.1 | 20.6 | 21.5 | 21.2 | 21.9 | 22.8 | 22.0 | 20.3 |
| Pipeline transportation | 6.0 | 5.3 | 6.2 | 7.2 | 7.0 | 6.9 | 6.4 | 5.9 | 6.8 | 6.8 | 6.3 | 6.0 | 7.7 | 8.8 | 13.4 | 9.1 | 9.5 | 10.8 | 10.4 | 9.8 | 10.4 | 13.6 | 9.2 |
| Other transportation and support activities | 51.3 | 52.5 | 54.2 | 55.5 | 59.7 | 61.4 | 64.2 | 66.0 | 65.0 | 66.9 | 68.9 | 71.6 | 69.8 | 75.7 | 74.6 | 75.9 | 78.0 | 85.1 | 91.9 | 93.8 | 90.1 | 93.4 | 80.1 |
| Warehousing and storage | 14.2 | 15.2 | 15.4 | 15.5 | 16.4 | 18.0 | 19.1 | 20.8 | 22.1 | 23.1 | 25.6 | 27.0 | 26.3 | 28.5 | 27.2 | 28.0 | 28.7 | 31.6 | 35.3 | 36.6 | 38.0 | 38.3 | 35.5 |
| Percent of U.S. GDP | | | | | | | | | | | | | | | | | | | | | | | |
| For-hire transportation services | 2.47 | 2.45 | 2.45 | 2.53 | 2.66 | 2.73 | 2.77 | 2.88 | 2.89 | 2.94 | 2.96 | 2.80 | 2.77 | 2.83 | 2.70 | 2.62 | 2.68 | 2.83 | 2.93 | 2.98 | 2.94 | 2.97 | 2.65 |
| Air transportation | 0.26 | 0.28 | 0.29 | 0.32 | 0.31 | 0.34 | 0.34 | 0.38 | 0.40 | 0.42 | 0.44 | 0.37 | 0.37 | 0.39 | 0.33 | 0.36 | 0.41 | 0.45 | 0.44 | 0.44 | 0.43 | 0.41 | 0.39 |
| Rail transportation | 0.28 | 0.28 | 0.25 | 0.26 | 0.29 | 0.29 | 0.28 | 0.28 | 0.28 | 0.27 | 0.24 | 0.24 | 0.24 | 0.24 | 0.23 | 0.21 | 0.22 | 0.22 | 0.21 | 0.21 | 0.20 | 0.20 | 0.18 |
| Water transportation | 0.06 | 0.06 | 0.06 | 0.07 | 0.08 | 0.08 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.07 | 0.05 | 0.06 | 0.05 | 0.04 | 0.04 | 0.05 | 0.07 | 0.11 | 0.14 | 0.17 | 0.17 |
| Truck transportation | 0.78 | 0.75 | 0.76 | 0.75 | 0.80 | 0.84 | 0.87 | 0.92 | 0.93 | 0.96 | 0.97 | 0.94 | 0.96 | 0.95 | 0.90 | 0.86 | 0.87 | 0.90 | 0.94 | 0.97 | 0.97 | 0.94 | 0.82 |
| Transit and ground passenger transportation | 0.18 | 0.16 | 0.17 | 0.18 | 0.17 | 0.16 | 0.17 | 0.17 | 0.17 | 0.17 | 0.19 | 0.18 | 0.19 | 0.19 | 0.18 | 0.18 | 0.17 | 0.18 | 0.17 | 0.17 | 0.17 | 0.17 | 0.16 |
| Pipeline transportation | 0.08 | 0.07 | 0.08 | 0.09 | 0.09 | 0.08 | 0.08 | 0.07 | 0.07 | 0.07 | 0.06 | 0.06 | 0.07 | 0.08 | 0.12 | 0.08 | 0.08 | 0.09 | 0.08 | 0.08 | 0.08 | 0.10 | 0.07 |
| Other transportation and support activities | 0.70 | 0.69 | 0.69 | 0.69 | 0.74 | 0.74 | 0.75 | 0.74 | 0.71 | 0.71 | 0.70 | 0.70 | 0.65 | 0.67 | 0.66 | 0.66 | 0.66 | 0.69 | 0.73 | 0.72 | 0.68 | 0.71 | 0.62 |
| Warehousing and storage | 0.19 | 0.20 | 0.20 | 0.19 | 0.20 | 0.22 | 0.22 | 0.23 | 0.24 | 0.24 | 0.26 | 0.26 | 0.24 | 0.25 | 0.24 | 0.24 | 0.24 | 0.26 | 0.28 | 0.28 | 0.29 | 0.29 | 0.28 |
| Percent of for-hire transportation services GDP | | | | | | | | | | | | | | | | | | | | | | | |
| Air transportation | 10.51 | 11.33 | 11.74 | 12.82 | 11.65 | 12.46 | 12.44 | 13.35 | 13.69 | 14.38 | 14.78 | 13.29 | 13.54 | 13.64 | 12.32 | 13.81 | 15.32 | 15.83 | 15.07 | 14.89 | 14.66 | 13.95 | 14.70 |
| Rail transportation | 11.34 | 11.33 | 10.19 | 10.17 | 10.99 | 10.56 | 10.11 | 9.71 | 9.58 | 9.19 | 8.23 | 8.50 | 8.62 | 8.58 | 8.51 | 8.00 | 8.08 | 7.76 | 7.30 | 7.07 | 6.93 | 6.80 | 6.65 |
| Water transportation | 2.32 | 2.36 | 2.53 | 2.90 | 3.01 | 3.09 | 3.13 | 3.13 | 2.97 | 3.03 | 3.12 | 2.46 | 1.94 | 2.26 | 1.99 | 1.62 | 1.51 | 1.79 | 2.52 | 3.86 | 4.65 | 5.60 | 6.53 |
| Truck transportation | 31.36 | 30.77 | 30.97 | 29.42 | 30.25 | 30.70 | 31.30 | 32.03 | 32.21 | 32.52 | 32.70 | 33.41 | 34.53 | 33.53 | 33.15 | 32.72 | 32.31 | 31.78 | 32.16 | 32.45 | 32.84 | 31.70 | 30.74 |
| Transit and ground passenger transportation | 7.25 | 6.71 | 7.08 | 7.17 | 6.43 | 5.92 | 6.05 | 5.99 | 5.97 | 5.77 | 6.27 | 6.56 | 6.87 | 6.60 | 6.81 | 6.97 | 6.48 | 6.20 | 5.73 | 5.67 | 5.85 | 5.60 | 5.94 |
| Pipeline transportation | 3.32 | 2.85 | 3.21 | 3.54 | 3.29 | 3.05 | 2.71 | 2.31 | 2.59 | 2.45 | 2.16 | 2.08 | 2.58 | 2.77 | 4.37 | 3.01 | 2.99 | 3.11 | 2.81 | 2.54 | 2.67 | 3.46 | 2.69 |
| Other transportation and support activities | 28.37 | 28.20 | 28.02 | 27.26 | 28.04 | 27.12 | 27.16 | 25.84 | 24.71 | 24.12 | 23.62 | 24.84 | 23.40 | 23.79 | 24.32 | 25.08 | 24.54 | 24.54 | 24.86 | 24.29 | 23.13 | 23.78 | 23.45 |
| Warehousing and storage | 7.85 | 8.16 | 7.96 | 7.61 | 7.70 | 7.95 | 8.08 | 8.14 | 8.40 | 8.33 | 8.78 | 9.37 | 8.82 | 8.96 | 8.87 | 9.25 | 9.03 | 9.11 | 9.55 | 9.48 | 9.76 | 9.75 | 10.39 |

**KEY**: R = revised.

**NOTES**

Details may not add to totals due to the nature of the chained dollar calculations.

At the time of this publication the Bureau of Economic Analysis (BEA) had only published chained 2005 dollar estimates from 1987 onward. Current dollar estimates for earlier years can be found in table 3-1, and chained 2000 $ estimates for earlier years can be found in the 2010 edition of NTS, table 3-1b.

**SOURCE**

U.S. Department of Commerce, Bureau of Economic Analysis, *Industry Economic Accounts*, *Interactive tables*, available at http://www.bea.gov/industry/index.htm as of Dec. 14, 2010.

**Table 3-3: U.S. Gross Domestic Product (GDP) Attributed to Transportation-Related Final Demand (Current $ billions)**

| | 1980 | 1985 | (R) 1990 | (R) 1991 | (R) 1992 | (R) 1993 | (R) 1994 | (R) 1995 | (R) 1996 | (R) 1997 | (R) 1998 | (R) 1999 | (R) 2000 | (R) 2001 | (R) 2002 | (R) 2003 | (R) 2004 | (R) 2005 | (R) 2006 | (R) 2007 | (R) 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Gross Domestic Product | (R) 2,788.1 | (R) 4,217.5 | 5,800.5 | 5,992.1 | 6,342.3 | 6,667.4 | 7,085.2 | 7,414.7 | 7,838.5 | 8,332.4 | 8,793.5 | 9,353.5 | 9,951.5 | 10,286.2 | 10,642.3 | 11,142.1 | 11,867.8 | 12,638.4 | 13,398.9 | 14,077.6 | 14,441.4 | 14,256.3 |
| Total transportation-related final demand[a] | (R) 336.8 | (R) 479.8 | 599.2 | 598.7 | 635.7 | 678.0 | 733.5 | 765.3 | 824.4 | 890.2 | 928.5 | 994.2 | 1,045.3 | 1,060.0 | 1,059.1 | 1,090.7 | 1,161.2 | 1,266.1 | 1,325.8 | 1,392.2 | 1,375.4 | U |
| Total transportation in GDP (percent) | (R) 12.1 | (R) 11.4 | 10.3 | 10.0 | 10.0 | 10.2 | 10.4 | 10.3 | 10.5 | 10.7 | 10.6 | 10.6 | 10.5 | 10.3 | 10.0 | 9.8 | 9.8 | 10.0 | 9.9 | 9.9 | 9.5 | U |
| Personal consumption of transportation, total | (R) 226.5 | (R) 357.4 | 442.9 | 418.3 | 451.3 | 485.3 | 528.2 | 554.0 | 599.0 | 641.8 | 669.2 | 730.5 | 798.4 | 814.1 | 818.3 | 857.4 | 909.5 | 979.3 | 1,008.8 | 1,051.6 | 1,036.5 | U |
| Motor vehicles and parts | (R) 84.4 | (R) 170.1 | 205.1 | 185.7 | 204.8 | 224.7 | 249.8 | 255.7 | 273.5 | 293.1 | 320.2 | 350.7 | 363.2 | 383.3 | 401.3 | 401.5 | 404.7 | 409.6 | 397.1 | 400.3 | 342.3 | 312.8 |
| Motor vehicle fuels, lubricants, and fluids | 86.7 | 97.2 | 111.4 | 108.9 | 112.9 | 114.5 | 116.5 | 120.4 | 130.5 | 134.4 | 121.8 | 136.5 | 172.9 | 168.1 | 160.3 | 192.8 | 231.6 | 283.8 | 314.7 | 343.9 | 386.4 | U |
| Transportation services | (R) 55.4 | (R) 90.1 | 126.4 | 123.7 | 133.6 | 146.1 | 161.9 | 177.9 | 195.0 | 214.3 | 227.2 | 243.3 | 262.3 | 262.7 | 256.7 | 263.1 | 273.2 | 285.9 | 297.0 | 307.4 | 307.8 | 304.6 |
| Gross private domestic investment, total | (R) 51.6 | (R) 73.7 | 73.4 | 74.6 | 78.3 | 93.3 | 111.9 | 120.5 | 128.6 | 141.6 | 154.3 | 180.9 | 177.6 | 161.2 | 148.4 | 139.5 | 167.9 | 188.8 | 206.9 | 190.7 | 142.2 | U |
| Transportation structures | (R) 3.2 | (R) 4.7 | 3.4 | 3.1 | 3.6 | 3.9 | 4.2 | 4.4 | 5.4 | 6.1 | 7.2 | 6.5 | 6.8 | 7.0 | 6.8 | 6.6 | 6.8 | 7.1 | 8.7 | 9.0 | 9.9 | U |
| Transportation equipment | 48.4 | 69.0 | 70.0 | 71.5 | 74.7 | 89.4 | 107.7 | 116.1 | 123.2 | 135.5 | 147.1 | 174.4 | 170.8 | 154.2 | 141.6 | 132.9 | 161.1 | 181.7 | 198.2 | 181.7 | 132.3 | U |
| Exports ( + ), total | 45.7 | 57.5 | 105.7 | 115.0 | 122.7 | 122.9 | 129.8 | 132.5 | 141.7 | 162.7 | 171.7 | 174.9 | 179.0 | 174.3 | 175.5 | 174.6 | 191.2 | 216.6 | 240.0 | 271.5 | 286.0 | 227.3 |
| Civilian aircraft, engines, and parts | 14.1 | 13.5 | 32.2 | 36.6 | 37.7 | 32.8 | 31.5 | 26.1 | 30.8 | 41.4 | 53.5 | 52.9 | 48.1 | 52.6 | 50.4 | 46.7 | 46.1 | 55.9 | 64.5 | 73.0 | 74.0 | 74.9 |
| Automotive vehicles, engines, and parts | 17.4 | 24.9 | 36.2 | 39.9 | 46.9 | 51.6 | 57.5 | 61.4 | 64.4 | 73.4 | 72.5 | 75.3 | 80.4 | 75.4 | 78.9 | 80.6 | 89.2 | 98.4 | 107.3 | 121.3 | 121.5 | 81.9 |
| Passenger fares | 2.6 | 4.4 | 15.3 | 15.9 | 16.6 | 16.5 | 17.0 | 18.9 | 20.4 | 20.9 | 20.1 | 19.8 | 20.7 | 17.9 | 17.0 | 15.9 | 18.9 | 21.0 | 22.0 | 25.6 | 31.6 | 26.0 |
| Other transportation | 11.6 | 14.7 | 22.0 | 22.6 | 21.5 | 22.0 | 23.8 | 26.1 | 26.1 | 27.0 | 25.6 | 26.9 | 29.8 | 28.4 | 29.2 | 31.4 | 37.0 | 41.3 | 46.2 | 51.6 | 58.9 | 44.5 |
| Imports ( - ), total | 46.8 | 92.2 | 134.2 | 132.2 | 138.5 | 149.3 | 168.5 | 176.1 | 184.6 | 203.1 | 220.8 | 258.2 | 288.0 | 282.5 | 287.6 | 299.9 | 331.4 | 353.2 | 377.8 | 389.1 | 373.9 | 272.0 |
| Civilian aircraft, engines, and parts | 3.1 | 5.3 | 10.5 | 11.7 | 12.6 | 11.3 | 11.3 | 10.7 | 12.7 | 16.6 | 21.8 | 23.8 | 26.4 | 31.4 | 25.5 | 24.1 | 24.3 | 25.8 | 28.4 | 34.4 | 35.4 | 30.5 |
| Automotive vehicles, engines, and parts | 28.3 | 64.9 | 88.2 | 85.5 | 91.5 | 102.1 | 118.1 | 123.7 | 128.7 | 139.4 | 148.6 | 179.0 | 195.9 | 189.8 | 203.7 | 210.1 | 228.2 | 239.4 | 256.6 | 259.2 | 233.8 | 160.5 |
| Passenger fares | 3.6 | 6.4 | 10.5 | 10.0 | 10.6 | 11.4 | 13.1 | 14.7 | 15.8 | 18.1 | 20.0 | 21.3 | 24.3 | 22.6 | 20.0 | 21.0 | 24.7 | 26.1 | 27.5 | 28.4 | 32.6 | 27.2 |
| Other transportation | 11.8 | 15.6 | 25.0 | 25.0 | 23.8 | 24.5 | 26.0 | 27.0 | 27.4 | 29.0 | 30.4 | 34.1 | 41.4 | 38.7 | 38.4 | 44.7 | 54.2 | 61.9 | 65.3 | 67.1 | 72.1 | 53.8 |
| Net exports of transportation-related goods and services[b] | -1.1 | -34.7 | -28.5 | -17.2 | -15.8 | -26.4 | -38.7 | -43.6 | -42.9 | -40.4 | -49.1 | -83.3 | -109.0 | -108.2 | -112.1 | -125.3 | -140.2 | -136.6 | -137.8 | -117.6 | -87.9 | -44.7 |
| Government transportation-related purchases, total | 59.8 | 83.4 | 111.4 | 123.0 | 121.9 | 125.8 | 132.1 | 134.4 | 139.7 | 147.2 | 154.1 | 166.1 | 178.3 | 192.9 | 204.5 | 219.1 | 224.0 | 234.6 | 247.9 | 267.5 | 284.6 | U |
| Federal purchases[c] | 7.0 | 10.0 | 12.9 | 14.5 | 15.3 | 16.3 | 17.5 | 16.5 | 17.3 | 17.7 | 18.7 | 18.8 | 19.3 | 21.0 | 26.0 | 29.6 | 28.9 | 30.1 | 32.0 | 31.9 | 35.9 | U |
| State and local purchases[c] | 48.6 | 67.2 | 89.7 | 92.8 | 95.2 | 100.2 | 106.2 | 109.5 | 113.8 | 121.3 | 126.9 | 138.3 | 150.0 | 161.9 | 168.3 | 172.9 | 178.4 | 188.6 | 201.0 | 215.9 | 230.7 | U |
| Defense-related purchases[d] | 4.2 | 6.2 | 8.8 | 15.7 | 11.4 | 9.3 | 8.4 | 8.4 | 8.6 | 8.2 | 8.5 | 9.0 | 9.0 | 10.0 | 10.2 | 16.6 | 16.7 | 15.9 | 14.9 | 19.7 | 18.0 | 15.0 |

**KEY:** R = revised; U = data are unavailable.

[a] Sum of total *Personal consumption of transportation*, total *Gross private domestic investment*, *Net exports of transportation-related goods and services*, and total *Government transportation-related purchases*.
[b] *Exports* minus *Imports*.
[c] *Federal purchases* and *State and local purchases* are the sum of consumption expenditures and gross investmen
[d] *Defense-related purchases* are the sum of transportation of material and trave

**NOTE**

On July 31, 2009, the Bureau of Economic Analysis (BEA) released the results of the comprehensive, or benchmark, revision of the national income and product accounts (NIPAs) which resulted in many changes relative to previously published results.

**SOURCE**

U.S. Department of Commerce, Bureau of Economic Analysis*National Income and Product Accounts Tables,* tables 1.1.5, 2.3.5, 2.4.5, 3.11.5, 3.15.5, 4.2.5, 5.4.5, and 5.5.5, available at http://www.bea.gov/National/nipaweb/SelectTable.asp?Selected=N as of Apr. 8, 2010.

**Table 3-4: U.S. Gross Domestic Product (GDP) Attributed to Transportation-Related Final Demand (Chained 2005 $ billions)**

| | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Gross Domestic Product | 9,093.7 | 9,433.9 | 9,854.3 | 10,283.5 | 10,779.8 | 11,226.0 | 11,347.2 | 11,553.0 | 11,840.7 | 12,263.8 | 12,638.4 | 12,976.2 | 13,254.1 | 13,312.2 | 12,987.4 |
| Total transportation-related final demand[a] | 993.7 | 1,038.2 | 1,102.1 | 1,165.1 | 1,217.5 | 1,211.8 | 1,223.9 | 1,226.2 | 1,229.4 | 1,250.8 | 1,266.1 | 1,254.6 | 1,261.7 | 1,167.4 | U |
| Total transportation in GDP (percent) | 10.9 | 11.0 | 11.2 | 11.3 | 11.3 | 10.8 | 10.8 | 10.6 | 10.4 | 10.2 | 10.0 | 9.7 | 9.5 | 8.8 | U |
| Personal consumption of transportation, total | 703.2 | 738.2 | 781.0 | 831.4 | 882.1 | 903.6 | 921.5 | 937.3 | 958.3 | 976.6 | 979.3 | 960.5 | 971.6 | 893.0 | U |
| Motor vehicles and parts | 255.6 | 268.0 | 286.1 | 316.1 | 345.1 | 356.1 | 374.3 | 394.0 | 405.3 | 411.3 | 409.6 | 396.6 | 402.4 | 347.5 | 317.2 |
| Gasoline and oil[b] | 233.8 | 238.8 | 246.1 | 256.1 | 263.5 | 261.3 | 263.6 | 267.5 | 276.3 | 282.1 | 283.8 | 278.9 | 280.9 | 271.7 | U |
| Transportion services | 213.8 | 231.4 | 248.8 | 259.2 | 273.5 | 286.2 | 283.6 | 275.8 | 276.7 | 283.2 | 285.9 | 285.0 | 288.3 | 273.8 | 263.7 |
| Gross private domestic investment, total | 137.4 | 143.8 | 155.9 | 170.8 | 198.0 | 194.1 | 177.4 | 161.6 | 147.4 | 169.3 | 188.8 | 204.9 | 185.9 | 137.9 | U |
| Transportation structures | 5.9 | 7.0 | 7.7 | 8.8 | 7.7 | 7.9 | 7.8 | 7.4 | 7.0 | 7.0 | 7.1 | 8.4 | 8.5 | 9.0 | U |
| Transportation equipment | 131.5 | 136.8 | 148.2 | 162.0 | 190.3 | 186.2 | 169.6 | 154.2 | 140.4 | 162.3 | 181.7 | 196.5 | 177.4 | 128.9 | U |
| Exports ( + ), total | 163.1 | 171.7 | 196.4 | 209.3 | 208.1 | 204.5 | 195.8 | 194.5 | 187.4 | 199.2 | 216.6 | 233.8 | 256.5 | 256.5 | 207.3 |
| Civilian aircraft, engines, and parts | 37.0 | 42.0 | 54.5 | 69.7 | 67.3 | 58.4 | 60.4 | 56.4 | 50.5 | 48.1 | 55.9 | 62.0 | 67.1 | 65.0 | 62.8 |
| Automotive vehicles, engines, and parts | 65.8 | 68.2 | 77.2 | 76.2 | 78.6 | 83.2 | 77.8 | 81.0 | 82.2 | 90.2 | 98.4 | 106.0 | 118.4 | 117.2 | 78.6 |
| Passenger fares | 27.1 | 29.2 | 31.4 | 30.7 | 28.1 | 28.6 | 24.5 | 22.7 | 18.9 | 20.3 | 21.0 | 21.9 | 23.6 | 26.4 | 24.8 |
| Other transportation | 33.2 | 32.3 | 33.3 | 32.7 | 34.1 | 34.3 | 33.1 | 34.4 | 35.8 | 40.6 | 41.3 | 43.9 | 47.4 | 47.9 | 41.1 |
| Imports ( - ), total | 206.7 | 213.9 | 234.0 | 254.6 | 288.4 | 313.8 | 305.2 | 309.4 | 315.1 | 339.4 | 353.2 | 374.7 | 381.2 | 347.0 | 257.3 |
| Civilian aircraft, engines, and parts | 14.4 | 16.4 | 20.7 | 26.7 | 28.6 | 30.7 | 35.2 | 28.0 | 25.8 | 25.2 | 25.8 | 27.3 | 31.5 | 30.6 | 25.0 |
| Automotive vehicles, engines, and parts | 131.2 | 135.7 | 146.6 | 156.1 | 186.7 | 202.9 | 196.7 | 210.5 | 216.0 | 230.6 | 239.4 | 255.6 | 255.6 | 224.8 | 153.2 |
| Passenger fares | 20.8 | 22.1 | 23.9 | 26.0 | 27.1 | 29.1 | 24.9 | 20.9 | 21.5 | 25.7 | 26.1 | 26.1 | 25.3 | 25.2 | 22.8 |
| Other transportation | 40.3 | 39.7 | 42.8 | 45.8 | 46.0 | 51.1 | 48.4 | 50.0 | 51.8 | 57.9 | 61.9 | 65.7 | 68.8 | 66.4 | 56.3 |
| Net exports of transportation-related goods and services[c] | -43.6 | -42.2 | -37.6 | -45.3 | -80.3 | -109.3 | -109.4 | -114.9 | -127.7 | -140.2 | -136.6 | -140.9 | -124.7 | -90.5 | -50.0 |
| Government transportation-related purchases, total | 196.7 | 198.4 | 202.8 | 208.2 | 217.7 | 223.4 | 234.4 | 242.2 | 251.4 | 245.1 | 234.6 | 230.1 | 228.9 | 227 | U |
| Federal purchases | 22.2 | 22.8 | 22.8 | 23.8 | 23.3 | 23.1 | 24.5 | 29.5 | 32.4 | 30.1 | 30.1 | 30.8 | 29.6 | 32.5 | U |
| State and local purchases | 162.7 | 163.7 | 169.3 | 173.5 | 182.8 | 189.1 | 198.3 | 201.2 | 201.3 | 197.6 | 188.6 | 184.9 | 180.5 | 179.1 | U |
| Defense-related purchases[d] | 11.8 | 11.9 | 10.7 | 10.9 | 11.6 | 11.2 | 11.6 | 11.5 | 17.7 | 17.4 | 15.9 | 14.4 | 18.8 | 15.4 | 13.7 |

[a] Sum of *total personal consumption of transportation* , *total gross private domestic investment* , *net exports of transportation-related goods and services* and *total government transportation-related purchases* .
[b] *Gasoline and oil* also includes lubricants and fluids.
[c] Equal to exports minus imports.
[d] *Defense-related purchases* are the sum of transportation of material and travel.

**NOTES**

The Bureau Economic Analysis has changed the reference year for chained dollar estimates from 2000 to 2005 as part of the comprehensive revision of the national income and product accounts in 2009.
Chained 2000 dollar estimates are provided in the 2010 edition of NTS, table 3-02b.

**SOURCE**

U.S. Department of Commerce, Bureau of Economic Analysis, *National Income and Product Accounts Tables* , tables 1.1.6, 2.3.6, 2.4.6, 3.11.6, 3.15.6, 4.2.6, 5.4.6, and 5.5.6, available at http://www.bea.gov/national/nipaweb/SelectTable.asp?Selected=N#S2 as of Apr. 7, 2010.

**Table 3-5: U.S. Gross Domestic Demand (GDD) Attributed to Transportation-Related Final Demand (Current $ billions)**

| | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | (R) 2007 | (R) 2008 | (R) 2009 | 2010 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Gross Domestic Demand | 2,801.2 | 4,332.7 | 5,878.1 | 6,019.1 | 6,375.1 | (R) 6,731.7 | 7,177.9 | (R) 7,505.3 | 7,934.8 | (R) 8,433.7 | 8,955.3 | 9,615.6 | (R) 10,333.5 | 10,657.2 | 11,069.5 | (R) 11,646.3 | (R) 12,486.4 | 13,361.1 | 14,168.2 | 14,775.8 | 15,079.5 | 14,505.4 | 15,173.5 |
| Total domestic transportation-related final demand | 337.9 | 514.5 | 627.7 | 615.9 | 651.5 | 704.4 | 772.2 | 808.9 | 867.3 | 930.6 | 977.6 | 1,077.5 | 1,154.3 | 1,168.2 | 1,171.2 | 1,216.0 | 1,301.4 | 1,402.7 | 1,463.6 | 1,519.4 | 1,475.6 | 1,263.4 | U |
| Total transportation in GDD (percent) | 12.1 | 11.9 | 10.7 | 10.2 | 10.2 | 10.5 | 10.8 | 10.8 | 10.9 | 11.0 | 10.9 | 11.2 | 11.2 | 11.0 | 10.6 | 10.4 | 10.4 | 10.5 | 10.3 | 10.3 | 9.8 | 8.7 | U |
| Personal consumption of transportation, total | 226.5 | 357.4 | 442.9 | 418.3 | 451.3 | 485.3 | 528.2 | 554.0 | 599.0 | 641.8 | 669.2 | 730.5 | 798.4 | 814.1 | 818.3 | 857.4 | 909.5 | 979.3 | 1,008.8 | 1,052.6 | 1,033.4 | 890.6 | U |
| Motor vehicles and parts | 84.4 | 170.1 | 205.1 | 185.7 | 204.8 | 224.7 | 249.8 | 255.7 | 273.5 | 293.1 | 320.2 | 350.7 | 363.2 | 383.3 | 401.3 | 401.5 | 404.7 | 409.6 | 397.1 | 402.5 | 343.2 | 319.7 | 345.9 |
| Gasoline and oil | 86.7 | 97.2 | 111.4 | 108.9 | 112.9 | 114.5 | 116.5 | 120.4 | 130.5 | 134.4 | 121.8 | 136.5 | 172.9 | 168.1 | 160.3 | 192.8 | 231.6 | 283.8 | 314.7 | 343.0 | 383.3 | 280.8 | U |
| Transportation services | 55.4 | 90.1 | 126.4 | 123.7 | 133.6 | 146.1 | 161.9 | 177.9 | 195.0 | 214.3 | 227.2 | 243.3 | 262.3 | 262.7 | 256.7 | 263.1 | 273.2 | 285.9 | 297.0 | 307.1 | 306.9 | 290.1 | 300.0 |
| Gross private domestic investment, total | 51.6 | 73.7 | 73.4 | 74.6 | 78.3 | 93.3 | 111.9 | 120.5 | 128.6 | 141.6 | 154.3 | 180.9 | 177.6 | 161.2 | 148.4 | 139.5 | 167.9 | 188.8 | 206.9 | 199.2 | 157.1 | 85.4 | U |
| Transportation structures | 3.2 | 4.7 | 3.4 | 3.1 | 3.6 | 3.9 | 4.2 | 4.4 | 5.4 | 6.1 | 7.2 | 6.5 | 6.8 | 7.0 | 6.8 | 6.6 | 6.8 | 7.1 | 8.7 | 9.0 | 9.9 | 9.0 | U |
| Transportation equipment | 48.4 | 69.0 | 70.0 | 71.5 | 74.7 | 89.4 | 107.7 | 116.1 | 123.2 | 135.5 | 147.1 | 174.4 | 170.8 | 154.2 | 141.6 | 132.9 | 161.1 | 181.7 | 198.2 | 190.2 | 147.2 | 76.4 | 112.6 |
| Government transportation-related purchases, total | 59.8 | 83.4 | 111.4 | 123.0 | 121.9 | 125.8 | 132.1 | 134.4 | 139.7 | 147.2 | 154.1 | 166.1 | 178.3 | 192.9 | 204.5 | 219.1 | 224.0 | 234.6 | 247.9 | 267.6 | 285.1 | 287.4 | U |
| Federal purchases[a] | 7.0 | 10.0 | 12.9 | 14.5 | 15.3 | 16.3 | 17.5 | 16.5 | 17.3 | 17.7 | 18.7 | 18.8 | 19.3 | 21.0 | 26.0 | 29.6 | 28.9 | 30.1 | 32.0 | 32.0 | 34.8 | 36.4 | U |
| State and local purchases[a] | 48.6 | 67.2 | 89.7 | 92.8 | 95.2 | 100.2 | 106.2 | 109.5 | 113.8 | 121.3 | 126.9 | 138.3 | 150.0 | 161.9 | 168.3 | 172.9 | 178.4 | 188.6 | 201.0 | 215.9 | 232.3 | 236.7 | U |
| Defense-related purchases[b] | 4.2 | 6.2 | 8.8 | 15.7 | 11.4 | 9.3 | 8.4 | 8.4 | 8.6 | 8.2 | 8.5 | 9.0 | 9.0 | 10.0 | 10.2 | 16.6 | 16.7 | 15.9 | 14.9 | 19.7 | 18.0 | 14.3 | 15.8 |

**KEY:** R = revised; U = data are unavailable.

[a] *Federal purchases and State and local purchases* are the sum of consumption expenditures and gross investment

[b] *Defense-related purchases* are the sum of the transportation of material and travel.

**SOURCE**

U.S. Department of Commerce, Bureau of Economic Analysis,*National Income and Product Accounts Tables* , tables 1.4.5, 2.3.5, 2.4.5, 3.11.5, 3.15.5, 5.3.5 and 5.4.5, available at http://www.bea.gov/ as of Mar. 16, 2011.

**Table 3-6: U.S. Gross Domestic Demand (GDD) Attributed to Transportation-Related Final Demand (Chained 2005 $ billions)**

| | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | (R) 2007 | (R) 2008 | (R) 2009 | 2010 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Gross Domestic Demand | 9,189.0 | 9,542.0 | 9,992.8 | 10,539.9 | 11,141.1 | 11,681.4 | 11,825.7 | 12,107.7 | 12,449.2 | 12,952.5 | 13,361.1 | 13,705.7 | 13,883.9 | 13,729.4 | 13,233.6 | 13,663.6 |
| Total domestic transportation-related final demand | 1,037.3 | 1,080.4 | 1,139.7 | 1,210.4 | 1,297.8 | 1,321.1 | 1,333.3 | 1,341.1 | 1,357.1 | 1,391.0 | 1,402.7 | 1,395.5 | 1,391.9 | 1,265.9 | 1,146.4 | U |
| Total transportation in GDD (percent) | 11.3 | 11.3 | 11.4 | 11.5 | 11.6 | 11.3 | 11.3 | 11.1 | 10.9 | 10.7 | 10.5 | 10.2 | 10.0 | 9.2 | 8.7 | U |
| Personal consumption of transportation, total | 703.2 | 738.2 | 781.0 | 831.4 | 882.1 | 903.6 | 921.5 | 937.3 | 958.3 | 976.6 | 979.3 | 960.5 | 968.7 | 886.6 | 840.2 | U |
| Motor vehicles and parts | 255.6 | 268.0 | 286.1 | 316.1 | 345.1 | 356.1 | 374.3 | 394.0 | 405.3 | 411.3 | 409.6 | 396.6 | 403.9 | 348.2 | 324.0 | 335.4 |
| Motor vehicle fuels, lubricants, and fluids | 233.8 | 238.8 | 246.1 | 256.1 | 263.5 | 261.3 | 263.6 | 267.5 | 276.3 | 282.1 | 283.8 | 278.9 | 276.8 | 265.3 | 265.3 | U |
| Transportation services | 213.8 | 231.4 | 248.8 | 259.2 | 273.5 | 286.2 | 283.6 | 275.8 | 276.7 | 283.2 | 285.9 | 285.0 | 288.0 | 273.1 | 250.9 | 253.9 |
| Gross private domestic investment, total | 137.4 | 143.8 | 155.9 | 170.8 | 198.0 | 194.1 | 177.4 | 161.6 | 147.4 | 169.3 | 188.8 | 204.9 | 194.3 | 152.1 | 77.5 | U |
| Transportation structures | 5.9 | 7.0 | 7.7 | 8.8 | 7.7 | 7.9 | 7.8 | 7.4 | 7.0 | 7.0 | 7.1 | 8.4 | 8.5 | 9.1 | 8.1 | U |
| Transportation equipment | 131.5 | 136.8 | 148.2 | 162.0 | 190.3 | 186.2 | 169.6 | 154.2 | 140.4 | 162.3 | 181.7 | 196.5 | 185.8 | 143.0 | 69.4 | 112.1 |
| Government transportation-related purchases, total | 196.7 | 198.4 | 202.8 | 208.2 | 217.7 | 223.4 | 234.4 | 242.2 | 251.4 | 245.1 | 234.6 | 230.1 | 228.9 | 227.2 | 228.7 | U |
| Federal purchases[a] | 22.2 | 22.8 | 22.8 | 23.8 | 23.3 | 23.1 | 24.5 | 29.5 | 32.4 | 30.1 | 30.1 | 30.8 | 29.6 | 31.5 | 32.5 | U |
| State and local purchases[a] | 162.7 | 163.7 | 169.3 | 173.5 | 182.8 | 189.1 | 198.3 | 201.2 | 201.3 | 197.6 | 188.6 | 184.9 | 180.5 | 180.3 | 183.2 | U |
| Defense-related purchases[b] | 11.8 | 11.9 | 10.7 | 10.9 | 11.6 | 11.2 | 11.6 | 11.5 | 17.7 | 17.4 | 15.9 | 14.4 | 18.8 | 15.4 | 13.0 | 13.4 |

**KEY:** R = revised; U = data are unavailable.

[a] *Federal purchases* and *State and local purchases* are the sum of consumption expenditures and gross investments.
[b] *Defense-related purchases* are the sum of the transportation of material and travel.

**NOTE**

At the time of this publication, the Bureau of Economic Analysis (BEA) had only published chained 2005 dollar estimates from 1995 onward. Current dollar estimates for earlier years can be found in table 3-5.

**SOURCE**

U.S. Department of Commerce, Bureau of Economic Analysis, *National Income and Product Accounts Tables*, tables 1.4.6, 2.3.6, 2.4.6, 3.11.6, 3.15.6, 5.3.6 and 5.4.6, available at http://www.bea.gov/ as of Mar. 29, 2011.

**Table 3-7: Contributions to Gross Domestic Product (GDP): Selected Industries (Current billions of dollars)**

| | (R) 1998 | (R) 1999 | (R) 2000 | (R) 2001 | (R) 2002 | (R) 2003 | (R) 2004 | (R) 2005 | (R) 2006 | (R) 2007 | (R) 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GDP by industry, total | 8,794 | 9,354 | 9,952 | 10,286 | 10,642 | 11,142 | 11,868 | 12,638 | 13,399 | 14,062 | 14,369 | 14,119 |
| Agriculture, forestry, fishing, and hunting | 100 | 93 | 96 | 99 | 94 | 116 | 143 | 127 | 123 | 145 | 160 | 133 |
| Mining | 81 | 82 | 109 | 119 | 110 | 135 | 159 | 192 | 229 | 254 | 317 | 241 |
| Utilities | 165 | 173 | 174 | 178 | 181 | 192 | 208 | 206 | 236 | 249 | 263 | 268 |
| Construction | 384 | 428 | 467 | 491 | 494 | 516 | 554 | 612 | 651 | 657 | 623 | 538 |
| Manufacturing, durable goods | 781 | 802 | 839 | 759 | 768 | 766 | 822 | 878 | 923 | 943 | 927 | 867 |
| Manufacturing, nondurable goods | 546 | 566 | 577 | 585 | 588 | 608 | 661 | 690 | 728 | 756 | 720 | 718 |
| Wholesale trade | 557 | 579 | 618 | 613 | 615 | 638 | 685 | 725 | 770 | 813 | 823 | 781 |
| Retail trade | 627 | 653 | 686 | 704 | 731 | 769 | 795 | 839 | 875 | 886 | 840 | 820 |
| Transportation and warehousing | 276 | 287 | 301 | 303 | 302 | 320 | 347 | 370 | 396 | 405 | 419 | 390 |
| Information | 386 | 439 | 418 | 451 | 500 | 509 | 564 | 593 | 593 | 633 | 653 | 639 |
| Finance, insurance, real estate, rental, and leasing | 1,697 | 1,834 | 1,998 | 2,155 | 2,222 | 2,316 | 2,410 | 2,607 | 2,778 | 2,891 | 2,975 | 3,040 |
| Professional and business services | 927 | 1,010 | 1,117 | 1,171 | 1,198 | 1,259 | 1,347 | 1,462 | 1,571 | 1,701 | 1,769 | 1,701 |
| Educational services, health care, and social assistance | 601 | 639 | 678 | 729 | 790 | 847 | 906 | 953 | 1,015 | 1,078 | 1,149 | 1,213 |
| Arts, entertainment, recreation, accommodation, and food services | 321 | 355 | 382 | 391 | 411 | 427 | 457 | 482 | 511 | 545 | 535 | 513 |
| Other services, except government | 246 | 259 | 278 | 264 | 285 | 290 | 303 | 319 | 332 | 345 | 341 | 335 |
| Government, total | 1,099 | 1,154 | 1,215 | 1,275 | 1,353 | 1,435 | 1,508 | 1,586 | 1,668 | 1,760 | 1,855 | 1,923 |
| Government, federal | 352 | 362 | 378 | 385 | 417 | 447 | 478 | 502 | 527 | 552 | 580 | 612 |
| Government, state and local | 747 | 792 | 837 | 890 | 936 | 988 | 1,029 | 1,084 | 1,141 | 1,208 | 1,275 | 1,311 |
| Percent of GDP | | | | | | | | | | | | |
| Agriculture, forestry, fishing, and hunting | 1.14 | 0.99 | 0.96 | 0.96 | 0.89 | 1.04 | 1.20 | 1.01 | 0.91 | 1.03 | 1.11 | 0.94 |
| Mining | 0.92 | 0.88 | 1.09 | 1.16 | 1.03 | 1.21 | 1.34 | 1.52 | 1.71 | 1.81 | 2.21 | 1.71 |
| Utilities | 1.88 | 1.85 | 1.75 | 1.73 | 1.70 | 1.72 | 1.75 | 1.63 | 1.76 | 1.77 | 1.83 | 1.90 |
| Construction | 4.36 | 4.58 | 4.70 | 4.77 | 4.64 | 4.63 | 4.67 | 4.84 | 4.86 | 4.67 | 4.34 | 3.81 |
| Manufacturing, durable goods | 8.88 | 8.58 | 8.43 | 7.38 | 7.21 | 6.88 | 6.93 | 6.94 | 6.89 | 6.70 | 6.45 | 6.14 |
| Manufacturing, nondurable goods | 6.20 | 6.05 | 5.79 | 5.69 | 5.52 | 5.46 | 5.57 | 5.46 | 5.44 | 5.38 | 5.01 | 5.08 |
| Wholesale trade | 6.34 | 6.19 | 6.21 | 5.96 | 5.78 | 5.73 | 5.77 | 5.74 | 5.74 | 5.78 | 5.73 | 5.53 |
| Retail trade | 7.13 | 6.99 | 6.90 | 6.84 | 6.87 | 6.90 | 6.70 | 6.64 | 6.53 | 6.30 | 5.85 | 5.80 |
| Transportation and warehousing | 3.13 | 3.07 | 3.03 | 2.94 | 2.84 | 2.87 | 2.92 | 2.93 | 2.95 | 2.88 | 2.91 | 2.76 |
| Information | 4.39 | 4.69 | 4.20 | 4.39 | 4.70 | 4.56 | 4.75 | 4.69 | 4.43 | 4.50 | 4.54 | 4.53 |
| Finance, insurance, real estate, rental, and leasing | 19.30 | 19.61 | 20.07 | 20.95 | 20.88 | 20.79 | 20.30 | 20.62 | 20.73 | 20.56 | 20.70 | 21.53 |
| Professional and business services | 10.54 | 10.80 | 11.22 | 11.38 | 11.26 | 11.30 | 11.35 | 11.57 | 11.73 | 12.09 | 12.31 | 12.05 |
| Educational services, health care, and social assistance | 6.84 | 6.83 | 6.81 | 7.09 | 7.42 | 7.60 | 7.64 | 7.54 | 7.58 | 7.67 | 8.00 | 8.59 |
| Arts, entertainment, recreation, accommodation, and food services | 3.65 | 3.80 | 3.83 | 3.80 | 3.86 | 3.83 | 3.85 | 3.81 | 3.82 | 3.88 | 3.73 | 3.63 |
| Other services, except government | 2.79 | 2.77 | 2.79 | 2.57 | 2.68 | 2.60 | 2.55 | 2.52 | 2.48 | 2.45 | 2.37 | 2.38 |
| Government, total | 12.50 | 12.34 | 12.21 | 12.40 | 12.71 | 12.88 | 12.70 | 12.55 | 12.45 | 12.52 | 12.91 | 13.62 |
| Government, federal | 4.00 | 3.86 | 3.80 | 3.74 | 3.91 | 4.01 | 4.03 | 3.97 | 3.93 | 3.93 | 4.04 | 4.33 |
| Government, state and local | 8.50 | 8.47 | 8.41 | 8.66 | 8.80 | 8.87 | 8.67 | 8.58 | 8.52 | 8.59 | 8.87 | 9.29 |

**KEY:** R = revised.

**NOTE**

Numbers may not add to totals due to rounding.

**SOURCE**

U.S. Department of Commerce, Bureau of Economic Analysis, *Industry Economic Accounts*, available at http://www.bea.gov/industry/gpotables/ as of Jan. 21, 2011.

**Table 3-8: Contributions to Gross Domestic Product (GDP): Selected Industries (Billions of chained 2005 dollars)**

| | (R) 1998 | (R) 1999 | (R) 2000 | (R) 2001 | (R) 2002 | (R) 2003 | (R) 2004 | (R) 2005 | (R) 2006 | (R) 2007 | (R) 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GDP by industry, total | 10,284 | 10,780 | 11,226 | 11,347 | 11,553 | 11,841 | 12,264 | 12,638 | 12,976 | 13,229 | 13,229 | 12,881 |
| Agriculture, forestry, fishing, and hunting | 89 | 93 | 104 | 100 | 104 | 115 | 123 | 127 | 128 | 119 | 129 | 136 |
| Mining | 286 | 265 | 233 | 263 | 266 | 231 | 229 | 192 | 208 | 214 | 207 | 263 |
| Utilities | 196 | 216 | 223 | 193 | 200 | 208 | 216 | 206 | 207 | 214 | 227 | 207 |
| Construction | 602 | 634 | 655 | 640 | 618 | 619 | 620 | 612 | 594 | 562 | 530 | 447 |
| Manufacturing, durable goods | 625 | 672 | 748 | 702 | 728 | 750 | 818 | 878 | 938 | 972 | 982 | 857 |
| Manufacturing, nondurable goods | 637 | 651 | 650 | 633 | 639 | 657 | 701 | 690 | 700 | 719 | 635 | 613 |
| Wholesale trade | 538 | 566 | 606 | 636 | 642 | 681 | 718 | 725 | 748 | 789 | 788 | 811 |
| Retail trade | 703 | 723 | 751 | 775 | 800 | 819 | 819 | 839 | 854 | 865 | 805 | 790 |
| Transportation and warehousing | 288 | 298 | 318 | 307 | 303 | 318 | 347 | 370 | 386 | 390 | 393 | 342 |
| Information | 363 | 413 | 397 | 426 | 474 | 486 | 550 | 593 | 598 | 649 | 676 | 659 |
| Finance, insurance, real estate, rental, and leasing | 1,992 | 2,122 | 2,262 | 2,399 | 2,394 | 2,430 | 2,466 | 2,607 | 2,716 | 2,764 | 2,764 | 2,795 |
| Professional and business services | 1,158 | 1,210 | 1,270 | 1,301 | 1,311 | 1,347 | 1,393 | 1,462 | 1,511 | 1,549 | 1,597 | 1,517 |
| Educational services, health care, and social assistance | 785 | 805 | 824 | 845 | 880 | 909 | 937 | 953 | 985 | 1,003 | 1,042 | 1,054 |
| Arts, entertainment, recreation, accommodation, and food services | 401 | 426 | 443 | 436 | 444 | 454 | 473 | 482 | 496 | 504 | 480 | 439 |
| Other services, except government | 338 | 341 | 347 | 310 | 320 | 315 | 317 | 319 | 319 | 320 | 304 | 284 |
| Government, total | 1,462 | 1,479 | 1,507 | 1,520 | 1,549 | 1,565 | 1,576 | 1,586 | 1,593 | 1,606 | 1,640 | 1,653 |
| Government, federal | 479 | 476 | 483 | 476 | 486 | 494 | 501 | 502 | 500 | 501 | 515 | 533 |
| Government, state and local | 984 | 1,004 | 1,025 | 1,044 | 1,064 | 1,071 | 1,075 | 1,084 | 1,093 | 1,104 | 1,125 | 1,119 |
| Percent of GDP | | | | | | | | | | | | |
| Agriculture, forestry, fishing, and hunting | 0.86 | 0.86 | 0.92 | 0.88 | 0.90 | 0.97 | 1.00 | 1.01 | 0.99 | 0.90 | 0.98 | 1.06 |
| Mining | 2.78 | 2.46 | 2.07 | 2.32 | 2.30 | 1.95 | 1.87 | 1.52 | 1.60 | 1.62 | 1.56 | 2.04 |
| Utilities | 1.90 | 2.00 | 1.99 | 1.70 | 1.73 | 1.75 | 1.76 | 1.63 | 1.60 | 1.62 | 1.72 | 1.60 |
| Construction | 5.85 | 5.89 | 5.83 | 5.64 | 5.35 | 5.23 | 5.05 | 4.84 | 4.58 | 4.25 | 4.01 | 3.47 |
| Manufacturing, durable goods | 6.07 | 6.24 | 6.66 | 6.19 | 6.30 | 6.33 | 6.67 | 6.94 | 7.22 | 7.35 | 7.43 | 6.66 |
| Manufacturing, nondurable goods | 6.19 | 6.03 | 5.79 | 5.58 | 5.53 | 5.55 | 5.72 | 5.46 | 5.39 | 5.44 | 4.80 | 4.76 |
| Wholesale trade | 5.23 | 5.25 | 5.40 | 5.61 | 5.56 | 5.75 | 5.85 | 5.74 | 5.76 | 5.96 | 5.96 | 6.29 |
| Retail trade | 6.84 | 6.71 | 6.69 | 6.83 | 6.93 | 6.91 | 6.68 | 6.64 | 6.58 | 6.54 | 6.09 | 6.13 |
| Transportation and warehousing | 2.80 | 2.77 | 2.83 | 2.70 | 2.62 | 2.68 | 2.83 | 2.93 | 2.98 | 2.94 | 2.97 | 2.65 |
| Information | 3.53 | 3.83 | 3.54 | 3.76 | 4.10 | 4.10 | 4.48 | 4.69 | 4.61 | 4.91 | 5.11 | 5.11 |
| Finance, insurance, real estate, rental, and leasing | 19.37 | 19.69 | 20.15 | 21.15 | 20.73 | 20.52 | 20.10 | 20.62 | 20.93 | 20.89 | 20.89 | 21.70 |
| Professional and business services | 11.26 | 11.22 | 11.31 | 11.46 | 11.34 | 11.38 | 11.36 | 11.57 | 11.64 | 11.71 | 12.07 | 11.78 |
| Educational services, health care, and social assistance | 7.63 | 7.47 | 7.34 | 7.45 | 7.62 | 7.68 | 7.64 | 7.54 | 7.59 | 7.58 | 7.88 | 8.18 |
| Arts, entertainment, recreation, accommodation, and food services | 3.90 | 3.95 | 3.94 | 3.84 | 3.84 | 3.84 | 3.85 | 3.81 | 3.82 | 3.81 | 3.63 | 3.41 |
| Other services, except government | 3.29 | 3.17 | 3.09 | 2.74 | 2.77 | 2.66 | 2.59 | 2.52 | 2.46 | 2.42 | 2.30 | 2.20 |
| Government, total | 14.22 | 13.72 | 13.43 | 13.39 | 13.41 | 13.22 | 12.85 | 12.55 | 12.28 | 12.14 | 12.39 | 12.83 |
| Government, federal | 4.66 | 4.41 | 4.30 | 4.19 | 4.20 | 4.17 | 4.09 | 3.97 | 3.85 | 3.79 | 3.89 | 4.14 |
| Government, state and local | 9.56 | 9.31 | 9.13 | 9.20 | 9.21 | 9.04 | 8.77 | 8.58 | 8.42 | 8.35 | 8.50 | 8.69 |

**KEY:** R = revised.

**NOTES**

Numbers may not add to totals due to rounding.

Chained (2005) dollar series are calculated as the product of the chain-type quantity index and the 2005 current-dollar value of the corresponding series, divided by 100.

The formula for the chain-type quantity indexes uses weights of more than one period. Therefore, the corresponding chained-dollar estimates are usually not additive.

**SOURCE**

U.S. Department of Commerce, Bureau of Economic Analysis, *Industry Economic Accounts* , available at http://www.bea.gov/industry/gpotables/ as of Jan. 21, 2011.

## Table 3-9: Gross Domestic Product (GDP) by Major Social Function (Current $ billions)

| | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | (R) 2007 | (R) 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total GDP | 5,992 | 6,342 | 6,667 | 7,085 | 7,415 | 7,839 | 8,332 | 8,794 | 9,354 | 9,952 | 10,286 | 10,642 | 11,142 | 11,868 | 12,638 | 13,399 | 14,062 | 14,369 | 14,119 |
| Housing | 1,274 | 1,355 | 1,452 | 1,570 | 1,646 | 1,751 | 1,843 | 1,968 | 2,111 | 2,249 | 2,366 | 2,451 | 2,597 | 2,808 | 3,072 | 3,212 | 3,165 | 3,079 | 2,931 |
| Percent of total | 21.3 | 21.4 | 21.8 | 22.2 | 22.2 | 22.3 | 22.1 | 22.4 | 22.6 | 22.6 | 23.0 | 23.0 | 23.3 | 23.7 | 24.3 | 24.0 | 22.5 | 21.4 | 20.8 |
| Healthcare | 802 | 872 | 925 | 974 | 1,030 | 1,082 | 1,151 | 1,226 | 1,298 | 1,395 | 1,496 | 1,619 | 1,723 | 1,840 | 1,973 | 2,084 | 2,215 | 2,326 | 2,383 |
| Percent of total | 13.4 | 13.7 | 13.9 | 13.7 | 13.9 | 13.8 | 13.8 | 13.9 | 13.9 | 14.0 | 14.5 | 15.2 | 15.5 | 15.5 | 15.6 | 15.6 | 15.7 | 16.2 | 16.9 |
| Food | 784 | 814 | 830 | 878 | 887 | 944 | 968 | 996 | 1,055 | 1,117 | 1,148 | 1,161 | 1,207 | 1,279 | 1,339 | 1,412 | 1,498 | 1,573 | 1,562 |
| Percent of total | 13.1 | 12.8 | 12.4 | 12.4 | 12.0 | 12.0 | 11.6 | 11.3 | 11.3 | 11.2 | 11.2 | 10.9 | 10.8 | 10.8 | 10.6 | 10.5 | 10.7 | 10.9 | 11.1 |
| Transportation | 595 | 637 | 682 | 741 | 771 | 827 | 895 | 930 | 1,007 | 1,057 | 1,051 | 1,076 | 1,103 | 1,169 | 1,263 | 1,325 | 1,409 | 1,381 | 1,213 |
| Percent of total | 9.9 | 10.0 | 10.2 | 10.5 | 10.4 | 10.6 | 10.7 | 10.6 | 10.8 | 10.6 | 10.2 | 10.1 | 9.9 | 9.8 | 10.0 | 9.9 | 10.0 | 9.6 | 8.6 |
| Education | 393 | 412 | 432 | 457 | 490 | 519 | 554 | 586 | 628 | 679 | 724 | 749 | 792 | 829 | 875 | 931 | 996 | 1,054 | 1,059 |
| Percent of total | 6.6 | 6.5 | 6.5 | 6.5 | 6.6 | 6.6 | 6.6 | 6.7 | 6.7 | 6.8 | 7.0 | 7.0 | 7.1 | 7.0 | 6.9 | 7.0 | 7.1 | 7.3 | 7.5 |
| Other | 2,144 | 2,252 | 2,347 | 2,465 | 2,591 | 2,716 | 2,921 | 3,087 | 3,254 | 3,454 | 3,502 | 3,587 | 3,721 | 3,943 | 4,115 | 4,435 | 4,779 | 4,956 | 4,971 |
| Percent of total | 35.8 | 35.5 | 35.2 | 34.8 | 34.9 | 34.7 | 35.1 | 35.1 | 34.8 | 34.7 | 34.0 | 33.7 | 33.4 | 33.2 | 32.6 | 33.1 | 34.0 | 34.5 | 35.2 |

**KEY:** R = revised.

**NOTES**

Details may not add to totals due to independent rounding.
Other includes all other categories (e.g. entertainment, personal care products and services, and payments to pension plans).

**SOURCE**

U.S. Department of Transportation, 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 Oct. 19, 2010.

**Table 3-10: National Transportation and Economic Trends**

| | 1960 | 1965 | 1970 | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Passenger-miles (billions) | 1,327 | 1,630 | 2,170 | 2,561 | 2,895 | 3,326 | 3,946 | 3,976 | 4,089 | 4,166 | 4,262 | 4,309 | 4,442 | 4,580 | 4,706 | 4,837 | 4,953 | 5,179 | (R) 5,182 | 5,259 | 5,435 | 5,505 | (R) 5,552 | 5,608 | 5,494 |
| Index (1980 = 100) | (R) 46 | (R) 56 | (R) 75 | (R) 88 | 100 | 115 | 136 | 137 | 141 | 144 | 147 | 149 | 153 | 158 | 163 | 167 | 171 | 179 | 179 | 182 | 188 | 190 | 192 | 194 | 190 |
| Ton-miles (billions) | U | U | U | U | 3,404 | 3,314 | 3,622 | 3,636 | 3,746 | 3,767 | 3,945 | 4,104 | 4,174 | 4,179 | 4,228 | 4,300 | 4,329 | 4,357 | 4,409 | 4,415 | 4,541 | (R) 4,570 | (R) 4,631 | 4,609 | U |
| Index (1980 = 100) | U | U | U | U | 100 | 97 | 106 | 107 | 110 | 111 | 116 | 121 | 123 | 123 | 124 | 126 | 127 | 128 | 130 | 130 | 133 | 134 | 136 | 135 | U |
| Population[a] (millions) | 181 | 194 | 205 | 216 | 228 | 238 | 250 | 253 | 257 | 260 | 263 | 267 | (R) 270 | 273 | 276 | 279 | 282 | 285 | 288 | 291 | 293 | 296 | 299 | 302 | 304 |
| Index (1980 = 100) | 79 | 85 | 90 | 95 | 100 | 105 | 110 | 111 | 113 | 114 | 116 | 117 | (R) 118 | 120 | 121 | 123 | 124 | 125 | 126 | 128 | 129 | 130 | 131 | 132 | 134 |
| Industrial Production Index[b] (2002=100) | 26 | 35 | 42 | 46 | 56 | 61 | 70 | 69 | 71 | 73 | 77 | 80 | 84 | 90 | 95 | 100 | 104 | 100 | 100 | 101 | 104 | 107 | 110 | 111 | 109 |
| Gross Domestic Product | | | | | | | | | | | | | | | | | | | | | | | | | |
| Current $ (billions) | 526 | 719 | 1,039 | (R) 1,638 | (R) 2,788 | (R) 4,218 | (R) 5,801 | (R) 5,992 | (R) 6,342 | (R) 6,667 | (R) 7,085 | (R) 7,415 | (R) 7,839 | (R) 8,332 | (R) 8,794 | (R) 9,354 | (R) 9,952 | (R) 10,286 | (R) 10,642 | (R) 11,142 | (R) 11,868 | (R) 12,638 | (R) 13,399 | (R) 14,078 | (R) 14,441 |
| Index (1980 = 100) | 19 | 26 | 37 | 59 | 100 | 151 | 208 | 215 | 227 | 239 | (R) 254 | (R) 266 | (R) 281 | (R) 299 | (R) 315 | (R) 335 | (R) 357 | (R) 369 | (R) 382 | (R) 400 | (R) 426 | (R) 453 | (R) 481 | (R) 505 | (R) 518 |
| Chained (2005) $ (billions) | (R) 2,831 | (R) 3,610 | (R) 4,270 | (R) 4,880 | (R) 5,839 | (R) 6,849 | (R) 8,034 | (R) 8,015 | (R) 8,287 | (R) 8,523 | (R) 8,871 | (R) 9,094 | (R) 9,434 | (R) 9,854 | (R) 10,284 | (R) 10,780 | (R) 11,226 | (R) 11,347 | (R) 11,553 | (R) 11,841 | (R) 12,264 | (R) 12,638 | (R) 12,976 | (R) 13,254 | (R) 13,312 |

**KEY:** R = revised; U = data are unavailable.

[a] Annual estimates as of July 1 of each year. Data include Armed Forces abroad

[b] Industrial Production Index covers manufacturing, mining, and utilities.

**NOTES**

Passenger miles is the summation of all modes from table 1-40 less transit motor bus

Ton miles is the summation of all modes from table 1-50

**SOURCES**

**Passenger-miles:**

U.S. Department of Transportation, Research and Innovative Technology Administration (RITA), Bureau of Transportation Statistics, *National Transportation Statistics*, table 1-40.

**Ton-miles:**

U.S. Department of Transportation, Research and Innovative Technology Administration (RITA), Bureau of Transportation Statistics (BTS), *National Transportation Statistics*, table 1-50.

**Population:**

U.S. Department of Commerce, U.S. Census Bureau, *Statistical Abstract of the United States* (Washington, DC: Annual Issues), table 2, available at http://www.census.gov/ as of Feb. 09, 2010.

**Industrial Production Index**

1960-75: Council of Economic Advisors, Economic Report of the President, *Industrial Production Indexes*, table B-52, available at http://www.gpoaccess.gov/eop/download.html as of Feb. 09, 2010.

1980-2008: The Federal Reserve System, *Industrial Production and Capacity Utilization*, Annual Revision Release (Washington DC: March 27, 2009), table 1A, available at http://www.federalreserve.gov/releases/g17/ as of Feb. 09, 2010.

**Gross Domestic Product:**

U.S. Department of Commerce, Bureau of Economic Analysis, *National Income and Product Account Tables*, tables 1.1.5 and 1.1.6, available at http://www.bea.gov/national/nipaweb/SelectTable.asp?Selected=N as of Feb. 09, 2010.

# Section B
# Transportation and Consumer Expenditures

**Table 3-11: Sales Price of Transportation Fuel to End-Users (Current ¢ / gallon)**

| | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aviation fuel (excluding taxes) | | | | | | | | | | | | | | | | | | | | | | |
| Aviation gasoline[a] | 108.4 | 120.1 | 112.0 | 104.7 | 102.7 | 99.0 | 95.7 | 100.5 | 111.6 | 112.8 | 97.5 | 105.9 | 130.6 | 132.3 | 128.8 | 149.3 | 181.9 | 223.1 | 268.2 | 284.9 | 327.3 | 244.2 |
| Jet fuel kerosene[a] | 86.8 | 79.6 | 76.6 | 65.2 | 61.0 | 58.0 | 53.4 | 54.0 | 65.1 | 61.3 | 45.2 | 54.3 | 89.9 | 77.5 | 72.1 | 87.2 | 120.7 | 173.5 | 199.8 | 216.5 | 305.2 | 170.4 |
| Highway fuel (including taxes) | | | | | | | | | | | | | | | | | | | | | | |
| Gasoline, premium[b] | N | 134.0 | 134.9 | 132.1 | 131.6 | 130.2 | 130.5 | 133.6 | 141.3 | 141.6 | 125.0 | 135.7 | 169.3 | 165.7 | 155.6 | 177.7 | 206.8 | 249.1 | 280.5 | 303.3 | 351.9 | 260.7 |
| Gasoline, regular[b] | 124.5 | 120.2 | 116.4 | 114.0 | 112.7 | 110.8 | 111.2 | 114.7 | 123.1 | 123.4 | 105.9 | 116.5 | 151.0 | 146.1 | 135.8 | 159.1 | 188.0 | 229.5 | 258.9 | 280.1 | 326.6 | 235.0 |
| Gasoline, all types | 122.1 | 119.6 | 121.7 | 119.6 | 119.0 | 117.3 | 117.4 | 120.5 | 128.8 | 129.1 | 111.5 | 122.1 | 156.3 | 153.1 | 144.1 | 163.8 | 192.3 | 233.8 | 263.5 | 284.9 | 331.7 | 240.1 |
| Diesel no. 2 (excluding taxes)[a] | 81.8 | 78.9 | 72.5 | 64.8 | 61.9 | 60.2 | 55.4 | 56.0 | 68.1 | 64.2 | 49.4 | 58.4 | 93.5 | 84.2 | 76.2 | 94.4 | 124.3 | 178.6 | 209.6 | 226.7 | 315.0 | 183.4 |
| Railroad fuel | | | | | | | | | | | | | | | | | | | | | | |
| Diesel | 82.6 | 77.8 | 69.2 | 67.2 | 63.3 | 63.1 | 59.9 | 60.0 | 67.7 | 67.8 | 57.0 | 55.5 | 87.5 | 85.5 | 73.3 | 89.3 | 107.0 | 151.4 | 192.1 | 218.2 | 312.1 | 177.1 |

**KEY:** N = data do not exist.

[a] Sales to end-users (those sales made directly to the ultimate consumer, including bulk customers in agriculture, industry, and utility).
[b] Average retail price.

**NOTE**
For a comparison with other consumer goods prices see table 3-12.

**SOURCES**
**All data except railroad fuel:**

U.S. Department of Energy, Energy Information Administration, *Monthly Energy Review* (Washington, DC: November 2010), tables 9.4 and 9.7, available at http://www.eia.doe.gov/emeu/mer/prices.html as of Dec. 16, 2010.
**Railroad fuel:**
Association of American Railroads, *Railroad Facts* (Washington, DC: Annual Issues), p. 61.

**Table 3-12: Price Trends of Gasoline v. Other Consumer Goods and Services**

| | 1970 | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Retail price of motor gasoline, all types (constant 2007 dollars per gallon) | | | | | | | | | | | | | | | | | | | | | | |
| Total service station price | (R) 1.91 | (R) 2.20 | (R) 3.00 | (R) 2.15 | (R) 1.82 | (R) 1.74 | (R) 1.67 | (R) 1.59 | (R) 1.56 | (R) 1.56 | (R) 1.63 | (R) 1.59 | (R) 1.35 | (R) 1.45 | (R) 1.82 | (R) 1.71 | (R) 1.57 | (R) 1.79 | (R) 2.06 | (R) 2.44 | (R) 2.66 | 2.80 |
| Service station price excluding taxes | (R) 1.31 | (R) 1.73 | (R) 2.65 | (R) 1.73 | (R) 1.40 | (R) 1.24 | (R) 1.17 | (R) 1.08 | (R) 1.01 | (R) 1.01 | (R) 1.09 | (R) 1.07 | (R) 0.83 | (R) 0.93 | (R) 1.31 | (R) 1.22 | (R) 1.08 | (R) 1.31 | (R) 1.58 | (R) 1.95 | (R) 2.19 | 2.31 |
| Average motor fuel taxes[a] | (R) 0.59 | (R) 0.48 | (R) 0.35 | (R) 0.42 | (R) 0.43 | (R) 0.50 | (R) 0.50 | (R) 0.51 | (R) 0.55 | (R) 0.55 | (R) 0.54 | (R) 0.53 | (R) 0.52 | (R) 0.52 | (R) 0.51 | (R) 0.49 | (R) 0.48 | (R) 0.48 | (R) 0.48 | (R) 0.49 | (R) 0.47 | 0.49 |
| Retail price of motor gasoline, all types (current dollars per gallon) | | | | | | | | | | | | | | | | | | | | | | |
| Total service station price | 0.36 | 0.57 | 1.22 | 1.20 | 1.22 | 1.20 | 1.19 | 1.17 | 1.17 | 1.21 | 1.29 | 1.29 | 1.12 | 1.22 | 1.56 | 1.53 | 1.44 | 1.64 | 1.92 | 2.34 | 2.64 | 2.85 |
| Service station price excluding taxes | 0.25 | 0.45 | 1.08 | 0.98 | 0.95 | 0.87 | 0.85 | 0.82 | 0.78 | 0.80 | 0.88 | 0.88 | 0.71 | 0.81 | 1.14 | 1.11 | 1.02 | 1.21 | 1.48 | 1.88 | 2.18 | 2.36 |
| Average motor fuel taxes[a] | 0.11 | 0.12 | 0.14 | 0.22 | 0.27 | 0.33 | 0.34 | 0.35 | 0.39 | 0.40 | 0.41 | 0.41 | 0.41 | 0.42 | 0.42 | 0.42 | 0.42 | 0.43 | 0.44 | 0.46 | 0.46 | 0.49 |
| Consumer price indices (1982-84 = 100) | | | | | | | | | | | | | | | | | | | | | | |
| All items | 39 | 54 | 82 | 108 | 131 | 136 | 140 | 145 | 148 | 152 | 157 | 161 | 163 | 167 | 172 | 177 | 180 | 184 | 189 | 195 | 202 | 207 |
| Food | 39 | 60 | 87 | 106 | 132 | 136 | 138 | 141 | 144 | 148 | 153 | 157 | 161 | 164 | 168 | 173 | 176 | 180 | 186 | 191 | 195 | 203 |
| Shelter | 36 | 49 | 81 | 110 | 140 | 146 | 151 | 156 | 161 | 166 | 171 | 176 | 182 | 187 | 193 | 201 | 208 | 213 | 219 | 224 | 232 | 241 |
| Apparel | 59 | 73 | 91 | 105 | 124 | 129 | 132 | 134 | 133 | 132 | 132 | 133 | 133 | 131 | 130 | 127 | 124 | 121 | 120 | 120 | 120 | 119 |
| Motor fuel | 28 | 45 | 97 | 99 | 101 | 99 | 99 | 98 | 99 | 100 | 106 | 106 | 92 | 101 | 129 | 125 | 117 | 136 | 160 | 196 | 221 | 239 |
| Medical care | 34 | 48 | 75 | 114 | 163 | 177 | 190 | 201 | 211 | 221 | 228 | 235 | 242 | 251 | 261 | 273 | 286 | 297 | 310 | 323 | 336 | 351 |

**KEY**: R = revised.

[a] State and federal taxes are weighted averages computed by the American Petroleum Institute, based on gasoline sold in the 50 states. Local taxes are excluded, but additional state sales taxes levied on motor fuel are included.

**SOURCES**

**Retail price: Average motor fuel taxes:**

American Petroleum Institute, Policy Analysis and Statistics, personal communication, April 2009.

**Retail price: Total service station price:**

1970-75: U.S. Department of Energy, Energy Information Agency, *Annual Energy Review 2003* (Washington, DC: 2004), table 5.24, available at http://www.eia.doe.gov as of September 2004.

1980-2007: Ibid., *Monthly Energy Review* (Washington, DC: March 2007), table 9.4, available at http://www.eia.doe.gov as of February 2009.

**Consumer price indices:**

1970-2007: U.S. Department of Labor, Bureau of Labor Statistics, *Consumer Price Index-Urban (Current Series)* , available at http://www.bls.gov/cpi/ as of June 18, 2009.

**Table 3-13: Producer Price Indices for Selected Transportation and Warehousing Services (North American Industry Classification System [NAICS] basis) (Base date = 100)**

| | Base date | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | (R) 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Air Transportation (NAICS 481) | 12/92 | U | U | 100.0 | 105.6 | 108.5 | 113.7 | 121.1 | 125.3 | 124.5 | 130.8 | 147.7 | 157.2 | 157.8 | 162.1 | 162.3 | 171.0 | 180.4 | 183.7 | 203.8 | 188.5 |
| Scheduled Air Transportation (NAICS 4811) | 12/89 | 110.2 | 121.2 | 114.2 | 125.4 | 129.1 | 135.9 | 145.5 | 150.8 | 149.3 | 157.3 | 180.1 | 193.0 | 193.3 | 198.5 | 198.6 | 209.3 | 220.5 | 224.5 | 248.9 | 229.1 |
| Scheduled Air Transportation (NAICS 48111) | 12/89 | 110.2 | 121.2 | 114.2 | 125.4 | 129.1 | 135.9 | 145.5 | 150.8 | 149.3 | 157.3 | 180.1 | 193.0 | 193.3 | 198.5 | 198.6 | 209.3 | 220.5 | 224.5 | 248.9 | 229.1 |
| Scheduled Passenger Air Transportation (NAICS 481111) | 12/89 | 110.6 | 122.4 | 114.8 | 126.8 | 130.6 | 137.8 | 148.1 | 153.9 | 152.6 | 161.2 | 186.5 | 200.6 | 200.4 | 205.7 | 205.8 | 217.1 | 229.6 | 234.5 | 257.1 | 236.1 |
| Scheduled Freight Air Transportation (NAICS 481112) | 12/03 | U | U | U | U | U | U | U | U | U | U | U | U | U | 100.0 | 100.2 | 104.9 | 108.4 | 109.0 | 127.8 | 119.1 |
| Nonscheduled Air Transportation (NAICS 4812) | 12/96 | U | U | U | U | U | U | 100.0 | 97.8 | 99.2 | 102.2 | 107.3 | 112.7 | 114.7 | 117.8 | 119.9 | 126.7 | 136.8 | 148.5 | 165.8 | 160.4 |
| Nonscheduled Air Transportation (NAICS 48121) | 12/96 | U | U | U | U | U | U | 100.0 | 97.8 | 99.2 | 102.2 | 107.3 | 112.7 | 114.7 | 117.8 | 119.9 | 126.7 | 136.8 | 148.5 | 165.8 | 160.4 |
| Rail Transportation (NAICS 482) | 12/96 | U | U | U | U | U | U | 100.0 | 100.5 | 101.7 | 101.3 | 102.6 | 104.5 | 106.6 | 108.8 | 113.4 | 125.2 | 135.9 | 140.9 | 157.3 | 148.5 |
| Rail Transportation (NAICS 4821) | 12/96 | U | U | U | U | U | U | 100.0 | 100.5 | 101.7 | 101.3 | 102.6 | 104.5 | 106.6 | 108.8 | 113.4 | 125.2 | 135.9 | 140.9 | 157.3 | 148.5 |
| Rail Transportation (NAICS 48211) | 12/96 | U | U | U | U | U | U | 100.0 | 100.5 | 101.7 | 101.3 | 102.6 | 104.5 | 106.6 | 108.8 | 113.4 | 125.2 | 135.9 | 140.9 | 157.3 | 148.5 |
| Line -Haul Railroads (NAICS 482111) | 12/84 | 107.5 | 109.3 | 109.9 | 110.9 | 111.8 | 111.7 | 111.5 | 112.1 | 113.4 | 113.0 | 114.5 | 116.6 | 118.9 | 121.4 | 126.5 | 139.6 | 151.6 | 157.2 | 175.5 | 165.6 |
| Water Transportation (NAICS 483) | 12/03 | U | U | U | U | U | U | U | U | U | U | U | U | U | 100.0 | 101.3 | 106.4 | 111.1 | 113.5 | 127.0 | 116.1 |
| Deep Sea, Coastal, and Great Lakes Water Transportation (NAICS 4831) | NA | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U |
| Deep Sea, Coastal, and Great Lakes Water Transportation (NAICS 48311) | NA | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U |
| Deep Sea Freight Transportation (NAICS 483111) | 06/88 | 113.1 | 119.5 | 116.4 | 115.9 | 114.4 | 113.3 | 114.1 | 113.1 | 116.7 | 134.0 | 155.8 | 172.2 | 185.8 | 219.9 | 225.9 | 231.9 | 233.3 | 230.0 | 258.3 | 218.8 |
| Coastal and Great Lakes Freight Transportation (NAICS 483113) | 12/03 | U | U | U | U | U | U | U | U | U | U | U | U | U | 100.0 | 101.7 | 109.9 | 119.9 | 130.2 | 141.8 | 137.4 |
| Inland Water Transportation (NAICS 4832) | 12/03 | U | U | U | U | U | U | U | U | U | U | U | U | U | 100.0 | 103.2 | 119.3 | 144.1 | 146.7 | 172.0 | 166.7 |
| Inland Water Transportation (NAICS 48321) | 12/03 | U | U | U | U | U | U | U | U | U | U | U | U | U | 100.0 | 103.2 | 119.3 | 144.1 | 146.7 | 172.0 | 166.7 |
| Inland Water Freight Transportation (NAICS 483211) | 12/90 | 100.0 | 99.2 | 97.7 | 95.8 | 98.5 | 114.6 | 109.9 | 105.9 | 106.8 | 111.2 | 117.9 | 123.4 | 120.6 | 124.7 | 131.0 | 151.4 | 182.9 | 186.1 | 218.3 | 211.4 |
| Truck Transportation (NAICS 484) | 12/03 | U | U | U | U | U | U | U | U | U | U | U | U | U | 100.0 | 103.1 | 109.0 | 113.2 | 115.4 | 123.0 | 117.3 |
| General Freight Trucking (NAICS 4841) | 12/03 | U | U | U | U | U | U | U | U | U | U | U | U | U | 100.0 | 103.5 | 110.0 | 114.1 | 116.5 | 123.6 | 117.5 |
| General Freight Trucking, Local (NAICS 48411) | 12/03 | U | U | U | U | U | U | U | U | U | U | U | U | U | 100.0 | 105.2 | 111.5 | 115.3 | 119.6 | 130.2 | 126.0 |
| General Freight Trucking, Local (NAICS 484110) | 12/03 | U | U | U | U | U | U | U | U | U | U | U | U | U | 100.0 | 105.2 | 111.5 | 115.3 | 119.6 | 130.2 | 126.0 |
| General Freight Trucking, Long Distance (NAICS 48412) | 12/03 | U | U | U | U | U | U | U | U | U | U | U | U | U | 100.0 | 103.2 | 109.7 | 113.8 | 115.9 | 122.2 | 115.5 |
| General Freight Trucking, Long Distance, Truckload (NAICS 484121) | 12/03 | U | U | U | U | U | U | U | U | U | U | U | U | U | 100.0 | 102.7 | 108.6 | 112.0 | 113.5 | 119.5 | 111.0 |
| General Freight Trucking, Long Distance, Less Than Truckload (NAICS 484122) | 12/03 | U | U | U | U | U | U | U | U | U | U | U | U | U | 100.0 | 104.2 | 111.8 | 117.7 | 121.0 | 127.9 | 125.5 |
| Specialized Freight Trucking (NAICS 4842) | 12/03 | U | U | U | U | U | U | U | U | U | U | U | U | U | 100.0 | 102.3 | 107.0 | 111.4 | 113.1 | 122.1 | 117.4 |
| Used Household and Office Goods Moving (NAICS 48421) | 12/03 | U | U | U | U | U | U | U | U | U | U | U | U | U | 100.0 | 102.6 | 106.0 | 107.8 | 108.8 | 112.2 | 112.8 |
| Used Household and Office Goods Moving (NAICS 484210) | 12/03 | U | U | U | U | U | U | U | U | U | U | U | U | U | 100.0 | 102.6 | 106.0 | 107.8 | 108.8 | 112.2 | 112.8 |
| Specialized Freight (except Used Goods) Trucking, Local (NAICS 48422) | 12/03 | U | U | U | U | U | U | U | U | U | U | U | U | U | 100.0 | 102.7 | 107.1 | 112.3 | 114.2 | 126.7 | 123.9 |
| Specialized Freight (except Used Goods) Trucking, Local (NAICS 484220) | 12/03 | U | U | U | U | U | U | U | U | U | U | U | U | U | 100.0 | 102.7 | 107.1 | 112.3 | 114.2 | 126.7 | 123.9 |
| Specialized Freight (except Used Goods) Trucking, Long Distance (NAICS 48423) | 12/03 | U | U | U | U | U | U | U | U | U | U | U | U | U | 100.0 | 101.7 | 107.5 | 112.8 | 114.8 | 123.6 | 113.2 |
| Specialized Freight (except Used Goods) Trucking, Long Distance (NAICS 484230) | 12/03 | U | U | U | U | U | U | U | U | U | U | U | U | U | 100.0 | 101.7 | 107.5 | 112.8 | 114.8 | 123.6 | 113.2 |
| Pipeline Transportation (NAICS 486) | NA | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U |
| Pipeline Transportation of Crude Oil (NAICS 4861) | 12/03 | U | U | U | U | U | U | U | U | U | U | U | U | U | 100.0 | 103.9 | 113.3 | 112.0 | 125.4 | 137.1 | 141.0 |
| Pipeline Transportation of Crude Oil (NAICS 48611) | 12/03 | U | U | U | U | U | U | U | U | U | U | U | U | U | 100.0 | 103.9 | 113.3 | 112.0 | 125.4 | 137.1 | 141.0 |
| Pipeline Transportation of Crude Oil (NAICS 486110) | 06/86 | 94.2 | 94.4 | 94.8 | 95.0 | 102.5 | 113.4 | 104.7 | 96.0 | 96.8 | 95.5 | 101.0 | 111.1 | 112.3 | 111.1 | 115.2 | 125.5 | 135.3 | 138.9 | 152.0 | 156.3 |
| Other Pipeline Transportation (NAICS 4869) | 12/03 | U | U | U | U | U | U | U | U | U | U | U | U | U | 100.0 | 101.4 | 105.2 | 108.2 | 115.0 | 121.6 | 128.7 |
| Pipeline Transportation of Refined Petroleum Products (NAICS 48691) | 12/03 | U | U | U | U | U | U | U | U | U | U | U | U | U | 100.0 | 101.4 | 105.2 | 108.2 | 115.0 | 121.6 | 128.7 |
| Pipeline Transportation of Refined Petroleum Products (NAICS 486910) | 06/86 | 100.8 | 101.1 | 101.2 | 101.3 | 103.4 | 104.6 | 104.3 | 105.3 | 104.8 | 104.9 | 105.3 | 108.5 | 111.0 | 112.7 | 116.0 | 120.3 | 123.8 | 131.7 | 139.2 | 147.3 |

**Table 3-13: Producer Price Indices for Selected Transportation and Warehousing Services (North American Industry Classification System [NAICS] basis) (Base date = 100)**

| | Base date | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | (R) 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Support Activities for Transportation (NAICS 488) | 12/03 | U | U | U | U | U | U | U | U | U | U | U | U | U | 100.0 | 101.1 | 104.1 | 106.5 | 108.5 | 111.7 | 108.6 |
| Support Activities for Air Transportation (NAICS 4881) | 12/96 | U | U | U | U | U | U | 100.0 | 102.5 | 105.2 | 108.6 | 114.2 | 117.5 | 121.4 | 125.1 | 128.1 | 134.2 | 138.6 | 141.0 | 145.4 | 149.2 |
| Airport Operations (NAICS 48811) | 12/03 | U | U | U | U | U | U | U | U | U | U | U | U | U | 100.0 | 101.1 | 104.8 | 108.6 | 109.6 | 112.3 | 117.9 |
| Air Traffic Control (NAICS 488111) | NA | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U |
| Other Airport Operations (NAICS 488119) | 12/03 | U | U | U | U | U | U | U | U | U | U | U | U | U | 100.0 | 101.1 | 104.8 | 108.6 | 109.7 | 112.4 | 117.9 |
| Other Support Activities for Air Transportation (NAICS 48819) | 12/03 | U | U | U | U | U | U | U | U | U | U | U | U | U | 100.0 | 102.0 | 107.5 | 110.8 | 112.9 | 117.0 | 117.5 |
| Other Support Activities for Air Transportation (NAICS 488190) | 12/03 | U | U | U | U | U | U | U | U | U | U | U | U | U | 100.0 | 101.9 | 107.4 | 110.8 | 112.9 | 117.0 | 117.5 |
| Support Activities for Water Transportation (NAICS 4883) | 12/03 | U | U | U | U | U | U | U | U | U | U | U | U | U | 100.0 | 101.0 | 103.5 | 107.7 | 112.7 | 117.3 | 116.8 |
| Port and Harbor Operations (NAICS 48831) | 12/03 | U | U | U | U | U | U | U | U | U | U | U | U | U | 100.0 | 102.4 | 105.9 | 108.8 | 114.8 | 117.7 | 120.5 |
| Port and Harbor Operations (NAICS 488310) | 12/03 | U | U | U | U | U | U | U | U | U | U | U | U | U | 100.0 | 102.4 | 105.9 | 108.8 | 114.9 | 117.7 | 120.5 |
| Marine Cargo Handling (NAICS 48832) | 12/03 | U | U | U | U | U | U | U | U | U | U | U | U | U | 100.0 | 100.5 | 102.2 | 105.1 | 109.0 | 110.7 | 113.3 |
| Marine Cargo Handling (NAICS 488320) | 12/91 | U | 100.0 | 101.2 | 102.6 | 102.9 | 102.1 | 101.6 | 103.7 | 104.9 | 106.7 | 109.1 | 111.4 | 110.9 | 111.5 | 113.2 | 115.1 | 118.4 | 122.8 | 124.7 | 127.6 |
| Navigational Services to Shipping (NAICS 48833) | 12/03 | U | U | U | U | U | U | U | U | U | U | U | U | U | 100.0 | 101.5 | 105.7 | 113.9 | 120.6 | 133.8 | 122.9 |
| Navigational Services to Shipping (NAICS 488330) | 12/92 | U | U | 100.0 | 99.8 | 101.5 | 107.2 | 110.9 | 113.3 | 115.6 | 119.7 | 124.2 | 125.4 | 127.4 | 129.3 | 133.1 | 138.6 | 149.5 | 158.2 | 175.6 | 161.3 |
| Freight Transportation Arrangement (NAICS 4885) | 12/96 | U | U | U | U | U | U | 100.0 | 99.4 | 97.7 | 97.3 | 98.3 | 98.2 | 97.5 | 97.9 | 98.9 | 99.1 | 98.8 | 100.2 | 102.5 | 94.8 |
| Freight Transportation Arrangement (NAICS 48851) | 12/96 | U | U | U | U | U | U | 100.0 | 99.4 | 97.7 | 97.3 | 98.3 | 98.2 | 97.5 | 97.9 | 98.9 | 99.1 | 98.8 | 100.2 | 102.5 | 94.8 |
| Freight Transportation Arrangement (NAICS 488510) | 12/94 | U | U | U | U | 100.0 | 99.8 | 101.5 | 101.4 | 99.7 | 99.2 | 100.3 | 100.3 | 99.5 | 99.9 | 100.9 | 101.1 | 100.9 | 102.2 | 104.6 | 96.8 |
| Postal Service (NAICS 491) | 06/89 | 100.0 | 117.9 | 119.8 | 119.8 | 119.8 | 132.2 | 132.3 | 132.3 | 132.3 | 135.3 | 135.2 | 143.4 | 150.2 | 155.0 | 155.0 | 155.0 | 164.7 | 171.9 | 178.9 | 185.0 |
| Postal Service (NAICS 4911) | 06/89 | 100.0 | 117.9 | 119.8 | 119.8 | 119.8 | 132.2 | 132.3 | 132.3 | 132.3 | 135.3 | 135.2 | 143.4 | 150.2 | 155.0 | 155.0 | 155.0 | 164.7 | 171.9 | 178.9 | 185.0 |
| Couriers and Messengers (NAICS 492) | 12/03 | U | U | U | U | U | U | U | U | U | U | U | U | U | 100.0 | 106.1 | 113.8 | 121.5 | 131.5 | 142.0 | 141.5 |
| Couriers (NAICS 4921) | 12/03 | U | U | U | U | U | U | U | U | U | U | U | U | U | 100.0 | 106.6 | 115.0 | 123.2 | 133.5 | 144.4 | 143.8 |
| Local Messengers and Local Delivery (NAICS 4922) | 12/03 | U | U | U | U | U | U | U | U | U | U | U | U | U | 100.0 | 101.1 | 102.7 | 104.4 | 108.1 | 112.2 | 114.3 |
| Warehousing and Storage (NAICS 493) | 12/06 | U | U | U | U | 82.7 | 84.1 | 84.6 | 85.4 | 86.5 | 89.0 | 90.8 | 93.2 | 94.5 | 95.8 | U | U | U | 102.5 | 106.5 | 107.2 |
| Warehousing and Storage (NAICS 4931) | 12/06 | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | 102.5 | 106.5 | 107.2 |
| General Warehousing and Storage (NAICS 49311) | 12/03 | U | U | U | U | U | U | U | U | U | U | U | U | U | 100.0 | 100.3 | 101.5 | 103.8 | 107.3 | 111.9 | 112.2 |
| General Warehousing and Storage (NAICS 493110) | 12/03 | U | U | U | U | U | U | U | U | U | U | U | U | U | 100.0 | 100.4 | 101.6 | 103.8 | 107.4 | 111.9 | 112.2 |
| Refrigerated Warehousing and Storage (NAICS 49312) | 12/03 | U | U | U | U | U | U | U | U | U | U | U | U | U | 100.0 | 100.5 | 101.0 | 102.4 | 104.0 | 106.7 | 109.5 |
| Refrigerated Warehousing and Storage (NAICS 493120) | 12/91 | U | 100.0 | 101.0 | 101.8 | 102.7 | 104.2 | 104.6 | 105.1 | 105.4 | 106.4 | 108.1 | 109.8 | 109.8 | 109.8 | 110.5 | 111.0 | 112.5 | 114.3 | 117.3 | 120.4 |
| Farm Product Warehousing and Storage (NAICS 49313) | 12/03 | U | U | U | U | U | U | U | U | U | U | U | U | U | 100.0 | 100.2 | 101.5 | 103.8 | 104.0 | 108.7 | 108.1 |
| Farm Product Warehousing and Storage (NAICS 493130) | 12/92 | U | U | 100.0 | 100.1 | 100.9 | 104.0 | 102.4 | 102.9 | 104.1 | 107.1 | 110.6 | 114.2 | 115.6 | 116.1 | 116.5 | 118.1 | 120.6 | 120.9 | 126.4 | 125.6 |

**KEY:** NA = not applicable; NAICS = North American Industry Classification System; R = revised; U = data are unavailable.

**SOURCE**

U.S. Department of Labor, Bureau of Labor Statistics, *Producer Price Index Industry Data*, available at www.bls.gov/data/sa.htm as of June 9, 2010.

**Table 3-14: Producer Price Indices for Transportation Equipment, NAICS Basis (Base date = 100)**

| | Base date | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | (R) 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Transportation Equipment Manufacturing (NAICS 336) | 12/03 | U | U | U | U | U | U | U | U | U | U | U | U | U | 100.0 | 100.9 | 102.5 | 103.2 | 104.9 | 107.3 | 109.5 |
| Motor Vehicle Manufacturing (NAICS 3361) | 12/03 | U | U | U | U | U | U | U | U | U | U | U | U | U | 100.0 | 99.4 | 98.7 | 96.1 | 96.6 | 98.0 | 100.9 |
| Automobile and Light Duty Motor Vehicle Manufacturing (NAICS 33611) | 12/03 | U | U | U | U | U | U | U | U | U | U | U | U | U | 100.0 | 99.2 | 98.2 | 95.1 | 95.3 | 96.6 | 99.4 |
| Automobile and Light Duty Motor Vehicle Manufacturing (NAICS 336110) | 06/82 | 119.9 | 125.3 | 129.1 | 133.2 | 138.0 | 139.1 | 140.4 | 138.7 | 136.8 | 137.6 | 138.7 | 137.6 | 134.9 | 135.1 | 136.5 | 135.1 | 130.8 | 131.1 | 132.9 | 136.7 |
| Automobile Manufacturing ((NAICS 336111) | NA | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U |
| Light Truck and Utility Vehicle Manufacturing (NAICS 336112) | NA | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U |
| Heavy Duty Truck Manufacturing (NAICS 33612)[a] | 12/03 | U | U | U | U | U | U | U | U | U | U | U | U | U | 100.0 | U | U | U | U | U | 124.5 |
| Heavy Duty Truck Manufacturing (NAICS 336120) | 12/03 | U | U | U | U | U | U | U | U | U | U | U | U | U | 100.0 | 102.2 | 106.4 | 110.4 | 115.5 | 118.9 | 124.4 |
| Motor Vehicle Body and Trailer Manufacturing (NAICS 3362) | 12/03 | U | U | U | U | U | U | U | U | U | U | U | U | U | 100.0 | 104.0 | 109.7 | 113.7 | 117.2 | 121.5 | 122.4 |
| Motor Vehicle Body and Trailer Manufacturing (NAICS 33621) | 12/03 | U | U | U | U | U | U | U | U | U | U | U | U | U | 100.0 | U | 109.7 | 113.8 | 117.2 | 121.6 | 122.6 |
| Motor Vehicle Body Manufacturing (NAICS 336211) | 12/82 | 125.4 | 128.1 | 131.1 | 132.8 | 136.8 | 145.5 | 149.9 | 153.5 | 155.3 | 157.0 | 160.3 | 163.3 | 165.6 | 167.5 | 176.7 | 190.3 | 200.0 | 205.0 | 212.0 | 216.4 |
| Truck Trailer Manufacturing (NAICS 336212) | 12/79 | 125.6 | 128.1 | 131.2 | 134.2 | 138.6 | 148.6 | 147.8 | 147.7 | 152.2 | 153.6 | 156.6 | 156.1 | 155.6 | 157.0 | 166.2 | 176.2 | 184.5 | 190.2 | 199.1 | 200.9 |
| Motor Home Manufacturing (NAICS 336213) | 06/84 | 125.8 | 128.7 | 131.8 | 133.9 | 134.5 | 137.8 | 141.6 | 143.1 | 145.0 | 147.6 | 149.4 | 151.8 | 154.8 | 157.8 | 163.8 | 169.3 | 166.6 | 171.1 | 174.6 | 170.7 |
| Travel Trailer and Camper Manufacturing (NAICS 336214) | 12/03 | U | U | U | U | U | U | U | U | U | U | U | U | U | 100.0 | 101.6 | 104.7 | 109.7 | 113.9 | 119.4 | 121.6 |
| Motor Vehicle Parts Manufacturing (NAICS 3363) | 12/03 | U | U | U | U | U | U | U | U | U | U | U | U | U | 100.0 | 101.4 | 102.7 | 104.8 | 106.8 | 108.8 | 108.5 |
| Motor Vehicle Gasoline Engine and Engine Parts Manufacturing (NAICS 33631) | 12/03 | U | U | U | U | U | U | U | U | U | U | U | U | U | 100.0 | U | 102.1 | 110.6 | 112.3 | 115.2 | 103.7 |
| Carburetor, Piston, Piston Ring, and Valve Manufacturing (NAICS 336311) | 12/82 | 118.6 | 119.7 | 120.7 | 121.9 | 122.7 | 124.8 | 126.4 | 127.1 | 127.0 | 126.5 | 127.8 | 128.5 | 129.1 | 128.7 | 129.8 | 131.7 | 137.4 | 141.9 | 147.0 | 147.1 |
| Gasoline Engine and Engine Parts Manufacturing (NAICS 336312) | 12/03 | U | U | U | U | U | U | U | U | U | U | U | U | U | 100.0 | 101.4 | 102.5 | 111.5 | 113.1 | 116.0 | 103.7 |
| Motor Vehicle Electrical and Electronic Equipment Manufacturing (NAICS 33632) | 12/03 | U | U | U | U | U | U | U | U | U | U | U | U | U | 100.0 | U | 101.5 | 102.3 | 103.5 | 103.0 | 103.2 |
| Vehicular Lighting Equipment Manufacturing (NAICS 336321) | 12/83 | 112.8 | 121.8 | 122.7 | 123.2 | 123.2 | 124.1 | 124.3 | 123.7 | 124.7 | 124.7 | 122.7 | 122.5 | 122.7 | 122.1 | 123.0 | 123.9 | 124.6 | 126.8 | 129.3 | 131.4 |
| Other Motor Vehicle Electrical and Electronic Equipment Manufacturing (NAICS 336322) | 12/03 | U | U | U | U | U | U | U | U | U | U | U | U | U | 100.0 | 99.8 | 101.7 | 102.5 | 103.7 | 102.9 | 102.9 |
| Motor Vehicle Steering and Suspension Components (except Spring) Manufacturing (NAICS 33633) | 12/03 | U | U | U | U | U | U | U | U | U | U | U | U | U | 100.0 | 101.8 | 105.1 | 106.3 | 105.0 | 106.5 | 105.3 |
| Motor Vehicle Steering and Suspension Components (except Spring) Manufacturing (NAICS 336330) | 12/03 | U | U | U | U | U | U | U | U | U | U | U | U | U | 100.0 | 101.7 | 104.9 | 106.1 | 104.8 | 106.3 | 105.1 |
| Motor Vehicle Brake System Manufacturing (NAICS 33634) | 12/03 | U | U | U | U | U | U | U | U | U | U | U | U | U | 100.0 | U | 100.3 | 101.2 | 101.6 | 103.4 | 104.5 |
| Motor Vehicle Brake System Manufacturing (NAICS 336340) | 12/03 | U | U | U | U | U | U | U | U | U | U | U | U | U | 100.0 | 99.6 | 100.3 | 101.2 | 101.6 | 103.4 | 104.5 |
| Motor Vehicle Transmission and Power Train Parts Manufacturing (NAICS 33635) | 12/03 | U | U | U | U | U | U | U | U | U | U | U | U | U | 100.0 | 102.8 | 102.5 | 104.5 | 107.2 | 109.5 | 114.0 |
| Motor Vehicle Transmission and Power Train Parts Manufacturing (NAICS 336350) | 12/03 | U | U | U | U | U | U | U | U | U | U | U | U | U | 100.0 | 100.9 | 101.2 | 103.2 | 105.9 | 108.1 | 112.7 |
| Motor Vehicle Seating and Interior Trim Manufacturing (NAICS 33636) | 12/03 | U | U | U | U | U | U | U | U | U | U | U | U | U | 100.0 | U | 99.5 | 99.8 | 100.0 | 99.3 | 99.9 |
| Motor Vehicle Seating and Interior Trim Manufacturing (NAICS 336360) | 12/03 | U | U | U | U | U | U | U | U | U | U | U | U | U | 100.0 | 99.1 | 99.5 | 99.8 | 100.0 | 99.3 | 99.9 |
| Motor Vehicle Metal Stamping (NAICS 33637) | 12/03 | U | U | U | U | U | U | U | U | U | U | U | U | U | 100.0 | U | 109.9 | 110.4 | 113.4 | 117.0 | 119.9 |
| Motor Vehicle Metal Stamping (NAICS 336370) | 12/82 | 112.6 | 111.7 | 111.5 | 111.4 | 111.9 | 111.7 | 112.5 | 112.8 | 111.9 | 110.4 | 110.6 | 110.1 | 110.3 | 113.0 | 118.5 | 120.4 | 120.9 | 124.2 | 128.1 | 131.3 |
| Other Motor Vehicle Parts Manufacturing (NAICS 33639) | 12/03 | U | U | U | U | U | U | U | U | U | U | U | U | U | 100.0 | U | 101.6 | 102.1 | 103.8 | 107.2 | 108.1 |
| Motor Vehicle Air-Conditioning Manufacturing (NAICS 336391) | 12/03 | U | U | U | U | U | U | U | U | U | U | U | U | U | 100.0 | 100.3 | 99.8 | 99.7 | 100.9 | 100.2 | 100.0 |
| All Other Motor Vehicle Parts Manufacturing (NAICS 336399) | 12/03 | U | U | U | U | U | U | U | U | U | U | U | U | U | 100.0 | 100.6 | 101.9 | 102.5 | 104.4 | 108.4 | 109.5 |
| Aerospace Product and Parts Manufacturing (NAICS 3364) | 06/85 | 117.7 | 122.3 | 126.6 | 130.1 | 134.0 | 137.3 | 140.8 | 142.7 | 143.4 | 144.8 | 149.9 | 154.7 | 157.3 | 162.2 | 168.0 | 176.0 | (R) 183 | 188.6 | 196.2 | 200.6 |
| Aerospace Product and Parts Manufacturing (NAICS 33641) | 06/85 | 117.7 | 122.3 | 126.6 | 130.1 | 134.0 | 137.3 | 140.8 | 142.7 | 143.4 | 144.8 | 149.9 | 154.7 | 157.3 | 162.2 | U | 176.0 | (R) 183 | 188.6 | 196.2 | 200.6 |
| Aircraft Manufacturing (NAICS 336411) | 12/85 | 116.0 | 120.4 | 124.3 | 128.6 | 132.9 | 137.3 | 140.5 | 142.3 | 142.7 | 144.1 | 150.5 | 155.7 | 158.8 | 164.2 | 170.8 | 180.9 | 188.8 | 193.9 | 201.7 | 204.9 |
| Aircraft Engine and Engine Parts Manufacturing (NAICS 336412) | 12/85 | 112.6 | 117.9 | 123.6 | 125.7 | 129.0 | 130.9 | 133.4 | 134.8 | 135.8 | 136.8 | 139.7 | 144.0 | 145.7 | 152.9 | 160.4 | 163.5 | 169.7 | 177.2 | 184.1 | 193.8 |
| Other Aircraft Parts and Auxiliary Equipment Manufacturing (NAICS 336413) | 06/85 | 116.3 | 120.3 | 124.9 | 128.0 | 130.7 | 131.7 | 136.3 | 139.0 | 140.8 | 142.2 | 143.3 | 146.6 | 148.1 | 147.6 | 148.0 | 151.8 | 153.9 | 159.8 | 166.2 | 169.6 |
| Guided Missile and Space Vehicle Manufacturing (NAICS 336414) | NA | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U |
| Guided Missile and Space Vehicle Propulsion Unit and Propulsion Unit Parts Manufacturing (NAICS 336415) | NA | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U |
| Other Guided Missile and Space Vehicle Parts and Auxiliary Equipment Manufacturing (NAICS 336419) | NA | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U |
| Railroad Rolling Stock Manufacturing (NAICS 3365) | 06/84 | 114.2 | 117.3 | 118.7 | 119.8 | 122.6 | 127.6 | 129.7 | 127.4 | 127.6 | 128.2 | 128.6 | 128.3 | 127.7 | 129.0 | 135.8 | 150.5 | 158.4 | 165.6 | 169.3 | 171.5 |
| Railroad Rolling Stock Manufacturing (NAICS 336510) | 06/84 | 114.2 | 117.3 | 118.7 | 119.8 | 122.6 | 127.6 | 129.6 | 127.4 | 127.5 | 128.1 | 128.6 | 128.2 | 127.7 | 128.9 | 135.7 | 150.3 | 158.2 | 165.4 | 169.2 | 171.4 |
| Ship and Boat Building (NAICS 3366) | 12/84 | 120.1 | 122.7 | 125.7 | 129.9 | 133.0 | 135.0 | 138.2 | 142.0 | 144.1 | 145.6 | 149.0 | 152.6 | 156.8 | 163.0 | 169.6 | 175.0 | 181.4 | 188.3 | 193.8 | 199.2 |
| Ship and Boat Building (NAICS 33661) | 12/84 | 120.1 | 122.7 | 125.7 | 129.9 | 133.0 | 135.0 | 138.2 | 142.0 | 144.1 | 145.6 | 149.0 | 152.6 | 156.8 | 163.0 | U | 175.0 | 181.4 | 188.3 | 193.8 | 199.2 |
| Ship Building and Repairing (NAICS 336611) | 12/85 | 114.0 | 116.2 | 118.3 | 123.3 | 126.8 | 127.6 | 130.1 | 133.3 | 134.8 | 135.4 | 137.6 | 140.1 | 144.1 | 151.7 | 159.8 | 163.9 | 169.9 | 177.0 | 181.6 | 187.4 |
| Boat Building (NAICS 336612) | 12/81 | 136.0 | 140.1 | 144.9 | 147.7 | 150.2 | 154.6 | 159.6 | 165.0 | 168.6 | 172.7 | 179.4 | 186.3 | 190.5 | 194.2 | 198.0 | 206.7 | 214.1 | 220.9 | 228.4 | 233.4 |
| Other Transportation Equipment Manufacturing (NAICS 3369) | 12/03 | U | U | U | U | U | U | U | U | U | U | U | U | U | 100.0 | 101.1 | 103.6 | 104.8 | 106.3 | 106.4 | 107.2 |
| Other Transportation Equipment Manufacturing (NAICS 33699) | 12/03 | U | U | U | U | U | U | U | U | U | U | U | U | U | 100.0 | U | 103.6 | 104.8 | 106.3 | 106.4 | 107.2 |
| Motorcycle, Bicycle, and Parts Manufacturing (NAICS 336991) | 12/84 | 109.9 | 111.8 | 114.4 | 116.9 | 119.0 | 122.2 | 123.3 | 123.3 | 124.2 | 125.5 | 127.7 | 127.9 | 128.6 | 128.6 | 130.0 | 132.2 | 132.3 | 132.9 | 135.3 | 138.2 |
| Military Armored Vehicle, Tank, and Tank Component Manufacturing (NAICS 336992) | NA | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U |
| All Other Transportation Equipment Manufacturing (NAICS 336999) | 12/03 | U | U | U | U | U | U | U | U | U | U | U | U | U | 100.0 | 101.1 | 104.2 | 106.1 | 108.3 | 107.3 | 107.2 |

**KEY:** NA = not applicable; NAICS = North American Industry Classification System; R = revised; U = data are unavailable.

[a] 2009 data is an average of 11 months (i.e., from February to December).

**NOTE**

Data are not seasonally adjusted.

**SOURCE**

U.S. Department of Labor, Bureau of Labor Statistics, *Producer Price Index Industry Data* , available at http://www.bls.gov/data/ as of June 21, 2010.

**Table 3-15: Personal Expenditures by Category (Current $ millions)**

| | 1960 | 1965 | 1970 | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | (R) 2007 | (R) 2008 | (R) 2009 | 2010 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total expenditures | 331,795 | 443,811 | 648,301 | 1,033,788 | 1,755,826 | 2,717,608 | 3,835,453 | 3,980,073 | 4,236,891 | 4,483,594 | 4,750,806 | 4,987,280 | 5,273,608 | 5,570,626 | 5,918,488 | 6,342,784 | 6,830,371 | 7,148,807 | 7,439,191 | 7,804,013 | 8,285,080 | 8,819,002 | 9,322,662 | 9,806,312 | 10,104,487 | 10,001,328 | 10,350,589 |
| Transportation | 40,765 | 56,529 | 76,503 | 124,390 | 226,486 | 357,415 | 442,931 | 418,274 | 451,285 | 485,332 | 528,231 | 554,064 | 598,935 | 641,818 | 669,157 | 730,472 | 798,408 | 814,097 | 818,351 | 857,412 | 909,486 | 979,344 | 1,008,795 | 1,052,590 | 1,033,478 | 890,669 | 978,093 |
| expenditures | 12.3 | 12.7 | 11.8 | 12.0 | 12.9 | 13.2 | 11.5 | 10.5 | 10.7 | 10.8 | 11.1 | 11.1 | 11.4 | 11.5 | 11.3 | 11.5 | 11.7 | 11.4 | 11.0 | 11.0 | 11.0 | 11.1 | 10.8 | 10.7 | 10.2 | 8.9 | 9.4 |
| Food and beverage | 83,041 | 101,623 | 145,130 | 225,387 | 360,888 | 477,253 | 653,911 | 676,347 | 690,778 | 712,079 | 740,777 | 760,464 | 789,277 | 819,336 | 849,515 | 895,149 | 947,583 | 980,935 | 1,007,790 | 1,055,957 | 1,121,075 | 1,190,324 | 1,257,717 | 1,329,379 | 1,386,518 | 1,381,467 | 1,428,065 |
| Clothing and footwear | 29,263 | 36,483 | 49,945 | 71,433 | 108,834 | 154,300 | 206,959 | 210,436 | 223,024 | 230,952 | 239,687 | 244,146 | 252,712 | 262,012 | 273,015 | 287,050 | 297,319 | 294,337 | 295,168 | 302,782 | 315,864 | 331,806 | 347,183 | 356,671 | 352,084 | 339,532 | 354,763 |
| Communication | 5,206 | 7,535 | 11,606 | 19,955 | 31,796 | 53,104 | 70,093 | 73,870 | 81,142 | 85,767 | 93,263 | 98,942 | 108,317 | 120,106 | 130,593 | 144,727 | 162,067 | 171,320 | 177,468 | 181,816 | 187,853 | 192,759 | 207,800 | 221,105 | 230,628 | 234,689 | 233,676 |
| Final consumption expenditures of nonprofit institutions serving households | 5,276 | 7,192 | 11,089 | 18,050 | 31,888 | 50,346 | 79,614 | 84,245 | 92,343 | 94,622 | 102,369 | 107,170 | 115,715 | 112,248 | 130,995 | 145,407 | 165,368 | 186,204 | 205,005 | 211,815 | 210,013 | 214,075 | 240,350 | 254,170 | 278,822 | 258,858 | 266,158 |
| Health | 20,363 | 31,977 | 56,849 | 102,717 | 195,473 | 345,323 | 583,724 | 638,374 | 700,443 | 741,681 | 779,896 | 826,007 | 868,312 | 919,880 | 979,652 | 1,033,334 | 1,109,594 | 1,209,403 | 1,317,080 | 1,403,832 | 1,500,649 | 1,601,456 | 1,688,078 | 1,789,674 | 1,882,675 | 1,973,070 | 2,051,158 |
| Household operation[a] | 26,179 | 34,706 | 46,617 | 67,805 | 110,737 | 155,993 | 200,559 | 199,109 | 209,398 | 221,891 | 238,616 | 251,692 | 263,723 | 277,270 | 296,846 | 319,652 | 342,492 | 351,096 | 363,539 | 376,468 | 400,430 | 423,859 | 445,411 | 453,594 | 445,184 | 419,532 | 433,081 |
| Housing, utilities, and fuels | 60,525 | 80,999 | 113,786 | 184,843 | 327,026 | 513,995 | 709,115 | 747,817 | 783,331 | 826,866 | 879,204 | 926,774 | 975,497 | 1,023,141 | 1,076,806 | 1,137,399 | 1,214,461 | 1,303,244 | 1,349,054 | 1,410,631 | 1,480,618 | 1,603,867 | 1,708,233 | 1,779,388 | 1,861,249 | 1,899,223 | 1,926,742 |
| Financial services and insurance | 13,551 | 19,394 | 31,071 | 54,014 | 95,599 | 180,539 | 253,218 | 281,979 | 311,759 | 341,016 | 349,027 | 364,689 | 393,631 | 431,297 | 469,649 | 514,234 | 569,962 | 562,791 | 576,166 | 601,753 | 667,481 | 712,619 | 752,375 | 818,884 | 848,139 | 813,847 | 820,892 |
| Recreation | 19,711 | 28,891 | 47,017 | 77,053 | 127,440 | 207,163 | 314,746 | 326,272 | 346,841 | 378,423 | 413,996 | 449,768 | 481,538 | 509,502 | 545,957 | 593,596 | 639,851 | 655,708 | 680,923 | 712,511 | 764,637 | 807,396 | 859,130 | 905,795 | 915,955 | 897,052 | 928,904 |
| Education | 3,360 | 5,465 | 9,914 | 15,886 | 25,443 | 41,172 | 65,958 | 70,561 | 76,442 | 81,086 | 86,364 | 92,304 | 99,627 | 107,120 | 115,244 | 123,931 | 134,291 | 143,615 | 149,527 | 159,684 | 169,412 | 180,657 | 192,658 | 206,245 | 220,469 | 232,884 | 245,109 |
| Foreign travel, net | 2,121 | 2,858 | 4,514 | 4,445 | 3,540 | 7,742 | -7,673 | -15,219 | -19,951 | -20,662 | -17,497 | -21,462 | -24,511 | -21,506 | -13,739 | -13,798 | -13,328 | -7,409 | -5,148 | -550 | 545 | -89 | 3,721 | -3,229 | -12,492 | -11,282 | -9,405 |
| Other | 22,433 | 30,157 | 44,263 | 67,808 | 110,675 | 173,267 | 262,297 | 268,009 | 290,055 | 304,538 | 316,871 | 332,720 | 350,833 | 368,398 | 394,794 | 431,633 | 462,303 | 483,468 | 504,265 | 529,900 | 557,014 | 580,925 | 611,213 | 642,050 | 661,776 | 671,792 | 693,342 |
| Disposable Personal Income (DPI) | 365,200 | 497,800 | 735,500 | 1,187,300 | 2,002,700 | 3,079,300 | 4,254,000 | 4,444,900 | 4,736,700 | 4,921,600 | 5,184,300 | 5,457,000 | 5,759,600 | 6,074,600 | 6,498,900 | 6,803,300 | 7,327,200 | 7,648,500 | 8,009,700 | 8,377,800 | 8,889,400 | 9,277,300 | 9,915,700 | 10,423,600 | 10,952,900 | 11,034,900 | 11,377,500 |
| Transportation as a percent of DPI | 11.2 | 11.4 | 10.4 | 10.5 | 11.3 | 11.6 | 10.4 | 9.4 | 9.5 | 9.9 | 10.2 | 10.2 | 10.4 | 10.6 | 10.3 | 10.7 | 10.9 | 10.6 | 10.2 | 10.2 | 10.2 | 10.6 | 10.2 | 10.1 | 9.4 | 8.1 | 8.6 |

**KEY:** R = revised.

[a] Includes furnishings, household equipment, and routine household maintenance.

**NOTES**

Numbers may not add to totals due to rounding.

The categories have been revised due to the Comprehensive Benchmark revision by the source in 2010, thus this table is not comparable to the 2009 and earlier editions.

**SOURCES**

**DPI:**

U.S. Department of Commerce, Bureau of Economic Analysis,*National Income and Product Accounts Tables* , table 2.1, available at http://www.bea.gov/national/nipaweb/SelectTable.asp?Selected=N#S2 as of Mar. 15, 2011.

**All except DPI:**

Ibid., *National Income and Product Accounts Tables* , table 2.3.5u, available at http://www.bea.gov/national/nipaweb/nipa_underlying/SelectTable.asp as of Mar. 15, 2011.

**Table 3-16: Personal Consumption Expenditures on Transportation by Subcategory (Current millions of dollars)**

| | (R) 1960 | (R) 1965 | (R) 1970 | (R) 1975 | (R) 1980 | (R) 1985 | (R) 1990 | (R) 1991 | (R) 1992 | (R) 1993 | (R) 1994 | (R) 1995 | (R) 1996 | (R) 1997 | (R) 1998 | (R) 1999 | (R) 2000 | (R) 2001 | (R) 2002 | (R) 2003 | (R) 2004 | (R) 2005 | (R) 2006 | (R) 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL transportation | 40,800 | 56,500 | 76,500 | 124,400 | 226,500 | 357,400 | 442,900 | 418,300 | 451,300 | 485,300 | 528,200 | 554,100 | 598,900 | 641,800 | 669,200 | 730,500 | 798,400 | 814,100 | 818,400 | 857,400 | 909,500 | 979,300 | 1,008,800 | 1,052,600 | 1,033,500 | 890,700 |
| User-operated transportation, total | 39,510 | 55,324 | 74,483 | 121,055 | 218,784 | 349,064 | 433,277 | 409,458 | 444,552 | 479,512 | 523,379 | 548,274 | 592,165 | 631,797 | 658,024 | 719,713 | 780,631 | 802,062 | 811,282 | 850,878 | 903,691 | 975,431 | 1,000,058 | 1,046,217 | 1,022,054 | 884,395 |
| New cars and net purchases of used cars | 16,571 | 25,191 | 26,754 | 36,775 | 57,243 | 110,679 | 118,988 | 103,658 | 112,410 | 120,391 | 133,268 | 132,634 | 135,930 | 139,384 | 146,306 | 155,938 | 160,260 | 157,556 | 155,296 | 144,639 | 144,787 | 153,122 | 154,218 | 148,960 | 133,967 | 116,514 |
| New and used trucks and RVs | 606 | 1,284 | 2,667 | 7,739 | 11,849 | 40,988 | 63,882 | 60,337 | 70,115 | 80,809 | 91,229 | 96,231 | 108,636 | 123,810 | 144,833 | 165,365 | 173,295 | 195,945 | 216,558 | 227,075 | 229,379 | 223,733 | 207,231 | 215,925 | 168,304 | 163,204 |
| Motor vehicle parts and accessories | 2,487 | 3,450 | 6,087 | 10,287 | 17,926 | 23,483 | 28,254 | 27,803 | 28,727 | 30,797 | 33,737 | 35,366 | 37,647 | 39,133 | 39,477 | 41,069 | 41,788 | 41,260 | 41,674 | 43,288 | 45,188 | 48,046 | 50,561 | 52,644 | 52,237 | 50,330 |
| Repair and rental[a] | 5,262 | 7,213 | 11,776 | 18,972 | 32,597 | 58,034 | 82,032 | 78,832 | 86,705 | 95,755 | 108,622 | 121,371 | 134,351 | 147,753 | 154,548 | 166,188 | 176,972 | 181,925 | 179,036 | 180,860 | 185,545 | 194,347 | 201,631 | 209,246 | 206,862 | 197,500 |
| Gasoline and oil | 12,004 | 14,751 | 21,921 | 39,703 | 86,689 | 97,205 | 111,440 | 108,852 | 112,864 | 114,518 | 116,492 | 120,410 | 130,494 | 134,428 | 121,791 | 136,456 | 172,929 | 168,083 | 160,273 | 192,793 | 231,555 | 283,798 | 314,665 | 342,973 | 383,298 | 280,837 |
| Parking fees and tolls | 567 | 816 | 1,205 | 1,652 | 2,529 | 4,004 | 5,171 | 5,546 | 6,427 | 6,864 | 7,281 | 7,766 | 8,405 | 9,482 | 10,687 | 11,463 | 12,318 | 12,859 | 12,747 | 13,152 | 13,722 | 14,771 | 14,778 | 14,702 | 15,585 | 15,588 |
| Insurance premiums, less claims paid[b] | 2,013 | 2,619 | 4,073 | 5,927 | 9,951 | 14,671 | 23,510 | 24,430 | 27,304 | 30,378 | 32,750 | 34,496 | 36,702 | 37,807 | 40,382 | 43,234 | 43,069 | 44,434 | 45,698 | 49,071 | 53,515 | 57,614 | 56,974 | 61,767 | 61,801 | 60,422 |
| Purchased intercity transportation, total | 1,447 | 2,145 | 4,156 | 7,402 | 15,376 | 21,014 | 29,468 | 28,827 | 29,338 | 31,973 | 34,231 | 37,071 | 40,241 | 45,141 | 49,015 | 52,325 | 59,015 | 53,237 | 50,195 | 53,918 | 57,386 | 59,282 | 61,517 | 64,219 | 64,661 | 57,346 |
| Railroad | 448 | 429 | 395 | 474 | 588 | 616 | 696 | 697 | 546 | 526 | 488 | 482 | 489 | 490 | 519 | 555 | 635 | 697 | 726 | 713 | 719 | 733 | 810 | 906 | 996 | 919 |
| Intercity bus | 154 | 206 | 311 | 455 | 873 | 754 | 615 | 674 | 682 | 724 | 776 | 836 | 895 | 1,022 | 1,118 | 1,202 | 1,360 | 1,410 | 1,412 | 1,394 | 1,353 | 1,306 | 1,303 | 1,206 | 1,302 | 1,091 |
| Airline | 678 | 1,279 | 3,075 | 5,890 | 12,768 | 18,088 | 25,891 | 25,069 | 25,581 | 27,742 | 29,226 | 31,072 | 33,269 | 37,216 | 40,269 | 43,042 | 49,166 | 42,873 | 39,515 | 43,348 | 46,163 | 47,654 | 49,368 | 51,596 | 51,603 | 45,057 |
| Other[c] | 167 | 231 | 375 | 583 | 1,147 | 1,556 | 2,266 | 2,387 | 2,529 | 2,981 | 3,741 | 4,681 | 5,588 | 6,413 | 7,109 | 7,526 | 7,854 | 8,257 | 8,542 | 8,463 | 9,151 | 9,589 | 10,036 | 10,511 | 10,760 | 10,279 |
| Purchased local transportation, total | 1,904 | 1,958 | 2,906 | 4,019 | 4,864 | 7,093 | 9,701 | 10,468 | 11,153 | 11,507 | 11,761 | 11,738 | 11,958 | 11,931 | 12,910 | 13,309 | 13,947 | 14,703 | 14,752 | 15,161 | 16,545 | 17,501 | 19,072 | 18,941 | 19,834 | 19,687 |
| Mass transit system | 1,295 | 1,346 | 1,726 | 2,051 | 2,998 | 4,521 | 7,124 | 7,843 | 8,567 | 8,794 | 8,962 | 8,749 | 8,796 | 8,673 | 9,411 | 10,040 | 10,876 | 11,336 | 11,298 | 11,952 | 12,769 | 13,415 | 14,624 | 14,558 | 15,493 | 15,218 |
| Taxi | 609 | 612 | 1,180 | 1,968 | 1,866 | 2,572 | 2,577 | 2,625 | 2,586 | 2,713 | 2,799 | 2,989 | 3,162 | 3,258 | 3,499 | 3,269 | 3,071 | 3,367 | 3,454 | 3,209 | 3,776 | 4,086 | 4,448 | 4,383 | 4,341 | 4,469 |

**KEY:** R = revised; RVs = recreational vehicles.

[a] Also includes greasing, washing, storage, and leasing.
[b] Consists of premiums plus premium supplements less normal losses and dividends paid to policyholders for motor vehicles insurance.
[c] Consists of baggage charges, coastal and inland waterway fares, travel agents' fees, airports bus fares, and limousine services.

**NOTES**
Numbers may not add to totals due to rounding.
A significant revision has been made for all years due to a comprehensive revision made by the Bureau of Economic Analysis.

**SOURCE**
U.S. Department of Commerce, Bureau of Economic Analysis, *National Income and Product Accounts Tables*, tables 2.5.5 and 2.4.5U , available at http://www.bea.gov/national/index.htm as of Jan. 26, 2011.

**Table 3-17: Average Cost of Owning and Operating an Automobile[a] (Assuming 15,000 Vehicle-Miles per Year)**

| | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Average total cost per mile (current ¢) | 14.4 | 21.2 | 23.2 | 33.0 | 37.3 | 38.8 | 38.7 | 39.4 | 41.2 | 42.6 | 44.8 | 46.1 | 47.0 | 49.1 | 51.0 | 50.2 | 51.7 | 56.2 | 52.2 | 52.2 | 54.1 | 54.0 | 56.6 |
| Gas[b] | 4.8 | 5.9 | 5.6 | 5.4 | 6.6 | 5.9 | 5.9 | 5.6 | 5.8 | 5.6 | 6.6 | 6.2 | 5.6 | 6.9 | 7.9 | 5.9 | 7.2 | 6.5 | 9.5 | 8.9 | 11.7 | 10.1 | 11.4 |
| Gas as a percent of total cost[b] | 33.4 | 27.9 | 24.0 | 16.4 | 17.7 | 15.2 | 15.2 | 14.2 | 14.1 | 13.1 | 14.7 | 13.5 | 11.9 | 14.1 | 15.5 | 11.7 | 13.9 | 11.6 | 18.2 | 17.1 | 21.6 | 18.7 | 20.1 |
| Maintenance[c] | 1.0 | 1.1 | 1.2 | 2.1 | 2.2 | 2.2 | 2.4 | 2.5 | 2.6 | 2.8 | 2.8 | 3.1 | 3.3 | 3.6 | 3.9 | 4.1 | 4.1 | 5.4 | 4.9 | 4.9 | 4.6 | 4.6 | 4.5 |
| Tires | 0.7 | 0.6 | 0.7 | 0.9 | 0.9 | 0.9 | 0.9 | 1.0 | 1.2 | 1.2 | 1.4 | 1.4 | 1.7 | 1.7 | 1.8 | 1.8 | 1.8 | 0.7 | 0.7 | 0.7 | 0.7 | 0.8 | 0.8 |
| Average total cost per 15,000 miles (current $) | 2,154 | 3,176 | 3,484 | 4,954 | 5,601 | 5,824 | 5,804 | 5,916 | 6,185 | 6,389 | 6,723 | 6,908 | 7,050 | 7,363 | 7,654 | 7,533 | 7,754 | 8,431 | 7,834 | 7,823 | 8,121 | 8,095 | 8,487 |
| Variable cost | 968 | 1,143 | 1,113 | 1,260 | 1,455 | 1,350 | 1,380 | 1,365 | 1,440 | 1,440 | 1,620 | 1,605 | 1,590 | 1,829 | 2,040 | 1,770 | 1,965 | 1,890 | 2,265 | 2,175 | 2,545 | 2,313 | 2,511 |
| Fixed cost[d] | 1,186 | 2,033 | 2,371 | 3,694 | 4,146 | 4,474 | 4,424 | 4,551 | 4,745 | 4,949 | 5,103 | 5,303 | 5,460 | 5,534 | 5,614 | 5,764 | 5,789 | 6,541 | 5,569 | 5,648 | 5,576 | 5,783 | 5,976 |

[a] All figures reflect the average cost of operating a vehicle 15,000 miles per year in stop and go conditions.

[b] Prior to 2004, data include oil cost.

[c] Beginning in 2004, data include oil cost.

[d] *Fixed costs* (ownership costs) include insurance, license, registration, taxes, depreciation, and finance charges.

**NOTES**

Changes in methodology have been made in 1985 and 2004, and thus costs may not be comparable before and after those years.

In 2004, the American Automobile Association adopted a new method for calculating vehicle operating costs that represent the real-world personal use of a vehicle over a five-year and 75,000-mile ownership period. The total cost of owning and operating an automobile include fuel,*Maintenance*, *Tires*, insurance, license, registration and taxes, depreciation, and finance.

Prior to 1985, the cost figures are for a mid-sized, current model, American car equipped with a variety of standard and optional accessories. After 1985, the cost figures represent a composite of three current model American cars. The 2004 fuel costs are based on average late-2003 U.S. prices from AAA's Fuel Gauge Report: www.fuelgaugereport.com. Insurance figures are based on a full-coverage policy for a married 47-year-old male with a good driving record living in a small city and commuting three to ten miles daily to work. The policy includes $100,000/$300,000 level coverage with a $500 deductible for collision coverage and a $100 deductible for comprehensive coverage. Depreciation costs are based on the difference between new-vehicle purchase price and its estimated trade-in-value at the end of five years. American Automobile Association analysis covers vehicles equipped with standard and optional accessories including automatic transmission, air conditioning, power steering, power disc brakes, AM/FM stereo, driver- and passenger-side air bags, anti-lock brakes, cruise control, tilt steering wheel, tinted glass, emissions equipment, and rear-window defogger.

The sum of *Variable* and *Fixed costs* may not add to totals due to rounding.

**SOURCE**

American Automobile Association, *Your Driving Costs* (Heathrow, FL: Annual issues), available at http://www.aaapublicaffairs.com/Main/ as of Apr. 16, 2010.

**Table 3-18: Average Passenger Fares (Current dollars)**

| | 1960 | 1965 | 1970 | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Air carrier, domestic, scheduled service | 33.01 | 34.13 | 40.65 | 53.64 | 84.60 | 92.53 | 107.86 | 106.78 | 103.60 | 109.80 | 103.21 | 106.66 | 110.37 | 114.10 | 114.34 | 114.98 | 121.27 | 111.60 | 101.67 | (R)106.77 | 103.56 | 106.48 | 114.39 | 114.10 | (R)120.57 | 105.43 |
| Class I bus, intercity[a] | 2.46 | 2.73 | 3.81 | 5.46 | 10.57 | 11.98 | 20.22 | 21.86 | 21.15 | 21.32 | 19.77 | 20.10 | 22.85 | 20.83 | 23.14 | 26.16 | 29.46 | 30.27 | 30.11 | U | U | U | U | U | U | U |
| Transit, all modes[b] (unlinked) | 0.14 | 0.16 | 0.22 | 0.27 | 0.30 | 0.53 | 0.67 | 0.70 | 0.72 | 0.77 | 0.85 | 0.88 | 0.93 | 0.90 | 0.91 | 0.90 | 0.93 | 0.92 | 0.90 | 0.96 | 1.01 | 1.03 | 1.26 | 1.07 | 1.11 | 1.17 |
| Commuter rail | 0.64 | 0.71 | 0.84 | 1.04 | 1.41 | 2.85 | 2.90 | 3.01 | 3.09 | 3.09 | 3.19 | 3.13 | 3.25 | 3.30 | 3.29 | 3.30 | 3.33 | 3.43 | 3.49 | 3.79 | 3.90 | 4.08 | 4.22 | 4.32 | 4.58 | 4.68 |
| Intercity rail / Amtrak[c] | 4.22 | 3.92 | 3.19 | 12.96 | 17.72 | 26.15 | 39.59 | 41.19 | 40.78 | 40.11 | 39.10 | 39.92 | 43.31 | 45.26 | 44.75 | 46.85 | 49.61 | 51.58 | 55.15 | 50.68 | 50.04 | 51.47 | 56.45 | 58.94 | 60.52 | 58.75 |

**KEY:** R = revised; U = data are unavailable

[a] Regular route *Intercity* service.

[b] Prior to 1984, excludes *Commuter railroad*, automated guideway, urban ferryboat, demand responsive, and most rural and smaller systems.
[c] *Amtrak* began operations in 1971.

**SOURCES**

**Air carrier, domestic, scheduled service:**

1960: Civil Aeronautics Board, *Handbook of Airline Statistics, 1969* (Washington, DC: February 1970), part III, table 2 (enplanements); part IV, table 2 (passenger revenue).

1965-70: Ibid. *Handbook of Airline Statistics, 1973* (Washington, DC: March 1974), part III, table 2 (enplanements); part IV, table 2 (passenger revenue).

1975-80: Ibid. *Air Carrier Financial Statistics* (Washington, DC: Annual December issues), p. 1, line 3; and *Air Carrier Traffic Statistics* (Washington, DC: Annual December Issues), p. 2, line 16 (passenger revenue / revenue passenger enplanements).

1985-2001: U.S. Department of Transportation, Bureau of Transportation Statistics, Office of Airline Information *Air Carrier Financial Statistics* (Washington, DC: Annual December Issues); and *Air Carrier Traffic Statistics* (Washington, DC: Annual December Issues) (passenger revenue / revenue passenger enplanements).

2002-09: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, Office of Airline Information, *TranStats Database, T1: U.S. Air Carrier Traffic and Capacity Summary by Service Class,* available at http://www.transtats.bts.gov/DL_SelectFields.asp?Table_ID=264&DB_Short_Name=Air%20Carrier%20Summary as of Jan. 26, 2011 and *Air Carrier Financial Reports*, Schedule P-11 and Schedule P-12, available at http://www.transtats.bts.gov/databases.asp?Mode_ID=1&Mode_Desc=Aviation&Subject_ID2=0as of Jan. 26, 2011.

**Class I bus, intercity:**

1960-93: Interstate Commerce Commission, *Transport Statistics in the United States, Motor Carriers* (Washington, DC: Annual Issues), part 2.

1994-2002: U.S. Department of Transportation, Bureau of Transportation Statistics, *Selected Earnings Data, Class I Motor Carriers of Passengers* (Washington, DC: Annual Issues) (operating revenue / revenue passengers).

**Transit and commuter rail:**

1960-2001: American Public Transportation Association, *Public Transportation Fact Book Appendix A: Historical Tables* (Washington, DC: Annual Issues), table 43, and similar tables in earlier editions (passenger fares / passenger trips).

2002-09: U.S. Department of Transportation, Federal Transit Administration, National Transit Database *Data Tables* (Washington, D.C.: Annual Reports), table 26, available at http://www.ntdprogram.gov/ntdprogram/data.htm as of Jan. 27, 2011.

**Intercity rail / Amtrak:**

1960-70: Association of American Railroads, *Railroad Facts* (Washington, DC: Annual Issues).

1975-80: National Passenger Rail Corporation (Amtrak), State and Local Affairs Department and Public Affairs Department, personal communication.

1985-96: National Passenger Rail Corporation (Amtrak), *Amtrak Annual Report*, Statistical Appendix (Washington, DC: Annual Issues) (transportation revenues / Amtrak system passenger trips).

1997-2009: National Passenger Rail Corporation (Amtrak), *Amtrak Annual Report* (Washington, DC: Annual Issues) (ticket revenue per passenger mile multiplied by average trip length of passengers), p. 61, available at http://www.amtrak.com/servlet/ContentServer?c=Page&pagename=am%2FLayout&cid=1241245669222 as of Jan. 27, 2011.

**Table 3-19: Average Passenger Fares (Chained 2005 dollars)**

| | 1960 | 1965 | 1970 | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Air carrier, domestic, scheduled service | 125.95 | 125.32 | 125.66 | 122.77 | 111.64 | 101.90 | 106.89 | 108.02 | 103.46 | 103.09 | 102.06 | 103.98 | 112.86 | 110.01 | 108.66 | 109.13 | 109.90 | 109.81 | 111.22 | (R) 114.09 | 110.63 | 106.48 | 106.57 | (R) 104.97 | (R) 100.63 | 94.49 |
| Class I bus, intercity[a] | 21.06 | 22.08 | 24.34 | 22.24 | 26.92 | 19.46 | 27.74 | 28.64 | 27.27 | 28.40 | 26.35 | 27.61 | 30.82 | 27.96 | 29.46 | 32.54 | 35.01 | 34.86 | 33.60 | U | U | U | U | U | U | U |
| Transit, all modes[b] (unlinked) | 1.27 | 1.26 | 1.15 | 1.22 | 0.94 | 1.05 | 1.07 | 1.09 | 1.06 | 1.10 | 1.20 | 1.21 | 1.17 | 1.11 | 1.14 | 1.14 | 1.16 | 1.12 | 1.07 | 1.06 | 1.05 | 1.03 | 1.22 | 1.01 | 1.02 | 1.02 |
| Commuter rail[c] | 4.58 | 5.00 | 5.02 | 4.82 | 3.95 | 5.09 | 3.79 | 3.83 | 3.88 | 3.82 | 3.91 | 3.64 | 3.54 | 3.60 | 3.51 | 3.39 | 3.32 | 3.26 | 3.20 | 3.51 | 3.95 | 4.08 | 3.87 | 4.05 | 4.10 | 4.20 |
| Intercity rail / Amtrak[d] | 30.19 | 27.63 | 19.08 | 60.03 | 49.68 | 46.70 | 51.80 | 52.46 | 51.20 | 49.59 | 47.87 | 46.39 | 47.22 | 49.41 | 47.69 | 48.14 | 49.43 | 49.00 | 50.54 | 46.92 | 50.65 | 51.47 | 51.84 | (R) 55.24 | (R) 54.18 | 52.71 |

**KEY:** R = revised; U = data are unavailable

[a] Regular route *Intercity* service.
[b] Prior to 1984, excludes commuter railroad, automated guideway, urban ferryboat, demand responsive, and most rural and smaller systems.
[c] This category is now deflated using the railway transportation instead of mass transit deflator and the *Intercity rail* deflator used in previous editions.
[d] *Amtrak* began operations in 1971.

**NOTES**

This table is deflated using data from the Department of Commerce, Bureau of Economic Analysis, *National Income and Product Accounts tables*, table 2.4.4U. Lines 203, 199, 201 and 197 are used respectively to deflate their corresponding rows.

The Bureau of Economic Analysis has changed the reference year for chained dollar estimates from 2000 to 2005 as part of the comprehensive revision of the national income and product accounts in 2009. As a result all the data are revised and cannot be comparable with the previous editions.

**SOURCES**

**Air carrier, domestic, scheduled service:**

1960: Civil Aeronautics Board, *Handbook of Airline Statistics, 1969* (Washington, DC: February 1970), part III, table 2 (enplanements); part IV, table 2 (passenger revenue).

1965-70: Ibid., *Handbook of Airline Statistics, 1973* (Washington, DC: March 1974), part III, table 2 (enplanements); part IV, table 2 (passenger revenue).

1975-80: Ibid., *Air Carrier Financial Statistics* (Washington, DC: Annual December Issues), p. 1, line 3; and *Air Carrier Traffic Statistics* (Washington, DC: Annual December Issues), p. 2, line 16 (passenger revenue / revenue passenger enplanements).

1985-2001: U.S. Department of Transportation, Bureau of Transportation Statistics, Office of Airline Information, *Air Carrier Financial Statistics* (Washington, DC: Annual December Issues); and *Air Carrier Traffic Statistics* (Washington, DC: Annual December Issues) (passenger revenue / revenue passenger enplanements).
2002-09: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, Office of Airline Information *TranStats Database, T1: U.S. Air Carrier Traffic and Capacity Summary by Service Class,* available at http://www.transtats.bts.gov/DL_SelectFields.asp?Table_ID=264&DB_Short_Name=Air%20Carrier%20Summaryas of Jan. 27, 2011 *and Air Carrier Financial Reports, Schedule P-11 and Schedule P-12,* available at http://www.transtats.bts.gov/databases.asp?Mode_ID=1&Mode_Desc=Aviation&Subject_ID2=0as of Jan. 27, 2011.

**Class I bus, intercity:**

1960-93: Interstate Commerce Commission, *Transport Statistics in the United States, Motor Carriers* (Washington, DC: Annual Issues), part 2.

1994-2002: U.S. Department of Transportation, Bureau of Transportation Statistics, *Selected Earnings Data, Class I Motor Carriers of Passengers* (Washington, DC: Annual Issues) (operating revenue / revenue passengers).

**Transit and commuter rail:**

1960-2001: American Public Transportation Association, *Public Transportation Fact Book* (Washington, DC: Annual Issues), table 43 and similar tables in earlier editions (passenger fares / passenger trips).

2002-09: U.S. Department of Transportation, Federal Transit Administration, National Transit Database, *Data Tables* (Washington, D.C.: Annual Reports), table 26, available at http://www.ntdprogram.gov/ntdprogram/data.htm as of Jan. 27, 2011.

**Intercity rail / Amtrak:**

1960-70: Association of American Railroads, *Railroad Facts* (Washington, DC: Annual Issues).

1975-80: National Passenger Rail Corporation (Amtrak), State and Local Affairs Department and Public Affairs Department, personal communication.

1985-1996: National Passenger Rail Corporation (Amtrak), *Amtrak Annual Report,* Statistical Appendix (Washington, DC: Annual Issues) (transportation revenues / Amtrak system passenger trips).

1997-2009: National Passenger Rail Corporation (Amtrak), *Amtrak Annual Report,* Statistical Appendix (Washington, DC: Annual Issues) (ticket revenue per passenger mile multiplied by average trip length of passengers), p. 61, available at http://www.amtrak.com/servlet/ContentServer?c=Page&pagename=am%2FLayout&cid=1241245669222 as of Jan. 27, 2011.

# Section C
# Transportation Revenues, Employment, and Productivity

**Table 3-20: Average Passenger Revenue per Passenger-Mile (Current ¢)**

| | 1960 | 1965 | 1970 | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Air carrier, domestic, scheduled service | 6.1 | 6.1 | 6.0 | 7.7 | 11.5 | 12.2 | 13.4 | 13.2 | 12.9 | 13.7 | 13.1 | 13.5 | 13.8 | 14.0 | 14.1 | 14.0 | 14.6 | 13.2 | 12.0 | 12.3 | 12.0 | 12.3 | (R) 13.1 | (R) 13.1 | 13.8 |
| Index (1990 = 100) | 46 | 46 | 45 | 57 | 86 | 91 | 100 | 99 | 96 | 102 | 98 | 101 | 103 | 104 | 105 | 104 | 109 | 99 | 89 | 92 | 90 | 92 | (R) 98 | (R) 98 | 103 |
| Class I bus, intercity[a] | 2.7 | 2.9 | 3.6 | 4.9 | 7.3 | 9.9 | 11.6 | 12.0 | 11.8 | 12.0 | 11.6 | 12.2 | 12.3 | 12.6 | 12.8 | 12.8 | 12.8 | 12.9 | U | U | U | U | U | U | U |
| Index (1990 = 100) | 23 | 25 | 31 | 42 | 63 | 86 | 100 | 104 | 102 | 104 | 101 | 106 | 106 | 109 | 110 | 110 | 111 | 112 | U | U | U | U | U | U | U |
| Commuter rail | 2.9 | 3.3 | 3.8 | 4.6 | 6.7 | 12.1 | 13.4 | 13.0 | 13.3 | 14.3 | 13.5 | 13.1 | 13.7 | 14.7 | 14.4 | 14.9 | 14.6 | 15.1 | 15.2 | 16.2 | 16.6 | 18.2 | 18.0 | 17.8 | 19.6 |
| Index (1990 = 100) | 22 | 25 | 28 | 34 | 50 | 90 | 100 | 97 | 99 | 107 | 101 | 97 | 102 | 109 | 107 | 111 | 109 | 112 | 113 | 121 | 124 | 136 | 134 | 132 | 146 |
| Intercity / Amtrak[b] | 3.0 | 3.1 | 4.0 | 5.7 | 8.2 | 11.3 | 14.1 | 14.1 | 14.1 | 14.0 | 13.7 | 14.6 | 16.6 | 17.3 | 17.5 | 18.4 | 23.2 | 24.9 | 26.8 | 25.0 | 26.0 | 27.2 | 29.7 | 30.7 | 31.8 |
| Index (1990 = 100) | 21 | 22 | 28 | 40 | 58 | 80 | 100 | 100 | 100 | 99 | 97 | 103 | 118 | 123 | 124 | 130 | 165 | 176 | 190 | 177 | 184 | 192 | 210 | 217 | 225 |
| Consumer Price Index (1990 = 100) | 23 | 24 | 30 | 41 | 63 | 82 | 100 | 104 | 107 | 111 | 113 | 117 | 120 | 123 | 125 | 127 | 132 | 136 | 138 | 141 | 145 | 149 | 154 | 159 | 165 |

**KEY**: R = revised; U = data are unavailable.

[a] Regular route *Intercity* service.
[b] *Amtrak* began operations in 1971.

**NOTE**

The Bureau of Transportation Statistics rebased the consumer price index from 1982-84=100 to 1990=100.

**SOURCES**

**Air carrier, domestic, scheduled service:**
1960: Civil Aeronautics Board, *Handbook of Airline Statistics, 1969* (Washington, DC: February 1970), part III, table 2 (passenger-miles); part IV, table 2 (passenger revenues).
1965-70: Ibid., *Handbook of Airline Statistics, 1973* (Washington, DC: March 1974), part III, table 2 (passenger-miles); part IV, table 2 (passenger revenues).
1975-80: Ibid., *Air Carrier Financial Statistics* (Washington, DC: Annual December issues), p. 2, line 3.
Ibid., *Air Carrier Traffic Statistics* (Washington, DC: Annual December issues), p. 4, line 9.
1985-2001: U.S. Department of Transportation, Bureau of Transportation Statistics, Office of Airline Information, *Air Carrier Financial Statistics* (Washington, DC: Annual December issues), p. 4, line 3 and similar pages in previous editions; and *Air Carrier Traffic Statistics* (Washington, DC: Annual December issues), p. 3, line 9, and similar pages in previous editions (total passenger operating revenues / total revenue passenger-miles).
2002-08: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, Office of Airline Information, *TranStats Database, T1: U.S. Air Carrier Traffic and Capacity Summary by Service Class*, available at *http://www.transtats.bts.gov/DL_SelectFields.asp?Table_ID=264&DB_Short_Name=Air%20Carrier%20Summary* as of June 23, 2010 *and Air Carrier Financial Repots, Schedule P-11 and Schedle P-12,* available at *http://www.transtats.bts.gov/databases.asp?Mode_ID=1&Mode_Desc=Aviation&Subject_ID2=0* as of June 24, 2010.

**Intercity class I bus:**
1960-2001: Eno Transportation Foundation, Inc., *Transportation in America, 2002* (Washington, DC: 2002), p. 48.

**Commuter rail:**
1960-85: Eno Transportation Foundation, Inc., *Transportation in America, 2002* (Washington, DC: 2002), p. 48.
1990-2001: American Public Transportation Association, *2010 Public Transportation Fact Book* (Washington, DC: 2010), tables 2 and 42 (passenger fares / passenger miles).
2002-08: U.S. Department of Transportation, Federal Transit Administration, National Transit Database, *Data Tables* (Washington, D.C.: Annual reports), available at http://www.ntdprogram.gov/ntdprogram/data.htm as of May 27, 2010.

**Intercity / Amtrak:**
1960-70: Association of American Railroads, *Railroad Facts* (Washington, DC: Annual issues).
1975-80: Eno Transportation Foundation, Inc., *Transportation in America, 1994* (Lansdowne, VA: 1994), p. 50.
1985-2002: National Passenger Rail Corporation (Amtrak), *Amtrak Annual Report, Statistical Appendix* (Washington, DC: Annual issues) (transportation revenues / passenger-miles).
2003-08: Association of American Railroads, *Railroad Facts* (Washington, DC: Annual issues), p. 77 and similar pages in previous editions (passenger revenue/revenue passenger miles).

**Consumer Price Index:**
1960-2008: U.S. Department of Labor, Bureau of Labor Statistics, *Consumer Price Index-Urban, U.S. All Items Indexes*, available at http://www.bls.gov/cpi/ as of May 27, 2010.

**Table 3-21: Average Freight Revenue Per Ton-mile (Current ¢)**

| | 1960 | 1965 | 1970 | 1975 | 1980 | 1985 | (R) 1990 | (R) 1991 | (R) 1992 | (R) 1993 | (R) 1994 | (R) 1995 | (R) 1996 | (R) 1997 | (R) 1998 | (R) 1999 | (R) 2000 | (R) 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Air carrier, domestic[a] | 22.80 | 20.46 | 21.91 | 28.22 | 46.31 | 48.77 | 55.84 | 61.18 | 60.64 | 60.19 | 59.86 | 61.39 | 63.68 | 63.92 | 66.88 | 68.62 | 73.85 | 71.09 | (R) 69.30 | (R) 69.11 | 78.12 | 87.46 | 95.39 | 99.72 | 121.82 | 115.93 |
| Index (1990 = 100) | 41 | 37 | 39 | 51 | 83 | 87 | 100 | 110 | 109 | 108 | 107 | 110 | 114 | 114 | 120 | 123 | 132 | 127 | (R) 124 | (R) 124 | (R) 140 | (R) 157 | (R) 171 | 179 | 218 | 208 |
| Truck[b] | 6.31 | 6.46 | 8.50 | 11.60 | 18.00 | 22.90 | 12.88 | 12.46 | 12.96 | 13.12 | 13.56 | 13.5 | 13.98 | 14.27 | 12.89 | 13.14 | 13.75 | 13.31 | (R) 13.09 | (R) 13.33 | U | U | U | U | U | U |
| Index (1990 = 100) | U | U | U | U | U | U | 100 | 97 | 101 | 102 | 105 | 105 | 109 | 111 | 100 | 102 | 107 | 103 | 102 | 103 | U | U | U | U | U | U |
| Class I rail | 1.40 | 1.27 | 1.43 | 2.04 | 2.87 | 3.04 | 2.66 | 2.59 | 2.58 | 2.52 | 2.49 | 2.40 | 2.35 | 2.40 | 2.34 | 2.28 | 2.26 | 2.24 | 2.26 | 2.28 | 2.35 | 2.62 | 2.84 | 2.99 | 3.34 | U |
| Index (1990 = 100) | 53 | 48 | 54 | 77 | 108 | 114 | 100 | 97 | 97 | 95 | 94 | 90 | 88 | 90 | 88 | 86 | 85 | 84 | 85 | 86 | 88 | 99 | 107 | 112 | 126 | U |
| Barge | N | 0.35 | 0.30 | 0.52 | 0.77 | 0.80 | 1.42 | 1.41 | 1.39 | 1.36 | 1.4 | 1.63 | 1.56 | 1.5 | 1.52 | 1.58 | 1.67 | 1.75 | 1.71 | 1.77 | 1.83 | U | U | U | U | U |
| Index (1990 = 100) | N | U | U | U | U | U | 100 | 99 | 98 | 96 | 99 | 97 | 110 | 97 | 107 | 98 | 97 | 95 | 120 | 125 | 129 | U | U | U | U | U |
| Oil pipeline[c] | 0.32 | 0.28 | 0.27 | 0.37 | 1.33 | 1.57 | 1.22 | 1.17 | 1.21 | 1.17 | 1.23 | 1.28 | 1.18 | 1.17 | 1.11 | 1.17 | 1.3 | 1.34 | 1.33 | 1.31 | 1.34 | U | U | U | U | U |
| Index (1990 = 100) | U | U | U | U | U | U | 100 | 96 | 99 | 96 | 101 | 105 | 97 | 96 | 91 | 96 | 107 | 110 | 109 | 107 | 110 | U | U | U | U | U |
| Producer Price Index (1990 = 100)[d] | 28 | 29 | 33 | 49 | 74 | 88 | 100 | 102 | 103 | 105 | 105 | 107 | 110 | 111 | 110 | 112 | 116 | 118 | 117 | 120 | 125 | 131 | 135 | 140 | 149 | 145 |

**KEY:** R = revised; U = data are unavailable.

[a] For 1990 and later, air carriers that did not report both financial data and all months of traffic data for a given period were excluded from the calculations. Cargo revenue includes both scheduled and charter property revenue and mail revenue.
[b] General freight common carriers, most of which are LTL (less-than-truckload) carriers.
[c] The jump from 1975 to 1980 reflects entrance of Alaska pipeline moving crude petroleum to U.S. refineries.
[d] Total finished goods. Converted to 1990 base year index by the Bureau of Transportation Statistics and therefore not comparable to previous editions of this table.

**NOTE:** There is a break in the data from 1985 to 1990 for *Truck*, *Barge*, and *Oil pipeline*; therefore, data prior to 1990 cannot be indexed using 1990 as the base year because the data are incomparable.

**SOURCES**

**Air carrier, domestic, scheduled service:**

1960: Civil Aeronautics Board, *Handbook of Airline Statistics, 1969* (Washington, DC: 1970), part III, tables 2 and 13.
1965-70: Ibid., *Handbook of Airline Statistics, 1973* (Washington, DC: 1974), part III, tables 2 and 13.

1975-80: Ibid., *Air Carrier Traffic Statistics* (Washington, DC: 1976, 1981), pp. 4 and 14 (December 1976) and pp. 2 and 3 (December 1981).
1985: U.S. Department of Transportation, Bureau of Transportation Statistics, Office of Airline Information, *Air Carrier Financial Statistics* (Washington, DC: Annual December Issues) (freight operating revenues).
Ibid., *Air Carrier Traffic Statistics* (Washington, DC: Annual December Issues) (freight revenue ton-miles).
1990-2009: U.S. Department of Transportation, Bureau of Transportation Statistics (BTS), *TranStats Database*, *T-1, Schedule P-11*, and *Schedule P-12* data, available at http://www.transtats.bts.gov/ as of July 8, 2010, and BTS special tabulation, July 8, 2010.

**Truck, barge, and oil pipeline:**

1960-2004: Eno Transportation Foundation, Inc., *Transportation in America* (Washington, DC: Annual Issues), p. 46 and similar pages in previous editions.

**Class I rail:**

1960-2008: Association of American Railroads, *Railroad Facts* (Washington, DC: Annual Issues), p. 30 and similar pages in previous editions.

**Producer Price Index:**

1960-2009: Council of Economic Advisors, *2010 Economic Report of the President* (Washington, DC: 2010), table B-65, available at http://www.gpoaccess.gov/eop/ as of July 8, 2010.

**Table 3-22: Total Operating Revenues (Current $ millions)**

| | 1960 | 1965 | 1970 | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Air carrier, domestic, all services | 2,178 | 3,691 | 7,180 | 12,020 | 26,440 | 37,629 | 57,961 | 56,165 | 57,654 | 63,233 | 65,949 | 70,885 | 76,891 | 82,250 | 86,494 | 90,931 | 98,896 | 86,511 | 79,220 | 88,830 | 99,229 | (R) 111,730 | 119,967 |
| Trucking[a] | N | N | N | N | N | N | 127,314 | 126,772 | 135,437 | 142,547 | 155,713 | 161,806 | 174,743 | 183,153 | 197,314 | 207,751 | 223,197 | 221,355 | 222,383 | 228,311 | 248,191 | 272,911 | U |
| Class I bus, intercity | 463 | 607 | 722 | 955 | 1,397 | 1,233 | 943 | 981 | 938 | 928 | 870 | 917 | 912 | 996 | 999 | 1,014 | 1,088 | 1,076 | 1,070 | U | U | U | U |
| Transit[b] | 1,407 | 1,444 | 1,707 | 3,451 | 6,510 | 12,195 | 16,053 | 16,533 | 16,915 | 17,276 | 17,968 | 18,241 | 19,151 | 19,515 | 21,062 | 22,220 | 24,243 | 25,288 | 26,632 | 28,021 | 29,718 | U | U |
| Class I rail | 9,514 | 10,208 | 11,992 | 16,402 | 28,258 | 27,586 | 28,370 | 27,845 | 28,349 | 28,825 | 30,809 | 32,279 | 32,693 | 33,118 | 33,151 | 33,521 | 34,102 | 34,576 | 35,327 | 36,639 | 40,517 | 46,118 | 52,152 |
| Intercity / Amtrak[c] | N | N | N | 253 | 454 | 832 | 1,308 | 1,347 | 1,320 | 1,400 | 1,409 | 1,490 | 1,550 | 1,669 | 2,244 | 2,011 | 2,111 | 2,109 | 2,228 | 2,074 | 1,865 | 1,886 | 2,042 |
| Water transportation (domestic)[d] | 1,722 | 1,822 | 2,070 | 3,293 | 7,219 | 7,704 | 7,940 | 7,964 | 7,935 | 8,028 | 7,745 | 7,712 | 7,283 | 6,940 | 6,824 | 6,795 | 6,930 | 6,235 | U | U | U | U | U |
| Oil pipeline[e] | 895 | 1,051 | 1,396 | 2,220 | 7,548 | 8,910 | 8,506 | 8,095 | 8,548 | 8,470 | 8,676 | 9,077 | 8,637 | 8,632 | 8,579 | 9,067 | 8,958 | 9,066 | U | U | U | U | U |
| Gas pipeline (investor-owned)[f] | 8,700 | 11,500 | 16,400 | 30,551 | 85,918 | 103,945 | 66,027 | 63,922 | 66,405 | 69,965 | 63,430 | 58,435 | 72,025 | U | 57,548 | 59,142 | 72,075 | 79,276 | 68,594 | 75,567 | 80,331 | 102,062 | U |
| Transmission companies | 3,190 | 4,088 | 5,928 | 11,898 | 41,604 | 45,738 | 21,756 | 19,818 | 20,193 | 19,873 | 13,841 | 12,092 | 12,050 | 10,339 | 9,450 | 9,555 | 10,404 | 10,257 | 10,096 | 10,892 | 11,313 | 16,547 | U |
| Distribution companies | N | N | N | 5,938 | 14,013 | 21,510 | 18,750 | 17,812 | 19,854 | 20,307 | 20,911 | 19,421 | 30,407 | 30,864 | 28,182 | 28,135 | 34,696 | 39,179 | 31,210 | 38,199 | 40,410 | 48,957 | U |
| Integrated companies | N | N | N | 6,962 | 17,300 | 17,396 | 10,117 | 11,047 | 10,279 | 12,506 | 11,827 | 10,899 | 11,941 | 12,125 | 2,974 | 3,086 | 3,755 | 4,184 | 3,150 | 3,753 | 2,424 | 2,803 | U |
| Combination companies | N | N | N | 5,753 | 13,001 | 19,301 | 15,404 | 15,245 | 16,079 | 17,279 | 16,851 | 16,023 | 17,627 | U | 16,942 | 18,366 | 23,220 | 25,656 | 24,138 | 22,723 | 26,184 | 33,755 | U |

**KEY:** N = data do not exist; R = revised; U = data are not available.

[a] Data from 1990 through 1997 include local trucking (4212), trucking, except local (4213), local trucking, without storage (4214), and courier services, except air (4215) based on SIC (Standard Industrial Classification). For 1998 and later, data includes truck transportation (484) and couriers and messengers (492) based on NAICS (North American Industry Classification System). Therefore, data from 1998 onward are not directly comparable with data prior to 1998.
[b] Excludes commuter rail, automated guideway, urban boat, demand responsive, and most rural and smaller systems prior to 1984. Includes operating assistance.
[c] Amtrak began operations in 1971.
[d] Includes foreign traffic moving on domestic inland waterways.
[e] Oil pipeline revenues are much smaller than gas pipeline revenues because oil pipeline companies are common carriers that include transportation costs only.
[f] Data are not directly comparable from year to year due to acquisition and mergers. Prior to 1975, pipeline companies are not categorized by distribution, integrated, or combination. Total numbers for these companies are 1960 = 5,505; 1965 = 7,437; 1970 = 10,542. In 1997, the American Gas Association revised the database that identifies companies by type (distribution, integrated, or transmission). This reclassification of companies has resulted in numerous additions to the distribution company sample, in particular from the integrated company sample.

**SOURCES**

**Air carrier, domestic, all services:**
1960-70: Civil Aeronautics Board, *Handbook of Airline Statistics, 1973* (Washington, DC: March 1974).
1975-80: Ibid., *Air Carrier Financial Statistics* (Washington, DC: Annual issues), p. 1.
1985-2006: U.S. Department of Transportation, Bureau of Transportation Statistics, Office of Airline Information, *Air Carrier Financial Statistics* (Washington, DC: Annual December issues).
**Trucking:**
1990-97: U.S. Department of Commerce, Bureau of the Census, *Transportation Annual Survey, 1998* (Washington, DC: January 2000), table 1.
1998-2005: Ibid., *Service Annual Survey , 2004* (Washington, DC: February 2006), table 2.1.
**Intercity Class I bus:**
1960-93: Interstate Commerce Commission, *Annual Report of the Interstate Commerce Commission* (Washington, DC: Annual issues).
1994-2001: U.S. Department of Transportation, Bureau of Transportation Statistics, *Selected Earnings Data, Class 1 Motor Carriers of Passengers* (Washington, DC: Annual issues).
2002: Ibid., personal communication, Oct. 6, 2004.
**Transit:**

1960-2004: American Public Transportation Association, *Public Transportation Fact Book, 2007* (Washington, DC: 2007), table 50 and similar tables in earlier editions.
**Class I rail:**
1960-2006: Association of American Railroads, *Railroad Facts* (Washington, DC: 2007), p. 12 and similar tables in earlier editions.
**Intercity/Amtrak:**
1975-80: Amtrak, State and Local Affairs Department and Public Affairs Department, personal communication.
1985-2001: Ibid., *Amtrak Annual Report,* Statistical Appendix (Washington, DC: Annual issues).
2002: Ibid., Consolidated Financial Statements, Internet site http://www.amtrak.com/pdf/03financial.pdf as of July 21, 2004.
2003: Ibid., Consolidated Financial Statements, Internet site http://www.amtrak.com/pdf/04financial.pdf as of Feb. 2, 2006.
2004-06: Ibid., Consolidated Financial Statements, Internet site http://www.amtrak.com/pdf/07financial.pdf as of Jan. 4, 2008.
**Water transportation:**
1960-2001: Eno Transportation Foundation, Inc., *Transportation in America* (Washington, DC: 2002), p. 38-40.
**Oil pipeline:**
1960-2001: Eno Transportation Foundation, Inc., *Transportation in America* (Washington, DC: 2002), p. 38-40.
**Gas pipeline:**
1960-2005: American Gas Association, *Gas Facts,* (Washington, DC: Annual issues), tables 11-1, 11-2, 11-3, and 11-4, and similar tables in earlier editions.

**Table 3-23: Employment in For-Hire Transportation and Selected Transportation-Related Industries[a] (North American Industry Classification System (NAICS) basis) (Thousands)**

| NAICS Code | | 1960 | 1965 | 1970 | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | (R) 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | TOTAL U.S. labor force[b] | 54,296 | 60,874 | 71,006 | 77,069 | 90,528 | 97,511 | 109,487 | 108,375 | 108,726 | 110,844 | 114,291 | 117,298 | 119,708 | 122,776 | 125,930 | 128,993 | 131,785 | 131,826 | 130,341 | 129,999 | 131,435 | 133,703 | 136,086 | 137,598 | 136,790 | 130,920 |
| | Transportation related labor force | 2,115 | 2,133 | 2,312 | 3,040 | 3,054 | 3,550 | 12,317 | 12,011 | 11,867 | 11,981 | 12,350 | 12,705 | 12,192 | 13,247 | 13,481 | 13,767 | 13,907 | 13,752 | 13,438 | 13,224 | 13,259 | 13,395 | 13,492 | 13,516 | 13,212 | 12,232 |
| 48-49 | Transportation and warehousing[c] | U | U | U | 2,620 | 2,961 | 3,012 | 3,476 | 3,463 | 3,462 | 3,554 | 3,701 | 3,838 | 3,935 | 4,027 | 4,168 | 4,300 | 4,410 | 4,372 | 4,224 | 4,185 | 4,249 | 4,361 | 4,470 | 4,541 | 4,508 | 4,235 |
| 481 | Air transportation | U | U | U | U | U | U | 529 | 525 | 520 | 517 | 511 | 511 | 526 | 542 | 563 | 586 | 614 | 615 | 564 | 528 | 515 | 501 | 487 | 492 | 491 | 460 |
| 4811 | Scheduled air transportation | U | U | U | U | U | U | 503 | 498 | 491 | 486 | 477 | 473 | 486 | 501 | 520 | 543 | 570 | 570 | 520 | 485 | 472 | 456 | 442 | 446 | 444 | 415 |
| 4812 | Nonscheduled air transportation | U | U | U | U | U | U | 27 | 27 | 29 | 31 | 34 | 38 | 40 | 41 | 43 | 44 | 45 | 45 | 44 | 43 | 43 | 44 | 45 | 46 | 47 | 45 |
| 482 | Rail transportation | 862 | 716 | 617 | 534 | 518 | 350 | 272 | 256 | 248 | 242 | 235 | 233 | 225 | 221 | 225 | 229 | 232 | 227 | 218 | 218 | 226 | 228 | 228 | 234 | 231 | 219 |
| 483 | Water transportation | U | U | U | U | U | U | 57 | 57 | 57 | 53 | 52 | 51 | 51 | 51 | 51 | 52 | 56 | 54 | 53 | 55 | 56 | 61 | 63 | 66 | 67 | 64 |
| 4831 | Sea, coastal, and Great Lakes water transportation | U | U | U | U | U | U | 35 | 36 | 35 | 33 | 33 | 32 | 32 | 32 | 32 | 33 | 36 | 34 | 32 | 34 | 35 | 37 | 39 | 40 | U | U |
| 484 | Truck transportation | U | U | U | U | U | U | 1,122 | 1,105 | 1,107 | 1,155 | 1,206 | 1,249 | 1,282 | 1,308 | 1,354 | 1,392 | 1,406 | 1,387 | 1,339 | 1,326 | 1,352 | 1,398 | 1,436 | 1,439 | 1,389 | 1,266 |
| 4841 | General freight trucking | U | U | U | U | U | U | 807 | 795 | 797 | 831 | 867 | 901 | 924 | 942 | 976 | 1,002 | 1,013 | 992 | 952 | 935 | 950 | 981 | 1,005 | 1,007 | 976 | 885 |
| 4842 | Specialized freight trucking | U | U | U | U | U | U | 315 | 310 | 311 | 324 | 339 | 348 | 359 | 367 | 379 | 390 | 393 | 395 | 388 | 390 | 402 | 417 | 431 | 432 | 413 | 381 |
| 485 | Transit and ground passenger transportation | U | U | U | U | U | U | 274 | 284 | 288 | 300 | 317 | 328 | 339 | 350 | 363 | 371 | 372 | 375 | 381 | 382 | 385 | 389 | 399 | 412 | 423 | 419 |
| 4851-4852 | Urban transit, interurban and rural bus transportation | U | U | U | U | U | U | 46 | 46 | 46 | 48 | 52 | 53 | 55 | 56 | 59 | 59 | 59 | 60 | 61 | 60 | 60 | 60 | 60 | 61 | 63 | 62 |
| 4851 | Urban transit systems | U | U | U | U | U | U | 21 | 23 | 25 | 27 | 29 | 31 | 33 | 35 | 36 | 36 | 35 | 36 | 38 | 38 | 39 | 40 | 40 | 40 | U | U |
| 4852 | Interurban and rural bus transportation | 38 | 39 | 41 | 38 | 36 | 33 | 25 | 23 | 22 | 21 | 22 | 23 | 23 | 21 | 23 | 23 | 23 | 24 | 23 | 22 | 21 | 20 | 20 | 19 | U | U |
| 4853 | Taxi and limousine service | U | U | U | U | U | U | 57 | 59 | 58 | 61 | 64 | 66 | 68 | 70 | 72 | 73 | 72 | 71 | 68 | 67 | 66 | 66 | 69 | 73 | 71 | 67 |
| 4854 | School and employee bus transportation | U | U | U | 66 | 81 | 93 | 114 | 118 | 121 | 125 | 130 | 136 | 137 | 142 | 146 | 151 | 152 | 153 | 161 | 165 | 167 | 169 | 172 | 177 | 182 | 184 |
| 4855 | Charter bus industry | U | U | U | 11 | 15 | 21 | 26 | 27 | 27 | 28 | 28 | 29 | 31 | 32 | 34 | 36 | 38 | 37 | 36 | 33 | 32 | 31 | 31 | 32 | 33 | 30 |
| 4859 | Other transit and ground passenger transportation | U | U | U | U | U | U | 31 | 34 | 36 | 39 | 43 | 45 | 48 | 51 | 52 | 53 | 51 | 54 | 56 | 58 | 59 | 63 | 67 | 70 | 74 | 76 |
| 486 | Pipeline transportation | U | U | U | U | U | U | 60 | 61 | 60 | 59 | 57 | 54 | 51 | 50 | 48 | 47 | 46 | 45 | 42 | 40 | 38 | 38 | 39 | 40 | 42 | 42 |
| 487 | Scenic and sightseeing transportation | U | U | U | U | U | U | 16 | 17 | 18 | 19 | 21 | 22 | 23 | 25 | 25 | 26 | 28 | 29 | 26 | 27 | 27 | 29 | 28 | 29 | 28 | 28 |
| 488 | Support activities for transportation | U | U | U | U | U | U | 364 | 377 | 370 | 382 | 405 | 430 | 446 | 473 | 497 | 518 | 537 | 539 | 525 | 520 | 535 | 552 | 571 | 584 | 592 | 549 |
| 4881 | Support activities for air transportation | U | U | U | U | U | U | 96 | 96 | 96 | 99 | 101 | 104 | 109 | 115 | 124 | 133 | 141 | 140 | 139 | 136 | 142 | 148 | 157 | 163 | 168 | 150 |
| 4883 | Support activities for water transportation | U | U | U | U | U | U | 91 | 96 | 89 | 86 | 89 | 92 | 90 | 92 | 94 | 96 | 97 | 95 | 95 | 94 | 92 | 94 | 99 | 100 | 99 | 93 |
| 4884 | Support activities for road transportation | U | U | U | U | U | U | 35 | 36 | 38 | 41 | 45 | 49 | 53 | 57 | 60 | 63 | 66 | 69 | 70 | 72 | 76 | 79 | 81 | 84 | 85 | 82 |
| 4885 | Freight transportation arrangement | U | U | U | U | U | U | 111 | 115 | 114 | 120 | 130 | 143 | 149 | 161 | 166 | 172 | 178 | 179 | 168 | 167 | 171 | 177 | 180 | 184 | 187 | 176 |
| 4889 | Support activities for other transportation, including rail | U | U | U | U | U | U | 32 | 33 | 34 | 37 | 40 | 43 | 45 | 48 | 53 | 54 | 56 | 57 | 52 | 52 | 55 | 55 | 53 | 54 | 53 | 48 |
| 492 | Couriers and messengers | U | U | U | U | U | U | 375 | 379 | 389 | 414 | 466 | 517 | 540 | 546 | 568 | 586 | 605 | 587 | 561 | 562 | 557 | 571 | 582 | 581 | 573 | 547 |
| 4921 | Couriers and express delivery services | U | U | U | U | U | U | 340 | 344 | 354 | 378 | 423 | 469 | 489 | 494 | 513 | 528 | 546 | 530 | 507 | 510 | 507 | 522 | 533 | 531 | 523 | 500 |
| 4922 | Local messengers and local delivery | U | U | U | U | U | U | 35 | 35 | 35 | 36 | 43 | 48 | 51 | 52 | 55 | 58 | 59 | 57 | 54 | 51 | 50 | 50 | 50 | 50 | 50 | 47 |
| 493 | Warehousing and storage | U | U | U | U | U | U | 407 | 403 | 406 | 413 | 431 | 444 | 452 | 462 | 474 | 494 | 514 | 514 | 517 | 528 | 558 | 595 | 638 | 665 | 672 | 642 |
| | Transportation related manufacturing | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 324 | Petroleum and coal products manufacturing | U | U | U | U | U | U | 153 | 155 | 152 | 146 | 144 | 140 | 137 | 136 | 135 | 128 | 123 | 121 | 118 | 114 | 112 | 112 | 113 | 115 | 117 | 115 |
| 32621 | Tire manufacturing[d] | U | U | U | U | U | U | 90 | 86 | 87 | 87 | 85 | 87 | 86 | 84 | 87 | 87 | 87 | 82 | 76 | 72 | 70 | 67 | 60 | 59 | 59 | 52 |
| 32622 | Rubber and plastic hoses and belting manufacturing | U | U | U | 29 | 31 | 26 | 25 | 23 | 23 | 24 | 26 | 27 | 27 | 28 | 29 | 30 | 30 | 29 | 28 | 28 | 28 | 29 | 28 | 28 | 27 | U |
| 334511 | Search, detection, navigation, guidance, aeronautical, and nautical system and instrument manufacturing | U | U | U | U | U | 354 | 280 | 256 | 226 | 201 | 175 | 158 | 158 | 159 | 163 | 161 | 149 | 150 | 148 | 145 | 151 | 157 | 158 | 158 | 153 | 151 |
| 336 | Transportation equipment manufacturing | U | U | U | U | U | U | 2,135 | 2,029 | 1,978 | 1,915 | 1,937 | 1,979 | 1,975 | 2,028 | 2,078 | 2,089 | 2,057 | 1,939 | 1,830 | 1,775 | 1,767 | 1,772 | 1,769 | 1,712 | 1,608 | 1,353 |
| 3361 | Motor vehicle manufacturing | U | U | U | U | U | U | 271 | 258 | 260 | 264 | 282 | 295 | 285 | 287 | 284 | 291 | 291 | 279 | 265 | 265 | 256 | 248 | 237 | 220 | 192 | 143 |
| 3362 | Motor vehicle body and trailer manufacturing | U | U | U | U | U | U | 130 | 120 | 126 | 136 | 151 | 160 | 155 | 158 | 170 | 184 | 183 | 159 | 152 | 153 | 165 | 171 | 179 | 166 | 140 | 105 |
| 3363 | Motor vehicle parts manufacturing | U | U | U | U | U | U | 653 | 639 | 661 | 678 | 736 | 787 | 800 | 809 | 818 | 837 | 840 | 775 | 734 | 708 | 692 | 678 | 655 | 608 | 544 | 419 |
| 3364 | Aerospace product and parts manufacturing | U | U | U | U | U | U | 841 | 784 | 711 | 624 | 552 | 514 | 514 | 555 | 579 | 547 | 517 | 511 | 470 | 442 | 442 | 455 | 474 | 489 | 507 | 493 |
| 3365 | Railroad rolling stock manufacturing | U | U | U | U | U | U | 31 | 28 | 27 | 29 | 33 | 35 | 33 | 32 | 35 | 35 | 33 | 28 | 23 | 23 | 25 | 27 | 28 | 28 | 29 | 23 |
| 3366 | Ship and boat building | 130 | 148 | 158 | 179 | 203 | 172 | 174 | 165 | 158 | 148 | 147 | 148 | 147 | 146 | 154 | 154 | 154 | 148 | 147 | 147 | 149 | 154 | 157 | 160 | 156 | 132 |
| 3369 | Other transportation equipment manufacturing | U | U | U | U | U | U | 35 | 35 | 36 | 37 | 38 | 40 | 41 | 41 | 40 | 40 | 40 | 39 | 39 | 38 | 38 | 39 | 40 | 40 | 41 | 39 |
| | Other transportation related industries | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2373 | Highway, street, and bridge construction | U | U | U | U | U | U | 289 | 267 | 264 | 271 | 274 | 278 | 288 | 294 | 308 | 336 | 340 | 346 | 346 | 340 | 347 | 351 | 348 | 345 | 327 | 286 |
| 4231 | Motor vehicle and motor vehicle parts and supplies merchant wholesalers | U | U | U | U | U | U | 309 | 304 | 302 | 306 | 320 | 335 | 343 | 350 | 354 | 360 | 356 | 347 | 346 | 342 | 341 | 344 | 348 | 350 | 338 | 316 |
| 42386 | Transportation equipment and supplies merchant wholesalers[e] | U | U | U | U | U | U | 35 | 34 | 33 | 31 | 31 | 32 | 33 | 35 | 37 | 40 | 39 | 36 | 34 | 32 | 32 | 33 | 33 | 34 | 35 | 35 |
| 4247 | Petroleum and petroleum products merchant wholesalers | U | U | U | U | U | U | 155 | 147 | 137 | 129 | 128 | 126 | 124 | 123 | 122 | 123 | 119 | 114 | 111 | 106 | 101 | 100 | 100 | 101 | 100 | 97 |
| 441 | Motor vehicle parts dealers | U | U | U | U | U | U | 1,494 | 1,435 | 1,428 | 1,475 | 1,565 | 1,627 | 1,686 | 1,723 | 1,741 | 1,797 | 1,847 | 1,855 | 1,879 | 1,883 | 1,902 | 1,919 | 1,910 | 1,908 | 1,831 | 1,640 |
| 4411 | Automobile dealers | U | U | U | 769 | 783 | 904 | 983 | 938 | 935 | 970 | 1,032 | 1,072 | 1,113 | 1,135 | 1,142 | 1,180 | 1,217 | 1,225 | 1,253 | 1,254 | 1,257 | 1,261 | 1,247 | 1,242 | 1,177 | 1,022 |
| 4412 | Other motor vehicle dealers | U | U | U | U | U | U | 93 | 84 | 81 | 83 | 91 | 97 | 101 | 105 | 110 | 121 | 132 | 136 | 142 | 149 | 159 | 166 | 169 | 172 | 162 | 136 |
| 4413 | Automotive parts, accessories, and tire stores | U | U | U | U | U | U | 418 | 413 | 413 | 422 | 443 | 459 | 471 | 484 | 489 | 496 | 499 | 493 | 485 | 480 | 487 | 491 | 494 | 495 | 492 | 482 |
| 447 | Gasoline stations | U | U | U | U | U | U | 910 | 889 | 876 | 881 | 902 | 922 | 946 | 956 | 961 | 944 | 936 | 925 | 896 | 882 | 876 | 871 | 864 | 862 | 842 | 827 |
| 5321 | Automotive equipment rental and leasing | U | U | U | U | U | 142 | 163 | 152 | 151 | 156 | 163 | 171 | 180 | 184 | 189 | 199 | 208 | 208 | 195 | 193 | 197 | 199 | 199 | 196 | 193 | 169 |
| 5615 | Travel arrangement and reservation services | U | U | U | U | U | U | 250 | 240 | 245 | 256 | 271 | 281 | 294 | 302 | 304 | 297 | 299 | 285 | 252 | 235 | 226 | 224 | 226 | 227 | 223 | 196 |
| 6219 | Other ambulatory health care services | U | U | U | U | U | U | 99 | 107 | 114 | 125 | 135 | 143 | 154 | 164 | 171 | 173 | 173 | 180 | 187 | 195 | 200 | 206 | 217 | 228 | 238 | 246 |
| 8111 | Automotive repair and maintenance | U | U | U | U | U | U | 659 | 636 | 636 | 670 | 701 | 738 | 781 | 811 | 828 | 864 | 888 | 904 | 900 | 894 | 891 | 886 | 887 | 885 | 856 | 806 |
| 81293 | Parking lots and garages | U | U | U | U | U | U | 68 | 69 | 68 | 70 | 71 | 75 | 78 | 82 | 85 | 89 | 93 | 96 | 96 | 100 | 102 | 103 | 108 | 111 | 114 | 111 |
| 912001 | Postal service | 591 | 619 | 741 | 699 | 673 | 750 | 825 | 813 | 800 | 793 | 821 | 850 | 867 | 866 | 881 | 890 | 880 | 873 | 842 | 809 | 782 | 774 | 770 | 769 | 747 | 703 |
| | Government employment, total[f] | 532 | 650 | 795 | 831 | 846 | 852 | 903 | 905 | 884 | 892 | 900 | 899 | U | 895 | 842 | 862 | 873 | 890 | 932 | 894 | 888 | 888 | 885 | 890 | 895 | 893 |
| | U.S. DOT[g] | U | U | 104 | 112 | 112 | 100 | 104 | 108 | 110 | 109 | 103 | 101 | 99 | 98 | 69 | 65 | 64 | 66 | 99 | 59 | 57 | 56 | 54 | 54 | 56 | 58 |
| | State and Local [h,i] | 532 | 650 | 691 | 719 | 734 | 752 | 798 | 796 | 774 | 783 | 798 | 798 | U | 797 | 772 | 797 | 809 | 824 | 832 | 835 | 830 | 833 | 831 | 835 | 839 | 835 |

**KEY:** R = revised; U = data are unavailable.

[a] Annual averages.
[b] Excludes farm employment.
[c] Does not include Postal service
[d] Includes tire manufacturing and tire retreading
[e] Does not include motor vehicle wholesalers
[f] Not all government agencies are included (e.g., the National Transportation Safety Board)
[g] The U.S. Department of Transportation was created in 1966. Data are on a fiscal year basis and include permanent civilians as well as temporary employees and military. The United States Coast Guard (USCG) and the Transportation Security Administration (TSA) were transferred to the Department of Homeland Security in 2003.

[h] Full-time equivalent employment. Data prior to 1986 are not directly comparable to data from later years due to a change in the way full-time equivalent was calculated. Full-time equivalent was not calculated for 1985. State and local data for 1960 include highway employment only. For years 1965 and later, state and local government employment covers highway, air, water and transit modes.
[i] Due to a change in the reference period, from October to March, the October 1996 Annual Survey of Government Employment and Payroll was not conducte

**NOTES**

Details may not add to totals due to independent rounding

State and local employment statistics for years 1965 and later are signifilcantly different from the data reported in the previous edition of the report because current data include employment for air, water and transit modes in addition to highway.

Due to lack of data, employment for inland water transportation; pipeline transportation of crude oil; pipeline transportation of natural gas; other pipeline; scenic and sightseeing transportation for land, water and other; commercial air, rail, water transportation equipment rental and leasing; and regulation and administration of transportation programs are not reported.

**SOURCES**

**All data, except as noted:**

U.S. Department of Labor, Bureau of Labor Statistics Data,*National Employment Hours and Earnings*, available at http://www.bls.gov/data/ as of Nov. 1, 2010

**Government employment:**

*USDOT:*

1970-75: U.S. Department of Commerce, Bureau of the Census,*Statistical Abstract of the United States, 1976* (Washington, DC: 1976), table 409, and U.S. Department of Transportation, U.S. Coast Guard, G-WPM, Office of Military Personnel, personal communication.

1980-85: U.S. Department of Transportation, Office of the Secretary of Transportation*DOT Employment Facts, A Report to Management*(Washington, DC: Annual issues).

1990-2003: Ibid.,*DOT Workforce Demographics* (Washington, DC : Annual issues).

2004-09: Ibid.,*DOT Workforce Demographics, Demographics by Yea*, available at http://dothr.ost.dot.gov/workforceinfo/demographics.htm as of Nov. 1, 2010

*State and local:*

1960-91: U.S. Department of Commerce, Bureau of the Census,*Statistical Abstract of the United States, 1993*(Washington, DC: 1993), table 500 and similar tables in earlier editions.

1992-2009: Ibid.,*Government Employment and Payro*l, available at http://www.census.gov/pub/govs/ as of Nov. 1, 2010

**Table 3-24: Employment in Transportation and Transportation-Related Occupations**

| SOC code | Occupation | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle operators, pipeline operators, and primary support | | | | | | | | | | | | |
| 53-2011 | Airline pilots, copilots, and flight engineers | 88,040 | 94,820 | 88,800 | 78,810 | 76,940 | 78,490 | 76,240 | 75,810 | 78,250 | 77,090 | 74,420 |
| 53-2012 | Commercial pilots | 18,780 | 18,040 | 18,380 | 19,570 | 19,940 | 21,370 | 24,860 | 27,120 | 29,180 | 31,250 | 29,180 |
| 53-2021 | Air traffic controllers | 22,620 | 23,350 | 22,990 | 23,410 | 22,610 | 22,260 | 21,590 | 23,240 | 24,180 | 24,260 | 24,420 |
| 53-2022 | Airfield operations specialists | 4,510 | 4,580 | 5,390 | 5,910 | 4,670 | 4,810 | 4,510 | 4,760 | 6,210 | 8,050 | 7,670 |
| 53-3011 | Ambulance drivers and attendants, except emergency medical technicians | 13,520 | 15,700 | 17,620 | 17,280 | 18,420 | 17,410 | 18,320 | 21,100 | 21,520 | 21,790 | 19,570 |
| 53-3021 | Bus drivers, transit and intercity | 160,210 | 175,470 | 190,530 | 197,090 | 187,900 | 183,710 | 183,450 | 191,120 | 189,050 | 184,160 | 177,510 |
| 53-3022 | Bus drivers, school | 463,860 | 457,050 | 469,100 | 468,790 | 471,130 | 475,430 | 465,880 | 456,570 | 461,590 | 460,100 | 459,480 |
| 53-3031 | Driver/sales workers | 385,210 | 373,660 | 378,220 | 368,730 | 397,630 | 406,910 | 400,530 | 396,680 | 382,360 | 372,720 | 363,050 |
| 53-3032 | Truck drivers, heavy and tractor-trailer | 1,558,400 | 1,577,070 | 1,548,480 | 1,520,880 | 1,520,740 | 1,553,370 | 1,624,740 | 1,673,950 | 1,693,590 | 1,672,580 | 1,550,930 |
| 53-3033 | Truck drivers, light or delivery services | 1,085,050 | 1,033,220 | 996,000 | 977,920 | 951,400 | 938,730 | 938,280 | 941,590 | 922,900 | 908,960 | 834,780 |
| 53-3041 | Taxi drivers and chauffeurs | 119,630 | 130,200 | 125,860 | 125,720 | 131,880 | 132,650 | 144,280 | 154,490 | 165,590 | 170,520 | 167,740 |
| 53-4011 | Locomotive engineers | 19,940 | 29,390 | 30,730 | 28,250 | 30,070 | 31,180 | 37,390 | 36,870 | 41,760 | 42,760 | 43,560 |
| 53-4012 | Locomotive firers | 890 | 1,040 | 730 | 710 | 630 | 620 | 540 | 560 | 580 | 970 | 960 |
| 53-4013 | Rail yard engineers, dinkey operators, and hostlers | 5,070 | 4,020 | 4,840 | 4,600 | 6,020 | 6,170 | 6,970 | 5,820 | 4,950 | 5,480 | 5,360 |
| 53-4021 | Railroad brake, signal, and switch operators | 14,500 | 16,830 | 17,070 | 15,030 | 15,310 | 16,410 | 20,700 | 22,810 | 23,120 | 24,610 | 24,270 |
| 53-4031 | Railroad conductors and yardmasters | 36,680 | 40,380 | 40,910 | 38,070 | 35,120 | 35,720 | 38,330 | 37,110 | 37,540 | 39,580 | 41,540 |
| 53-4041 | Subway and street car operators | U | 3,190 | U | 7,250 | 8,720 | 8,900 | 7,430 | 6,740 | 6,600 | 7,430 | 6,050 |
| 53-5011 | Sailors and marine oilers | 27,200 | 30,090 | 28,650 | 25,360 | 27,170 | 27,570 | 31,090 | 31,690 | 32,520 | 32,420 | 31,950 |
| 53-5021 | Captains, mates, and pilots of water vessels | 20,660 | 21,080 | 22,180 | 22,530 | 24,050 | 25,200 | 28,570 | 29,170 | 30,540 | 30,600 | 30,450 |
| 53-5022 | Motorboat operators | 4,000 | 3,540 | 3,410 | 3,600 | 3,130 | 2,830 | 2,700 | 2,450 | 3,250 | 3,380 | 3,070 |
| 53-5031 | Ship engineers | 6,800 | 7,370 | 7,470 | 8,020 | 10,230 | 10,330 | 13,240 | 14,190 | 13,710 | 11,190 | 10,850 |
| 53-6011 | Bridge and lock tenders | 6,970 | 4,790 | 4,500 | 3,900 | 3,490 | 3,500 | 3,620 | 3,700 | 4,750 | 4,490 | 4,290 |
| 53-7071 | Gas compressor and gas pumping station operators | 6,940 | 6,510 | 6,070 | 6,920 | 5,250 | 4,680 | 3,950 | 3,900 | 4,230 | 4,050 | 4,160 |
| 53-7072 | Pump operators, except wellhead pumpers | 13,480 | 13,730 | 12,920 | 12,360 | 10,540 | 9,810 | 9,970 | 10,030 | 10,400 | 9,280 | 10,310 |
| Transportation equipment manufacturing and maintenance occupations | | | | | | | | | | | | |
| 17-2011 | Aerospace engineers | 71,790 | 71,550 | 74,380 | 74,210 | 71,750 | 73,650 | 81,100 | 86,720 | 85,510 | 67,800 | 70,570 |
| 17-2121 | Marine engineers and naval architects | 4,450 | 4,680 | 4,860 | 4,810 | 6,060 | 6,620 | 6,550 | 7,810 | 6,620 | 6,480 | 5,270 |
| 17-3021 | Aerospace engineering and operations technicians | 17,270 | 19,850 | 15,570 | 14,700 | 10,650 | 9,260 | 9,950 | 8,280 | 7,870 | 8,540 | 7,940 |
| 49-2091 | Avionics technicians | 15,560 | 15,360 | 16,340 | 21,710 | 21,020 | 22,310 | 22,490 | 15,360 | 16,300 | 18,360 | 17,960 |
| 49-2093 | Electrical and electronics installers and repairers, transportation equipment | 14,700 | 15,930 | 16,650 | 17,320 | 17,130 | 17,390 | 20,560 | 20,480 | 18,160 | 15,860 | 13,900 |
| 49-2096 | Electronic equipment installers and repairers, motor vehicles | 14,250 | 12,480 | 13,210 | 15,200 | 15,070 | 15,490 | 17,650 | 19,510 | 19,310 | 19,980 | 17,090 |
| 49-3011 | Aircraft mechanics and service technicians | 125,970 | 135,730 | 135,250 | 125,850 | 113,470 | 112,830 | 115,120 | 118,210 | 118,780 | 116,310 | 112,130 |
| 49-3021 | Automotive body and related repairers | 179,960 | 168,170 | 168,630 | 175,370 | 168,630 | 162,820 | 158,160 | 155,500 | 152,790 | 147,200 | 133,290 |
| 49-3022 | Automotive glass installers and repairers | 20,520 | 21,240 | 21,550 | 19,710 | 18,040 | 18,150 | 17,760 | 18,650 | 18,340 | 18,330 | 15,920 |
| 49-3023 | Automotive service technicians and mechanics | 587,320 | 692,570 | 701,150 | 687,380 | 689,630 | 668,540 | 654,800 | 642,360 | 650,780 | 649,460 | 606,990 |
| 49-3031 | Bus and truck mechanics and diesel engine specialists | 273,320 | 258,800 | 254,420 | 254,470 | 249,230 | 251,430 | 248,280 | 254,850 | 250,370 | 248,620 | 232,810 |
| 49-3043 | Rail car repairers | 7,230 | 10,620 | 11,860 | 13,520 | 16,790 | 18,140 | 24,270 | 23,810 | 23,190 | 20,780 | 20,910 |
| 49-3051 | Motorboat mechanics | 18,450 | 19,040 | 18,370 | 18,550 | 17,990 | 17,680 | 18,190 | 18,550 | 19,610 | 19,640 | 18,180 |
| 49-3052 | Motorcycle mechanics | 11,390 | 11,720 | 13,290 | 13,030 | 15,000 | 15,920 | 16,140 | 16,700 | 16,800 | 16,850 | 16,070 |
| 49-3091 | Bicycle repairers | 8,080 | 7,940 | 7,730 | 7,000 | 7,560 | 7,750 | 7,980 | 8,350 | 9,130 | 9,690 | 9,290 |
| 49-3092 | Recreational vehicle service technicians | 13,100 | 12,200 | 11,830 | 12,490 | 12,520 | 12,340 | 13,540 | 13,560 | 14,030 | 13,400 | 10,860 |
| 49-3093 | Tire repairers and changers | 99,880 | 88,530 | 86,200 | 81,560 | 85,030 | 87,110 | 100,860 | 103,120 | 100,510 | 98,520 | 92,440 |
| 51-2011 | Aircraft structure, surfaces, rigging, and systems assemblers | 18,070 | 32,680 | 33,620 | 25,690 | 19,830 | 18,710 | 22,820 | 27,680 | 34,410 | 43,330 | 39,870 |
| 51-9122 | Painters, transportation equipment | 45,920 | 43,270 | 44,090 | 45,670 | 47,390 | 49,810 | 52,650 | 52,170 | 51,260 | 50,310 | 46,810 |
| 51-9197 | Tire builders | 16,680 | 15,790 | 13,410 | 13,020 | 16,400 | 17,960 | 19,860 | 23,210 | 20,530 | 21,740 | 17,820 |
| 53-6031 | Service station attendants | 109,050 | 106,010 | 107,650 | 102,550 | 96,450 | 90,640 | 96,340 | 94,780 | 93,140 | 84,480 | 79,480 |
| 53-7061 | Cleaners of vehicles and equipment | 302,380 | 301,330 | 304,500 | 311,070 | 321,630 | 330,520 | 333,350 | 334,560 | 336,210 | 330,850 | 298,500 |

**Table 3-24: Employment in Transportation and Transportation-Related Occupations**

| SOC code | Occupation | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Transportation Infrastructure construction and maintenance occupations | | | | | | | | | | | | |
| 47-2071 | Paving, surfacing, and tamping equipment operators | 58,410 | 56,330 | 57,880 | 58,760 | 60,210 | 61,860 | 63,220 | 63,090 | 63,850 | 61,230 | 54,850 |
| 47-4051 | Highway maintenance workers | 139,540 | 145,790 | 148,390 | 146,290 | 139,810 | 136,550 | 140,600 | 138,670 | 137,140 | 136,420 | 139,490 |
| 47-4061 | Rail-track laying and maintenance equipment operators | 8,620 | 9,940 | 11,680 | 10,450 | 12,120 | 10,430 | 13,510 | 13,680 | 14,050 | 15,020 | 14,880 |
| 49-9097 | Signal and track switch repairers | 3,720 | 5,540 | 8,550 | 7,990 | 7,600 | 7,780 | 6,100 | 5,980 | 6,090 | 6,570 | 6,450 |
| 53-7031 | Dredge operators | 1,910 | 3,100 | 2,920 | 2,850 | 2,190 | 1,730 | 1,720 | 1,780 | 1,910 | 1,910 | 1,990 |
| Secondary Support Service Occupations | | | | | | | | | | | | |
| 13-1032 | Insurance appraisers, auto damage | 19,310 | 12,320 | 12,110 | 13,270 | 11,260 | 12,520 | 12,900 | 12,630 | 12,150 | 11,280 | 10,960 |
| 33-3041 | Parking enforcement workers | 7,660 | 8,040 | 9,160 | 10,180 | 9,690 | 9,990 | 10,140 | 10,090 | 9,910 | 9,530 | 9,670 |
| 33-3052 | Transit and railroad police | 4,590 | 5,760 | 6,750 | 6,010 | 4,790 | 4,610 | 5,090 | 5,320 | 5,530 | 3,830 | 3,930 |
| 33-9091 | Crossing guards | 68,310 | 72,830 | 69,990 | 73,020 | 68,910 | 70,180 | 69,390 | 67,750 | 67,570 | 68,530 | 68,470 |
| 39-6022 | Travel guides | 4,180 | 5,200 | 5,480 | 4,960 | 5,240 | 4,140 | 3,120 | 3,220 | 3,520 | 4,510 | 4,270 |
| 39-6031 | Flight attendants | 123,310 | 126,380 | 115,750 | 104,360 | 99,910 | 101,980 | 99,590 | 96,760 | 97,010 | 99,480 | 95,810 |
| 39-6032 | Transportation attendants, except flight attendants and baggage porters | 22,780 | 23,550 | 25,910 | 26,580 | 28,440 | 27,730 | 24,810 | 20,790 | 20,690 | 21,870 | 22,450 |
| 41-3041 | Travel agents | 111,130 | 124,030 | 111,310 | 104,550 | 98,410 | 90,500 | 88,590 | 87,600 | 85,580 | 86,420 | 76,990 |
| 43-4181 | Reservation and transportation ticket agents and travel clerks | 222,340 | 199,700 | 183,280 | 174,170 | 156,140 | 159,910 | 160,120 | 157,650 | 167,390 | 163,880 | 142,500 |
| 43-5021 | Couriers and messengers | 134,370 | 130,210 | 121,670 | 120,900 | 117,460 | 111,700 | 106,520 | 105,070 | 100,820 | 96,110 | 93,460 |
| 43-5032 | Dispatchers, except police, fire, and ambulance | 171,560 | 167,180 | 170,050 | 168,380 | 161,570 | 165,910 | 172,550 | 185,410 | 190,190 | 193,210 | 185,100 |
| 43-5052 | Postal service mail carriers | 352,550 | 354,980 | 355,120 | 347,420 | 344,090 | 344,050 | 347,180 | 346,990 | 348,070 | 354,570 | 339,030 |
| 43-5071 | Shipping, receiving, and traffic clerks | 886,230 | 864,530 | 802,600 | 792,470 | 757,750 | 747,270 | 759,910 | 763,350 | 755,790 | 760,950 | 715,130 |
| 53-6021 | Parking lot attendants | 109,340 | 116,930 | 109,930 | 108,460 | 109,890 | 120,080 | 124,250 | 131,870 | 131,860 | 136,470 | 129,990 |
| 53-6041 | Traffic technicians | 5,000 | 4,590 | 5,090 | 5,370 | 5,980 | 6,240 | 6,990 | 6,560 | 6,550 | 7,030 | 6,570 |
| 53-6051 | Transportation inspectors | 22,440 | 26,520 | 27,670 | 28,340 | 23,860 | 24,140 | 25,570 | 23,790 | 24,130 | 24,940 | 24,250 |
| 53-7081 | Refuse and recyclable material collectors | 135,320 | 118,910 | 125,600 | 132,290 | 137,510 | 139,920 | 133,930 | 125,770 | 126,270 | 129,080 | 128,940 |
| 53-7121 | Tank car, truck, and ship loaders | 20,830 | 17,480 | 19,430 | 16,960 | 15,910 | 16,530 | 15,950 | 15,360 | 14,870 | 12,330 | 11,560 |
| Other | | | | | | | | | | | | |
| 11-3071 | Transportation, storage, and distribution managers | 123,450 | 116,680 | 108,590 | 107,400 | 90,940 | 88,100 | 84,870 | 89,010 | 92,790 | 96,300 | 92,380 |
| 53-1011 | Aircraft cargo handling supervisors | 8,090 | 9,960 | 9,070 | 8,920 | 8,580 | 7,460 | 6,210 | 5,620 | 4,690 | 4,950 | 5,370 |
| 53-1021 | First-line supervisors/managers of helpers, laborers, and material movers, hand | 138,210 | 146,790 | 147,490 | 147,180 | 159,780 | 169,860 | 176,030 | 178,820 | 184,400 | 186,230 | 174,540 |
| 53-1031 | First-line supervisors/managers of transportation and material-moving machine and vehicle operators | 175,260 | 186,710 | 197,430 | 207,280 | 211,960 | 222,590 | 221,520 | 220,570 | 223,710 | 218,480 | 205,780 |

**KEY:** U = data are unavailable; SOC = Standard Occupational Classification.

**NOTES**

Occupational Employment Statistics (OES) uses a mail survey to measure employment levels and wage rates for all full- and part-time wage and salary workers in nonfarm establishments. The survey does not include self-employed owners and partners in unincorporated firms, household workers, or unpaid family workers. In 1999, OES began using the Standard Occupational Classification (SOC) system to organize occupational data. Consequently, estimates from 1999 and subsequent years are not directly comparable to previous occupational estimates. The SOC is being adopted by all federal agencies and consists of 821 detailed occupations, grouped into 449 board occupations, 96 minor groups, and 23 major groups.

A broad definition of transportation and transportation-related occupations is used in this table based on Sen, B. and M. Rossetti, "A Complete Count of the U.S. Transportation Workforce," *Transportation Research Record 1719* : 2000, pp 259-266. Some occupational categories may include workers not engaged in transportation or transportation-related activities. For example, the category "first-line supervisors/managers" (53-1021 and 53-1031) may include workers in material moving occupations along with transportation occupations. Moreover, some workers engaged in transportation and transportation-related activities may be excluded. For example, "baggage porters and bellhops" is not included in this table because it is believed that a large share of workers in this category work in hotels or similar establishments.

**SOURCE**

U.S. Department of Labor, Bureau of Labor Statistics, Occupational Employment Statistics, *Occupational Employment and Wages* (Washington, DC: Annual Issues), available at http://www.bls.gov/oes/current/oes_nat.htm as of June 30, 2010.

**Table 3-25: Average Wage[a] and Salary Accruals per Full-Time Equivalent Employee by Transportation Industry (North American Industry Classification System [NAICS] basis) (Current $)**

| | (R) 1998 | (R) 1999 | (R) 2000 | (R) 2001 | (R) 2002 | (R) 2003 | (R) 2004 | (R) 2005 | (R) 2006 | (R) 2007 | 2008 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| All industries | 35,504 | 37,108 | 39,243 | 40,201 | 40,957 | 42,450 | 44,152 | 45,729 | 47,780 | 49,844 | 51,187 |
| Transportation and warehousing | 36,021 | 37,447 | 39,057 | 39,913 | 40,641 | 41,490 | 43,210 | 43,865 | 45,454 | 47,260 | 47,736 |
| Air | 49,115 | 50,812 | 53,107 | 56,052 | 58,035 | 57,469 | 58,887 | 56,707 | 59,282 | 63,398 | 62,364 |
| Rail | 59,786 | 61,306 | 63,353 | 63,708 | 64,491 | 67,273 | 71,119 | 72,235 | 74,578 | 77,580 | 77,891 |
| Water | 51,190 | 53,493 | 54,727 | 56,149 | 56,714 | 57,897 | 61,470 | 62,852 | 66,463 | 72,714 | 75,280 |
| Truck | 33,687 | 34,865 | 36,029 | 36,500 | 37,312 | 38,284 | 40,090 | 41,476 | 43,058 | 44,156 | 44,884 |
| Transit and ground passenger transportation | 21,838 | 22,801 | 23,824 | 24,344 | 24,771 | 25,373 | 26,212 | 26,820 | 28,599 | 29,411 | 30,152 |
| Pipeline | 64,143 | 71,872 | 96,520 | 100,398 | 81,969 | 83,849 | 89,175 | 88,856 | 97,780 | 105,893 | 104,557 |
| Other transportation and support activities[b] | 32,607 | 34,460 | 35,765 | 36,133 | 37,629 | 39,109 | 41,433 | 42,509 | 44,134 | 45,798 | 46,529 |
| Warehousing and storage | 31,290 | 32,301 | 33,613 | 34,171 | 35,178 | 36,614 | 37,947 | 38,863 | 39,398 | 41,032 | 41,599 |

**KEY:** R = revised.

[a] Wages do not include supplements to wages and salaries such as pension, profit-sharing, and other retirement plans, and health, life, and unemployment insurance compensation.
[b] Comprises business establishments involved in scenic and sightseeing transportation, support activities for transportation, postal service, and couriers and messengers.

**NOTES**

Data in this table are based on the 2002 NAICS codes. The Bureau of Economic Analysis (BEA) provides these data on a Standard Industrial Classification (SIC) basis ending in 2000 and on a NAICS basis beginning in 1998 (see table 3-21a of 2010 edition of NTS for data based on SIC). This table is not comparable to previous editions due to the Comprehensive Benchmark revision by the BEA in 2007.

Use care in comparing the data in this table with those in table 3-26. This table includes weighted part-time employees' salaries. Table 3-26 covers only full-time employees.

Wage and salary accruals consist of the monetary remuneration of employees, including compensation of corporate officers; commissions, tips and bonuses; voluntary employee contributions to certain deferred compensation plans, such as 401(k) plans; and receipts in kind that represent income. In other words, accruals are wage and salary earned, not wage and salary paid. For example, wage and salary earned in 1999 but not paid until 2000 are included in accruals for 1999. However, the difference between wage and salary earned and wage and salary paid is usually very small.

**SOURCE**

U.S. Department of Commerce, Bureau of Economic Analysis, *National Income and Product Accounts Tables* , table 6.6d, available at http://www.bea.gov/ as of Apr. 20, 2010.

**Table 3-26: Median Weekly Earnings of Full-Time Wage and Salary Workers in Transportation by Detailed Occupation (1998 Standard Occupational Classification [SOC] basis) (Current $)**

| | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL, all occupations[a] | 576 | 596 | 608 | 620 | 638 | 651 | 671 | 695 | 722 | 739 |
| Transportation and material moving occupations | 481 | 504 | 514 | 520 | 520 | 543 | 556 | 570 | 593 | 599 |
| Supervisors, transportation and material moving workers | 671 | 648 | 709 | 705 | 655 | 734 | 767 | 811 | 761 | 786 |
| Aircraft pilots and flight engineers | 1,193 | 1,040 | 1,233 | 1,350 | 1,418 | 1,366 | 1,407 | 1,358 | 1,390 | 1,650 |
| Air traffic controllers and airfield operations specialists | 1,090 | 1,123 | 1,041 | 1,583 | 1,239 | 1,444 | 1,259 | 1,225 | 1,116 | 1,056 |
| Ambulance drivers and attendants, except emergency medical technicians | 580 | 521 | 456 | 322 | 399 | 939 | 452 | 693 | 432 | 663 |
| Bus drivers | 462 | 467 | 499 | 501 | 500 | 517 | 519 | 507 | 561 | 563 |
| Driver/sales workers and truck drivers | 551 | 585 | 599 | 603 | 610 | 624 | 642 | 665 | 702 | 685 |
| Taxi drivers and chauffeurs | 451 | 484 | 488 | 481 | 486 | 483 | 538 | 501 | 503 | 514 |
| Motor vehicle operators, all other | 509 | 508 | 409 | 353 | 380 | 394 | 417 | 484 | 511 | 511 |
| Locomotive engineers and operators | 870 | 953 | 963 | 925 | 1,056 | 998 | 1,129 | 1,157 | 1,223 | 1,122 |
| Railroad brake, signal, and switch operators | 689 | 753 | 792 | 880 | 820 | 698 | 999 | 706 | 1,027 | 960 |
| Railroad conductors and yardmasters | 817 | 927 | 818 | 884 | 881 | 1,017 | 904 | 912 | 1,067 | 1,027 |
| Subway, streetcar, and other rail transportation workers | 754 | 727 | 579 | 515 | 686 | 497 | 696 | 973 | 700 | 1,003 |
| Sailors and marine oilers | 508 | 697 | 701 | 616 | 424 | 628 | 812 | 549 | 666 | 980 |
| Ship and boat captains and operators | 779 | 848 | 899 | 944 | 848 | 798 | 829 | 1,158 | 1,154 | 1,491 |
| Ship engineers | 712 | 1,190 | 1,181 | 1,154 | 980 | 1,288 | 452 | 997 | 1,158 | 1,583 |
| Bridge and lock tenders | 935 | 560 | 667 | 726 | 599 | 637 | 627 | 892 | 512 | 918 |
| Parking lot attendants | 316 | 329 | 341 | 350 | 378 | 360 | 397 | 410 | 436 | 421 |
| Service station attendants | 314 | 335 | 362 | 369 | 319 | 323 | 364 | 404 | 373 | 398 |
| Transportation inspectors | 731 | 696 | 747 | 847 | 810 | 893 | 771 | 839 | 910 | 962 |
| Other transportation workers | 483 | 491 | 645 | 652 | 606 | 735 | 749 | 600 | 631 | 602 |
| Conveyor operators and tenders | 465 | 488 | 350 | 363 | 521 | 501 | 847 | 563 | 549 | 538 |
| Crane and tower operators | 675 | 688 | 694 | 589 | 732 | 727 | 790 | 715 | 925 | 778 |
| Dredge, excavating, and loading machine operators | 572 | 617 | 602 | 653 | 607 | 616 | 623 | 726 | 708 | 827 |
| Hoist and winch operators | 733 | 610 | 604 | 789 | 709 | 516 | 625 | 446 | 406 | 962 |
| Industrial truck and tractor operators | 448 | 477 | 499 | 488 | 486 | 499 | 513 | 519 | 534 | 531 |
| Cleaners of vehicles and equipment | 361 | 363 | 354 | 373 | 384 | 385 | 379 | 405 | 428 | 421 |
| Laborers and freight, stock, and material movers, hand | 401 | 426 | 420 | 464 | 443 | 456 | 474 | 474 | 501 | 502 |
| Machine feeders and offbearers | 412 | 403 | 433 | 437 | 422 | 449 | 451 | 511 | 439 | 532 |
| Packers and packagers, hand | 313 | 332 | 338 | 348 | 349 | 372 | 391 | 374 | 388 | 408 |
| Pumping station operators | 730 | 622 | 786 | 801 | 747 | 910 | 888 | 942 | 919 | 835 |
| Refuse and recyclable material collectors | 435 | 505 | 430 | 456 | 508 | 491 | 393 | 517 | 475 | 463 |
| Shuttle car operators | 992 | 696 | 1,030 | 741 | 736 | 772 | 436 | 364 | 643 | 610 |
| Tank car, truck, and ship loaders | 420 | 703 | 506 | 589 | 504 | 462 | 407 | 607 | 683 | 1,032 |
| Material moving workers, all other | 491 | 463 | 516 | 515 | 591 | 598 | 553 | 665 | 517 | 643 |

[a] Earnings for all full-time workers, not just transportation related.

**NOTES**

The 1998 Standard Occupational Classification (SOC) System was developed by the Federal Government in response to a growing need for a universal occupational classification system. The SOC is being adopted by all Federal agencies and consists of 821 detailed occupations, grouped into 449 broad occupations, 96 minor groups, and 23 major groups.

This table does not include part-time employees, while table 3-25 includes salaries of part-time employees.

**SOURCE**

U.S. Department of Commerce, Bureau of the Census,*Current Population Survey* , table A-26, personal communications, Oct. 4, 2004, Nov. 20, 2005, Oct. 27, 2006, Dec. 20, 2007, Mar. 4, 2009 and June 8, 2010.

**Table 3-27: Total Wage[a] and Salary Accruals by Transportation Industry (North American Industry Classification System [NAICS] basis) (Current $ millions)**

| | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| All industries | 4,180,916 | 4,465,176 | 4,827,698 | 4,952,202 | 4,997,306 | 5,154,598 | 5,410,691 | 5,705,982 | 6,070,143 | 6,415,473 | 6,554,044 | 6,279,120 |
| Transportation and warehousing, total | 145,915 | 154,753 | 164,611 | 167,412 | 165,098 | 166,849 | 176,601 | 183,949 | 194,415 | 205,811 | 208,896 | 194,162 |
| Air | 26,030 | 28,047 | 30,513 | 32,831 | 31,064 | 28,911 | 28,805 | 27,111 | 27,274 | 29,725 | 29,321 | 27,148 |
| Rail | 12,687 | 12,706 | 12,524 | 12,215 | 11,971 | 12,265 | 12,955 | 13,720 | 14,416 | 14,909 | 15,934 | 14,355 |
| Water | 2,526 | 2,617 | 2,666 | 2,828 | 2,896 | 2,974 | 3,257 | 3,619 | 3,942 | 4,420 | 4,714 | 4,612 |
| Truck | 44,328 | 46,895 | 49,337 | 49,364 | 48,870 | 49,701 | 53,250 | 56,744 | 60,267 | 62,377 | 61,772 | 54,932 |
| Transit and ground passenger transportation | 7,997 | 8,588 | 8,876 | 8,985 | 9,210 | 9,454 | 9,925 | 10,381 | 11,281 | 12,078 | 12,861 | 12,871 |
| Pipeline | 3,090 | 3,227 | 4,239 | 4,232 | 3,274 | 3,186 | 3,172 | 3,185 | 3,593 | 4,071 | 4,087 | 4,195 |
| Other transportation and support activities[b] | 35,001 | 37,569 | 40,085 | 40,215 | 40,266 | 41,682 | 44,591 | 46,853 | 49,754 | 52,381 | 53,536 | 50,153 |
| Warehousing and storage | 14,256 | 15,104 | 16,370 | 16,742 | 17,545 | 18,676 | 20,646 | 22,336 | 23,888 | 25,850 | 26,670 | 25,895 |

[a] Wages do not include supplements to wages and salaries such as pension, profit-sharing, and other retirement plans, and health, life, and unemployment insurance compensation.
[b] Comprises business establishments involved in scenic and sightseeing transportation, support activities for transportation, postal service, and couriers and messengers.

**NOTES**

Data in this table are based on the 2002 NAICS codes. This table is not comparable to previously published editions due to the change in NAICS codes base year.

**SOURCE**

U.S. Department of Commerce, Bureau of Economic Analysis, *National Income and Product Accounts Tables*, table 6.3d, available at http://www.bea.gov/ as of Sept. 8, 2010.

**Table 3-28: Labor Productivity Indices for Selected Transportation Industries (North American Industry Classification System [NAICS] basis) (Index, 2002 = 100)**

| | (R) 1987 | (R) 1988 | (R) 1989 | (R) 1990 | (R) 1991 | (R) 1992 | (R) 1993 | (R) 1994 | (R) 1995 | (R) 1996 | (R) 1997 | (R) 1998 | (R) 1999 | (R) 2000 | (R) 2001 | (R) 2002 | (R) 2003 | (R) 2004 | (R) 2005 | (R) 2006 | (R) 2007 | 2008 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Output per hour[a] worked | | | | | | | | | | | | | | | | | | | | | | |
| Air transportation[b] | 77 | 77 | 75 | 73 | 76 | 80 | 83 | 91 | 92 | 95 | 98 | 95 | 94 | 96 | 91 | 100 | 110 | 124 | 134 | 140 | 142 | 140 |
| Line-haul railroads | 45 | 48 | 51 | 53 | 57 | 62 | 65 | 67 | 70 | 75 | 76 | 77 | 80 | 87 | 92 | 100 | 105 | 107 | 103 | 109 | 104 | 103 |
| General freight trucking, long-distance | 80 | 81 | 80 | 83 | 87 | 91 | 90 | 92 | 90 | 89 | 93 | 93 | 93 | 95 | 96 | 100 | 103 | 102 | 104 | 103 | 104 | 104 |
| Postal Service | 85 | 85 | 85 | 89 | 88 | 89 | 92 | 92 | 92 | 91 | 94 | 95 | 97 | 99 | 100 | 100 | 101 | 103 | 104 | 105 | 105 | 104 |
| Output per employee[c] | | | | | | | | | | | | | | | | | | | | | | |
| Air transportation[b] | 77 | 77 | 75 | 73 | 76 | 80 | 83 | 91 | 92 | 95 | 98 | 95 | 94 | 96 | 91 | 100 | 110 | 124 | 134 | 140 | 142 | 140 |
| Line-haul railroads | 48 | 52 | 54 | 57 | 59 | 64 | 68 | 73 | 77 | 82 | 84 | 83 | 86 | 93 | 95 | 100 | 105 | 108 | 109 | 114 | 109 | 109 |
| General freight trucking, long-distance | 77 | 78 | 77 | 80 | 83 | 88 | 88 | 91 | 88 | 89 | 93 | 92 | 93 | 96 | 95 | 100 | 103 | 105 | 106 | 105 | 105 | 107 |
| Postal Service | 82 | 82 | 82 | 87 | 88 | 90 | 93 | 93 | 92 | 91 | 95 | 96 | 97 | 101 | 100 | 100 | 102 | 106 | 108 | 108 | 108 | 106 |

**KEY**: R = revised.

[a] Based on the number of paid hours.

[b] The average weekly hours were assumed to be constant for *Air transportation* industries; therefore, the *Output per hour worked* and the *Output per employee* measures are identical.

[c] Full-time and part-time employees are counted equally. Hence, these data do not reflect output per full-time equivalent employee.

**NOTES**

Bureau of Labor Statistics developed labor productivity indexes for all manufacturing and retail trade of the North American Industry Classification System (NAICS) industries as well as selected mining, transportation, communications and services industries.

Data in this table are not comparable to the data published in previous editions of the report due to change in base year of the index from 1997 to 2002.

**SOURCE**

U.S. Department of Labor, Bureau of Labor Statistics, *Industry Productivity and Costs* , available at http://www.bls.gov/data/ as of June 29, 2010 .

# Section D
# Government Finance

## Table 3-29: Federal, State, and Local Government Transportation-Related Revenues and Expenditures, Fiscal Year (Current $ millions)

| | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total government revenues | 94,548 | 97,591 | 101,257 | 112,733 | 129,743 | 128,073 | 125,480 | 131,412 | 132,774 | 136,328 | 146,856 | (R) 155,303 | 157,276 |
| Federal | 30,478 | 31,188 | 31,960 | 39,442 | 52,567 | 47,147 | 43,197 | 45,914 | 46,434 | 46,284 | 51,284 | 52,244 | 54,020 |
| State and local | 64,070 | 66,403 | 69,297 | 73,291 | 77,176 | 80,926 | 82,284 | 85,497 | 86,340 | 90,044 | (R) 95,572 | (R) 103,059 | 103,256 |
| Total government expenditures | 143,256 | 149,133 | 155,954 | 163,544 | 182,318 | 186,374 | 211,180 | 223,808 | 238,092 | 237,636 | 243,086 | (R) 257,226 | 221,707 |
| State and local expenditures including federal grants | 123,369 | 129,158 | 135,988 | 142,364 | 161,352 | 165,290 | 180,864 | 188,012 | 195,423 | 198,377 | 208,045 | (R) 221,391 | 185,063 |
| Federal grants | 24,793 | 24,760 | 25,913 | 25,014 | 27,824 | 35,277 | 38,668 | 42,593 | 42,547 | 42,779 | 50,032 | 45,334 | 46,719 |
| Federal expenditures, less grants | 19,886 | 19,976 | 19,965 | 21,180 | 20,966 | 21,084 | 30,316 | 35,796 | 42,669 | 39,260 | 35,041 | 35,836 | 36,644 |

**KEY:** R = revised.

**NOTES**

Numbers may not add to totals due to rounding.

Total government expenditure is the sum of state and local expenditure including federal grants and federal expenditures, less grants.

Local government receipts and outlays for highway are not included in 2007.

Government transportation revenues consist of money collected by governments from transportation user charges and taxes to finance transportation programs. The following types of receipts are excluded: 1) revenues collected from users of the transportation system that are directed to the general fund and used for nontransportation purposes, 2) nontransportation general fund revenues that are used to finance transportation programs and 3) proceeds from borrowing.

**SOURCE**

U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *Government Transportation Financial Statistics 2009*.

**Table 3-30: Federal, State, and Local Government Transportation-Related Revenues and Expenditures, Fiscal Year (Chained 2005 $ millions)**

| | (R) 1995 | (R) 1996 | (R) 1997 | (R) 1998 | (R) 1999 | (R) 2000 | (R) 2001 | (R) 2002 | (R) 2003 | (R) 2004 | (R) 2005 | (R) 2006 | 2007 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total government revenues | 129,957 | 131,016 | 133,489 | 146,637 | 163,534 | 155,216 | 148,035 | 151,043 | 146,469 | 144,215 | 146,856 | 148,130 | 143,563 |
| Federal | 41,892 | 41,870 | 42,133 | 51,304 | 66,258 | 57,139 | 50,961 | 52,773 | 51,223 | 48,962 | 51,284 | 49,831 | 49,310 |
| State and local | 88,065 | 89,146 | 91,356 | 95,333 | 97,277 | 98,076 | 97,074 | 98,269 | 95,246 | 95,253 | 95,572 | 98,299 | 94,253 |
| Total government expenditures | 196,907 | 200,211 | 205,597 | 212,728 | 229,802 | 225,873 | 249,139 | 257,241 | 262,650 | 251,384 | 243,086 | 245,347 | 202,387 |
| State and local expenditures including federal grants | 169,573 | 173,394 | 179,276 | 185,179 | 203,375 | 200,320 | 213,373 | 216,098 | 215,580 | 209,853 | 208,045 | 211,166 | 168,938 |
| Federal grants | 34,079 | 33,240 | 34,162 | 32,536 | 35,071 | 42,753 | 45,619 | 48,956 | 46,935 | 45,254 | 50,032 | 43,241 | 42,646 |
| Federal expenditures, less grants | 27,334 | 26,817 | 26,321 | 27,550 | 26,427 | 25,552 | 35,765 | 41,144 | 47,070 | 41,531 | 35,041 | 34,181 | 33,449 |

**KEY**: R = revised.

**NOTES**

Total government expenditures are the sum of state and local expenditures including federal grants and federal expenditures less grants.

To eliminate the effects of inflation over time, the Bureau of Transportation Statistics converted current dollars to chained 2005 dollars.

BTS used the Price Index for Government Consumption Expenditures and Gross Investment as the price deflator. Previous editions of this table used chained 2000 dollars, so this table is not comparable to previous editions.

Local government receipts and outlays for highway are not included in 2007.

Government transportation revenues consist of money collected by governments from transportation user charges and taxes to finance transportation programs. The following types of receipts are excluded: 1) revenues collected from users of the transportation system that are directed to the general fund and used for nontransportation purposes, 2) nontransportation general fund revenues that are used to finance transportation programs and 3) proceeds from borrowing.

**SOURCE**

U. S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics *Government Transportation Financial Statistics 2009.*

**Table 3-31: Summary of Transportation Revenues and Expenditures from Own Funds and User Coverage, Fiscal Year (Current and chained 2005 $ millions)**

| | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Federal revenues | | | | | | | | | | | | | |
| Current | 30,478 | 31,188 | 31,960 | 39,442 | 52,567 | 47,147 | 43,197 | 45,914 | 46,434 | 46,284 | 51,284 | 52,244 | 54,020 |
| Chained | (R) 41,892 | (R) 41,870 | (R) 42,133 | (R) 51,304 | (R) 66,258 | (R) 57,139 | (R) 50,961 | (R) 52,773 | (R) 51,223 | (R) 48,962 | (R) 51,284 | (R) 49,831 | 49,310 |
| Federal expenditures | | | | | | | | | | | | | |
| Current | 44,679 | 44,736 | 45,878 | 46,193 | 48,790 | 56,361 | 68,984 | 78,390 | 85,216 | 82,038 | 85,072 | 81,170 | 83,363 |
| Chained | (R) 61,413 | (R) 60,058 | (R) 60,483 | (R) 60,086 | (R) 61,497 | (R) 68,306 | (R) 81,384 | (R) 90,100 | (R) 94,006 | (R) 86,785 | (R) 85,072 | (R) 77,421 | 76,095 |
| Federal user coverage (percent) | 68 | 70 | 70 | 85 | 108 | 84 | 63 | 59 | 54 | 56 | 60 | 64 | 65 |
| State and local revenues | | | | | | | | | | | | | |
| Current | 64,070 | 66,403 | 69,297 | 73,291 | 77,176 | 80,926 | 82,284 | 85,497 | 86,340 | 90,044 | 95,572 | (R) 103,059 | 103,256 |
| Chained | (R) 88,065 | (R) 89,146 | (R) 91,356 | (R) 95,333 | (R) 97,277 | (R) 98,076 | (R) 97,074 | (R) 98,269 | (R) 95,246 | (R) 95,253 | (R) 95,572 | (R) 98,299 | 94,253 |
| State and local expenditures | | | | | | | | | | | | | |
| Current | 103,663 | 108,735 | 115,095 | 120,890 | 137,298 | 139,101 | 150,706 | 152,839 | 158,841 | 161,292 | 168,699 | (R) 180,303 | 144,720 |
| Chained | (R) 142,486 | (R) 145,976 | (R) 151,732 | (R) 157,247 | (R) 173,057 | (R) 168,580 | (R) 177,795 | (R) 175,671 | (R) 175,225 | (R) 170,623 | (R) 168,699 | (R) 171,976 | 132,102 |
| State and local user coverage (percent) | 62 | 61 | 60 | 61 | 56 | 58 | 55 | 56 | 54 | 56 | 57 | (R) 57 | 71 |

**KEY:** R = Revised.

**NOTES**

Sate and local expenditure includes outlays from all sources of funds excluding federal grants.
Federal expenditure includes direct federal spending and grants to state and local governments.
Local government receipts from highway are not included in 2007.

Government transportation revenues consist of money collected by governments from transportation user charges and taxes to finance transportation programs. The following types of receipts are excluded: 1) revenues collected from users of the transportation system that are directed to the general fund and used for nontransportation purposes, 2) nontransportation general fund revenues that are used to finance transportation programs and 3) proceeds from borrowing.

The big jump of federal user coverage (percent) in 1999 is due to the fact that Taxpayer Relief Act of 1997 allowed taxpayers to delay depositing highway motor fuel tax receipts that would have been required to be made in August and September of 1998 until October 5, 1998. October 5, 1998 is in fiscal year 1999.

User coverage ratio is a measure of the extent to which federal outlays on transportation programs are covered by receipt from transportation- related taxes and charges that are earmarked for transportation programs.

**SOURCE**

U. S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *Government Transportation Financial Statistics 2009*.

**Table 3-32: Transportation Revenues by Mode and Level of Government, Fiscal Year (Current $ millions)**

| | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL, all modes | 94,548 | 97,591 | 101,257 | 112,733 | 129,743 | 128,073 | 125,480 | 131,412 | 132,774 | 136,328 | 146,856 | (R) 155,303 | 157,276 |
| Federal | 30,478 | 31,188 | 31,960 | 39,442 | 52,567 | 47,147 | 43,197 | 45,914 | 46,434 | 46,284 | 51,284 | 52,244 | 54,020 |
| State and local | 64,070 | 66,403 | 69,297 | 73,291 | 77,176 | 80,926 | 82,284 | 85,497 | 86,340 | 90,044 | 95,572 | (R) 103,059 | 103,256 |
| Highway, total | 67,544 | 72,729 | 74,116 | 79,921 | 92,577 | 90,980 | 86,994 | 91,412 | 92,310 | 96,189 | 103,564 | (R) 107,491 | 108,141 |
| Federal | 22,200 | 25,981 | 25,316 | 28,638 | 39,308 | 34,985 | 31,486 | 33,297 | 34,421 | 35,107 | 38,747 | 39,191 | 40,077 |
| State and local | 45,344 | 46,748 | 48,801 | 51,283 | 53,269 | 55,995 | 55,509 | 58,114 | 57,889 | 61,082 | 64,817 | (R) 68,300 | 68,063 |
| Air, total | 14,518 | 11,899 | 13,879 | 19,034 | 22,054 | 22,298 | 23,248 | 24,532 | 24,212 | 23,130 | 25,645 | (R) 27,080 | 29,447 |
| Federal | 6,291 | 3,128 | 4,488 | 8,682 | 11,089 | 10,544 | 10,103 | 11,282 | 10,597 | 9,652 | 10,797 | 11,137 | 11,994 |
| State and local | 8,227 | 8,771 | 9,391 | 10,352 | 10,965 | 11,754 | 13,145 | 13,250 | 13,615 | 13,478 | 14,848 | (R) 15,943 | 17,453 |
| Railroads, Total | 36 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Federal | 36 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Transit, total | 8,575 | 8,753 | 9,006 | 9,417 | 10,587 | 10,670 | 10,922 | 11,448 | 11,906 | 12,377 | 12,512 | 15,117 | 13,874 |
| State and local | 8,575 | 8,753 | 9,006 | 9,417 | 10,587 | 10,670 | 10,922 | 11,448 | 11,906 | 12,377 | 12,512 | 15,117 | 13,874 |
| Water, total | 3,832 | 4,168 | 4,216 | 4,323 | 4,486 | 4,058 | 4,250 | 3,937 | 4,279 | 4,569 | 5,070 | 5,536 | 5,739 |
| Federal | 1,909 | 2,037 | 2,117 | 2,084 | 2,131 | 1,551 | 1,543 | 1,252 | 1,349 | 1,462 | 1,676 | 1,837 | 1,873 |
| State and local | 1,923 | 2,131 | 2,099 | 2,239 | 2,355 | 2,507 | 2,707 | 2,685 | 2,930 | 3,107 | 3,394 | 3,699 | 3,866 |
| Pipeline, total | 35 | 31 | 30 | 29 | 30 | 40 | 44 | 57 | 57 | 55 | 56 | 58 | 60 |
| Federal | 35 | 31 | 30 | 29 | 30 | 40 | 44 | 57 | 57 | 55 | 56 | 58 | 60 |
| General support, total | 7 | 9 | 9 | 9 | 9 | 26 | 21 | 26 | 10 | 8 | 8 | 21 | 16 |
| Federal | 7 | 9 | 9 | 9 | 9 | 26 | 21 | 26 | 10 | 8 | 8 | 21 | 16 |

**KEY:** R = Revised.

**NOTES**

Numbers may not add to total due to independent rounding.

Local government receipts from highway are not included in 2007.

Government transportation revenues consist of money collected by governments from transportation user charges and taxes to finance transportation programs. The following types of receipts are excluded: 1) revenues collected from users of the transportation system that are directed to the general fund and used for non-transportation purposes, 2) non-transportation general fund revenues that are used to finance transportation programs and 3) proceeds from borrowing.

**SOURCE**

U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *Government Transportation Financial Statistics 2009*.

## Table 3-33: Transportation Revenues by Mode and Level of Government, Fiscal Year (Chained 2005 $ millions)

| | (R) 1995 | (R) 1996 | (R) 1997 | (R) 1998 | (R) 1999 | (R) 2000 | (R) 2001 | (R) 2002 | (R) 2003 | (R) 2004 | (R) 2005 | (R) 2006 | (R) 2007 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL, all modes | 129,957 | 131,016 | 133,489 | 146,637 | 163,534 | 155,216 | 148,035 | 151,043 | 146,469 | 144,215 | 146,856 | 148,130 | 143,563 |
| Federal | 41,892 | 41,870 | 42,133 | 51,304 | 66,258 | 57,139 | 50,961 | 52,773 | 51,223 | 48,962 | 51,284 | 49,831 | 49,310 |
| State and Local | 88,065 | 89,146 | 91,356 | 95,333 | 97,277 | 98,076 | 97,074 | 98,269 | 95,246 | 95,253 | 95,572 | 98,299 | 94,253 |
| Highway, total | 92,840 | 97,638 | 97,709 | 103,957 | 116,688 | 110,262 | 102,631 | 105,067 | 101,831 | 101,754 | 103,564 | 102,527 | 98,712 |
| Federal | 30,514 | 34,879 | 33,374 | 37,251 | 49,545 | 42,400 | 37,145 | 38,272 | 37,971 | 37,139 | 38,747 | 37,381 | 36,583 |
| State and Local | 62,326 | 62,759 | 64,335 | 66,706 | 67,142 | 67,862 | 65,486 | 66,796 | 63,860 | 64,616 | 64,817 | 65,145 | 62,129 |
| Air, total | 19,956 | 15,975 | 18,297 | 24,758 | 27,798 | 27,023 | 27,427 | 28,197 | 26,709 | 24,468 | 25,645 | 25,830 | 26,879 |
| Federal | 8,647 | 4,199 | 5,917 | 11,293 | 13,977 | 12,779 | 11,919 | 12,967 | 11,690 | 10,210 | 10,797 | 10,623 | 10,948 |
| State and Local | 11,309 | 11,776 | 12,381 | 13,465 | 13,821 | 14,245 | 15,508 | 15,229 | 15,019 | 14,257 | 14,848 | 15,207 | 15,931 |
| Railroads, total | 49 | 3 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Federal | 49 | 3 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Transit, total | 11,786 | 11,751 | 11,873 | 12,249 | 13,345 | 12,931 | 12,886 | 13,158 | 13,134 | 13,093 | 12,512 | 14,418 | 12,664 |
| State and Local | 11,786 | 11,751 | 11,873 | 12,249 | 13,345 | 12,931 | 12,886 | 13,158 | 13,134 | 13,093 | 12,512 | 14,418 | 12,664 |
| Water, total | 5,267 | 5,596 | 5,558 | 5,624 | 5,654 | 4,918 | 5,014 | 4,525 | 4,720 | 4,833 | 5,070 | 5,280 | 5,238 |
| Federal | 2,624 | 2,735 | 2,791 | 2,711 | 2,686 | 1,880 | 1,820 | 1,439 | 1,488 | 1,547 | 1,676 | 1,752 | 1,710 |
| State and Local | 2,644 | 2,861 | 2,767 | 2,913 | 2,968 | 3,038 | 3,194 | 3,086 | 3,232 | 3,287 | 3,394 | 3,528 | 3,529 |
| Pipeline, total | 48 | 42 | 40 | 38 | 38 | 48 | 52 | 66 | 63 | 58 | 56 | 55 | 55 |
| Federal | 48 | 42 | 40 | 38 | 38 | 48 | 52 | 66 | 63 | 58 | 56 | 55 | 55 |
| General support, total | 10 | 12 | 12 | 12 | 11 | 32 | 25 | 30 | 11 | 8 | 8 | 20 | 15 |
| Federal | 10 | 12 | 12 | 12 | 11 | 32 | 25 | 30 | 11 | 8 | 8 | 20 | 15 |

**KEY:** R = Revised.

**NOTES**

Numbers may not add to totals due to rounding.

While previous versions of this table use chained 2000 dollars, this table has been updated and uses chained 2005 dollars and thus is not comparable to previous editions of this table.

Local government receipts from highway are not included in 2007.

Government transportation revenues consist of money collected by governments from transportation user charges and taxes to finance transportation programs. The following types of receipts are excluded: 1) revenues collected from users of the transportation system that are directed to the general fund and used for non-transportation purposes, 2) non-transportation general fund revenues that are used to finance transportation programs and 3) proceeds from borrowing.

**SOURCE**

U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *Government Transportation Financial Statistics 2009* .

**Table 3-34: Cash Balances of the Transportation-Related Federal Trust Funds, Fiscal Year ($ millions)**

| | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL, all funds | | | | | | | | | | | | | | | | | | | | | |
| Current $ | 16,441 | 20,483 | 31,795 | 35,697 | 37,475 | 36,499 | 31,916 | 32,345 | 31,139 | 31,306 | 30,637 | 44,323 | 48,175 | 45,550 | (R) 38,153 | (R) 33,561 | (R) 29,741 | (R) 27,611 | (R) 29,529 | 30,222 | 32,125 |
| Chained 2005 $ | 39,456 | 37,259 | 50,146 | 54,411 | 55,703 | 52,936 | 45,067 | 44,459 | 41,804 | 41,271 | 39,851 | 55,867 | 58,385 | 53,737 | 43,853 | 37,023 | 31,462 | 27,611 | 28,165 | 27,587 | 28,056 |
| Airport / Airway Trust Fund | | | | | | | | | | | | | | | | | | | | | |
| Current $ | 5,442 | 7,426 | 14,355 | 15,263 | 15,204 | 12,850 | 12,386 | 11,365 | 7,692 | 6,358 | 9,411 | 12,446 | 13,934 | 14,485 | 12,642 | 12,397 | 11,669 | 11,290 | 10,336 | 10,103 | 9,705 |
| Chained 2005 $ | 13,060 | 13,508 | 22,640 | 23,265 | 22,599 | 18,637 | 17,490 | 15,621 | 10,326 | 8,382 | 12,241 | 15,688 | 16,887 | 17,089 | 14,531 | 13,676 | 12,344 | 11,290 | 9,859 | 9,222 | 8,476 |
| Highway Trust Fund, highway account | | | | | | | | | | | | | | | | | | | | | |
| Current $ | 10,999 | 10,361 | 9,629 | 10,246 | 11,300 | 11,523 | 7,927 | 9,421 | 11,658 | 12,575 | 8,519 | 19,206 | 22,553 | 20,372 | 16,136 | 12,991 | 10,791 | 10,594 | (R) 9,014 | 8,110 | 10,032 |
| Chained 2005 $ | 26,396 | 18,847 | 15,186 | 15,617 | 16,796 | 16,712 | 11,193 | 12,949 | 15,651 | 16,578 | 11,081 | 24,208 | 27,333 | 24,034 | 18,546 | 14,331 | 11,415 | 10,594 | 8,598 | 7,403 | 8,761 |
| Highway Trust Fund, transit account | | | | | | | | | | | | | | | | | | | | | |
| Current $ | N | 2,524 | 7,155 | 9,250 | 9,798 | 10,617 | 9,945 | 9,579 | 9,525 | 9,857 | 10,051 | 9,753 | 8,547 | 7,368 | 6,096 | 4,823 | 3,776 | 1,950 | (R) 6,223 | 7,306 | 6,787 |
| Chained 2005 $ | N | 4,591 | 11,285 | 14,099 | 14,564 | 15,398 | 14,043 | 13,166 | 12,787 | 12,995 | 13,074 | 12,293 | 10,358 | 8,692 | 7,007 | 5,320 | 3,994 | 1,950 | 5,936 | 6,669 | 5,927 |
| Harbor Maintenance Trust Fund | | | | | | | | | | | | | | | | | | | | | |
| Current $ | N | N | 30 | 74 | 121 | 305 | 451 | 621 | 865 | 1,106 | 1,246 | 1,556 | 1,621 | 1,777 | 1,850 | 2,001 | 2,299 | 2,695 | 3,234 | 3,751 | 4,559 |
| Chained 2005 $ | N | N | 47 | 113 | 180 | 442 | 637 | 854 | 1,161 | 1,458 | 1,621 | 1,961 | 1,965 | 2,096 | 2,126 | 2,207 | 2,432 | 2,695 | 3,085 | 3,424 | 3,982 |
| Inland Waterway Trust Fund | | | | | | | | | | | | | | | | | | | | | |
| Current $ | N | 172 | 281 | 217 | 186 | 180 | 214 | 238 | 275 | 300 | 327 | 345 | 364 | 404 | 392 | 383 | 350 | 323 | 237 | 138 | 29 |
| Chained 2005 $ | N | 313 | 443 | 331 | 276 | 261 | 302 | 327 | 369 | 395 | 425 | 435 | 441 | 477 | 451 | 423 | 370 | 323 | 226 | 126 | 25 |
| Oil Spill Liability Trust Fund | | | | | | | | | | | | | | | | | | | | | |
| Current $ | N | N | 345 | 647 | 866 | 1,024 | 993 | 1,121 | 1,124 | 1,110 | 1,083 | 1,017 | 1,156 | 1,144 | 1,037 | 966 | 856 | 759 | (R) 485 | 814 | 1,013 |
| Chained 2005 $ | N | N | 544 | 986 | 1,287 | 1,485 | 1,402 | 1,541 | 1,509 | 1,463 | 1,409 | 1,282 | 1,401 | 1,350 | 1,192 | 1,066 | 906 | 759 | 463 | 743 | 885 |

**KEY:** N = data do not exist; R = revised.

**NOTES**

Reported figures are cash balances at the end of the year for all trust funds.

The chained dollar numbers are not comparable to the data published in earlier editions of NTS due to changes in the reference (base) year of the deflators used.

**SOURCES**

1980-94: U.S. Department of Transportation, Bureau of Transportation Statistics, *Transportation Receipts and Outlays in the Federal Budget,* Fiscal Years 1977-94 (Washington, DC: April 1997), table 1-3.

1995-2008: U.S. Executive Office of the President, Office of Management and Budget, *Budget of the United States Government, Appendix* (Washington, DC: Annual issues), available at http://www.gpoaccess.gov/usbudget/browse.html as of Jan. 8, 2010.

**Chained dollar deflator:**

U.S. Department of Commerce, Bureau of Economic Analysis, *Interactive Access to National Income and Product Accounts Tables,* table 3.9.4, available at http://www.bea.gov/national/nipaweb as of Jan. 8, 2010.

**Table 3-35: Transportation Expenditures by Mode and Level of Government from Own Funds, Fiscal Year (Current $ millions)**

| | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL, all modes | 148,342 | 153,471 | 160,973 | 167,084 | 186,088 | 195,462 | 219,691 | 231,229 | 244,057 | (R) 243,330 | (R) 253,771 | (R) 261,473 | 228,083 |
| Federal | 44,679 | 44,736 | 45,878 | 46,193 | 48,790 | 56,361 | 68,984 | 78,390 | 85,216 | (R) 82,038 | (R) 85,072 | (R) 81,170 | 83,363 |
| State and local | 103,663 | 108,735 | 115,095 | 120,890 | 137,298 | 139,101 | 150,706 | 152,839 | 158,841 | 161,292 | 168,699 | (R) 180,303 | 144,720 |
| Highways, total | 93,558 | 97,798 | 102,762 | 106,708 | 116,484 | 125,531 | 132,930 | 138,921 | 142,565 | 145,271 | 152,122 | (R) 163,893 | 122,289 |
| Federal | 20141 | 20690 | 21400 | 20727 | 23528 | 27900 | 30124 | 32644 | 33,081 | 33,362 | 33,508 | 35,728 | 36,305 |
| State and local | 73417 | 77108 | 81362 | 85981 | 92956 | 97631 | 102806 | 106276 | 109,484 | 111,909 | 118,614 | (R) 128,165 | 85,984 |
| Air, total | 20,444 | 20,763 | 21,543 | 22,598 | 22,811 | 23,301 | 33,151 | 37,672 | 34,983 | (R) 39,708 | (R) 42,051 | (R) 43,087 | 45,074 |
| Federal | 12,633 | 12,576 | 11,988 | 12,704 | 10,954 | 10,863 | 19,240 | 23,535 | 19,700 | (R) 24,106 | (R) 26,427 | (R) 27,322 | 27,624 |
| State and local | 7,811 | 8,187 | 9,555 | 9,894 | 11,857 | 12,438 | 13,911 | 14,137 | 15,283 | 15,602 | 15,624 | (R) 15,765 | 17,450 |
| Transit, total | 25,807 | 26,351 | 27,634 | 28,912 | 37,949 | 37,510 | 41,360 | 43,130 | 42,698 | 44,600 | 46,609 | 40,861 | 45,821 |
| Federal | 5,687 | 5,492 | 6,268 | 6,683 | 8,535 | 11,619 | 13,366 | 14,275 | 14,498 | 14,866 | 16,044 | 8,774 | 9,295 |
| State and local | 20,120 | 20,859 | 21,366 | 22,229 | 29,414 | 25,891 | 27,994 | 28,855 | 28,200 | 29,734 | 30,565 | 32,087 | 36,526 |
| Water, total | 6,685 | 6,782 | 7,139 | 7,130 | 7,722 | 7,643 | 10,621 | 8,038 | 11,775 | 10,905 | 10,307 | 10,888 | 12,069 |
| Federal | 4,376 | 4,204 | 4,330 | 4,345 | 4,651 | 4,502 | 4,627 | 4,467 | 5,900 | 6,858 | 6,411 | 6,603 | 7,308 |
| State and local | 2,309 | 2,578 | 2,809 | 2,785 | 3,070 | 3,141 | 5,995 | 3,571 | 5,875 | 4,047 | 3,896 | 4,286 | 4,761 |
| Rail, total | 1,049 | 1,028 | 1,164 | 1,100 | 453 | 778 | 753 | 1,324 | 1,242 | 1,533 | 1,472 | 1,548 | 1,528 |
| Federal | 1,044 | 1,024 | 1,162 | 1,099 | 452 | 778 | 753 | 1,324 | 1,242 | 1,533 | 1,472 | 1,548 | 1,528 |
| State and local | 5 | 4 | 2 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pipeline, total | 24 | 34 | 33 | 36 | 38 | 46 | 37 | 48 | 65 | 73 | 82 | 91 | 89 |
| Federal | 24 | 34 | 33 | 36 | 38 | 46 | 37 | 48 | 65 | 73 | 82 | 91 | 89 |
| State and local | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| General support, total | 775 | 716 | 698 | 600 | 632 | 653 | 838 | 2,097 | 10,730 | (R) 1,240 | (R) 1,129 | (R) 1,105 | 1,214 |
| Federal | 775 | 716 | 698 | 600 | 632 | 653 | 838 | 2,097 | 10,730 | (R) 1,240 | (R) 1,129 | (R) 1,105 | 1,214 |
| State and local | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

**KEY:** R = revised.

**NOTES**

Numbers may not add to totals due to rounding.

Federal expenditures from own funds include all amounts of money paid out by the federal government including not only direct spending but also grants to state and local governments. State and local expenditures from own funds include outlays of the state and local governments from all sources of funds excluding federal grants.

Local government outlays for highway are not included in 2007 due to lack of data.

**SOURCE**

U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *Government Transportation Financial Statistics 2009* .

**Table 3-36: Transportation Expenditures by Mode and Level of Government from Own Funds, Fiscal Year (Chained 2005 $ millions)**

| | (R) 1995 | (R) 1996 | (R) 1997 | (R) 1998 | (R) 1999 | (R) 2000 | (R) 2001 | (R) 2002 | (R) 2003 | (R) 2004 | (R) 2005 | (R) 2006 | 2007 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL, all modes | 203,899 | 206,035 | 212,215 | 217,334 | 234,555 | 236,886 | 259,180 | 265,772 | 269,231 | 257,409 | 253,772 | 249,397 | 208,196 |
| Federal | 61,413 | 60,058 | 60,483 | 60,086 | 61,497 | 68,306 | 81,384 | 90,100 | 94,006 | 86,785 | 85,072 | 77,421 | 76,095 |
| State and local | 142,486 | 145,977 | 151,732 | 157,248 | 173,057 | 168,581 | 177,796 | 175,672 | 175,225 | 170,624 | 168,699 | 171,976 | 132,102 |
| Highways, total | 128,597 | 131,293 | 135,473 | 138,800 | 146,821 | 152,135 | 156,824 | 159,673 | 157,270 | 153,675 | 152,122 | 156,323 | 111,626 |
| Federal | 27,684 | 27,776 | 28,212 | 26,960 | 29,656 | 33,813 | 35,539 | 37,521 | 36,493 | 35,292 | 33,508 | 34,078 | 33,139 |
| State and local | 100,912 | 103,517 | 107,261 | 111,840 | 117,165 | 118,322 | 121,285 | 122,153 | 120,776 | 118,383 | 118,614 | 122,246 | 78,487 |
| Air, total | 28,101 | 27,874 | 28,400 | 29,394 | 28,752 | 28,239 | 39,109 | 43,299 | 38,591 | 42,006 | 42,051 | 41,097 | 41,144 |
| Federal | 17,364 | 16,883 | 15,804 | 16,525 | 13,807 | 13,165 | 22,698 | 27,051 | 21,732 | 25,501 | 26,427 | 26,060 | 25,215 |
| State and local | 10,737 | 10,990 | 12,596 | 12,870 | 14,945 | 15,074 | 16,411 | 16,248 | 16,859 | 16,505 | 15,624 | 15,037 | 15,928 |
| Transit, total | 35,472 | 35,376 | 36,431 | 37,607 | 47,833 | 45,459 | 48,795 | 49,573 | 47,102 | 47,180 | 46,609 | 38,974 | 41,825 |
| Federal | 7,817 | 7,373 | 8,263 | 8,693 | 10,758 | 14,081 | 15,768 | 16,407 | 15,993 | 15,726 | 16,044 | 8,369 | 8,485 |
| State and local | 27,656 | 28,003 | 28,168 | 28,914 | 37,075 | 31,378 | 33,026 | 33,166 | 31,109 | 31,454 | 30,565 | 30,605 | 33,341 |
| Water, total | 9,189 | 9,105 | 9,412 | 9,274 | 9,733 | 9,262 | 12,531 | 9,238 | 12,989 | 11,536 | 10,307 | 10,385 | 11,017 |
| Federal | 6,014 | 5,644 | 5,708 | 5,652 | 5,863 | 5,456 | 5,458 | 5,134 | 6,509 | 7,255 | 6,411 | 6,298 | 6,671 |
| State and local | 3,174 | 3,460 | 3,704 | 3,622 | 3,870 | 3,806 | 7,072 | 4,105 | 6,481 | 4,281 | 3,896 | 4,088 | 4,346 |
| Rail, total | 1,442 | 1,380 | 1,535 | 1,431 | 571 | 943 | 889 | 1,522 | 1,370 | 1,622 | 1,472 | 1,477 | 1,395 |
| Federal | 1,435 | 1,375 | 1,532 | 1,430 | 570 | 943 | 888 | 1,522 | 1,370 | 1,622 | 1,472 | 1,477 | 1,395 |
| State and local | 7 | 5 | 3 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pipeline, total | 33 | 46 | 44 | 47 | 48 | 56 | 44 | 55 | 72 | 78 | 82 | 87 | 81 |
| Federal | 33 | 46 | 44 | 47 | 48 | 56 | 44 | 55 | 72 | 77 | 82 | 87 | 81 |
| State and local | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| General support, total | 1,065 | 961 | 920 | 780 | 797 | 791 | 989 | 2,410 | 11,837 | 1,312 | 1,129 | 1,054 | 1,108 |
| Federal | 1,065 | 961 | 920 | 780 | 796 | 791 | 988 | 2,410 | 11,836 | 1,312 | 1,129 | 1,054 | 1,108 |
| State and local | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

**KEY:** R = revised.

**NOTES**

Numbers may not add to totals due to rounding.

Federal expenditures from own funds include all amounts of money paid out by the federal government including not only direct spending but also grants to state and local governments. State and local expenditures from own funds include outlays of the state and local governments from all sources of funds excluding federal grants.

Local government outlays for highway are not included in 2007 due to lack of data.

While previous versions of this table used chained 2000 dollars, this table has been updated and uses chained 2005 dollars and thus is not comparable to previous editions of this table.

**SOURCE**

U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *Government Transportation Financial Statistics 2009.*

## Table 3-37: Federal Transportation Grants to State and Local Governments by Mode, Fiscal Year (Current $ millions)

| | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total, all modes | 24,793 | 24,760 | 25,913 | 25,014 | 27,824 | 35,277 | 38,668 | 42,593 | 42,547 | 42,779 | 50,032 | 45,334 | 46,719 |
| Highway | 18,457 | 18,712 | 19,819 | 19,073 | 21,952 | 25,710 | 27,630 | 29,890 | 29,800 | 29,276 | 30,847 | 32,756 | 33,616 |
| Air | 1,826 | 1,655 | 1,489 | 1,511 | 1,565 | 1,578 | 2,020 | 2,860 | 2,681 | 2,961 | 3,531 | 3,842 | 3,878 |
| Transit | 4,410 | 4,298 | 4,518 | 4,342 | 4,226 | 7,942 | 8,957 | 9,767 | 10,011 | 10,319 | 15,594 | 8,691 | 9,197 |
| Water | 62 | 55 | 31 | 32 | 21 | 9 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Rail | 21 | 23 | 37 | 35 | 38 | 13 | 31 | 43 | 22 | 20 | 35 | 20 | 5 |
| Pipeline | 12 | 11 | 13 | 14 | 16 | 18 | 19 | 22 | 20 | 19 | 24 | 25 | 23 |
| General Support | 6 | 6 | 6 | 6 | 6 | 8 | 10 | 12 | 12 | 185 | 0 | 0 | 0 |

**NOTE**

Numbers may not add to totals due to rounding.

**SOURCE**

U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *Government Transportation Financial Statistics 2009.*

## Table 3-38: Federal Transportation Grants to State and Local Governments by Mode, Fiscal Year (Chained 2005 $ millions)

| | (R) 1995 | (R) 1996 | (R) 1997 | (R) 1998 | (R) 1999 | (R) 2000 | (R) 2001 | (R) 2002 | (R) 2003 | (R) 2004 | (R) 2005 | (R) 2006 | 2007 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total, all modes | 34,079 | 33,240 | 34,162 | 32,536 | 35,071 | 42,753 | 45,619 | 48,956 | 46,935 | 45,254 | 50,032 | 43,241 | 42,646 |
| Highway | 25,369 | 25,121 | 26,128 | 24,809 | 27,669 | 31,158 | 32,596 | 34,355 | 32,874 | 30,969 | 30,847 | 31,243 | 30,685 |
| Air | 2,510 | 2,222 | 1,963 | 1,965 | 1,973 | 1,912 | 2,383 | 3,287 | 2,958 | 3,132 | 3,531 | 3,665 | 3,540 |
| Transit | 6,062 | 5,769 | 5,956 | 5,648 | 5,327 | 9,625 | 10,567 | 11,226 | 11,044 | 10,916 | 15,594 | 8,290 | 8,395 |
| Water | 85 | 74 | 41 | 42 | 26 | 11 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Rail | 29 | 31 | 49 | 46 | 48 | 16 | 37 | 49 | 24 | 21 | 35 | 19 | 5 |
| Pipeline | 16 | 15 | 17 | 18 | 20 | 22 | 23 | 25 | 22 | 20 | 24 | 24 | 21 |
| General support | 8 | 8 | 8 | 8 | 8 | 10 | 12 | 14 | 13 | 196 | 0 | 0 | 0 |

**KEY:** R = revised.

**NOTES**

Numbers may not add to totals due to rounding.

BTS used the Price Index for Government Consumption Expenditures and Gross Investment as the price deflator. Previous editions of this table used chained 2000 dollars, so this table is not comparable to previous editions.

**SOURCE**

U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *Government Transportation Financial Statistics 2009*.

# Chapter 4

# Transportation, Energy, and the Environment

## Section A
## U.S. and Transportation Sector Energy Consumption

**Table 4-1: Overview of U.S. Petroleum Production, Imports, Exports, and Consumption (Million barrels per day)**

| | 1960 | 1965 | 1970 | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | (R) 1996 | 1997 | 1998 | 1999 | (R) 2000 | (R) 2001 | 2002 | (R) 2003 | 2004 | 2005 | (R) 2006 | (R) 2007 | (R) 2008 | (P) 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Domestic production, total[a] | 7.96 | 9.01 | 11.30 | 10.01 | 10.17 | 10.58 | 8.91 | 9.08 | 8.87 | 8.58 | 8.39 | 8.32 | 8.29 | 8.27 | 8.01 | 7.73 | 7.73 | 7.67 | 7.63 | 7.40 | 7.23 | 6.90 | 6.84 | 6.85 | 6.73 | 7.27 |
| Crude oil[b] | 7.04 | 7.80 | 9.64 | 8.37 | 8.60 | 8.97 | 7.36 | 7.42 | 7.17 | 6.85 | 6.66 | 6.56 | 6.46 | 6.45 | (R) 6.25 | (R) 5.88 | 5.82 | 5.80 | 5.75 | 5.68 | 5.42 | 5.18 | 5.10 | 5.06 | 4.95 | 5.36 |
| Natural gas plant liquids | 0.93 | 1.21 | 1.66 | 1.63 | 1.57 | 1.61 | 1.56 | 1.66 | 1.70 | 1.74 | 1.73 | 1.76 | 1.83 | 1.82 | 1.76 | 1.85 | 1.91 | 1.87 | 1.88 | 1.72 | 1.81 | 1.72 | 1.74 | 1.78 | 1.78 | 1.91 |
| Gross imports, total | 1.81 | 2.47 | 3.42 | 6.06 | 6.91 | 5.07 | 8.02 | 7.63 | 7.89 | 8.62 | 9.00 | 8.83 | 9.48 | 10.16 | 10.71 | 10.85 | 11.46 | 11.87 | 11.53 | 12.26 | 13.15 | 13.71 | 13.71 | 13.47 | 12.92 | 11.69 |
| Crude oil[b,c] | 1.02 | 1.24 | 1.32 | 4.10 | 5.26 | 3.20 | 5.89 | 5.78 | 6.08 | 6.79 | 7.06 | 7.23 | 7.51 | 8.23 | 8.71 | 8.73 | 9.07 | 9.33 | 9.14 | 9.66 | 10.09 | 10.13 | 10.12 | 10.03 | 9.78 | 9.01 |
| Petroleum products[d] | 0.80 | 1.23 | 2.10 | 1.95 | 1.65 | 1.87 | 2.12 | (R) 1.84 | 1.80 | 1.83 | 1.93 | (R) 1.61 | 1.97 | 1.94 | (R) 2.00 | 2.12 | 2.39 | 2.54 | 2.39 | 2.60 | 3.06 | 3.59 | 3.59 | 3.44 | 3.13 | 2.68 |
| Exports | 0.20 | 0.19 | 0.26 | 0.21 | 0.54 | 0.78 | 0.86 | 1.00 | 0.95 | 1.00 | 0.94 | 0.95 | 0.98 | 1.00 | 0.94 | (R) 0.94 | 1.04 | 0.97 | (R) 0.98 | 1.03 | 1.05 | 1.16 | 1.32 | 1.43 | 1.80 | 2.02 |
| U.S. net imports[e] | 1.61 | 2.28 | 3.16 | 5.85 | 6.36 | 4.29 | (R) 7.16 | (R) 6.63 | (R) 6.94 | (R) 7.62 | (R) 8.05 | (R) 7.89 | 8.50 | 9.16 | (R) 9.76 | 9.91 | 10.42 | 10.90 | (R) 10.55 | 11.24 | (R) 12.10 | (R) 12.55 | 12.39 | 12.04 | 11.11 | 9.67 |
| U.S. petroleum consumption | 9.80 | 11.51 | 14.70 | 16.32 | 17.06 | 15.73 | 16.99 | 16.71 | 17.03 | 17.24 | 17.72 | 17.72 | 18.31 | (R) 18.62 | 18.92 | 19.52 | 19.70 | 19.65 | 19.76 | 20.03 | 20.73 | 20.80 | 20.69 | 20.68 | 19.50 | 18.77 |
| By the transportation sector | 5.14 | 6.04 | 7.78 | (R) 8.95 | (R) 9.55 | (R) 9.84 | (R) 10.89 | (R) 10.76 | (R) 10.88 | 11.12 | (R) 11.42 | (R) 11.67 | 11.92 | (R) 12.10 | 12.42 | (R) 12.76 | 13.01 | 12.94 | (R) 13.21 | 13.32 | (R) 13.72 | (R) 13.96 | 14.18 | 14.29 | 13.71 | 13.27 |
| Transportation petroleum use as a percent of domestic petroleum production | 64.5 | 67.0 | 68.8 | (R) 89.4 | (R) 93.9 | (R) 93.0 | (R) 122.1 | (R) 118.6 | (R) 122.7 | (R) 129.6 | (R) 136.1 | (R) 140.2 | 143.7 | (R) 146.3 | 155.0 | (R) 165.1 | 168.3 | 168.7 | (R) 173.2 | 180.0 | (R) 189.8 | (R) 202.4 | 207.3 | 208.6 | 203.6 | 182.6 |
| Transportation petroleum use as a percent of domestic petroleum consumption | 52.4 | 52.4 | 52.9 | (R) 54.84 | (R) 56.0 | (R) 62.6 | (R) 64.1 | (R) 64.4 | (R) 63.9 | (R) 64.5 | (R) 64.4 | (R) 65.8 | 65.1 | (R) 65.0 | 65.7 | (R) 65.4 | 66.0 | 65.8 | (R) 66.8 | 66.5 | (R) 66.2 | (R) 67.1 | 68.5 | 69.1 | 70.3 | 70.7 |
| World petroleum consumption | 21.34 | 31.14 | 46.81 | 56.20 | 63.11 | 60.09 | 66.69 | (R) 67.29 | (R) 67.48 | (R) 67.60 | (R) 68.92 | 70.13 | 71.67 | 73.43 | (R) 74.07 | (R) 75.76 | 76.74 | 77.47 | (R) 78.12 | 79.68 | (R) 82.46 | (R) 84.04 | 85.20 | 86.14 | 85.75 | U |
| U.S. petroleum consumption as percent of world petroleum consumption | 45.9 | 37.0 | 31.4 | 29.0 | 27.0 | 26.2 | 25.5 | (R) 24.8 | (R) 25.2 | (R) 25.5 | (R) 25.7 | 25.3 | 25.5 | (R) 25.4 | (R) 25.5 | (R) 25.8 | 25.7 | 25.4 | (R) 25.3 | 25.1 | (R) 25.1 | (R) 24.8 | 24.3 | 24.0 | 22.7 | U |

**KEY:** P = preliminary; R = revised; U = data are unavailable.

[a] Includes crude oil and natural gas plant liquids. This data series has been revised from 1975 forward to exclude the field production of other liquids including: finished motor gasoline, motor gasoline blending components, and other hydrocarbons and oxygenat
[b] Includes lease condensate
[c] Includes imports for the Strategic Petroleum Reserve, which began in 197
[d] Beginning in 1985, motor gasoline blending components and aviation gasoline blending components are incluc
[e] *Net imports* is equal to *Imports* minus *Exports*.

**NOTE**
Component numbers may not add to totals due to independent rounding.

**SOURCES**
**Domestic production, imports, exports, and U.S. petroleum consumption:**
1960-70: U.S. Department of Energy, Energy Information Administration *Annual Energy Review*, DOE/EIA-0384(2000) (Washington, DC: August 2001), table 5.1.
1975-2009: Ibid., *Monthly Energy Review* (Washington, DC: September 2010), tables 3.1 and 3.3b, available at http://www.eia.doe.gov/mer/contents.html as of Sept. 2, 2010.
**U.S. petroleum consumption by transportation sector:**
1960-2006: Ibid., *Annual Energy Review 2006*, DOE/EIA-0384(2005) (Washington, DC: July 2007), table 5.13c, available at http://www.eia.doe.gov as of Sept. 23, 2008.
2007-09: Ibid., *Monthly Energy Review* (Washington, DC: September 2010), table 3.7c, available at http://www.eia.doe.gov/mer/contents.html as of Sept. 2, 2010.
**World petroleum consumption:**

Ibid., *Annual Energy Review* (Washington, DC: Annual Issues), table 11.10, available at http://www.eia.doe.gov/emeu/aer/inter.html as of Aug. 20, 2010.

**Table 4-2: U.S. Consumption of Energy from Primary Sources by Sector (Quadrillion Btu)**

| | (R) 1960 | (R) 1965 | (R) 1970 | (R) 1975 | (R) 1980 | (R) 1985 | (R) 1990 | (R) 1991 | (R) 1992 | (R) 1993 | (R) 1994 | (R) 1995 | (R) 1996 | (R) 1997 | (R) 1998 | (R) 1999 | (R) 2000 | (R) 2001 | (R) 2002 | (R) 2003 | (R) 2004 | (R) 2005 | (R) 2006 | (R) 2007 | (R) 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Energy consumption, total | 45.09 | 54.02 | 67.84 | 72.00 | 78.12 | 76.49 | 84.65 | 84.61 | 85.96 | 87.60 | 89.26 | 91.17 | 94.17 | 94.76 | 95.18 | 96.81 | 98.97 | 96.32 | 97.85 | 98.13 | 100.31 | 100.44 | 99.79 | 101.53 | 99.40 | 94.72 |
| Transportation | 10.56 | 12.40 | 16.06 | 18.21 | 19.66 | 20.04 | 22.36 | 22.06 | 22.36 | 22.71 | 23.31 | 23.79 | 24.38 | 24.69 | 25.20 | 25.89 | 26.49 | 26.21 | 26.78 | 26.92 | 27.82 | 28.27 | 28.75 | 29.03 | 27.94 | 26.94 |
| | 23.4 | 23.0 | 23.7 | 25.3 | 25.2 | 26.2 | 26.4 | 26.1 | 26.0 | 25.9 | 26.1 | 26.1 | 25.9 | 26.1 | 26.5 | 26.7 | 26.8 | 27.2 | 27.4 | 27.4 | 27.7 | 28.1 | 28.8 | 28.6 | 28.1 | 28.4 |
| Transportation as percent of total energy consumption | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Industrial | 16.98 | 20.12 | 22.97 | 21.45 | 22.61 | 19.47 | 21.21 | 20.85 | 21.79 | 21.78 | 22.42 | 22.75 | 23.44 | 23.72 | 23.21 | 22.99 | 22.87 | 21.83 | 21.85 | 21.54 | 22.44 | 21.45 | 21.56 | 21.43 | 20.50 | 18.92 |
| Industrial as percent of total energy consumption | 37.7 | 37.3 | 33.9 | 29.8 | 28.9 | 25.5 | 25.1 | 24.6 | 25.3 | 24.9 | 25.1 | 24.9 | 24.9 | 25.0 | 24.4 | 23.7 | 23.1 | 22.7 | 22.3 | 21.9 | 22.4 | 21.4 | 21.6 | 21.1 | 20.6 | 20.0 |
| Residential and commercial | 9.39 | 10.48 | 12.55 | 12.03 | 11.53 | 10.86 | 10.43 | 10.66 | 10.91 | 11.09 | 10.97 | 11.01 | 11.71 | 11.30 | 10.39 | 10.79 | 11.40 | 10.92 | 11.04 | 11.46 | 11.19 | 10.93 | 9.89 | 10.53 | 10.81 | 10.57 |
| Residential and commercial as percent of total energy consumption | 20.8 | 19.4 | 18.5 | 16.7 | 14.8 | 14.2 | 12.3 | 12.6 | 12.7 | 12.7 | 12.3 | 12.1 | 12.4 | 11.9 | 10.9 | 11.1 | 11.5 | 11.3 | 11.3 | 11.7 | 11.2 | 10.9 | 9.9 | 10.4 | 10.9 | 11.2 |
| Energy input at electric utilities | 8.16 | 11.01 | 16.26 | 20.31 | 24.33 | 26.13 | 30.66 | 31.02 | 30.89 | 32.03 | 32.56 | 33.62 | 34.64 | 35.04 | 36.39 | 37.14 | 38.21 | 37.36 | 38.17 | 38.22 | 38.88 | 39.80 | 39.59 | 40.54 | 40.15 | 38.30 |
| Energy input at electric utilities as percent of total energy consumption | 18.1 | 20.4 | 24.0 | 28.2 | 31.1 | 34.2 | 36.2 | 36.7 | 35.9 | 36.6 | 36.5 | 36.9 | 36.8 | 37.0 | 38.2 | 38.4 | 38.6 | 38.8 | 39.0 | 38.9 | 38.8 | 39.6 | 39.7 | 39.9 | 40.4 | 40.4 |
| Percentage of primary demand met by petroleum | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Transportation | 95.9 | 95.7 | 95.3 | 96.7 | 96.7 | 97.2 | 96.7 | 96.9 | 96.9 | 96.7 | 96.5 | 96.5 | 96.6 | 96.4 | 96.9 | 96.9 | 97.0 | 96.9 | 96.7 | 96.8 | 96.8 | 96.6 | 96.2 | 95.6 | 94.6 | 94.0 |
| Industrial | 33.9 | 33.7 | 33.9 | 38.0 | 42.1 | 39.8 | 39.0 | 38.3 | 39.4 | 38.6 | 39.2 | 37.9 | 38.6 | 39.2 | 39.3 | 40.9 | 39.9 | 42.2 | 42.1 | 42.9 | 44.0 | 45.1 | 45.5 | 44.3 | 41.7 | 41.9 |
| Residential and commercial | 37.2 | 36.9 | 34.3 | 31.6 | 26.3 | 24.2 | 22.6 | 21.4 | 20.9 | 20.1 | 20.1 | 19.2 | 19.1 | 18.9 | 19.0 | 19.8 | 20.3 | 20.9 | 19.4 | 20.2 | 20.5 | 19.9 | 18.7 | 17.7 | 17.0 | 16.8 |
| Electric utilities | 6.8 | 6.6 | 13.0 | 15.6 | 10.8 | 4.2 | 4.2 | 3.9 | 3.2 | 3.5 | 3.3 | 2.2 | 2.4 | 2.6 | 3.6 | 3.3 | 3.0 | 3.4 | 2.5 | 3.2 | 3.1 | 3.1 | 1.6 | 1.6 | 1.2 | 1.0 |

**KEY:** Btu = British thermal unit; R = revised.

**NOTES**

The data for *Residential, Commercial, and Industrial* sectors include only fossil fuels consumed directly. Most renewable fuels are not included. The data for the *Transportation* sector includes only fossil and renewable fuels consumed directly. The data for *Electric utilities* includes all fuels (fossil, nuclear, geothermal, hydro, and other renewables) used by electric utilities. Due to a lack of consistent historical data, some renewable energy resources are not included in this table. The totals in table 4-4 are the best numbers for total U.S. energy consumption from all sources.

Numbers may not add to totals due to rounding.

**SOURCES**

1960-70: U.S. Department of Energy, Energy Information Administration, *Annual Energy Review,* (Washington, DC: Annual Issues), tables 2.1a - 2.1f, available at http://www.eia.doe.gov/emeu/aer/contents.html as of Sept. 1, 2010 .

1975-2009: Ibid., *Monthly Energy Review* , (Washington, DC: August 2010), tables 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 3-8a, 3-8b and 3.8c, available at http://www.eia.doe.gov/emeu/mer/contents.html as of Sept. 1, 2010.

**Table 4-3: Domestic Demand for Refined Petroleum Products by Sector (Quadrillion Btu)**

| | 1960 | 1965 | 1970 | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | (R) 1993 | (R) 1994 | (R) 1995 | (R) 1996 | (R) 1997 | (R) 1998 | (R) 1999 | (R) 2000 | (R) 2001 | (R) 2002 | (R) 2003 | (R) 2004 | (R) 2005 | (R) 2006 | (R) 2007 | (R) 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total petroleum demand | 19.9 | 23.3 | 29.5 | 32.7 | 34.2 | 30.9 | (R) 33.6 | 32.8 | (R) 33.5 | 33.7 | 34.6 | 34.4 | 35.7 | 36.2 | 36.8 | 37.8 | 38.3 | 38.2 | 38.2 | 38.8 | 40.3 | 40.4 | 40.0 | 39.8 | 37.3 | 35.3 |
| Transportation | 10.1 | 11.9 | 15.3 | 17.6 | 19.0 | 19.5 | 21.6 | 21.4 | 21.7 | 22.0 | 22.5 | 23.0 | 23.6 | 23.8 | 24.4 | 25.1 | 25.7 | 25.4 | 25.9 | 26.1 | 26.9 | 27.3 | 27.6 | 27.8 | 26.4 | 25.3 |
| Industrial | 5.8 | 6.8 | 7.8 | 8.1 | 9.5 | 7.7 | 8.3 | 8.0 | 8.6 | 8.4 | 8.8 | 8.6 | 9.1 | 9.3 | 9.1 | 9.4 | 9.1 | 9.2 | 9.2 | 9.2 | 9.9 | 9.7 | 9.8 | 9.5 | 8.5 | 7.8 |
| Residential and commercial | 3.5 | 3.9 | 4.3 | 3.8 | 3.0 | (R) 2.6 | 2.4 | 2.3 | 2.3 | 2.2 | 2.2 | 2.1 | 2.2 | 2.1 | 2.0 | 2.1 | 2.3 | 2.3 | 2.1 | 2.3 | 2.3 | 2.2 | 1.9 | 1.9 | 1.8 | 1.8 |
| Electric utilities | 0.5 | 0.7 | 2.1 | 3.2 | 2.6 | 1.1 | 1.3 | 1.2 | 1.0 | 1.1 | 1.1 | 0.8 | 0.8 | 0.9 | 1.3 | 1.2 | 1.1 | 1.3 | 1.0 | 1.2 | 1.2 | 1.2 | 0.6 | 0.7 | 0.5 | 0.4 |
| Transportation as percent of total petroleum demand | 50.86 | 51.03 | 51.85 | 53.82 | 55.58 | 62.97 | (R) 64.45 | 65.07 | (R) 64.65 | 65.12 | 65.09 | 66.66 | 66.06 | 65.85 | 66.33 | 66.33 | 67.12 | 66.55 | 67.79 | 67.16 | 66.82 | 67.61 | 69.20 | 69.81 | 70.88 | 71.85 |

**KEY:** Btu = British thermal unit; R = revised.

**NOTES**

Transportation's share of U.S. petroleum demand in this table differs slightly from table 4-1 because this table takes into account differences within sectors in the use of various grades of petroleum-based fuel that have a different Btu content per unit volume.

The sum of components may not add to totals due to rounding.

**SOURCES**

1960-70: U.S. Department of Energy, Energy Information Administration *Annual Energy Review 1997,* DOE/EIA-0384(97) (Washington, DC: July 1998), tables 2.1, 5.12b, and A3.

1975-2009: Ibid., *Monthly Energy Review* (Washington, DC: May 2010), tables 2.2, 2.3, 2.4, 2.5, 2.6, and similar tables in earlier editions, available at http://www.eia.doe.gov/mer/consump.html as of June 14, 2010.

# Section B
# Transportation Energy Consumption by Mode

**Table 4-4: U.S. Energy Consumption by the Transportation Sector (Quadrillion Btu)**

| | 1960 | 1965 | 1970 | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | (P) 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Energy consumption (all sectors) | 45.09 | 54.02 | 67.84 | 72.00 | 78.12 | (R) 76.49 | (R) 84.65 | (R) 84.61 | (R) 85.96 | (R) 87.60 | (R) 89.26 | (R) 91.17 | (R) 94.17 | (R) 94.76 | (R) 95.18 | (R) 96.81 | (R) 98.97 | (R) 96.32 | (R) 97.85 | (R) 98.13 | (R) 100.31 | (R) 100.44 | (R) 99.79 | (R) 101.53 | (R) 99.40 | 94.58 |
| Total transportation consumption[a] | 10.60 | 12.43 | 16.10 | 18.24 | 19.70 | (R) 20.09 | (R) 22.42 | (R) 22.12 | (R) 22.41 | (R) 22.77 | (R) 23.36 | (R) 23.85 | (R) 24.44 | (R) 24.75 | (R) 25.26 | (R) 25.95 | (R) 26.55 | (R) 26.27 | (R) 26.84 | (R) 26.99 | (R) 27.89 | (R) 28.35 | (R) 28.83 | (R) 29.12 | (R) 28.03 | 27.03 |
| Transportation as percent of total energy consumption | 23.5 | 23.0 | 23.7 | 25.3 | 25.2 | (R) 26.3 | (R) 26.5 | (R) 26.1 | (R) 26.1 | (R) 26.0 | (R) 26.2 | (R) 26.2 | (R) 25.9 | (R) 26.1 | (R) 26.5 | (R) 26.8 | (R) 26.8 | (R) 27.3 | (R) 27.4 | (R) 27.5 | (R) 27.8 | (R) 28.2 | (R) 28.9 | (R) 28.7 | (R) 28.2 | 28.6 |
| Total primary consumption[b] | 10.49 | 12.38 | 16.05 | 18.21 | 19.66 | 20.04 | 22.37 | 22.07 | 22.36 | 22.72 | 23.31 | 23.79 | 24.38 | 24.70 | 25.20 | 25.89 | 26.49 | 26.22 | 26.79 | (R) 26.92 | 27.82 | (R) 28.27 | (R) 28.75 | (R) 29.03 | (R) 27.94 | 26.95 |
| Coal[c] | 0.075 | 0.016 | 0.007 | 0.001 | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N |
| in million short tons[c] | 3.046 | 0.655 | 0.298 | 0.024 | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N |
| Natural gas[d] | 0.36 | 0.52 | 0.74 | 0.59 | 0.65 | 0.52 | 0.68 | 0.62 | 0.61 | 0.64 | 0.71 | 0.72 | 0.74 | 0.78 | 0.67 | 0.68 | 0.67 | 0.66 | 0.70 | (R) 0.63 | (R) 0.60 | (R) 0.62 | 0.62 | (R) 0.67 | (R) 0.69 | 0.69 |
| in trillion cubic feet | 0.35 | 0.50 | 0.72 | 0.58 | 0.63 | 0.50 | 0.66 | 0.60 | 0.59 | 0.63 | 0.69 | 0.70 | 0.72 | 0.76 | 0.64 | 0.66 | 0.65 | 0.64 | 0.68 | 0.61 | 0.59 | 0.61 | 0.61 | (R) 0.65 | (R) 0.68 | 0.67 |
| Petroleum products[e] | 10.13 | 11.87 | 15.31 | 17.61 | 19.01 | 19.47 | 21.62 | 21.37 | 21.67 | (R) 21.98 | (R) 22.50 | (R) 22.95 | (R) 23.56 | (R) 23.81 | (R) 24.42 | (R) 25.10 | (R) 25.68 | (R) 25.41 | (R) 25.91 | (R) 26.06 | (R) 26.92 | (R) 27.31 | (R) 27.65 | (R) 27.76 | (R) 26.42 | 25.34 |
| in million barrels | 1,880 | 2,203 | 2,839 | 3,267 | 3,494 | 3,591 | 3,974 | 3,929 | 3,982 | 4,060 | 4,167 | 4,259 | (R) 4,363 | 4,416 | 4,533 | (R) 4,659 | (R) 4,762 | (R) 4,722 | (R) 4,821 | 4,862 | (R) 5,021 | 5,094 | 5,175 | 5,215 | (R) 5,019 | 4,846 |
| Electricity | 0.010 | 0.010 | 0.011 | 0.010 | 0.011 | 0.014 | 0.016 | 0.016 | 0.016 | 0.016 | 0.017 | 0.017 | 0.017 | 0.017 | 0.017 | 0.017 | 0.018 | 0.020 | 0.019 | 0.023 | 0.025 | 0.026 | 0.025 | 0.028 | (R) 0.026 | 0.026 |
| Electrical system energy losses[f] | 0.026 | 0.024 | 0.026 | 0.024 | 0.027 | 0.032 | 0.037 | 0.037 | 0.037 | 0.037 | 0.038 | 0.039 | 0.038 | 0.038 | 0.038 | 0.040 | 0.042 | (R) 0.043 | (R) 0.042 | 0.051 | 0.055 | (R) 0.056 | (R) 0.054 | (R) 0.060 | (R) 0.057 | 0.056 |

**KEY:** Btu = British thermal unit; N = data do not exist; P = preliminary; R = revised.

[a] Sum of primary consumption, electricity, and electrical system energy losses categories.

[b] Sum of biomass, natural gas, and petroleum categories.

[c] Beginning from 1980, small amounts of coal consumed for transportation are included in industrial sector consumption.

[d] Consumed in the operation of pipelines, primarily in compressors, and small amounts consumed as vehicle fuel.

[e] Includes most nonutility use of fossil fuels to produce electricity and small amounts (about 0.1 quadrillion Btu per year since 1990) of renewable energy in the form of ethanol blended into motor gasoline.

[f] Incurred in the generation, transmission, and distribution of electricity plus plant use and unaccounted for electrical system energy losses.

**NOTE**

Energy consumption (all sectors) differs from totals in table 4-2 for 1990 and subsequent years.

**SOURCES**

**All except noted:**

U.S. Department of Energy, Energy Information Administration, *Annual Energy Review* (Washington DC: Annual Issues), tables 2.1a, 2-1e, 4-3, 7-3, and 5-13c, available at http://www.eia.doe.gov as of August 2010.

**Natural gas:**

*Cubic feet:*

1960-70: U.S. Department of Energy, Energy Information Administration, *Annual Energy Review 2000,* DOE/EIA-0384 (2000) (Washington DC: August 2001) table 6.5.

1975-2008: Ibid., *Monthly Energy Review* (Washington DC: December 2009), table 4.3, available at http://www.eia.doe.gov as of August 2010.

**Table 4-5: Fuel Consumption by Mode of Transportation in Physical Units**

| | 1960 | 1965 | 1970 | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Air | | | | | | | | | | | | | | | | | | | | | | | | | |
| Certificated carriers[a] | | | | | | | | | | | | | | | | | | | | | | | | | |
| Jet fuel (million gallons) | 1,954 | 3,889 | 7,857 | 7,558 | 8,519 | 10,115 | 12,212 | 11,360 | 11,598 | 11,960 | 12,501 | 12,812 | 13,187 | 13,658 | 13,303 | 14,491 | 13,904 | 13,112 | 12,287 | 12,417 | 13,380 | 13,284 | 13,019 | 12,999 | 12,469 |
| General aviation[b] | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aviation gasoline (million gallons) | 242 | 292 | 551 | 412 | 520 | 421 | 353 | 354 | 314 | 268 | 266 | 287 | 289 | 292 | 311 | 345 | 333 | 279 | 277 | 272 | 273 | (R) 361 | 352 | (R) 351 | (P) 349 |
| Jet fuel (million gallons) | N | 56 | 208 | 453 | 766 | 691 | 663 | 577 | 494 | 454 | 464 | 560 | 608 | 642 | 815 | 967 | 972 | 918 | 938 | 932 | 1,231 | 1,449 | 1,569 | 1,544 | (P) 1,550 |
| Highway | | | | | | | | | | | | | | | | | | | | | | | | | |
| Gasoline, diesel and other fuels (million gallons) | | | | | | | | | | | | | | | | | | | | | | | | | |
| Passenger car and motorcycle | 41,171 | 49,723 | 67,879 | 74,253 | 70,186 | 71,700 | 69,759 | 64,501 | 65,627 | 67,246 | 68,079 | 68,268 | 69,419 | 70,094 | 71,901 | 73,495 | 73,275 | 73,752 | 75,662 | 75,646 | 75,604 | 74,085 | 75,230 | 74,377 | 71,497 |
| Other 2-axle 4-tire vehicle[c] | N | U | 12,313 | 19,081 | 23,796 | 27,363 | 35,611 | 38,217 | 40,929 | 42,851 | 44,112 | 45,605 | 47,354 | 49,388 | 50,462 | 52,859 | 52,939 | 53,522 | 55,220 | 60,758 | 63,417 | 65,419 | 60,685 | 61,836 | 61,199 |
| Single-unit 2-axle 6-tire or more truck | N | 13,848 | 3,968 | 5,420 | 6,923 | 7,399 | 8,357 | 8,172 | 8,237 | 8,488 | 9,032 | 9,216 | 9,409 | 9,576 | 6,817 | 9,372 | 9,563 | 9,667 | 10,321 | 8,880 | 8,959 | 9,042 | 9,582 | 10,044 | 9,889 |
| Combination truck | N | 6,658 | 7,348 | 9,177 | 13,037 | 14,005 | 16,133 | 16,809 | 17,216 | 17,748 | 18,653 | 19,777 | 20,193 | 20,302 | 25,158 | 24,537 | 25,666 | 25,512 | 26,480 | 23,815 | 24,191 | 24,411 | 28,107 | 28,545 | 26,814 |
| Bus | 827 | 875 | 820 | 1,053 | 1,018 | 834 | 895 | 864 | 878 | 929 | 964 | 968 | 990 | 1,027 | 1,040 | 1,148 | 1,112 | 1,026 | 1,000 | 969 | 1,360 | 1,329 | 1,148 | 1,145 | 1,110 |
| Transit[d] | | | | | | | | | | | | | | | | | | | | | | | | | |
| Electricity (million kWh) | 2,908 | 2,584 | 2,561 | 2,646 | 2,446 | 4,216 | 4,837 | 4,853 | 4,716 | 4,865 | 5,081 | 5,068 | (R) 4,923 | (R) 4,908 | (R) 4,962 | (R) 5,126 | (R) 5,382 | (R) 5,485 | (R) 5,529 | (R) 5,508 | (R) 5,657 | (R) 5,765 | 5,770 | 6,216 | 6,337 |
| Motor fuel (million gallons) | | | | | | | | | | | | | | | | | | | | | | | | | |
| Diesel | 208 | 248 | 271 | 365 | 431 | 609 | 651 | 665 | 685 | 679 | 678 | 678 | (R) 535 | (R) 539 | (R) 560 | (R) 576 | (R) 591 | (R) 596 | (R) 673 | (R) 554 | (R) 542 | (R) 480 | 528 | 515 | 499 |
| Gasoline and other nondiesel fuels[e] | 192 | 124 | 68 | 8 | 11 | 46 | 34 | 34 | 37 | 46 | 60 | 61 | (R) 25 | (R) 26 | (R) 22 | (R) 21 | (R) 24 | (R) 26 | (R) 35 | (R) 27 | (R) 31 | (R) 81 | 47 | 51 | 68 |
| Compressed natural gas | N | N | N | N | N | N | N | N | 1 | 2 | 5 | 11 | (R) 11 | (R) 19 | (R) 29 | (R) 35 | (R) 44 | (R) 53 | (R) 66 | (R) 79 | (R) 87 | (R) 94 | 111 | 108 | 113 |
| Rail, Class I (in freight service) | | | | | | | | | | | | | | | | | | | | | | | | | |
| Distillate / diesel fuel (million gallons) | 3,463 | 3,592 | 3,545 | 3,657 | 3,904 | 3,110 | 3,115 | 2,906 | 3,005 | 3,088 | 3,334 | 3,480 | 3,579 | 3,575 | 3,583 | 3,715 | 3,700 | 3,710 | 3,730 | 3,826 | 4,059 | 4,098 | 4,192 | 4,062 | 3,886 |
| Amtrak | | | | | | | | | | | | | | | | | | | | | | | | | |
| Electricity (million kWh) | N | N | N | 180 | 254 | 295 | 330 | 303 | 300 | 301 | 309 | 336 | 363 | 390 | 416 | 443 | 470 | 456 | 518 | 537 | 551 | 531 | 549 | 578 | 582 |
| Distillate / diesel fuel (million gallons) | N | N | N | 63 | 64 | 65 | 82 | 82 | 82 | 83 | 74 | 72 | 71 | 76 | 76 | 79 | 95 | 97 | 84 | 75 | 69 | 65 | 62 | 62 | 63 |
| Water | | | | | | | | | | | | | | | | | | | | | | | | | |
| Residual fuel oil (million gallons) | 3,952 | 3,093 | 3,774 | 4,060 | 8,952 | 4,590 | 6,326 | 6,773 | 6,563 | 5,282 | 5,386 | 5,886 | 5,701 | 5,010 | 5,620 | 5,838 | 6,410 | 5,409 | 4,848 | 3,874 | 4,690 | 5,179 | 5,754 | 6,327 | 5,066 |
| Distillate / diesel fuel oil (million gallons) | 787 | 652 | 819 | 1,098 | 1,478 | 1,699 | 2,065 | 2,046 | 2,219 | 2,155 | 2,189 | 2,339 | 2,491 | 2,574 | 2,595 | 2,419 | 2,261 | 2,044 | 2,079 | 2,217 | 2,140 | 2,006 | 1,903 | 1,924 | 1,187 |
| Gasoline (million gallons) | N | N | 598 | 730 | 1,052 | 1,053 | 1,300 | 1,710 | 1,316 | 874 | 876 | 1,060 | 994 | 987 | 956 | 1,098 | 1,124 | 994 | 1,081 | 1,107 | 1,005 | 1,261 | 1,237 | 1,222 | 1,136 |
| Pipeline | | | | | | | | | | | | | | | | | | | | | | | | | |
| Natural gas (million cubic feet) | 347,075 | 500,524 | 722,166 | 582,963 | 634,622 | 503,766 | 659,816 | 601,305 | 587,710 | 624,308 | 685,362 | 700,335 | 711,446 | 751,470 | 635,477 | 645,319 | 642,210 | 624,964 | 666,920 | 591,492 | 566,187 | 584,026 | 584,213 | 621,364 | 647,958 |

**KEY:** kWh = kilowatt-hour; N = data do not exist; P = preliminary; R = revised; U = data are unavailable.

[a] Domestic operations only.
[b] Includes fuel used in air taxi operations, but not commuter operations. Data for 1996 are estimated using new information on nonrespondents and are therefore not comparable to earlier years. See the accuracy statement in the appendix for more detailed information.
[c] 1965 data is included in *Single-unit 2-axle 6-tire or more* truck category.
[d] Data from 1997-2008 are not comparable to data before 1997 due to different sources. Prior to 1984, excludes commuter rail, automated guideway, ferryboat, demand responsive vehicles, and most rural and small systems.
[e] Gasoline and all other nondiesel fuels such as liquefied natural gas, methanol, and propane, except compressed natural gas.

**SOURCES**

**Air:**

*Certificated air carriers:*

1960-2008: U.S. Department of Transportation, Bureau of Transportation Statistics, Office of Airline Information*Fuel Cost and Consumption,* available at http://www.bts.gov/programs/airline_information as of Mar. 4, 2010.

*General aviation:*

1960-70: U.S. Department of Transportation, Federal Aviation Administration,*FAA Statistical Handbook of Aviation - 1972 edition* (Washington, DC: 1973), table 9.12.

1975-93: Ibid., *General Aviation and Air Taxi Activity Survey* (Washington, DC: Annual issues), table 5.1, and similar tables in earlier editions.

1994-2008: Ibid., *FAA Aerospace Forecasts Fiscal Years 2009-2025* (Washington, DC: March 2009), tables 22 and 30, and similar tables in earlier editions, available at http://www.faa.gov/data_research/aviation/aerospace_forecasts/2009-2025/media/2009%20Forecast%20Doc.pdf as of May 28, 2010.

**Highway:**

1960-94: U.S. Department of Transportation, Federal Highway Administration,*Highway Statistics, Summary to 1995,* FHWA-PL-97-009 (Washington, DC: July 1997), table VM-201A, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of June 29, 2010.

1995-2008: Ibid., *Highway Statistics* (Washington, DC: Annual Issues), table VM-1, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of May 28, 2010.

**Transit:**

*Electricity / motor fuel / compressed natural gas:*

1960-96: American Public Transportation Association,*2009 Public Transportation Fact Book* (Washington, DC: June 2009), tables 26, 27, 28 and similar tables in earlier editions.

1997-2008: U.S. Department of Transportation, Federal Transit Administration,*National Transportation Database* , table 17 and similar tables in previous years, available at www.ntdprogram.gov as of Mar. 8, 2010.

**Rail:**

1960-2008: Association of American Railroads,*Railroad Facts* (Washington, DC: Annual Issues), p. 40.

**Amtrak:**

1975-2008: National Railroad Passenger Corporation (Amtrak), Energy Management Department and Government Affairs Department, personal communication, Jan. 7, 2010.

**Water:**

*Residual and distillate / diesel fuel oil:*

1960-80: American Petroleum Institute,*Basic Petroleum Data Book* (Washington, DC: Annual issues), tables 10, 10a, 12, and 12a.

1985-2008: U.S. Department of Energy, Energy Information Administration,*Fuel Oil and Kerosene Sales* (Washington, DC: Annual issues), tables 2, 4, and similar tables in earlier editions.

*Gasoline:*

1970-2008: U.S. Department of Transportation, Federal Highway Administration,*Highway Statistics* (Washington, DC: Annual issues), table MF-24 and similar tables in earlier editions, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of May 28, 2010.

**Pipeline:**

1960-2008: U.S. Department of Energy, *Natural Gas Annual 2008,* DOE/EIA-0131(04) (Washington, DC: March 2010), table 15 and similar tables in earlier editions, available at http://www.eia.doe.gov/natural_gas/data_publications/natural_gas_annual/nga.html as of May 28, 2010.

**Table 4-6: Energy Consumption by Mode of Transportation (Trillion Btu)**

| | 1960 | 1965 | 1970 | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Air | | | | | | | | | | | | | | | | | | | | | | | | |
| Certificated carriers[a] | | | | | | | | | | | | | | | | | | | | | | | | |
| Jet fuel | 264 | 525 | 1,061 | 1,020 | 1,150 | 1,366 | 1,664 | 1,553 | 1,588 | 1,614 | 1,672 | 1,711 | 1,784 | 1,831 | 1,800 | 1,944 | 2,007 | 1,872 | 1,744 | (R) 1,766 | (R) 1,902 | (R) 1,887 | (R) 1,849 | 1,847 |
| General aviation[b] | | | | | | | | | | | | | | | | | | | | | | | | |
| Aviation gasoline | 29 | 35 | 66 | 50 | 63 | 51 | 42 | 43 | 38 | 32 | 32 | 35 | 35 | 35 | 37 | 42 | 40 | 34 | 33 | 33 | 33 | 43 | 42 | 42 |
| Jet fuel | U | 8 | 28 | 61 | 103 | 93 | 90 | 78 | 67 | 61 | 63 | 76 | 82 | 87 | 110 | 131 | 131 | 124 | 127 | (R) 126 | 166 | (R) 196 | (R) 212 | 208 |
| Highway | | | | | | | | | | | | | | | | | | | | | | | | |
| Gasoline, diesel and other fuels | | | | | | | | | | | | | | | | | | | | | | | | |
| Passenger car and motorcycle | 5,146 | 6,215 | 8,485 | 9,282 | 8,773 | 8,963 | 8,720 | 8,063 | 8,203 | 8,406 | 8,510 | 8,534 | 8,677 | 8,762 | 8,988 | 9,187 | 9,159 | 9,219 | 9,458 | (R) 9,456 | 9,451 | (R) 9,701 | (R) 9,376 | 9,294 |
| Other 2-axle 4-tire vehicle | U | U | 1,539 | 2,385 | 2,975 | 3,420 | 4,451 | 4,777 | 5,116 | 5,356 | 5,514 | 5,701 | 5,919 | 6,173 | 6,308 | 6,607 | 6,617 | 6,690 | 6,903 | 7,595 | 7,927 | 7,359 | (R) 7,586 | 7,727 |
| Single-unit 2-axle 6-tire or more truck[c] | U | 1,921 | 550 | 752 | 960 | 1,026 | 1,159 | 1,133 | 1,142 | 1,177 | 1,253 | 1,278 | 1,305 | 1,328 | 946 | 1,300 | 1,326 | 1,341 | 1,290 | 1,110 | 1,120 | 1,188 | (R) 1,232 | 1,254 |
| Combination truck | U | 923 | 1,019 | 1,273 | 1,808 | 1,942 | 2,238 | 2,331 | 2,388 | 2,462 | 2,587 | 2,743 | 2,801 | 2,816 | 3,489 | 3,403 | 3,560 | 3,538 | 3,673 | 3,303 | 3,355 | 3,840 | (R) 3,513 | 3,564 |
| Bus | 115 | 121 | 114 | 146 | 141 | 116 | 124 | 120 | 122 | 129 | 134 | 134 | 137 | 142 | 144 | 159 | 154 | 142 | 139 | 134 | 189 | 155 | (R) 144 | 143 |
| Transit[d] | | | | | | | | | | | | | | | | | | | | | | | | |
| Electricity | 10 | 9 | 9 | 9 | 8 | 14 | 17 | 17 | 16 | 17 | 17 | 17 | 17 | 17 | 17 | 18 | 19 | 19 | 19 | 19 | 20 | 20 | 20 | (P) 22 |
| Motor fuel | | | | | | | | | | | | | | | | | | | | | | | | |
| Diesel | 29 | 34 | 38 | 51 | 60 | 84 | 90 | 92 | 95 | 94 | 94 | 94 | 96 | 99 | 103 | 106 | 109 | 103 | 100 | 99 | 101 | 101 | 102 | (P) 99 |
| Gasoline and other nondiesel fuels[e] | 24 | 16 | 9 | 1 | 1 | 6 | 4 | 4 | 5 | 6 | 8 | 8 | 8 | 7 | 7 | 6 | 6 | 6 | 6 | 6 | 7 | 7 | 9 | (P) 18 |
| Compressed natural gas | U | U | U | U | U | U | U | U | 0 | 1 | 1 | 1 | 2 | 3 | 5 | 6 | 8 | 9 | 11 | 14 | 16 | 17 | 20 | (P) 19 |
| Rail, Class I (in freight service) | | | | | | | | | | | | | | | | | | | | | | | | |
| Distillate / diesel fuel | 480 | 498 | 492 | 507 | 541 | 431 | 432 | 403 | 417 | 428 | 462 | 483 | 496 | 496 | 497 | 515 | 513 | 515 | 517 | 531 | 563 | (R) 571 | (R) 585 | 567 |
| Amtrak | | | | | | | | | | | | | | | | | | | | | | | | |
| Electricity | U | U | U | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | U | U | U | U | U | U |
| Distillate / diesel fuel | U | U | U | 9 | 9 | 9 | 11 | 11 | 11 | 12 | 10 | 9 | 10 | 10 | 10 | 10 | 11 | 10 | U | U | U | U | U | U |
| Water | | | | | | | | | | | | | | | | | | | | | | | | |
| Residual fuel oil | 592 | 463 | 565 | 608 | 1,340 | 687 | 947 | 1,014 | 983 | 791 | 806 | 881 | 853 | 750 | 841 | 874 | 960 | 810 | 726 | 580 | 702 | (R) 775 | 861 | 947 |
| Distillate / diesel fuel oil | 109 | 90 | 114 | 152 | 205 | 236 | 286 | 284 | 308 | 299 | 304 | 324 | 345 | 357 | 360 | 336 | 314 | 284 | 288 | 307 | 297 | (R) 278 | 264 | 267 |
| Gasoline | U | U | 75 | 91 | 132 | 132 | 163 | 214 | 165 | 109 | 109 | 133 | 124 | 123 | 120 | 137 | 141 | 124 | 135 | 138 | 126 | 158 | 155 | 153 |
| Pipeline | | | | | | | | | | | | | | | | | | | | | | | | |
| Natural gas | 358 | 516 | 745 | 601 | 654 | 519 | 680 | 620 | 606 | 644 | 707 | 722 | 734 | 775 | 655 | 665 | 662 | 644 | 688 | 610 | 584 | 602 | (R) 602 | 642 |

**KEY:** Btu = British thermal unit, R = revised, U = data are unavailable, P = preliminary.

[a] Domestic operations only.

[b] Includes fuel used in air taxi operations, but not commuter operations.

[c] 1965 data includes other 2-axle 4-tire vehicles.

[d] Prior to 1984, excludes commuter rail, automated guideway, ferryboat, demand responsive vehicles, and most rural and smaller systems.

[e] Gasoline and all other nondiesel fuels such as liquefied natural gas, methanol, and propane, except compressed natural gas.

**NOTES**

The following conversion rates were used:

Jet fuel = 135,000 Btu/gallon
Compressed natural gas = 138,700 Btu/gallon
Aviation gasoline = 120,200 Btu/gallon
Distillate fuel = 138,700 Btu/gallon
Automotive gasoline = 125,000 Btu/gallon
Residual fuel = 149,700 Btu/gallon
Diesel motor fuel = 138,700 Btu/gallon
Natural gas = 1,031 Btu/$ft^3$
Electricity 1kWh = 3,412 Btu, negating electrical system losses. To include approximate electrical system losses, multiply this conversion factor by 3.

**SOURCES**

**Air:**

*Certificated air carriers:*

U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, Office of Airline Information, *Fuel Cost and Consumption* , available at http://www.bts.gov/programs/airline_information as of August

*General aviation:*

1960-70: U.S. Department of Transportation, Federal Aviation Administration, *FAA Statistical Handbook of Aviation - 1972 edition* (Washington, DC: 1973), table 9.12.
1975-93: Ibid., *General Aviation and Air Taxi Activity Survey* (Washington, DC: Annual issues), table 5.1, and similar tables in earlier editions.
1994-2006: Ibid., *FAA Aerospace Forecasts Fiscal Years 2007-2018* (Washington, DC: Dec. 2005), table 34 and similar tables in earlier editions.

**Highway:**

1960-94: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics, Summary to 1995,* FHWA-PL-97-009 (Washington, DC: July 1997), table VM-201A. (Revised data obtained from Internet site http://www.fhwa.dot.gov/ohim/ohimstat.ht
1995-2006: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1.

**Transit:**

*Electricity / motor fuel / compressed natural gas:*

American Public Transportation Association, *Public Transportation Fact Book* (Washington, DC: Annual issues), tables 27, 28, 29 and similar tables in earlier editions.

**Rail:**

Association of American Railroads, *Railroad Facts* (Washington, DC: Annual issues).

**Amtrak:**

1975-2001: Amtrak, Energy Management Department, personal communication.

**Water:**

*Residual and distillate / diesel fuel oil:*

1960-80: American Petroleum Institute, *Basic Petroleum Data Book* (Washington, DC: Annual issues), tables 10, 10a, 12, and 12a.
1985-2006: U.S. Department of Energy, Energy Information Administration, *Fuel Oil and Kerosene Sales* (Washington, DC: Annual issues), tables 2, 4, and similar tables in earlier editions.

*Gasoline:*

1970-2006: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics* (Washington, DC: Annual issues), table MF-24 and similar tables in earlier editions.

**Pipeline:**

U.S. Department of Energy, *Natural Gas Annual,* DOE/EIA-0131(04) (Washington, DC: Annual issues), table 15 and similar tables in earlier editions.

**Table 4-7: Domestic Demand for Gasoline (Million gallons) by Mode**

| | 1960 | 1965 | 1970 | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL demand | 60,761 | 71,187 | 89,601 | 102,996 | 104,838 | 107,550 | 113,606 | 112,222 | 114,883 | 116,579 | 118,717 | 120,253 | 122,595 | 124,235 | 127,978 | 131,781 | 131,891 | 133,740 | 138,041 | 139,156 | 141,146 | 140,549 | 139,794 |
| Highway | 55,429 | 66,979 | 85,598 | 99,354 | 101,183 | 103,545 | 109,529 | 107,913 | 110,974 | 113,668 | 115,682 | 117,061 | 119,515 | 120,938 | 124,694 | 128,743 | 128,884 | 129,682 | 133,736 | 134,643 | 136,419 | 135,664 | 134,882 |
| Nonhighway, total | 5,332 | 4,208 | 4,003 | 3,642 | 3,655 | 4,005 | 4,076 | 4,309 | 3,908 | 2,911 | 3,035 | 3,192 | 3,081 | 3,297 | 3,284 | 3,038 | 3,007 | 4,058 | 4,305 | 4,514 | 4,727 | 4,885 | 4,912 |
| Agriculture | 2,292 | 1,963 | 1,932 | 1,565 | 1,059 | 1,081 | 681 | 779 | 806 | 846 | 912 | 927 | 918 | 984 | 907 | 703 | 652 | 802 | 832 | 853 | 1,094 | 1,078 | 1,229 |
| Aviation[a] | 1,324 | 501 | 393 | 410 | 413 | 382 | 361 | 339 | 344 | 340 | 364 | 367 | 344 | 335 | 351 | 322 | 296 | 356 | 342 | 304 | 314 | 332 | 355 |
| Marine | 61 | 96 | 598 | 730 | 1,052 | 1,053 | 1,300 | 1,710 | 1,319 | 874 | 897 | 1,060 | 994 | 987 | 956 | 1,098 | 1,124 | 994 | 1,081 | 1,108 | 1,033 | 1,262 | 1,237 |
| Other[b] | 1,656 | 1,647 | 1,080 | 938 | 1,131 | 1,490 | 1,733 | 1,482 | 1,439 | 850 | 862 | 838 | 825 | 990 | 1,070 | 915 | 934 | 1,907 | 2,051 | 2,249 | 2,286 | 2,213 | 2,090 |

[a] Does not include aviation jet fuel.
[b] Includes state, county, and municipal use, industrial and commercial use, construction use, and miscellaneous.

**NOTE**

All nonhighway uses of gasoline were estimated by the U.S. Department of Transportation, Federal Highway Administration.

**SOURCES**

**Highway:**

1960-94: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics, Summary to 1995* (Washington, DC: 1996), table MF-221, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of June 17, 2010.

1995-2001: Ibid., *Highway Statistics* (Washington, DC: Annual Issues), table MF-21, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of June 17, 2010.

2002-07: Ibid., personal communication, June 21, 2010.

2008: Ibid., *Highway Statistics* (Washington, DC: Annual Issues), table MF-21, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of June 21, 2010.

**Nonhighway:**

1960-2001: Ibid., *Highway Statistics* (Washington, DC: Annual Issues), tables MF-21 and MF-24, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of June 17, 2010.

**Table 4-8: Certificated Air Carrier Fuel Consumption and Travel[a]**

| | 1960 | 1965 | 1970 | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | (R) 2001 | (R) 2002 | (R) 2003 | (R) 2004 | (R) 2005 | (R) 2006 | (R) 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number of aircraft | 2,135 | 2,125 | 2,679 | 2,495 | 3,808 | 4,678 | 6,083 | 6,054 | 7,320 | 7,297 | 7,370 | 7,411 | 7,478 | 7,616 | 8,111 | 8,228 | 8,055 | 8,497 | 8,194 | 8,176 | 8,186 | 8,225 | 8,089 | 8,044 | 7,856 | U |
| Average miles flown per aircraft (thousands) | 487 | 667 | 949 | 932 | 768 | 740 | 777 | 770 | 669 | 701 | 726 | 759 | 782 | 791 | 766 | 796 | 862 | 801 | 834 | 901 | 978 | 1,003 | 1,016 | 1,046 | 1,037 | U |
| Aircraft-miles (millions) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Domestic operations | 858 | 1,134 | 2,068 | 1,948 | 2,523 | 3,046 | (R) 3,963 | (R) 3,854 | (R) 3,995 | (R) 4,156 | (R) 4,378 | (R) 4,628 | (R) 4,807 | (R) 4,907 | (R) 5,030 | (R) 5,326 | (R) 5,662 | 5,545 | 5,615 | 6,106 | 6,602 | 6,716 | 6,605 | 6,733 | 6,446 | 5,940 |
| International operations | 182 | 284 | 475 | 377 | 401 | 415 | (R) 760 | (R) 807 | (R) 904 | (R) 958 | (R) 975 | (R) 998 | (R) 1,043 | (R) 1,114 | (R) 1,186 | (R) 1,225 | (R) 1,282 | 1,264 | 1,221 | 1,262 | 1,403 | 1,536 | 1,615 | 1,682 | 1,699 | 1,597 |
| Fuel consumption (million gallons) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Domestic operations | (R) 1,954 | (R) 3,889 | (R) 8,009 | 7,558 | 8,519 | 10,115 | 12,323 | 11,506 | 11,763 | 11,959 | 12,384 | 12,672 | 13,217 | 13,563 | 13,335 | 14,402 | 14,865 | 13,868 | 12,922 | 13,082 | 14,091 | 13,976 | 13,694 | 13,682 | 12,686 | 11,339 |
| International operations | (R) 566 | (R) 1,280 | (R) 2,136 | 1,949 | 1,747 | 2,488 | 3,909 | 3,940 | 4,120 | 4,113 | 4,279 | 4,443 | 4,618 | 4,915 | 4,923 | 5,250 | 5,508 | 5,336 | 5,079 | 5,219 | 5,592 | 5,974 | 6,018 | 6,205 | 6,187 | 5,721 |
| Aircraft-miles flown per gallon | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Domestic operations | (R) 0.44 | (R) 0.29 | (R) 0.26 | 0.26 | 0.30 | 0.30 | (R) 0.32 | (R) 0.33 | (R) 0.34 | (R) 0.35 | (R) 0.35 | (R) 0.37 | (R) 0.36 | (R) 0.36 | (R) 0.38 | (R) 0.37 | (R) 0.38 | 0.40 | 0.43 | 0.47 | 0.47 | 0.48 | 0.48 | 0.49 | 0.51 | 0.52 |
| International operations | (R) 0.32 | (R) 0.22 | (R) 0.22 | 0.19 | 0.23 | 0.17 | (R) 0.19 | (R) 0.20 | (R) 0.22 | (R) 0.23 | (R) 0.23 | (R) 0.22 | (R) 0.23 | (R) 0.23 | (R) 0.24 | (R) 0.23 | (R) 0.23 | 0.24 | 0.24 | 0.24 | 0.25 | 0.26 | 0.27 | 0.27 | 0.27 | 0.28 |

**KEY:** R = revised; U = data are unavailable.

[a] Aircraft operating under 14 CFR 121 and 14 CFR 135.

**SOURCES**

**Number of aircraft:**

1960-65: U.S. Department of Transportation, Federal Aviation Administration, *FAA Statistical Handbook of Aviation, 1970 edition* (Washington, DC: 1970), table 5.3.

1970-75: Ibid., *FAA Statistical Handbook of Aviation, Calendar Year 1979* (Washington, DC: 1979), table 5.1.

1980-85: Ibid., *FAA Statistical Handbook of Aviation, Calendar Year 1986* (Washington, DC: 1986), table 5.1.

1990-97: Ibid., *FAA Statistical Handbook of Aviation, Calendar Year 1997* (Washington, DC: unpublished), personal communication, Mar. 19, 1999.

1998-2008: Aerospace Industries Association, *Aerospace Facts and Figures* (Washington DC: Annual Issues), "Active U.S. Air Carrier Fleet", p. 94 and similar pages in earlier editions.

**Aircraft-miles flown:**

1960: Civil Aeronautics Board, *Handbook of Airline Statistics 1969* (Washington, DC: 1970), part III, tables 2 and 13.

1965-1970: Ibid., *Handbook of Airline Statistics 1973* (Washington, DC: 1974), part III, tables 2 and 13.

1975-1980: U.S. Department of Transportation, Bureau of Transportation Statistics, Office of Airline Information, *Air Carrier Traffic Statistics* (Washington, DC: December 1976), pp. 4 and 14; and (December 1981), pp. 2 and 3.

1985: Ibid., *Air Carrier Traffic Statistics* (Washington, DC: Annual December Issues), pp. 2 and 3, line 27 plus line 50.

1990-2009: U.S. Department of Transportation, Bureau of Transportation Statistics, Office of Airline Information, *Air Carrier Traffic Statistics*, available at http://www.bts.gov/xml/air_traffic/src/index.xml#CustomizeTable as of June 7, 2010.

**Fuel consumption:**

1960-75: U.S. Department of Transportation, Bureau of Transportation Statistics, Office of Airline Information, personal communication, June 8, 2010.

1980-2009: Ibid., *Fuel Cost and Consumption*, available at http://www.bts.gov/xml/fuel/report/src/index.xml as of Apr. 28, 2010.

**Table 4-9: Motor Vehicle Fuel Consumption and Travel**

| | 1960 | 1965 | 1970 | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicles registered (thousands)[a] | 73,858 | 90,358 | 111,242 | 137,913 | 161,490 | 177,133 | 193,057 | 192,314 | 194,427 | 198,041 | 201,802 | 205,427 | 210,441 | 211,580 | 215,496 | 220,461 | 225,821 | 235,331 | 234,624 | 236,760 | 237,243 | 247,421 | (R) 250,845 | 254,403 |
| Vehicle-miles traveled (millions) | 718,762 | 887,812 | 1,109,724 | 1,327,664 | 1,527,295 | 1,774,826 | 2,144,362 | 2,172,050 | 2,247,151 | 2,296,378 | 2,357,588 | 2,422,696 | 2,485,848 | 2,561,695 | 2,631,522 | 2,691,056 | 2,746,925 | 2,797,287 | 2,855,508 | 2,890,450 | 2,964,788 | 2,989,430 | (R) 3,014,371 | 3,029,822 |
| Fuel consumed (million gallons) | 57,880 | 71,104 | 92,329 | 108,984 | 114,960 | 121,301 | 130,755 | 128,563 | 132,888 | 137,262 | 140,839 | 143,834 | 147,365 | 150,386 | 155,379 | 161,411 | 162,554 | 163,478 | 168,682 | 170,069 | 178,536 | 174,787 | 174,930 | 176,106 |
| Average miles traveled per vehicle (thousands) | 9.7 | 9.8 | 10.0 | 9.6 | 9.5 | 10.0 | 11.1 | 11.3 | 11.6 | 11.6 | 11.7 | 11.8 | 11.8 | 12.1 | 12.2 | 12.2 | 12.2 | 11.9 | 12.2 | 12.2 | 12.5 | 12 | 12.0 | 11.9 |
| Average miles traveled per gallon | 12.4 | 12.5 | 12.0 | 12.2 | 13.3 | 14.6 | 16.4 | 16.9 | 16.9 | 16.7 | 16.7 | 16.8 | 16.9 | 17.0 | 16.9 | 16.7 | 16.9 | 17.1 | 16.9 | 17.0 | 16.6 | 17 | 17.2 | 17.2 |
| Average fuel consumed per vehicle (gallons) | 784 | 787 | 830 | 790 | 712 | 685 | 677 | 669 | 683 | 693 | 698 | 700 | 700 | 711 | 721 | 732 | 720 | 695 | 719 | 718 | 753 | 706 | 697 | 692 |

**KEY**: R = revised.

[a] Includes personal passenger vehicles, buses, trucks and motorcycles.

**NOTE**

See tables 4-11, 4-12, 4-13, 4-14, and 4-15 for individual highway vehicles.

**SOURCES**

1960-94: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1995*, table VM-201A, available at www.fhwa.dot.gov/policy/ohpi as of Mar. 23, 2009.
1995-2007: Ibid., *Highway Statistics* (Washington, DC: Annual issues), tables MF-21, MV-1, and VM-1, available at www.fhwa.dot.gov/policy/ohpi as of Mar. 23, 2009.

**Table 4-10: Estimated Consumption of Alternative and Replacement Fuels for Highway Vehicles (Thousand gasoline-equivalent gallons)**

| | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL fuel consumption[a] | 134,230,631 | 135,912,964 | 140,718,522 | 144,774,683 | 148,180,046 | 151,597,859 | 156,838,150 | 161,210,087 | 163,032,407 | 165,201,691 | 169,983,219 | 177,697,941 | 180,698,532 | 182,185,778 | 184,810,803 | 185,593,715 | 177,037,209 |
| Alternative fuels, total | 229,631 | 293,334 | 281,152 | 276,643 | 295,616 | 312,589 | 323,790 | 302,287 | 322,037 | 348,421 | 378,589 | 402,941 | 428,532 | 420,778 | 417,803 | 414,715 | 430,329 |
| Liquefied petroleum gases | 208,142 | 264,655 | 248,467 | 232,701 | 239,158 | 238,356 | 241,386 | 209,817 | 212,576 | 215,876 | 223,143 | 224,697 | 211,883 | 188,171 | 173,130 | 152,360 | 147,784 |
| Compressed natural gas | 16,823 | 21,603 | 24,160 | 35,162 | 46,923 | 65,192 | 72,412 | 79,620 | 86,475 | 104,496 | 120,670 | 133,222 | 158,903 | 166,878 | 172,011 | 178,565 | 189,358 |
| Liquefied natural gas | 585 | 1,901 | 2,345 | 2,759 | 3,247 | 3,714 | 5,343 | 5,828 | 7,259 | 8,921 | 9,382 | 13,503 | 20,888 | 22,409 | 23,474 | 24,594 | 25,554 |
| Methanol, 85%[b] | 1,069 | 1,593 | 2,340 | 2,023 | 1,775 | 1,554 | 1,212 | 1,073 | 585 | 439 | 337 | N | N | N | N | N | N |
| Methanol, neat | 2,547 | 3,166 | 3,190 | 2,150 | 347 | 347 | 449 | 447 | 0 | 0 | 0 | 0 | N | N | N | N | N |
| Ethanol, 85%[b] | 21 | 48 | 80 | 190 | 694 | 1,280 | 1,727 | 3,916 | 12,071 | 14,623 | 17,783 | 26,376 | 31,581 | 38,074 | 44,041 | 54,091 | 62,464 |
| Ethanol, 95%[b] | 85 | 80 | 140 | 995 | 2,699 | 1,136 | 59 | 62 | 13 | 0 | 0 | 0 | N | N | N | N | N |
| Electricity[c] | 359 | 288 | 430 | 663 | 773 | 1,010 | 1,202 | 1,524 | 3,058 | 4,066 | 7,274 | 5,141 | 5,269 | 5,219 | 5,104 | 5,037 | 5,050 |
| Hydrogen | N | N | N | N | N | N | N | N | N | N | N | 2 | 8 | 25 | 41 | 66 | 117 |
| Other Fuels | N | N | N | N | N | N | N | N | N | N | N | 0 | 0 | 2 | 2 | 2 | 2 |
| Biodiesel | N | N | N | N | N | N | N | N | 6,816 | 7,076 | 16,917 | 18,220 | (R) 27,616 | (R) 93,281 | (R) 267,623 | 367,764 | 324,329 |
| Oxygenates | | | | | | | | | | | | | | | | | |
| Methyl-tertiary-butyl-ether[d] | 1,175,000 | 2,069,200 | 2,018,800 | 2,691,200 | 2,749,700 | 3,104,200 | 2,903,400 | 3,402,600 | 3,296,100 | 3,352,200 | 2,383,000 | 2,368,400 | 1,877,300 | 1,654,500 | 435,000 | (R) 0 | 0 |
| Ethanol in gasohol | 701,000 | 760,000 | 845,900 | 910,700 | 660,200 | 830,700 | 889,500 | 950,300 | 1,085,800 | 1,143,300 | 1,413,600 | 1,919,572 | 2,414,167 | 2,756,663 | 3,729,168 | 4,694,304 | 6,442,781 |
| Traditional fuels, total | 134,001,000 | 135,619,630 | 140,437,370 | 144,498,040 | 147,884,430 | 151,285,270 | 156,514,360 | 160,907,800 | 162,710,370 | 164,853,270 | 169,604,630 | 177,295,000 | 180,270,000 | 181,765,000 | 184,393,000 | 185,179,000 | 176,606,880 |
| Gasoline[e] | 110,135,000 | 111,323,000 | 113,144,000 | 115,943,000 | 117,783,000 | 119,336,000 | 122,849,000 | 125,111,000 | 125,720,000 | 127,768,000 | 131,299,000 | 135,330,000 | 138,283,000 | 138,723,000 | 140,146,000 | 140,646,000 | 134,644,492 |
| Diesel[f] | 23,866,000 | 24,296,630 | 27,293,370 | 28,555,040 | 30,101,430 | 31,949,270 | 33,665,360 | 35,796,800 | 36,990,370 | 37,085,270 | 38,305,630 | 41,965,000 | 41,987,000 | 43,042,000 | 44,247,000 | 44,533,000 | 41,962,388 |

**KEY:** N = data do not exist; R = revised.

[a] *Total fuel consumption* is the sum of *Alternative fuels, Gasoline, and Diesel*. *Oxygenate* consumption is included in *Gasoline* consumption.
[b] The remaining portion of *85% methanol, 85% ethanol, and 95% ethanol* fuels is *Gasoline*. Consumption data include the *Gasoline* portion of the fuel.
[c] Excludes gasoline-electric hybrids.
[d] Includes a very small amount of other ethers, primarily tertiary-amyl-methyl-ether and ethyl-tertiary-butyl-ether.
[e] *Gasoline* consumption includes *Ethanol in gasohol* and *Methyl-tertiary-butyl-ether*.
[f] *Diesel* includes *Biodiesel.*

**NOTES**

Numbers may not add to totals due to rounding.
Beginning with 2003 data, the methodology used to develop the estimates of alternative fueled vehicles (AFVs) in use and alternate transportation fuel consumption were changed. The data reflect this new methodology.
The traditional fuel consumption data in this table are slightly different from the fuel consumption data in table 4-9 due to different sources.

**SOURCE**

U.S. Department of Energy, Energy Information Administration, *Alternatives to Traditional Transportation Fuels 2008,* table C-1 and similar tables in earlier editions, available at http://www.eia.doe.gov/cneaf/alternate/page/atftables/afv_atf.html as of July 12, 2010.

**Table 4-11: Passenger Car and Motorcycle Fuel Consumption and Travel**

| | 1960 | 1965 | 1970 | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | (R) 2007 | 2008 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicles registered (thousands) | | | | | | | | | | | | | | | | | | | | | | | | | |
| Passenger cars | 61,671 | 75,258 | 89,244 | 106,706 | 121,601 | 127,885 | 133,700 | 128,300 | 126,581 | 127,327 | 127,883 | 128,387 | 129,728 | 129,749 | 131,839 | 132,432 | 133,621 | 137,633 | 135,921 | 135,670 | 136,431 | 136,568 | 135,400 | 135,933 | 137,080 |
| Motorcycles | 574 | 1,382 | 2,824 | 4,964 | 5,694 | 5,444 | 4,259 | 4,177 | 4,065 | 3,978 | 3,757 | 3,897 | 3,872 | 3,826 | 3,879 | 4,152 | 4,346 | 4,903 | 5,004 | 5,370 | 5,768 | 6,227 | 6,679 | 7,138 | 7,753 |
| Vehicle-miles traveled (millions) | | | | | | | | | | | | | | | | | | | | | | | | | |
| Passenger cars[a] | 587,000 | 723,000 | 917,000 | 1,034,000 | 1,112,000 | 1,247,000 | 1,408,000 | 1,358,000 | 1,372,000 | 1,375,000 | 1,406,000 | 1,438,000 | 1,469,854 | 1,502,556 | 1,549,577 | 1,569,100 | 1,600,287 | 1,628,332 | 1,658,474 | 1,672,079 | 1,699,890 | 1,708,421 | 1,690,534 | 1,672,467 | 1,615,850 |
| Motorcycles | U | U | 3,000 | 5,600 | 10,200 | 9,100 | 9,600 | 9,200 | 9,600 | 9,900 | 10,200 | 9,800 | 9,920 | 10,081 | 10,283 | 10,584 | 10,469 | 9,639 | 9,552 | 9,577 | 10,122 | 10,454 | 12,049 | 13,621 | 14,484 |
| Fuel consumed (million gallons) | | | | | | | | | | | | | | | | | | | | | | | | | |
| Passenger cars[a] | 41,171 | 49,723 | 67,819 | 74,140 | 69,982 | 71,518 | 69,568 | 64,317 | 65,436 | 67,048 | 67,874 | 68,072 | 69,221 | 69,892 | 71,695 | 73,283 | 73,065 | 73,559 | 75,471 | 75,455 | 75,402 | 77,418 | 75,009 | 74,377 | 71,497 |
| Motorcycles | U | U | 60 | 113 | 204 | 182 | 191 | 184 | 191 | 198 | 205 | 196 | 198 | 202 | 206 | 212 | 209 | 193 | 191 | 192 | 202 | 189 | 221 | 242 | 256 |
| Average miles traveled per vehicle (thousands) | | | | | | | | | | | | | | | | | | | | | | | | | |
| Passenger cars[a] | 9.5 | 9.6 | 10.3 | 9.7 | 9.1 | 9.8 | 10.5 | 10.6 | 10.8 | 10.8 | 11.0 | 11.2 | 11.3 | 11.6 | 11.8 | 11.8 | 12.0 | 11.8 | 12.2 | 12.3 | 12.5 | 12.5 | 12.5 | 12.3 | 11.8 |
| Motorcycles | U | U | 1.1 | 1.1 | 1.8 | 1.7 | 2.3 | 2.2 | 2.4 | 2.5 | 2.7 | 2.5 | 2.6 | 2.6 | 2.7 | 2.5 | 2.4 | 2.0 | 1.9 | 1.8 | 1.8 | 1.7 | 1.8 | 1.9 | 1.9 |
| Average miles traveled per gallon | | | | | | | | | | | | | | | | | | | | | | | | | |
| Passenger cars[a] | 14.3 | 14.5 | 13.5 | 13.9 | 15.9 | 17.4 | 20.2 | 21.1 | 21.0 | 20.5 | 20.7 | 21.1 | 21.2 | 21.5 | 21.6 | 21.4 | 21.9 | 22.1 | 22.0 | 22.2 | 22.5 | 22.1 | 22.5 | 22.5 | 22.6 |
| Motorcycles | U | U | 50.0 | 49.6 | 50.0 | 50.0 | 50.3 | 50.0 | 50.3 | 50.0 | 49.8 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 | 49.9 | 50.0 | 50.0 | 50.0 | 55.3 | 54.5 | 56.2 | 56.5 |
| Average fuel consumed per vehicle (gallons) | | | | | | | | | | | | | | | | | | | | | | | | | |
| Passenger cars[a] | 667.6 | 660.7 | 759.9 | 694.8 | 575.5 | 559.2 | 520.3 | 501.3 | 516.9 | 526.6 | 530.8 | 530.2 | 533.6 | 538.7 | 543.8 | 553.4 | 546.8 | 534.5 | 555.3 | 556.2 | 552.7 | 566.9 | 554.0 | 547.2 | 521.6 |
| Motorcycles | U | U | 21.2 | 22.8 | 35.8 | 33.4 | 44.8 | 44.1 | 47.0 | 49.8 | 54.6 | 50.3 | 51.2 | 52.7 | 53.0 | 51.0 | 48.2 | 39.4 | 38.2 | 35.7 | 35.1 | 30.4 | 33.1 | 33.9 | 33.1 |

**KEY:** R = revised; U = data are unavailable.

[a] 1960 and 1965 data include *Motorcycles*.

**NOTES**

See table 4-12 for other 2-axle 4-tire vehicles.

*Average miles traveled per vehicle*, *Average miles traveled per gallon*, and *Average fuel consumed per vehicle* are derived by calculation.

**SOURCES**

1960-94: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1995*, FHWA-PL-97-009 (Washington, DC: July 1997), tables MV-201 and VM-201A, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of Mar. 23, 2009.
1995-2008: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of Apr. 26, 2010.

**Table 4-12: Other 2-Axle 4-Tire Vehicle Fuel Consumption and Travel**

| | 1970 | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | (R) 2007 | 2008 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number registered (thousands) | 14,211 | 20,418 | 27,876 | 37,214 | 48,275 | 53,033 | 57,091 | 59,994 | 62,904 | 65,738 | 69,134 | 70,224 | 71,330 | 75,356 | 79,085 | 84,188 | 85,011 | 87,187 | 91,845 | 95,337 | 99,125 | 101,470 | 101,235 |
| Vehicle-miles traveled (millions) | 123,000 | 201,000 | 291,000 | 391,000 | 575,000 | 649,000 | 707,000 | 746,000 | 765,000 | 790,000 | 816,540 | 850,739 | 868,275 | 901,022 | 923,059 | 943,207 | 966,034 | 984,094 | 1,027,164 | 1,041,051 | 1,082,490 | 1,112,271 | 1,108,603 |
| Fuel consumed (million gallons) | 12,313 | 19,081 | 23,796 | 27,363 | 35,611 | 38,217 | 40,929 | 42,851 | 44,112 | 45,605 | 47,354 | 49,388 | 50,462 | 52,859 | 52,939 | 53,522 | 55,220 | 60,758 | 63,417 | 58,869 | 60,685 | 61,836 | 61,199 |
| Average miles traveled per vehicle (thousands) | 8.7 | 9.8 | 10.4 | 10.5 | 11.9 | 12.2 | 12.4 | 12.4 | 12.2 | 12.0 | 11.8 | 12.1 | 12.2 | 12.0 | 11.7 | 11.2 | 11.4 | 11.3 | 11.2 | 10.9 | 10.9 | 11.0 | 11.0 |
| Average miles traveled per gallon | 10.0 | 10.5 | 12.2 | 14.3 | 16.1 | 17.0 | 17.3 | 17.4 | 17.3 | 17.3 | 17.2 | 17.2 | 17.2 | 17.0 | 17.4 | 17.6 | 17.5 | 16.2 | 16.2 | 17.7 | 17.8 | 18.0 | 18.1 |
| Average fuel consumed per vehicle (gallons) | 866.5 | 934.5 | 853.6 | 735.3 | 737.7 | 720.6 | 716.9 | 714.3 | 701.3 | 693.7 | 685.0 | 703.3 | 707.4 | 701.5 | 669.4 | 635.7 | 649.6 | 696.9 | 690.5 | 617.5 | 612.2 | 609.4 | 604.5 |

**KEY:** R = revised.

**NOTES**

Nearly all vehicles in this category are light trucks, which include vans, pickup trucks, and sport utility vehicles. In 1995, the U.S. Department of Transportation, Federal Highway Administration revised its vehicle categories beginning with 1993 data. The new categories are passenger car, other 2-axle 4-tire vehicle, single-unit 2-axle 6-tire or more truck, and combination truck. Prior to 1993, some minivans and sport utility vehicles were included under the passenger car category.

**SOURCES**

1970-94: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1995,* FHWA-PL-97-009 (Washington, DC: July 1997), table VM-201A, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of Mar. 23, 2009.
1995-2008: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of Apr. 26, 2010.

**Table 4-13: Single-Unit 2-Axle 6-Tire or More Truck Fuel Consumption and Travel[a]**

| | 1970 | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number registered (thousands) | 3,681 | 4,232 | 4,374 | 4,593 | 4,487 | 4,481 | 4,370 | 4,408 | 4,906 | 5,024 | 5,266 | 5,293 | 5,735 | 5,763 | 5,926 | 5,704 | 5,651 | 5,849 | 6,161 | 6,395 | 6,649 | 6,807 | 6,791 |
| Vehicle-miles (millions) | 27,100 | 34,600 | 39,800 | 45,400 | 51,900 | 52,900 | 53,900 | 56,800 | 61,300 | 62,705 | 64,072 | 66,893 | 68,021 | 70,304 | 70,500 | 72,448 | 75,866 | 77,757 | 78,441 | 78,496 | 80,344 | 82,014 | 83,951 |
| Fuel consumed (million gallons) | 3,968 | 5,420 | 6,923 | 7,399 | 8,357 | 8,172 | 8,237 | 8,488 | 9,032 | 9,216 | 9,409 | 9,576 | (R) 9,741 | 9,372 | 9,563 | 9,667 | 10,321 | 8,880 | 8,959 | 9,501 | 9,852 | 10,044 | 9,889 |
| Average miles traveled per vehicle (thousands) | 7.4 | 8.2 | 9.1 | 9.9 | 11.6 | 11.8 | 12.3 | 12.9 | 12.5 | 12.5 | 12.2 | 12.6 | 11.9 | 12.2 | 11.9 | 12.7 | 13.4 | 13.3 | 12.7 | 12.3 | 12.1 | 12.0 | 12.4 |
| Average miles traveled per gallon | 6.8 | 6.4 | 5.7 | 6.1 | 6.2 | 6.5 | 6.5 | 6.7 | 6.8 | 6.8 | 6.8 | 7.0 | (R) 7.0 | 7.5 | 7.4 | 7.5 | 7.4 | 8.8 | 8.8 | 8.3 | 8.2 | 8.2 | 8.5 |
| Average fuel consumed per vehicle (gallons) | 1,077.8 | 1,280.8 | 1,582.8 | 1,610.9 | 1,862.5 | 1,823.8 | 1,885.0 | 1,925.7 | 1,840.9 | 1,834.5 | 1,786.7 | 1,809.1 | (R) 1,698.5 | 1,626.3 | 1,613.7 | 1,695.0 | 1,826.5 | 1,518.4 | 1,454.1 | 1,485.6 | 1,481.7 | 1,475.6 | 1,456.2 |

**KEY:** R = revised.

[a] Beginning in 1998, the Federal Highway Administration (FHWA) used the Census Bureau's *1997 Vehicle Inventory and Use Survey* (VIUS) for its baseline estimate of single-unit 2-axle 6-tire or more trucks. Prior to 1998, the FHWA used the Census Bureau's *1992 Transportation Inventory and Use Survey* (TIUS) for its baseline estimates. Therefore, post-1997 data may not be comparable to 1997 and earlier years.

**NOTE**

In 1995, the U.S. Department of Transportation, Federal Highway Administration revised its vehicle categories beginning with 1993 data to include passenger cars, other 2-axle 4-tire vehicles, single-unit 2-axle 6-tire or more trucks, and combination trucks. Single-unit 2-axle 6-tire or more trucks are on a single frame with at least 2 axles and 6 tires. Pre-1993 data have been reassigned to the most appropriate category.

**SOURCES**

1970-94: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1995,* FHWA-PL-97-009 (Washington, DC: July 1997), table VM-201A, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of Mar. 23, 2009.

1995-2008: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of Aug. 3, 2010.

**Table 4-14: Combination Truck Fuel Consumption and Travel** [a]

| | 1965 | 1970 | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | (R) 2007 | 2008 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number registered (thousands) | 787 | 905 | 1,131 | 1,417 | 1,403 | 1,709 | 1,691 | 1,675 | 1,680 | 1,682 | 1,696 | 1,747 | 1,790 | 1,997 | 2,029 | 2,097 | 2,154 | 2,277 | 1,908 | 2,010 | 2,087 | 2,170 | 2,221 | 2,216 |
| Vehicle-miles traveled (millions) | 31,700 | 35,100 | 46,700 | 68,700 | 78,100 | 94,300 | 96,600 | 99,500 | 103,100 | 108,900 | 115,500 | 118,899 | 124,584 | 128,359 | 132,384 | 135,020 | 136,584 | 138,737 | 140,160 | 142,370 | 144,028 | 142,169 | 145,046 | 143,507 |
| Fuel consumed (million gallons) | 6,658 | 7,348 | 9,177 | 13,037 | 14,005 | 16,133 | 16,809 | 17,216 | 17,748 | 18,653 | 19,777 | 20,193 | 20,302 | 25,158 | 24,537 | 25,666 | 25,512 | 26,480 | 23,815 | 24,191 | 27,689 | 28,107 | 28,545 | 26,814 |
| Average miles traveled per vehicle (thousands) | 40.3 | 38.8 | 41.3 | 48.5 | 55.7 | 55.2 | 57.1 | 59.4 | 61.4 | 64.8 | 68.1 | 68.1 | 69.6 | 64.3 | 65.3 | 64.4 | 63.4 | 60.9 | 73.4 | 70.8 | 69.0 | 65.5 | 65.3 | 64.8 |
| Average miles traveled per gallon | 4.8 | 4.8 | 5.1 | 5.3 | 5.6 | 5.8 | 5.7 | 5.8 | 5.8 | 5.8 | 5.8 | 5.9 | 6.1 | 5.1 | 5.4 | 5.3 | 5.4 | 5.2 | 5.9 | 5.9 | 5.2 | 5.1 | 5.1 | 5.4 |
| Average fuel consumed per vehicle (gallons) | 8,465.2 | 8,118.6 | 8,115.9 | 9,201.3 | 9,980.3 | 9,440.6 | 9,938.3 | 10,276.0 | 10,562.4 | 11,093.1 | 11,662.7 | 11,561.1 | 11,341.9 | 12,595.7 | 12,095.9 | 12,241.5 | 11,843.0 | 11,630.9 | 12,479.5 | 12,033.3 | 13,268.9 | 12,954.3 | 12,852.5 | 12,101.2 |

**KEY:** R = revised.

[a] Beginning in 1998, the Federal Highway Administration (FHWA) used the Census Bureau's *1997 Vehicle Inventory and Use Survey* (VIUS) for its baseline estimate of combination trucks. Prior to 1998, the FHWA used the Census Bureau's *1992 Transportation Inventory and Use Survey* (TIUS) for its baseline estimates. Therefore, post-1997 data may not be comparable to 1997 and earlier years.

**SOURCES**

1965-94: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1995,* FHWA-PL-97-009 (Washington, DC: July 1997), table VM-201A, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of Mar. 23, 2009.

1995-2008: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of Apr. 26, 2010.

**Table 4-15: Bus Fuel Consumption and Travel**

| | 1960 | 1965 | 1970 | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | (R) 2007 | 2008 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number registered (thousands) | 272 | 314 | 378 | 462 | 529 | 593 | 627 | 631 | 645 | 654 | 670 | 686 | 695 | 698 | 716 | 729 | 746 | 750 | 761 | 777 | 795 | 807 | 822 | 834 | 843 |
| Vehicle-miles traveled (millions) | 4,300 | 4,700 | 4,500 | 6,100 | 6,100 | 4,500 | 5,700 | 5,800 | 5,800 | 6,100 | 6,400 | 6,400 | 6,563 | 6,842 | 7,007 | 7,662 | 7,590 | 7,077 | 6,845 | 6,783 | 6,801 | 6,980 | 6,783 | 6,980 | 7,114 |
| Fuel consumed (million gallons) | 827 | 875 | 820 | 1,053 | 1,018 | 834 | 895 | 864 | 878 | 929 | 964 | 968 | 990 | 1,027 | 1,040 | 1,148 | 1,112 | 1,026 | 1,000 | 969 | 1,360 | 1,120 | 1,148 | 1,145 | 1,110 |
| Average miles traveled per vehicle (thousands) | 15.8 | 15.0 | 11.9 | 13.2 | 11.5 | 7.6 | 9.1 | 9.2 | 9.0 | 9.3 | 9.5 | 9.3 | 9.4 | 9.8 | 9.8 | 10.5 | 10.2 | 9.4 | 9.0 | 8.7 | 8.6 | 8.6 | 8.3 | 8.4 | 8.4 |
| Average miles traveled per gallon | 5.2 | 5.4 | 5.5 | 5.8 | 6.0 | 5.4 | 6.4 | 6.7 | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 | 6.7 | 6.7 | 6.7 | 6.8 | 6.9 | 6.8 | 7.0 | 5.0 | 6.2 | 5.9 | 6.1 | 6.4 |
| Average fuel consumed per vehicle (gallons) | 3,039.0 | 2,784.1 | 2,171.8 | 2,278.5 | 1,925.2 | 1,405.3 | 1,427.5 | 1,368.6 | 1,361.8 | 1,419.6 | 1,437.9 | 1,412.1 | 1,424.8 | 1,471.7 | 1,453.9 | 1,575.7 | 1,490.4 | 1,368.7 | 1,314.0 | 1,247.8 | 1,710.3 | 1,387.8 | 1,397.2 | 1,372.0 | 1,315.8 |

**KEY:** R = revised.

**NOTE**

This table Includes data for both publicly and privately owned school, transit, and other commercial buses.

**SOURCES**

1960-94: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1995,* FHWA-PL-97-009 (Washington, DC: July 1997), table VM-201A, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of Mar. 23, 2009.

1995-2008: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of Apr. 26, 2010.

**Table 4-16: Transit Industry Electric Power and Primary Energy Consumption[a] and Travel**

| | 1960 | 1965 | 1970 | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number of vehicles (thousands) | 65 | 62 | 61 | 62 | 75 | 94 | 93 | 97 | 103 | 108 | 116 | 116 | 94 | 98 | 100 | 103 | 106 | 111 | 112 | 115 | 117 | 122 | 126 | 126 | 129 | 136 |
| Vehicle-miles traveled (millions) | 2,143 | 2,008 | 1,883 | 2,176 | 2,287 | 2,791 | 3,242 | 3,306 | 3,355 | 3,435 | 3,468 | 3,550 | 2,751 | 2,853 | 2,970 | 3,111 | 3,202 | 3,319 | 3,433 | 3,476 | 3,548 | 3,603 | 3,671 | 3,769 | 3,895 | 3,988 |
| Electric power consumed (million kWh) | 2,908 | 2,584 | 2,561 | 2,646 | 2,446 | 4,216 | 4,837 | 4,853 | 4,716 | 4,865 | 5,081 | 5,068 | 4,923 | 4,908 | 4,962 | 5,126 | 5,382 | 5,485 | 5,529 | 5,508 | 5,657 | 5,765 | 5,770 | 6,216 | 6,337 | 6,492 |
| Primary energy consumed (thousand gallons) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Diesel | 208,100 | 248,400 | 270,600 | 365,060 | 431,400 | 608,738 | 651,030 | 665,158 | 684,944 | 678,511 | 678,226 | 678,286 | 534,958 | 539,169 | 560,448 | 575,889 | 590,610 | 595,918 | 673,040 | 554,286 | 541,998 | 480,456 | 528,236 | 514,954 | 499,400 | 614,433 |
| Gasoline and other nondiesel fuels[b] | 191,900 | 124,200 | 68,200 | 7,576 | 11,400 | 45,704 | 33,906 | 34,467 | 37,179 | 45,672 | 60,003 | 60,730 | 25,227 | 25,726 | 22,107 | 21,097 | 23,641 | 26,008 | 35,395 | 26,690 | 30,874 | 80,720 | 46,907 | 51,300 | 67,919 | 141,668 |
| Compressed natural gas | N | N | N | N | N | N | N | N | 1,009 | 1,579 | 4,835 | 10,740 | 11,476 | 19,339 | 28,800 | 34,825 | 43,676 | 52,510 | 65,774 | 79,456 | 86,595 | 93,866 | 110,643 | 107,703 | 112,753 | 142,156 |

**KEY:** kWh = kilowatt hour; N = data do not exist; R = revised.

[a] Prior to 1984, the data in this table include the energy consumption of bus, heavy rail, light rail and trolley bus. Commuter rail, automated guideway, urban ferryboat, dema responsive vehicles, and most rural and smaller systems are excluded from the data during this period.

[b] 1960 to 1991 data include propane. Series not continuous between 1991 and 1992. 1992 to 1995 data include propane, liquefied natural gas, bio/soy fuel, biodiesel, hydrogen, methanol and ethynol, except compressed natural gas. 1996 to 2001 data include only propane, liquified natural gas, methanol and ethynol. 2002 to 2009 data include the above, and also biodiesel and grain fuel.

**NOTES**

Data prior to 1996 are not comparable to data from 1996 onward due to a change in sources with differing methodologies. 2009 data fo *Gasoline and other nondiesel fuels* is not comparable to previous years' data due to a change in the reporting requirements that require transit agencies to submit energy consumption data for both purchased transportation (PT) services and directly operated (DO) transportation services. The major effect of this reporting change occurred within the following modes: Demand Response, Motor Bus, Publico, and Vanpool.

This table includes approximate electrical system losses, and thus the conversion factor is multiplied by 3.

**SOURCE**

1960-95: American Public Transportation Association *2009 Public Transportation Fact Book Appendix A: Historical Tables* (Washington, DC: Annual Issues), tables 7, 17, 29, 30, 31 and similar tables in earlier editions, available at http://www.apta.com/resources/statistics/Pages/transitstats.aspx as of Apr. 1, 2010.

1996-2009: U.S. Department of Transportation, Federal Transit Administration *National Transit Database*, tables 19 and 17 and similar tables in previous editions, available at www.ntdprogram.gov as of Dec. 9, 2010.

**Table 4-17: Class I Rail Freight Fuel Consumption and Travel**

| | 1960 | 1965 | 1970 | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number in use | | | | | | | | | | | | | | | | | | | | | | | | | |
| Locomotives[a] | 29,031 | 27,780 | 27,077 | 27,846 | 28,094 | 22,548 | 18,835 | 18,344 | 18,004 | 18,161 | 18,505 | 18,812 | 19,269 | 19,684 | 20,261 | 20,256 | 20,028 | 19,745 | 20,506 | 20,774 | 22,015 | 22,779 | 23,732 | 24,143 | 24,003 |
| Cars[b] | 1,965,486 | 1,800,662 | 1,784,181 | 1,723,605 | 1,710,827 | 1,421,686 | 1,212,261 | 1,189,660 | 1,173,136 | 1,173,132 | 1,192,412 | 1,218,927 | 1,240,573 | 1,270,419 | 1,315,667 | 1,368,836 | 1,380,796 | 1,314,136 | 1,299,670 | 1,278,980 | 1,287,920 | (R) 1,316,522 | (R) 1,361,250 | 1,385,709 | 1,392,972 |
| Miles traveled (millions) | | | | | | | | | | | | | | | | | | | | | | | | | |
| Freight train-miles[c] | 404 | 421 | 427 | 403 | 428 | 347 | 380 | 375 | 390 | 405 | 441 | 458 | 469 | 475 | 475 | 490 | 504 | 500 | 500 | 516 | 535 | 548 | (R) 563 | 543 | 524 |
| Locomotive unit-miles | N | N | N | 1,479 | 1,531 | 1,228 | 1,280 | 1,238 | 1,278 | 1,320 | 1,405 | 1,445 | 1,465 | 1,423 | 1,440 | 1,504 | 1,503 | 1,478 | 1,444 | 1,484 | 1,538 | 1,588 | 1,660 | 1,609 | 1,559 |
| Car-miles | 28,170 | 29,336 | 29,890 | 27,656 | 29,277 | 24,920 | 26,159 | 25,628 | 26,128 | 26,883 | 28,485 | 30,383 | 31,715 | 31,660 | 32,657 | 33,851 | 34,590 | 34,243 | 34,680 | 35,555 | 37,071 | 37,712 | 38,955 | 38,186 | 37,226 |
| Average miles traveled per vehicle (thousands) | | | | | | | | | | | | | | | | | | | | | | | | | |
| Locomotives | N | N | N | 53.1 | 54.5 | 54.5 | 68.0 | 67.5 | 71.0 | 72.7 | 75.9 | 76.8 | 76.0 | 72.3 | 71.1 | 74.2 | 75.0 | 74.8 | 70.4 | 71.4 | 69.9 | 69.7 | 69.9 | 66.6 | 64.9 |
| Cars | 14.3 | 16.3 | 16.8 | 16.0 | 17.1 | 17.5 | 21.6 | 21.5 | 22.3 | 22.9 | 23.9 | 24.9 | 25.6 | 24.9 | 24.8 | 24.7 | 25.1 | 26.1 | 26.7 | 27.8 | 28.8 | (R) 28.6 | (R) 28.6 | 27.6 | 26.7 |
| Average miles traveled per gallon | | | | | | | | | | | | | | | | | | | | | | | | | |
| Trains | 0.12 | 0.12 | 0.12 | 0.11 | 0.11 | 0.11 | 0.12 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.14 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 |
| Cars | 8.13 | 8.17 | 8.43 | 7.56 | 7.50 | 8.01 | 8.40 | 8.82 | 8.69 | 8.71 | 8.54 | 8.73 | 8.86 | 8.86 | 9.11 | 9.11 | 9.35 | 9.23 | 9.30 | 9.29 | 9.13 | 9.20 | 9.29 | 9.40 | 9.58 |
| Fuel consumed (million gallons) | 3,463 | 3,592 | 3,545 | 3,657 | 3,904 | 3,110 | 3,115 | 2,906 | 3,005 | 3,088 | 3,334 | 3,480 | 3,579 | 3,575 | 3,583 | 3,715 | 3,700 | 3,710 | 3,730 | 3,826 | 4,059 | 4,098 | 4,192 | 4,062 | 3,886 |
| Average fuel consumed per locomotive[a] (thousand gallons) | 119.3 | 129.3 | 130.9 | 131.3 | 139.0 | 137.9 | 165.4 | 158.4 | 166.9 | 170.0 | 180.2 | 185.0 | 185.7 | 181.6 | 176.8 | 183.4 | 184.7 | 187.9 | 181.9 | 184.2 | 184.4 | 179.9 | 176.6 | 168.2 | 161.9 |

**KEY:** N = data do not exist, R = revised.

[a] For 1960-80, the total includes a small number of steam and electric units, which are not included in the per locomotive fuel consumption figure.
[b] Includes cars owned by Class I railroads, other railroads, car companies, and shippers.
[c] Based on the distance run between terminals and/or stations; does not include yard or passenger train-miles.

**SOURCES**
**All data except for locomotive unit-miles:**
Association of American Railroads, *Railroad Facts 2009* (Washington, DC: 2009), pp. 33, 34, 40, 49, and 51, and similar tables in earlier editions.
**Locomotive unit-miles:**
1975-92, 2002: Ibid., *Railroad Ten-Year Trends* (Washington, DC: Annual issues).
1993-2001, 2003-04: Ibid., *Analysis of Class I Railroads* (Washington, DC: Annual issues).
2005-08: Association of American Railroads, personal communication, June 13, 2007, Apr. 24, 2008, and Apr. 28, 2010.

**Table 4-18: Amtrak Fuel Consumption and Travel**

| | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number in use | | | | | | | | | | | | | | | | | | | | | | |
| Locomotives | 355 | 419 | 291 | 318 | 316 | 336 | 360 | 338 | 313 | 299 | 332 | 345 | 329 | 378 | 401 | 372 | 442 | 276 | 258 | 319 | 270 | 278 |
| Cars | 1,913 | 2,128 | 1,854 | 1,863 | 1,786 | 1,796 | 1,853 | 1,852 | 1,722 | 1,730 | 1,728 | 1,962 | 1,992 | 1,894 | 2,084 | 2,896 | 1,623 | 1,211 | 1,186 | 1,191 | 1,164 | 1,177 |
| Miles traveled (millions) | | | | | | | | | | | | | | | | | | | | | | |
| Train-miles | 30 | 30 | 30 | 33 | 34 | 34 | 35 | 34 | 32 | 30 | 32 | 33 | 34 | 35 | 36 | 38 | 37 | 37 | 36 | 36 | 37 | 38 |
| Car-miles | 253 | 235 | 251 | 301 | 313 | 307 | 303 | 304 | 292 | 276 | 288 | 312 | 342 | 368 | 378 | 379 | 332 | 308 | 265 | 264 | 267 | 272 |
| Locomotive fuel consumed | | | | | | | | | | | | | | | | | | | | | | |
| Electric (million of kWhs) | (R) 180 | (R) 254 | (R) 295 | (R) 330 | (R) 303 | 300 | 301 | 309 | 336 | 363 | 390 | 416 | 443 | 470 | (R) 456 | (R) 518 | (R) 537 | (R) 551 | (R) 531 | (R) 549 | (R) 578 | 582 |
| Diesel (million gallons) | (R) 63 | (R) 64 | (R) 65 | (R) 82 | 82 | (R) 82 | (R) 83 | 74 | 72 | 71 | 76 | 76 | 79 | 95 | 97 | (R) 84 | (R) 75 | (R) 69 | (R) 65 | (R) 62 | (R) 62 | 63 |
| Average miles traveled per car (thousands) | 132 | 110 | 135 | 162 | 175 | 171 | 164 | 164 | 170 | 160 | 167 | 159 | 172 | 194 | 181 | 131 | 204 | 255 | 223 | 222 | 229 | 231 |

**KEY:** kWh = kilowatt hour; R = revised; U = data are unavailable.

**SOURCES**

**Number of locomotives and cars:**

1975–80: National Passenger Railroad Corporation (Amtrak), State and Local Affairs Department, personal communication.

1985–2000: Ibid., *Amtrak Annual Report*, Statistical Appendix (Washington, DC: Annual issues).

2001–08: Association of American Railroads, *Railroad Facts* (Washington, DC: Annual Issues), p. 77 and similar pages in earlier editions.

**Miles traveled:**

*Train-miles:*

1975–2002: National Passenger Railroad Corporation (Amtrak), *Amtrak Annual Report,* Statistical Appendix (Washington, DC: Annual issues).

2003–08: Association of American Railroads, *Railroad Facts* (Washington, DC: Annual Issues), p. 77 and similar pages in earlier editions.

*Car-miles:*

1975: Association of American Railroads, *Yearbook of Railroad Facts 1975* (Washington, DC: 1976), p. 40.

1980–85: National Passenger Railroad Corporation (Amtrak), State and Local Affairs Department and Public Affairs Department, personal communication.

1990–2000: Ibid., Amtrak Corporate Reporting, Route Profitability System, personal communication, Aug. 22, 2001.

2001–08: Association of American Railroads, *Railroad Facts* (Washington, DC: Annual Issues), p. 77 and similar pages in earlier editions.

**Locomotive fuel consumed:**

1975-2001: National Passenger Railroad Corporation (Amtrak), State and Local Affairs Department, personal communication.

2001-08: National Passenger Railroad Corporation (Amtrak), personal communication, Jan. 7, 2010.

## Table 4-19: U.S. Government Energy Consumption by Agency and Source (Trillion Btu)

| | Petroleum | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Motor gasoline | Fuel oil | Jet fuel and aviation gas | Other[c] | Total | Electricity | Natural gas | Coal and other[d] | Total |
| FY 1999[P], total | 41.1 | 162.3 | 444.7 | 2.9 | 651.0 | 187.2 | 137.6 | 40.5 | 1,016.3 |
| Agriculture | 3.3 | 0.1 | 0.0 | 0.1 | 3.5 | 1.9 | 2.0 | 0.5 | 7.8 |
| Defense | 13.5 | 143.4 | 436.8 | 1.7 | 595.4 | 98.7 | 86.0 | 30.5 | 810.7 |
| Energy | 1.0 | 1.1 | 0.0 | 0.1 | 2.3 | 15.7 | 6.7 | 4.7 | 29.4 |
| GSA | 0.1 | 0.1 | 0.0 | 0.0 | 0.2 | 9.5 | 3.2 | 1.5 | 14.3 |
| Health and Human Services | 0.4 | 0.3 | 0.0 | 0.1 | 0.9 | 2.8 | 3.3 | 0.1 | 7.0 |
| Interior | 2.8 | 0.8 | 0.1 | 0.7 | 4.5 | 1.5 | 1.4 | 0.1 | 7.5 |
| Justice | 4.8 | 0.4 | 1.5 | 0.0 | 6.7 | 3.8 | 4.5 | 0.4 | 15.4 |
| NASA | 0.2 | 0.4 | 1.1 | 0.0 | 1.8 | 6.4 | 3.0 | 0.2 | 11.4 |
| Postal Service | 10.4 | 5.0 | 0.0 | 0.0 | 15.4 | 16.3 | 7.5 | 0.6 | 39.8 |
| Transportation | 0.8 | 6.5 | 4.4 | 0.0 | 11.7 | 7.8 | 1.0 | 0.0 | 20.5 |
| Veterans Affairs | 1.2 | 1.1 | 0.0 | 0.0 | 2.3 | 9.4 | 14.3 | 1.5 | 27.5 |
| Other[a] | 2.4 | 3.1 | 0.9 | 0.0 | 6.4 | 13.3 | 4.8 | 0.6 | 25.1 |
| FY 2008, total | (R) 47.3 | (R) 180.0 | (R) 504.7 | (R) 18.2 | (R) 750.2 | (R) 189.7 | (R) 131.9 | (R) 33.8 | (R) 1,105.6 |
| Agriculture | 2.1 | 0.5 | 0.1 | 0.4 | 3.2 | 1.9 | 1.2 | 0.3 | 6.6 |
| Defense | (R) 19.7 | (R) 161.7 | 499.5 | (R) 15.6 | (R) 696.3 | 100.7 | 69.5 | 23.4 | (R) 889.9 |
| Energy | 0.7 | 1.4 | Z | 0.3 | 2.4 | 16.7 | 5.9 | 3.2 | (R) 28.1 |
| GSA | 0.1 | 0.1 | 0.0 | Z | 0.2 | 9.8 | 6.8 | 1.6 | 18.4 |
| Health and Human Services | 0.2 | 0.6 | 0.0 | 0.1 | 1.0 | 3.4 | 5.6 | 0.4 | (R) 10.3 |
| Interior | 1.8 | 1.1 | 0.1 | 1.0 | 4.0 | 2.2 | 1.1 | 0.2 | 7.5 |
| Justice | 2.6 | 0.3 | 0.0 | Z | 2.9 | 5.2 | 10.1 | 0.5 | (R) 18.8 |
| NASA | 0.1 | 0.3 | 0.6 | 0.1 | 1.1 | 5.5 | 2.8 | 0.9 | (R) 10.2 |
| Postal Service | 13.2 | 2.7 | 0.0 | 0.1 | 16.1 | (R) 20.7 | (R) 9.3 | 0.3 | 46.4 |
| Transportation | 0.4 | 0.2 | 0.5 | Z | 1.1 | (R) 2.7 | (R) 0.7 | 0.2 | (R) 4.7 |
| Veterans Affairs | 0.8 | 1.0 | 0.0 | 0.1 | 2.0 | (R) 10.8 | 14.9 | 1.9 | (R) 29.5 |
| Other[b] | 5.4 | 10.1 | 4.0 | 0.5 | 20.1 | 10.1 | 4.0 | 1.1 | (R) 35.2 |
| FY 2009[P], total | 48.7 | 169.0 | 505.9 | 13.6 | 737.2 | 189.3 | 131.1 | 38.1 | 1,095.7 |
| Agriculture | 2.1 | 0.6 | Z | 0.5 | 3.2 | 1.8 | 1.2 | 0.5 | 6.6 |
| Defense | 19.4 | 148.8 | 500.7 | 10.7 | 679.7 | 101.1 | 74.2 | 25.3 | 880.3 |
| Energy | 0.6 | 1.7 | Z | 0.3 | 2.6 | 16.8 | 6.3 | 5.4 | 31.1 |
| GSA | 0.1 | 0.1 | 0.0 | Z | 0.2 | 9.8 | 6.9 | 1.8 | 18.6 |
| Health and Human Services | 0.2 | 0.6 | 0.0 | 0.1 | 0.9 | 3.4 | 6.3 | 0.2 | 10.8 |
| Interior | 1.9 | 1.3 | 0.1 | 0.8 | 4.1 | 2.4 | 1.2 | 0.2 | 7.9 |
| Justice | 2.9 | 0.3 | 0.1 | 0.1 | 3.4 | 5.0 | 7.6 | 0.6 | 16.5 |
| NASA | 0.1 | 0.3 | 0.5 | 0.1 | 1.0 | 5.5 | 2.8 | 0.9 | 10.2 |
| Postal Service | 14.4 | 4.9 | 0.0 | 0.3 | 19.6 | 19.4 | 5.1 | 0.1 | 44.2 |
| Transportation | 0.4 | 0.2 | 0.5 | Z | 1.1 | 2.5 | 0.6 | 0.2 | 4.3 |
| Veterans Affairs | 0.9 | 1.1 | 0.0 | 0.1 | 2.1 | 10.8 | 15.1 | 1.8 | 29.9 |
| Other[b] | 5.6 | 9.0 | 3.9 | 0.8 | 19.3 | 10.9 | 3.9 | 1.1 | 35.3 |

**KEY:** Btu = British thermal unit; FY = fiscal year; GSA = General Services Administration; NASA = National Aeronautics and Space Administration; R = revised; Z = value too small to report.

[a] Includes National Archives and Records Administration, U.S. Department of Commerce, U.S. Department of Labor, U.S. Department of State, Environmental Protection Agency, Federal Communications Commission, Federal Trade Commission, Panama Canal Commission, Equal Employment Opportunity Commission, Nuclear Regulatory Commission, Office of Personnel Management, U.S. Department of Housing and Urban Development, U.S. Department of the Treasury, Railroad Retirement Board, Tennessee Valley Authority, Federal Emergency Management Agency, and U.S. Information Agency.

[b] Includes National Archives and Records Administration, U.S. Department of Commerce, Tennessee Valley Authority, U.S. Department of Labor, National Science Foundation, Federal Trade Commission, Federal Communications Commission, Environmental Protection Agency, U.S. Department of Homeland Security, U.S. Department of Housing and Urban Development, Railroad Retirement Board, Equal Employment Opportunity Commission, Nuclear Regulatory Commission, U.S. Department of State, U.S. Department of the Treasury, Office of Personnel Management, Consumer Product Safety Commission, Central Intelligence Agency, Social Security Administration, and U.S. information Agency (International Broadcasting Bureau).

[c] Includes liquefied petroleum gases.

[d] Includes purchased steam, chilled water from district heating and cooling systems, and any other energy type, such as renewable energy.

**NOTES**

Totals may not equal sum of components due to independent rounding.

These data include energy consumed at foreign installations and in foreign operations, including aviation and ocean bunkering, primarily by the U.S. Department of Defense. U.S. government energy use for electricity generation and uranium enrichment is excluded. Other energy used by U.S. agencies that produce electricity or enriched uranium is included. The U.S. government's fiscal year runs from October 1 through September 30.

Data in this table are prepared using the following conversion factors:

Electricity = 3,412 Btu/kilowatt-hour.

Purchased steam = 1,000 Btu/pound.

Coal = 24.580 million Btu/short ton.

Natural gas = 1,031 Btu/cubic foot.

Aviation gasoline: 5.250 million Btu/barrel.

Fuel oil = 5.8254 million Btu/barrel.

Jet fuel = 5.460 million Btu/barrel.

Liquefied petroleum gas = 4.011 million Btu/barrel.

Motor gasoline = 5.250 million Btu/barrel.

**SOURCE**

U.S. Department of Energy, Energy Information Administration, *Annual Energy Review 1999 and 2009,* table 1.13, available at http://www.eia.doe.gov/emeu/aer/ as of Nov. 24, 2010.

# Section C
# Transportation Energy Intensity and Fuel Efficiency

**Table 4-20: Energy Intensity of Passenger Modes (Btu per passenger-mile)**

| | 1960 | 1965 | 1970 | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Air, certificated carrier | | | | | | | | | | | | | | | | | | | | | | | |
| Domestic operations | 8,633 | 10,118 | 10,185 | 7,746 | 5,742 | 5,047 | 4,932 | 4,671 | 4,564 | 4,558 | 4,444 | 4,382 | 4,183 | 4,166 | 4,123 | 4,049 | 3,883 | 3,890 | 3,596 | (R) 3,496 | (R) 3,410 | (R) 3,222 | 3,098 |
| International operations | 9,199 | 10,292 | 10,986 | 8,465 | 4,339 | 5,103 | 4,546 | 4,609 | 4,258 | 4,099 | 4,145 | 4,173 | 4,108 | 4,168 | 4,278 | 4,123 | 3,833 | 3,965 | 3,920 | (R) 4,178 | (R) 3,888 | (R) 3,813 | 3,691 |
| Highway[a] | | | | | | | | | | | | | | | | | | | | | | | |
| Passenger car | 4,495 | 4,455 | 4,841 | 4,743 | 4,348 | 4,269 | 3,811 | 3,654 | 3,703 | 3,785 | 3,771 | 3,721 | 3,688 | 3,657 | 3,637 | 3,672 | 3,589 | 3,597 | 3,600 | 3,570 | 3,509 | (R) 3,585 | 3,525 |
| Other 2-axle 4-tire vehicle | N | N | 6,810 | 6,571 | 5,709 | 4,971 | 4,539 | 4,277 | 4,256 | 4,275 | 4,345 | 4,538 | 4,541 | 4,564 | 4,569 | 4,612 | 4,509 | 3,985 | 4,121 | 4,452 | 4,452 | (R) 4,077 | 4,016 |
| Motorcycle | b | b | 2,500 | 2,354 | 2,125 | 1,896 | 2,227 | 1,917 | 1,990 | 2,063 | 2,135 | 2,274 | 2,271 | 2,273 | 2,273 | 2,273 | 2,273 | 2,049 | 1,969 | 1,969 | 1,969 | (R) 1,784 | 1,754 |
| Transit motor bus | N | N | N | N | 2,742 | 3,389 | 3,723 | 3,767 | 4,038 | 3,944 | 4,162 | 4,155 | 4,196 | 4,228 | 4,133 | 4,044 | 4,147 | 3,698 | 3,550 | 3,514 | 3,572 | 3,393 | 3,262 |
| Amtrak | N | N | N | 2,383 | 2,148 | 2,089 | 2,066 | 1,978 | 2,035 | 2,023 | 1,935 | 1,838 | 2,153 | 2,200 | 2,138 | 2,107 | 2,134 | 2,100 | U | U | U | U | U |

**KEY:** Btu = British thermal unit; N = data do not exist; R = revised; U = data are not available.

[a] For 1995 and subsequent years, highway passenger-miles were taken directly from *Highway Statistics* rather than derived from vehicle-miles and average occupancy, as is the case for 1960-1994.

[b] Included in passenger car.

**NOTE**

To calculate total Btu, multiply fuel consumed (see tables 4-21, 4-22, 4-24, 4-25) by 135,000 Btu/gallon for air carrier; 125,000 Btu/gallon for passenger car, other 2-axle 4-tire vehicle, and motorcycle; 138,700 Btu/gallon for transit motor bus and Amtrak diesel consumption; and 3,412 Btu/KwH for Amtrak electric consumption.

**SOURCES**

**Air:**

*Certificated air carriers:*

Passenger-miles:

1960-80: Air Transport Association, Internet site http://www.airlines.org as of Aug. 30, 2004.

1985-2006: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, Office of Airline Information, *Air Carrier Traffic Statistics* (Washington DC: Annual December issues).

Fuel consumed:

U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, Office of Airline Information, available at http://www.bts.gov/oai/fuel/fuelyearly.html as of Mar. 27, 2008.

**Highway:**

*Passenger car:*

1960-94: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1995,* FHWA-PL-97-009 (Washington, DC: July 1997), table VM-201A.

1995-2006: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1.

*Other 2-axle 4-tire vehicle:*

1970-94: Ibid., *Highway Statistics Summary to 1995,* FHWA-PL-97-009 (Washington, DC: July 1997), table VM-201A.

1995-2006: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1.

*Motorcycle:*

1970-85: Ibid., *Highway Statistics Summary to 1985,* FHWA-PL-97-009 (Washington, DC: July 1997), table VM-201A.

1990-2006: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1.

**Transit motor bus:**

American Public Transportation Association, *2008 Public Transportation Fact Book*, Historical Tables (Washington, DC: Annual issues), tables 2 and 28, and similar tables in earlier editions.

**Amtrak:**

Amtrak, State and Local Affairs Department, personal communication, Apr. 21, 2008

**Table 4-21: Energy Intensity of Certificated Air Carriers, All Services[a]**

| | 1960 | 1965 | 1970 | (R) 1975 | (R) 1980 | (R) 1985 | (R) 1990 | (R) 1991 | (R) 1992 | (R) 1993 | (R) 1994 | (R) 1995 | (R) 1996 | (R) 1997 | (R) 1998 | (R) 1999 | (R) 2000 | (R) 2001 | (R) 2002 | (R) 2003 | (R) 2004 | (R) 2005 | (R) 2006 | (R) 2007 | (R) 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aircraft-miles (millions) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Domestic operations | 858 | 1,134 | 2,068 | 1,638 | 2,276 | 3,026 | 3,963 | 3,854 | 3,995 | 4,156 | 4,378 | 4,628 | 4,807 | 4,907 | 5,030 | 5,326 | 5,662 | 5,545 | 5,615 | 6,106 | 6,602 | 6,716 | 6,605 | 6,733 | 6,446 | 5,936 |
| International operations | 182 | 284 | 475 | 334 | 334 | 415 | 760 | 807 | 904 | 958 | 975 | 998 | 1,043 | 1,114 | 1,186 | 1,225 | 1,282 | 1,264 | 1,221 | 1,262 | 1,403 | 1,536 | 1,615 | 1,682 | 1,696 | 1,597 |
| Available seat-miles (millions) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Domestic operations | 52,220 | 94,787 | 213,160 | 215,275 | 326,734 | 452,756 | 570,558 | 551,562 | 567,040 | 582,122 | 598,150 | 616,459 | 639,013 | 652,026 | 661,616 | 698,866 | 726,291 | 704,801 | 687,316 | 696,976 | 750,863 | 758,646 | 745,979 | 763,563 | 734,265 | 683,843 |
| International operations | 13,347 | 29,533 | 51,960 | 64,138 | 84,514 | 110,578 | 182,652 | 186,468 | 205,829 | 211,831 | 211,109 | 215,623 | 220,708 | 228,689 | 237,413 | 242,981 | 254,048 | 245,718 | 227,127 | 225,559 | 249,337 | 270,677 | 281,547 | 296,529 | 306,594 | 291,352 |
| Passenger-miles (millions) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Domestic operations | 30,557 | 51,887 | 104,147 | 119,591 | 190,766 | 275,864 | 345,873 | 338,085 | 354,764 | 362,227 | 388,410 | 403,912 | 434,652 | 450,673 | 462,754 | 487,940 | 515,598 | 486,506 | 483,572 | 505,576 | 558,166 | 583,758 | 588,455 | 607,551 | 583,280 | 552,014 |
| International operations | 8,306 | 16,789 | 27,563 | 34,864 | 53,932 | 73,237 | 126,363 | 125,211 | 138,950 | 143,766 | 149,108 | 154,882 | 161,512 | 169,356 | 172,179 | 180,269 | 192,798 | 178,343 | 172,003 | 168,601 | 194,174 | 211,359 | 221,645 | 234,456 | 240,486 | 227,966 |
| Fuel consumed (million gallons) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Domestic operations | 1,954 | 3,889 | 7,857 | 7,558 | 8,519 | 10,115 | 12,212 | 11,360 | 11,598 | 11,960 | 12,501 | 12,812 | 13,187 | 13,658 | 13,303 | 14,491 | 14,865 | 13,868 | 12,922 | 13,082 | 14,091 | 13,976 | 13,694 | 13,682 | 12,686 | 11,339 |
| International operations | 566 | 1,280 | 2,243 | 1,949 | 1,747 | 2,488 | 3,938 | 3,888 | 4,079 | 4,112 | 4,325 | 4,511 | 4,658 | 4,962 | 4,915 | 5,277 | 5,508 | 5,336 | 5,079 | 5,219 | 5,592 | 5,975 | 6,018 | 6,205 | 6,187 | 5,721 |
| Seats per aircraft | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Domestic operations | 60.9 | 83.6 | 103.1 | 131.5 | 143.6 | 149.6 | 144.0 | 143.1 | 141.9 | 140.1 | 136.6 | 133.2 | 132.9 | 132.9 | 131.5 | 131.2 | 128.3 | 127.1 | 122.4 | 114.2 | 113.7 | 113.0 | 112.9 | 113.4 | 113.9 | 115.2 |
| International operations | 73.3 | 104.0 | 109.4 | 192.1 | 252.7 | 266.2 | 240.2 | 231.2 | 227.6 | 221.1 | 216.4 | 216.1 | 211.5 | 205.3 | 200.1 | 198.3 | 198.2 | 194.5 | 186.0 | 178.7 | 177.7 | 176.2 | 174.3 | 176.3 | 180.7 | 182.4 |
| Seat-miles per gallon | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Domestic operations | 26.7 | 24.4 | 27.1 | 28.5 | 38.4 | 44.8 | 46.7 | 48.6 | 48.9 | 48.7 | 47.8 | 48.1 | 48.5 | 47.7 | 49.7 | 48.2 | 48.9 | 50.8 | 53.2 | 53.3 | 53.3 | 54.3 | 54.5 | 55.8 | 57.9 | 60.3 |
| International operations | 23.6 | 23.1 | 23.2 | 32.9 | 48.4 | 44.4 | 46.4 | 48.0 | 50.5 | 51.5 | 48.8 | 47.8 | 47.4 | 46.1 | 48.3 | 46.0 | 46.1 | 46.1 | 44.7 | 43.2 | 44.6 | 45.3 | 46.8 | 47.8 | 49.6 | 50.9 |
| Energy intensity (Btu/passenger-mile) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Domestic operations | 8,633 | 10,118 | 10,185 | 8,532 | 6,029 | 4,950 | 4,767 | 4,536 | 4,413 | 4,457 | 4,345 | 4,282 | 4,096 | 4,091 | 3,881 | 4,009 | 3,892 | 3,848 | 3,608 | 3,493 | 3,408 | 3,232 | 3,142 | 3,040 | 2,936 | 2,773 |
| International operations | 9,199 | 10,292 | 10,986 | 7,547 | 4,374 | 4,586 | 4,207 | 4,192 | 3,963 | 3,861 | 3,916 | 3,932 | 3,893 | 3,955 | 3,854 | 3,952 | 3,857 | 4,039 | 3,986 | 4,179 | 3,888 | 3,816 | 3,665 | 3,573 | 3,473 | 3,388 |
| Load factor (percent) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Domestic operations | (R) 58.5 | (R) 54.7 | (R) 48.9 | 55.6 | 58.4 | 60.9 | 60.6 | 61.3 | 62.6 | 62.2 | 64.9 | 65.5 | 68.0 | 69.1 | 69.9 | 69.8 | 71.0 | 69.0 | 70.4 | 72.5 | 74.3 | 76.9 | 78.9 | 79.6 | 79.4 | 80.7 |
| International operations | (R) 62.2 | (R) 56.8 | (R) 53.0 | 54.4 | 63.8 | 66.2 | 69.2 | 67.1 | 67.5 | 67.9 | 70.6 | 71.8 | 73.2 | 74.1 | 72.5 | 74.2 | 75.9 | 72.6 | 75.7 | 74.7 | 77.9 | 78.1 | 78.7 | 79.1 | 78.4 | 78.2 |

**KEY:** Btu = British thermal unit; R = revised.

[a] U.S. owned carriers only. Operations of foreign-owned carriers in or out of the United States not included.

**NOTES**

*Aircraft-miles* include all four large certificated air-carrier groups (majors, nationals, large regionals, and medium regionals), scheduled and charter, passenger, and all-cargo. *Fuel consumed* includes majors, nationals, and large regionals, scheduled and charter, passenger, and all-cargo.

*Passenger-miles* include all four large certificated air-carrier groups, scheduled and charter, passenger service only.

International operations include operations outside the United States, including those between the United States and foreign countries and the United States and its territories or possessions.

*Load factor:* Ratio of *Passenger-miles* to *Available seat-miles.*

Heat equivalent factor used for Btu conversion is 135,000 Btu/gallon.

**SOURCES**

**Aircraft-miles, available seat-miles, and passenger-miles:**

1960-70: Air Transport Association, available at http://www.air-transport.org/ as of July 31, 2002.

1975-2009: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics *T1: U.S. Air Carrier Traffic and Capacity Summary by Service Class* , available at http://www.transtats.bts.gov/Fields.asp?Table_ID=264, as of Dec. 15, 2010.

**Fuel consumed:**

U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, Office of Airline Information *Airline Fuel Cost and Consumption* , available at http://www.transtats.bts.gov/fuel.asp as of Dec. 15, 2010.

**Seats per aircraft, seat-miles per gallon, energy intensiveness and load factor:**

Derived by calculation.

**Table 4-22: Energy Intensity of Passenger Cars, Other 2-Axle 4-Tire Vehicles, and Motorcycles**

| | 1960 | 1965 | 1970 | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | (R) 2005 | 2006 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle-miles (millions) | | | | | | | | | | | | | | | | | | | | | | | |
| Passenger car | 587,000 | 723,000 | 917,000 | 1,034,000 | 1,112,000 | 1,247,000 | 1,408,000 | 1,358,000 | 1,372,000 | 1,375,000 | 1,406,000 | 1,438,000 | 1,470,000 | 1,503,000 | 1,550,000 | 1,569,000 | 1,600,287 | 1,628,332 | 1,658,474 | 1,672,079 | 1,699,890 | 1,708,421 | 1,682,671 |
| Other 2-axle 4-tire vehicle | N | N | 123,000 | 201,000 | 291,000 | 391,000 | 575,000 | 649,000 | 707,000 | 746,000 | 765,000 | 790,000 | 817,000 | 851,000 | 868,000 | 901,000 | 923,059 | 943,207 | 966,034 | 984,094 | 1,027,164 | 1,041,051 | 1,089,013 |
| Motorcycle | [b] | [b] | 3,000 | 5,600 | 10,200 | 9,100 | 9,600 | 9,200 | 9,600 | 9,900 | 10,200 | 9,800 | 9,900 | 10,100 | 10,300 | 10,600 | 10,469 | 9,639 | 9,552 | 9,577 | 10,122 | 10,454 | 12,401 |
| Passenger-miles (millions)[a] | | | | | | | | | | | | | | | | | | | | | | | |
| Passenger car | 1,145,000 | 1,395,000 | 1,751,000 | 1,954,000 | 2,012,000 | 2,094,000 | 2,282,000 | 2,200,000 | 2,208,000 | 2,213,000 | 2,250,000 | 2,287,000 | 2,337,000 | 2,389,000 | 2,464,000 | 2,495,000 | 2,544,457 | 2,556,481 | 2,620,389 | 2,641,885 | 2,685,827 | 2,699,305 | 2,658,621 |
| Other 2-axle 4-tire vehicle | N | N | 226,000 | 363,000 | 521,000 | 688,000 | 1,000,000 | 1,117,000 | 1,202,000 | 1,253,000 | 1,269,000 | 1,256,000 | 1,298,000 | 1,353,000 | 1,381,000 | 1,433,000 | 1,467,664 | 1,678,853 | 1,674,792 | 1,706,103 | 1,780,771 | 1,804,848 | 1,887,997 |
| Motorcycle | [b] | [b] | 3,000 | 6,000 | 12,000 | 12,000 | 12,000 | 12,000 | 12,000 | 12,000 | 12,000 | 11,000 | 11,000 | 11,000 | 11,000 | 12,000 | 11,516 | 11,760 | 12,131 | 12,163 | 12,855 | 13,277 | 15,750 |
| Average occupancy rate | | | | | | | | | | | | | | | | | | | | | | | |
| Passenger car | 1.95 | 1.93 | 1.91 | 1.89 | 1.81 | 1.68 | 1.62 | 1.62 | 1.61 | 1.61 | 1.60 | 1.59 | 1.59 | 1.59 | 1.59 | 1.59 | 1.59 | 1.57 | 1.58 | 1.58 | 1.58 | 1.58 | 1.58 |
| Other 2-axle 4-tire vehicle | N | N | 1.84 | 1.81 | 1.79 | 1.76 | 1.74 | 1.72 | 1.70 | 1.68 | 1.66 | 1.59 | 1.59 | 1.59 | 1.59 | 1.59 | 1.59 | 1.78 | 1.73 | 1.73 | 1.73 | 1.73 | 1.73 |
| Motorcycle | [b] | [b] | 1.00 | 1.07 | 1.18 | 1.32 | 1.25 | 1.30 | 1.25 | 1.21 | 1.18 | 1.12 | 1.11 | 1.09 | 1.07 | 1.13 | 1.10 | 1.22 | 1.27 | 1.27 | 1.27 | 1.27 | 1.27 |
| Fuel consumed (million gallons) | | | | | | | | | | | | | | | | | | | | | | | |
| Passenger car | 41,171 | 49,723 | 67,819 | 74,140 | 69,982 | 71,518 | 69,568 | 64,317 | 65,436 | 67,048 | 67,874 | 68,072 | 69,221 | 69,892 | 71,695 | 73,283 | 73,065 | 73,559 | 75,471 | 75,455 | 75,402 | 77,419 | 74,983 |
| Other 2-axle 4-tire vehicle | N | N | 12,313 | 19,081 | 23,796 | 27,363 | 35,611 | 38,217 | 40,929 | 42,851 | 44,112 | 45,605 | 47,354 | 49,388 | 50,462 | 52,859 | 52,939 | 53,522 | 55,220 | 60,758 | 63,417 | 58,869 | 60,662 |
| Motorcycle | [b] | [b] | 60 | 113 | 204 | 182 | 191 | 184 | 191 | 198 | 205 | 196 | 198 | 202 | 206 | 212 | 209 | 193 | 191 | 192 | 202 | 189 | 220 |
| Energy intensity (Btu/passenger-mile)[c] | | | | | | | | | | | | | | | | | | | | | | | |
| Passenger car | 4,495 | 4,455 | 4,841 | 4,743 | 4,348 | 4,269 | 3,811 | 3,654 | 3,704 | 3,787 | 3,771 | 3,721 | 3,702 | 3,657 | 3,637 | 3,671 | 3,589 | 3,597 | 3,600 | 3,570 | 3,509 | 3,585 | 3,525 |
| Other 2-axle 4-tire vehicle | N | N | 6,810 | 6,571 | 5,709 | 4,971 | 4,451 | 4,277 | 4,256 | 4,275 | 4,345 | 4,539 | 4,560 | 4,563 | 4,568 | 4,611 | 4,509 | 3,985 | 4,121 | 4,452 | 4,452 | 4,077 | 4,016 |
| Motorcycle | [b] | [b] | 2,500 | 2,354 | 2,125 | 1,896 | 1,990 | 1,917 | 1,990 | 2,063 | 2,135 | 2,227 | 2,250 | 2,295 | 2,341 | 2,205 | 2,273 | 2,049 | 1,969 | 1,969 | 1,969 | 1,779 | 1,746 |

**KEY:** Btu = British thermal unit; N = data do not exist; R = revised.

[b] Included in passenger car.
[c] Energy Intensity (Btu/passenger-mile) is calculated by converting the fuel consumption in gallons to the energy equivalent Btu units and dividing by the passenger-miles. heat equivalent factor used for Btu conversion is 125,000 Btus/gallon.

**NOTES:**
In 1995, the U.S. Department of Transportation, Federal Highway Administration revised its vehicle type categories for 1993 and later data.
These new categories include passenger car, other 2-axle 4-tire vehicle, single-unit 2-axle 6-tire or more truck, and combination truck.
Other 2-axle 4-tire vehicle includes vans, pickup trucks, and sport utility vehicles. In previous years, some minivans and sport utility vehicles were included in the passenger car category. Single-unit 2-axle 6-tire or more trucks are on a single frame with at least 2 axles and 6 tires. Pre-1993 data have been reassigned to the closest available category.
Vehicle-miles and passenger-miles data for 1960 through 1999 have been rounded to the nearest billion miles.

**SOURCES:**
**Vehicle-miles:**
*Passenger car:*
1960-94: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1995,* FHWA-PL-97-009 (Washington, DC: July 1997), table VM-201A.
1995-2005: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1.
*Other 2-axle 4-tire vehicle:*
1970-94: Ibid., *Highway Statistics, Summary to 1985* (Washington, DC: 1986), table VM-201A.
*Motorcycle:*
1970-94: Ibid., *Highway Statistics, Summary to 1985* (Washington, DC: 1986), table VM-201A.
For 1970-94, the unrevised motorcycle vehicle-miles are subtracted from the combined passenger car and motorcycle vehicle-miles from VM-201A.
1995-2006: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1.
**Passenger-miles:**
1960-97: Vehicle-miles multiplied by vehicle occupancy rates.
1998-2006: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1.
**Fuel consumed:**
1960-94: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1995,* FHWA-PL-97-009 (Washington, DC: July 1997), table VM-201A.
For 1970-94, the unrevised motorcycle fuel consumed is subtracted from the combined passenger car and motorcycle fuel consumed from VM-201A.
1995-2006: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1.

**Table 4-23: Average Fuel Efficiency of U.S. Passenger Cars and Light Trucks**

| | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | (R) 2009 | 2010 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Average U.S. passenger car fuel efficiency (mpg) (calendar year) | | | | | | | | | | | | | | | | | | | | | | | |
| Passenger car[a] | 16.0 | 17.5 | 20.3 | 21.2 | 21.0 | 20.6 | 20.8 | 21.1 | 21.2 | 21.5 | 21.6 | 21.4 | 21.9 | 22.1 | 22.0 | 22.2 | 22.5 | 22.1 | 22.5 | 22.5 | 22.6 | U | U |
| Other 2-axle 4-tire vehicle | 12.2 | 14.3 | 16.1 | 17.0 | 17.3 | 17.4 | 17.3 | 17.3 | 17.2 | 17.2 | 17.2 | 17.0 | 17.4 | 17.6 | 17.5 | 16.2 | 16.2 | 17.7 | 17.8 | 18.0 | 18.1 | U | U |
| New vehicle fuel efficiency (mpg)[b] (model year) | | | | | | | | | | | | | | | | | | | | | | | |
| Light-duty vehicle | | | | | | | | | | | | | | | | | | | | | | | |
| Passenger car | 24.3 | 27.6 | 28.0 | 28.4 | 27.9 | 28.4 | 28.3 | 28.6 | 28.5 | 28.7 | 28.8 | 28.3 | 28.5 | 28.8 | 29.0 | 29.5 | 29.5 | 30.3 | 30.1 | 31.2 | (R) 31.5 | 32.9 | 33.7 |
| Domestic | 22.6 | 26.3 | 26.9 | 27.3 | 27.0 | 27.8 | 27.5 | 27.7 | 28.1 | 27.8 | 28.6 | 28.0 | 28.7 | 28.7 | 29.1 | 29.1 | 29.9 | 30.5 | 30.3 | 30.6 | (R) 31.2 | 32.1 | 32.9 |
| Imported | 29.6 | 31.5 | 29.9 | 30.1 | 29.2 | 29.6 | 29.7 | 30.3 | 29.6 | 30.1 | 29.2 | 29.0 | 28.3 | 29.0 | 28.8 | 29.9 | 28.7 | 29.9 | 29.7 | 32.2 | (R) 31.8 | 33.8 | 35.1 |
| Light truck (<8,500 lbs GVWR)[c] | 18.5 | 20.7 | 20.8 | 21.3 | 20.8 | 21.0 | 20.8 | 20.5 | 20.8 | 20.6 | 21.0 | 20.9 | 21.3 | 20.9 | 21.4 | 21.8 | 21.5 | 22.1 | 22.5 | 23.1 | 23.6 | 24.8 | 25.1 |
| CAFE standards (mpg)[b] (model year) | | | | | | | | | | | | | | | | | | | | | | | |
| Passenger car | 20.0 | 27.5 | 27.5 | 27.5 | 27.5 | 27.5 | 27.5 | 27.5 | 27.5 | 27.5 | 27.5 | 27.5 | 27.5 | 27.5 | 27.5 | 27.5 | 27.5 | 27.5 | 27.5 | 27.5 | 27.5 | 27.5 | 27.5 |
| Light truck[d] | U | 19.5 | 20.0 | 20.2 | 20.2 | 20.4 | 20.5 | 20.6 | 20.7 | 20.7 | 20.7 | 20.7 | 20.7 | 20.7 | 20.7 | 20.7 | 20.7 | 21.0 | 21.6 | 22.2 | 22.5 | 23.1 | 23.5 |

**KEY:** CAFE = Corporate Average Fuel Economy; GVWR = gross vehicle weight rating; mpg = miles per gallon; R = revised; U = data are unavailable.

[a] From 1980 to 1994, *Passenger car* fuel efficiency includes motorcycles.

[b] Assumes 55% city and 45% highway-miles. The source calculated average miles per gallon for *Light-duty vehicles* by taking the reciprocal of the sales-weighted average of gallons per mile. This is called the harmonic average.

[c] Beginning with FY 1999, the total *Light truck* fleet ceased to be categorized by either domestic or imported fleets.

[d] No combined figure is available for 1980. In 1980, CAFE standard for 2 wheel drive, and 4 wheel drive *Light trucks* were 16.0, and 14.0 mpg respectively.

**NOTE**

The fuel efficiency figures for *Light duty vehicles* represent the sales-weighted harmonic average of the combined *Passenger car* and *Light truck* fuel economies.

**SOURCES**

**Average U.S. passenger car fuel efficiency:**

1980-94: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1995,* FHWA-PL-97-009 (Washington, DC: July 1997), table VM-201A, available at http://www.fhwa.dot.gov/ohim/ohimstat.htm as of Sept. 10, 2010.

1995-2008: Ibid., *Highway Statistics* (Washington, DC: Annual Issues), table VM-1, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of Dec. 20, 2010.

**New vehicle fuel efficiency (based on model year production) and CAFE standards:**

U.S. Department of Transportation, National Highway Traffic Safety Administration, *Summary of Fuel Economy Performance* (Washington, DC: Annual Issues), available at http://www.nhtsa.gov/ as of Nov. 30, 2010.

**Table 4-24: Energy Intensity of Transit Motor Buses**

| | 1960 | 1965 | 1970 | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle-miles (millions) | 1,576 | 1,528 | 1,409 | 1,526 | 1,677 | 1,863 | 2,130 | 2,167 | 2,178 | 2,210 | 2,162 | 2,184 | 1,673 | 1,705 | 1,765 | 1,821 | 1,860 | 1,913 | 1,912 | 1,862 | 1,849 | 1,840 | 1,837 | 1,861 | 1,895 | 1,901 |
| Passenger-miles (millions) | N | N | N | N | 21,790 | 21,161 | 20,981 | 21,090 | 20,336 | 20,247 | 18,832 | 18,818 | 15,820 | 16,507 | 16,931 | 17,556 | 17,625 | 18,352 | 18,084 | 17,065 | 16,682 | 17,034 | 17,491 | 17,480 | 18,299 | 18,005 |
| Energy consumed | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Diesel (million gallons) | 208 | 248 | 271 | 365 | 431 | 518 | 563 | 573 | 592 | 576 | 565 | 564 | 466 | 463 | 468 | 477 | 490 | 492 | 468 | 442 | 441 | 375 | 422 | 405 | 403 | 386 |
| Compressed Natural Gas (million gallons) | N | N | N | N | N | N | N | N | N | N | N | 10 | 10 | 18 | 27 | 33 | 42 | 51 | 65 | 78 | 85 | 93 | 109 | 106 | 111 | 124 |
| Bio-diesel (million gallons) | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | 1 | 1 | 2 | 51 | 16 | 21 | 33 | 35 |
| Liquefied natural gas (million gallons) | N | N | N | N | N | N | N | N | N | N | N | 2 | 2 | 3 | 3 | 4 | 9 | 10 | 14 | 12 | 13 | 14 | 15 | 15 | 15 | 14 |
| Gasoline (million gallons) | N | N | N | N | N | N | N | N | N | N | N | 2 | 1 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 3 | 3 |
| Other major fuels[a] (million gallons) | N | N | N | N | N | N | N | N | N | N | N | N | 11 | 9 | 4 | 2 | 1 | 1 | 2 | 2 | 2 | 3 | 2 | 1 | 1 | 1 |
| Power[b] (million KWH) | N | N | N | N | N | N | N | N | N | N | N | N | 0 | 0 | 1 | 1 | 1 | 1 | 3 | 1 | 2 | 1 | 1 | 1 | 1 | 1 |
| Energy consumed, total (Billion Btu) | N | N | N | N | N | N | N | N | N | N | N | N | 65,971 | 65,846 | 66,340 | 67,548 | 69,801 | 70,455 | 68,097 | 64,473 | 64,820 | 62,291 | 64,752 | 62,861 | 64,243 | 62,515 |
| Diesel | 28,850 | 34,398 | 37,588 | 50,626 | 59,780 | 71,860 | 78,109 | 79,456 | 82,117 | 79,855 | 78,374 | 78,194 | 64,603 | 64,261 | 64,964 | 66,111 | 67,907 | 68,218 | 64,959 | 61,269 | 61,100 | 52,048 | 58,508 | 56,241 | 55,903 | 53,574 |
| Compressed Natural Gas | N | N | N | N | N | N | N | N | N | N | N | 225 | 228 | 398 | 613 | 749 | 947 | 1,148 | 1,462 | 1,760 | 1,921 | 2,084 | 2,454 | 2,390 | 2,503 | 2,796 |
| Bio-diesel | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | 98 | 107 | 268 | 6,492 | 2,027 | 2,602 | 4,151 | 4,475 |
| Liquefied natural gas | N | N | N | N | N | N | N | N | N | N | N | 144 | 190 | 274 | 218 | 372 | 741 | 829 | 1,188 | 995 | 1,116 | 1,227 | 1,309 | 1,283 | 1,261 | 1,173 |
| Gasoline | N | N | N | N | N | N | N | N | N | N | N | 288 | 125 | 165 | 189 | 135 | 127 | 154 | 132 | 115 | 180 | 96 | 231 | 238 | 354 | 374 |
| Other major fuel[a] | N | N | N | N | N | N | N | N | N | N | N | N | 822 | 745 | 349 | 173 | 69 | 96 | 233 | 213 | 215 | 331 | 211 | 96 | 62 | 116 |
| Power[b] | N | N | N | N | N | N | N | N | N | N | N | N | 3 | 2 | 6 | 8 | 10 | 10 | 26 | 14 | 20 | 12 | 12 | 11 | 9 | 7 |
| Energy intensity (Btu/passenger-mile) | N | N | N | N | N | N | N | N | N | N | N | N | 4,170 | 3,989 | 3,918 | 3,848 | 3,960 | 3,839 | 3,766 | 3,778 | 3,886 | 3,657 | 3,702 | 3,596 | 3,511 | 3,472 |

**KEY:** Btu = British thermal unit; N = data do not exist; R = revised.

[a] Before 2002, *Other major fuels* includes liquefied petroleum gas, methanol, ethanol, and bunker fuel. From 2002 to 2009, *Other major fuels* includes liquefied petroleum gas, methanol, ethanol, bunker fuel, kerosene, and grain additive.
[b] Power includes electric propulsion and electric battery.

**NOTES**

Data from 1996 and after are not comparable to the data for earlier years or to the data published in previous editions of the report due to different data sources used.
Data from 1996 and after are for those vehicles used for directly operated (DO) services only .
*Energy consumed, total* does not include the other types of energy identified in table 17 in the *National Transit Database* due to the lack of information on the unit of measurement for such data before 2008.
The following conversion rates were used:
Diesel =138,700 Btu/gallon.
Compressed natural gas = 22,500 Btu/gallon.
Bio-Diesel = 126,200 Btu/gallon.
Liquefied natural gas = 84,800 Btu/gallon.
Gasoline = 125,000 Btu/gallon
Liquefied petroleum gas = 91,300 Btu/gallon.
Methanol = 64,600 Btu/gallon.
Ethanol = 84,600 Btu/gallon.
Bunker fuel = 149,700 Btu/gallon.
Kerosene = 135,000 Btu/gallon.
Grain additive = 120,900 Btu/gallon.
Electricity 1KWH = 3,412 Btu, negating electrical system losses. This table includes approximate electrical system losses, and thus the conversion factor is multiplied by 3.

**SOURCES**

1960-95: American Public Transportation Association, *2010 Public Transportation Fact Book Appendix A: Historical Tables* (Washington, DC: Annual Issues), tables 2, 6, 30, 32 and similar tables in earlier editions, available at http://www.apta.com/resources/statistics/Pages/transitstats.aspx as of Aug 23, 2010.
1996-2009: U.S. Department of Transportation, Federal Transit Administration, *National Transit Database* , tables 17, 19, and similar tables in earlier editions, available at http://www.ntdprogram.gov/ntdprogram/data.htm as of Dec. 20, 2010.

**Table 4-25: Energy Intensity of Class I Railroad[a] Freight Service**

| | 1960 | 1965 | 1970 | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Revenue freight ton-miles (millions) | 572,309 | 697,878 | 764,809 | 754,252 | 918,958 | 876,984 | 1,033,969 | 1,038,875 | 1,066,781 | 1,109,309 | 1,200,701 | 1,305,688 | 1,355,975 | 1,348,926 | 1,376,802 | 1,433,461 | 1,465,960 | 1,495,472 | 1,507,011 | 1,551,438 | 1,662,598 | 1,696,425 | 1,771,897 | 1,770,545 | 1,777,236 | 1,532,214 |
| Car-miles (millions) | 28,170 | 29,336 | 29,890 | 27,656 | 29,277 | 24,920 | 26,159 | 25,628 | 26,128 | 26,883 | 28,485 | 30,383 | 31,715 | 31,660 | 32,657 | 33,851 | 34,590 | 34,243 | 34,680 | 35,555 | 37,071 | 37,712 | 38,955 | 38,186 | 37,226 | 32,115 |
| Tons per car load | 44.4 | 48.9 | 54.9 | 60.8 | 67.1 | 67.7 | 66.6 | 66.2 | 66.0 | 64.4 | 63.4 | 65.3 | 66.6 | 63.4 | 64.1 | 63.4 | 62.6 | 64.0 | 63.3 | 62.3 | 61.3 | 61.0 | 60.9 | 61.7 | 63.1 | 64.2 |
| Fuel consumed (million gallons) | 3,463 | 3,592 | 3,545 | 3,657 | 3,904 | 3,110 | 3,115 | 2,906 | 3,005 | 3,088 | 3,334 | 3,480 | 3,579 | 3,575 | 3,583 | 3,715 | 3,700 | 3,710 | 3,730 | 3,826 | 4,059 | 4,098 | 4,192 | 4,062 | 3,886 | 3,192 |
| Energy intensity (Btu/revenue freight ton-mile) | 839 | 714 | 643 | 672 | 589 | 492 | 418 | 388 | 391 | 386 | 385 | 370 | 366 | 368 | 361 | 359 | 350 | 344 | 343 | 342 | 339 | 335 | 328 | 318 | 303 | 289 |
| Energy intensity (Btu/car-mile) | 17,051 | 16,983 | 16,450 | 18,341 | 18,495 | 17,310 | 16,516 | 15,727 | 15,952 | 15,932 | 16,234 | 15,886 | 15,652 | 15,662 | 15,218 | 15,222 | 14,836 | 15,027 | 14,918 | 14,925 | 15,187 | 15,072 | 14,926 | 14,754 | 14,479 | 13,786 |

**KEY:** Btu = British thermal unit.

[a] The threshold for classification as a Class I Railroads is based on operating revenues; the 2009 threshold is $389.8 million.

**NOTE**

The heat equivalent factor used for Btu conversion is 138,700 Btu/gallon.

**SOURCE**

Association of American Railroads, *Railroad Facts 2010* (Washington, DC: 2010), pp. 34, 37, and 40, and similar tables in earlier editions.

## Table 4-26: Energy Intensity of Amtrak Services

| | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | (R) 2001 | (R) 2002 | (R) 2003 | (R) 2004 | (R) 2005 | (R) 2006 | (R) 2007 | 2008 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Revenue passenger-miles (millions)[a] | 3,931 | 4,503 | 4,785 | 6,057 | 6,273 | 6,091 | 6,199 | 5,921 | 5,545 | 5,050 | 5,166 | 5,304 | 5,330 | 5,498 | 5,571 | 5,314 | 5,680 | 5,511 | 5,381 | 5,410 | 5,783 | 6,179 |
| Locomotive fuel consumed | | | | | | | | | | | | | | | | | | | | | | |
| Total energy consumed (billion Btu)[b] | 9,367 | 9,673 | 9,995 | 12,512 | 12,406 | 12,328 | 12,511 | 11,251 | 11,184 | 11,117 | 11,823 | 11,962 | 12,494 | 14,776 | 14,987 | 13,479 | 12,182 | 11,394 | 10,895 | 10,536 | 10,547 | 10,783 |
| Electric (millions of kWh)[b,c] | 180 | 254 | 295 | 330 | 303 | 300 | 301 | 309 | 336 | 363 | 390 | 416 | 443 | 470 | 456 | 518 | 537 | 551 | 531 | 549 | 578 | 582 |
| Diesel (million gallons)[c] | 63 | 64 | 65 | 82 | 82 | 82 | 83 | 74 | 72 | 71 | 76 | 76 | 79 | 95 | 97 | 84 | 75 | 69 | 65 | 62 | 62 | 63 |
| Energy intensity (Btu/revenue passenger-mile)[a] | 2,383 | 2,148 | 2,089 | 2,066 | 1,978 | 2,024 | 2,018 | 1,900 | 2,017 | 2,201 | 2,289 | 2,255 | 2,344 | 2,688 | 2,690 | 2,537 | 2,145 | 2,068 | 2,025 | 1,948 | 1,824 | 1,745 |

**KEY:** Btu = British thermal unit; kWh = kilowatt hour; U = data are not available.

[a] Revenue passenger-miles data prior to 2001 are fiscal year data; 2001 data and more recent data are calendar year data.

[b] Does not include electric power generation and distribution losses, which, if included, would triple the electric conversion factor given below and increase the numbers in this row by about 20 percent.

[c] Electric usage and diesel usage data are calendar year data.

**NOTE**

The heat equivalent factors used in Btu conversion are: diesel = 138,700 Btu/gallon; electric = 3,412 Btu/kWh.

**SOURCES**

**Revenue passenger-miles:**

1975-2000: Amtrak, *Amtrak Annual Report,* Statistical Appendix (Washington, DC: Annual issues).

2001-08: Amtrak, personal communication as of January 7, 2010.

**Locomotive fuel consumed:**

1975-2001: Amtrak., State and Local Affairs Department, personal communication.

2001-08: Amtrak, personal communication as of January 7, 2010.

**Table 4-27: Energy Intensity of Amtrak Services (Loss-adjusted conversion factors)**

| | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Revenue passenger-miles (millions)[a] | 3,753 | 4,503 | 4,785 | 6,057 | 6,273 | 6,091 | 6,199 | 5,869 | 5,401 | 5,066 | 5,166 | 5,325 | 5,289 | 5,574 | 5,571 | 5,314 | 5,680 | 5,511 | 5,381 | 5,410 | 5,784 | 6,179 |
| Total fuel consumed (billion Btu)[a,b] | U | U | U | U | U | U | U | 13,409 | 13,530 | 13,651 | 14,545 | 14,872 | 15,591 | 18,061 | 18,171 | 17,101 | 15,934 | 15,242 | 14,607 | 14,371 | 14,584 | 14,850 |
| Electric (millions of kWh)[a,b] | U | U | U | U | U | U | U | 309 | 336 | 363 | 390 | 416 | 443 | 470 | 456 | 518 | 537 | 551 | 531 | 549 | 578 | 582 |
| Diesel (million gallons) | U | U | U | U | U | U | U | 74 | 72 | 71 | 76 | 76 | 79 | 95 | 97 | 84 | 75 | 69 | 65 | 62 | 62 | 63 |
| Energy intensity (Btu/revenue passenger-mile)[a,b] | 3,548 | 3,065 | 2,703 | 2,505 | 2,417 | 2,534 | 2,565 | 2,282 | 2,501 | 2,690 | 2,811 | 2,788 | 2,943 | 3,235 | 3,257 | 3,212 | 2,800 | 2,760 | 2,709 | 2,650 | 2,516 | 2,398 |

**KEY:** Btu = British thermal unit; kWh = kilowatt hour; R = revised; U = data are unavailable.

[a] Energy use for 1994 on is not directly comparable to earlier years. Some commuter rail energy use may have been inadvertently included in earlier years.

[b] Includes electric power generation and distribution losses.

**NOTE**

*Energy intensity (Btu/revenue passenger-mile)* is calculated by the source and may differ from direct calculations.

The heat equivalent factors used in Btu conversion are:

Diesel = 138,700 Btu/gallon.

Electric = 10,399 Btu/kWh. The electric conversion factor takes into account losses associated with the generation, transmission and distribution of electricity, and thus it is more than three times the value of the factor that is used in table 4-26.

**SOURCE**

U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy and Oak Ridge National Laboratory Center for Transportation Analysis, *Transportation Energy Databook, Edition 28* (Oak Ridge, TN: 2010), tables A.15, 9.10 and similar tables in earlier editions, available at http://www.cta.ornl.gov/data as of Dec. 28, 2010.

**Table 4-28: Annual Wasted Fuel Due to Congestion**

| Urban area | Population group | Gallons wasted (millions) | | | | | | | | | | | | | | | | | | | | | | | | | Percent change[a] | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | | | | | | | | | Short-term 2004-2009 | | Long-term 1982-2009 | |
| | | (R) 1982 | (R) 1985 | (R) 1990 | (R) 1991 | (R) 1992 | (R) 1993 | (R) 1994 | (R) 1995 | (R) 1996 | (R) 1997 | (R) 1998 | (R) 1999 | (R) 2000 | (R) 2001 | (R) 2002 | (R) 2003 | (R) 2004 | (R) 2005 | (R) 2006 | (R) 2007 | 2008 | 2009 | Percent | Rank | Percent | Rank |
| Akron, OH | Medium | 0.7 | 1.0 | 2.4 | 2.6 | 3.2 | 4.0 | 4.9 | 4.3 | 5.3 | 6.3 | 6.8 | 6.8 | 6.6 | 6.5 | 6.2 | 6.0 | 6.7 | 6.5 | 6.9 | 5.7 | 5.4 | 5.1 | -24.5 | 94 | 616.1 | 48 |
| Albany-Schenectady, NY | Medium | 0.7 | 1.0 | 1.8 | 1.9 | 1.9 | 2.0 | 2.2 | 2.3 | 2.4 | 2.6 | 3.0 | 3.2 | 3.6 | 3.9 | 4.3 | 4.9 | 5.6 | 5.9 | 6.8 | 7.7 | 6.2 | 6.5 | 16.1 | 16 | 800.1 | 31 |
| Albuquerque, NM | Medium | 1.8 | 2.6 | 4.7 | 4.9 | 5.8 | 6.3 | 6.8 | 7.7 | 8.6 | 9.2 | 9.5 | 9.8 | 8.9 | 8.7 | 8.0 | 8.4 | 9.4 | 10.1 | 10.4 | 10.7 | 8.9 | 8.6 | -8.4 | 71 | 370.0 | 68 |
| Allentown-Bethlehem, PA-NJ | Medium | 2.0 | 2.4 | 3.5 | 3.7 | 4.5 | 5.4 | 6.2 | 6.9 | 8.2 | 9.0 | 9.6 | 8.5 | 9.3 | 9.2 | 9.2 | 9.0 | 9.5 | 9.7 | 9.1 | 9.6 | 8.1 | 8.4 | -11.5 | 79 | 322.3 | 77 |
| Anchorage, AK | Small | 1.9 | 2.1 | 2.1 | 2.1 | 2.3 | 2.2 | 2.3 | 2.3 | 2.4 | 2.4 | 2.7 | 2.7 | 2.7 | 3.0 | 3.2 | 3.2 | 3.2 | 3.1 | 3.3 | 3.3 | 2.7 | 2.5 | -22.0 | 92 | 33.4 | 101 |
| Atlanta, GA | Very large | 10.9 | 16.3 | 26.7 | 30.5 | 35.8 | 42.7 | 50.8 | 56.5 | 61.5 | 68.8 | 76.5 | 79.7 | 87.1 | 90.5 | 96.7 | 100.3 | 101.3 | 106.2 | 103.6 | 100.9 | 87.0 | 90.6 | -10.5 | 78 | 729.9 | 37 |
| Austin, TX | Large | 2.2 | 3.8 | 5.7 | 6.5 | 6.4 | 7.1 | 6.9 | 10.7 | 12.1 | 13.7 | 13.8 | 15.4 | 16.0 | 18.5 | 19.7 | 22.2 | 24.8 | 28.2 | 27.1 | 27.0 | 25.6 | 25.6 | 3.5 | 41 | 1,087.2 | 16 |
| Bakersfield, CA | Medium | 0.1 | 0.2 | 0.4 | 0.5 | 0.5 | 0.6 | 0.6 | 0.7 | 0.8 | 0.9 | 1.0 | 1.0 | 1.1 | 1.1 | 1.4 | 1.6 | 2.0 | 2.2 | 2.2 | 2.2 | 3.1 | 4.0 | 103.0 | 2 | 3,383.3 | 3 |
| Baltimore, MD | Large | 8.4 | 14.5 | 31.5 | 31.8 | 31.6 | 33.8 | 35.0 | 38.3 | 39.0 | 40.4 | 40.0 | 41.7 | 46.3 | 52.1 | 64.2 | 68.4 | 70.0 | 71.5 | 73.0 | 73.2 | 66.1 | 70.9 | 1.3 | 48 | 743.2 | 35 |
| Baton Rouge, LA | Medium | 1.8 | 2.4 | 3.3 | 3.7 | 3.6 | 4.6 | 5.2 | 5.8 | 6.2 | 6.3 | 6.6 | 7.9 | 8.0 | 8.4 | 8.5 | 9.7 | 10.2 | 10.6 | 11.4 | 11.5 | 11.3 | 11.5 | 13.4 | 21 | 550.3 | 53 |
| Beaumont, TX | Small | 0.6 | 0.8 | 0.7 | 0.9 | 1.0 | 1.1 | 1.1 | 1.2 | 1.4 | 1.4 | 1.8 | 2.2 | 2.3 | 2.6 | 3.0 | 3.3 | 3.5 | 3.7 | 3.7 | 3.7 | 3.7 | 3.5 | 0.8 | 50 | 476.6 | 56 |
| Birmingham, AL | Medium | 1.7 | 2.5 | 3.2 | 3.5 | 3.9 | 4.6 | 5.7 | 6.1 | 6.8 | 7.5 | 9.1 | 9.5 | 9.8 | 10.0 | 10.6 | 11.5 | 12.4 | 12.5 | 12.6 | 12.7 | 11.3 | 13.3 | 7.7 | 33 | 663.8 | 44 |
| Boise, ID | Small | 0.2 | 0.3 | 0.7 | 0.8 | 0.9 | 1.0 | 0.9 | 1.0 | 1.3 | 1.7 | 2.0 | 2.3 | 2.5 | 3.0 | 3.1 | 3.3 | 3.3 | 3.6 | 3.9 | 3.9 | 2.9 | 3.5 | 6.7 | 34 | 1,926.3 | 6 |
| Boston, MA-NH-RI | Very large | 17.2 | 25.5 | 44.7 | 45.9 | 50.9 | 52.1 | 53.7 | 54.1 | 56.4 | 61.7 | 67.7 | 68.5 | 73.2 | 76.6 | 85.3 | 86.3 | 96.9 | 100.1 | 99.3 | 93.7 | 91.6 | 89.9 | -7.2 | 65 | 424.1 | 60 |
| Boulder, CO | Small | 0.5 | 0.6 | 0.8 | 0.9 | 1.2 | 1.4 | 1.4 | 1.6 | 1.6 | 1.9 | 1.8 | 1.9 | 1.9 | 2.0 | 1.8 | 1.9 | 2.0 | 2.0 | 2.3 | 1.9 | 1.6 | 1.2 | -37.9 | 101 | 166.9 | 95 |
| Bridgeport-Stamford, CT-NY | Medium | 3.6 | 5.6 | 8.1 | 8.1 | 9.4 | 9.4 | 10.5 | 11.7 | 11.5 | 13.4 | 15.2 | 16.8 | 18.0 | 18.7 | 20.9 | 21.0 | 20.4 | 21.7 | 23.2 | 23.6 | 19.7 | 18.7 | -8.0 | 70 | 421.6 | 61 |
| Brownsville, TX | Small | 0.1 | 0.1 | 0.2 | 0.2 | 0.2 | 0.3 | 0.3 | 0.4 | 0.4 | 0.5 | 0.6 | 0.6 | 0.8 | 0.9 | 0.9 | 1.0 | 1.0 | 1.2 | 1.2 | 1.2 | 1.6 | 1.7 | 65.6 | 3 | 1,837.9 | 7 |
| Buffalo, NY | Large | 2.3 | 2.8 | 4.5 | 4.3 | 4.6 | 4.9 | 5.3 | 5.4 | 5.6 | 6.2 | 7.2 | 8.4 | 9.8 | 9.9 | 10.2 | 12.2 | 11.8 | 12.3 | 13.2 | 12.2 | 9.8 | 10.7 | -9.1 | 74 | 357.8 | 73 |
| Cape Coral, FL | Small | 0.8 | 1.0 | 1.5 | 1.6 | 1.9 | 2.5 | 3.0 | 3.5 | 3.7 | 3.6 | 3.4 | 3.5 | 3.6 | 4.3 | 4.7 | 5.2 | 5.5 | 5.9 | 7.2 | 7.4 | 5.8 | 5.9 | 7.9 | 32 | 690.9 | 41 |
| Charleston-North Charleston, SC | Medium | 2.0 | 2.8 | 4.3 | 4.5 | 5.2 | 5.3 | 5.5 | 5.5 | 5.4 | 5.6 | 6.3 | 6.5 | 6.6 | 6.7 | 7.0 | 7.7 | 8.0 | 8.0 | 8.6 | 8.7 | 7.2 | 8.3 | 3.4 | 43 | 320.5 | 78 |
| Charlotte, NC-SC | Large | 1.0 | 1.7 | 2.9 | 3.2 | 3.5 | 3.4 | 3.4 | 3.6 | 4.3 | 5.5 | 6.3 | 7.4 | 9.1 | 9.9 | 11.4 | 12.1 | 13.2 | 13.3 | 14.1 | 14.6 | 14.0 | 14.3 | 8.0 | 31 | 1,395.4 | 10 |
| Chicago, IL-IN | Very large | 54.6 | 84.2 | 135.0 | 139.0 | 144.4 | 146.5 | 150.9 | 175.5 | 201.1 | 204.1 | 218.6 | 219.8 | 217.9 | 227.8 | 270.4 | 282.8 | 300.1 | 320.2 | 310.1 | 292.2 | 266.0 | 276.9 | -7.7 | 68 | 407.1 | 64 |
| Cincinnati, OH-KY-IN | Large | 2.0 | 3.4 | 8.5 | 9.2 | 10.7 | 12.5 | 15.1 | 15.4 | 16.6 | 19.7 | 20.4 | 20.2 | 22.1 | 21.7 | 22.6 | 24.2 | 23.7 | 23.9 | 23.6 | 23.7 | 19.6 | 17.5 | -26.1 | 97 | 794.7 | 32 |
| Cleveland, OH | Large | 2.8 | 3.0 | 8.5 | 9.5 | 10.2 | 12.6 | 14.4 | 17.7 | 19.1 | 22.1 | 20.6 | 21.8 | 21.3 | 18.8 | 17.4 | 17.1 | 19.5 | 17.7 | 17.5 | 16.4 | 18.2 | 18.1 | -7.4 | 67 | 548.2 | 54 |
| Colorado Springs, CO | Medium | 0.9 | 1.1 | 1.7 | 1.9 | 2.5 | 2.9 | 3.7 | 4.4 | 4.7 | 6.2 | 7.5 | 9.3 | 11.1 | 11.8 | 11.9 | 11.7 | 10.8 | 14.0 | 13.7 | 12.3 | 9.1 | 9.7 | -10.2 | 75 | 1,008.6 | 19 |
| Columbia, SC | Small | 0.6 | 1.1 | 1.6 | 1.6 | 1.9 | 1.9 | 2.0 | 2.1 | 2.3 | 2.5 | 2.7 | 3.1 | 3.5 | 3.6 | 3.9 | 4.3 | 4.4 | 4.5 | 5.5 | 6.6 | 5.8 | 6.3 | 43.2 | 5 | 1,016.3 | 18 |
| Columbus, OH | Large | 0.9 | 1.3 | 4.2 | 4.5 | 5.2 | 6.2 | 7.0 | 7.9 | 8.6 | 9.4 | 9.6 | 9.8 | 9.5 | 10.7 | 11.3 | 12.4 | 14.0 | 13.8 | 13.6 | 13.0 | 13.3 | 12.1 | -13.7 | 83 | 1,301.6 | 14 |
| Corpus Christi, TX | Small | 1.0 | 1.2 | 1.7 | 1.8 | 1.9 | 1.9 | 1.9 | 2.0 | 2.1 | 2.3 | 2.4 | 2.8 | 2.6 | 3.1 | 2.9 | 3.0 | 3.2 | 3.4 | 2.9 | 3.2 | 3.0 | 3.2 | -0.6 | 52 | 226.5 | 89 |
| Dallas-Fort Worth-Arlington, TX | Very large | 8.6 | 16.4 | 31.6 | 35.1 | 37.5 | 41.6 | 43.9 | 50.2 | 54.5 | 56.2 | 65.4 | 75.9 | 81.4 | 86.0 | 93.5 | 100.5 | 113.9 | 123.5 | 130.8 | 128.6 | 122.5 | 126.1 | 10.7 | 25 | 1,359.5 | 12 |
| Dayton, OH | Medium | 2.4 | 2.9 | 4.6 | 4.7 | 5.0 | 5.8 | 5.2 | 6.7 | 6.6 | 7.2 | 7.3 | 8.1 | 7.8 | 7.0 | 6.7 | 6.5 | 7.9 | 7.1 | 7.1 | 6.2 | 6.3 | 6.0 | -23.7 | 93 | 148.6 | 98 |
| Denver-Aurora, CO | Large | 8.4 | 11.1 | 14.4 | 16.7 | 18.6 | 22.5 | 25.2 | 30.5 | 34.6 | 38.3 | 41.5 | 45.7 | 49.4 | 52.3 | 50.7 | 52.6 | 55.3 | 60.3 | 59.3 | 58.6 | 58.9 | 60.4 | 9.2 | 29 | 617.7 | 47 |
| Detroit, MI | Very large | 24.2 | 29.6 | 52.6 | 56.1 | 63.3 | 67.2 | 64.2 | 64.0 | 67.4 | 69.7 | 71.0 | 74.7 | 75.1 | 79.8 | 84.6 | 87.4 | 86.4 | 85.1 | 86.9 | 85.5 | 70.5 | 64.9 | -24.9 | 95 | 167.8 | 94 |
| El Paso, TX-NM | Medium | 1.0 | 1.4 | 2.7 | 3.6 | 4.5 | 4.7 | 5.9 | 5.4 | 5.1 | 5.7 | 6.7 | 8.5 | 10.0 | 10.5 | 11.0 | 11.6 | 13.3 | 13.9 | 14.0 | 13.5 | 10.0 | 8.7 | -34.5 | 99 | 766.4 | 33 |
| Eugene, OR | Small | 0.6 | 0.6 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.9 | 1.2 | 1.3 | 1.7 | 2.0 | 1.8 | 1.8 | 2.1 | 2.0 | 2.3 | 2.0 | 1.9 | 1.7 | 1.5 | -25.9 | 96 | 153.2 | 96 |
| Fresno, CA | Medium | 1.4 | 1.5 | 2.7 | 2.8 | 3.0 | 3.3 | 3.3 | 3.7 | 3.9 | 4.2 | 5.1 | 5.6 | 6.1 | 5.4 | 5.7 | 5.7 | 5.6 | 6.0 | 6.3 | 6.4 | 5.0 | 6.3 | 11.2 | 24 | 360.4 | 71 |
| Grand Rapids, MI | Medium | 0.8 | 1.4 | 2.6 | 2.7 | 3.8 | 4.9 | 4.7 | 4.3 | 4.8 | 5.1 | 6.2 | 6.5 | 6.4 | 6.5 | 6.5 | 6.8 | 7.2 | 7.2 | 7.2 | 7.1 | 7.3 | 8.0 | 10.7 | 26 | 857.0 | 26 |
| Greensboro, NC | Small | 0.3 | 0.3 | 0.8 | 0.9 | 1.3 | 1.7 | 1.8 | 1.9 | 3.2 | 3.0 | 3.4 | 3.8 | 3.9 | 4.7 | 4.9 | 4.9 | 4.0 | 3.9 | 3.7 | 3.5 | 3.1 | 3.3 | -18.1 | 87 | 1,070.0 | 17 |
| Hartford, CT | Medium | 1.8 | 2.6 | 4.1 | 4.4 | 7.2 | 5.8 | 6.7 | 7.3 | 7.6 | 8.9 | 10.1 | 11.1 | 12.1 | 11.7 | 11.9 | 11.7 | 12.9 | 13.2 | 14.6 | 14.6 | 12.1 | 12.0 | -7.1 | 64 | 552.0 | 52 |
| Honolulu, HI | Medium | 3.3 | 4.3 | 7.7 | 7.6 | 8.6 | 8.7 | 8.8 | 9.3 | 9.3 | 8.5 | 8.7 | 8.4 | 8.1 | 8.3 | 8.0 | 8.9 | 9.2 | 10.3 | 10.5 | 11.4 | 10.8 | 12.0 | 30.4 | 7 | 263.9 | 85 |
| Houston, TX | Very large | 28.3 | 39.6 | 45.6 | 43.9 | 42.0 | 42.2 | 47.5 | 49.8 | 56.4 | 65.5 | 68.2 | 74.0 | 80.2 | 89.1 | 93.8 | 95.0 | 102.9 | 110.9 | 111.5 | 110.4 | 135.8 | 129.6 | 25.9 | 9 | 358.6 | 72 |
| Indianapolis, IN | Large | 3.8 | 4.3 | 7.4 | 8.5 | 10.0 | 12.9 | 15.1 | 16.0 | 16.8 | 18.5 | 16.5 | 16.1 | 16.3 | 16.7 | 17.0 | 17.1 | 17.1 | 17.1 | 17.1 | 16.9 | 15.7 | 15.6 | -8.8 | 72 | 314.6 | 80 |
| Indio-Cathedral City-Palm Springs, CA | Medium | 1.2 | 1.5 | 2.3 | 2.4 | 2.4 | 2.5 | 2.5 | 2.4 | 2.6 | 2.8 | 2.7 | 2.8 | 2.8 | 2.8 | 2.8 | 3.7 | 4.1 | 5.1 | 5.8 | 5.3 | 4.1 | 4.3 | 3.9 | 39 | 260.8 | 86 |
| Jackson, MS | Small | 0.7 | 0.8 | 1.0 | 1.3 | 1.5 | 1.5 | 2.0 | 2.1 | 2.3 | 2.7 | 2.7 | 3.1 | 3.2 | 3.9 | 4.5 | 4.3 | 5.2 | 5.8 | 6.9 | 6.7 | 5.5 | 5.6 | 6.6 | 35 | 682.4 | 43 |
| Jacksonville, FL | Large | 3.0 | 4.2 | 7.3 | 7.8 | 9.3 | 9.6 | 10.3 | 11.7 | 12.4 | 12.0 | 11.6 | 11.6 | 11.8 | 11.9 | 13.8 | 15.4 | 16.9 | 17.3 | 18.1 | 19.1 | 17.0 | 16.0 | -4.9 | 60 | 439.7 | 59 |
| Kansas City, MO-KS | Large | 2.7 | 4.7 | 10.1 | 10.0 | 12.0 | 18.2 | 19.2 | 19.7 | 22.6 | 25.0 | 25.7 | 30.3 | 29.1 | 29.2 | 29.1 | 30.6 | 26.5 | 26.0 | 27.5 | 24.4 | 21.8 | 21.0 | -20.7 | 91 | 692.0 | 40 |
| Knoxville, TN | Small | 1.1 | 1.2 | 3.2 | 3.4 | 3.7 | 4.0 | 4.4 | 4.9 | 6.1 | 6.3 | 6.3 | 6.5 | 6.4 | 6.3 | 6.4 | 6.6 | 6.6 | 6.4 | 6.1 | 6.6 | 6.4 | 6.3 | -4.4 | 58 | 458.3 | 58 |
| Lancaster-Palmdale, CA | Medium | 1.7 | 1.8 | 1.7 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.4 | 2.3 | 2.4 | 2.4 | 2.6 | 3.0 | 3.6 | 4.1 | 4.2 | 4.5 | 4.9 | 4.9 | 4.6 | 5.5 | 29.5 | 8 | 226.2 | 90 |
| Laredo, TX | Small | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.3 | 0.7 | 2.3 | 960.7 | 1 | 18,816.7 | 1 |
| Las Vegas, NV | Large | 1.1 | 1.7 | 5.4 | 6.4 | 7.3 | 8.6 | 10.1 | 11.4 | 12.4 | 12.8 | 14.0 | 15.3 | 16.2 | 17.2 | 18.6 | 20.9 | 22.9 | 24.2 | 25.2 | 25.7 | 21.5 | 25.2 | 9.8 | 28 | 2,112.6 | 5 |
| Little Rock, AR | Small | 0.6 | 0.7 | 1.2 | 1.3 | 1.4 | 1.7 | 1.9 | 2.0 | 2.3 | 2.3 | 3.0 | 3.6 | 3.3 | 4.0 | 3.2 | 3.9 | 5.2 | 5.2 | 6.1 | 7.1 | 6.2 | 7.2 | 38.7 | 6 | 1,107.8 | 15 |
| Los Angeles-Long Beach-Santa Ana, CA | Very large | 162.1 | 201.3 | 405.8 | 399.1 | 397.2 | 375.4 | 359.2 | 382.2 | 396.4 | 405.5 | 408.1 | 421.6 | 426.6 | 446.6 | 458.3 | 452.9 | 473.8 | 470.3 | 481.5 | 462.6 | 374.8 | 406.6 | -14.2 | 84 | 150.9 | 97 |
| Louisville, KY-IN | Large | 3.5 | 3.7 | 4.3 | 5.5 | 6.8 | 7.9 | 8.5 | 8.6 | 9.9 | 10.7 | 11.5 | 12.0 | 12.3 | 11.2 | 12.7 | 13.6 | 14.8 | 14.5 | 14.2 | 13.2 | 12.7 | 13.7 | -7.8 | 69 | 291.7 | 83 |
| Madison, WI | Small | 0.8 | 0.9 | 1.1 | 1.0 | 1.0 | 1.1 | 1.2 | 1.3 | 1.3 | 1.2 | 1.3 | 1.5 | 1.5 | 1.7 | 1.8 | 1.8 | 2.0 | 1.8 | 2.0 | 1.9 | 2.4 | 3.1 | 53.0 | 4 | 271.1 | 84 |
| McAllen, TX | Medium | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 0.3 | 0.4 | 0.6 | 0.6 | 0.7 | 1.0 | 1.2 | 1.6 | 1.7 | 1.9 | 2.0 | 2.1 | 2.3 | 2.5 | 1.9 | 2.1 | 3.7 | 40 | 3,420.3 | 2 |
| Memphis, TN-MS-AR | Large | 1.9 | 2.2 | 6.0 | 6.2 | 6.8 | 8.2 | 9.8 | 11.1 | 11.7 | 12.4 | 12.8 | 12.8 | 14.1 | 15.0 | 15.5 | 17.1 | 17.6 | 16.7 | 16.8 | 15.2 | 13.1 | 15.5 | -12.0 | 81 | 701.4 | 39 |
| Miami, FL | Very large | 15.0 | 19.7 | 41.9 | 41.5 | 47.8 | 47.7 | 50.9 | 55.9 | 58.3 | 62.2 | 65.8 | 76.7 | 90.7 | 98.1 | 104.4 | 111.8 | 117.4 | 120.7 | 119.1 | 117.4 | 95.5 | 109.3 | -6.9 | 63 | 627.6 | 46 |
| Milwaukee, WI | Large | 4.5 | 6.4 | 12.5 | 13.3 | 15.5 | 15.9 | 15.1 | 16.9 | 17.1 | 17.5 | 18.6 | 20.9 | 21.9 | 21.1 | 21.7 | 21.5 | 22.0 | 21.5 | 20.1 | 21.0 | 21.0 | 19.7 | -10.4 | 77 | 336.8 | 74 |
| Minneapolis-St. Paul, MN | Large | 4.3 | 8.3 | 18.0 | 18.6 | 22.6 | 27.5 | 33.1 | 36.4 | 37.8 | 47.9 | 52.0 | 55.7 | 59.1 | 64.4 | 60.8 | 61.6 | 61.7 | 67.1 | 63.9 | 62.8 | 73.5 | 64.8 | 5.0 | 36 | 1,390.2 | 11 |

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nashville-Davidson, TN | Large | 4.7 | 4.8 | 8.1 | 7.8 | 7.7 | 8.0 | 10.8 | 11.9 | 12.4 | 14.1 | 13.5 | 15.1 | 16.8 | 18.2 | 20.9 | 23.1 | 23.7 | 23.8 | 22.3 | 21.9 | 18.4 | 20.3 | -14.2 | 85 | 331.3 | 75 |
| New Haven, CT | Medium | 1.5 | 2.3 | 3.4 | 3.5 | 4.6 | 5.2 | 5.4 | 5.9 | 5.6 | 7.0 | 8.6 | 9.8 | 10.2 | 11.7 | 12.0 | 11.9 | 10.5 | 11.7 | 11.7 | 11.7 | 10.3 | 10.7 | 1.8 | 46 | 613.0 | 49 |
| New Orleans, LA | Large | 7.9 | 10.9 | 11.5 | 12.2 | 11.7 | 11.5 | 12.8 | 12.9 | 12.1 | 12.9 | 13.5 | 14.0 | 13.1 | 12.7 | 12.9 | 13.2 | 13.1 | 13.6 | 14.1 | 13.7 | 13.2 | 14.8 | 13.1 | 22 | 85.9 | 100 |
| New York-Newark, NY-NJ-CT | Very large | 56.2 | 70.8 | 140.6 | 136.0 | 136.4 | 145.7 | 160.9 | 179.0 | 190.5 | 214.3 | 222.3 | 251.0 | 250.3 | 250.6 | 266.0 | 306.1 | 343.7 | 371.8 | 370.4 | 364.3 | 339.1 | 348.3 | 1.3 | 47 | 520.1 | 55 |
| Oklahoma City, OK | Medium | 1.4 | 2.2 | 3.1 | 3.7 | 3.9 | 4.7 | 4.6 | 6.7 | 7.6 | 8.8 | 9.2 | 10.7 | 9.8 | 11.3 | 11.8 | 10.9 | 10.9 | 10.8 | 12.4 | 14.3 | 12.6 | 13.3 | 21.7 | 13 | 850.5 | 27 |
| Omaha, NE-IA | Medium | 0.8 | 1.1 | 2.2 | 2.2 | 2.8 | 2.8 | 3.1 | 3.2 | 3.6 | 3.4 | 4.0 | 4.3 | 4.7 | 5.2 | 5.6 | 5.6 | 5.8 | 5.9 | 6.7 | 6.4 | 7.7 | 7.2 | 24.3 | 11 | 860.5 | 25 |
| Orlando, FL | Large | 3.1 | 5.6 | 13.0 | 15.3 | 15.9 | 16.0 | 17.4 | 19.0 | 20.9 | 23.7 | 25.5 | 26.6 | 28.4 | 31.2 | 30.5 | 30.0 | 30.1 | 30.8 | 32.1 | 32.6 | 27.9 | 31.2 | 3.5 | 42 | 921.3 | 21 |
| Oxnard-Ventura, CA | Medium | 0.6 | 1.1 | 2.1 | 2.1 | 2.6 | 3.0 | 4.0 | 4.2 | 4.8 | 4.4 | 4.6 | 5.7 | 5.9 | 6.8 | 7.4 | 7.9 | 8.9 | 9.7 | 9.8 | 10.9 | 8.5 | 9.3 | 4.7 | 37 | 1,590.8 | 8 |
| Pensacola, FL-AL | Small | 0.4 | 0.5 | 1.2 | 1.1 | 1.4 | 1.6 | 1.6 | 1.9 | 2.4 | 2.7 | 2.6 | 2.7 | 2.9 | 2.9 | 3.3 | 3.7 | 4.0 | 4.3 | 4.9 | 5.0 | 3.8 | 3.9 | -2.5 | 55 | 849.0 | 28 |
| Philadelphia, PA-NJ-DE-MD | Very large | 25.2 | 30.7 | 43.8 | 44.3 | 48.8 | 47.3 | 49.9 | 52.7 | 56.5 | 63.4 | 72.6 | 75.5 | 77.5 | 89.5 | 97.7 | 103.1 | 106.8 | 111.1 | 110.4 | 110.7 | 100.2 | 106.0 | -0.7 | 53 | 320.1 | 79 |
| Phoenix, AZ | Very large | 13.5 | 15.2 | 20.5 | 21.3 | 24.0 | 24.2 | 25.2 | 24.5 | 29.5 | 31.7 | 34.3 | 40.5 | 45.3 | 50.7 | 47.9 | 51.5 | 56.0 | 68.0 | 66.0 | 66.8 | 65.2 | 69.2 | 23.5 | 12 | 411.1 | 63 |
| Pittsburgh, PA | Large | 17.4 | 19.6 | 32.3 | 31.7 | 30.1 | 29.7 | 29.6 | 34.9 | 35.1 | 34.7 | 33.3 | 36.9 | 35.0 | 36.5 | 37.6 | 36.8 | 38.0 | 36.6 | 34.4 | 34.6 | 30.8 | 33.4 | -12.0 | 82 | 91.8 | 99 |
| Portland, OR-WA | Large | 5.0 | 5.7 | 11.3 | 12.2 | 15.1 | 16.5 | 17.3 | 19.8 | 22.5 | 24.8 | 25.7 | 28.2 | 29.3 | 30.1 | 29.2 | 31.3 | 33.2 | 35.4 | 35.8 | 34.9 | 32.9 | 33.9 | 2.1 | 45 | 575.9 | 50 |
| Poughkeepsie-Newburgh, NY | Medium | 0.8 | 1.0 | 1.4 | 1.6 | 1.6 | 1.6 | 1.6 | 1.7 | 1.9 | 2.0 | 2.1 | 2.3 | 2.3 | 2.4 | 2.7 | 3.0 | 3.3 | 3.5 | 3.8 | 3.6 | 3.6 | 4.1 | 25.2 | 10 | 397.2 | 66 |
| Providence, RI-MA | Large | 1.3 | 1.7 | 4.1 | 4.3 | 4.7 | 5.5 | 5.7 | 6.1 | 7.5 | 7.7 | 10.2 | 11.8 | 12.7 | 14.1 | 15.3 | 17.0 | 17.7 | 17.2 | 16.0 | 17.3 | 12.8 | 12.3 | -30.2 | 98 | 816.0 | 30 |
| Provo, UT | Small | 0.7 | 0.8 | 1.2 | 1.4 | 1.5 | 1.5 | 1.8 | 1.8 | 1.9 | 2.1 | 2.2 | 2.5 | 2.5 | 2.9 | 2.9 | 3.2 | 3.3 | 3.5 | 3.6 | 3.6 | 3.3 | 3.9 | 18.9 | 14 | 459.3 | 57 |
| Raleigh-Durham, NC | Large | 1.0 | 1.9 | 4.6 | 4.7 | 4.8 | 5.7 | 6.4 | 7.0 | 7.5 | 9.0 | 9.0 | 9.9 | 11.1 | 12.1 | 13.8 | 14.7 | 16.0 | 17.3 | 17.1 | 18.6 | 15.5 | 16.1 | 0.7 | 51 | 1,476.3 | 9 |
| Richmond, VA | Medium | 1.5 | 1.7 | 3.3 | 3.7 | 4.3 | 4.6 | 5.8 | 7.2 | 7.6 | 7.0 | 6.8 | 6.8 | 6.6 | 7.1 | 7.6 | 8.8 | 9.7 | 9.8 | 10.1 | 10.1 | 9.5 | 11.2 | 15.4 | 17 | 640.9 | 45 |
| Riverside-San Bernardino, CA | Large | 1.2 | 2.4 | 10.1 | 11.8 | 12.5 | 12.6 | 11.0 | 12.4 | 13.5 | 13.3 | 15.3 | 16.9 | 18.5 | 19.2 | 21.6 | 25.7 | 30.0 | 34.2 | 35.6 | 35.2 | 32.2 | 33.1 | 10.3 | 27 | 2,680.0 | 4 |
| Rochester, NY | Medium | 1.1 | 1.5 | 2.7 | 3.0 | 3.2 | 3.2 | 3.4 | 3.9 | 4.0 | 4.4 | 3.9 | 4.4 | 4.6 | 4.7 | 4.9 | 5.3 | 5.7 | 6.0 | 6.5 | 6.5 | 6.0 | 5.7 | -0.8 | 54 | 417.2 | 62 |
| Sacramento, CA | Large | 3.1 | 4.9 | 13.4 | 13.8 | 13.3 | 13.2 | 14.9 | 14.8 | 16.6 | 15.7 | 16.8 | 18.0 | 20.0 | 21.9 | 23.4 | 26.3 | 29.4 | 31.2 | 32.4 | 30.8 | 23.8 | 25.1 | -14.6 | 86 | 702.3 | 38 |
| Salem, OR | Small | 0.4 | 0.5 | 1.3 | 1.5 | 1.7 | 2.1 | 2.3 | 2.3 | 2.2 | 2.4 | 2.7 | 3.0 | 3.3 | 4.0 | 4.3 | 3.9 | 3.8 | 4.0 | 4.6 | 4.7 | 3.1 | 3.4 | -10.2 | 76 | 828.9 | 29 |
| Salt Lake City, UT | Medium | 1.8 | 3.0 | 5.3 | 6.2 | 7.5 | 8.7 | 10.4 | 11.3 | 11.2 | 10.9 | 10.3 | 11.3 | 12.7 | 13.8 | 14.6 | 15.1 | 13.3 | 12.2 | 11.9 | 12.4 | 12.4 | 15.1 | 13.5 | 20 | 738.7 | 36 |
| San Antonio, TX | Large | 1.9 | 3.9 | 4.5 | 4.5 | 5.4 | 5.6 | 6.6 | 8.8 | 11.1 | 12.9 | 14.8 | 17.7 | 20.5 | 20.4 | 21.1 | 22.2 | 25.0 | 25.6 | 24.7 | 25.9 | 25.4 | 27.2 | 9.2 | 30 | 1,311.1 | 13 |
| San Diego, CA | Very large | 5.9 | 10.3 | 29.2 | 28.3 | 31.0 | 30.1 | 29.4 | 30.5 | 33.1 | 34.0 | 36.7 | 43.9 | 48.4 | 53.9 | 60.8 | 61.1 | 68.2 | 69.3 | 67.5 | 64.9 | 66.9 | 60.1 | -11.9 | 80 | 915.3 | 22 |
| San Francisco-Oakland, CA | Very large | 29.9 | 56.6 | 92.7 | 86.6 | 87.9 | 89.9 | 84.6 | 91.9 | 94.9 | 89.0 | 95.6 | 97.3 | 106.5 | 104.5 | 111.7 | 114.6 | 119.4 | 128.2 | 130.4 | 125.0 | 92.2 | 94.9 | -20.5 | 90 | 217.7 | 91 |
| San Jose, CA | Large | 11.9 | 20.5 | 32.6 | 33.2 | 30.8 | 29.1 | 31.3 | 34.3 | 34.4 | 33.6 | 36.7 | 42.7 | 45.9 | 47.7 | 46.6 | 47.5 | 44.3 | 47.2 | 50.7 | 49.0 | 35.4 | 35.4 | -20.0 | 89 | 196.9 | 92 |
| San Juan, PR | Large | 4.8 | 6.9 | 15.1 | 16.0 | 17.9 | 19.3 | 22.9 | 25.1 | 26.5 | 28.0 | 28.7 | 32.4 | 36.1 | 39.5 | 42.9 | 47.5 | 52.2 | 50.0 | 50.3 | 49.9 | 45.7 | 49.8 | -4.6 | 59 | 935.7 | 20 |
| Sarasota-Bradenton, FL | Medium | 1.5 | 2.4 | 2.6 | 2.9 | 2.9 | 3.3 | 3.4 | 3.3 | 4.0 | 4.3 | 4.4 | 5.2 | 5.3 | 5.5 | 5.9 | 6.2 | 6.8 | 7.0 | 7.6 | 7.2 | 5.2 | 7.0 | 3.0 | 44 | 367.9 | 69 |
| Seattle, WA | Very large | 8.7 | 16.8 | 44.7 | 48.4 | 51.6 | 55.2 | 56.7 | 59.0 | 59.7 | 64.9 | 66.1 | 66.1 | 63.7 | 62.2 | 63.2 | 68.4 | 68.1 | 73.2 | 72.5 | 70.5 | 69.5 | 68.7 | 0.9 | 49 | 688.2 | 42 |
| Spokane, WA | Small | 0.7 | 1.0 | 1.5 | 2.0 | 2.3 | 3.2 | 3.3 | 2.6 | 2.7 | 3.1 | 3.2 | 3.5 | 3.5 | 3.2 | 3.1 | 3.1 | 3.1 | 2.9 | 3.0 | 3.3 | 3.0 | 2.8 | -7.3 | 66 | 325.3 | 76 |
| Springfield, MA-CT | Medium | 2.3 | 2.6 | 3.2 | 3.4 | 4.0 | 4.1 | 4.0 | 4.2 | 4.1 | 4.3 | 4.7 | 5.1 | 5.2 | 4.9 | 5.4 | 5.3 | 5.5 | 6.1 | 6.3 | 6.0 | 5.3 | 6.2 | 12.6 | 23 | 170.2 | 93 |
| St. Louis, MO-IL | Large | 10.4 | 14.1 | 17.3 | 17.0 | 20.5 | 28.1 | 36.7 | 44.4 | 45.3 | 48.2 | 48.7 | 51.5 | 52.3 | 48.0 | 48.5 | 45.7 | 44.2 | 44.1 | 42.3 | 39.0 | 41.8 | 42.5 | -4.0 | 57 | 306.9 | 81 |
| Stockton, CA | Small | 0.3 | 0.4 | 0.8 | 0.8 | 0.9 | 1.0 | 1.1 | 1.2 | 1.2 | 1.3 | 1.3 | 1.5 | 1.6 | 1.7 | 2.0 | 2.0 | 2.2 | 2.6 | 2.7 | 2.9 | 2.4 | 2.6 | 17.8 | 15 | 893.1 | 23 |
| Tampa-St. Petersburg, FL | Large | 9.0 | 10.9 | 15.9 | 18.6 | 19.0 | 20.1 | 20.8 | 22.0 | 22.1 | 21.6 | 22.6 | 23.8 | 24.7 | 27.9 | 30.7 | 32.8 | 37.2 | 37.2 | 41.0 | 41.7 | 41.5 | 42.6 | 14.5 | 18 | 372.2 | 67 |
| Toledo, OH-MI | Medium | 0.4 | 0.5 | 1.0 | 1.0 | 1.3 | 1.5 | 2.3 | 3.1 | 3.4 | 3.9 | 4.3 | 4.7 | 5.1 | 5.0 | 4.8 | 4.6 | 5.2 | 4.6 | 4.7 | 4.3 | 2.8 | 3.3 | -36.9 | 100 | 757.6 | 34 |
| Tucson, AZ | Medium | 2.5 | 3.0 | 3.7 | 3.6 | 3.8 | 3.9 | 3.7 | 3.9 | 4.2 | 5.5 | 5.8 | 6.0 | 6.6 | 7.3 | 7.8 | 9.0 | 9.3 | 10.3 | 10.2 | 9.7 | 8.3 | 8.7 | -6.5 | 62 | 243.6 | 88 |
| Tulsa, OK | Medium | 1.7 | 3.3 | 4.4 | 4.4 | 4.4 | 4.6 | 4.7 | 5.3 | 6.8 | 7.2 | 7.5 | 7.7 | 8.3 | 8.9 | 9.3 | 9.7 | 8.7 | 8.7 | 10.0 | 9.5 | 7.5 | 8.4 | -3.1 | 56 | 399.6 | 65 |
| Virginia Beach, VA | Large | 7.6 | 11.2 | 15.8 | 15.7 | 15.6 | 16.3 | 19.7 | 22.8 | 26.8 | 28.5 | 30.0 | 31.9 | 28.3 | 31.8 | 33.7 | 34.0 | 33.3 | 34.0 | 34.3 | 33.2 | 29.5 | 26.6 | -20.0 | 88 | 250.9 | 87 |
| Washington, DC-VA-MD | Very large | 22.7 | 45.1 | 75.4 | 84.1 | 99.4 | 104.3 | 109.2 | 113.0 | 121.9 | 121.2 | 118.7 | 127.3 | 129.2 | 141.6 | 151.9 | 161.0 | 162.7 | 163.2 | 161.1 | 168.5 | 141.8 | 148.2 | -8.9 | 73 | 554.1 | 51 |
| Wichita, KS | Medium | 1.6 | 2.3 | 3.1 | 3.2 | 3.4 | 4.5 | 4.7 | 4.6 | 4.6 | 5.8 | 6.0 | 6.0 | 6.1 | 5.9 | 6.0 | 6.1 | 6.4 | 6.4 | 7.7 | 7.8 | 6.9 | 7.3 | 14.2 | 19 | 365.1 | 70 |
| Winston-Salem, NC | Small | 0.4 | 0.7 | 0.7 | 0.8 | 1.1 | 1.0 | 1.0 | 1.4 | 1.4 | 1.7 | 2.2 | 2.4 | 2.6 | 3.1 | 3.5 | 3.7 | 3.6 | 4.2 | 4.1 | 4.1 | 3.5 | 3.8 | 4.6 | 38 | 873.3 | 24 |
| Worcester, MA | Small | 1.3 | 1.6 | 2.2 | 2.5 | 2.7 | 3.2 | 3.7 | 4.0 | 4.3 | 4.4 | 4.8 | 5.0 | 5.3 | 5.4 | 5.4 | 5.1 | 5.3 | 5.7 | 5.6 | 5.9 | 5.3 | 5.0 | -6.4 | 61 | 296.6 | 82 |
| 439 Urban area average | 439 Areas | 1.7 | 2.3 | 4.2 | 4.3 | 4.6 | 4.8 | 5.0 | 5.4 | 5.8 | 6.1 | 6.4 | 6.9 | 7.2 | 7.5 | 8.0 | 8.5 | 9.0 | 9.5 | 9.5 | 9.4 | 8.6 | 8.9 | -0.7 | NA | 437.8 | NA |
| 101 Urban area average | 101 Areas | 6.8 | 9.5 | 17.0 | 17.4 | 18.5 | 19.2 | 20.1 | 21.8 | 23.3 | 24.7 | 25.9 | 27.7 | 28.8 | 30.2 | 32.0 | 33.5 | 35.3 | 36.7 | 36.9 | 36.3 | 32.7 | 33.8 | -4.2 | NA | 396.0 | NA |
| Very large urban area average | Very large | 32.2 | 45.2 | 82.0 | 82.7 | 86.5 | 87.5 | 89.1 | 95.9 | 102.5 | 107.5 | 112.5 | 119.5 | 123.5 | 129.8 | 139.1 | 145.5 | 154.5 | 161.5 | 161.4 | 157.5 | 141.2 | 146.0 | -5.5 | NA | 353.2 | NA |
| Large urban area average | Large | 4.6 | 6.5 | 11.6 | 12.3 | 13.1 | 14.5 | 16.0 | 18.0 | 19.2 | 20.7 | 21.5 | 23.3 | 24.4 | 25.5 | 26.6 | 28.0 | 29.0 | 29.8 | 29.9 | 29.5 | 27.4 | 27.9 | -3.8 | NA | 504.2 | NA |
| Medium urban area average | Medium | 1.5 | 2.0 | 3.1 | 3.3 | 3.9 | 4.2 | 4.6 | 5.0 | 5.3 | 5.8 | 6.3 | 6.8 | 7.1 | 7.3 | 7.6 | 7.9 | 8.2 | 8.6 | 9.0 | 9.0 | 7.9 | 8.4 | 1.9 | NA | 471.2 | NA |
| Small urban area average | Small | 0.6 | 0.8 | 1.2 | 1.3 | 1.5 | 1.7 | 1.8 | 1.9 | 2.2 | 2.3 | 2.5 | 2.7 | 2.8 | 3.1 | 3.2 | 3.4 | 3.5 | 3.6 | 3.9 | 4.0 | 3.5 | 3.8 | 7.6 | NA | 502.6 | NA |

**KEY:** NA = not applicable; R = revised.

Very large urban areas - over 3 million population.
Large urban areas - over 1 million and less than 3 million population.
Medium urban areas - over 500,000 and less than 1 million population.
Small urban areas - less than 500,000 population.

[a] Percent changes were calculated using the numbers in this table and were not obtained from the source. Ranks are based on the calculated percent changes with the highest number corresponding to a rank of 1.

**NOTES**

"Wasted" fuel is the difference between the fuel consumed under estimated existing conditions and the fuel consumed under free-flow conditions. Previous editions of this table were calculated on the basis of total fuel consumed during congested trips. Calculations are made for peak period speeds and for free-flow speeds on both the freeway and principal arterial systems. For a more detailed description of the formulas used, see the source document.

The urban areas included are those containing over 500,000 people and several smaller places mostly chosen by previous sponsors of the Texas Transportation Institute study on mobility.

Methodology and data sources have been changed in 2010 and were applied retroactively to past years; these figures are not comparable to those in the past editions of NTS.

**SOURCES**

Texas Transportation Institute, *Congestion Data for Your City*, Excel spreadsheet of the base statistics for the 101 urban areas and population group summary statistics (College Station, TX: 2011), available at http://mobility.tamu.edu as of Feb. 25, 2011.

**Table 4-29: Annual Wasted Fuel Per Person**

| Urban area | Population group | Gallons wasted | | | | | | | | | | | | | | | | | | | | | | Percent change[a] | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | | | | | | Short-term 2004-2009 | | Long-term 1982-2009 | |
| | | (R) 1982 | (R) 1985 | (R) 1990 | (R) 1991 | (R) 1992 | (R) 1993 | (R) 1994 | (R) 1995 | (R) 1996 | (R) 1997 | (R) 1998 | (R) 1999 | (R) 2000 | (R) 2001 | (R) 2002 | (R) 2003 | (R) 2004 | (R) 2005 | (R) 2006 | (R) 2007 | 2008 | 2009 | Percent | Rank | Percent | Rank |
| Akron, OH | Medium | 2.0 | 2.8 | 6.8 | 7.1 | 8.7 | 10.7 | 13.4 | 11.5 | 14.3 | 16.8 | 17.9 | 17.9 | 17.0 | 16.5 | 15.5 | 14.6 | 15.8 | 15.2 | 16.1 | 13.2 | 12.6 | 12.0 | -24.1 | 63 | 500.0 | 33 |
| Albany-Schenectady, NY | Medium | 2.1 | 3.0 | 5.3 | 5.6 | 5.7 | 6.0 | 6.6 | 6.8 | 7.2 | 7.6 | 8.6 | 9.2 | 10.2 | 11.0 | 12.0 | 13.1 | 14.7 | 15.0 | 16.8 | 19.0 | 14.5 | 12.0 | -18.4 | 60 | 471.4 | 36 |
| Albuquerque, NM | Medium | 6.2 | 8.3 | 13.8 | 14.0 | 16.5 | 17.6 | 18.7 | 20.9 | 22.9 | 24.1 | 24.9 | 25.8 | 23.5 | 22.6 | 20.9 | 21.7 | 24.0 | 25.6 | 26.1 | 26.7 | 22.6 | 15.3 | -36.3 | 72 | 146.8 | 70 |
| Allentown-Bethlehem, PA-NJ | Medium | 6.5 | 7.2 | 9.8 | 10.1 | 12.3 | 14.6 | 16.3 | 17.9 | 20.8 | 22.3 | 23.5 | 20.6 | 22.1 | 21.6 | 21.6 | 20.8 | 21.9 | 22.3 | 20.9 | 21.9 | 18.1 | 21.0 | -4.1 | 46 | 223.1 | 62 |
| Anchorage, AK | Small | 11.0 | 12.0 | 11.5 | 11.5 | 12.5 | 11.7 | 12.2 | 11.7 | 12.4 | 12.1 | 13.5 | 13.5 | 13.6 | 14.9 | 15.4 | 14.8 | 14.7 | 14.3 | 15.1 | 14.9 | 13.1 | 18.8 | 27.9 | 33 | 70.9 | 86 |
| Atlanta, GA | Very large | 8.5 | 11.2 | 16.2 | 18.1 | 20.7 | 24.0 | 27.7 | 29.9 | 31.7 | 34.3 | 36.8 | 37.1 | 39.6 | 40.4 | 42.6 | 43.7 | 43.8 | 45.4 | 43.8 | 42.0 | 34.8 | 11.6 | -73.5 | 99 | 36.5 | 95 |
| Austin, TX | Large | 6.9 | 10.8 | 13.7 | 14.9 | 14.1 | 15.6 | 15.0 | 22.2 | 23.9 | 25.8 | 25.0 | 27.1 | 27.3 | 30.5 | 31.5 | 34.7 | 37.6 | 41.6 | 39.0 | 36.7 | 33.9 | 35.2 | -6.4 | 48 | 410.1 | 44 |
| Bakersfield, CA | Medium | 0.7 | 0.9 | 1.9 | 2.1 | 2.3 | 2.7 | 2.6 | 2.6 | 3.1 | 3.3 | 3.8 | 3.8 | 3.8 | 3.9 | 4.8 | 5.2 | 6.3 | 6.8 | 6.5 | 6.1 | 8.7 | 32.4 | 414.3 | 2 | 4,528.6 | 2 |
| Baltimore, MD | Large | 7.6 | 12.2 | 24.5 | 24.3 | 23.9 | 24.8 | 25.4 | 27.7 | 28.1 | 29.0 | 28.7 | 29.8 | 32.5 | 35.7 | 43.2 | 45.1 | 45.6 | 46.0 | 46.5 | 46.2 | 41.1 | 10.8 | -76.3 | 100 | 42.1 | 92 |
| Baton Rouge, LA | Medium | 8.0 | 10.8 | 15.1 | 15.9 | 15.0 | 18.5 | 20.2 | 22.3 | 23.6 | 23.7 | 24.2 | 28.0 | 28.0 | 29.0 | 28.9 | 32.2 | 33.2 | 33.8 | 31.6 | 31.1 | 30.2 | 42.9 | 29.2 | 31 | 436.3 | 39 |
| Beaumont, TX | Small | 4.5 | 5.7 | 5.3 | 6.5 | 7.3 | 7.8 | 7.4 | 8.4 | 10.0 | 10.0 | 11.9 | 14.6 | 15.8 | 17.7 | 20.2 | 21.5 | 22.8 | 23.6 | 23.9 | 23.4 | 22.4 | 29.7 | 30.3 | 30 | 560.0 | 26 |
| Birmingham, AL | Medium | 4.5 | 6.4 | 7.9 | 8.6 | 9.4 | 11.1 | 13.6 | 14.5 | 16.1 | 17.6 | 21.5 | 22.1 | 22.7 | 22.5 | 23.2 | 24.2 | 25.3 | 24.9 | 24.4 | 24.0 | 20.7 | 20.9 | -17.4 | 59 | 364.4 | 47 |
| Boise, ID | Small | 1.7 | 2.8 | 6.4 | 7.3 | 7.4 | 7.8 | 7.2 | 7.8 | 9.8 | 12.1 | 14.0 | 15.2 | 15.7 | 18.5 | 18.1 | 18.6 | 18.1 | 19.0 | 19.8 | 19.3 | 14.7 | 23.3 | 28.7 | 32 | 1,270.6 | 9 |
| Boston, MA-NH-RI | Very large | 8.3 | 12.1 | 20.6 | 21.1 | 23.3 | 23.8 | 24.5 | 24.5 | 25.4 | 27.3 | 29.0 | 29.4 | 31.2 | 32.4 | 35.8 | 35.9 | 39.8 | 40.4 | 39.4 | 37.1 | 38.0 | 17.5 | -56.0 | 89 | 110.8 | 76 |
| Boulder, CO | Small | 6.7 | 8.2 | 9.8 | 10.9 | 13.4 | 15.6 | 15.5 | 17.8 | 17.8 | 20.2 | 19.2 | 20.1 | 20.7 | 21.0 | 19.8 | 19.9 | 20.4 | 20.4 | 22.5 | 19.3 | 16.7 | 36.4 | 78.4 | 16 | 443.3 | 37 |
| Bridgeport-Stamford, CT-NY | Medium | 8.1 | 12.6 | 18.1 | 18.1 | 20.9 | 20.8 | 23.0 | 25.3 | 24.4 | 28.2 | 31.3 | 34.0 | 35.8 | 36.3 | 39.2 | 38.8 | 37.3 | 39.1 | 41.4 | 41.6 | 34.5 | 12.2 | -67.3 | 97 | 50.6 | 90 |
| Brownsville, TX | Small | 1.3 | 1.5 | 2.9 | 2.8 | 2.8 | 2.9 | 3.5 | 3.9 | 4.4 | 4.8 | 5.7 | 5.9 | 7.0 | 7.6 | 8.0 | 8.6 | 8.5 | 9.5 | 9.3 | 9.4 | 11.1 | 31.5 | 270.6 | 3 | 2,323.1 | 4 |
| Buffalo, NY | Large | 3.4 | 4.3 | 6.7 | 6.4 | 6.7 | 7.2 | 7.7 | 8.0 | 8.2 | 9.1 | 10.4 | 12.0 | 13.8 | 14.0 | 14.6 | 17.5 | 17.1 | 18.0 | 19.4 | 18.2 | 14.5 | 11.7 | -31.6 | 68 | 244.1 | 58 |
| Cape Coral, FL | Small | 5.8 | 6.7 | 9.2 | 9.9 | 11.5 | 15.0 | 17.5 | 20.3 | 21.1 | 20.1 | 18.1 | 18.0 | 17.6 | 19.8 | 20.5 | 21.2 | 21.2 | 21.6 | 24.7 | 24.1 | 18.4 | 15.9 | -25.0 | 64 | 174.1 | 68 |
| Charleston-North Charleston, SC | Medium | 9.0 | 12.0 | 16.8 | 17.5 | 19.7 | 19.8 | 20.4 | 19.9 | 19.7 | 20.2 | 22.2 | 22.7 | 22.5 | 22.5 | 23.3 | 25.3 | 25.9 | 25.4 | 27.3 | 27.0 | 21.6 | 18.7 | -27.8 | 67 | 107.8 | 79 |
| Charlotte, NC-SC | Large | 3.7 | 6.3 | 8.8 | 9.1 | 9.5 | 8.8 | 8.7 | 8.7 | 10.1 | 12.2 | 13.3 | 15.2 | 17.6 | 18.3 | 20.2 | 20.7 | 22.3 | 22.2 | 23.2 | 23.8 | 21.9 | 24.1 | 8.1 | 37 | 551.4 | 29 |
| Chicago, IL-IN | Very large | 13.0 | 19.8 | 30.2 | 31.1 | 32.3 | 32.4 | 33.0 | 38.1 | 42.9 | 43.2 | 45.6 | 45.8 | 45.3 | 47.0 | 55.4 | 57.5 | 60.5 | 64.1 | 62.0 | 58.2 | 51.8 | 21.7 | -64.1 | 94 | 66.9 | 89 |
| Cincinnati, OH-KY-IN | Large | 2.6 | 4.5 | 11.2 | 11.4 | 13.1 | 15.0 | 18.0 | 17.8 | 18.4 | 21.2 | 21.4 | 20.6 | 22.0 | 21.1 | 21.6 | 22.6 | 22.0 | 22.0 | 21.5 | 21.2 | 17.3 | 52.2 | 137.3 | 9 | 1,907.7 | 6 |
| Cleveland, OH | Large | 2.5 | 2.7 | 7.7 | 8.6 | 9.2 | 11.3 | 12.9 | 15.9 | 17.1 | 19.8 | 18.4 | 19.4 | 19.0 | 16.7 | 15.5 | 15.2 | 17.3 | 15.8 | 15.6 | 14.7 | 15.5 | 15.5 | -10.4 | 52 | 520.0 | 30 |
| Colorado Springs, CO | Medium | 4.6 | 5.4 | 7.7 | 8.3 | 10.7 | 12.1 | 14.9 | 16.9 | 17.3 | 22.0 | 26.0 | 31.2 | 35.2 | 36.8 | 36.8 | 35.8 | 32.9 | 41.9 | 39.9 | 34.8 | 24.7 | 15.8 | -52.0 | 84 | 243.5 | 59 |
| Columbia, SC | Small | 2.6 | 4.7 | 6.8 | 6.9 | 8.2 | 8.0 | 8.0 | 8.0 | 8.7 | 9.2 | 9.4 | 10.8 | 12.1 | 12.4 | 13.2 | 14.3 | 14.5 | 14.6 | 17.9 | 20.9 | 18.2 | 25.0 | 72.4 | 17 | 861.5 | 14 |
| Columbus, OH | Large | 1.6 | 2.5 | 7.8 | 7.8 | 8.7 | 10.1 | 11.2 | 12.6 | 13.4 | 14.4 | 14.5 | 14.3 | 13.7 | 15.0 | 15.5 | 16.6 | 18.7 | 18.5 | 18.1 | 16.9 | 16.1 | 19.5 | 4.3 | 39 | 1,118.8 | 10 |
| Corpus Christi, TX | Small | 5.5 | 6.5 | 8.3 | 8.9 | 9.4 | 9.1 | 8.9 | 8.9 | 9.6 | 10.2 | 10.4 | 12.1 | 11.5 | 13.2 | 12.7 | 13.0 | 13.8 | 14.3 | 12.2 | 13.6 | 12.6 | 14.7 | 6.5 | 38 | 167.3 | 69 |
| Dallas-Fort Worth-Arlington, TX | Very large | 5.5 | 9.2 | 15.0 | 16.5 | 17.5 | 19.1 | 19.8 | 22.2 | 23.1 | 23.2 | 26.2 | 29.6 | 30.9 | 32.0 | 33.8 | 35.3 | 39.0 | 41.1 | 42.6 | 40.9 | 38.3 | 12.9 | -66.9 | 96 | 134.5 | 72 |
| Dayton, OH | Medium | 5.8 | 6.9 | 11.1 | 11.4 | 11.9 | 13.4 | 11.6 | 14.5 | 14.0 | 15.1 | 15.1 | 16.4 | 15.5 | 13.7 | 13.2 | 12.6 | 15.2 | 13.7 | 13.6 | 11.9 | 12.4 | 37.9 | 149.3 | 8 | 553.4 | 28 |
| Denver-Aurora, CO | Large | 8.8 | 10.6 | 12.9 | 15.0 | 16.4 | 19.8 | 21.3 | 24.9 | 27.7 | 30.0 | 32.0 | 34.7 | 36.6 | 36.5 | 35.3 | 36.2 | 37.8 | 40.8 | 39.3 | 38.0 | 38.0 | 11.8 | -68.8 | 98 | 34.1 | 96 |
| Detroit, MI | Very large | 9.5 | 11.4 | 19.8 | 21.0 | 23.6 | 25.0 | 23.9 | 23.8 | 25.1 | 25.9 | 26.4 | 27.7 | 27.9 | 29.6 | 31.3 | 32.3 | 32.0 | 31.6 | 32.5 | 32.2 | 27.2 | 37.8 | 18.1 | 35 | 297.9 | 49 |
| El Paso, TX-NM | Medium | 3.3 | 4.6 | 7.5 | 9.5 | 11.7 | 12.3 | 15.0 | 13.6 | 12.4 | 13.8 | 15.5 | 19.4 | 22.6 | 23.5 | 24.4 | 25.5 | 29.2 | 30.1 | 30.2 | 28.5 | 21.7 | 24.5 | -16.1 | 57 | 642.4 | 22 |
| Eugene, OR | Small | 4.5 | 4.7 | 6.3 | 6.1 | 6.3 | 5.9 | 5.6 | 6.1 | 6.5 | 7.9 | 8.8 | 11.5 | 13.5 | 11.1 | 11.4 | 12.5 | 12.1 | 13.7 | 12.0 | 11.2 | 9.8 | 18.6 | 53.7 | 22 | 313.3 | 48 |
| Fresno, CA | Medium | 5.9 | 6.0 | 8.9 | 8.9 | 9.0 | 9.9 | 9.6 | 10.3 | 11.0 | 11.5 | 13.9 | 15.1 | 16.2 | 14.2 | 14.6 | 14.2 | 13.8 | 14.4 | 14.5 | 14.8 | 10.9 | 8.3 | -39.9 | 76 | 40.7 | 93 |
| Grand Rapids, MI | Medium | 3.4 | 5.1 | 8.7 | 9.2 | 12.5 | 16.1 | 14.9 | 13.5 | 14.6 | 15.4 | 18.1 | 18.5 | 17.8 | 17.6 | 17.1 | 17.3 | 18.4 | 18.1 | 18.1 | 17.6 | 17.2 | 13.3 | -27.7 | 66 | 291.2 | 51 |
| Greensboro, NC | Small | 2.5 | 2.3 | 5.5 | 6.3 | 8.8 | 10.9 | 11.3 | 11.7 | 18.7 | 17.2 | 19.0 | 20.7 | 20.6 | 23.8 | 24.7 | 23.9 | 19.3 | 18.3 | 17.1 | 15.7 | 12.8 | 18.5 | -4.1 | 47 | 640.0 | 23 |
| Hartford, CT | Medium | 3.6 | 5.0 | 7.6 | 8.2 | 13.4 | 10.7 | 12.3 | 13.3 | 13.9 | 16.3 | 18.2 | 19.8 | 21.5 | 20.6 | 20.9 | 20.5 | 22.4 | 22.8 | 25.2 | 25.0 | 20.9 | 13.5 | -39.7 | 75 | 275.0 | 53 |
| Honolulu, HI | Medium | 9.0 | 11.2 | 17.9 | 17.8 | 19.6 | 19.6 | 19.6 | 20.6 | 20.4 | 18.8 | 19.4 | 18.8 | 18.0 | 18.3 | 17.8 | 19.7 | 20.5 | 22.8 | 23.2 | 25.3 | 23.7 | 20.6 | 0.5 | 43 | 128.9 | 73 |
| Houston, TX | Very large | 18.6 | 26.0 | 24.9 | 23.8 | 22.7 | 22.6 | 25.2 | 25.9 | 28.5 | 32.2 | 32.5 | 34.4 | 36.3 | 38.9 | 39.9 | 40.1 | 43.2 | 46.3 | 46.4 | 45.8 | 56.4 | 25.9 | -40.0 | 77 | 39.2 | 94 |
| Indianapolis, IN | Large | 6.8 | 7.8 | 12.2 | 13.8 | 16.2 | 20.9 | 24.1 | 25.2 | 25.8 | 28.2 | 25.2 | 24.5 | 24.8 | 25.1 | 25.4 | 25.3 | 25.1 | 24.3 | 23.7 | 22.8 | 19.9 | 51.5 | 105.2 | 14 | 657.4 | 20 |
| Indio-Cathedral City-Palm Springs, CA | Medium | 16.2 | 15.3 | 17.0 | 16.7 | 15.6 | 15.2 | 14.4 | 13.6 | 13.5 | 14.0 | 13.0 | 12.1 | 10.8 | 10.3 | 9.7 | 11.9 | 12.5 | 14.4 | 15.1 | 13.7 | 10.2 | 19.3 | 54.4 | 21 | 19.1 | 98 |
| Jackson, MS | Small | 3.3 | 3.5 | 4.0 | 5.4 | 5.8 | 5.9 | 7.8 | 8.2 | 8.7 | 10.2 | 10.2 | 11.5 | 11.8 | 14.0 | 15.8 | 15.2 | 18.1 | 19.8 | 23.2 | 22.4 | 18.9 | 10.7 | -40.9 | 78 | 224.2 | 61 |
| Jacksonville, FL | Large | 7.1 | 9.7 | 15.0 | 15.3 | 17.9 | 18.3 | 19.3 | 21.4 | 22.3 | 21.3 | 20.3 | 20.0 | 20.0 | 19.7 | 22.5 | 24.5 | 25.7 | 25.8 | 26.2 | 27.1 | 24.1 | 17.4 | -32.3 | 70 | 145.1 | 71 |
| Kansas City, MO-KS | Large | 3.7 | 6.2 | 13.1 | 13.0 | 15.1 | 21.1 | 22.0 | 22.4 | 25.5 | 27.8 | 28.1 | 32.9 | 31.0 | 31.0 | 29.8 | 30.8 | 26.7 | 26.1 | 27.3 | 24.1 | 20.8 | 22.3 | -16.5 | 58 | 502.7 | 32 |
| Knoxville, TN | Small | 5.5 | 5.7 | 14.9 | 15.7 | 17.2 | 18.3 | 19.9 | 21.4 | 25.8 | 25.5 | 24.7 | 24.7 | 23.2 | 22.2 | 21.9 | 22.1 | 21.5 | 20.4 | 18.6 | 19.9 | 19.0 | 19.6 | -8.8 | 50 | 256.4 | 57 |
| Lancaster-Palmdale, CA | Medium | 13.7 | 13.9 | 11.0 | 13.6 | 13.2 | 11.7 | 10.2 | 8.5 | 8.8 | 7.8 | 7.8 | 7.5 | 8.0 | 8.8 | 10.3 | 11.4 | 11.6 | 12.1 | 12.8 | 12.4 | 11.4 | 18.2 | 56.9 | 19 | 32.8 | 97 |
| Laredo, TX | Small | 0.2 | 0.2 | 0.3 | 0.3 | 0.4 | 0.4 | 0.5 | 0.7 | 0.8 | 0.9 | 0.9 | 1.0 | 1.0 | 1.2 | 1.1 | 1.4 | 1.3 | 1.3 | 1.5 | 1.8 | 4.6 | 13.0 | 900.0 | 1 | 6,400.0 | 1 |
| Las Vegas, NV | Large | 3.9 | 5.3 | 11.9 | 13.2 | 14.0 | 15.5 | 17.3 | 18.5 | 18.6 | 18.3 | 19.1 | 19.8 | 19.8 | 20.7 | 22.0 | 24.3 | 26.5 | 27.5 | 28.4 | 28.7 | 23.6 | 13.9 | -47.5 | 81 | 256.4 | 56 |
| Little Rock, AR | Small | 3.4 | 3.9 | 5.9 | 6.7 | 7.0 | 8.8 | 9.6 | 10.1 | 11.4 | 11.4 | 14.5 | 17.2 | 15.7 | 18.8 | 14.5 | 17.4 | 22.0 | 20.5 | 23.5 | 26.2 | 21.2 | 26.5 | 20.5 | 34 | 679.4 | 18 |
| Los Angeles-Long Beach-Santa Ana, CA | Very large | 26.3 | 30.8 | 57.0 | 54.5 | 53.8 | 50.4 | 48.1 | 50.8 | 52.1 | 53.0 | 53.2 | 54.8 | 55.2 | 57.6 | 58.9 | 57.9 | 60.3 | 59.7 | 60.9 | 58.0 | 46.9 | 23.6 | -60.9 | 91 | -10.3 | 101 |
| Louisville, KY-IN | Large | 6.6 | 6.8 | 7.7 | 9.8 | 12.0 | 14.0 | 15.0 | 15.2 | 17.3 | 18.6 | 20.0 | 20.7 | 20.9 | 18.9 | 21.1 | 21.7 | 22.9 | 21.7 | 20.8 | 18.8 | 18.1 | 49.7 | 117.0 | 12 | 653.0 | 21 |
| Madison, WI | Small | 4.7 | 4.8 | 5.4 | 4.7 | 4.8 | 5.4 | 5.6 | 5.7 | 5.7 | 5.5 | 5.6 | 6.5 | 6.5 | 7.0 | 7.2 | 7.5 | 7.9 | 7.2 | 7.7 | 7.3 | 9.0 | 18.6 | 135.4 | 10 | 295.7 | 50 |
| McAllen, TX | Medium | 0.5 | 0.5 | 0.8 | 0.7 | 0.8 | 1.1 | 1.5 | 1.9 | 3.0 | 3.1 | 3.1 | 4.7 | 5.5 | 6.7 | 6.8 | 7.1 | 7.1 | 7.0 | 7.1 | 7.4 | 5.3 | 11.1 | 56.3 | 20 | 2,120.0 | 5 |
| Memphis, TN-MS-AR | Large | 3.7 | 4.1 | 10.1 | 10.5 | 11.3 | 13.4 | 15.7 | 17.3 | 17.9 | 18.7 | 19.2 | 19.1 | 21.0 | 22.2 | 22.8 | 24.8 | 25.3 | 23.8 | 23.9 | 21.3 | 18.2 | 5.5 | -78.3 | 101 | 48.6 | 91 |
| Miami, FL | Very large | 6.8 | 8.4 | 16.3 | 15.9 | 18.1 | 17.8 | 18.8 | 19.9 | 20.2 | 21.2 | 22.1 | 25.3 | 28.4 | 30.1 | 31.8 | 33.4 | 33.9 | 34.5 | 34.0 | 33.5 | 27.4 | 20.9 | -38.3 | 74 | 207.4 | 63 |
| Milwaukee, WI | Large | 5.8 | 8.1 | 15.7 | 16.8 | 19.5 | 20.0 | 18.9 | 20.9 | 20.8 | 21.1 | 22.1 | 24.3 | 24.8 | 23.3 | 23.2 | 23.0 | 23.4 | 22.8 | 21.2 | 22.1 | 22.4 | 30.6 | 30.8 | 29 | 427.6 | 42 |
| Minneapolis-St. Paul, MN | Large | 3.9 | 7.2 | 14.0 | 14.1 | 16.8 | 20.3 | 23.8 | 25.6 | 26.3 | 32.7 | 35.0 | 36.7 | 38.7 | 41.4 | 39.0 | 38.9 | 38.7 | 41.6 | 38.9 | 37.5 | 43.3 | 20.9 | -46.0 | 79 | 435.9 | 40 |

| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nashville-Davidson, TN | Large | 13.5 | 13.7 | 21.5 | 20.3 | 19.5 | 19.9 | 26.5 | 28.0 | 28.1 | 30.4 | 27.4 | 29.0 | 31.0 | 32.2 | 34.9 | 37.0 | 36.9 | 36.0 | 33.4 | 32.2 | 26.4 | 37.4 | 1.4 | 40 | 177.0 | 67 |
| New Haven, CT | Medium | 5.2 | 7.8 | 11.1 | 11.4 | 14.7 | 16.7 | 17.0 | 18.0 | 16.9 | 20.5 | 24.6 | 28.0 | 28.3 | 31.7 | 32.1 | 31.6 | 27.3 | 30.0 | 29.6 | 29.2 | 25.3 | 27.6 | 1.1 | 41 | 430.8 | 41 |
| New Orleans, LA | Large | 12.4 | 16.8 | 17.4 | 18.3 | 17.2 | 16.9 | 18.7 | 18.9 | 17.7 | 18.9 | 19.6 | 20.4 | 19.1 | 18.4 | 18.9 | 19.6 | 19.5 | 20.5 | 24.9 | 22.8 | 21.0 | 25.9 | 32.8 | 27 | 108.9 | 77 |
| New York-Newark, NY-NJ-CT | Very large | 6.3 | 8.0 | 15.4 | 14.9 | 14.9 | 15.8 | 17.3 | 19.2 | 20.4 | 22.9 | 23.5 | 26.3 | 25.6 | 25.4 | 26.7 | 30.2 | 33.6 | 36.0 | 35.5 | 34.5 | 31.7 | 22.8 | -32.1 | 69 | 261.9 | 55 |
| Oklahoma City, OK | Medium | 3.3 | 5.0 | 6.6 | 7.9 | 8.2 | 9.6 | 9.3 | 13.4 | 14.9 | 17.0 | 17.6 | 20.2 | 18.3 | 20.9 | 21.4 | 19.7 | 19.2 | 18.4 | 20.8 | 23.5 | 20.6 | 31.9 | 66.1 | 18 | 866.7 | 13 |
| Omaha, NE-IA | Medium | 2.2 | 3.1 | 6.0 | 5.9 | 7.6 | 7.5 | 8.3 | 8.4 | 9.2 | 8.6 | 9.8 | 10.3 | 11.4 | 12.5 | 13.4 | 13.3 | 13.7 | 13.9 | 15.6 | 14.9 | 17.7 | 20.6 | 50.4 | 24 | 836.4 | 15 |
| Orlando, FL | Large | 7.5 | 12.4 | 22.7 | 25.3 | 25.6 | 24.9 | 26.3 | 27.5 | 29.4 | 32.2 | 34.2 | 35.0 | 35.9 | 38.0 | 36.3 | 34.9 | 34.2 | 34.0 | 35.0 | 34.8 | 29.7 | 16.3 | -52.3 | 85 | 117.3 | 75 |
| Oxnard-Ventura, CA | Medium | 2.1 | 4.0 | 6.5 | 6.5 | 7.9 | 8.8 | 11.6 | 12.0 | 13.9 | 12.6 | 12.9 | 15.8 | 15.9 | 17.8 | 18.7 | 19.5 | 21.2 | 22.3 | 21.8 | 24.1 | 18.2 | 32.3 | 52.4 | 23 | 1,438.1 | 7 |
| Pensacola, FL-AL | Small | 2.5 | 2.9 | 6.3 | 6.0 | 7.3 | 8.0 | 8.1 | 9.4 | 11.5 | 13.1 | 12.3 | 12.8 | 13.1 | 13.0 | 14.2 | 15.6 | 16.4 | 17.2 | 19.4 | 19.4 | 15.1 | 19.3 | 17.7 | 36 | 672.0 | 19 |
| Philadelphia, PA-NJ-DE-MD | Very large | 8.9 | 10.7 | 14.9 | 15.1 | 16.5 | 16.0 | 16.8 | 17.6 | 18.7 | 20.6 | 23.3 | 23.8 | 24.0 | 27.3 | 29.3 | 30.5 | 31.5 | 32.7 | 32.5 | 32.6 | 29.3 | 15.8 | -49.8 | 82 | 77.5 | 83 |
| Phoenix, AZ | Very large | 16.0 | 15.6 | 18.3 | 18.6 | 20.0 | 19.7 | 19.9 | 18.6 | 21.3 | 21.8 | 22.7 | 25.3 | 27.0 | 29.5 | 27.4 | 28.9 | 30.2 | 35.1 | 33.2 | 32.9 | 30.8 | 30.4 | 0.7 | 42 | 90.0 | 80 |
| Pittsburgh, PA | Large | 14.3 | 16.3 | 27.0 | 26.5 | 25.3 | 25.0 | 24.9 | 29.3 | 29.4 | 28.9 | 27.9 | 31.0 | 29.4 | 30.8 | 31.8 | 31.1 | 32.1 | 30.9 | 29.0 | 29.2 | 25.6 | 31.4 | -2.2 | 44 | 119.6 | 74 |
| Portland, OR-WA | Large | 7.4 | 8.2 | 15.8 | 16.6 | 20.1 | 21.5 | 22.0 | 24.7 | 27.6 | 28.6 | 29.0 | 30.9 | 31.4 | 31.4 | 30.0 | 31.0 | 32.4 | 34.0 | 33.4 | 32.1 | 29.8 | 27.4 | -15.4 | 55 | 270.3 | 54 |
| Poughkeepsie-Newburgh, NY | Medium | 4.3 | 4.9 | 5.8 | 6.2 | 6.0 | 6.1 | 6.0 | 6.1 | 6.6 | 6.8 | 7.2 | 7.7 | 7.7 | 7.7 | 8.4 | 8.7 | 9.4 | 9.5 | 10.1 | 9.4 | 9.1 | 30.1 | 220.2 | 4 | 600.0 | 24 |
| Providence, RI-MA | Large | 1.9 | 2.3 | 5.5 | 5.8 | 6.3 | 7.3 | 7.5 | 8.0 | 9.6 | 9.9 | 12.8 | 14.7 | 15.8 | 17.4 | 18.6 | 20.7 | 21.2 | 20.7 | 19.3 | 20.8 | 15.5 | 10.3 | -51.4 | 83 | 442.1 | 38 |
| Provo, UT | Small | 3.8 | 3.7 | 5.0 | 5.9 | 5.8 | 5.7 | 6.8 | 6.8 | 6.9 | 7.6 | 7.7 | 8.5 | 8.4 | 9.5 | 9.6 | 10.4 | 10.5 | 11.1 | 11.4 | 11.4 | 10.1 | 14.8 | 41.0 | 26 | 289.5 | 52 |
| Raleigh-Durham, NC | Large | 4.2 | 7.1 | 14.0 | 13.5 | 13.1 | 15.1 | 16.5 | 17.4 | 18.0 | 20.9 | 19.7 | 20.9 | 22.3 | 23.0 | 24.8 | 24.7 | 25.7 | 26.7 | 25.3 | 27.4 | 22.0 | 11.8 | -54.1 | 87 | 181.0 | 64 |
| Richmond, VA | Medium | 3.6 | 3.8 | 7.0 | 7.6 | 9.0 | 9.3 | 11.7 | 14.3 | 15.0 | 13.6 | 13.0 | 12.8 | 11.8 | 12.2 | 12.4 | 13.6 | 15.0 | 15.1 | 15.5 | 15.3 | 14.2 | 21.6 | 44.0 | 25 | 500.0 | 33 |
| Riverside-San Bernardino, CA | Large | 1.9 | 3.7 | 12.2 | 13.6 | 14.0 | 14.0 | 12.1 | 13.6 | 14.6 | 14.2 | 16.0 | 17.2 | 18.2 | 18.3 | 19.5 | 22.4 | 25.1 | 28.4 | 28.9 | 28.0 | 24.9 | 16.4 | -34.7 | 71 | 763.2 | 16 |
| Rochester, NY | Medium | 2.5 | 3.6 | 6.5 | 7.1 | 7.5 | 7.4 | 7.9 | 9.2 | 9.3 | 10.2 | 8.9 | 10.1 | 10.4 | 10.2 | 10.5 | 11.2 | 11.7 | 12.1 | 12.8 | 12.7 | 11.8 | 25.5 | 117.9 | 11 | 920.0 | 12 |
| Sacramento, CA | Large | 6.1 | 8.6 | 19.5 | 19.0 | 18.0 | 17.6 | 19.6 | 19.1 | 21.2 | 19.4 | 20.0 | 20.8 | 22.6 | 24.0 | 24.1 | 25.6 | 28.0 | 28.8 | 29.3 | 27.5 | 20.8 | 11.1 | -60.4 | 90 | 82.0 | 82 |
| Salem, OR | Small | 3.2 | 4.0 | 10.2 | 12.0 | 14.1 | 16.7 | 17.8 | 18.0 | 17.0 | 18.2 | 19.6 | 21.5 | 22.6 | 26.6 | 28.0 | 25.1 | 23.9 | 24.4 | 28.5 | 28.0 | 18.3 | 21.0 | -12.1 | 53 | 556.3 | 27 |
| Salt Lake City, UT | Medium | 4.1 | 6.1 | 10.2 | 11.9 | 14.2 | 16.7 | 19.5 | 20.9 | 20.3 | 19.3 | 17.9 | 19.5 | 21.8 | 23.1 | 24.3 | 25.1 | 21.7 | 19.5 | 18.8 | 19.6 | 19.0 | 19.7 | -9.2 | 51 | 380.5 | 46 |
| San Antonio, TX | Large | 3.2 | 6.1 | 6.0 | 6.1 | 7.2 | 7.4 | 8.5 | 11.4 | 14.3 | 16.5 | 18.8 | 22.5 | 25.7 | 25.5 | 26.0 | 26.3 | 28.8 | 29.1 | 27.5 | 28.1 | 26.4 | 22.3 | -22.6 | 62 | 596.9 | 25 |
| San Diego, CA | Very large | 5.3 | 8.6 | 20.2 | 18.5 | 19.9 | 19.0 | 18.3 | 19.0 | 20.5 | 20.7 | 22.0 | 25.9 | 28.2 | 30.9 | 34.3 | 34.0 | 37.4 | 37.8 | 36.5 | 34.7 | 35.2 | 27.6 | -26.2 | 65 | 420.8 | 43 |
| San Francisco-Oakland, CA | Very large | 14.9 | 27.7 | 41.3 | 38.1 | 37.8 | 38.6 | 36.3 | 39.3 | 40.5 | 37.9 | 40.5 | 41.0 | 44.7 | 43.5 | 46.7 | 48.1 | 50.4 | 54.3 | 55.3 | 52.5 | 38.6 | 31.1 | -38.3 | 73 | 108.7 | 78 |
| San Jose, CA | Large | 13.9 | 23.5 | 35.1 | 33.6 | 31.1 | 29.0 | 30.8 | 33.6 | 32.8 | 31.5 | 33.8 | 38.8 | 41.6 | 43.2 | 42.3 | 43.1 | 40.2 | 42.8 | 45.2 | 43.6 | 31.0 | 38.6 | -4.0 | 45 | 177.7 | 66 |
| San Juan, PR | Large | 5.2 | 7.0 | 13.3 | 13.8 | 15.1 | 16.0 | 18.2 | 19.6 | 20.4 | 21.2 | 21.5 | 24.0 | 26.6 | 28.8 | 31.1 | 34.2 | 37.4 | 35.6 | 35.4 | 34.9 | 31.0 | 29.8 | -20.3 | 61 | 473.1 | 35 |
| Sarasota-Bradenton, FL | Medium | 6.6 | 9.7 | 8.6 | 9.2 | 9.1 | 10.1 | 10.1 | 9.5 | 11.3 | 12.2 | 12.4 | 14.1 | 14.2 | 14.4 | 14.8 | 15.2 | 15.7 | 15.8 | 16.9 | 15.5 | 10.9 | 33.1 | 110.8 | 13 | 401.5 | 45 |
| Seattle, WA | Very large | 7.6 | 13.6 | 32.4 | 33.6 | 35.2 | 37.0 | 37.2 | 38.0 | 37.9 | 40.9 | 41.1 | 40.6 | 38.7 | 37.1 | 36.7 | 38.5 | 37.5 | 39.8 | 38.8 | 37.1 | 36.2 | 14.1 | -62.4 | 93 | 85.5 | 81 |
| Spokane, WA | Small | 3.4 | 5.0 | 7.1 | 9.4 | 10.9 | 14.6 | 14.8 | 11.5 | 12.0 | 13.3 | 13.9 | 14.7 | 14.9 | 13.4 | 13.3 | 12.4 | 11.9 | 11.2 | 11.8 | 12.6 | 11.6 | 34.7 | 191.6 | 6 | 920.6 | 11 |
| Springfield, MA-CT | Medium | 6.1 | 6.5 | 8.1 | 8.3 | 9.8 | 9.8 | 9.6 | 9.9 | 9.7 | 9.9 | 11.0 | 11.8 | 11.8 | 11.1 | 12.1 | 11.9 | 12.4 | 13.7 | 14.2 | 13.4 | 12.1 | 10.6 | -14.5 | 54 | 73.8 | 85 |
| St. Louis, MO-IL | Large | 8.5 | 11.3 | 13.5 | 13.1 | 15.9 | 21.6 | 28.1 | 33.9 | 34.6 | 36.7 | 37.1 | 39.2 | 39.1 | 35.2 | 35.1 | 32.5 | 31.1 | 30.4 | 28.8 | 26.2 | 27.6 | 14.3 | -54.0 | 86 | 68.2 | 88 |
| Stockton, CA | Small | 1.8 | 2.3 | 4.4 | 4.4 | 4.5 | 4.8 | 5.4 | 5.8 | 5.9 | 6.0 | 5.9 | 6.5 | 6.7 | 7.2 | 8.0 | 7.8 | 8.5 | 9.9 | 10.2 | 10.8 | 8.4 | 27.1 | 218.8 | 5 | 1,405.6 | 8 |
| Tampa-St. Petersburg, FL | Large | 9.6 | 10.8 | 14.0 | 16.3 | 16.6 | 17.3 | 17.7 | 18.2 | 18.2 | 17.7 | 18.3 | 19.0 | 19.2 | 21.1 | 22.9 | 24.2 | 25.4 | 25.0 | 27.0 | 27.2 | 26.9 | 8.8 | -65.4 | 95 | -8.3 | 100 |
| Toledo, OH-MI | Medium | 1.1 | 1.5 | 2.8 | 2.8 | 3.8 | 4.4 | 6.9 | 9.1 | 10.0 | 11.3 | 12.7 | 13.9 | 14.7 | 14.5 | 13.7 | 12.9 | 14.5 | 12.9 | 13.1 | 12.1 | 7.6 | 26.9 | 85.5 | 15 | 2,345.5 | 3 |
| Tucson, AZ | Medium | 8.2 | 9.2 | 10.0 | 9.5 | 9.7 | 9.6 | 8.9 | 9.1 | 9.7 | 12.7 | 13.3 | 13.6 | 14.9 | 16.2 | 17.2 | 19.7 | 20.3 | 22.1 | 21.6 | 20.3 | 17.1 | 9.0 | -55.7 | 88 | 9.8 | 99 |
| Tulsa, OK | Medium | 5.2 | 8.8 | 10.5 | 10.2 | 10.3 | 10.6 | 10.9 | 12.3 | 15.6 | 16.4 | 17.0 | 17.4 | 18.7 | 19.9 | 20.7 | 21.6 | 19.1 | 18.9 | 21.6 | 20.5 | 15.6 | 17.8 | -6.8 | 49 | 242.3 | 60 |
| Virginia Beach, VA | Large | 10.2 | 13.9 | 17.7 | 17.1 | 16.8 | 17.4 | 20.8 | 23.8 | 27.7 | 29.3 | 30.6 | 32.0 | 28.0 | 31.0 | 32.6 | 32.8 | 32.0 | 32.7 | 33.0 | 31.8 | 28.0 | 17.2 | -46.3 | 80 | 68.6 | 87 |
| Washington, DC-VA-MD | Very large | 14.6 | 27.4 | 42.3 | 45.0 | 52.3 | 53.0 | 54.5 | 55.9 | 59.3 | 57.6 | 54.3 | 57.0 | 57.6 | 61.1 | 63.1 | 65.8 | 66.2 | 66.3 | 65.1 | 67.7 | 56.3 | 25.5 | -61.5 | 92 | 74.7 | 84 |
| Wichita, KS | Medium | 6.8 | 9.5 | 11.7 | 12.0 | 12.6 | 16.3 | 16.7 | 16.2 | 15.8 | 19.6 | 20.2 | 20.0 | 19.7 | 19.0 | 19.1 | 19.1 | 19.9 | 19.5 | 22.7 | 22.7 | 20.7 | 56.8 | 185.4 | 7 | 735.3 | 17 |
| Winston-Salem, NC | Small | 3.4 | 5.5 | 5.1 | 5.2 | 7.0 | 6.1 | 6.0 | 7.6 | 7.3 | 8.6 | 10.8 | 11.7 | 12.3 | 14.4 | 16.2 | 16.4 | 15.8 | 18.0 | 16.8 | 16.6 | 13.5 | 20.8 | 31.6 | 28 | 511.8 | 31 |
| Worcester, MA | Small | 5.1 | 6.3 | 8.1 | 9.1 | 9.5 | 11.2 | 12.8 | 13.8 | 14.5 | 14.8 | 16.1 | 16.6 | 17.5 | 17.6 | 17.5 | 16.3 | 16.9 | 17.9 | 17.5 | 18.3 | 17.3 | 14.2 | -16.0 | 56 | 178.4 | 65 |
| 439 Urban area average | 439 Areas | 12 | 14 | 23 | 23 | 23 | 25 | 25 | 26 | 27 | 27 | 27 | 28 | 28 | 30 | 31 | 31 | 32 | 32 | 32 | 31 | 27 | 28 | -12.5 | NA | 133.3 | NA |
| 101 Urban area average | 101 Areas | 10 | 14 | 22 | 22 | 23 | 24 | 24 | 26 | 27 | 28 | 29 | 31 | 31 | 32 | 34 | 34 | 36 | 36 | 36 | 35 | 31 | 32 | -11.1 | NA | 220.0 | NA |
| Very large urban area average | Very large | 13 | 18 | 30 | 30 | 31 | 30 | 31 | 32 | 34 | 35 | 36 | 37 | 38 | 39 | 42 | 43 | 44 | 46 | 46 | 44 | 39 | 39 | -11.4 | NA | 200.0 | NA |
| Large urban area average | Large | 7 | 9 | 16 | 16 | 17 | 18 | 20 | 22 | 23 | 24 | 25 | 27 | 27 | 28 | 28 | 29 | 30 | 30 | 30 | 29 | 26 | 26 | -13.3 | NA | 271.4 | NA |
| Medium urban area average | Medium | 5 | 7 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 18 | 19 | 19 | 19 | 20 | 20 | 21 | 21 | 18 | 18 | -10.0 | NA | 260.0 | NA |
| Small urban area average | Small | 4 | 5 | 7 | 8 | 9 | 10 | 10 | 11 | 12 | 12 | 13 | 14 | 14 | 15 | 16 | 16 | 16 | 17 | 17 | 18 | 15 | 16 | 0.0 | NA | 300.0 | NA |

**KEY:** NA = not applicable; R = revised.

Very large urban areas - over 3 million population.
Large urban areas - over 1 million and less than 3 million population.
Medium urban areas - over 500,000 and less than 1 million population.
Small urban areas - less than 500,000 population.

[a] Percent changes were calculated using the numbers in this table and were not obtained from the source. Ranks are based on the calculated percent changes with the highest number corresponding to a rank of 1.

**NOTES**

"Wasted" fuel is the difference between the fuel consumed under estimated existing conditions and the fuel consumed under free-flow conditions. Previous editions of this table were calculated on the basis of total fuel consumed during congested trips. Calculations are made for peak period speeds and for free-flow speeds on both the freeway and principal arterial systems. For a more detailed description of the formulas used, see the source document.

The urban areas included are those containing over 500,000 people and several smaller places mostly chosen by previous sponsors of the Texas Transportation Institute study on mobility. Methodology and data sources have been changed in 2010 and were applied retroactively to past years, these figures are not comparable to those in past editions of NTS.

**SOURCE**

Texas Transportation Institute,*Congestion Data for Your City,* Excel spreadsheet of the base statistics for the 101 urban areas and population group summary statistics (College Station, TX: 2011), available at http://mobility.tamu.edu as of Mar. 10, 2011, and personal communication, Mar. 17, 2011.

# Section D
# Air Pollution

**Table 4-30: Federal Exhaust Emission Certification Standards for Newly Manufactured Gasoline- and Diesel-Powered Light-Duty Vehicles[a,b] (Grams per mile)**

| Engine type and pollutant | Prior to control[d] | 1968-1969 | 1970-1971 | 1972 | 1973-1974 | 1975-1976 | 1977-1979 | 1980 | 1981 | 1982-1986 | 1987-1993 | Tier 1[i] 1994-2003[b] | Interim Tier 2[i] 2004-2006 | Tier 2[i] 2007+ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline | | | | | | | | | | | | | | |
| HC (total) | 11 | [g] | 2.20 | 3.40 | | 1.50 | | 0.41 | | | | 0.41 [h] | [h] | |
| NMHC | [e] | [h] | | | | | | | | | | 0.25 (0.31) | [h] | |
| NMOG | [e] | [h] | | | | | | | | | | | 0.13 (0.16) | 0.10 (0.13) |
| CO | 80 | [g] | 23.00 | 39.00 | | 15.00 | | 7.00 | 3.40 | | | 3.40 (4.20) | | |
| Cold-temp. CO[c] | [e] | [h] | | | | | | | | | | 10.00 [h] | | |
| $NO_x$ | 4 | [h] | | | 3.00 | 3.10 | 2.00 | | 1.00 | | | 0.40 (0.60) | | 0.14 (0.20) |
| Particulates | [e] | [h] | | | | | | | | | | 0.08 (0.10) | 0.08 (0.08) | 0.02 (0.02) |
| Formaldehyde | [e] | [h] | | | | | | | | | | | 0.02 (0.02) | |
| Diesel | | | | | | | | | | | | | | |
| HC (total) | 11 | [h] | | | | 1.50 | | 0.41 | | | | 0.41 [h] | [h] | |
| NMHC | [e] | [h] | | | | | | | | | | 0.25 (0.31) | [h] | |
| NMOG | [e] | [h] | | | | | | | | | | | [h] (0.16) | 0.10 (0.13) |
| CO | 80 | [h] | | | | 15.00 | | 7.00 | 3.40 | | | 3.40 (4.20) | [h] (4.20) | 3.40 (4.20) |
| $NO_x$ | 4 | [h] | | | | 3.10 | 2.00 | | 1.00 | | | 1.00 (1.25) | [h] (0.60) | 0.14 (0.20) |
| Particulates | [e] | [h] | | | | | | | | 0.60 | 0.20 | 0.08 (0.10) | [h] (0.10) | 0.02 (0.02) |
| Formaldehyde | [e] | [h] | | | | | | | | | | | [h] (0.02) | 0.02 (0.02) |
| Test procedure | | 7-mode | | CVS-72 | | CVS-75 | | | | | | | | |
| Useful life, intermediate[b,f] | | [h] | | | | | | | | | | 5 years/50,0[i] | | |
| Useful life, full | | 5 years/50,0[i] | | | | | | | | | | 10 years/100,000 miles | | 10 years/120,000 miles |

**KEY:** CO = carbon monoxide; CVS = constant volume sampler; HC = hydrocarbons; NMHC = non-methane hydrocarbons; NMOG = nonmethane organic gases; NOx = nitrogen oxides.

[a] The test procedure for measuring exhaust emissions has changed several times over the course of vehicle emissions regulations. The 7-mode procedure was used through model year 1971 and was replaced by the CVS-72 procedure beginning in model year 1972. The CVS-75 procedure became the test procedure as of model year 1975. While it may appear that the total HC and CO standards were relaxed in 1972-74, these standards were actually more stringent due to the more stringent nature of the CVS-72 test procedure. Additional standards for CO and composite standards for NMHC and NOx tested under the new Supplemental Federal Test Procedure will be phased-in beginning with model year 2000; these standards are not shown in this table.

[b] All emissions standards must be met for a useful life of 5 years/50,000 miles. Beginning with model year 1994, a second set of emissions standards must also be met for a full useful life of 10 years/100,000 miles; these standards are shown in parentheses. Tier 1 exhaust standards were phased-in during 1994-96 at a rate of 40%, 80%, and 100%, respectively.

[c] The cold CO emissions standard is measured at 20$^0$F (rather than 75$^0$F) and is applicable for a 5-year/50,000-mile useful life.

[d] The "Prior to control" column reports emissions estimates of a typical newly manufactured car in the years before exhaust emissions certification standards were implemented.

[e] No estimate available.

[f] Manufacturers can opt to certify vehicles for a full useful life of 15 years/150,000 miles and have either 1) intermediate useful life standards waived or 2) receive additional NOx credits.

[g] In 1968-69, exhaust emissions standards were issued in parts per million rather than grams per mile and are, therefore, incompatible with this table.

[h] No standard has been set.

[i] The term "tier" refers to a level of standards and is associated with specific years. Interim Tier 2 refers to an intermediate level of standards that move manufacturers toward compliance with Tier 2 standards. Interim Tier 2 and Tier 2 standards are established as "bins." Each bin is a set of standards for NOx, CO, NMOG, formaldehyde, and particulate matter; HC and NMHC standards are dropped for Tier 2 and Interim Tier 2. Manufacturers may certify any given vehicle family to any of the bins available for that vehicle class as long as the resulting sales-weight corporate average NOx standard is met for the full useful life of the vehicle. The Tier 2 corporate average NOx standard is 0.07 grams/mile. Interim corporate-based average NOx standards are based on vehicle type. The interim sales-weighted average for light-duty vehicles (LDVs) is 9.3 grams/mile. For LDVs, Tier 2 standards will be phased in at a rate of 25% in 2004, 50% in 2005, 75% in 2006, and 100% in 2007. During this period, all LDVs not meeting the Tier 2 standards must meet Interim Tier 2 standards.

**SOURCES**

40 CFR 86, Subpart A (July 1, 2000).

*Federal Register,* Vol. 65, No. 28, pp. 6851-6858.

**Table 4-31: Federal Exhaust Emission Certification Standards for Newly Manufactured Gasoline- and Diesel-Powered Light-Duty Trucks (Category LDT1)[a,b,c] (Grams per mile)**

| Engine type and pollutant | Prior to control[g] | 1968-1969 | 1970-1971 | 1972 | 1973-1974 | 1975 | 1976-1978 | 1979-1981 | 1982-1983 | 1984 | 1985-1986 | 1987 | 1988-1993 | Tier 1[k] 1994 | 1995-2003 | Interim Tier 2[k] 2004-2006 | Tier 2[k] 2007+ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline | | | | | | | | | | | | | | | | | |
| HC (total) | 11 | i | 2.20 | 3.40 | | 2.00 | | 1.70 | | 0.80 | | | | j (0.80) | | j | |
| NMHC | h | j | | | | | | | | | | | | 0.25 (0.31) | | j | |
| NMOG | h | j | | | | | | | | | | | | | | 0.13 (0.16) | 0.1 (0.13) |
| CO | 80 | i | 23.00 | 39.00 | | 20.00 | | 18.00 | | 10.00 | | | | 3.40 (4.20) | | | |
| Cold-temp. CO[d] | e | j | | | | | | | | | | | | 10.00 j | | | |
| $NO_x$ | 4 | j | | | 3.00 | 3.10 | | 2.30 | | | | | 1.20 | 0.40 (0.60) | | | 0.14 (0.20) |
| Particulates | h | j | | | | | | | | | | | | | 0.08 (0.10) | 0.08 (0.08) | 0.02 (0.02) |
| Formaldehyde | h | j | | | | | | | | | | | | | | 0.02 (0.02) | |
| Diesel | | | | | | | | | | | | | | | | | |
| HC (total) | 11 | j | | | | | 2.00 | 1.70 | | 0.80 | | | | j (0.80) | | j | |
| NMHC | h | j | | | | | | | | | | | | 0.25 -0.31 | | j | |
| NMOG | h | j | | | | | | | | | | | | | | j (0.16) | 0.10 (0.13) |
| CO | 80 | j | | | | | 20.00 | 18.00 | | 10.00 | | | | 3.40 (4.20) | | j (4.20) | 3.40 (4.20) |
| $NO_x$ | 4 | j | | | | | 3.10 | 2.30 | | | | | 1.20 | 1.00 (1.25) | | j (0.60) | 0.14 (0.20) |
| Particulates | h | j | | | | | | | 0.60 | | | 0.26 | | | 0.08 (0.10) | j (0.10) | 0.02 (0.02) |
| Formaldehyde | h | j | | | | | | | | | | | | | | j (0.02) | 0.02 (0.02) |
| LDT1 weight critera[e] | | GVWR up through 6,000 pounds | | | | | | GVWR up through 8,500 pounds | | | | | GVWR up through 6,000 lbs; LVW up through 3,750 pounds | | | | |
| Test procedure [b] | | 7-mode | | CVS-72 | | CVS-75 | | | | | | | | | | | |
| Useful life, intermediate[c,f] | | j | | | | | | | | | | | | 5 years/50,000 miles | | 5 years/50,000miles | |
| Useful life, full | | 5 years/50,000 miles | | | | | | | | | 11 years/120,000 miles | | | 10 years/100,000 miles | | | miles |

**KEY:** CO=carbon monoxide; CVS = constant volume sampler; GVWR=gross vehicle weight rating; HC=hydrocarbons; LVW=loaded vehicle weight; NMHC=nonmethane hydrocarbons; NMOG= nonmethane organic gases; NOx=nitrogen oxides.

[a] Light-duty truck categories LDT1-LDT4 were not created until 1994. From 1968 to 1978, all trucks with a GVWR up to 6,000 pounds were classified as light-duty trucks and were required to meet the same standards. As of 1979, the maximum weight was raised to 8,500 pounds GVWR. During 1988-93, light duty trucks were divided into two subcategories that coincide with the current LDT1-LDT4 categories. The standards for LDT2, LDT3, and LDT4 are shown in tables 4-32 through 4-34.

[b] The test procedure for measuring exhaust emissions has changed several times over the course of vehicle emissions regulation. The 7-mode procedure was used through model year 1971 and was replaced by the CVS-72 procedure beginning in model year 1972. The CVS-75 procedure became the test procedure as of model year 1975. While it may appear that total HC and CO standards were relaxed in 1972-74, these standards were actually more stringent due to the more stringent nature of the CVS-72 test procedure. Additional standards for CO and composite standards for NMHC and NOx tested over the new Supplemental Federal Test Procedure will be phased-in beginning with model year 2000. These standards are not shown in this table.

[c] Emissions standards had to be met for a useful life of 5 years/50,000 miles through model year 1983, and a full useful life of 11 years/120,000 miles was defined for 1985-93 (several useful life options were available for 1984). Beginning in model year 1994, emissions standards were established for an intermediate useful life of 5 years/50,000 miles as well as a full useful life (full useful life standards are shown in parentheses). HC standards, however, were established only for full useful life. Tier 1 exhaust standards, except particulates standards, were phased in during 1994-96 at a rate of 40%, 80%, and 100%, respectively. Particulate matter standards were phased-in at a rate of 40%, 80%, and 100% during 1995-97.

[d] The cold CO emissions standard is measured at 20 $^0$F (rather than 75 $^0$F) and is applicable for a 5-year/50,000-mile useful life.

[e] GVWR is the maximum design loaded weight. LVW is the curb weight (nominal vehicle weight) plus 300 pounds.

[f] Manufacturers can opt to certify vehicles for a full useful life of 15 years/150,000 miles and either have (1) intermediate useful life standards waived or (2) receive additional NOx credits.

[g] The "Prior to controls" column reports emissions estimates of a typical newly manufactured car in the years before exhaust emissions certification standard were implemented.

[h] No estimate available.

[i] In 1968-69, exhaust emissions standards were issued in parts per million rather than grams per mile and are, therefore, incompatible with this table.

[j] No standard has been set.

[k] The term "tier" refers to a level of standards for specific years. Interim Tier 2 refers to an intermediate level of standards that move manufacturers toward compliance with Tier 2 standards. Interim Tier 2 and Tier 2 standards are established as "bins." Each bin is a set of standards for NOx, CO, NMOG, formaldehyde, and particulates (HC and NMHC standards are dropped for Tier 2 and Interim Tier 2). Manufacturers may certify any given vehicle family to any of the bins available for that vehicle class as long as the resulting sales-weighted corporate average NOx standard is met for the full useful life. The Tier 2 corporate average NOx standard is 0.07 grams/mile. Interim corporate-based average NOx standards are based on vehicle type. The interim corporate sales-weighted average for LDT1 vehicles is 0.3 grams/mile. Tier 2 standards will be phased in at a rate of 25% in 2004, 50% in 2005, 75% in 2006, and 100% in 2007. During this period, all LDT1 vehicles not meeting the Tier 2 standards must meet Interim Tier 2 standards.

**SOURCES**

40 CFR 86, Subpart A (July 1, 2000).

*Federal Register,* Vol. 65, No. 28, pp. 6851-6858.

**Table 4-32: Federal Exhaust Emission Certification Standards for Newly Manufactured Gasoline- and Diesel-Powered Light-Duty Trucks (Category LDT2)[a,b,c] (Grams per mile)**

| Engine type and pollutant | Prior to control[g] | 1968-1969 | 1970-1971 | 1972 | 1973-1974 | 1975 | 1976-1978 | 1979-1981 | 1982-1983 | 1984 | 1985-1986 | 1987 | 1988-1990 | 1991-1993 | Tier 1k 1994 | Tier 1k 1995-2003 | Interim Tier 2[k] 2004-2006 | Tier 2[k] 2007+ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline | | | | | | | | | | | | | | | | | | |
| HC (total) | 11 | [e] | 2.20 | 3.40 | | 2.00 | | 1.70 | | 0.80 | | | | | [j] (0.80) | | [j] | |
| NMHC | [h] | [j] | | | | | | | | | | | | | [j] (0.40) | | [j] | |
| NMOG | [h] | [j] | | | | | | | | | | | | | | | 0.13 (0.16) | 0.10 (0.13) |
| CO | 80 | [i] | 23.00 | 39.00 | | 20.00 | | 18.00 | | 10.00 | | | | | 4.40 (5.50) | | 3.4 (4.20) | |
| Cold-temp. CO[d] | [h] | [j] | | | | | | | | | | | | | 12.5 [j] | | | |
| $NO_x$ | 4 | [j] | | | 3.00 | 3.10 | | 2.30 | | | | | 1.70 | | 0.70 (0.97) | | 0.40 (0.60) | 0.14 (0.20) |
| Particulates | [h] | [j] | | | | | | | | | | | | | | 0.08 (0.10) | 0.08 (0.08) | 0.02 (0.02) |
| Formaldehyde | [h] | [j] | | | | | | | | | | | | | | | 0.02 (0.02) | |
| Diesel | | | | | | | | | | | | | | | | | | |
| HC (total) | 11 | [j] | | | | | 2.00 | 1.70 | | 0.80 | | | | | [j] (0.80) | | [j] | |
| NMHC | [h] | [j] | | | | | | | | | | | | | 0.32 (0.40) | | [j] | |
| NMOG | [h] | [j] | | | | | | | | | | | | | | | [j] (0.16) | 0.10 (0.13) |
| CO | 80 | [j] | | | | | 20.00 | 18.00 | | 10.00 | | | | | 4.40 (5.50) | | [j] (4.20) | 3.40 (4.20) |
| $NO_x$ | 4 | [j] | | | | | 3.10 | 2.30 | | | | | 1.70 | | [j] (0.97) | | [j] (0.60) | 0.14 (0.20) |
| Particulates | [h] | [j] | | | | | | | 0.60 | | | 0.50 | 0.45 | 0.13 | | 0.08 (0.10) | [j] (0.10) | 0.02 (0.02) |
| Formaldehyde | [h] | [j] | | | | | | | | | | | | | | | [j] (0.02) | 0.02 (0.02) |
| LDT2 weight criteria[e] | | GVWR up through 6,000 pounds | | | | | | GVWR up through 8,500 pounds | | | | | GVWR up through 6,000 pounds; LVW over 3,750 pounds | | | | | |
| Test procedure[b] | | 7-mode | | CVS-72 | | CVS-75 | | | | | | | | | | | | |
| Useful life, intermediate[c, f] | | [j] | | | | | | | | | | | | | 5 years/50,000 miles | | 5 years/50,000miles | |
| Useful life, full | | 5 years/50,000 miles | | | | | | | | | 11 years/120,000 miles | | | | 10 years/100,000 miles | | | 10 years/120,000 miles |

**KEY:** CO=carbon monoxide; GVWR=gross vehicle weight rating; HC=hydrocarbons; LVW=loaded vehicle weight; NMHC=non-methane hydrocarbons; NMHC=nonmethane hydrocarbons; NMOG=nonmethane organic gases; NOx=nitrogen oxides.

[a] Light-duty truck categories LDT1-LDT4 were not created until 1994. From 1968 to 1978 all trucks with a GVWR up to 6,000 pounds were classified as light-duty trucks and were required to meet the same standards. As of 1979, the maximum weight was raised to 8,500 pounds GVWR. During 1988-93, light-duty trucks were divided into two subcategories that coincide with the current LDT1-LDT4 categories. The standards for LDT1, LDT3, and LDT4 are shown in tables 4-31, 4-33, and 4-34.

[b] The test procedure for measuring exhaust emissions has changed several times over the course of vehicle emissions regulation. The 7-mode procedure was used through model year 1971 and was replaced by the CVS-72 procedure beginning in model year 1972. The CVS-75 procedure became the test procedure as of model year 1975. While it may appear that the total HC and CO standards were relaxed in 1972-74, these standards were actually more stringent due to the more stringent nature of the CVS-72 test procedure. Additional standards for CO and composite standards for NMHC and NOx tested over the new Supplemental Federal Test Procedure will be phased-in beginning with model year 2000. These standards are not shown in this table.

[c] Emissions standards had to be met for a useful life of 5 years/50,000 miles through model year 1983, and a full useful life of 11 years/120,000 miles was defined for 1985-93 (several useful life options were available for 1984). Beginning in model year 1994, emissions standards were established for an intermediate useful life of 5 years/50,000 miles as well as a full useful life (full useful life standards are shown in parentheses). HC standards, however, were established only for full useful life. Tier 1 exhaust standards, except particulates standards, were phased-in during 1994-96 at a rate of 40%, 80%, and 100%, respectively. Particulates standards were phased-in at a rate of 40%, 80%, and 100% during 1995-97.

[d] The cold CO emissions standard is measured at 20 $^0$F (rather than 75 $^0$F) and is applicable for a 5-year/50,000-mile useful life.

[e] GVWR is the maximum design loaded weight. LVW is the curb weight (nominal vehicle weight) plus 300 pounds.

[f] Manufacturers can opt to certify vehicles for a full useful life of 15 years/150,000 miles and either have (1) intermediate useful life standards waived or (2) receive additional NOx credits.

[g] The "Prior to controls" reports emissions estimates of a typical newly manufactured car in the years before exhaust emissions certification standards were implemented.

[h] No estimate available.

[i] In 1968-69, exhaust emissions standards were issued in parts per million rather than grams per mile and are, therefore, incompatible with this table.

[j] No standard has been set.

[k] The term "tier" refers to a level of standards for specific years. Interim 2 refers to an intermediate level of standards that move manufacturers toward compliance with Tier 2 standards. Interim Tier 2 and Tier 2 standards are established as "bins." Each bin is a set of standards for NOx, CO, NMOG, formaldehyde, and particulates (HC and NMHC standards are dropped for Tier 2 and Interim Tier 2). Manufacturers may certify any given vehicle family to any of the bins available for that vehicle class as long as the resulting sales-weighted corporate average NOx standard is met for the full useful life. The Tier 2 corporate average NOx standard is 0.07 grams/mile. Interim corporate-based average NOx standards are based on vehicle type. The interim corporate sales-weighted average for LDT2 vehicles is 0.3 grams/mile. Tier 2 standards will be phased in at a rate of 25% in 2004, 50% in 2005, 75% in 2006, and 100% in 2007. During this period all LDT2 vehicles not meeting the Tier 2 standards must meet Interim Tier 2 standards.

**SOURCES**

40 CFR 86, Subpart A (July 1, 2000).

*Federal Register*, Vol. 65, No. 28, pp. 6851-6858.

**Table 4-33: Federal Exhaust Emission Certification Standards for Newly Manufactured Gasoline- and Diesel-Powered Light-Duty Trucks (Category LDT3)[a,b,c] (Grams per mile)**

| Engine type and pollutant | Prior to control[g] | 1968-1969 | 1970-1971 | 1972 | 1973-1974 | 1975 | 1976-1978 | 1979-1981 | 1982-1983 | 1984 | 1985-1986 | 1987 | 1988-1989 | 1990 | 1991-1995 | Tier 1[k] 1996-2007 | Interim Tier 2[k] 2008 | Tier 2[k] 2009+ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline | | | | | | | | | | | | | | | | | | |
| HC (total) | 11 | [i] | 2.20 | 3.40 | | 2.00 | | 1.70 | | 0.80 | | | | | | [j] (0.80) | [j] | |
| NMHC | [h] | [j] | | | | | | | | | | | | | | 0.32 (0.46) | [j] | |
| NMOG | [h] | [j] | | | | | | | | | | | | | | | 0.16 (0.23) | 0.125 (0.16) |
| CO | 80 | [i] | 23.00 | 39.00 | | 20.00 | | 18.00 | | 10.00 | | | | | | 4.40 (6.40) | | 3.40 4.20 |
| Cold-temp. CO[d] | [h] | [j] | | | | | | | | | | | | | | 12.50 [j] | | |
| $NO_x$ | 4 | [j] | | | 3.00 | 3.10 | | 2.30 | | | | | 2.30 | 1.70 | | 0.70 (0.98) | 0.40 (0.60) | 0.14 (0.20) |
| Particulates | [h] | [j] | | | | | | | | | | | | | | [j] (0.10) | 0.08 (0.08) | 0.02 (0.02) |
| Formaldehyde | [h] | [j] | | | | | | | | | | | | | | | 0.02 (0.03) | 0.02 (0.02) |
| Diesel | | | | | | | | | | | | | | | | | | |
| HC (total) | 11 | [j] | | | | | 2.00 | 1.70 | | 0.80 | | | | | | [j] (0.80) | [j] | |
| NMHC | [h] | [j] | | | | | | | | | | | | | | 0.32 (0.46) | [j] | |
| NMOG | [h] | [j] | | | | | | | | | | | | | | | [j] (0.23) | 0.13 (0.16) |
| CO | 80 | [j] | | | | | 20.00 | 18.00 | | 10.00 | | | | | | 4.40 (6.40) | [j] | 3.40 4.20 |
| $NO_x$ | 4 | [j] | | | | | 3.10 | 2.30 | | | | | 2.30 | 1.70 | | [j] (0.98) | [j] (0.60) | 0.14 (0.20) |
| Particulates | [h] | [j] | | | | | | | 0.60 | | | 0.50 | 0.45 | | 0.13 | [j] (0.10) | [j] (0.08) | 0.02 (0.02) |
| Formaldehyde | [h] | [j] | | | | | | | | | | | | | | | [j] (0.03) | 0.02 (0.02) |
| LDT3 weight criteria[e] | | GVWR up through 6,000 pounds | | | | | | GVWR up through 8,500 pounds | | | | | Any ALVW | | | ALVW up through 5,750 pounds | | |
| | | | | | | | | | | | | | GVWR 6,001-8,500 pounds | | | | | |
| Test procedure[b] | | 7-mode | | CVS-72 | | CVS-75 | | | | | | | | | | | | |
| Useful life, intermediate[c,f] | | [j] | | | | | | | | | | | | | | 5 years/50,000 miles | | |
| Useful life, full | | 5 years/50,000 miles | | | | | | | | | 11 years/120,000 miles | | | | | | | |

**KEY:** ALVW=adjusted loaded vehicle weight; CO = carbon monoxide; GVWR=gross vehicle weight rating; HC = hydrocarbons; NMHC=nonmethane hydrocarbon; NMOG=nonmethane organic gases; NOx=nitrogen oxides.

[a] Light-duty truck categories LDT1-LDT4 were not created until 1994. From 1968 to 1978 all trucks with a GVWR up to 6,000 pounds were classified as light-duty trucks and were required to meet the same standards. As of 1979, the maximum weight was raised to 8,500 pounds GVWR. During 1988-93, light-duty trucks were divided into two subcategories that coincide with the current LDT1-LDT4 categories. The standards for LDT1, LDT2, and LDT4 are given in tables 4-31, 4-32, and 4-34.

[b] The test procedure for measuring exhaust emissions has changed several times over the course of vehicle emissions regulation. The 7-mode procedure was used through model year 1971 and was replaced by the CVS-72 procedure beginning in model year 1972. The CVS-75 procedure became the test procedure as of model year 1975. While it may appear that the total HC and CO standards were relaxed in 1972-74, these standards were actually more stringent due to the more stringent nature of the CVS-72 test procedure. Additional standards for CO and composite standards for NMHC and NOx tested over the new Supplemental Federal Test Procedure will be phased-in beginning with model year 2002. These standards are not shown in this table.

[c] Emissions standards had to be met for a full useful life of 5 years/50,000 miles through model year 1983, and a full useful life of 11 years/120,000 miles was defined for 1985-93 (several useful life options were available for 1984). Beginning in model year 1996, emissions standards were established for an intermediate useful life of 5 years/50,000 miles as well as a full useful life of 11 years/120,000 miles (intermediate and full useful life standards are shown in parentheses). This applied to all pollutants except HC and particulates for all LDT3 vehicles and NOx for diesel-powered LDT3 vehicles, which were only required to meet full useful life standards. Tier 1 exhaust standards were phased-in during 1996-97 at a rate of 50% and 100%, respectively.

[d] The cold CO emissions standard is measured at 20 $^0$F (rather than 75 $^0$F) and is applicable for a 5-year/50,000-mile useful life

[e] GVWR is the maximum design loaded weight. ALVW is the numerical average of the GVWR and the curb weight.

[f] Manufacturers can opt to certify vehicles for a full useful life of 15 years/150,000 miles and either have (1) intermediate useful life standards waived or (2) receive additional $NO_x$ credits.

[g] The "Prior to controls" column reports emissions estimates of a typical newly manufactured car in the years before exhaust emissions certifcation standards were implemented

[h] No estimate available.

[i] In 1968-69, exhaust emissions standards were issued in parts per million rather than grams per mile and are, therefore, incompatible with this table

[j] No standard has been set.

[k] The term "tier" refers to a level of standards for specific years. Interim 2 refers to an intermediate level of standards that moves manufacturers toward compliance with Tier 2 standards. Interim Tier 2 and Tier 2 standards are established as "bins." Each bin is a set of standards for NOx, CO, NMOG, formaldehyde, and particulates (HC and NMHC standards are dropped for Tier 2 and Interim Tier 2). Manufacturers may certify any given vehicle family to any of the bins available for that vehicle class as long as the resulting sales-weighted corporate average NOx standard is met for full useful life. The Tier 2 corporate average NOx standard is 0.07 grams/mile. Interim corporate-based average NOx standards are based on vehicle type. The interim corporate sales-weighted average for LDT3 vehicles is 0.6 grams/mile. Tier 2 LDT3 standards will be phased in during 2008 and 2009. In 2008, 50% of LDT3 vehicles must meet Tier 2 standards; the others must meet Interim Tier 2 standards. Beginning in 2009, all LDT3 vehicles must meet Tier 2 standards.

**SOURCES**

40 CFR 86, Subpart A (July 1, 2000).

*Federal Register*, Vol. 65, No. 28, pp. 6851-6858.

**Table 4-34: Federal Exhaust Emission Certification Standards for Newly Manufactured Gasoline- and Diesel-Powered Light-Duty Trucks (Category LDT4) [a,b,c] (Grams per mile)**

| Engine type and pollutant | Prior to control[g] | 1968-1969 | 1970-1971 | 1972 | 1973-1974 | 1975 | 1976-1978 | 1979-1981 | 1982-1983 | 1984 | 1985-1986 | 1987 | 1988-1989 | 1990 | 1991-1995 | Tier 1[k] 1996-2007 | Interim Tier 2[k] 2008 | Tier 2k 2009+ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline | | | | | | | | | | | | | | | | | | |
| HC (total) | 11 | [i] | 2.20 | 3.40 | | 2.00 | | 1.70 | | 0.80 | | | | | | [j] (0.80) | [j] | |
| NMHC | [h] | [j] | | | | | | | | | | | | | | 0.39 (0.56) | [j] | |
| NMOG | [h] | [j] | | | | | | | | | | | | | | | 0.16 (0.23) | 0.13 (0.16) |
| CO | 80 | [i] | 23.00 | 39.00 | | 20.00 | | 18.00 | | 10.00 | | | | | | 5.00 (7.30) | 4.4 (6.40) | 3.40 (4.20) |
| Cold-temp. CO[d] | [h] | [j] | | | | | | | | | | | | | | 12.50 [j] | | |
| $NO_x$ | 4 | [i] | | | 3.00 | 3.10 | | 2.30 | | | | | 2.30 | 1.70 | | 1.10 (1.53) | 0.4 (0.60) | 0.14 (0.20) |
| Particulates | [h] | [j] | | | | | | | | | | | | | | [j] (0.12) | 0.08 (0.08) | 0.02 (0.02) |
| Formaldehyde | [h] | [j] | | | | | | | | | | | | | | | 0.02 (0.03) | 0.02 (0.02) |
| Diesel | | | | | | | | | | | | | | | | | | |
| HC (total) | 11 | [j] | | | | | 2.00 | 1.70 | | 0.80 | | | | | | [j] (0.80) | [j] | |
| NMHC | [h] | [j] | | | | | | | | | | | | | | 0.39 (0.56) | [j] | |
| NMOG | [h] | [j] | | | | | | | | | | | | | | | [j] (0.23) | 0.13 (0.16) |
| CO | 80 | [j] | | | | | 20.00 | 18.00 | | 10.00 | | | | | | 5.00 (7.30) | [j] (6.40) | 3.4 (4.20) |
| $NO_x$ | 4 | [j] | | | | | 3.10 | 2.30 | | | | | 2.30 | 1.70 | | [j] (1.53) | [j] (0.60) | 0.14 (0.20) |
| Particulates | [h] | [j] | | | | | | | 0.60 | | | 0.50 | 0.45 | | 0.13 | [j] (0.12) | [j] (0.08) | 0.02 (0.02) |
| Formaldehyde | [h] | [j] | | | | | | | | | | | | | | | [j] (0.03) | 0.02 (0.02) |
| LDT4 weight criteria[e] | | GVWR up through 6,000 pounds | | | | | | GVWR up through 8,500 pounds | | | | | Any ALVW | | | ALVW over 5,750 pounds | | |
| | | | | | | | | | | | | | GVWR 6,001-8,500 pounds | | | | | |
| Test procedure[b] | | 7-mode | | CVS-72 | | CVS-75 | | | | | | | | | | | | |
| Useful life, intermediate[c,f] | | [j] | | | | | | | | | | | | | | 5 years/50,000 miles | | |
| Useful life, full | | 5 years/50,000 miles | | | | | | | | | 11 years/120,000 miles | | | | | | | |

**KEY:** ALVW=adjusted loaded vehicle weight; CO = carbon monoxide; GVWR=gross vehicle weight rating; HC = hydrocarbons; NMHC=nonmethane hydrocarbon; NMOG=nonmethane organic gases; NOx=nitrogen oxides.

[a] Light-duty truck categories LDT1-LDT4 were not created until 1994. From 1968 to 1978 all trucks with a GVWR up to 6,000 pounds were classified as light-duty trucks and were required to meet the same standards. As of 1979, the maximum weight was raised to 8,500 pounds GVWR. During 1988-93, light-duty trucks were divided into two subcategories that coincide with the current LDT1-LDT4 categories. The standards for LDT1, LDT2, and LDT3 are given in tables 4-31, 4-32, and 4-33.

[b] The test procedure for measuring exhaust emissions has changed several times over the course of vehicle emissions regulation. The 7-mode procedure was used through model year 1971 and was replaced by the CVS-72 procedure beginning in model year 1972. The CVS-75 procedure became the test procedure as of model year 1975. While it may appear that the total HC and CO standards were relaxed in 1972-74, these standards were actually more stringent due to the more stringent nature of the CVS-72 test procedure.

Additional standards for CO and composite standards for NMHC and NOx tested over the new Supplemental Federal Test Procedure will be phased-in beginning with model year 2002. These standards are not shown in this table.

[c] Emissions standards had to be met for a full useful life of 5 years/50,000 miles through model year 1983, and a full useful life of 11 years/120,000 miles was defined for 1985-93 (several useful life options were available for 1984). Beginning in model year 1996, emissions standards were established for an intermediate useful life of 5 years/50,000 miles as well as a full useful life of 11 years/120,000 miles (intermediate and full useful life standards are shown in parentheses). This applied to all pollutants except HC and particulates for all LDT4 vehicles and NOx for diesel-powered LDT4 vehicles, which were only required to meet full useful life standards. Tier 1 exhaust standards were phased-in during 1996-97 at a rate of 50% and 100%, respectively.

[d] The cold CO emissions standard is measured at 20 $^{0}$F (rather than 75 $^{0}$F) and is applicable for a 5-year/50,000-mile useful life.

[e] GVWR is the maximum design loaded weight. ALVW is the numerical average of the GVWR and the curb weight.

[f] Manufacturers can opt to certify vehicles for a full useful life of 15 years/150,000 miles and either have (1) intermediate useful life standards waived or (2) receive additional NOx credits.

[g] The "Prior to control" column reports emissions estimates of a typical newly manufactured car in the years before exhaust emissions certification standards were implemented.

[h] No estimate available.

[i] In 1968-69, exhaust emissions standards were issued in parts per million rather than grams per mile and are, therefore, incompatible with this table.

[j] No standard has been set.

[k] The term "tier" refers to a level of standards for specific years. Interim 2 refers to an intermediate level of standards that moves manufacturers toward compliance with Tier 2 standards. Interim Tier 2 and Tier 2 standards are established as "bins." Each bin is a set of standards for NOx, CO, NMOG, formaldehyde, and particulate matter (HC and non-methane HC standards are dropped for Tier 2 and interim Tier 2). Manufacturers may certify any given vehicle family to any of the bins available for that vehicle class as long as the resulting sales-weighted corporate average NOx standard is met for full useful life. The Tier 2 corporate average NOx standard is 0.07 grams/mile. Interim corporate-based average NOx standards are based on vehicle type. The interim corporate sales-weighted average for LDT4 vehicles is 0.6 grams/mile. Tier 2 standards will be phased in during 2008 and 2009. In 2008, 50% of LDT4 vehicles must meet Tier 2 standards; the others must meet Interim Tier 2 standards. Beginning in 2009, all LDT4 vehicles must meet Tier 2 standards.

**SOURCES**

40 CFR 86, Subpart A (July 1, 2000).
*Federal Register*, Vol. 65, No. 28, pp. 6851-6858.

**Table 4-35: Federal Exhaust Emission Certification Standards for Newly Manufactured Gasoline- and Diesel-Powered Medium-Duty Passenger Vehicles (MDPV)[a,b]**
**(Grams per mile)**

| | Interim Tier 2[f] | | Tier 2[f] | |
|---|---|---|---|---|
| Engine type and pollutant | 2004 | 2008 | 2009+ | |
| Gasoline | | | | |
| NMOG | 0.195 | -0.280 | 0.125 | -0.156 |
| CO | 5.000 | -7.300 | 3.400 | -4.200 |
| Cold-temp. CO[c] | 12.500 | | | |
| $NO_x$ | 0.600 | -0.900 | 0.140 | -0.200 |
| Particulates | 0.120 | -0.120 | 0.020 | -0.020 |
| Formaldehyde | 0.022 | -0.032 | 0.015 | -0.018 |
| Diesel | | | | |
| HC | 1.3 g/bhp-hr | | | |
| NMHC + $NO_x$ | 2.4 g/bhp-hr | | | |
| NMOG | | [g] (0.280) | 0.125 | (0.156) |
| CO | 15.5 g/bhp-hr | [g] (7.300) | 3.400 | (4.200) |
| $NO_x$ | 4.0 g/bhp-hr | [g] (0.900) | 0.140 | (0.200) |
| Particulates | 0.10 g/bhp-hr | [g] (0.120) | 0.020 | (0.020) |
| Formaldehyde | | [g] (0.032) | 0.015 | (0.018) |
| Smoke opacity (acceleration / lugging / peak)[d] | 20/15/50 | | | |
| Weight Criteria | Greater than 8,500 pounds GVWR; less than 10,000 pounds GVWR | | | |
| Test procedure, gasoline | CVS-75 | | | |
| Test procedure, diesel | EPA Transient | CVS-75 | | |
| Useful life-gasoline, intermediate[b,e] | 5 years/50,000 miles | | | |
| Useful life-gasoline, full | 11 years/120,000 miles | | | |
| Useful life-diesel, intermediate[b,e] | [g] | | 5 years/50,000 miles | |
| Useful life-diesel, full | 8 years/110,000 miles | 11 years/120,000 miles | | |

**KEY:** CO = carbon monoxide; g/bhp-hr = grams per brake horsepower/hour; GVWR = gross vehicle weight rating; HC = hydrocarbons; NMHC=nonmethane hydrocarbon; NMOG = nonmethane organic gases; NOx = nitrogen oxides.

[a] The MDPV category was created for the Interim Tier 2 and Tier 2 vehicle emissions standards. This category was specifically designed to help bring passenger vehicles (such as large sport utility vehicles and passenger vans) over 8,500 pounds GVWR into the Tier 2 program. MDPVs are defined as any complete heavy-duty vehicle less than 10,000 pounds GVWR designed primarily for transportation of persons, including conversion vans (i.e., vans which are intended to be converted to vans used primarily for transporting people). This does not include vehicles that have 1) a capacity of more than 12 persons total, or 2) are designed to accommodate more than 9 persons seated rearward of the driver's seat, or 3) have a cargo box (i.e., a pickup-bed or box) of six feet or more in interior length. Prior to Tier 2 standards, these vehicles would have been regulated as light heavy-duty trucks.

[b] Diesel MDPVs can continue to use light heavy-duty truck standards for new vehicle certification until 2008. Note that these standards are measured in grams per brake horsepower-hour (g/bhp-hr). Beginning in 2008, MDPVs must use the same on-chassis testing procedure as heavy light-duty trucks (catgories LDT3 and LDT4) and must meet standards for MDPVs. Beginning in 2009, MDPVs must meet the same standards as light heavy-duty trucks, except MDPVs are not required to meet Supplemental Federal Test Procedure standards.

[c]The cold CO emissions standard is measured at 20 $^0$F (rather than 75 $^0$F) and is applicable for a full useful life of 5-years/50,000-miles.

[d] Smoke opacity is expressed as a percentage for acceleration, lugging, and peak operation modes. Lugging occurs when a vehicle is carrying a load.
[e]Manufacturers can opt to certify vehicles for a useful life of 15 years/150,000 miles and have either 1) intermediate useful life standards waived or 2) receive additional $NO_x$ credits.

[f]The term "tier" refers to a level of standards for specific years. Interim 2 refers to an intermediate level of stndards that moves manufacturers toward compliance with Tier 2 standards. Tier 2 and interim Tier 2 standards are established as "bins." Each bin is a set of standards for $NO_x$, CO, NMOG, formaldehyde, and particulates (HC and NMHC standards are dropped for Tier 2 and Interim Tier 2). Manufacturers may certify any given vehicle family to any of the bins available for that vehicle class as long as the resulting sales-weighted corporate average $NO_x$ standard is met for full useful life. The Tier 2 corporate average $NO_x$ standard is 0.07 grams/mile. Interim corporate-based average NOx standards are based on vehicle type. The interim corporate sales-weighted average for MDPVs is 0.6 grams/mile. Tier 2 MDPV standards will be phased in during 2008 and 2009. In 2008, 50% of MDPVs must meet Tier 2 standards; the other 50% of MDPVs must meet interim Tier 2 standards. Beginning in 2009, all MDPVs must meet Tier 2 standards.

[g]Diesel MDPVs are not required to meet intermediate life standards during this time period

**SOURCE**
40 CFR 86, Subpart A (July 1, 2000) Federal Register, Vol. 65, No. 28, pp. 6851-6858.

**Table 4-36: Federal Exhaust Emissions Certification Standards for Newly Manufactured Gasoline- and Diesel-Powered Light Heavy-Duty Trucks (Grams per brake horsepower-hour)**

| Engine type and pollutant | 1970-73 | 1974-78 | 1979-83 | 1984 | 1985-86 | 1987 | 1988-89 | 1990 | 1991-93 | 1994-97 | 1998-2003 | 2004 | 2005-06 | 2007 | 2008+ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Gasoline* | | | | | | | | | | | | | | | |
| HC + $NO_x$ | j | 16 | 10 | | j | | | | | | | | | | |
| $NO_x$ + NMHC | j | | | | | | | | | | | | 1.0 | | j |
| NMHC | j | | | | | | | | | | | | | | 0.14 |
| HC | k | j | 1.5 | | 1.9 | 1.1 | | | | | | | j | | |
| $NO_x$ | j | | | | 10.6 | | | 6.0 | 5.0 | | 4.0 | | j | | 0.20 |
| CO | k | 40 | 25 | | 37.1 | 14.4 | | | | | | | | | |
| Particulates | j | | | | | | | | | | | | | | 0.01 |
| *Diesel* | | | | | | | | | | | | | | | |
| HC + $NO_x$ | j | 16 | 10 | j | | | | | | | | | | | |
| HC | k | j | 1.5 | 1.3 | | | | | | | | j | | | |
| $NO_x$ | j | | | 10.7 | | | | 6.0 | 5.0 | | 4.0 | j | | 0.20 | |
| $NO_x$ + NMHC | j | | | | | | | | | | | 2.4[l] | | j | |
| NMHC | j | | | | | | | | | | | | | 0.14 | |
| CO | k | 40 | 25 | 15.5 | | | | | | | | | | | |
| Particulates | j | | | | | | 0.60 | | 0.25 | 0.10 | | | | 0.01 | |
| Smoke opacity (acceleration / lugging / peak)[a] | 40/20/[j] | 20/15/50 | | | | | | | | | | | | | |
| Weight criteria for light heavy-duty trucks[b] | GVWR over 6,000 lbs | | GVWR over 8,500 lbs | | | GVWR 8,501 through 14,000 lbs | | | | | | | | | |
| Test procedure, gasoline[c] | 9-mode steady-state | | | | MVMA transient | | | | | | | | | | |
| Test procedure, diesel[c] | 13-mode steady-state | | | EPA transient | | | | | | | | | | | |
| Useful life (gasoline)[d] | 5 years/50,000 miles | | | | 8 years/110,000 miles | | | | | | | 10 years/110,000 miles | | | |

**Complete Vehicles - (Grams per mile)[e,f]**

| Weight range and pollutant | 2005-06 | 2007 | 2008+ |
|---|---|---|---|
| GVWR 8,500 through 10,000 lbs | | | |
| NMOG[g] | 0.28 | | e |
| NMHC[h] | e | | 0.195 |
| CO | 7.3 | | |
| $NO_x$ | 0.9 | | 0.2 |
| Particulates | e | | 0.02 |
| HCHO | e | | 0.032 |
| GVWR 10,001 lbs through 14,000 lbs | | | |
| NMOG[i] | 0.33 | | e |
| NMHC[j] | e | | 0.230 |
| CO | 8.1 | | |
| $NO_x$ | 1.0 | | 0.4 |
| Particulates | e | | 0.02 |
| HCHO | e | | 0.040 |
| Test procedure[l] | EPA HD-UDDS | | |

**KEY:** CO = carbon monoxide; HC = hydrocarbon; $NO_x$ = nitrogen oxides; NMHC = nonmethane hydrocarbons; NMOG = nonmethane organic gas; HCHO = formaldeyhyde.

[a] Smoke opacity is expressed in percentage for acceleration, lugging, and peak modes (acceleration/lugging/peak). Lugging is when a vehicle is carrying a load.
[b] Gross vehicle weight rating (GVWR) is the maximum design loaded weight.

[c] Several testing procedures have been used during the course of exhaust emissions control. A steady-state 9-mode test procedure (13-mode for diesel) was used for 1970-83 standards. For 1984, either the steady-state tests or the U.S. Environmental Protection Agency (EPA) transient test procedure could be used. For diesels, the EPA transient test was required from 1985 to the present. For gasoline-powered vehicles, either the EPA or the Motor Vehicle Manufacturers Association (MVMA) transient test procedure could be used during 1985-86, and the MVMA procedure was required thereafter.

[d] Emissions standards apply to the useful life of the vehicle. Useful life was 5 years/50,000 miles through 1983 and became 8 years/110,000 miles beginning in model year 1985. 1984 was a transitional year in which vehicles could meet the older standard (and test procedure) or the newer one. Useful life requirement for gasoline-powered trucks meeting NOx standards for 1998 and after is 10 years/110,000 miles. Starting in 2004, the useful life will be 10 years/110,000 miles. The useful life requirements for heavy-duty diesel truck standards are more complex and vary by vehicle weight, pollutant, test procedure, and year. Consult the U.S. Code of Federal Regulations for further information.
[e] No standard set.

[f] Although emissions standards for HC and CO were in effect for these years, they were not measured in grams per brake horsepower-hour and are, therefore, incompatible with the engine certification section of this table.
[g] Vehicles can meet a NMHC + $NO_x$ standard of 2.5 g/bhp-h, given they meet a NMHC standard of no more than 0.5 g/bhp-h.
[h] Starting in 2005, complete gasoline heavy-duty vehicles of 14,000 lbs GVWR or below will have to be chassis certified.
[i] The manufacturer has the option of satisfying this standard by measurement of nonmethane hydrocarbons or total hydrocarbons.
[j] The manufacturer has the option of satisfying this standard by measurement of nonmethane organic gas or total hydrocarbons.
[k] This test procedure currently exists to test complete vehicles that have been optionally chassis certified. However, chassis certification is not required until 2005.
[l] Required for complete gasoline heavy-duty vehicles only.

**NOTE**
Tables 4-32a and 4-32b are identical for heavy-duty diesel engines.

**SOURCES**
40 CFR 86, Electronic Code of Federal Regulations, Internet site at http://www.access.gpo.gov/nara/cfr/cfrhtml_00/Title_40/40cfr86_00.html as of Oct. 9, 2001.
U.S. Environmental Protection Agency, Office of Transportation and Air Quality, personal communication, October 2001.

**Table 4-37: Federal Exhaust Emissions Certification Standards for Newly Manufactured Gasoline- and Diesel-Powered Heavy-Duty Trucks (Grams per brake horsepower-hour)**

| Engine type and pollutant | 1970-73 | 1974-78 | 1979-83 | 1984 | 1985-86 | 1987 | 1988-89 | 1990 | 1991-93 | 1994-97 | 1998-2003 | 2004 | 2005-06 | 2007 | 2008+ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Gasoline* | | | | | | | | | | | | | | | |
| HC + $NO_x$ | e | 16 | 10 | | e | | | | | | | | | | |
| NOx + NMHC | e | | | | | | | | | | | | 1.0 | | e |
| NMHC | e | | | | | | | | | | | | | | 0.14 |
| HC | f | e | 1.5 | | 1.9 | | | | | | | | e | | |
| $NO_x$ | e | | | | 10.6 | | | 6.0 | 5.0 | | 4.0 | | e | | 0.20 |
| CO | f | 40 | 25 | | 37.1 | | | | | | | | | | 14.4 |
| Particulates | e | | | | | | | | | | | | | | 0.01 |
| *Diesel* | | | | | | | | | | | | | | | |
| HC + $NO_x$ | e | 16 | 10 | e | | | | | | | | | | | |
| HC | f | e | 1.5 | 1.3 | | | | | | | | e | | | |
| $NO_x$ | e | | | 10.7 | | | | 6.0 | 5.0 | | 4.0 | e | | 0.20 | |
| NOx + NMHC | e | | | | | | | | | | | 2.4[g] | | e | |
| NMHC | | | | | | | | | | | | | | 0.14 | |
| CO | f | 40 | 25 | 15.5 | | | | | | | | | | | |
| Particulates | e | | | | | | 0.60 | | 0.25 | 0.10 | | | | 0.01 | |
| Smoke opacity (acceleration / lugging / peak)[a] | 40/20[e] | 20/15/50 | | | | | | | | | | | | | |
| Weight criteria for heavy heavy-duty trucks[b] | GVWR over 6,000 lbs | | GVWR over 8,500 lbs | | | GVWR over 14,000 lbs | | | | | | | | | |
| Test procedure, gasoline[c] | 13-mode steady-state | | | | MVMA transient | | | | | | | | | | |
| Test procedure, diesel[c] | 13-mode steady-state | | | EPA transient | | | | | | | | | | | |
| Useful life (gasoline)[d] | 5 years/50,000 miles | | | | 8 years/110,000 miles | | | | | | | 10 years/110,000 miles | | | |

**KEY:** CO = carbon monoxide; HC = hydrocarbon; $NO_x$ = nitrogen oxides; NMHC = nonmethane hydrocarbons.

[a] Smoke opacity is expressed in percentage for acceleration, lugging, and peak modes (acceleration/lugging/peak). Lugging is when a vehicle is carrying a load.

[b] Gross vehicle weight rating (GVWR) is the maximum design loaded weight.

[c] Several testing procedures have been used during the course of exhaust emissions control. A steady-state 9-mode test procedure (13-mode for diesel) was used for 1970-83 standards. For 1984, either the steady-state tests or the U.S. Environmental Protection Agency (EPA) transient test procedure could be used. For diesels, the EPA transient test was required from 1985 to the present. For gasoline-powered vehicles, either the EPA or the Motor Vehicle Manufacturers Association (MVMA) transient test procedure could be used during 1985-86, and the MVMA procedure was required thereafter.

[d] Emissions standards apply to the useful life of the vehicle. Useful life was 5 years/50,000 miles through 1983 and became 8 years/110,000 miles beginning in model year 1985. 1984 was a transitional year in which vehicles could meet the older standard (and test procedure) or the newer one. Useful life requirement for gasoline-powered trucks meeting NOx standards for 1998 and after is 10 years/110,000 miles. Starting in 2004, the useful life will be 10 years/110,000 miles. The useful life requirements for heavy-duty diesel truck standards are more complex and vary by vehicle weight, pollutant, test procedure, and year. Consult the U.S. Code of Federal Regulations for further information.

[e] No standard set.

[f] Although emissions standards for HC and CO were in effect for these years, they were not measured in grams per brake horsepower-hour and are, therefore, incompatible with this table.

[g] Vehicles can meet a NMHC + $NO_x$ standard of 2.5 g/bhp-h, given they meet a NMHC standard of no more than 0.5 g/bhp-h.

**NOTE**

Tables 4-32a and 4-32b are identical for heavy-duty diesel engines.

**SOURCES**

40 CFR 86, Electronic Code of Federal Regulations, internet site at http://www.access.gpo.gov/nara/cfr/cfrhtml_00/Title_40/40cfr86_00.html as of Oct. 9, 2001.
U.S. Environmental Protection Agency, Office of Transportation and Air Quality, personnal communication, Oct. 2001.

## Table 4-38: Federal Exhaust Emissions Standards for Newly Manufactured Motorcycles[a] (g/km)[b]

| Pollutant | | Engine displacement | Emissions prior to controls[c] | 1978-79 | 1980-89 | 1990-96 | 1997+ |
|---|---|---|---|---|---|---|---|
| *Gasoline-powered* | | | | | | | |
| HC | | 50-169 cc | 1.0-13.8 | 5 | | | |
| | | 170-749 cc | | 5 + 0.0155(D-170)[d] | 5.0 | | |
| | | 750 cc and greater | | 14 | 5.0 | | |
| CO | | 50 cc and greater | 11.0-31.0 | 17 | 12 | | |
| *Methanol-powered* | | | | | | | |
| Total HC equivalent | | 50 cc and greater | | | | 5.0 | |
| CO | | 50 cc and greater | | | | 12 | |
| *Natural gas and LPG-powered* | | | | | | | |
| HC | | 50 cc and greater | | | | | 5.0 |
| CO | | 50 cc and greater | | | | | 12 |
| Useful life | (Class I) | 50-169 cc | | 5 years or 12,000 km (7,456 mi), whichever comes first | | | |
| | (Class II) | 170-279 cc | | 5 years or 18,000 km (11,185 mi), whichever comes first | | | |
| | (Class III) | 280 cc and greater | | 5 years or 30,000 km (18,641 mi), whichever comes first | | | |

**KEY:** cc = cubic centimeters; D = engine displacement; g = gram; HC = hydrocarbon; h = hour; kg = kilogram; km = kilometer; lb = pound; LPG = liquefied petroleum gas; mi = miles; mph = miles per hour.

[a] A motorcycle is any motor vehicle with a headlight, taillight, and stoplight, and having two or three wheels and a curb mass less than or equal to 793 kg (1,749 lb). (The limit was 680 kg, or 1,499 lb prior to the 1998 model year.) A motorcycle is excluded from the standards if it has a displacement of less than 50 cc (3.1 cubic inches) or if with a 80 kg (176 lb) driver it cannot start from a dead stop using only the engine or exceed a speed of 40 km/h (25 mph) on a level, paved surface.

[b] Readers who wish to compare motorcycle regulations with passenger car and truck regulations should note that 5.0 g/km = 8.0 g/mi and 12 g/km = 19 g/mi. The formula for 1978-79 HC emissions by motorcycles 170-749 cc becomes, in g/mi., approximately 8.0 + 0.025(D-170).

[c] Estimates of emissions rates prior to controls are ranges of emissions for all engine displacements. Not available for motorcycles powered by fuels other than gasoline.

[d] D = engine displacement in cubic centimeters (cc). For example, the standard for a 300 cc engine would be 5.0 + 0.0155(300-170) = 7.0 g/km.

**SOURCE:**
40 CFR 86 Subpart E (July 1, 2000). U.S. Environmental Protection Agency, Office of Air and Radiation, personal communication, Aug. 28, 2001.

**Table 4-39: Federal Exhaust Emissions Standards for Newly Manufactured and In-Use Aircraft Engines[a,b]**

| Engine type[c] | Pollutant | Year of engine manufacture | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | 1974-75 | 1976-77 | 1978-82 | 1983 | 1984-96 | 1997-99 | 2000+ |
| Turboprop | | | | | | | | |
| | Smoke | | | | | [g]$187(rO)^{-0.168}$ | | |
| Class T3 turbojet | | | | | | | | |
| | CO (g/kN)[d] | | | | | | 118 | |
| | HC (g/kN)[d] | | | | | 19.6 | | |
| | $NO_x$ (g/kN)[d] | | | | | | [e]40 + 2(rPR) | [f]32 + 1.6(rPR) |
| | Smoke | | | 25 | | [h]$83.6(rO)^{-0.274}$ | | |
| Class T8 turbojet | | | | | | | | |
| | CO (g/kN)[d] | | | | | | 118 | |
| | HC (g/kN)[d] | | | | | 19.6 | | |
| | $NO_x$ (g/kN)[d] | | | | | | [e]40 + 2(rPR) | [f]32 + 1.6(rPR) |
| | Smoke | 30 | | | | [h]$83.6(rO)^{-0.274}$ | | |
| Turbofan and turbojet engines other than Classes T3, T8, and TSS | | | | | | | | |
| | CO (g/kN)[d] | | | | | | 118 | |
| | HC (g/kN)[d] | | | | | 19.6 | | |
| | $NO_x$ (g/kN)[d] | | | | | | [e]40 + 2(rPR) | [f]32 + 1.6(rPR) |
| | Smoke | | [i]$83.6(rO)^{-0.274}$ | | [j]$83.6(rO)^{-0.274}$ | [h]$83.6(rO)^{-0.274}$ | | |
| TSS engines (supersonic aircraft engines) | | | | | | | | |
| | HC (g/kN) | | | | | $140(0.92)^{rPR}$ | | |
| | Smoke | | | | | [h]$83.6(rO)^{-0.274}$ | | |

**KEY:** CO = carbon monoxide; g = gram; g/kN = grams of pollutant per kilonewtons of thrust; HC = hydrocarbon, kN = kilonewtons; kW = kilowatt; NOx = nitrogen oxides; rO = rated output, which is the maximum power or thrust available for takeoff; rPR = rated pressure ratio.

[a] Federal standards apply to all planes operating in the United States, regardless of where they were manufactured. This table primarily displays exhaust emissions standards for newly manufactured aircraft engines. Only two standards (smoke standards) have been set for in-use aircraft engines (see footnotes i and k). Therefore, unless otherwised noted, emissions in this table apply to new aircraft engines only.

[b] HC, CO, and NOx are measured using the International Civil Aviation Organization (ICAO) Gaseous Emissions Test Procedure. Smoke is measured using the ICAO Smoke Emission Test Procedure. There is no useful life or warranty period for purposes of compliance with emissions standards.

[c] Examples of commercial aircraft that use each engine type include the following:

Class T3 turbojet–Boeing 707-320s (Class T3 engines are currently out of production, though some are still in use).
Class T8 turbojet–Boeing 727s and 737-200s, and McDonnell-Douglas MD-80s and DC-9s.
Turbofans and turbojets other than T3, T8, and TSS–Boeing 747-400s, 757s, 767-200s and 777s, and McDonnell-Douglas MD-11s; Canadair Regional Jets.
Turboprops–Used mostly in regional airliners such as ATR 72, Dornier 328, and Saab SF 340.

TSS–British Aircraft Corp./Aerospatiale Concorde (the only supersonic aircraft currently used in commercial civil aviation).

[d] Applies to engines with rO>26.7 kN.

[e] Effective as of July 7, 1997. This standard applies only to those engines of a type or model for which the date of manufacture of the first individual production model was on or before Dec. 31, 1995 and for which the date of manufacture of the individual engine was on or before Dec. 31, 1999.

[f] Effective as of July 7, 1997. This standard also applies to engines of a type or model for which the date of manufacture of the first individual production model was after Dec. 31, 1995 and for which the date of manufacture of the individual engine was after Dec. 31, 1999.

[g] Engines with rO>=1,000 kW.

[h] Engines manufactured on or after Jan. 1, 1984 and with rO>=26.7 kN. Smoke number may not exceed 50.

[i] Engines with rated output rO>=129 kN. This is also the in-use standard for all such aircraft engines.

[j] Engines with rO<26.7 kN. Smoke number may not exceed 50.

[k] Class T8 turbojet engines shall not exceed a smoke number of 30 beginning Feb. 1, 1974.

**SOURCE:**

40 CFR 87, Subparts A-D (July 1, 2000), and U.S. Environmental Protection Agency, Office of Air and Radiation, personal communication, Aug. 28, 2001.

**Table 4-40: Federal Exhaust Emissions Standards for Locomotives[a] (g/bhph except where noted)**

| Pollutant | Duty-cycle [f] | Tier 0 1973-2001[h] | Tier 1 2002-2004 | Tier 2 2005+ |
|---|---|---|---|---|
| Total HC[b] | Line-haul | 1.00 | 0.55 | 0.30 |
| | Switch | 2.10 | 1.20 | 0.60 |
| Nonmethane HC[c] | Line-haul | 1.00 | 0.55 | 0.30 |
| | Switch | 2.10 | 1.20 | 0.60 |
| Total HC equivalent[d] | Line-haul | 1.00 | 0.55 | 0.30 |
| | Switch | 2.10 | 1.20 | 0.60 |
| CO | Line-haul | 5.0 | 2.2 | 1.5 |
| | Switch | 8.0 | 2.5 | 2.4 |
| | Line-haul (optional standard) [g] | 10.0 | 10.0 | 10.0 |
| | Switch (optional standard) [g] | 12.0 | 12.0 | 12.0 |
| $NO_x$ | Line-haul | 9.5 | 7.4 | 5.5 |
| | Switch | 14.0 | 11.0 | 8.1 |
| Particulates | Line-haul | 0.60 | 0.45 | 0.20 |
| | Switch | 0.72 | 0.54 | 0.24 |
| | Line-haul (optional standard) [g] | 0.30 | 0.22 | 0.10 |
| | Switch (optional standard) [g] | 0.36 | 0.27 | 0.12 |
| Smoke opacity (% opacity-normalized) [h] | Steady-state | 30% | 25% | 20% |
| | 30-second peak | 40% | 40% | 40% |
| | 3-second peak | 50% | 50% | 50% |
| Useful life | | 7.5 MWh per hp or 10 years [i, j] | | |

**KEY:** bhp = brake horsepower; bhph = brake horsepower hour; CO = carbon monoxide; g = gram; h = hour; MW = megawatt; MWh = megawatt hour; NOx = nitrogen oxides; PM = particulate matter.

[a] Locomotive standards apply to both new and remanufactured locomotives, except as noted.

[b] The line-haul duty-cycle is weighted toward operation in the higher power notches and is typical of line-haul applications. The switch duty-cycle is typical of switch operations, with more emphasis on idle and low power notch emissions. Locomotives generally are required to meet the standards for both duty-cycles. However, Tier 0 dedicated switch locomotives rated at 2,300 hp or less are only required to meet the switch duty-cycle standard.

[c] Tier 0 standards apply to all new production locomotives in the 2001 model year, as well as for any 1994 through 2001 model year freight locomotives remanufactured on or after Jan. 1, 2001. They also apply to all other 1973 through 2001 model year locomotives remanufactured on or after Jan. 1, 2002. Other phase-in options are also available for manufacturers (see 40 CFR 92 for more detail on phase-in options).

[d] Total HC standards apply to locomotives powered by any fuel except alcohol or natural gas or fuels primarily composed of alcohol or natural gas.

[e] Nonmethane HC standards apply to locomotives powered by natural gas or fuels that are primarily composed of natural gas.

[f] Total HC equivalent standards apply to locomotives powered by alcohol or fuels that are primarily composed of alcohol.

[g] Manufacturers and remanufacturers can elect to comply with the alternate CO and PM standards. However, a manufacturer or remanufacturer using the alternate standards must meet both the CO and the PM standards. This allows locomotives to have higher CO emissions in exchange for meeting more stringent PM standards.

[h] Smoke opacity values are normalized to be equivalent to a 1 meter path length.

[i] For Tier 0 locomotives not equipped with MW/h meters, the minimum useful life is 750,000 miles or 10 years, whichever comes first.

[j] This is a minimum standard. The certifying manufacturer or remanufacturer must specify a longer useful life if the locomotive or locomotive engine is designed to last longer than the applicable minimum useful life.

**SOURCE:** 40 CFR 92, Jul. 1, 2000, and U.S. Environmental Protection Agency, Office of Air and Radiation, personal communication, Aug. 28, 2001.

**Table 4-41: Federal Exhaust Emissions Standards for Newly Manufactured Marine Spark-Ignition Outboard, Personal Watercraft[e], and Jet-Boat Engines[a] (g/kWh)**

| Year | HC + NOx (g/kWh) | | Warranty period | Useful life[d] |
|---|---|---|---|---|
| | Rated power < 4.3 kW | Rated power >= 4.3 kW [c,d] | | |
| 1998[b] | 278.00 | $(0.917 \times (151 + 557/P^{0.9})) + 2.44$ | 1 yr for all emissions-related components | Outboard engines: 350 hr/10 yr; Personal watercraft: 350 hr/5 yr |
| 1999 | 253.00 | $(0.833 \times (151 + 557/P^{0.9})) + 2.89$ | | |
| 2000 | 228.00 | $(0.750 \times (151 + 557/P^{0.9})) + 3.33$ | | |
| 2001 | 204.00 | $(0.667 \times (151 + 557/P^{0.9})) + 3.78$ | 1 yr for all emission-related components; 3 yr/200 hr for specified major emissions control components | |
| 2002 | 179.00 | $(0.583 \times (151 + 557/P^{0.9})) + 4.22$ | | |
| 2003 | 155.00 | $(0.500 \times (151 + 557/P^{0.9})) + 4.67$ | | |
| 2004 | 130.00 | $(0.417 \times (151 + 557/P^{0.9})) + 5.11$ | 2 yr/200 hr for all emissions-related components; 3 yr/200 hr for specified major emissions control components | |
| 2005 | 105.00 | $(0.333 \times (151 + 557/P^{0.9})) + 5.56$ | | |
| 2006+ | 81.00 | $(0.250 \times (151 + 557/P^{0.9})) + 6.00$ | | |

**KEY:** g = gram; hr = hour; HC = hydrocarbon; hp = horsepower; kW = kilowatt; kWh = kilowatt hour; NOx = nitrogen oxide; yr = year.

[a] The standards apply to marine spark-ignition outboard, personal watercraft, and jet-boat engines only. There are currently no federal standards for marine spark-ignition sterndrive/inboard engines (previously proposed standards have not been finalized). Marine compression-ignition engines under 50 hp are covered under the proposed nonroad compression-ignition engine standards. Federal standards are in development for marine compression-ignition engines over 50 hp.

[b] P = the average power of the engine family in kilowatts (sales-weighted).

[c] As an example, the standards for an outboard engine of 125 hp (just over 93 kW) would be 149.53 g/kWh in 1998, 123.63 g/kWh in 2000, 97.74 g/kWh in 2002, 72.00 g/kWh in 2004, and 46.10 g/kWh in 2006.

[d] All emissions standards must be met for the useful life of the engine.

[e] The standards for personal watercraft did not go into effect until 1999, although the standard went into effect for outboard engines in 1998.

**SOURCE:**
40 CFR 91 July 1, 2000 edition, pp. 301-302, 398, and U.S. Environmental Protection Agency, Office of Air and Radiation, personal communication, Aug. 28, 2001.

**Table 4-42: Tier 2 Federal Exhaust Emissions Standards for Newly Manufactured Commercial Marine Compression-Ignition Engines[a,b]**

| Engine category[c] | Displacement (liters/cylinder) | Rated power (kW) | Year | NOx + THC (g/kW-hr) | PM (g/kW-hr) | CO (g/kW-hr) | Useful Life[d] | Warranty Period |
|---|---|---|---|---|---|---|---|---|
| 1 | < 0.9 | 37 kW and above | 2005 | 7.5 | 0.40 | 5.0 | 10 yrs or 10,000 hrs operation | 5 yrs or 5,000 hrs operation |
| | 0.9 to < 1.2 | | 2004 | 7.2 | 0.30 | | | |
| | 1.2 to < 2.5 | | 2004 | 7.2 | 0.20 | | | |
| | 2.5 to < 5.0 | | 2007 | 7.2 | 0.20 | | | |
| 2 | 5.0 to < 15.0 | 37 kW and above | 2007 | 7.8 | 0.27 | 5.0 | 10 yrs or 20,000 hrs operation | 5 yrs or 10,000 hrs operation |
| | 15.0 to < 20.0 | 37 kW to < 3,300 kW | | 8.7 | 0.50 | | | |
| | 15.0 to < 20.0 | 3,300 kW and above | | 9.8 | 0.50 | | | |
| | 20.0 to < 25.0 | 37 kW and above | | 9.8 | 0.50 | | | |
| | 25.0 to < 30.0 | 37 kW and above | | 11.0 | 0.50 | | | |
| 3 | 30 and above | 37 kW and above | No Tier 2 emissions standards have been set for Category 3 commercial marine vessels. | | | | | |

**KEY:** CO=carbon monoxide; disp=displacement; g/kW-hr=gram per kilowatt-hour; hrs=hours;kW=kilowatt; NOx=nitrogen oxides; PM=particulate matter; THC=total hydrocarbons; yrs=years.

[a] Tier 2 emissions standards established by Congress apply to commercial compression-ignition (diesel) engines with a power rating of at least 37 kW. Both propulsion and auxiliary engines are covered under these standards, but land-based engines used in portable auxiliary equipment must meet standards for land-based engines. Smaller compression-ignition engines are covered under a separate rule. The U.S. Environmental Protection Agency (EPA) also intends to regulate recreational marine diesel engine emissions under a separate rule and is establishing provisions to allow exemptions for category 1 and 2 engines used as auxiliary engines in U.S.-flagged vessels engaged in foreign trade or overseas operations at least 75 percent of the time (i.e., operation will occur more than 320 nautical kilometers outside the United States, not including trips between U.S. ports in Alaska, Hawaii, the continental United States, or its territories).

[b] MARPOL Annex VI nitrogen oxide (NOx) standards (international standards adopted by the International Maritime Convention on the Prevention of Pollution from Ships) are referred to as Tier 1 emissions standards. These standards apply to any diesel engine over 130 kW installed on a vessel constructed on or after Jan. 1, 2000 and to any engine that undergoes major conversion after that date. MARPOL standards are currently voluntary for ships engaged in domestic travel but will be required for ships engaged in foreign trade with countries that ratify MARPOL standards. Although they have not yet been ratified by the United States, the EPA encourages engine manufacturers to make compliant engines and encourages owners to purchase them. If ratified by the United States, MARPOL Annex VI NOx standards will be retroactively effective Jan. 1, 2000.

[c] Emissions standards are based on displacement/cylinder and rated power. The three standards categories are as follows:

Category 1 (< 5 liters displacement/cylinder and rated power >=37 kW): These engines are typically used as propulsion engines on relatively small commercial vessels (fishing vessels, tugboats, crewboats, etc.). They are also used as auxiliary engines on vessels of all sizes and applications.

Category 2 (>= 5 liters displacement/cylinder to < 30 liters displacement/cylinder and rated power >=37 kW): The largest engines that are widely used as propulsion engines in harbor and coastal vessels in U.S. waters. These engines also provide auxiliary power on very large vessels. Many of these engines are of similar size and configuration as locomotive engines or use comparable emissions control technologies.

Category 3 (>= 30 liters displacement/cylinder and rated power .=37kW): These are very large high-power engines that are used almost exclusively for propulsion on vessels engaged in international trade.

[d] Manufacturers must demonstrate that the engine or engine family will meet all standards for its useful life. Certification for useful life is accomplished by testing a sample of engines. The warranty period applies to each engine manufactured. The manufacturer of each engine must provide a warranty to the ultimate purchaser or owner (and each subsequent purchaser or owner) that the engine is designed, built, and equipped so as to conform at the time of sale with Tier 2 standards and is free from defects in materials and workmanship that would cause the engine to fail to conform to these standards for the warranty period. Furthermore, this warranty cannot be shorter than any mechanical warranty on the engine and must be at least one half of the useful life period.

**SOURCE:**

*Federal Register,* Vol. 64, No. 249, Dec. 29, 1999, pp 73,299 to 73,373, and U.S. Environmental Protection Agency, Office of Air and Radiation, personal communication, Aug. 28, 2001.

**Table 4-43: Estimated National Average Vehicle Emissions Rates per Vehicle by Vehicle Type using Gasoline and Diesel (Grams per mile)**

| | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GASOLINE (assuming zero RFG) | | | | | | | | | | | | | | | | | | | | | |
| Light-duty vehicles | | | | | | | | | | | | | | | | | | | | | |
| Exhaust HC | 2.79 | 2.50 | 2.23 | 1.98 | 1.77 | 1.57 | 1.39 | 1.25 | 1.14 | 1.05 | 0.97 | 0.89 | 0.81 | 0.74 | 0.61 | 0.52 | 0.46 | 0.42 | 0.39 | 0.36 | 0.33 |
| Nonexhaust HC | 1.21 | 1.17 | 1.12 | 1.09 | 1.07 | 1.05 | 1.03 | 1.01 | 0.98 | 0.95 | 0.91 | 0.88 | 0.84 | 0.81 | 0.77 | 0.72 | 0.68 | 0.62 | 0.57 | 0.51 | 0.46 |
| Total HC | 4.00 | 3.67 | 3.35 | 3.07 | 2.84 | 2.62 | 2.41 | 2.26 | 2.12 | 2.00 | 1.88 | 1.77 | 1.65 | 1.54 | 1.37 | 1.25 | 1.13 | 1.04 | 0.95 | 0.87 | 0.79 |
| Exhaust CO | 42.89 | 39.15 | 35.54 | 32.23 | 29.32 | 26.60 | 24.18 | 22.38 | 20.86 | 19.54 | 18.53 | 17.80 | 16.98 | 16.14 | 13.79 | 12.57 | 10.87 | 10.28 | 9.68 | 9.20 | 8.73 |
| Exhaust $NO_x$ | 2.70 | 2.47 | 2.27 | 2.09 | 1.94 | 1.78 | 1.64 | 1.55 | 1.46 | 1.35 | 1.29 | 1.25 | 1.20 | 1.14 | 1.00 | 0.92 | 0.79 | 0.73 | 0.67 | 0.61 | 0.56 |
| Light-duty trucks | | | | | | | | | | | | | | | | | | | | | |
| Exhaust HC | 3.68 | 3.33 | 3.00 | 2.71 | 2.45 | 2.21 | 1.96 | 1.80 | 1.65 | 1.54 | 1.45 | 1.35 | 1.24 | 1.13 | 0.96 | 0.78 | 0.69 | 0.64 | 0.55 | 0.51 | 0.48 |
| Nonexhaust HC | 1.37 | 1.30 | 1.21 | 1.17 | 1.13 | 1.11 | 1.08 | 1.05 | 1.02 | 1.00 | 0.98 | 0.95 | 0.90 | 0.84 | 0.80 | 0.76 | 0.71 | 0.66 | 0.62 | 0.58 | 0.53 |
| Total HC | 5.05 | 4.63 | 4.21 | 3.88 | 3.59 | 3.32 | 3.04 | 2.85 | 2.68 | 2.54 | 2.43 | 2.30 | 2.14 | 1.98 | 1.76 | 1.54 | 1.40 | 1.31 | 1.17 | 1.09 | 1.01 |
| Exhaust CO | 56.23 | 51.99 | 47.93 | 44.34 | 40.77 | 37.51 | 34.47 | 32.20 | 30.23 | 28.28 | 26.81 | 25.43 | 23.85 | 21.51 | 18.76 | 16.23 | 14.33 | 13.52 | 12.49 | 11.76 | 11.02 |
| Exhaust $NO_x$ | 2.62 | 2.42 | 2.26 | 2.11 | 1.98 | 1.84 | 1.73 | 1.65 | 1.59 | 1.55 | 1.54 | 1.53 | 1.50 | 1.45 | 1.32 | 1.21 | 1.09 | 1.02 | 0.94 | 0.88 | 0.81 |
| Heavy-duty vehicles | | | | | | | | | | | | | | | | | | | | | |
| Exhaust HC | 3.66 | 3.34 | 3.03 | 2.76 | 2.39 | 2.16 | 1.94 | 1.73 | 1.51 | 1.35 | 1.22 | 1.09 | 0.98 | 0.82 | 0.73 | 0.64 | 0.53 | 0.48 | 0.42 | 0.32 | 0.28 |
| Nonexhaust HC | 2.74 | 2.60 | 2.34 | 2.25 | 2.16 | 2.07 | 1.97 | 1.87 | 1.79 | 1.69 | 1.62 | 1.54 | 1.48 | 1.41 | 1.35 | 1.24 | 1.14 | 1.07 | 0.99 | 0.92 | 0.86 |
| Total HC | 6.40 | 5.94 | 5.37 | 5.00 | 4.55 | 4.24 | 3.91 | 3.60 | 3.29 | 3.04 | 2.84 | 2.63 | 2.46 | 2.24 | 2.08 | 1.88 | 1.67 | 1.54 | 1.41 | 1.24 | 1.14 |
| Exhaust CO | 85.61 | 78.64 | 72.12 | 65.92 | 60.01 | 54.16 | 48.52 | 43.26 | 38.82 | 34.54 | 31.08 | 27.59 | 24.73 | 20.60 | 18.46 | 16.73 | 14.51 | 13.55 | 12.38 | 9.96 | 9.42 |
| Exhaust $NO_x$ | 7.19 | 6.96 | 6.72 | 6.52 | 6.35 | 6.11 | 5.89 | 5.73 | 5.56 | 5.40 | 5.26 | 5.13 | 5.01 | 4.91 | 4.62 | 4.28 | 3.73 | 3.33 | 2.94 | 2.58 | 2.25 |
| Motorcycles | | | | | | | | | | | | | | | | | | | | | |
| Exhaust HC | 2.01 | 1.88 | 1.82 | 1.75 | 1.72 | 1.69 | 1.63 | 1.63 | 1.62 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 |
| Nonexhaust HC | 0.74 | 0.73 | 0.72 | 0.72 | 0.71 | 0.71 | 0.70 | 0.69 | 0.70 | 0.70 | 0.70 | 0.70 | 0.70 | 0.70 | 0.69 | 0.69 | 0.69 | 0.68 | 0.68 | 0.68 | 0.68 |
| Total HC | 2.74 | 2.60 | 2.54 | 2.46 | 2.43 | 2.40 | 2.34 | 2.32 | 2.32 | 2.31 | 2.31 | 2.31 | 2.31 | 2.31 | 2.31 | 2.30 | 2.30 | 2.29 | 2.29 | 2.29 | 2.29 |
| Exhaust CO | 15.15 | 14.78 | 14.77 | 14.76 | 14.76 | 14.67 | 14.59 | 14.59 | 14.59 | 14.59 | 14.59 | 14.59 | 14.59 | 14.59 | 14.59 | 14.58 | 14.59 | 14.59 | 14.59 | 14.59 | 14.59 |
| Exhaust $NO_x$ | 1.26 | 1.28 | 1.28 | 1.28 | 1.28 | 1.26 | 1.25 | 1.25 | 1.25 | 1.25 | 1.25 | 1.25 | 1.25 | 1.25 | 1.25 | 1.25 | 1.25 | 1.25 | 1.25 | 1.25 | 1.25 |
| DIESEL | | | | | | | | | | | | | | | | | | | | | |
| Light-duty vehicles | | | | | | | | | | | | | | | | | | | | | |
| Exhaust HC | 0.68 | 0.69 | 0.71 | 0.73 | 0.75 | 0.77 | 0.79 | 0.81 | 0.81 | 0.82 | 0.80 | 0.76 | 0.73 | 0.73 | 0.60 | 0.58 | 0.48 | 0.36 | 0.29 | 0.23 | 0.18 |
| Exhaust CO | 1.49 | 1.52 | 1.56 | 1.60 | 1.64 | 1.69 | 1.73 | 1.76 | 1.78 | 1.79 | 1.78 | 1.75 | 1.73 | 1.74 | 1.59 | 1.57 | 1.41 | 1.21 | 1.09 | 0.99 | 0.90 |
| Exhaust $NO_x$ | 1.83 | 1.85 | 1.86 | 1.87 | 1.89 | 1.89 | 1.89 | 1.88 | 1.86 | 1.85 | 1.81 | 1.72 | 1.62 | 1.54 | 1.43 | 1.32 | 1.11 | 0.85 | 0.69 | 0.53 | 0.42 |
| Light-duty trucks | | | | | | | | | | | | | | | | | | | | | |
| Exhaust HC | 1.59 | 1.60 | 1.64 | 1.64 | 1.68 | 1.67 | 1.69 | 1.63 | 1.51 | 1.42 | 1.02 | 0.88 | 0.96 | 0.97 | 0.98 | 0.80 | 0.79 | 0.63 | 0.55 | 0.48 | 0.44 |
| Exhaust CO | 2.67 | 2.70 | 2.76 | 2.77 | 2.85 | 2.85 | 2.89 | 2.79 | 2.60 | 2.44 | 1.77 | 1.54 | 1.66 | 1.68 | 1.68 | 1.37 | 1.34 | 1.06 | 0.93 | 0.82 | 0.76 |
| Exhaust $NO_x$ | 2.71 | 2.66 | 2.62 | 2.56 | 2.53 | 2.46 | 2.42 | 2.31 | 2.17 | 2.07 | 1.76 | 1.64 | 1.67 | 1.66 | 1.59 | 1.37 | 1.30 | 1.09 | 0.94 | 0.82 | 0.72 |
| Heavy-duty vehicles | | | | | | | | | | | | | | | | | | | | | |
| Exhaust HC | 2.21 | 1.97 | 1.74 | 1.55 | 1.38 | 1.23 | 1.10 | 1.00 | 0.92 | 0.85 | 0.79 | 0.74 | 0.69 | 0.61 | 0.58 | 0.54 | 0.51 | 0.48 | 0.45 | 0.42 | 0.39 |
| Exhaust CO | 10.06 | 9.22 | 8.43 | 7.71 | 7.00 | 6.32 | 5.73 | 5.23 | 4.80 | 4.43 | 4.10 | 3.82 | 3.58 | 3.37 | 3.19 | 3.05 | 2.90 | 2.66 | 2.31 | 2.01 | 1.75 |
| Exhaust $NO_x$ | 23.34 | 22.14 | 21.47 | 21.10 | 20.75 | 20.49 | 20.24 | 20.04 | 19.84 | 19.14 | 18.05 | 16.68 | 15.52 | 13.92 | 12.50 | 11.45 | 10.55 | 9.60 | 8.61 | 7.77 | 6.87 |
| Average Emissions Per Vehicle, Gasoline and Diesel Fleet | | | | | | | | | | | | | | | | | | | | | |
| Exhaust HC | 2.98 | 2.70 | 2.42 | 2.18 | 1.96 | 1.76 | 1.56 | 1.43 | 1.32 | 1.23 | 1.16 | 1.08 | 0.99 | 0.91 | 0.77 | 0.65 | 0.58 | 0.54 | 0.48 | 0.45 | 0.42 |
| Nonexhaust HC | 1.21 | 1.16 | 1.10 | 1.06 | 1.04 | 1.01 | 0.99 | 0.97 | 0.94 | 0.91 | 0.89 | 0.86 | 0.82 | 0.77 | 0.74 | 0.69 | 0.65 | 0.60 | 0.56 | 0.51 | 0.47 |
| Total HC | 4.20 | 3.86 | 3.52 | 3.24 | 3.00 | 2.77 | 2.55 | 2.40 | 2.26 | 2.14 | 2.04 | 1.93 | 1.81 | 1.68 | 1.51 | 1.35 | 1.23 | 1.15 | 1.04 | 0.96 | 0.89 |
| Exhaust CO | 45.07 | 41.43 | 37.93 | 34.76 | 31.84 | 29.12 | 26.65 | 24.90 | 23.40 | 22.00 | 20.94 | 20.02 | 18.94 | 17.49 | 15.24 | 13.56 | 11.95 | 11.32 | 10.55 | 9.93 | 9.37 |
| Exhaust $NO_x$ | 4.15 | 3.92 | 3.75 | 3.61 | 3.49 | 3.36 | 3.24 | 3.18 | 3.12 | 3.02 | 2.91 | 2.78 | 2.65 | 2.48 | 2.25 | 2.07 | 1.87 | 1.73 | 1.57 | 1.44 | 1.30 |

**KEY:** CO = carbon monoxide; HC = hydrocarbon; NO = nitrogen oxide; RFG = reformulated gasoline.

**NOTES**

Data are as of July 1 of each year. Vehicles types are defined as follows: light-duty vehicles (passenger cars up to 6,000 lb GVWR); light-duty trucks (pickups and minivans up to 8,500 lb GVWR); heavy-duty vehicles (8,501 lbs or more GVWR); motorcycle (highway only). This table is based on MOBILE6, the U.S. Environmental Protection Agency's (EPA) latest highway vehicle emissions factor model. Interested readers can learn more about the MOBILE6 model at the following USEPA Internet site http://www.epa.gov/otaq/m6.htm.

Emissions factors are national averages based on the following assumptions: ambient temperature 75 ºF, daily temperature range 60-84 ºF, average traffic speed 27.6 mph (representative of overall traffic in urban areas), standard operating mode (cold-start, hot-start, stabilized), vehicle-miles traveled fractions, no inspection/maintenance or antitampering programs, and gasoline volatility 9.0 per square inch RVP (Reid vapor pressure).

See table 4-44 for emissions from vehicles operating on reformulated gasoline.

Data for nonexhaust HC is negligible for diesel light-duty vehicles, light-duty trucks, and heavy-duty vehicles.

Average emissions per vehicle rates assume a fleet comprised exclusively of gasoline and diesel vehicles. For emissions estimates of a fleet using RFG and diesel, see table 4-44.

**SOURCE**

U.S. Environmental Protection Agency, National Vehicle and Fuel Emissions Laboratory, personal communication, June 28, 2010.

**Table 4-44: Estimated National Average Vehicle Emissions Rates per Vehicle by Vehicle Type using Reformulated Gasoline and Diesel (Grams per mile)**

| | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RFG (assuming 100% RFG) | | | | | | | | | | | | | | |
| Light-duty vehicles | | | | | | | | | | | | | | |
| Exhaust HC | 1.45 | 1.28 | 1.15 | 1.04 | 0.97 | 0.84 | 0.76 | 0.68 | 0.62 | 0.55 | 0.47 | 0.41 | 0.38 | 0.35 |
| Nonexhaust HC | 0.89 | 0.87 | 0.86 | 0.84 | 0.82 | 0.64 | 0.63 | 0.61 | 0.59 | 0.57 | 0.54 | 0.51 | 0.47 | 0.43 |
| Total HC | 2.34 | 2.15 | 2.01 | 1.88 | 1.78 | 1.48 | 1.39 | 1.29 | 1.21 | 1.12 | 1.02 | 0.92 | 0.85 | 0.78 |
| Exhaust CO | 22.78 | 20.84 | 19.43 | 18.25 | 17.21 | 15.36 | 14.68 | 13.88 | 13.17 | 12.49 | 11.44 | 9.81 | 9.29 | 8.84 |
| Exhaust $NO_x$ | 1.78 | 1.64 | 1.55 | 1.46 | 1.35 | 1.24 | 1.19 | 1.12 | 1.06 | 1.00 | 0.90 | 0.77 | 0.72 | 0.66 |
| Light-duty trucks | | | | | | | | | | | | | | |
| Exhaust HC | 2.09 | 1.85 | 1.69 | 1.55 | 1.44 | 1.27 | 1.18 | 1.07 | 0.97 | 0.89 | 0.71 | 0.63 | 0.59 | 0.50 |
| Nonexhaust HC | 0.93 | 0.91 | 0.89 | 0.87 | 0.85 | 0.68 | 0.67 | 0.64 | 0.62 | 0.59 | 0.56 | 0.53 | 0.50 | 0.47 |
| Total HC | 3.02 | 2.75 | 2.58 | 2.42 | 2.29 | 1.96 | 1.84 | 1.71 | 1.59 | 1.48 | 1.28 | (R) 1.16 | 1.09 | 0.97 |
| Exhaust CO | 31.86 | 29.46 | 27.70 | 26.19 | 24.63 | 22.25 | 21.09 | 19.71 | 17.78 | 16.66 | 14.47 | 15.79 | 12.03 | 11.22 |
| Exhaust $NO_x$ | 1.84 | 1.73 | 1.65 | 1.59 | 1.55 | 1.47 | 1.45 | 1.41 | 1.36 | 1.31 | 1.20 | 1.07 | 1.01 | 0.93 |
| Heavy-duty vehicles | | | | | | | | | | | | | | |
| Exhaust HC | 2.14 | 1.91 | 1.70 | 1.48 | 1.32 | 1.16 | 1.03 | 0.92 | 0.77 | 0.70 | 0.62 | 0.51 | 0.45 | 0.40 |
| Nonexhaust HC | 1.72 | 1.64 | 1.56 | 1.50 | 1.43 | 1.12 | 1.07 | 1.03 | 1.01 | 0.97 | 0.90 | 0.83 | 0.78 | 0.73 |
| Total HC | 3.86 | 3.55 | 3.26 | 2.98 | 2.75 | 2.28 | 2.10 | 1.96 | 1.78 | 1.67 | 1.51 | 1.34 | 1.23 | 1.13 |
| Exhaust CO | 46.02 | 41.15 | 36.62 | 32.80 | 29.12 | 25.87 | 22.88 | 20.41 | 16.87 | 15.33 | 13.89 | 12.01 | 11.25 | 10.41 |
| Exhaust $NO_x$ | 6.13 | 5.90 | 5.74 | 5.57 | 5.41 | 5.18 | 5.01 | 4.86 | 4.75 | 4.63 | 4.36 | 3.79 | 3.39 | 3.00 |
| Motorcycles | | | | | | | | | | | | | | |
| Exhaust HC | 1.69 | 1.63 | 1.63 | 1.62 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 |
| Nonexhaust HC | 0.55 | 0.54 | 0.53 | 0.53 | 0.53 | 0.43 | 0.43 | 0.43 | 0.44 | 0.44 | 0.43 | 0.43 | 0.42 | 0.41 |
| Total HC | 2.24 | 2.17 | 2.16 | 2.16 | 2.14 | 2.04 | 2.04 | 2.04 | 2.05 | 2.05 | 2.04 | 2.04 | 2.03 | 2.02 |
| Exhaust CO | 12.64 | 12.56 | 12.56 | 12.56 | 12.56 | 12.56 | 12.56 | 12.56 | 12.56 | 12.56 | 12.56 | 12.56 | 12.56 | 12.56 |
| Exhaust $NO_x$ | 1.26 | 1.25 | 1.25 | 1.25 | 1.25 | 1.25 | 1.25 | 1.25 | 1.25 | 1.25 | 1.25 | 1.25 | 1.25 | 1.25 |
| DIESEL | | | | | | | | | | | | | | |
| Light-duty vehicles | | | | | | | | | | | | | | |
| Exhaust HC | 0.77 | 0.79 | 0.81 | 0.81 | 0.82 | 0.80 | 0.76 | 0.73 | 0.73 | 0.60 | 0.58 | 0.48 | 0.36 | 0.29 |
| Exhaust CO | 1.69 | 1.73 | 1.76 | 1.78 | 1.79 | 1.78 | 1.75 | 1.73 | 1.74 | 1.59 | 1.57 | 1.41 | 1.21 | 1.09 |
| Exhaust $NO_x$ | 1.89 | 1.89 | 1.88 | 1.86 | 1.85 | 1.81 | 1.72 | 1.62 | 1.54 | 1.43 | 1.32 | 1.11 | 0.85 | 0.69 |
| Light-duty trucks | | | | | | | | | | | | | | |
| Exhaust HC | 1.67 | 1.69 | 1.63 | 1.51 | 1.42 | 1.02 | 0.88 | 0.96 | 0.97 | 0.98 | 0.80 | 0.79 | 0.63 | 0.55 |
| Exhaust CO | 2.85 | 2.89 | 2.79 | 2.60 | 2.44 | 1.77 | 1.54 | 1.66 | 1.68 | 1.68 | 1.37 | 1.34 | 1.06 | 0.93 |
| Exhaust $NO_x$ | 2.46 | 2.42 | 2.31 | 2.17 | 2.07 | 1.76 | 1.64 | 1.67 | 1.66 | 1.59 | 1.37 | 1.30 | 1.09 | 0.94 |
| Heavy-duty vehicles | | | | | | | | | | | | | | |
| Exhaust HC | 1.23 | 1.10 | 1.00 | 0.92 | 0.85 | 0.79 | 0.74 | 0.69 | 0.61 | 0.58 | 0.54 | 0.51 | 0.48 | 0.45 |
| Exhaust CO | 6.32 | 5.73 | 5.23 | 4.80 | 4.43 | 4.10 | 3.82 | 3.58 | 3.37 | 3.19 | 3.05 | 2.90 | 2.66 | 2.31 |
| Exhaust $NO_x$ | 20.49 | 20.24 | 20.04 | 19.84 | 19.14 | 18.05 | 16.68 | 15.52 | 13.92 | 12.50 | 11.45 | 10.55 | 9.60 | 8.61 |
| Average Emissions Per Vehicle, RFG and Diesel Fleet | | | | | | | | | | | | | | |
| Exhaust HC | 1.65 | 1.46 | 1.34 | 1.23 | 1.15 | 1.02 | 0.94 | 0.86 | 0.78 | 0.71 | 0.60 | 0.53 | 0.50 | 0.44 |
| Nonexhaust HC | 0.86 | 0.84 | 0.82 | 0.80 | 0.78 | 0.62 | 0.60 | 0.58 | 0.57 | 0.54 | 0.52 | 0.49 | 0.46 | 0.42 |
| Total HC | 2.51 | 2.30 | 2.16 | 2.03 | 1.93 | 1.64 | 1.55 | 1.44 | 1.35 | 1.26 | 1.12 | 1.02 | 0.95 | 0.87 |
| Exhaust CO | 24.92 | 22.93 | 21.56 | 20.38 | 19.27 | 17.44 | 16.62 | 15.64 | 14.43 | 13.62 | 12.18 | 10.66 | 10.12 | 9.52 |
| Exhaust $NO_x$ | 3.36 | 3.24 | 3.18 | 3.12 | 3.02 | 2.85 | 2.71 | 2.58 | 2.40 | 2.24 | 2.06 | 1.86 | 1.71 | 1.57 |

**KEY:** CO = carbon monoxide; HC = hydrocarbon; NOx = nitrogen oxide; RFG = reformulated gasoline; R = revised.

**NOTES**

As of July 1 of each year. Vehicle types are defined as follows: light-duty vehicles (passenger cars up to 6,000 lb gross vehicle weight rating GVWR) ; light-duty trucks (pickups and minivans up to 8,500 lb GVWR); heavy-duty vehicles (8,501 lb or more GVWR); motorcycle (on-highway only). The data in this table are based on MOBILE6, and reflect the introduction of RFG starting in 1995. Interested readers can learn more about the MOBILE6 model at the following USEPA Internet site http://www.epa.gov/otaq/m6.htm.

Emissions factors are national averages based on the following assumptions: ambient temperature 75 ºF, daily temperature range 60 -84 ºF, average traffic speed 27.6 mph (representative of overall traffic in urban areas), standard operating mode (cold-start, hot-start, stabilized), vehicle-miles traveled fractions and no inspection/maintenance or antitampering programs.
Emissions estimates in this table assume 100% RFG.
Average emissions per vehicle rates assume a fleet comprised exclusively of reformulated gasoline and diesel vehicles. For emissions estimates of a fleet using gasoline and diesel, see table 4-38.

**SOURCE**
U.S. Environmental Protection Agency, National Vehicle and Fuel Emissions Laboratory, personal communication, Nov. 23, 2009.

**Table 4-45: Estimated National Emissions of Carbon Monoxide (Million short tons)**

| | 1970 | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | (R) 1996 | (R) 1997 | (R) 1998 | (R) 1999 | (R) 2000 | (R) 2001 | (R) 2002 | (R) 2003 | (R) 2004 | (R) 2005 | (R) 2006 | (R) 2007 | (R) 2008 | 2009 | 2010 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL all sources | (R) 204.04 | 188.40 | (R) 185.41 | (R) 176.84 | (R) 154.19 | 147.13 | (R) 140.90 | (R) 135.90 | (R) 133.56 | (R) 126.78 | 128.86 | 117.91 | 115.38 | 114.54 | 114.47 | 106.26 | 111.06 | 105.05 | 99.04 | 93.03 | 87.29 | 81.55 | 75.81 | 70.07 | 64.33 |
| Highway vehicles | 163.23 | 153.56 | 143.83 | 134.19 | 110.26 | 104.98 | 99.71 | 94.43 | 89.16 | 83.88 | 78.61 | 75.85 | 73.24 | 68.71 | 68.06 | 63.48 | 60.60 | 56.58 | 52.56 | 48.54 | 45.98 | 43.41 | 40.84 | 38.27 | 35.71 |
| Off-Highway | 11.37 | 14.33 | 16.69 | 19.03 | 21.45 | 21.93 | 22.42 | 22.90 | 23.39 | 23.87 | 24.36 | 23.67 | 23.69 | 23.32 | 24.18 | 24.68 | 22.66 | 22.00 | 21.34 | 20.67 | 17.90 | 15.12 | 12.34 | 9.57 | 6.79 |
| Fuel combustion | 4.63 | 4.48 | 7.30 | 8.49 | 5.51 | 5.86 | 6.15 | 5.59 | 5.52 | 5.93 | 4.34 | 4.33 | 4.33 | 5.54 | 4.78 | 4.83 | 5.47 | 5.36 | 5.24 | 5.12 | 5.09 | 5.07 | 5.04 | 5.01 | 4.98 |
| Industrial processes[a] | 9.84 | 7.54 | 6.95 | 5.28 | 4.77 | 4.62 | 4.55 | 4.65 | 4.61 | 4.61 | 3.64 | 3.80 | 3.81 | 2.55 | 2.63 | 2.76 | 2.24 | 2.17 | 2.10 | 2.03 | 2.04 | 2.04 | 2.05 | 2.06 | 2.07 |
| Waste disposal and recycling | 7.06 | 3.23 | 2.30 | 1.94 | 1.08 | 1.12 | 1.14 | 1.25 | 1.23 | 1.19 | 2.90 | 2.95 | 3.12 | 3.02 | 1.85 | 1.85 | 1.59 | 1.58 | 1.57 | 1.55 | 1.55 | 1.55 | 1.55 | 1.55 | 1.55 |
| Miscellaneous | 7.91 | 5.26 | 8.34 | 7.93 | 11.12 | 8.62 | 6.93 | 7.08 | 9.66 | 7.30 | 15.02 | 7.32 | 7.18 | 11.41 | 12.96 | 8.68 | 18.49 | 17.36 | 16.23 | 15.11 | 14.73 | 14.36 | 13.98 | 13.61 | 13.23 |

**KEY:** R = revised.

[a] *Industrial processes* consists of chemical and allied product manufacturing, metals processing, petroleum and related industries, other industrial processes; and solvent utilization, storage, and transport.

**NOTE**

Details may not add up to totals due to rounding in the source.

**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 Jan.11, 2010, and personal communication, Feb. 3, 2011.

**Table 4-46: Estimated National Emissions of Nitrogen Oxides (Million short tons)**

| | 1970 | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | (R) 1996 | (R) 1997 | (R) 1998 | (R) 1999 | (R) 2000 | (R) 2001 | (R) 2002 | (R) 2003 | (R) 2004 | (R) 2005 | (R) 2006 | (R) 2007 | (R) 2008 | 2009 | 2010 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL | (R) 26.88 | (R) 26.38 | (R) 27.08 | 25.76 | (R) 25.53 | (R) 25.18 | (R) 25.26 | (R) 25.36 | (R) 25.35 | (R) 24.96 | 24.79 | 24.70 | 24.35 | 22.84 | 22.60 | 21.55 | 21.14 | 20.39 | 19.65 | 18.91 | 17.80 | 16.78 | 15.61 | 13.71 | 12.40 |
| Highway vehicles | 12.62 | 12.06 | 11.49 | 10.93 | 9.59 | 9.45 | 9.31 | 9.16 | 9.02 | 8.88 | 8.73 | 8.79 | 8.62 | 8.37 | 8.39 | 7.77 | 7.87 | 7.41 | 6.95 | 6.49 | 6.03 | 5.56 | 5.09 | 4.63 | 4.16 |
| Off-Highway | 2.65 | 2.97 | 3.35 | 3.58 | 3.78 | 3.85 | 3.92 | 3.98 | 4.05 | 4.11 | 4.18 | 4.18 | 4.16 | 4.08 | 4.17 | 4.16 | 4.51 | 4.63 | 4.76 | 4.89 | 4.45 | 4.01 | 3.58 | 3.14 | 2.71 |
| Fuel combustion | 10.06 | 10.49 | 11.32 | 10.05 | 10.89 | 10.78 | 10.93 | 11.11 | 11.02 | 10.83 | 10.51 | 10.55 | 10.38 | 9.20 | 8.82 | 8.45 | 7.49 | 7.04 | 6.59 | 6.14 | 5.91 | 5.77 | 5.47 | 4.45 | 4.02 |
| Industrial processes[a] | 0.78 | 0.54 | 0.56 | 0.80 | 0.80 | 0.72 | 0.76 | 0.74 | 0.77 | 0.77 | 0.80 | 0.84 | 0.85 | 0.78 | 0.81 | 0.85 | 0.95 | 0.96 | 0.97 | 0.98 | 1.00 | 1.02 | 1.04 | 1.06 | 1.08 |
| Waste disposal and recycling | 0.44 | 0.16 | 0.11 | 0.09 | 0.09 | 0.10 | 0.10 | 0.12 | 0.11 | 0.10 | 0.15 | 0.16 | 0.16 | 0.16 | 0.13 | 0.13 | 0.11 | 0.12 | 0.13 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 |
| Miscellaneous | 0.33 | 0.17 | 0.25 | 0.31 | 0.37 | 0.29 | 0.26 | 0.24 | 0.39 | 0.27 | 0.41 | 0.19 | 0.18 | 0.25 | 0.28 | 0.18 | 0.21 | 0.23 | 0.25 | 0.27 | 0.27 | 0.28 | 0.28 | 0.29 | 0.29 |

**KEY:** R = revised.

[a] *Industrial processes* consists of chemical and allied product manufacturing, metals processing, petroleum and related industries, and other industrial processes; and solvent utilization, storage, and transport.

**NOTE**

Details may not add up to totals due to rounding in the source.

**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 Jan.19, 2010, and personal communication, Feb. 3, 2011.

**Table 4-47: Estimated National Emissions of Volatile Organic Compounds (Million short tons)**

| | 1970 | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | (R) 1996 | (R) 1997 | (R) 1998 | (R) 1999 | (R) 2000 | (R) 2001 | (R) 2002 | (R) 2003 | (R) 2004 | (R) 2005 | (R) 2006 | (R) 2007 | (R) 2008 | 2009 | 2010 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total all sources | 34.66 | 30.77 | (R) 31.11 | (R) 27.40 | 24.11 | 23.58 | 23.07 | 22.73 | (R) 22.57 | (R) 22.04 | 20.87 | 19.53 | 18.78 | 18.27 | 17.51 | 17.11 | 21.17 | 20.48 | 19.79 | 18.42 | 17.10 | 15.77 | 14.45 | 13.13 | 11.80 |
| Highway vehicles | 16.91 | 15.39 | 13.87 | 12.35 | 9.39 | 8.86 | 8.33 | 7.80 | 7.28 | 6.75 | 6.22 | 5.99 | 5.86 | 5.68 | 5.33 | 4.95 | 4.92 | 4.65 | 4.38 | 4.11 | 3.92 | 3.72 | 3.52 | 3.33 | 3.13 |
| Off-Highway | 1.62 | 1.92 | 2.19 | 2.44 | 2.66 | 2.71 | 2.75 | 2.80 | 2.85 | 2.89 | 2.93 | 2.75 | 2.67 | 2.68 | 2.64 | 2.62 | 3.06 | 2.99 | 2.93 | 2.87 | 2.46 | 2.06 | 1.65 | 1.25 | 0.85 |
| Fuel combustion | 0.72 | 0.66 | 1.05 | 1.57 | 1.01 | 1.08 | 1.12 | 0.99 | 0.99 | 1.07 | 1.12 | 1.12 | 1.12 | 1.14 | 1.18 | 1.19 | 1.72 | 1.41 | 1.09 | 0.77 | 0.69 | 0.61 | 0.53 | 0.45 | 0.37 |
| Industrial processes[a] | 12.33 | 11.10 | 12.10 | 9.50 | 9.01 | 9.18 | 9.37 | 9.53 | 9.69 | 9.71 | 8.14 | 8.34 | 7.88 | 7.48 | 7.21 | 7.40 | 7.10 | 7.06 | 7.03 | 6.99 | 6.48 | 5.97 | 5.46 | 4.95 | 4.44 |
| Waste disposal and recycling | 1.98 | 0.98 | 0.76 | 0.98 | 0.99 | 1.00 | 1.01 | 1.05 | 1.05 | 1.07 | 0.51 | 0.52 | 0.54 | 0.49 | 0.42 | 0.42 | 0.40 | 0.39 | 0.39 | 0.39 | 0.36 | 0.33 | 0.29 | 0.26 | 0.23 |
| Miscellaneous | 1.10 | 0.72 | 1.13 | 0.57 | 1.06 | 0.76 | 0.49 | 0.56 | 0.72 | 0.55 | 1.94 | 0.82 | 0.72 | 0.79 | 0.73 | 0.53 | 3.97 | 3.97 | 3.97 | 3.29 | 3.19 | 3.09 | 2.99 | 2.90 | 2.80 |

**KEY:** R = revised.

[a] *Industrial processes* consists of chemical and allied product manufacturing, metals processing, petroleum and related industries, and other industrial processes; and solvent utilization, storage, and transport.

**NOTE**

Details may not add up to totals due to rounding in the source.

**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 Jan.19, 2010, and personal communication, Feb. 3, 2011.

**Table 4-48: Estimated National Emissions of Particulate Matter (PM-10)[a] (Million short tons)**

| | 1970 | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | (R) 1996 | (R) 1997 | (R) 1998 | (R) 1999 | (R) 2000 | (R) 2001 | (R) 2002 | (R) 2003 | (R) 2004 | (R) 2005 | (R) 2006 | (R) 2007 | (R) 2008 | 2009 | 2010 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total all sources | (R) 13.02 | (R) 7.56 | 7.01 | (R) 41.32 | (R) 27.75 | 27.35 | (R) 27.10 | 27.36 | (R) 28.61 | (R) 25.82 | 22.86 | 22.91 | 22.89 | 22.57 | 22.96 | 22.93 | 18.43 | 18.37 | 18.32 | 18.26 | 15.79 | 13.33 | 10.86 | 8.39 | 5.92 |
| Highway vehicles | 0.48 | 0.46 | 0.43 | 0.41 | 0.39 | 0.37 | 0.35 | 0.34 | 0.32 | 0.30 | 0.29 | 0.27 | 0.26 | 0.24 | 0.23 | 0.21 | 0.20 | 0.20 | 0.20 | 0.19 | 0.18 | 0.18 | 0.17 | 0.16 | 0.15 |
| Off-Highway | 0.16 | 0.21 | 0.26 | 0.30 | 0.33 | 0.33 | 0.33 | 0.34 | 0.34 | 0.34 | 0.34 | 0.34 | 0.33 | 0.34 | 0.32 | 0.32 | 0.31 | 0.32 | 0.33 | 0.34 | 0.30 | 0.25 | 0.20 | 0.15 | 0.10 |
| Fuel combustion | 2.87 | 2.25 | 2.45 | 1.54 | 1.20 | 1.15 | 1.18 | 1.12 | 1.11 | 1.18 | 0.91 | 0.91 | 0.84 | 0.85 | 0.89 | 0.94 | 0.54 | 0.52 | 0.51 | 0.49 | 0.43 | 0.36 | 0.29 | 0.22 | 0.16 |
| Industrial processes[b] | 7.67 | 3.70 | 2.75 | 1.06 | 1.04 | 0.99 | 0.99 | 0.91 | 0.91 | 0.95 | 0.65 | 0.67 | 0.67 | 0.50 | 0.51 | 0.53 | 1.05 | 1.00 | 0.95 | 0.90 | 0.80 | 0.70 | 0.60 | 0.50 | 0.40 |
| Waste disposal and recycling | 1.00 | 0.37 | 0.27 | 0.28 | 0.27 | 0.28 | 0.28 | 0.33 | 0.31 | 0.29 | 0.45 | 0.47 | 0.49 | 0.47 | 0.36 | 0.36 | 0.23 | 0.23 | 0.23 | 0.23 | 0.23 | 0.22 | 0.22 | 0.22 | 0.21 |
| Miscellaneous[c] | 0.84 | 0.57 | 0.85 | 37.74 | 24.54 | 24.23 | 23.96 | 24.33 | 25.62 | 22.77 | 20.22 | 20.25 | 20.31 | 20.18 | 20.64 | 20.57 | 16.09 | 16.09 | 16.09 | 16.09 | 13.86 | 11.62 | 9.38 | 7.14 | 4.90 |

**KEY:** R = revised.

[a] Fine particulate matter less than 10 microns. Data include PM without condensible

[b] *Industrial processes* consists of chemical and allied product manufacturing, metals processing, petroleum and related industries, other industrial processes; solvent utilization; and storage and transport.

[c] In 1985 there appears to be a spike in *Miscellaneous* emissions. This is likely due to a methodological change, and the EPA does not change historical data when it changes its methodology.

**NOTE**

Details may not add up to totals due to rounding in the source.

**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 October 2009, and personal communication, February 2011.

**Table 4-49: Estimated National Emissions of Particulate Matter (PM-2.5)[a] (Million short tons)**

| | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | (R) 1996 | (R) 1997 | (R) 1998 | (R) 1999 | (R) 2000 | (R) 2001 | (R) 2002 | (R) 2003 | (R) 2004 | (R) 2005 | (R) 2006 | (R) 2007 | (R) 2008 | 2009 | 2010 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total | (R) 7.56 | 7.32 | 7.20 | (R) 7.15 | (R) 7.54 | 6.93 | 6.72 | 6.26 | 6.26 | 6.40 | 6.50 | 6.22 | 3.10 | 3.07 | 3.04 | 3.01 | 2.79 | 2.57 | 2.34 | 2.12 | 1.89 |
| Highway vehicles | 0.32 | 0.31 | 0.29 | 0.28 | 0.26 | 0.25 | 0.23 | 0.22 | 0.20 | 0.18 | 0.17 | 0.16 | 0.15 | 0.14 | 0.14 | 0.14 | 0.13 | 0.12 | 0.11 | 0.10 | 0.09 |
| Off-Highway | 0.30 | 0.30 | 0.31 | 0.31 | 0.31 | 0.31 | 0.31 | 0.31 | 0.30 | 0.31 | 0.30 | 0.29 | 0.29 | 0.30 | 0.31 | 0.32 | 0.29 | 0.25 | 0.21 | 0.18 | 0.14 |
| Fuel combustion | 0.91 | 0.89 | 0.93 | 0.85 | 0.84 | 0.90 | 0.66 | 0.66 | 0.63 | 0.67 | 0.72 | 0.74 | 0.29 | 0.28 | 0.27 | 0.26 | 0.24 | 0.22 | 0.19 | 0.17 | 0.15 |
| Industrial processes[b] | 0.56 | 0.57 | 0.58 | 0.50 | 0.50 | 0.50 | 0.37 | 0.38 | 0.39 | 0.30 | 0.31 | 0.32 | 0.36 | 0.33 | 0.31 | 0.28 | 0.28 | 0.28 | 0.28 | 0.28 | 0.27 |
| Waste disposal and recycling | 0.23 | 0.24 | 0.24 | 0.29 | 0.27 | 0.25 | 0.43 | 0.44 | 0.46 | 0.44 | 0.33 | 0.33 | 0.22 | 0.22 | 0.22 | 0.22 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 |
| Miscellaneous | 5.23 | 5.00 | 4.85 | 4.93 | 5.36 | 4.73 | 4.72 | 4.24 | 4.28 | 4.50 | 4.68 | 4.38 | 1.79 | 1.79 | 1.79 | 1.79 | 1.64 | 1.49 | 1.33 | 1.18 | 1.02 |

**KEY:** R = revised.

[a] Particulate matter less than 2.5 microns in size. Data include PM without condensibles.
[b] *Industrial processes* consists of chemical and allied product manufacturing, metals processing, petroleum and related industries, and other industrial processes; solvent utilization; and storage and transportation.

**NOTE**
Details may not add up to totals due to rounding in the source.

**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 Jan. 19, 2010, and personal communication, Feb. 3, 2011.

**Table 4-50: Estimated National Emissions of Sulfur Dioxide (Million short tons)**

| | 1970 | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | (R) 1996 | (R) 1997 | (R) 1998 | (R) 1999 | (R) 2000 | (R) 2001 | (R) 2002 | (R) 2003 | (R) 2004 | (R) 2005 | (R) 2006 | (R) 2007 | (R) 2008 | 2009 | 2010 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL all sources | 31.22 | (R) 28.04 | (R) 25.93 | 23.31 | (R) 23.08 | (R) 22.38 | 22.08 | (R) 21.77 | 21.35 | 18.62 | 18.39 | 18.84 | 18.94 | 17.55 | 16.35 | 15.93 | 14.77 | 14.71 | 14.65 | 14.59 | 13.60 | 12.99 | 11.52 | 9.48 | 7.51 |
| Highway vehicles | 0.27 | 0.33 | 0.39 | 0.46 | 0.50 | 0.47 | 0.44 | 0.40 | 0.37 | 0.34 | 0.30 | 0.30 | 0.30 | 0.30 | 0.26 | 0.25 | 0.25 | 0.21 | 0.18 | 0.15 | 0.13 | 0.11 | 0.10 | 0.08 | 0.06 |
| Off-Highway | 0.28 | 0.30 | 0.32 | 0.35 | 0.37 | 0.38 | 0.39 | 0.39 | 0.40 | 0.41 | 0.41 | 0.42 | 0.43 | 0.48 | 0.44 | 0.44 | 0.51 | 0.62 | 0.73 | 0.83 | 0.73 | 0.63 | 0.53 | 0.42 | 0.32 |
| Fuel combustion | 23.46 | 22.66 | 21.39 | 20.02 | 20.29 | 19.80 | 19.49 | 19.25 | 18.89 | 16.23 | 16.25 | 16.65 | 16.74 | 15.34 | 14.16 | 13.74 | 12.80 | 12.69 | 12.58 | 12.47 | 11.62 | 11.14 | 9.81 | 7.90 | 6.07 |
| Industrial processes[a] | 7.09 | 4.68 | 3.77 | 2.43 | 1.86 | 1.68 | 1.72 | 1.65 | 1.62 | 1.59 | 1.37 | 1.43 | 1.43 | 1.33 | 1.38 | 1.43 | 1.06 | 1.04 | 1.01 | 0.99 | 0.98 | 0.97 | 0.96 | 0.95 | 0.94 |
| Waste disposal and recycling | 0.01 | 0.05 | 0.03 | 0.03 | 0.04 | 0.04 | 0.04 | 0.07 | 0.06 | 0.05 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 |
| Miscellaneous | 0.11 | 0.02 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.02 | 0.01 | 0.02 | 0.01 | 0.01 | 0.07 | 0.07 | 0.04 | 0.14 | 0.13 | 0.13 | 0.13 | 0.12 | 0.11 | 0.11 | 0.10 | 0.09 |

**KEY:** R = revised.

[a] *Industrial processes* consists of chemical and allied product manufacturing, metals processing, petroleum and related industries, and other industrial processes; solvent utilization; and storage and transport.

**NOTE**

Details may not add up to totals due to rounding in the source.

**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 Jan. 19, 2010, and personal communication, Feb. 3, 2011.

**Table 4-51: Air Pollution Trends in Selected Metropolitan Statistical Areas**
**(Number of days with AQI values greater than 100 at trend sites and all monitoring sites)**

| | All sites | | Trend sites | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Metropolitan Statistical Area | (R) Total number of sites in 2007 | (R) Number of days with AQI > 100 (2007) | (R)Number of trend sites | (R) 1994 | (R) 1995 | (R) 1996 | (R) 1997 | (R) 1998 | (R) 1999 | (R) 2000 | (R) 2001 | (R) 2002 | (R) 2003 | (R) 2004 | (R) 2005 | (R) 2006 | 2007 |
| Akron, OH | 18 | 22 | 7 | 23 | 21 | 26 | 16 | 37 | 40 | 14 | 28 | 38 | 15 | 10 | 30 | 5 | 22 |
| Albany-Schenectady-Troy, NY | 26 | 15 | 5 | 13 | 12 | 9 | 8 | 9 | 15 | 3 | 18 | 17 | 9 | 5 | 8 | 2 | 13 |
| Albuquerque, NM | 74 | 6 | 17 | 5 | 3 | 5 | 2 | 3 | 5 | 7 | 1 | 11 | 15 | 5 | 9 | 3 | 1 |
| Allentown-Bethlehem-Easton, PA | 22 | 13 | 5 | 10 | 18 | 19 | 22 | 39 | 31 | 18 | 34 | 38 | 13 | 13 | 16 | 10 | 12 |
| Atlanta, GA | 59 | 57 | 19 | 27 | 53 | 41 | 46 | 76 | 85 | 62 | 39 | 38 | 23 | 20 | 28 | 37 | 34 |
| Austin-San Marcos, TX | 23 | 4 | 1 | 8 | 28 | 5 | 2 | 9 | 14 | 14 | 5 | 8 | 9 | 8 | 9 | 13 | 4 |
| Bakersfield, CA | 54 | 143 | 17 | 129 | 133 | 127 | 94 | 104 | 161 | 164 | 158 | 186 | 169 | 160 | 122 | 137 | 131 |
| Baltimore, MD | 72 | 45 | 17 | 61 | 57 | 43 | 46 | 70 | 54 | 39 | 50 | 59 | 31 | 31 | 36 | 34 | 45 |
| Baton Rouge, LA | 38 | 25 | 15 | 19 | 31 | 15 | 23 | 29 | 42 | 47 | 17 | 16 | 23 | 22 | 29 | 23 | 17 |
| Bergen-Passaic, NJ | 20 | 22 | 6 | 0 | 0 | 0 | 0 | 1 | 2 | 1 | 1 | 1 | 2 | 1 | 4 | 2 | 1 |
| Birmingham, AL | 57 | 44 | 21 | 11 | 50 | 25 | 29 | 38 | 65 | 68 | 41 | 28 | 17 | 17 | 35 | 33 | 41 |
| Boston, MA-NH | 80 | 20 | 12 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 3 | 9 | 8 | 1 | 4 | 1 | 3 |
| Buffalo-Niagara Falls, NY | 41 | 19 | 10 | 13 | 12 | 6 | 5 | 26 | 22 | 7 | 24 | 29 | 13 | 8 | 23 | 7 | 18 |
| Charleston-North Charleston, SC | 21 | 5 | 10 | 3 | 1 | 5 | 5 | 12 | 13 | 9 | 0 | 4 | 3 | 3 | 8 | 7 | 5 |
| Charlotte-Gastonia-Rock Hill, NC-SC | 69 | 56 | 9 | 15 | 32 | 40 | 41 | 67 | 62 | 40 | 32 | 42 | 12 | 17 | 26 | 21 | 33 |
| Chicago, IL | 148 | 24 | 40 | 11 | 29 | 14 | 15 | 20 | 27 | 17 | 38 | 34 | 19 | 13 | 29 | 9 | 23 |
| Cincinnati, OH-KY-IN | 93 | 47 | 18 | 29 | 33 | 30 | 20 | 36 | 40 | 22 | 28 | 42 | 22 | 8 | 33 | 15 | 39 |
| Cleveland-Lorain-Elyria, OH | 83 | 23 | 27 | 32 | 30 | 29 | 23 | 40 | 50 | 29 | 44 | 39 | 22 | 22 | 36 | 17 | 22 |
| Columbus, OH | 30 | 30 | 7 | 23 | 27 | 26 | 17 | 40 | 37 | 16 | 20 | 38 | 12 | 3 | 20 | 5 | 13 |
| Dallas, TX | 91 | 15 | 7 | 35 | 36 | 22 | 35 | 54 | 33 | 44 | 32 | 18 | 13 | 15 | 33 | 28 | 11 |
| Dayton-Springfield, OH | 24 | 16 | 7 | 28 | 28 | 28 | 22 | 38 | 28 | 14 | 15 | 45 | 13 | 8 | 22 | 5 | 11 |
| Denver, CO | 83 | 23 | 22 | 13 | 11 | 12 | 7 | 18 | 9 | 15 | 17 | 26 | 32 | 2 | 11 | 27 | 21 |
| Detroit, MI | 76 | 21 | 32 | 21 | 20 | 26 | 18 | 33 | 41 | 17 | 41 | 34 | 25 | 11 | 38 | 12 | 21 |
| El Paso, TX | 60 | 18 | 12 | 8 | 6 | 10 | 5 | 12 | 7 | 15 | 13 | 10 | 10 | 3 | 8 | 8 | 6 |
| Fort Lauderdale, FL | 36 | 7 | 12 | 3 | 3 | 2 | 3 | 9 | 7 | 5 | 5 | 3 | 0 | 1 | 1 | 4 | 7 |
| Fort Worth-Arlington, TX | 37 | 21 | 6 | 53 | 52 | 28 | 27 | 32 | 33 | 38 | 31 | 37 | 38 | 25 | 43 | 34 | 12 |
| Fresno, CA | 44 | 105 | 20 | 90 | 91 | 105 | 118 | 86 | 164 | 164 | 186 | 204 | 167 | 84 | 95 | 97 | 93 |
| Gary, IN | 63 | 16 | 16 | 12 | 30 | 17 | 15 | 22 | 33 | 18 | 45 | 27 | 15 | 8 | 19 | 3 | 11 |
| Grand Rapids-Muskegon-Holland, MI | 41 | 23 | 13 | 30 | 32 | 19 | 19 | 32 | 36 | 15 | 31 | 31 | 22 | 9 | 31 | 16 | 22 |
| Greensboro-Winston Salem-High Point, NC | 62 | 39 | 9 | 20 | 25 | 18 | 30 | 48 | 38 | 29 | 22 | 42 | 13 | 5 | 14 | 8 | 21 |
| Greenville-Spartanburg-Anderson, SC | 25 | 14 | 9 | 14 | 30 | 27 | 40 | 57 | 56 | 47 | 31 | 49 | 13 | 13 | 22 | 20 | 14 |
| Harrisburg-Lebanon-Carlisle, PA | 16 | 19 | 8 | 28 | 28 | 17 | 21 | 37 | 31 | 17 | 42 | 35 | 13 | 8 | 19 | 13 | 19 |
| Hartford, CT | 31 | 16 | 6 | 23 | 26 | 10 | 18 | 22 | 22 | 14 | 26 | 30 | 13 | 9 | 19 | 12 | 16 |
| Honolulu, HI | 30 | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 0 |
| Houston, TX | 103 | 38 | 23 | 55 | 82 | 38 | 58 | 61 | 64 | 57 | 42 | 40 | 47 | 37 | 49 | 31 | 25 |
| Indianapolis, IN | 88 | 35 | 27 | 45 | 39 | 32 | 27 | 36 | 43 | 17 | 27 | 38 | 17 | 4 | 34 | 14 | 24 |
| Jacksonville, FL | 27 | 9 | 14 | 1 | 1 | 2 | 1 | 14 | 6 | 3 | 5 | 1 | 0 | 4 | 6 | 7 | 8 |
| Jersey City, NJ | 17 | 14 | 8 | 19 | 21 | 15 | 20 | 16 | 28 | 9 | 17 | 22 | 10 | 5 | 13 | 13 | 12 |
| Kansas City, MO-KS | 79 | 20 | 15 | 23 | 34 | 15 | 23 | 25 | 14 | 23 | 14 | 23 | 22 | 1 | 26 | 24 | 10 |
| Knoxville, TN | 54 | 57 | 19 | 38 | 60 | 58 | 70 | 97 | 98 | 65 | 58 | 69 | 31 | 14 | 39 | 30 | 51 |
| Las Vegas, NV-AZ | 98 | 25 | 8 | 22 | 6 | 21 | 9 | 9 | 8 | 6 | 2 | 13 | 10 | 4 | 9 | 12 | 7 |
| Little Rock-North Little Rock, AR | 28 | 11 | 6 | 8 | 24 | 9 | 10 | 13 | 16 | 29 | 17 | 18 | 3 | 0 | 19 | 11 | 11 |
| Los Angeles-Long Beach, CA | 124 | 100 | 44 | 145 | 124 | 97 | 65 | 64 | 71 | 83 | 105 | 94 | 106 | 99 | 60 | 56 | 59 |
| Louisville, KY-IN | 55 | 37 | 17 | 47 | 41 | 28 | 32 | 48 | 78 | 29 | 36 | 50 | 21 | 9 | 39 | 15 | 30 |
| Memphis, TN-AR-MS | 44 | 38 | 14 | 37 | 56 | 39 | 35 | 55 | 56 | 52 | 33 | 34 | 29 | 11 | 37 | 30 | 35 |
| Miami, FL | 20 | 3 | 11 | 4 | 8 | 3 | 4 | 6 | 9 | 8 | 2 | 2 | 2 | 3 | 0 | 6 | 3 |
| Middlesex-Somerset-Hunterdon, NJ | 15 | 30 | 4 | 19 | 31 | 19 | 28 | 39 | 35 | 19 | 29 | 36 | 11 | 15 | 22 | 9 | 21 |
| Milwaukee-Waukesha, WI | 55 | 14 | 16 | 17 | 23 | 15 | 6 | 16 | 26 | 9 | 25 | 22 | 17 | 6 | 24 | 6 | 11 |
| Minneapolis-St. Paul, MN-WI | 130 | 10 | 20 | 4 | 9 | 0 | 4 | 4 | 4 | 8 | 10 | 4 | 5 | 0 | 7 | 1 | 5 |
| Monmouth-Ocean, NJ | 5 | 21 | 4 | 41 | 34 | 31 | 32 | 46 | 35 | 19 | 35 | 46 | 25 | 22 | 27 | 19 | 21 |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nashville, TN | 51 | 38 | 19 | 31 | 46 | 46 | 44 | 45 | 66 | 49 | 23 | 33 | 20 | 7 | 26 | 17 | 35 |
| Nassau-Suffolk, NY | 22 | 16 | 5 | 28 | 20 | 14 | 23 | 27 | 28 | 12 | 14 | 22 | 15 | 6 | 19 | 11 | 14 |
| New Haven-Meriden, CT | 37 | 7 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 1 | 3 | 1 | 3 | 1 | 0 |
| New Orleans, LA | 61 | 17 | 13 | 23 | 37 | 15 | 22 | 19 | 42 | 33 | 19 | 7 | 16 | 12 | 16 | 14 | 17 |
| New York, NY | 131 | 27 | 18 | 26 | 25 | 21 | 33 | 27 | 27 | 26 | 33 | 37 | 17 | 13 | 23 | 17 | 20 |
| Newark, NJ | 44 | 21 | 16 | 33 | 33 | 24 | 23 | 35 | 36 | 17 | 34 | 43 | 14 | 8 | 18 | 25 | 21 |
| Norfolk-Virginia Beach-Newport News, VA_NC | 29 | 9 | 7 | 19 | 22 | 12 | 37 | 34 | 32 | 23 | 14 | 31 | 10 | 5 | 12 | 11 | 9 |
| Oakland, CA | 86 | 7 | 19 | 5 | 13 | 9 | 2 | 11 | 20 | 12 | 15 | 23 | 13 | 8 | 6 | 13 | 5 |
| Oklahoma City, OK | 30 | 5 | 9 | 21 | 29 | 10 | 15 | 35 | 17 | 16 | 24 | 10 | 13 | 6 | 12 | 31 | 4 |
| Omaha, NE-IA | 39 | 5 | 13 | 1 | 4 | 0 | 1 | 7 | 7 | 3 | 2 | 0 | 1 | 1 | 1 | 0 | 1 |
| Orange County, CA | 30 | 19 | 8 | 30 | 20 | 13 | 8 | 7 | 7 | 11 | 6 | 6 | 15 | 10 | 0 | 7 | 9 |
| Orlando, FL | 24 | 11 | 13 | 7 | 9 | 6 | 6 | 23 | 13 | 14 | 12 | 5 | 4 | 5 | 8 | 8 | 8 |
| Philadelphia, PA-NJ | 98 | 40 | 42 | 48 | 54 | 41 | 41 | 61 | 51 | 37 | 51 | 59 | 34 | 20 | 35 | 30 | 40 |
| Phoenix-Mesa, AZ | 160 | 205 | 26 | 33 | 41 | 45 | 33 | 47 | 47 | 35 | 25 | 22 | 26 | 9 | 23 | 25 | 11 |
| Pittsburgh, PA | 116 | 58 | 39 | 35 | 36 | 30 | 32 | 47 | 50 | 40 | 56 | 59 | 42 | 40 | 54 | 41 | 44 |
| Portland-Vancouver, OR-WA | 63 | 10 | 12 | 5 | 4 | 12 | 0 | 9 | 6 | 5 | 4 | 7 | 2 | 4 | 4 | 2 | 5 |
| Providence-Fall River-Warwick, RI-MA | 54 | 19 | 8 | 20 | 17 | 10 | 16 | 10 | 14 | 13 | 21 | 24 | 8 | 4 | 13 | 6 | 11 |
| Raleigh-Durham-Chapel Hill, NC | 60 | 29 | 6 | 11 | 10 | 13 | 29 | 46 | 43 | 16 | 11 | 39 | 8 | 3 | 12 | 7 | 17 |
| Richmond-Petersburg, VA | 31 | 25 | 9 | 26 | 28 | 23 | 40 | 50 | 39 | 17 | 24 | 40 | 14 | 5 | 23 | 14 | 19 |
| Riverside-San Bernardino, CA | 146 | 177 | 44 | 167 | 154 | 147 | 131 | 117 | 151 | 171 | 183 | 175 | 158 | 147 | 141 | 128 | 135 |
| Rochester, NY | 17 | 10 | 1 | 8 | 10 | 1 | 10 | 11 | 17 | 2 | 14 | 16 | 5 | 0 | 0 | 2 | 7 |
| Sacramento, CA | 92 | 57 | 21 | 69 | 61 | 70 | 39 | 55 | 93 | 65 | 72 | 90 | 66 | 55 | 58 | 74 | 32 |
| St, Louis, MO-IL | 143 | 41 | 35 | 49 | 46 | 35 | 32 | 45 | 45 | 30 | 36 | 49 | 29 | 11 | 47 | 22 | 34 |
| Salt Lake City-Ogden, UT | 74 | 47 | 13 | 27 | 8 | 14 | 3 | 20 | 18 | 23 | 29 | 34 | 20 | 38 | 32 | 21 | 28 |
| San Antonio, TX | 29 | 4 | 2 | 7 | 32 | 7 | 10 | 12 | 20 | 5 | 4 | 26 | 18 | 6 | 10 | 8 | 3 |
| San Diego, CA | 62 | 35 | 26 | 90 | 94 | 61 | 39 | 51 | 49 | 58 | 53 | 35 | 40 | 27 | 26 | 39 | 33 |
| San Francisco, CA | 30 | 4 | 12 | 0 | 3 | 1 | 0 | 0 | 11 | 4 | 12 | 17 | 3 | 2 | 2 | 1 | 2 |
| San Jose, CA | 33 | 7 | 4 | 5 | 16 | 18 | 2 | 14 | 5 | 0 | 4 | 8 | 9 | 3 | 3 | 11 | 0 |
| SanJuan-Bayamon, PR | 53 | 1 | 10 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| Scranton-Wilkes Barre-Hazleton, PA | 19 | 7 | 12 | 19 | 25 | 14 | 19 | 26 | 25 | 8 | 24 | 30 | 7 | 4 | 12 | 3 | 7 |
| Seattle-Bellevue-Everett, WA | 89 | 10 | 10 | 2 | 0 | 2 | 0 | 3 | 6 | 8 | 6 | 7 | 2 | 2 | 2 | 5 | 4 |
| Springfield, MA | 42 | 22 | 10 | 28 | 17 | 8 | 22 | 24 | 18 | 7 | 28 | 24 | 13 | 9 | 16 | 12 | 21 |
| Syracuse, NY | 19 | 10 | 5 | 8 | 10 | 3 | 6 | 10 | 12 | 2 | 13 | 19 | 4 | 0 | 8 | 3 | 8 |
| Tacoma, WA | 25 | 14 | 4 | 3 | 3 | 4 | 0 | 6 | 2 | 15 | 11 | 9 | 8 | 4 | 4 | 9 | 7 |
| Tampa-St. Petersburg-Clearwater, FL | 73 | 14 | 24 | 10 | 14 | 8 | 24 | 20 | 23 | 29 | 18 | 5 | 13 | 11 | 15 | 9 | 12 |
| Toledo, OH | 18 | 8 | 6 | 12 | 15 | 20 | 8 | 15 | 18 | 9 | 24 | 23 | 15 | 9 | 25 | 4 | 5 |
| Tucson, AZ | 51 | 1 | 20 | 10 | 14 | 8 | 8 | 7 | 8 | 5 | 0 | 7 | 7 | 0 | 8 | 9 | 1 |
| Tulsa, OK | 29 | 5 | 8 | 26 | 39 | 23 | 12 | 24 | 24 | 21 | 21 | 22 | 16 | 1 | 19 | 24 | 2 |
| Ventura, CA | 38 | 23 | 14 | 97 | 100 | 95 | 75 | 54 | 54 | 57 | 52 | 26 | 47 | 41 | 36 | 31 | 22 |
| Washington, DC-MD-VA-WV | 124 | 44 | 39 | 43 | 54 | 39 | 51 | 65 | 61 | 35 | 41 | 54 | 21 | 21 | 36 | 32 | 38 |
| West Palm Beach-Boca Raton, FL | 24 | 3 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| Wilmington-Newark, DE-MD | 41 | 27 | 9 | 46 | 47 | 22 | 31 | 42 | 40 | 24 | 36 | 34 | 24 | 10 | 22 | 20 | 25 |
| Youngstown-Warren, OH | 29 | 20 | 8 | 7 | 14 | 15 | 14 | 34 | 24 | 11 | 25 | 28 | 11 | 4 | 17 | 2 | 14 |

**KEY:** AQI = Air Quality Index; R = revised.

**NOTES**

The Air Quality Index (AQI) integrates information on 6 major pollutants (particulate matter less than 10 microns in diameter, particulate matter less than 2.5 microns in diameter, sulfur dioxide, carbon monoxide, ozone, and nitrogen dioxide) across an entire monitoring network into a single number that represents the worst daily air quality experienced in an urban area. An AQI greater than 100 indicates that at least 1 criteria pollutant exceeded air quality standards on a given day; therefore, air quality would be in the unhealthful range on that day. Air quality monitoring sites are selected as "trend sites" if they have complete data for at least 8 of the 10 last years.

The major reason for revisions to the historical data for the AQI is that changes in the National Ambient Air Quality Standards (NAAQS) are retroactively applied to the data for previous years to provide consistent comparisons over time. In addition, data from monitoring stations that have fallen below/surpassed the criterion to qualify as a 'trend site' is excluded/included in the latest calculation of the index.

Data for 1999 to 2007 include particulate matter 2.5 micron in diameter (PM 2.5).

Particulate matter is the term for solid or liquid particles found in the air.

**SOURCE**

U.S. Environmental Protection Agency, Office of Air and Radiation, *Air Trends* , *Air Quality Index Information*, available at http://www.epa.gov/air/airtrends/aqi_info.html as of February 2009.

**Table 4-52: Areas in Nonattainment of National Ambient Air Quality Standards for Criteria Pollutants (Condensed nonattainment area list as of September 2003)**

| | | | Number of areas in nonattainment [d] | | | | | | Area population, in 1,000s [h] | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ref. no. | States | Consolidated nonattainment area name [a] | $O_3$ [e] | CO | $SO_2$ | PM-10 | Pb | $NO_2$ | $O_3$ | CO | $SO_2$ | PM-10 | Pb | Total exposed |
| 1 | AK | Anchorage | . | 1 | . | 1 | . | . | | 255 | | 195 | | 255 |
| 2 | AK | Fairbanks | . | 1 | . | . | . | . | | 39 | | | | 39 |
| 3 | AK | Juneau | . | . | . | 1 | . | . | | | | 13 | | 13 |
| 4 | AL | Birmingham | 1 | . | . | . | . | . | 805 | | | | | 805 |
| 5 | AZ | Ajo | . | . | 1 | 1 | . | . | | | 7 | 7 | | 7 |
| 6 | AZ | Douglas | . | . | 1 | 1 | . | . | | | 15 | 15 | | 15 |
| 7 | AZ | Miami-Hayden | . | . | 2 | 1 | . | . | | | 4 | 4 | | 4 |
| 8 | AZ | Morenci | . | . | 1 | . | . | . | | | 8 | | | 8 |
| 9 | AZ | Nogales | . | . | . | 1 | . | . | | | | 24 | | 24 |
| 10 | AZ | Paul Spur | . | . | . | 1 | . | . | | | | 1 | | 1 |
| 11 | AZ | Phoenix | 1 | 1 | . | 1 | . | . | 3,028 | 3,028 | | 3,111 | | 3,111 |
| 12 | AZ | Rillito | . | . | . | 1 | . | . | | | | 0 | | 0 |
| 13 | AZ | San Manuel | . | . | 1 | . | . | . | | | 7 | | | 7 |
| 14 | AZ | Yuma | . | . | . | 1 | . | . | | | | 82 | | 82 |
| 15 | CA | Imperial Valley | . | . | . | 1 | . | . | | | | 119 | | 119 |
| 16 | CA | Los Angeles-South Coast Air Basin | 1 | 1 | . | 1 | . | . | 14,550 | 14,550 | | 14,550 | | 14,550 |
| 17 | CA | Mono Basin (in Mono Co.) | . | . | . | 1 | . | . | | | | 0 | | 0 |
| 18 | CA | Owens Valley | . | . | . | 1 | . | . | | | | 7 | | 7 |
| 19 | CA | Sacramento Metro | 1 | . | . | 1 | . | . | 1,978 | | | 1,223 | | 1,978 |
| 20 | CA | San Diego | 1 | . | . | . | . | . | 2,813 | | | | | 2,813 |
| 21 | CA | San Francisco-Oakland-San Jose | 1 | . | . | . | . | . | 6,541 | | | | | 6,541 |
| 22 | CA | San Joaquin Valley | 2 | . | . | 1 | . | . | 3,302 | | | 3,080 | | 3,302 |
| 23 | CA | Santa Barbara-Santa Maria-Lompoc | 1 | . | . | . | . | . | 399 | | | | | 399 |
| 24 | CA | Searles Valley | . | . | . | 3 | . | . | | | | 22 | | 22 |
| 25 | CA | Southeast Desert Modified AQMA | 1 | . | . | 2 | . | . | 1,024 | | | 424 | | 1,024 |
| 26 | CA | Ventura Co. | 1 | . | . | . | . | . | 753 | | | | | 753 |
| 27 | CO | Aspen | . | . | . | 1 | . | . | | | | 5 | | 5 |
| 28 | CO | Denver-Boulder | . | . | . | 1 | . | . | | | | 2,389 | | 2,389 |
| 29 | CO | Fort Collins | . | 1 | . | . | . | . | | 143 | | | | 143 |
| 30 | CO | Lamar | . | . | . | 1 | . | . | | | | 8 | | 8 |
| 31 | CO | Steamboat Springs | . | . | . | 1 | . | . | | | | 9 | | 9 |
| 32 | CT | Greater Connecticut | 1 | . | . | 1 | . | . | 2,532 | | | 123 | | 2,532 |
| 33 | DC-MD-VA | Washington | 1 | . | . | . | . | . | 4,544 | | | | | 4,544 |
| 34 | DE | Sussex County | 1 | . | . | . | . | . | 156 | | | | | 156 |
| 35 | GA | Atlanta | 1 | . | . | . | . | . | 3,698 | | | | | 3,698 |
| 36 | GU[b] | Piti Power Plant | . | . | 1 | . | . | . | | | 1 | | | 1 |
| 37 | GU[b] | Tanguisson Power Plant | . | . | 1 | . | . | . | | | 1 | | | 1 |
| 38 | ID | Boise | . | 1 | . | . | . | . | | 197 | | | | 197 |
| 39 | ID | Bonner Co. (Sandpoint ) | . | . | . | 1 | . | . | | | | 36 | | 36 |
| 40 | ID | Pocatello Area | . | . | . | 2 | . | . | | | | 66 | | 66 |
| 41 | ID | Shoshone Co. | . | . | . | 2 | . | . | | | | 12 | | 12 |
| 42 | IL-IN | Chicago-Gary-Lake County | 1 | . | 1 | 3 | . | . | 8,757 | | 484 | 322 | | 8,757 |
| 43 | KY-WV | Ashland-Huntington | . | . | 1 | . | . | . | | | 49 | | | 49 |
| 44 | LA | Baton Rouge | 1 | . | . | . | . | . | 636 | | | | | 636 |
| 45 | MA | Boston-Lawrence | 1 | . | . | . | . | . | 5,883 | | | | | 5,883 |
| 46 | MA | Springfield (W. Mass) | 1 | . | . | . | . | . | 814 | | | | | 814 |
| 47 | MD | Baltimore | 1 | . | . | . | . | . | 2,512 | | | | | 2,512 |
| 48 | MD | Kent and Queen Anne Cos. | 1 | . | . | . | . | . | 59 | | | | | 59 |
| 49 | ME | Knox/Lincoln County | 1 | . | . | . | . | . | 73 | | | | | 73 |
| 50 | ME | Lewiston-Auburn | 1 | . | . | . | . | . | 220 | | | | | 220 |
| 51 | ME | Portland | 1 | . | . | . | . | . | 487 | | | | | 487 |
| 52 | MO | Liberty-Arcadia | . | . | . | . | 1 | . | | | | | 6 | 6 |
| 53 | MO-IL | St. Louis | 1 | . | . | . | [g]1 | . | 2,482 | | | | 2 | 2,482 |
| 54 | MT | Billings/Laurel (Yellowstone Co.) | . | . | 1 | . | . | . | | | 6 | | | 6 |
| 55 | MT | Butte | . | . | . | 1 | . | . | | | | 34 | | 34 |
| 56 | MT | Columbia Falls | . | . | . | . | . | 1 | | | | 3 | | 3 |
| 57 | MT | East Helena (Lewis & Clark Co.) | . | . | 1 | . | 1 | . | | | 2 | | 2 | 2 |
| 58 | MT | Kalispell | . | . | . | 1 | . | . | | | | 15 | | 15 |
| 59 | MT | Lame Deer | . | . | . | . | 1 | . | | | | 0 | | 0 |
| 60 | MT | Libby | . | . | . | 1 | . | . | | | | 3 | | 3 |
| 61 | MT | Missoula | . | 1 | . | 1 | . | . | | 52 | | 52 | | 52 |
| 62 | MT | Polson | . | . | . | 1 | . | . | | | | 3 | | 3 |
| 63 | MT | Ronan | . | . | . | 1 | . | . | | | | 2 | | 2 |
| 64 | MT | Thompson Falls | . | . | . | 1 | . | . | | | | 1 | | 1 |
| 65 | MT | Whitefish | . | . | . | 1 | . | . | | | | 5 | | 5 |
| 66 | NH | Manchester | 1 | . | . | . | . | . | 364 | | | | | 364 |
| 67 | NH | Portsmouth-Dover-Rochester | 1 | . | . | . | . | . | 192 | | | | | 192 |
| 68 | NJ | Atlantic City | 1 | . | . | . | . | . | 354 | | | | | 354 |
| 69 | NM | Anthony | . | . | . | 1 | . | . | | | | 2 | | 2 |
| 70 | NM | Grant Co. | . | . | 1 | . | . | . | | | 31 | | | 31 |
| 71 | NM | Sunland Park | [f]1 | . | . | . | . | . | 10 | | | | | 10 |

**Table 4-52: Areas in Nonattainment of National Ambient Air Quality Standards for Criteria Pollutants (Condensed nonattainment area list as of September 2003)**

| | | | Number of areas in nonattainment [d] | | | | | | Area population, in 1,000s [h] | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ref. no. | States | Consolidated nonattainment area name [a] | $O_3$ [e] | CO | $SO_2$ | PM-10 | Pb | $NO_2$ | $O_3$ | CO | $SO_2$ | PM-10 | Pb | Total exposed |
| 72 | NV | Lake Tahoe | . | 1 | . | . | . | . | | 29 | | | | 29 |
| 73 | NV | Las Vegas | . | 1 | . | 1 | . | . | | 478 | | 1,375 | | 1,375 |
| 74 | NV | Reno | 1 | 1 | . | 1 | . | . | 339 | 178 | | 339 | | 339 |
| 75 | NY | Albany-Schenectady | 1 | . | . | . | . | . | 892 | | | | | 892 |
| 76 | NY | Buffalo-Niagara Falls | 1 | . | . | . | . | . | 1,170 | | | | | 1,170 |
| 77 | NY | Essex City, Whiteface | 1 | . | . | . | . | . | 0 | | | | | 0 |
| 78 | NY | Jefferson Co. | 1 | . | . | . | . | . | 111 | | | | | 111 |
| 79 | NY | Poughkeepsie | 1 | . | . | . | . | . | 600 | | | | | 600 |
| 80 | NY-NJ-CT | New York-N. New Jersey-Long Island | 1 | . | . | 1 | . | . | 19,171 | | | 1,537 | | 19,171 |
| 81 | OH | Cleveland-Akron-Lorain | . | . | 1 | | . | . | | | 1,095 | | | 1,095 |
| 82 | OH | Lucas Co. (Toledo) | . | . | 1 | . | . | . | | | 455 | | | 455 |
| 83 | OH-KY | Cincinnati-Hamilton | 1 | . | . | . | . | . | 1,514 | | | | | 1,514 |
| 84 | OH-PA | Youngstown-Warren | 1 | . | . | . | . | . | 120 | | | | | 120 |
| 85 | OR | Grants Pass | . | . | . | 1 | . | . | | | | 20 | | 20 |
| 86 | OR | Klamath Falls | . | . | . | 1 | . | . | | | | 19 | | 19 |
| 87 | OR | LaGrande | . | . | . | 1 | . | . | | | | 12 | | 12 |
| 88 | OR | Lakeview | . | . | . | 1 | . | . | | | | 3 | | 3 |
| 89 | OR | Medford | . | . | . | 1 | . | . | | | | 78 | | 78 |
| 90 | OR | Oakridge | . | . | . | 1 | . | . | | | | 3 | | 3 |
| 91 | OR | Springfield-Eugene | . | . | . | 1 | . | . | | | | 179 | | 179 |
| 92 | OR | Salem | . | 1 | . | . | . | . | | 135 | | | | 135 |
| 93 | PA | Altoona | 1 | . | . | . | . | . | 129 | | | | | 129 |
| 94 | PA | Erie | 1 | . | . | . | . | . | 280 | | | | | 280 |
| 95 | PA | Harrisburg-Lebanon | 1 | . | . | . | . | . | 629 | | | | | 629 |
| 96 | PA | Johnstown | 1 | . | . | . | . | . | 232 | | | | | 232 |
| 97 | PA | Lancaster | 1 | . | . | . | . | . | 470 | | | | | 470 |
| 98 | PA | Pittsburgh-Beaver Valley | . | 1 | 2 | 1 | . | . | | 335 | 410 | 21 | | 410 |
| 99 | PA | Scranton-Wilkes-Barre | 1 | . | . | . | . | . | 763 | | | | | 763 |
| 100 | PA | Warren Co | . | . | 2 | . | . | . | | | 20 | | | 20 |
| 101 | PA | York | 1 | . | . | . | . | . | 473 | | | | | 473 |
| 102 | PA-DE-NJ-MD | Philadelphia-Wilmington-Trenton | 1 | . | . | . | . | . | 6,311 | | | | | 6,311 |
| 103 | PA-NJ | Allentown-Bethlehem | 1 | . | 1 | | | | 740 | | 102 | | | 740 |
| 104 | PR | Guaynabo Co. | . | . | . | 1 | . | . | | | | 92 | | 92 |
| 105 | RI | Providence (all of RI) | 1 | . | . | . | . | . | 1,048 | | | | | 1,048 |
| 106 | TX | Beaumont-Port Arthur | 1 | . | . | . | . | . | 385 | | | | | 385 |
| 107 | TX | Dallas-Fort Worth | 1 | . | . | . | . | . | 4,589 | | | | | 4,589 |
| 108 | TX | El Paso | 1 | 1 | . | 1 | . | . | 679 | 62 | | 563 | | 679 |
| 109 | TX | Houston-Galveston-Brazoria | 1 | . | . | . | . | . | 4,669 | | | | | 4,669 |
| 110 | UT | Ogden | . | . | . | 1 | . | . | | | | 77 | | 77 |
| 111 | UT | Salt Lake City | . | . | 1 | 1 | . | . | | | 898 | 898 | | 898 |
| 112 | UT | Tooele Co. | . | . | 1 | . | . | . | | | 40 | | | 40 |
| 113 | UT | Utah Co. (Provo) | . | 1 | . | 1 | . | . | | 118 | | 368 | | 368 |
| 114 | VA | Smyth Co., White Top | 1 | . | . | . | . | . | | 0 | | | | 0 |
| 115 | WA | Spokane | . | 1 | . | 1 | . | . | | 322 | | 204 | | 322 |
| 116 | WA | Wallula | . | . | . | 1 | . | . | | | | 0 | | 0 |
| 117 | WA | Yakima | . | 1 | . | 1 | . | . | | | | 63 | | 63 |
| 118 | WI | Door Co. | 1 | . | . | . | . | . | 27 | | | | | 27 |
| 119 | WI | Manitowoc Co. | 1 | . | . | . | . | . | 82 | | | | | 82 |
| 120 | WI | Milwaukee-Racine | 1 | . | . | . | . | . | 1,839 | | | | | 1,839 |
| 121 | WV | Follansbee | . | . | . | 1 | . | . | | | | 2 | | 2 |
| 122 | WV | New Manchester Gr. (in Hancock Co) | . | . | 1 | . | . | . | | | 9 | | | 9 |
| 123 | WV | Wier.-Butler-Clay (in Hancock Co) | . | . | 1 | 1 | . | . | | | 16 | 15 | | 16 |
| 124 | WY | Sheridan | . | . | . | 1 | . | . | | | | 15 | | 15 |
| | | National Totals (130 areas) [o] | 38 | 20 | 33 | 78 | 10 | 0 | 99,824 | 34,047 | 4,664 | 29,919 | 1,375 | 113,090 |
| | State(s) | Consolidated Nonattainment Area Name [a, b] | $O_3$ [m] | CO | $SO_2$ | PM10 | Pb | $NO_2$ | $O_3$ [m] | CO | $SO_2$ | PM10 | Pb | All Pollutants |
| | | | Number of Areas in Nonattainment [c] | | | | | | Area Population, in 1000's [o] | | | | | |
| National totals (124 areas) [o] | | | 56 | 16 | 24 | 67 | 3 | 0 | 116,228 | 19,921 | 3,660 | 31,850 | 10 | 125,730 |

**KEY:** CO = carbon monoxide; $NO_2$ = nitrogen dioxide; $O_3$ = ozone; Pb = lead; PM-10 = particulate matter smaller than 10 microns; $SO_2$ = sulfur dioxide; . = all areas in attainment for a particle or pollutant.

[a] This is a simplified listing of classified nonattainment areas. Unclassified and Section 185a (transitional) nonattainment areas are not included. Names of nonattainment areas are listed alphabetically within each state. Note that several smaller nonattainment areas may be inside one larger nonattainment area. In these cases, the smaller nonattainment areas are listed on the same line as the larger one, and the number of nonattainment areas are indicated under each pollutant.

[b] Guam (U.S. territory)

[c] National total includes Guam (U.S. territory).

[d] The number of nonattainment areas for each of the criteria pollutants is listed. A dot (.) indicates that all areas are in attainment for that pollutant.

[e] 1-hour ozone standard.

[f] Ozone nonattainment area is a portion of Dona Ana County, New Mexico.

[g] Lead nonattainment area is Herculaneum, Missouri in Jefferson County.

[h] Population figures were obtained from the 2000 census data. For nonattainment areas defined as only partial counties, population figures for just the nonattainment area were used when these were available. Otherwise, whole county population figures were used. When a larger nonattainment area encompasses a smaller one, double counting the population in the "Total exposed" column is avoided by only counting the population of the larger nonattainment area.
The "Total exposed" values represent estimated population living in areas that are in nonattainment for at least one pollutant.

**NOTE**
Reference numbers 1-124 do not indicate ranking.

**SOURCE**

U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, *National Air Quality and Emissions Trends Report, 2003* (Research Triangle Park, NC: 2003), table A-19. Internet website http://www.epa.gov/airtrends/ as of Nov. 17, 2006.

**Table 4-53: U.S. Carbon Dioxide Emissions from Energy Use by Sector (Million metric tons of carbon)**

| Sector | (R) 1990 | (R) 1991 | (R) 1992 | (R) 1993 | (R) 1994 | (R) 1995 | (R) 1996 | (R) 1997 | (R) 1998 | (R) 1999 | (R) 2000 | (R) 2001 | (R) 2002 | (R) 2003 | (R) 2004 | (R) 2005 | (R) 2006 | (P) 2007 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total U.S. $CO_2$ Emissions from energy use by sector | 1,368.6 | 1,355.6 | 1,382.6 | 1,411.3 | 1,432.8 | 1,447.6 | 1,498.5 | 1,520.9 | 1,531.2 | 1,548.2 | 1,596.9 | 1,569.4 | 1,587.3 | 1,600.2 | 1,627.0 | 1,629.5 | 1,610.8 | 1,633.7 |
| Transportation | 431.6 | 425.8 | 431.5 | 439.2 | 450.4 | 458.7 | 470.5 | 475.6 | 485.3 | 498.6 | 510.7 | 504.7 | 515.6 | 517.4 | 534.2 | 542.1 | 549.1 | 549.3 |
| Natural gas | 9.9 | 9.0 | 8.8 | 9.3 | 10.3 | 10.5 | 10.7 | 11.4 | 9.6 | 9.8 | 9.7 | 9.5 | 10.3 | 9.2 | 8.7 | 9.1 | 9.1 | 9.7 |
| Electricity | 0.9 | 0.9 | 0.9 | 0.9 | 0.9 | 0.9 | 0.9 | 0.9 | 0.9 | 0.9 | 1.0 | 1.0 | 1.0 | 1.2 | 1.3 | 1.3 | 1.3 | 1.4 |
| Petroleum | 420.8 | 415.9 | 421.8 | 429.0 | 439.3 | 447.3 | 458.9 | 463.3 | 474.7 | 487.9 | 499.9 | 494.3 | 504.4 | 507.0 | 524.2 | 531.7 | 538.7 | 538.3 |
| Motor gasoline | 262.3 | 260.6 | 264.4 | 272.6 | 275.9 | 280.8 | 285.6 | 288.2 | 296.6 | 304.1 | 306.0 | 307.4 | 315.2 | 316.2 | 322.1 | 322.7 | 323.4 | 321.9 |
| Liquid petroleum gas | 0.4 | 0.3 | 0.3 | 0.3 | 0.5 | 0.3 | 0.3 | 0.2 | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.3 | 0.5 | 0.5 | 0.5 |
| Jet fuel | 60.7 | 58.7 | 58.2 | 58.7 | 61.0 | 60.6 | 63.3 | 63.9 | 64.9 | 66.9 | 69.2 | 66.2 | 64.6 | 63.1 | 65.4 | 67.2 | 65.3 | 64.9 |
| Distillate fuel | 73.0 | 71.8 | 73.5 | 75.7 | 80.4 | 83.7 | 89.2 | 93.2 | 96.0 | 99.8 | 103.0 | 105.6 | 107.6 | 113.0 | 118.3 | 121.2 | 127.9 | 128.8 |
| Residual fuel | 21.8 | 22.0 | 23.0 | 19.4 | 19.0 | 19.6 | 18.3 | 15.3 | 14.5 | 14.3 | 19.1 | 12.6 | 14.5 | 12.3 | 15.9 | 18.0 | 19.5 | 20.0 |
| Lubricants | 1.8 | 1.6 | 1.6 | 1.7 | 1.7 | 1.7 | 1.6 | 1.7 | 1.8 | 1.8 | 1.8 | 1.7 | 1.6 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 |
| Aviation gas | 0.8 | 0.8 | 0.8 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.6 | 0.6 | 0.6 | 0.7 | 0.6 | 0.6 |
| Industrial | 460.0 | 448.3 | 468.8 | 466.2 | 474.4 | 474.1 | 488.7 | 496.4 | 489.5 | 483.6 | 487.2 | 467.9 | 467.8 | 468.8 | 475.7 | 456.0 | 450.6 | 447.1 |
| Residential | 262.3 | 266.5 | 266.9 | 283.4 | 281.5 | 283.4 | 299.6 | 297.2 | 299.1 | 305.5 | 322.2 | 318.6 | 326.2 | 334.0 | 332.9 | 342.2 | 326.7 | 340.7 |
| Commercial | 214.8 | 215.0 | 215.5 | 222.5 | 226.4 | 231.4 | 239.7 | 251.7 | 257.3 | 260.6 | 276.8 | 278.2 | 277.6 | 280.1 | 284.2 | 289.1 | 284.4 | 296.5 |
| Total U.S. $CO_2$ Emissions (Incl. adj. and other sources)[a] | 1,369.3 | 1,356.3 | 1,386.4 | 1,420.1 | 1,443.6 | 1,458.5 | 1,509.2 | 1,530.1 | 1,537.5 | 1,556.6 | 1,606.9 | 1,583.6 | 1,603.6 | 1,619.5 | 1,642.7 | 1,645.0 | 1,621.4 | 1,642.2 |

**KEY:** $CO_2$ = carbon dioxide; P = preliminary; R = revised.

[a] "Adjustments" comprise the addition of U.S. territories and the subtraction of military bunker fuels and international bunker fuels. "Other sources" comprise the addition of gas flaring, $CO_2$ in natural gas, cement production, other industrial, and limestone consumption.

**NOTES**

Electric utility emissions are distributed across end-use sectors.

Numbers may not add to totals due to independent rounding.

Tons of carbon can be converted to tons of carbon dioxide gas by multiplying by 3.667. One ton of carbon equals 3.667 tons of carbon dioxide gas.

Numbers in this table may not be comparable to the numbers in the previous edition of the report due to changes in methodology of estimation by the Energy Information Administration.

**SOURCE**

U.S. Department of Energy, Energy Information Administration, *Emissions of Greenhouse Gases in the United States 2007,* (Washington, DC: 2007), available at http://www.eia.doe.gov/oiaf/1605/ggrpt/index.html as of March 2009.

# Section E
# Water Pollution, Noise, and Solid Waste

**Table 4-50: Petroleum Oil Spills Impacting Navigable U.S. Waterways**

| | 1985 | | 1990 | | 1995 | | 1996 | | 1997 | | 1998 | | 1999 | | 2000 | | 2001 | | 2002 | | 2003 | | 2004 | | 2005 | | 2006 | | 2007 | | 2008 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Source | Incidents | Gallons spilled | Incidents | Gallons spilled | Incidents | Gallons spilled | Incidents | Gallons spilled | Incidents | Gallons spilled | Incidents | Gallons spilled | Incidents | Gallons spilled | Incidents | Gallons spilled | Incidents | Gallons spilled | Incidents | Gallons spilled | Incidents | Gallons spilled | Incidents | Gallons spilled | Incidents | Gallons spilled | Incidents | Gallons spilled | Incidents | Gallons spilled | Incidents | Gallons spilled |
| TOTAL all spills | 6,169 | 8,436,248 | 8,177 | 7,915,007 | 9,038 | 2,638,229 | 9,335 | 3,117,831 | 8,624 | 942,574 | 8,315 | 885,303 | 8,539 | 1,172,449 | 8,354 | 1,431,370 | 7,559 | 854,520 | 4,497 | 638,883 | 4,192 | 401,139 | 3,897 | 1,416,713 | 3,881 | 9,926,580 | 4,184 | 2,836,307 | 3,808 | 705,342 | 3,400 | 760,230 |
| Vessel sources, total | 1,662 | 4,862,911 | 2,485 | 6,387,158 | 5,478 | 1,624,153 | 5,586 | 1,681,020 | 5,347 | 380,879 | 5,172 | 621,235 | 5,680 | 576,475 | 5,560 | 1,033,643 | 5,021 | 569,856 | 1,816 | 247,382 | 1,715 | 210,805 | 1,705 | 1,306,557 | 1,835 | 2,124,808 | 1,993 | 416,987 | 1,928 | 235,340 | 1,644 | 536,141 |
| Tankship | 164 | 732,397 | 249 | 4,977,251 | 148 | 125,491 | 122 | 219,311 | 124 | 22,429 | 104 | 56,673 | 92 | 8,414 | 111 | 608,176 | 95 | 125,217 | 55 | 4,753 | 38 | 4,450 | 35 | 636,834 | 37 | 2,976 | 38 | 4,292 | 42 | 46,731 | 34 | 1,337 |
| Tank barge | 385 | 3,683,548 | 457 | 992,025 | 353 | 1,101,938 | 313 | 1,163,258 | 252 | 165,649 | 220 | 248,089 | 227 | 158,977 | 229 | 133,540 | 246 | 212,298 | 126 | 30,219 | 156 | 102,874 | 143 | 215,822 | 126 | 2,006,774 | 134 | 287,343 | 113 | 4,516 | 106 | 286,637 |
| Other vessels[a] | 1,113 | 446,966 | 1,779 | 417,882 | 4,977 | 396,724 | 5,151 | 298,451 | 4,971 | 192,801 | 4,848 | 316,473 | 5,361 | 409,084 | 5,220 | 291,927 | 4,680 | 232,341 | 1,635 | 212,410 | 1,521 | 103,481 | 1,527 | 453,901 | 1,672 | 115,058 | 1,821 | 125,352 | 1,773 | 184,093 | 1,504 | 248,167 |
| Nonvessel sources, total | 2,802 | 3,250,229 | 2,584 | 1,408,472 | 1,116 | 958,222 | 1,078 | 1,408,303 | 1,356 | 501,265 | 1,553 | 246,716 | 1,615 | 551,381 | 1,645 | 373,761 | 1,465 | 270,523 | 1,286 | 200,871 | 1,140 | 93,515 | 1,137 | 70,456 | 1,146 | 7,771,646 | 1,258 | 2,290,803 | 1,233 | 439,723 | 1,147 | 197,525 |
| Offshore pipelines | 23 | 17,977 | 73 | 46,228 | 7 | 1,143 | 4 | 386 | 13 | 810 | 10 | 843 | 5 | 35,707 | 4 | 17 | 13 | 1,241 | 0 | 0 | 1 | 14,952 | 0 | 0 | 23 | 26,465 | 20 | 1,719 | 36 | 295,165 | 36 | 14,809 |
| Onshore pipelines | 362 | 759,040 | 76 | 270,700 | 23 | 10,751 | 13 | 978,006 | 19 | 223,312 | 35 | 47,020 | 20 | 433 | 21 | 17,004 | 21 | 12,336 | 0 | 0 | 0 | 0 | 1 | 15,000 | 1 | 110,000 | 1 | 510 | 0 | 0 | 0 | 0 |
| Other[b] | 2,417 | 2,473,212 | 2,435 | 1,091,544 | 1,086 | 946,328 | 1,061 | 429,911 | 1,324 | 277,143 | 1,508 | 198,853 | 1,590 | 515,241 | 1,620 | 356,740 | 1,431 | 256,946 | 1,286 | 200,871 | 1,139 | 78,563 | 1,136 | 55,456 | 1,122 | 7,635,181 | 1,237 | 2,288,574 | 1,197 | 144,558 | 1,111 | 182,716 |
| Mystery[c] | 1,705 | 323,108 | 3,108 | 119,377 | 2,444 | 55,854 | 2,671 | 28,508 | 1,921 | 60,430 | 1,590 | 17,352 | 1,244 | 44,593 | 1,149 | 23,966 | 1,073 | 14,141 | 1,395 | 190,630 | 1,337 | 96,819 | 1,055 | 39,700 | 900 | 30,126 | 933 | 128,517 | 647 | 30,279 | 608 | 26,564 |

[a] *Other vessels* include commercial vessels, fishing boats, freight barges, freight ships, industrial vessels, oil recovery vessels, passenger vessels, unclassified public vessels, recreational boats, research vessels, school ships, tow and tug boats, mobile offshore drilling units, offshore supply vessels, publicly owned tank and freight ships, as well as vessels not fitting any particular class (unclassified).
[b] *Other nonvessel sources* include designated waterfront facilities, nonmarine land facilities, fixed offshore and inshore platforms, mobile facility, municipal facility, aircraft, land vehicles, railroad equipment, bridges, factories, fleeting areas, industrial facilities, intakes, locks, marinas, MARPOL reception facilities, nonvessel common carrier facilities, outfalls, sewers, drains, permanently moored facilities, shipyards, ship repair facilities.
[c] *Mystery* spills are spills from unknown or unidentified sources. U.S. Coast Guard investigators are unable to identify the vessel or facility that spilled the oil into U.S. navigable waters.

**NOTE:** The spike in *Gallons spilled* for 2005 can be attributed to the passage of Hurricane Katrina in Louisiana and Mississippi on Aug. 29, 2005, which caused numerous spills approximating 8 million gallons of oil in U.S. waters. The totals in this table may be different from those that appear in the source, due to rounding by the source.

**SOURCE**

U.S. Coast Guard, *Polluting Incidents In and Around U.S. Waters, A Spill/Release Compendium: 1969-2008* (Washington, DC: February 2010), pp. 22, 23, 160, 176-77, 193-94, 208-09, 221, 234, available at https://homeport.uscg.mil/ as of Dec. 22, 2010.

**Table 4-55: Leaking Underground Storage Tank Releases and Cleanups**

| | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total confirmed releases | 87,528 | 126,816 | 184,457 | 237,022 | 270,567 | 303,635 | 317,488 | 341,773 | 371,387 | 397,821 | 412,392 | 418,918 | 427,307 | 439,385 | 447,233 | 452,041 | 464,728 | 474,127 | 479,817 | 488,496 | 494,997 |
| Cleanups initiated | 51,770 | 79,506 | 129,074 | 171,082 | 209,797 | 238,671 | 252,615 | 292,446 | 314,965 | 346,300 | 367,603 | 379,243 | 384,029 | 403,558 | 412,657 | 421,924 | 435,631 | 446,940 | 455,096 | 463,060 | 470,460 |
| Cleanups not initiated | 35,758 | 47,310 | 55,383 | 65,940 | 60,770 | 64,964 | 64,873 | 49,327 | 56,422 | 51,521 | 44,789 | 39,675 | 43,278 | 35,827 | 34,576 | 30,117 | 29,097 | 27,187 | 24,721 | 25,436 | 24,537 |
| Cleanups completed | 16,905 | 26,666 | 55,444 | 87,065 | 107,448 | 131,272 | 152,683 | 178,297 | 203,247 | 228,925 | 249,759 | 268,833 | 284,602 | 303,120 | 317,405 | 332,799 | 350,813 | 365,361 | 377,019 | 388,331 | 401,874 |
| Releases not cleaned up | 70,623 | 100,150 | 129,013 | 149,957 | 163,119 | 172,363 | 164,805 | 163,476 | 168,140 | 168,896 | 162,633 | 150,085 | 142,705 | 136,265 | 129,828 | 119,242 | 113,915 | 108,766 | 102,798 | 100,165 | 93,123 |

**NOTES**

All data are cumulative from the start of the U.S. Environmental Protection Agency's Underground Storage Tank program, which began in 1984.

Data represent fiscal year, October 1 through September 30.

**SOURCES**

1990: U.S. Environmental Protection Agency, Office of Underground Storage Tanks, personal communications, Nov. 17 and 18, 1998.

1991-2010: Ibid., *UST Performance Measures,* available at http://www.epa.gov/swerust1/cat/camarchv.htm as of Feb. 7, 2011.

## Table 4-56: Highway Noise Barrier Construction (Miles)

| | Unknown | 1963-1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | Total 1963-2004 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL length | 6 | 328 | 54 | 45 | 65 | 54 | 106 | 103 | 64 | 99 | (R) 143 | 88 | 89 | (R) 133 | 54 | (R) 102 | (R) 140 | (R) 54 | (R) 82 | (R) 132 | 78 | 89 | 105 | 2,205 |
| Type I barriers[a] | [d]6 | 210 | 39 | 30 | 40 | 35 | 83 | 88 | 44 | 78 | 114 | 63 | 47 | (R) 95 | 37 | (R) 70 | (R) 116 | (R) 31 | (R) 67 | (R) 95 | 63 | 78 | 88 | 1,613 |
| Type II barriers[b] | 0 | 114 | 14 | 14 | 24 | 16 | 8 | 8 | 19 | 18 | 18 | 21 | 16 | 32 | 15 | 31 | 23 | (R) 18 | (R) 11 | (R) 18 | 13 | 4 | 14 | 471 |
| All other types[c] | N | 4 | 1 | 1 | 1 | 3 | 15 | 7 | 1 | 3 | (R) 11 | 4 | 26 | (R) 6 | 2 | (R) 1 | 1 | (R) 5 | (R) 4 | (R) 19 | 2 | 7 | 3 | 121 |
| Cost (2004 $ millions) | 0 | 329 | 67 | 57 | 106 | 72 | 168 | 163 | 108 | 176 | 228 | 144 | 135 | 203 | 79 | 180 | 242 | 110 | 147 | 207 | 190 | 171 | 159 | 3,442 |

**KEY:** N = data do not exist; R = revised.

[a] A Type I barrier is built on a new highway project or a physically altered existing highway.

[b] A Type II barrier is built to abate noise along an existing highway (often referred to as retrofit abatement) and is not mandatory.

[c] All other types of barriers are nonfederally funded.

[d] Have not been assigned a year of construction or a cost.

**NOTES**

Forty-five miles of barriers, while assigned a year of construction, cannot be assigned a cost.

California did not provide data for the years 1999 - 2004 and therefore these years may not be comparable with previous years.

**SOURCE**

U.S. Department of Transportation, Federal Highway Administration, Office of Environment and Planning, *Highway Traffic Noise Barrier Construction Trends* (Washington, DC: May 2006), tables 1 and 3.

**Table 4-56: Number of People Residing in High Noise Areas Around U.S. Airports[a,b,c]**
**(Within 65 dB DNL noise-level contours)**

| | 1975 | 1980 | 1985 | (R) 1990 | (R) 1995 | (R) 1996 | (R) 1997 | (R) 1998 | (R) 1999 | (R) 2000 | (R) 2001 | (R) 2002 | (R) 2003 | (R) 2004 | (R) 2005 | (R) 2006 | (R) 2007 | (R) 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Exposure | | | | | | | | | | | | | | | | | | | |
| People (thousands) | 7,000 | 5,200 | 3,400 | 2,700 | 1,700 | 1,500 | 1,300 | 1,100 | 680 | 874 | 867 | 570 | 505 | 491 | 498 | 481 | 468 | 387 | 286 |
| Percent of U.S. resident population | 3.25 | 2.29 | 1.43 | 1.08 | 0.65 | 0.57 | 0.49 | 0.41 | 0.25 | 0.31 | 0.30 | 0.20 | 0.17 | 0.17 | 0.17 | 0.16 | 0.16 | 0.13 | 0.09 |
| U.S. resident population (millions) | 215.5 | 227.2 | 237.9 | 249.5 | 262.8 | 265.2 | 267.8 | 270.2 | 272.7 | 282.2 | 285.1 | 287.8 | 290.3 | 293.0 | 295.8 | 298.6 | 301.6 | 304.4 | 307.0 |

**KEY:** dB = decibels; DNL = day-night sound level; R = revised.

[a] Noise-level contours are graphical representations of noise levels on a map, similar to elevation contours on a topographic map. Noise-level contours are lines that join points of equal sound levels. Areas between given noise-level contour lines would have a noise level between the two contour values. The U.S. Department of Transportation, Federal Aviation Administration (FAA) has identified DNL 65 dB as the highest threshold of airport noise *Exposure* that is normally compatible with indoor and outdoor activity associated with a variety of land uses, including residential, recreational, schools, and hospitals.

[b] Estimates are for areas surrounding airport property of 250 of the largest civil airports with jet operations in the United States. They exclude *Exposure* to aircraft noise within an airport boundary.

[c] 1975 *Exposure* estimates were made by the U.S. Environmental Protection Agency. 1980–2008 estimates were made by FAA.

**NOTES**

Noise *Exposure* people data for 2000 and forward was re-estimated using an enhanced version of U.S. MAGENTA (Model for Assessing the Global Exposure of Noise because of Transport Airplanes). The enhanced version of the model uses radar-based traffic data to account for unscheduled operations including freight, General Aviation and military operations. The enhanced U.S. MAGENTA also includes improvements to the acoustical model to account for differences in the sound attenuation characteristics between wing-mounted and tail-mounted aircraft engines. These enhancements result in computed population noise *Exposure* estimates that are more accurate and larger than previous versions of the model. Therefore, it is important to note that the "growth" in the number of people exposed from 1999 to 2000 resulted from improvements in measurement, not deterioration in aviation noise trends.

**SOURCES**

**Exposure:**

1975-2009: U.S. Department of Transportation, Federal Aviation Administration, Office of Environment and Energy, personal communication, June 3, 2010 and Feb. 15, 2011.

**Population:**

1975-2009: U.S. Census Bureau, Population Division, *Population Estimates*, available at http://www.census.gov/popest/estbygeo.html as of Mar. 16, 2011.

**Table 4-58: Motor Vehicles Scrapped (Thousands)**

| | 1970 | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL motor vehicles | 8,298 | 6,576 | 10,137 | 9,829 | 11,073 | 10,850 | 12,781 | 8,413 | 12,369 | 10,332 | 10,811 | 12,509 | 11,665 | 11,664 | 14,299 | 14,122 | 13,296 | 12,085 | 11,134 | 10,071 | 12,074 | 12,707 | 14,016 | 15,360 |
| Passenger cars | 7,461 | 5,669 | 8,405 | 7,729 | 8,897 | 8,565 | 11,194 | 7,366 | 7,824 | 7,414 | 7,527 | 8,244 | 6,819 | 7,216 | 8,085 | 7,650 | U | U | U | U | U | U | U | U |
| Trucks | 837 | 908 | 1,732 | 2,100 | 2,177 | 2,284 | 1,587 | 1,048 | 4,545 | 2,918 | 3,284 | 4,265 | 4,846 | 4,447 | 6,214 | 6,472 | U | U | U | U | U | U | U | U |

**KEY:** U = data are unavailable.

**NOTES**

Figures represent vehicles that are not re-registered.

Numbers may not add to totals due to rounding.

2009 data covers 15 months of market activity (7/1/08 – 9/30/09) in order to capture the most recent behavior available.

**SOURCES**

1970-2001: The Polk Co., personal communication, July 31, 2002.

2002-09: National Automobile Dealers Association, NADA Data. *Vehicles in Operation and Scrappage*, available at http://www.nada.org/Publications/NADADATA/ as of Feb. 7, 2011.

# Metric Conversion Tables

**Table 1-1M: System Kilometers Within the United States**

| | 1960 | 1965 | 1970 | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Highway[a] | 5,706,240 | 5,937,942 | 6,002,985 | 6,176,897 | 6,211,806 | 6,218,364 | 6,223,214 | 6,250,563 | 6,278,181 | 6,284,828 | 6,287,055 | 6,296,117 | 6,308,068 | 6,350,265 | 6,286,564 | 6,304,192 | 6,334,735 | 6,354,229 | 6,383,439 | 6,395,705 | 6,407,622 | 6,430,351 | 6,464,318 | 6,489,078 | 6,506,221 | U |
| Class I rail[b,c] | 333,672 | 321,544 | 316,202 | 308,222 | 265,255 | 234,584 | 192,732 | 187,691 | 181,946 | 177,712 | 175,953 | 174,234 | 170,235 | 164,359 | 161,852 | 160,017 | 159,727 | 157,421 | 161,136 | 159,528 | 157,172 | 153,956 | 152,567 | 151,782 | 151,410 | 151,151 |
| Amtrak[c] | N | N | N | N | 38,624 | 38,624 | 38,624 | 40,234 | 40,234 | 40,234 | 40,234 | 38,624 | 40,234 | 40,234 | 35,406 | 37,015 | 37,015 | 37,015 | 37,015 | 36,492 | 35,818 | 35,417 | 34,936 | 34,936 | 34,083 | 34,083 |
| Transit[d] | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Commuter rail[c] | N | N | N | N | N | 5,752 | 6,649 | 6,498 | 6,457 | 6,583 | 6,583 | 6,695 | 5,926 | 7,109 | 8,324 | 8,354 | 8,383 | 8,382 | 10,993 | 10,959 | 11,065 | 11,455 | 11,220 | 11,483 | 11,685 | 12,169 |
| Heavy rail | N | N | N | N | N | 2,081 | 2,174 | 2,203 | 2,258 | 2,336 | 2,342 | 2,346 | 2,379 | 2,457 | 2,457 | 2,478 | 2,507 | 2,530 | 2,530 | 2,571 | 2,569 | 2,610 | 2,613 | 2,613 | 2,613 | 2,613 |
| Light rail | N | N | N | N | N | 618 | 777 | 887 | 898 | 865 | 904 | 913 | 1,027 | 1,060 | 1,087 | 1,290 | 1,343 | 1,444 | 1,544 | 1,603 | 1,910 | 1,912 | 2,060 | 2,158 | 2,249 | 2,377 |
| Navigable channels[e] | 40,234 | 40,234 | 41,843 | 41,843 | 41,843 | 41,843 | 41,843 | 41,843 | 41,843 | 41,843 | 41,843 | 41,843 | 41,843 | 41,843 | 41,843 | 41,843 | 41,843 | 41,843 | 41,843 | 41,843 | 41,843 | 41,843 | 41,843 | 40,749 | 40,749 | 40,749 |
| Oil pipeline[f] | 307,295 | 339,358 | 351,917 | 363,533 | 351,469 | 343,764 | 335,954 | 328,029 | 316,309 | 312,181 | 306,339 | 292,759 | 285,715 | 289,478 | 287,506 | 285,599 | 284,847 | 254,675 | 259,088 | 257,316 | (R) 263,078 | (R) 262,193 | (R) 262,141 | (R) 267,563 | (R) 272,922 | 276,884 |
| Gas pipeline[g] | 1,015,416 | 1,235,204 | 1,469,761 | 1,575,971 | 1,692,666 | 1,787,635 | 2,044,469 | 1,959,297 | 1,957,093 | 2,055,243 | 2,149,327 | 2,143,125 | 2,115,745 | 2,143,284 | 2,209,056 | 2,195,686 | 2,216,582 | 2,274,896 | 2,353,793 | 2,304,812 | 2,389,575 | (R) 2,388,868 | (R) 2,420,117 | (R) 2,451,692 | (R) 2,466,662 | 2,478,247 |

**KEY:** N = data do not exist; R = revised; U = data are unavailable.

[a] All public road and street kilometers in the 50 states and the District of Columbia. For years prior to 1980, some kilometers of nonpublic roadways are included. No consistent data on privat road kilometers are available. Beginning in 1998, approximately 70,000 kilometers of Bureau of Land Management Roads are excluded.

[b] Data represent kilometers of road owned (aggregate length of road, excluding yard tracks, sidings, and parallel lines).

[c] Portions of *Class I freight railroads* , *Amtrak* , and *Commuter rail* networks share common trackage. *Amtrak* data represent kilometers of road operated.

[d] *Transit* system length is measured in directional route-kilometers. Directional route-kilometers are the distance in each direction over which public transportation vehicles travel while in revenue service. Directional route-kilometers are computed with regard to direction of service, but without regard to the number of traffic lanes or rail tracks existing in the right-of-way. Beginning in 2002, directional route-kilometers data for the *Commuter* and *Light rail* modes include purchased transportation. 2005 and later years directional route-kilometer data for the *Heavy rail* mode include purchased transportation.

[e] These are estimated sums of all domestic waterways which include rivers, bays, channels, and the inner route of the Southeast Alaskan Islands, but does not include the Great Lakes or deep ocean traffic. The Waterborne Commerce Statistics Center monitored 20,297 kilometers as commercially significant inland shallow-draft waterways in 2001. Beginning in 2007, waterways connecting lakes and the St. Lawrence seaway inside the U.S. are included.

[f] Includes trunk and gathering lines for crude-oil pipeline. CO2 or other is excluded for 2004 to 2008. The large drop in kilometer between 2000 and 2001 is due to a change in the source of the data.

[g] Excludes service pipelines. Data not adjusted to common diameter equivalent. Kilometers as of the end of each year. Data includes gathering, transmission, and distribution mains. Prior to 1985 data also include field lines. See table 1-10 for a more detailed breakout of *Oil and Gas pipeline* kilometers. Length data reported in *Gas Facts* prior to 1985 was taken from the American Gas Association's member survey, the Uniform Statistical Report, supplemented with estimates for companies that did not participate. *Gas Facts* length data is now based on information reported to the U.S. Department of Transportation on Form 7100. Since data for 1985 and later years are obtained from the Pipeline and Hazardous Material Safety Administration, data for these years are not comparable with prior years or with numbers published in the previous NTS reports.

**NOTE**

1 mile = 1.609344 kilometers

**SOURCES**

**Highway:**

1960-95: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1995,* FHWA-PL-97-009 (Washington, DC: Annual Issues), table HM-212.

1996-2008: Ibid., *Highway Statistics* , table HM-20, (Washington, DC: Annual Issues), available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of Dec. 21, 2010.

**Class I rail:**

1960-09: Association of American Railroads, *Railroad Facts* (Washington, DC: Annual Issues), page 3, and similar tables in earlier editions.

**Amtrak:**

1980: Amtrak, *Corporate Planning and Development* , personal communication (Washington, DC).

1985-2001: Amtrak, Corporate Planning and Development, *Amtrak Annual Report, Statistical Appendix* (Washington, DC: Annual Issues).

2002-09: Association of American Railroads, *Railroad Facts* (Washington, DC: Annual Issues), page 77, and similar tables in earlier editions.

**Transit:**

1985-95: U.S. Department of Transportation, Federal Transit Administration, *National Transit Database* (Washington, DC: Annual Issues), available at http://www.ntdprogram.gov/ntdprogram as of Nov. 16, 2009.

1996-2009: Ibid., *National Transit Database* (Washington, DC: Annual Issues), table 23 and similar tables in earlier edition, available at http://www.ntdprogram.gov/ntdprogram as of Dec. 21, 2010.

**Navigable channels:**

1960-96: U.S. Army Corps of Engineers, Ohio River Division, Huntington District, *Ohio River Navigation System Report, 1996, Commerce on the Ohio River and its Tributaries* (Fort Belvoir, VA: 1996), page 2.

1997-99: Ibid., *Waterborne Commerce Statistics Center Databases* , personal communication, Aug. 3, 2001.

2000-04: Ibid., personal communication, Apr. 21, 2006.

2005-06: U.S. Army Corps of Engineers, personal communication, Dec. 12, 2006.

2007-08: U.S. Army Corps of Engineers, personal communication, May 13, 2009 and Dec. 15, 2009.

**Oil pipeline:**

1960-2000: Eno Transportation Foundation, Inc., *Transportation in America, 2002* (Washington, DC: 2002), page 58.

2001-03: U.S. Department of Transportation, Pipeline and Hazardous Materials Administration, Office of Pipeline Safety *Pipeline Statistics* , available at http://ops.dot.gov/stats.htm as of May 22, 2009.

2004-09: U.S. Department of Transportation, Pipeline and Hazardous Materials Administration, Office of Pipeline Safety *Pipeline Statistics* , available at http://ops.dot.gov/stats.htm as of Nov. 30, 2010.

**Gas pipeline:**

1960-80: American Gas Association, *Gas Facts* (Washington, DC: Annual Issues), table 5-1 and similar tables in earlier editions, personal communication, May 07, 2009.

1985-2009: U.S. Department of Transportation, Pipeline and Hazardous Materials Administration, Office of Pipeline Safety *Pipeline Statistics* , available at http://ops.dot.gov/stats.htm as of Nov. 30, 2010.

**Table 1-4M: Kilometers of Public Roads and Streets in the United States by Type of Surface[a] (Thousands of Kilometers)**

| | 1960 | 1965 | 1970 | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | (R)1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | (R)2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL paved and unpaved | 5,706 | 5,938 | 6,003 | 6,177 | 6,212 | 6,218 | 6,223 | 6,251 | 6,278 | 6,285 | 6,287 | 6,296 | 6,331 | 6,370 | 6,355 | 6,325 | 6,357 | 6,377 | 6,406 | 6,419 | 6,430 | 6,454 | 6,488 | 6,513 | 6,531 |
| Paved[b], total | 1,980 | 2,341 | 2,669 | 2,986 | 3,336 | 3,402 | 3,629 | 3,669 | 3,706 | 3,666 | 3,769 | 3,827 | 3,831 | 3,878 | 3,895 | 3,945 | 4,031 | 4,061 | 4,148 | 4,204 | 4,149 | 4,187 | 4,232 | 4,241 | 4,400 |
| Low and intermediate type[c] | 1,082 | 1,220 | 1,443 | 1,556 | 1,676 | 1,634 | 1,649 | 1,657 | 1,651 | 1,625 | 1,678 | 1,709 | 1,716 | N | N | N | N | N | N | N | N | N | N | N | N |
| High-type[c] | 899 | 1,121 | 1,226 | 1,430 | 1,660 | 1,769 | 1,980 | 2,012 | 2,055 | 2,041 | 2,091 | 2,118 | 2,115 | N | N | N | N | N | N | N | N | N | N | N | N |
| Unpaved[d], total | 3,726 | 3,597 | 3,334 | 3,191 | 2,876 | 2,816 | 2,594 | 2,582 | 2,572 | 2,619 | 2,518 | 2,469 | 2,500 | 2,492 | 2,460 | 2,380 | 2,326 | 2,315 | 2,258 | 2,215 | 2,281 | 2,267 | 2,256 | 2,272 | 2,131 |

**KEY:** N = data do not exist; R = revised.

[a] 1960-95 data include the 50 states and the District of Columbia; 1996-2008 data include the 50 states, District of Columbia, and Puerto Rico

[b] Paved mileage includes the following categories: low type (an earth, gravel, or stone roadway that has a bituminous surface course less than 1" thick); intermediate type (a mixed bituminous or bituminous penetration roadway on a flexible base having a combined surface and base thickness of less than 7"); high-type flexible (a mixed bituminous or bituminous penetration roadway on a flexible base having a combined surface and base thickness of 7" or more; high-type composite (a mixed bituminous or bituminous penetration roadway of more than 1" compacted material on a rigid base with a combined surface and base thickness of 7" or more; high-type rigid (Portland cement concrete roadway with or without a bituminous wearing surface of less than 1").

[c] Beginning in 1997, data no longer available for paved minor collectors and local public roads

[d] Unpaved mileage includes the following categories: unimproved roadways using the natural surface and maintained to permit passability; graded and drained roadways of natural earth aligned and graded to permit reasonably convenient use by motor vehicles, and that have adequate drainage to prevent serious impairment of the road by normal surface water–surface may be stabilized; and soil, gravel, or stone roadways drained and graded with a surface of mixed soil, gravel, crushed stone, slag, shell, etc.–surface may be stabilized. The percentage of unpaved roads that are nonsurfaced dropped from approximately 42% in the 1960s to about 37% in the first half of the 1970s, to about 32% in 1980 and has held at about 22% since 1985.

**NOTES**

A public road is any road under the jurisdiction of and maintained by a public authority (federal, state, county, town or township, local government or instrumentality thereof) and open to public travel. No consistent data on private road mileage are available (although prior to 1980 some nonpublic roadway mileage are included). Most data are provided by the states to the US DOT Federal Highway Administration (FHWA). Some years contain FHWA estimates for some states.

Numbers may not add to totals due to rounding.

1 mile = 1.609344 kilometers

**SOURCES**

1960-95: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1995* (Washington, DC), table HM-212, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of Jan. 7, 2010.

1996-2008: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics* (Washington, DC: Annual issues), table HM-12, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of Jan. 7, 2010.

**Table 1-6M: Estimated U.S. Roadway Lane-Kilometers by Functional System[a]**

| | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL lane-kilometers | 12,749,503 | 12,903,711 | 12,956,959 | 13,016,041 | 13,074,455 | 13,087,501 | 13,104,911 | 13,129,436 | 13,162,268 | 13,264,917 | 13,133,628 | 13,161,188 | 13,235,639 | 13,280,089 | 13,349,784 | 13,381,890 | 13,420,032 | 13,472,974 | 13,551,624 | 13,610,790 | 13,653,625 | 13,747,278 |
| Urban, total | 2,245,429 | 2,482,154 | 2,688,403 | 2,708,127 | 2,830,403 | 2,902,894 | 2,938,464 | 2,961,365 | 2,989,596 | 3,029,873 | 3,044,248 | 3,051,294 | 3,082,703 | 3,165,650 | 3,229,046 | 3,393,543 | 3,539,197 | 3,642,525 | 3,715,335 | 3,772,074 | 3,849,593 | 3,931,200 |
| Interstate | 77,986 | 92,207 | 100,124 | 101,109 | 108,254 | 111,341 | 113,993 | 114,870 | 115,535 | 116,286 | 117,492 | 117,954 | 118,950 | 119,867 | 120,873 | 128,089 | 133,456 | 138,381 | 141,532 | 143,666 | 146,069 | 146,368 |
| Other arterial[b] | 536,995 | 598,111 | 642,733 | 647,536 | 673,041 | 700,686 | 712,093 | 717,491 | 723,368 | 730,035 | 730,739 | 724,866 | 734,152 | 736,347 | 744,893 | 779,198 | 813,247 | 843,036 | 857,673 | 869,350 | 888,965 | 915,059 |
| Collector[c] | 233,561 | 261,320 | 270,000 | 266,005 | 283,465 | 289,123 | 295,078 | 297,780 | 300,823 | 303,925 | 301,805 | 299,876 | 303,474 | 305,032 | 307,132 | 333,707 | 350,274 | 362,984 | 373,131 | 376,350 | 390,612 | 406,331 |
| Local | 1,396,888 | 1,530,515 | 1,675,546 | 1,693,477 | 1,765,643 | 1,801,744 | 1,817,300 | 1,831,224 | 1,849,870 | 1,879,627 | 1,894,212 | 1,908,598 | 1,926,127 | 2,004,404 | 2,056,148 | 2,152,549 | 2,242,220 | 2,298,124 | 2,342,999 | 2,382,708 | 2,423,947 | 2,463,442 |
| Rural, total | 10,504,074 | 10,421,557 | 10,268,556 | 10,307,914 | 10,244,052 | 10,184,606 | 10,166,447 | 10,168,070 | 10,172,671 | 10,235,043 | 10,089,380 | 10,109,894 | 10,152,936 | 10,114,439 | 10,120,738 | 9,988,347 | 9,880,835 | 9,830,449 | 9,836,290 | 9,838,716 | 9,804,032 | 9,816,078 |
| Interstate | 210,792 | 212,284 | 218,663 | 219,680 | 214,794 | 212,655 | 211,252 | 212,298 | 213,983 | 214,308 | 214,415 | 215,971 | 216,597 | 216,713 | 216,569 | 209,833 | 205,817 | 202,076 | 200,170 | 198,773 | 197,668 | 196,144 |
| Other arterial[b] | 816,095 | 820,773 | 832,581 | 833,339 | 847,664 | 846,364 | 852,659 | 854,089 | 857,549 | 864,200 | 865,816 | 867,908 | 869,781 | 872,807 | 875,501 | 859,837 | 856,243 | 852,236 | 853,147 | 853,718 | 853,928 | 864,848 |
| Collector[c] | 2,303,401 | 2,360,568 | 2,361,876 | 2,361,810 | 2,319,815 | 2,308,561 | 2,304,885 | 2,281,129 | 2,279,896 | 2,283,075 | 2,278,467 | 2,275,537 | 2,276,686 | 2,275,862 | 2,267,167 | 2,234,598 | 2,222,041 | 2,210,189 | 2,202,341 | 2,203,997 | 2,198,491 | 2,219,178 |
| Local | 7,173,786 | 7,027,931 | 6,855,435 | 6,893,084 | 6,861,779 | 6,817,027 | 6,797,650 | 6,820,554 | 6,821,243 | 6,873,460 | 6,730,682 | 6,750,479 | 6,789,872 | 6,749,058 | 6,761,501 | 6,684,079 | 6,596,733 | 6,565,948 | 6,580,632 | 6,582,228 | 6,553,946 | 6,535,908 |

[a] Includes the 50 States and the District of Columbia.

[b] *Urban other arterial* includes other freeways and expressways, other principal arterial, and minor arterial. *Rural other arterial* includes other principal arterial and minor arterial prior to 2009 and other freeways and expressways, other principal arterial and minor arterial for 2009.

[c] *Collector* is the sum of major and minor collectors.

**NOTES**

In estimating rural and urban lane kilometers, the U.S. Department of Transportation, Federal Highway Administration assumes that rural minor collector and urban/rural local roads are two lanes wide.

1.609344 kilometer = 1 mile.

2009 data exclude 1,325 kilometers of federal agency owned roads and 114 kilometers of other non federal agency owned roads. 2008 data exclude 1,268 kilometers of federal agency owned roads. 2007 data exclude 1,268 kilometers of federal owned roads and 703 kilometers of local government owned roads. 2006 data exclude 1,268 kilometers of federal owned roads and include 441 kilometers of miscoded roads. 2005 data exclude 1,239 kilometers of federal agency owned roads.

**SOURCES**

1980-95: U.S. Department of Transportation, Federal Highway Administration, Office of Highway Information Management, *Highway Statistics Summary to 1995* (Washington, DC), table HM-260, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of Mar. 11, 2011.

1996-2009: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics* (Washington, DC: Annual Issues), table HM-60, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of Mar. 11, 2011.

**Table 1-36M: Roadway Vehicle-Kilometers Traveled (VKT) and VKT per Lane-Kilometers by Functional Class[a]**

| | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Urban VKT, total (millions) | 1,376,416 | 1,680,313 | 2,052,693 | 2,073,635 | 2,193,623 | 2,268,647 | 2,332,337 | 2,397,173 | 2,452,457 | 2,499,240 | 2,567,901 | 2,619,397 | 2,677,583 | 2,714,387 | 2,780,296 | 2,905,683 | 3,045,305 | 3,141,230 | 3,181,749 | 3,209,867 | 3,191,476 | 3,214,446 |
| Interstate | 259,494 | 347,921 | 448,848 | 459,186 | 488,058 | 510,804 | 532,012 | 549,636 | 565,812 | 581,670 | 602,896 | 616,796 | 633,221 | 643,715 | 657,607 | 696,255 | 731,262 | 754,895 | 768,113 | 777,820 | 766,194 | 764,379 |
| Other arterial[b] | 779,227 | 930,635 | 1,125,306 | 1,138,640 | 1,199,956 | 1,245,597 | 1,284,094 | 1,311,889 | 1,343,196 | 1,362,514 | 1,388,857 | 1,413,250 | 1,449,040 | 1,470,837 | 1,508,530 | 1,567,398 | 1,641,674 | 1,686,945 | 1,706,062 | 1,718,989 | 1,709,487 | 1,693,145 |
| Collector[c] | 133,645 | 144,162 | 171,068 | 172,652 | 186,789 | 189,721 | 193,263 | 204,272 | 208,104 | 209,450 | 212,281 | 211,794 | 217,860 | 221,962 | 228,324 | 247,438 | 260,888 | 270,431 | 278,754 | 281,090 | 282,261 | 288,356 |
| Local | 204,050 | 257,595 | 307,470 | 303,157 | 318,821 | 322,525 | 322,968 | 331,375 | 335,345 | 345,607 | 363,868 | 377,557 | 377,462 | 377,872 | 385,835 | 394,592 | 411,482 | 428,959 | 428,819 | 431,969 | 433,533 | 468,567 |
| Rural VKT, total (millions) | 1,081,527 | 1,175,993 | 1,398,324 | 1,421,941 | 1,422,816 | 1,427,015 | 1,461,833 | 1,501,983 | 1,545,282 | 1,608,180 | 1,661,693 | 1,710,126 | 1,743,164 | 1,787,494 | 1,815,598 | 1,746,758 | 1,722,397 | 1,670,398 | 1,669,001 | 1,666,159 | 1,593,923 | 1,577,522 |
| Interstate | 217,397 | 248,414 | 322,147 | 329,933 | 330,812 | 335,239 | 346,923 | 359,498 | 374,277 | 386,653 | 404,782 | 418,697 | 431,594 | 440,347 | 450,555 | 434,434 | 429,688 | 416,482 | 415,071 | 412,697 | 391,537 | 389,256 |
| Other arterial[b] | 422,894 | 455,127 | 532,477 | 538,736 | 553,714 | 562,574 | 575,065 | 593,196 | 609,695 | 630,955 | 649,345 | 665,174 | 676,888 | 687,966 | 698,141 | 670,446 | 659,741 | 642,019 | 634,885 | 633,221 | 602,334 | 599,429 |
| Collector[c] | 304,919 | 332,602 | 386,983 | 395,303 | 378,051 | 364,188 | 371,000 | 380,043 | 387,900 | 408,934 | 414,998 | 425,596 | 430,067 | 437,917 | 442,581 | 424,323 | 419,928 | 404,890 | 404,549 | 404,773 | 388,106 | 371,271 |
| Local | 136,318 | 139,850 | 156,716 | 157,968 | 160,239 | 165,014 | 168,844 | 169,245 | 173,410 | 181,639 | 192,568 | 200,659 | 204,615 | 221,264 | 224,320 | 217,554 | 213,040 | 207,007 | 214,497 | 215,469 | 211,946 | 217,566 |
| Urban VKT per lane-kilometer, total (thousands) | 613 | 677 | 764 | 766 | 775 | 782 | 794 | (R) 809 | 820 | 825 | 844 | 858 | 869 | 857 | 861 | 856 | 860 | 862 | 856 | 851 | 829 | 818 |
| Interstate | 3,327 | 3,773 | 4,483 | 4,542 | 4,508 | 4,588 | 4,667 | (R) 4,785 | 4,897 | 5,002 | 5,131 | 5,229 | 5,323 | 5,370 | 5,440 | 5,436 | 5,479 | 5,455 | 5,427 | 5,414 | 5,245 | 5,222 |
| Other arterial[b] | 1,451 | 1,556 | 1,751 | 1,758 | 1,783 | 1,778 | 1,803 | (R) 1,828 | 1,857 | 1,866 | 1,901 | 1,950 | 1,974 | 1,997 | 2,025 | 2,012 | 2,019 | 2,001 | 1,989 | 1,977 | 1,923 | 1,850 |
| Collector[c] | 572 | 552 | 634 | 649 | 659 | 656 | 655 | 686 | 692 | 689 | 703 | 706 | 718 | 728 | 743 | 741 | 745 | 745 | 747 | 747 | 723 | 710 |
| Local | 146 | 168 | 184 | 179 | 181 | 179 | 178 | 181 | 181 | 184 | 192 | 198 | 196 | 189 | 188 | 183 | 184 | 187 | 183 | 181 | 179 | 190 |
| Rural VKT per lane-kilometer, total (thousands) | 103 | 113 | 136 | 138 | 139 | 140 | 144 | 148 | 152 | 157 | 165 | 169 | 172 | 177 | 179 | 175 | 174 | 170 | 170 | 169 | 163 | 161 |
| Interstate | 1,031 | 1,170 | 1,473 | 1,502 | 1,540 | 1,576 | 1,642 | 1,693 | 1,749 | 1,804 | 1,888 | 1,939 | 1,993 | 2,032 | 2,080 | 2,070 | 2,088 | 2,061 | 2,074 | 2,076 | 1,981 | 1,985 |
| Other arterial[b] | 518 | 555 | 640 | 646 | 653 | 665 | 674 | 695 | 711 | 730 | 750 | 766 | 778 | 788 | 797 | (R) 780 | 771 | 753 | 744 | 742 | 705 | 693 |
| Collector[c] | 132 | 141 | 164 | 167 | 163 | 158 | 161 | 167 | 170 | 179 | 182 | 187 | 189 | 192 | 195 | 190 | 189 | 183 | 184 | 184 | 177 | 167 |
| Local | 19 | 20 | 23 | 23 | 23 | 24 | 25 | 25 | 25 | 26 | 29 | 30 | 30 | 33 | 33 | 33 | 32 | 32 | 33 | 33 | 32 | 33 |

**KEY:** R = revised.

[a] Includes the 50 States and the District of Columbia.
[b] *Urban other arterial* includes other freeways and expressways, other principal arterial, and minor arterial *Rural other arterial* includes other principal arterial and minor arterial prior to 2009, and includes other freeways and expressways, other principal arterial and minor arterial for 2009.
[b] *Collector* is the sum of major and minor collectors.

**NOTES**
See table 1-6M for estimated highway *Lane-kilometers* by functional class.
1 mile=1.609344 kilometers.
Component values may not add to totals due to rounding.
2009 data exclude 1,325 kilometers of federal agency owned roads and 114 kilometers of other non federal agency owned roads. 2008 data exclude 1,268 kilometers of federal agency owned roads. 2007 data exclude 1,268 kilometers of federal owned roads and 703 kilometers of local government owned roads. 2006 data exclude 1,268 kilometers of federal owned roads and included 441 kilometers of miscoded roads. 2005 data exclude 1,239 kilometers of federal agency owned roads.

**SOURCES**
**Vehicle-Kilometers Traveled (VMT):**
1980-94: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1995,* FHWA-PL-97-009 (Washington, DC: July 1997), table VM-202, available at www.fhwa.dot.gov/policy/ohpi as of Mar. 18, 2009.

1995-2009: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics* (Washington, DC: Annual Issues), table VM-2, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of Mar. 14, 2011.
**Lane-kilometers:**
1980-95: U.S. Department of Transportation, Federal Highway Administration, Office of Highway Information Management *Highway Statistics Summary to 1995* (Washington, DC), table HM-260, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of Mar. 29, 2011.

1996-2009: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics* (Washington, DC: Annual Issues), table HM-60, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of Mar. 14, 2011.

**Table 1-40M: U.S. Passenger-Kilometers (Millions)**

| | 1960 | 1965 | 1970 | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Air, total | 53,750 | 92,740 | 189,166 | 237,217 | 352,556 | 466,929 | 577,550 | 563,568 | 588,318 | 598,885 | 640,839 | 667,376 | 718,817 | 745,307 | 766,630 | 808,626 | (R) 855,091 | 808,544 | 777,971 | 813,082 | 897,840 | 939,467 | 947,026 | 977,750 | 939,061 |
| Air carrier, certificated, domestic, all services | 50,049 | 85,659 | 174,520 | 218,871 | 328,898 | 447,134 | 556,629 | 544,095 | 570,937 | 582,953 | 625,068 | 649,995 | 699,505 | 725,190 | 745,548 | 785,934 | 830,629 | 782,956 | 777,971 | 813,082 | 897,840 | 939,467 | 947,026 | 977,750 | 939,061 |
| General aviation[f] | 3,701 | 7,081 | 14,645 | 18,347 | 23,657 | 19,795 | 20,921 | 19,473 | 17,381 | 15,933 | 15,772 | 17,381 | 19,312 | 20,117 | 21,082 | 22,692 | 24,462 | 25,589 | U | U | U | U | U | U | U |
| Highway, total[a] | 2,047,212 | 2,502,912 | 3,286,284 | 3,870,399 | 4,270,411 | 4,848,878 | 5,731,210 | 5,794,157 | 5,950,903 | 6,064,114 | 6,175,877 | 6,225,055 | 6,386,498 | 6,581,197 | (R) 6,760,265 | 6,927,051 | 7,065,142 | 7,473,462 | 7,510,870 | 7,599,112 | 7,796,390 | (R) 7,866,385 | 7,933,046 | (R) 7,987,433 | 7,840,214 |
| Passenger car[b,c,g] | 1,842,173 | 2,244,718 | 2,817,796 | 3,144,925 | 3,237,982 | 3,370,965 | 3,671,543 | 3,540,975 | 3,553,795 | 3,561,931 | 3,620,609 | 3,680,388 | 3,761,146 | 3,844,827 | 3,965,147 | 4,015,104 | 4,094,907 | 4,114,257 | 4,217,107 | 4,251,702 | 4,322,420 | (R) 4,344,110 | 4,298,629 | (R) 4,252,689 | 4,108,725 |
| Motorcycle[b,c,g] | U | U | 5,274 | 9,965 | 19,725 | 19,009 | 19,995 | 18,759 | 19,226 | 19,609 | 19,940 | 17,344 | 17,561 | 17,846 | 18,203 | 18,736 | 18,533 | 18,926 | 19,523 | 19,574 | 20,688 | (R) 21,367 | 24,628 | (R) 27,839 | 29,603 |
| Other 2-axle 4-tire vehicle[c,h] | U | U | 363,090 | 584,622 | 838,104 | 1,107,376 | 1,608,947 | 1,797,569 | 1,933,896 | 2,016,283 | 2,042,728 | 2,021,571 | 2,089,410 | 2,176,919 | 2,221,791 | 2,305,586 | 2,361,976 | 2,701,852 | 2,695,316 | 2,745,707 | 2,865,873 | (R) 2,904,621 | 3,020,240 | (R) 3,103,329 | 3,093,096 |
| Truck, single-unit 2-axle 6-tire or more[b] | 158,602 | 207,234 | 43,583 | 55,693 | 64,073 | 73,130 | 83,527 | 85,131 | 86,702 | 91,366 | 98,627 | 100,914 | 103,114 | 107,654 | 109,469 | 113,143 | 113,459 | 137,581 | 122,094 | 125,138 | 126,239 | (R) 126,327 | 129,301 | (R) 131,989 | 135,105 |
| Truck, combination | 46,436 | 50,960 | 56,543 | 75,195 | 110,527 | 125,630 | 151,827 | 155,535 | 160,146 | 165,949 | 175,309 | 185,800 | 191,349 | 200,499 | 206,574 | 213,051 | 217,294 | 259,376 | 223,276 | 225,566 | 229,122 | (R) 231,790 | 228,799 | (R) 233,429 | 230,953 |
| Bus[d] | U | U | U | U | U | 152,767 | 195,371 | 196,189 | 197,138 | 208,977 | 218,663 | 219,038 | 223,918 | 233,451 | 239,081 | 261,430 | 258,974 | 241,469 | 233,554 | 231,425 | 232,048 | (R) 238,170 | 231,449 | (R) 238,158 | 242,732 |
| Transit, total[e] | U | U | U | U | 64,139 | 63,699 | 66,213 | 65,505 | 64,762 | 63,382 | 63,706 | 64,065 | 62,739 | 64,664 | 66,957 | 69,651 | 72,582 | 74,847 | 74,184 | 73,510 | 74,908 | 75,840 | 79,669 | 83,482 | 86,441 |
| Motor bus[d] | U | U | U | U | 35,068 | 34,055 | 33,766 | 33,941 | 32,728 | 32,584 | 30,307 | 30,285 | 27,040 | 28,178 | 28,765 | 30,069 | 30,267 | 31,516 | 31,670 | 30,865 | 30,450 | 31,261 | 32,815 | 32,811 | 34,115 |
| Light rail | U | U | U | U | 613 | 563 | 919 | 1,065 | 1,128 | 1,135 | 1,341 | 1,384 | 1,537 | 1,647 | 1,795 | 1,915 | 2,156 | 2,297 | 2,304 | 2,375 | 2,537 | 2,735 | 3,003 | 3,107 | 3,349 |
| Heavy rail | U | U | U | U | 16,991 | 16,781 | 18,467 | 16,943 | 17,280 | 16,465 | 17,168 | 16,993 | 18,556 | 19,402 | 19,770 | 20,764 | 22,279 | 22,817 | 21,989 | 21,897 | 23,101 | 23,203 | 23,692 | 25,972 | 27,117 |
| Trolley bus | U | U | U | U | 352 | 492 | 311 | 314 | 320 | 303 | 301 | 301 | 296 | 304 | 292 | 300 | 309 | 301 | 302 | 283 | 279 | 278 | 264 | 250 | 259 |
| Commuter rail | 6,754 | 6,643 | 7,390 | 7,263 | 10,486 | 10,515 | 11,397 | 11,819 | 11,780 | 11,169 | 12,868 | 13,267 | 13,439 | 12,935 | 14,005 | 14,104 | 15,128 | 15,359 | 15,288 | 15,378 | 15,635 | 15,241 | 16,671 | 17,923 | 17,754 |
| Demand responsive[e] | U | U | U | U | U | 586 | 694 | 731 | 797 | 904 | 929 | 977 | 629 | 855 | 826 | 900 | 946 | 1,007 | 1,048 | 1,108 | 1,133 | 1,188 | 1,212 | 1,252 | 1,358 |
| Ferry boat[f] | U | U | U | U | U | U | 460 | 454 | 436 | 418 | 418 | 418 | 411 | 409 | 451 | 474 | 480 | 475 | 485 | 590 | 575 | 578 | 579 | 613 | 628 |
| Other[f] | U | U | U | U | 628 | 707 | 200 | 238 | 293 | 404 | 373 | 439 | 830 | 932 | 1,053 | 1,125 | 1,018 | 1,074 | 1,098 | 1,012 | 1,199 | 1,355 | 1,434 | 1,555 | 1,860 |
| Rail | | | | | | | | | | | | | | | | | | | | | | | | | |
| Intercity/Amtrak[i] | 27,462 | 21,340 | 9,944 | 6,326 | 7,247 | 7,765 | 9,748 | 10,095 | 9,803 | 9,976 | 9,529 | 8,924 | 8,127 | 8,314 | 8,536 | 8,578 | 8,848 | 8,946 | 8,800 | 9,141 | 8,869 | 8,660 | 8,706 | 9,309 | 9,943 |

**KEY:** R = revised; U = data are unavailable.

[a] All operations other than those operating under 14 CFR 121 and 14 CFR 135.
[b] In July 1997, FHWA published revised passenger-miles data for the highway modes for a number of years. The major change reflected the reassignment of some vehicles from the passenger car category to the other 2-axle 4-tire vehicle category. *Passenger-miles* for passenger car, motorcycle, and other 2-axle 4-tire vehicles were derived by multiplying vehicle-miles for these vehicles by average vehicle occupancy rates, provided by the Nationwide Personal Transportation Survey (1977, 1983, and 1995) and the National Household Travel Survey (2001).
[c] U.S. Department of Transportation, Federal Highway Administration (FHWA), provides data separately for passenger car and motorcycle in its annual *Highway Statistics* series. However, the 1995 summary report provides updated data for *passenger car* and *motorcycle combined*. *Passenger car* figures in this table were computed by U.S. Department of Transportation, Bureau of Transportation Statistics by subtracting the most current *motorcycle* figures from the aggregate *passenger car* and *motorcycle* figures.
[d] *Motor bus* and *demand responsive* figures are also included in the *bus* figure for highway.
[e] Prior to 1985, excludes demand responsive and most rural and smaller systems funded via Sections 18 and 16(b)2, Federal Transit Act. The series is not continuous between 1980 and 1985. Transit rail modes are measured in car-Kilometers. Car-Kilometers measure individual vehicle-Kilometers in a train. A 10-car train traveling 1 Kilometer would equal 1 train-Kilometer and 10 car-Kilometers.
[f] Amtrak began operations in 1971. Does not include contract commuter passengers.
[g] *Motorcycles* are included in *Passenger car* in 1960 and 1965.
[h] *Other 2-axle 4-tire vehicles* are included in *single-unit 2-axle 6-tire or more truck* in 1960 and 1965.
[i] *Ferry boats* are included in *Other* in 1980 and 1985.

**NOTES**

Air carrier passenger-kilometers are computed by summing the products of the aircraft-kilometers flown on each interairport segment multiplied by the number of passengers carried on that segment. Highway passenger-kilometers from 1960 to 1994 are calculated by multiplying vehicle-kilometers of travel as cited by FHWA by the average number of occupants for each vehicle type. Average vehicle occupancy rates are based on various sources, such as the National Household Travel Survey, conducted by the Federal Highway Administration, and the Vehicle Inventory and Use Survey, conducted by the Bureau of the Census. Transit passenger-kilometers are the cumulative sum of the distances ridden by each passenger. Rail passenger-kilometers represent the movement of 1 passenger for 1 Kilometer.
2007 data for *Bus, Paratransit (Demand responsive), and Other* are not comparable to earlier years due to change in the method of data collection and estimation by the American Public *Transit* data from 1996 and after are not comparable to the data for earlier years or to the data published in previous editions of the report due to different data sources used.
Numbers may not add to totals due to rounding.
1 mile = 1.609344 kilometers

**SOURCES**

**Air:**
*Air carrier, domestic, all services:*
1960: Civil Aeronautics Board, *Handbook of Airline Statistics, 1969* (Washington, DC: 1970), part III, table 2.
1965-70: Ibid., *Handbook of Airline Statistics, 1973* (Washington, DC: 1974), part III, table 2.
1975-80: Ibid., *Air Carrier Traffic Statistics* (Washington, DC: 1976, 1981), page 4 (December 1976) and page 2 (December 1981).
1985-2008: U.S. Department of Transportation, Bureau of Transportation Statistics, Office of Airline Information, *Air Carrier Traffic Statistics* (Washington, DC: Annual December issues), page 3, line1.
*General aviation:*
1960-2001: Eno Transportation Foundation, Inc., *Transportation in America, 2002* (Washington, DC: 2002), pages 45-46.
**Highway:**
*Passenger car and motorcycle:*
1960-94: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1995*, available at http://www.fhwa.dot.gov/ohim/summary95/index.html as of July 28, 2000, table VM-
1995-2008: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1, available at http://www.fhwa.dot.gov/policyohpi/hss/index.htm as of Mar. 05, 2010 .
*Motorcycle:*
1970-80: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1985* (Washington, DC: 1986), table VM-201A.
1985-2008: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1, available at http://www.fhwa.dot.gov/policyohpi/hss/index.htm as of Mar. 05, 2010.
*Other 2-axle 4-tire vehicle:*
1970-94: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1995*, available at http://www.fhwa.dot.gov/ohim/summary95/index.html as of July 28, 2000, table VM-
1995-2008: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1, available at http://www.fhwa.dot.gov/policyohpi/hss/index.htm as of Mar. 05, 2010.
*Single-unit 2-axle 6-tires or more truck, combination truck, and bus:*
1960-94: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1995*, available at http://www.fhwa.dot.gov/ohim/summary95/index.html as of July 28, 2000, table VM-
1995-2008: Ibid., Highway Statistics (Washington, DC: Annual issues), table VM-1, available at http://www.fhwa.dot.gov/policyohpi/hss/index.htm as of Mar. 05, 2010.
**Transit:**
*Ferryboat:*
1992: American Public Transit Association, personal communication, July 19, 2000.
1993-95: American Public Transit Association, personal communication, Aug. 13, 2001.
1996-2008: U.S. Department of Transportation, Federal Transit Administration, *National Transit Database*, available at http://www.ntdprogram.gov/ntdprogram/data.htm as of Mar. 05, 2010.
*All other data:*
1960-1995: American Public Transportation Association, *Public Transportation Fact Book* (Washington, DC: Annual Issues), table 2 and similar tables in earlier editions.
1996-2008: U.S. Department of Transportation, Federal Transit Administration, *National Transit Database*, available at http://www.ntdprogram.gov/ntdprogram/data.htm as of Mar. 05, 2010.
**Rail, Intercity / Amtrak:**
1960-80: Association of American Railroads, *Railroad Facts* (Washington, DC: Annual Issues).
1985: Amtrak, *Amtrak FY95 Annual Report* (Washington, DC: 1996), Statistical Appendix, page 4.
1990-2002: Ibid., *Amtrak Annual Report* (Washington, DC: Annual issues), Statistical Appendix.
2003-08: Association of American Railroads, *Railroad Facts* (Washington, DC: Annual Issues), page 77.

**Table 1-49: U.S. Tonne-Kilometers of Freight (Millions)**

| | 1960 | 1965 | 1970 | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL U.S. tonne-kilometers of freight (millions) | U | 2,706,838 | 3,221,739 | 3,335,607 | 4,363,158 | 4,306,056 | 4,839,335 | 4,888,912 | 4,990,309 | 5,020,175 | 5,277,541 | 5,502,687 | 5,582,528 | 5,555,831 | 5,594,959 | 5,704,438 | 5,704,172 | (R) 5,738,168 | (R) 5,801,434 | 5,879,329 | U | U | U | U | U |
| Air carrier, domestic, all services[a] | 807 | 1,975 | 3,955 | 5,066 | 6,611 | 7,528 | 13,233 | 12,935 | 14,337 | 15,585 | 17,232 | 18,279 | 18,777 | 19,857 | 20,206 | 20,735 | 21,874 | (R) 19,081 | (R) 19,520 | 22,236 | 24,019 | (R) 22,987 | (R) 22,427 | 22,105 | 20,109 |
| Intercity truck[b] | 416,092 | 524,130 | 601,508 | 662,827 | 810,284 | 890,583 | 1,246,816 | 1,276,016 | 1,308,135 | 1,366,534 | 1,454,132 | 1,521,291 | 1,563,630 | 1,633,709 | 1,677,508 | 1,731,527 | 1,756,346 | 1,787,006 | 1,832,265 | 1,845,405 | U | U | U | U | U |
| Class I rail | 835,555 | 1,018,882 | 1,116,600 | 1,101,187 | 1,341,653 | 1,280,372 | 1,509,566 | 1,516,728 | 1,557,470 | 1,619,560 | 1,752,990 | 1,906,268 | 1,979,686 | 1,969,394 | 2,010,092 | 2,092,813 | 2,140,261 | 2,183,347 | 2,200,194 | 2,265,056 | 2,427,347 | 2,476,733 | 2,586,920 | 2,584,946 | 2,594,715 |
| Domestic water transportation[c,a] | U | 715,099 | 870,428 | 826,321 | 1,345,855 | 1,303,711 | 1,216,951 | 1,238,639 | 1,250,736 | 1,152,878 | 1,189,759 | 1,179,260 | 1,116,421 | 1,032,799 | 982,262 | 957,539 | 942,849 | 907,644 | 893,620 | 884,957 | 906,891 | 863,248 | 819,962 | 807,585 | 759,945 |
| Coastwise | U | 441,708 | 525,275 | 461,126 | 921,460 | 892,009 | 699,522 | 733,100 | 733,360 | 654,658 | 668,084 | 642,892 | 595,794 | 510,761 | 459,692 | 427,378 | 414,445 | 400,848 | 384,977 | 407,213 | 408,584 | 384,650 | 331,640 | 332,950 | 303,495 |
| Lakewise | U | 110,838 | 115,946 | 100,033 | 90,149 | 70,347 | 88,956 | 80,794 | 81,444 | 82,398 | 85,063 | 87,166 | 85,168 | 90,760 | 90,014 | 83,284 | 84,502 | 74,245 | 78,332 | 69,406 | 81,369 | 75,808 | 77,532 | 75,762 | 73,383 |
| Internal | U | 160,161 | 227,487 | 263,378 | 331,914 | 339,746 | 426,886 | 423,332 | 434,544 | 414,477 | 434,725 | 447,232 | 433,306 | 429,265 | 430,540 | 444,889 | 441,727 | 430,489 | 428,371 | 406,387 | 414,772 | 400,568 | 408,468 | 396,554 | 380,994 |
| Intraport | U | 2,392 | 1,721 | 1,785 | 2,331 | 1,609 | 1,587 | 1,413 | 1,387 | 1,346 | 1,887 | 1,970 | 2,153 | 2,012 | 2,016 | 1,989 | 2,176 | 2,063 | 1,940 | 1,950 | 2,167 | 2,221 | 2,323 | 2,320 | 2,074 |
| Oil pipeline[d] | 334,334 | 446,751 | 629,248 | 740,206 | 858,756 | 823,862 | 852,770 | 844,594 | 859,632 | 865,617 | 863,427 | 877,589 | 904,015 | 900,073 | 904,891 | 901,825 | 842,842 | 841,090 | 855,836 | 861,675 | 875,399 | 886,933 | 848,682 | 814,226 | U |

**KEY:** R = revised; U = data are unavailable.

[a] Includes freight, express, and mail revenue ton-miles as reported on U.S. DOT Form 41.
[b] The methodology was changed in 1990 for intercity trucks. Therefore figures prior to 1990 are not comparable to those after 1990.
[c] Excludes intraterritorial traffic, for which ton-miles were not compiled.
[d] The large increase between1975 and 1980 was a result of a new Alaska pipeline and consequent water transportation of crude petroleum from Alaskan

**NOTE**
Numbers may not add to totals due to rounding.
1.459972 tonne-kilometers= 1 ton-mile

**SOURCES**
**Air carrier, domestic, all services:**
1960-65: Civil Aeronautics Board, *Handbook of Airline Statistics, 1969* (Washington, DC: 1970).
1970-80: Ibid., *Air Carrier Traffic Statistics* (Washington, DC: Annual Issues), p. 2, line 3.
1985-2008: U.S. Department of Transportation, Bureau of Transportation Statistics, Office of Airline Information,*Air Carrier Traffic Statistics* (Washington, DC: Annual Issues), p. 3, line 3.
**Intercity truck:**
1960-2003: Eno Transportation Foundation, Inc.,*Transportation in America, 2007* (Washington, DC: 2007), p. 40.
**Class I rail:**
Association of American Railroads, *Railroad Facts* (Washington, DC: Annual Issue), p. 27.
**Domestic water transportation:**
U.S. Army Corps of Engineers, *Waterborne Commerce of the U.S.* (New Orleans, LA: Annual Issues), part 5, section 1, table 1-4, and similar tables in earlier editions available at http://www.iwr.usace.army.mil/ndc/wcsc/wcsc.htm as of September 2, 2009.
**Oil pipeline:**
1960-70: Eno Transportation Foundation, Inc.,*Transportation in America, 1998* (Washington, DC: 1998), p. 44.
1975: Association of Oil Pipe Lines,*Shifts in Petroleum Transportation* (Washington, DC: Annual Issue), table 4.
1980-2007: Ibid., *Shifts in Petroleum Transportation* (Washington, DC: Annual Issues), table 1.

**Table 1-50M: U.S. Tonne-Kilometers of Freight (BTS Special Tabulation) (Millions)**

| | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL U.S. ton-miles of freight | (R) 4,969,620 | (R) 4,915,544 | (R) 4,665,313 | (R) 4,747,646 | (R) 4,876,494 | (R) 4,838,132 | (R) 4,859,174 | (R) 5,072,668 | (R) 5,251,540 | (R) 5,208,871 | (R) 5,287,736 | (R) 5,308,407 | (R) 5,469,427 | (R) 5,500,046 | (R) 5,759,311 | (R) 5,991,826 | (R) 6,093,814 | (R) 6,101,563 | (R) 6,173,311 | (R) 6,278,087 | (R) 6,319,854 | (R) 6,361,648 | (R) 6,437,017 | (R) 6,445,673 | (R) 6,629,495 | (R) 6,672,534 | (R) 6,760,826 | 6,728,531 |
| Air | 7,066 | 7,431 | 7,504 | 8,570 | 9,490 | 9,796 | 10,716 | 12,658 | 13,622 | 14,906 | 15,213 | 14,541 | 16,045 | 16,848 | 17,563 | 18,571 | 20,089 | 20,294 | 20,644 | 21,170 | 23,082 | 19,400 | 20,202 | 22,237 | 24,018 | 22,987 | 22,427 | 22,106 |
| Truck | (R) 919,160 | (R) 920,948 | (R) 944,002 | (R) 983,894 | (R) 1,031,882 | (R) 1,046,352 | (R) 1,073,218 | (R) 1,131,184 | (R) 1,169,042 | (R) 1,209,404 | (R) 1,238,995 | (R) 1,266,962 | (R) 1,299,503 | (R) 1,354,607 | (R) 1,442,108 | (R) 1,509,428 | (R) 1,550,171 | (R) 1,621,117 | (R) 1,663,775 | (R) 1,717,218 | (R) 1,741,211 | (R) 1,770,966 | (R) 1,818,164 | (R) 1,846,237 | (R) 1,870,760 | (R) 1,885,273 | (R) 1,885,180 | 1,922,873 |
| Railroad | 1,360,694 | 1,349,014 | 1,182,577 | 1,227,836 | 1,314,108 | 1,279,241 | 1,301,177 | 1,389,806 | 1,497,469 | 1,526,588 | 1,554,005 | 1,521,187 | 1,603,603 | 1,657,092 | 1,782,732 | 1,922,797 | (R) 2,010,520 | 2,030,951 | 2,114,554 | 2,195,309 | 2,257,582 | 2,334,980 | 2,344,032 | 2,341,159 | (R) 2,459,187 | (R) 2,530,612 | (R) 2,709,565 | 2,656,613 |
| Domestic water transportation | 1,345,853 | 1,356,917 | 1,294,220 | 1,342,541 | 1,296,045 | 1,303,713 | 1,275,141 | 1,307,281 | 1,299,417 | 1,190,680 | 1,216,951 | 1,238,639 | 1,250,733 | 1,152,877 | 1,189,756 | 1,179,260 | 1,116,422 | 1,032,799 | 982,262 | 957,539 | 942,848 | 907,646 | 893,620 | 884,956 | 906,891 | 863,246 | 819,962 | 807,573 |
| Coastwise | 921,460 | 926,739 | 923,735 | 948,617 | 867,111 | 892,009 | 848,082 | 856,738 | 819,913 | 706,464 | 699,522 | 733,100 | 733,360 | 654,657 | 668,083 | 642,891 | 595,794 | 510,761 | 459,693 | 427,378 | 414,445 | 400,848 | 384,977 | 407,214 | 408,583 | 384,650 | 331,640 | 332,950 |
| Lakewise | 90,149 | 90,734 | 52,009 | 62,907 | 72,683 | 70,347 | 63,068 | 73,111 | 84,912 | 85,128 | 88,956 | 80,793 | 81,443 | 82,398 | 85,062 | 87,166 | 85,167 | 90,761 | 90,013 | 83,284 | 84,502 | 74,245 | 78,332 | 69,406 | 81,369 | 75,808 | 77,532 | 75,762 |
| Internal | 331,914 | 337,522 | 316,853 | 329,411 | 354,562 | 339,747 | 362,244 | 375,703 | 392,785 | 397,342 | 426,886 | 423,332 | 434,543 | 414,477 | 434,724 | 447,232 | 433,307 | 429,265 | 430,540 | 444,889 | 441,726 | 430,489 | 428,370 | 406,386 | 414,772 | 400,568 | 408,468 | 396,539 |
| Intraport | 2,330 | 1,921 | 1,623 | 1,606 | 1,689 | 1,609 | 1,748 | 1,729 | 1,807 | 1,746 | 1,587 | 1,413 | 1,387 | 1,345 | 1,886 | 1,971 | 2,153 | 2,012 | 2,016 | 1,988 | 2,175 | 2,063 | 1,940 | 1,951 | 2,167 | 2,221 | 2,323 | 2,323 |
| Pipeline | 1,336,846 | 1,281,234 | 1,237,010 | 1,184,805 | 1,224,970 | 1,199,030 | 1,198,922 | 1,231,739 | 1,271,990 | 1,267,292 | 1,262,572 | 1,267,078 | 1,299,542 | 1,318,621 | 1,327,152 | 1,361,770 | 1,396,612 | 1,396,402 | 1,392,076 | (R) 1,386,852 | (R) 1,355,130 | (R) 1,328,657 | (R) 1,360,999 | (R) 1,351,084 | 1,368,640 | (R) 1,370,416 | (R) 1,323,692 | 1,319,366 |
| Oil and oil products | 858,464 | 823,424 | 826,344 | 811,744 | 829,264 | 823,424 | 843,864 | 857,004 | 877,443 | 852,624 | 852,770 | 844,594 | 859,632 | 865,617 | 863,427 | 877,589 | 904,015 | 900,073 | 904,891 | (R) 901,825 | (R) 842,842 | (R) 841,090 | (R) 855,836 | (R) 861,675 | 875,399 | 886,933 | (R) 848,682 | 814,226 |
| Natural Gas | 478,383 | 457,809 | 410,666 | 373,060 | 395,706 | 375,606 | 355,058 | 374,736 | 394,547 | 414,669 | 409,802 | 422,484 | 439,911 | 453,004 | 463,724 | 484,181 | 492,597 | 496,330 | 487,185 | 485,027 | 512,288 | 487,568 | 505,163 | 489,409 | 493,240 | (R) 483,483 | (R) 475,010 | 505,140 |

**KEY:** R = revised.

**NOTES**

BTS developed a more comprehensive and reliable estimates of ton-miles for the air, truck, rail, water, and pipeline modes than are presented in table 1-49. These improved estimates are not comparable to data in table 1-49M.

Numbers may not add to totals due to rounding.

1.459972 tonne-kilometers = 1 ton mile.

**SOURCE**

U.S. Department of Transportation, Research and Innovative Technology Administration (RITA), Bureau of Transportation Statistics (BTS), special tabulation.

**Table 1-56M: U.S. Waterborne Freight (Million short tonnes)**

| | 1960 | 1965 | 1970 | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL freight | 997.8 | 1,154.8 | 1,389.5 | 1,537.7 | 1,813.4 | 1,622.4 | 1,963.0 | 1,897.9 | 1,934.2 | 1,930.7 | 2,009.2 | 2,032.5 | 2,072.1 | 2,116.6 | 2,122.4 | 2,107.0 | (R) 2,199.5 | 2,171.1 | (R) 2,123.0 | 2,172.0 | 2,315.1 | 2,293.0 | 2,348.2 | 2,326.0 |
| Foreign | 307.8 | 402.5 | 527.0 | 679.2 | 835.9 | 702.5 | 944.9 | 919.5 | 941.2 | 961.7 | 1,012.2 | 1,040.9 | 1,073.6 | 1,107.3 | 1,129.8 | 1,143.8 | (R) 1,229.0 | 1,225.4 | (R) 1,196.8 | 1,250.2 | 1,365.2 | 1,359.6 | 1,419.7 | 1,399.3 |
| Imports | 191.7 | 244.8 | 307.8 | 432.3 | 469.5 | 374.4 | 544.3 | 503.8 | 532.3 | 588.6 | 652.7 | 610.2 | 664.6 | 715.1 | 762.7 | 780.9 | 852.5 | 863.5 | 848.1 | 911.5 | 988.0 | 995.1 | 1,025.9 | 975.8 |
| Exports | 116.1 | 157.8 | 219.2 | 246.9 | 366.4 | 328.1 | 400.6 | 415.7 | 408.9 | 373.1 | 359.5 | 430.6 | 409.0 | 392.2 | 367.1 | 362.9 | 376.5 | 362.0 | 348.6 | 338.7 | 377.2 | 364.5 | 393.8 | 423.5 |
| Domestic | 690.0 | 752.2 | 862.5 | 858.5 | 977.5 | 920.0 | 1,018.1 | 978.4 | 993.0 | 969.0 | 997.0 | 991.6 | 998.5 | 1,009.3 | 992.6 | 963.2 | 970.5 | 945.7 | 926.2 | 921.8 | 949.9 | 933.4 | 928.5 | 926.7 |
| Inland | 264.0 | 335.3 | 428.3 | 457.2 | 485.3 | 485.0 | 564.8 | 544.7 | 563.4 | 550.9 | 561.0 | 562.7 | 564.3 | 572.0 | 567.0 | 566.6 | 570.1 | 562.3 | 551.6 | 553.0 | 568.1 | 566.1 | 569.4 | 564.2 |
| Coastal | 189.8 | 182.8 | 216.3 | 210.4 | 299.0 | 281.0 | 270.9 | 267.2 | 258.7 | 246.5 | 251.3 | 241.9 | 242.6 | 238.7 | 226.5 | 207.6 | 205.9 | 202.9 | 196.3 | 202.7 | 200.1 | 193.8 | 183.1 | 186.7 |
| Great Lakes | 140.7 | 139.4 | 142.5 | 117.3 | 104.4 | 83.4 | 99.9 | 93.8 | 97.4 | 99.7 | 104.1 | 105.3 | 104.2 | 111.3 | 110.8 | 103.3 | 103.7 | 90.7 | 92.0 | 81.4 | 93.9 | 87.3 | 87.9 | 86.8 |
| Intraport | 94.5 | 93.3 | 73.9 | 71.0 | 85.4 | 67.4 | 78.4 | 68.6 | 69.7 | 67.5 | 75.2 | 75.4 | 80.7 | 81.5 | 81.7 | 80.4 | 85.8 | 84.6 | 81.7 | 78.8 | 82.8 | 81.8 | 82.9 | 84.4 |
| Intraterritory | 0.9 | 1.3 | 1.5 | 2.6 | 3.3 | 3.1 | 4.1 | 4.1 | 3.9 | 4.5 | 5.4 | 6.2 | 6.6 | 5.7 | 6.5 | 5.3 | 5.0 | 5.3 | 4.6 | 5.8 | 5.0 | 4.4 | 5.3 | 4.7 |

**KEY**: R = revised.

**NOTES**

Beginning in 1996, shipments of fish are excluded from domestic tonnage totals.
Numbers may not add to totals due to rounding.
Conversion: 1 short ton=.90718474 short tonnes

**SOURCES**

1960: U.S. Army Corps of Engineers, *Waterborne Commerce of the United States, Calendar Year 2004* (New Orleans, LA), part 5, tables 1-1, 1-3, and 1-6.

1965-2007: Ibid., *Waterborne Commerce of the United States* (New Orleans, LA, Annual Issues), available at http://www.iwr.usace.army.mil/ndc as of July 14, 2009.

**Table 1-61M: Crude Oil and Petroleum Products Transported in the United States by Mode (billions)**

| | 1975 | | 1980 | | 1985 | | 1990 | | 1995 | | 1996 | | 1997 | | 1998 | | 1999 | | 2000 | | 2001 | | 2002 | | 2003 | | 2004 | | 2005 | | 2006 | | 2007 | | 2008 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Tonne-kilometers | Percent | Tonne-kilometers | Percent | Tonne-kilometers | Percent | Tonne-kilometers | Percent | Tonne-kilometers | Percent | Tonne-kilometers | Percent | Tonne-kilometers | Percent | Tonne-kilometers | Percent | Tonne-kilometers | Percent | Tonne-kilometers | Percent | Tonne-kilometers | Percent | Tonne-kilometers | Percent | Tonne-kilometers | Percent | Tonne-kilometers | Percent | Tonne-kilometers | Percent | Tonne-kilometers | Percent | Tonne-kilometers | Percent | Tonne-kilometers | Percent |
| Crude oil, total | 484.0 | 100.0 | 1099.4 | 100.0 | 1147.8 | 100.0 | 917.2 | 100.0 | 855.5 | 100.0 | 793.1 | 100.0 | 710.9 | 100.0 | 663.0 | 100.0 | 617.6 | 100.0 | 548.9 | 100.0 | 549.8 | 100.0 | 560.6 | 100.0 | 555.4 | 100.0 | 546.2 | 100.0 | 549.4 | 100.0 | 534.3 | 100.0 | 489.8 | 100.0 | 578.7 | 100.0 |
| Pipelines[a] | 420.5 | 86.9 | 529.4 | 48.2 | 488.2 | 42.5 | 488.8 | 53.3 | 490.4 | 57.3 | 493.9 | 62.3 | 492.6 | 69.3 | 487.8 | 73.6 | 468.8 | 75.9 | 413.8 | 75.4 | 404.4 | 73.6 | 418.4 | 74.6 | 415.4 | 74.8 | 414.2 | 75.8 | 428.5 | 78.0 | 438.7 | 82.1 | 389.2 | 79.5 | 482.8 | 83.4 |
| Water carriers[b] | 59.3 | 12.3 | 565.6 | 51.4 | 655.8 | 57.1 | 425.1 | 46.4 | 361.6 | 42.3 | 295.5 | 37.3 | 215.1 | 30.3 | 172.1 | 26.0 | 146.0 | 23.6 | 132.9 | 24.2 | 143.2 | 26.0 | 139.7 | 24.9 | 137.4 | 24.7 | 129.5 | 23.7 | 118.4 | 21.6 | 93.1 | 17.4 | 97.7 | 19.9 | 92.3 | 15.9 |
| Motor carriers[c] | 2.0 | 0.4 | 3.6 | 0.3 | 2.6 | 0.2 | 2.2 | 0.2 | 2.5 | 0.3 | 2.5 | 0.3 | 2.5 | 0.3 | 2.3 | 0.4 | 2.0 | 0.3 | 1.8 | 0.3 | 1.6 | 0.3 | 1.8 | 0.3 | 1.9 | 0.3 | 1.8 | 0.3 | 2.0 | 0.4 | 2.0 | 0.4 | 2.3 | 0.5 | 2.5 | 0.4 |
| Railroads | 2.2 | 0.5 | 0.7 | 0.1 | 1.2 | 0.1 | 1.0 | 0.1 | 1.2 | 0.1 | 1.2 | 0.1 | 0.7 | 0.1 | 0.7 | 0.1 | 0.7 | 0.1 | 0.6 | 0.1 | 0.6 | 0.1 | 0.7 | 0.1 | 0.7 | 0.1 | 0.7 | 0.1 | 0.6 | 0.1 | 0.6 | 0.1 | 0.6 | 0.1 | 1.0 | 0.2 |
| Refined petroleum products, total | 752.2 | 100.0 | 718.7 | 100.0 | 597.6 | 100.0 | 654.9 | 100.0 | 670.0 | 100.0 | 699.3 | 100.0 | 685.6 | 100.0 | 694.5 | 100.0 | 715.2 | 100.0 | 736.0 | 100.0 | 720.1 | 100.0 | 701.7 | 100.0 | 734.2 | 100.0 | 771.4 | 100.0 | 773.3 | 100.0 | 714.5 | 100.0 | 720.8 | 100.0 | 709.1 | 100.0 |
| Pipelines[a] | 319.7 | 42.5 | 329.4 | 45.8 | 335.6 | 56.2 | 364.0 | 55.6 | 387.2 | 57.8 | 410.1 | 58.6 | 407.5 | 59.4 | 417.1 | 60.1 | 433.0 | 60.5 | 429.1 | 59.1 | 436.7 | 60.6 | 437.4 | 62.3 | 446.3 | 60.8 | 461.2 | 59.8 | 458.4 | 59.3 | 410.1 | 57.4 | 425.0 | 58.2 | 436.8 | 61.6 |
| Water carriers | 375.8 | 50.0 | 336.4 | 46.8 | 206.1 | 34.5 | 230.4 | 35.2 | 223.7 | 33.4 | 225.0 | 32.2 | 216.5 | 31.6 | 214.8 | 30.9 | 215.3 | 30.1 | 224.0 | 30.8 | 213.0 | 29.6 | 192.6 | 27.4 | 213.2 | 29.0 | 231.0 | 29.9 | 232.7 | 30.1 | 218.0 | 30.5 | 217.7 | 29.8 | 191.0 | 26.9 |
| Motor carriers[c] | 38.3 | 5.1 | 35.5 | 5.0 | 39.3 | 6.6 | 41.2 | 6.3 | 35.9 | 5.4 | 40.9 | 5.8 | 38.0 | 5.5 | 39.0 | 5.6 | 40.3 | 5.6 | 43.9 | 6.1 | 43.4 | 6.0 | 42.9 | 6.1 | 46.6 | 6.3 | 48.5 | 6.3 | 48.8 | 6.3 | 49.3 | 6.9 | 48.9 | 6.7 | 48.8 | 6.9 |
| Railroads | 18.4 | 2.4 | 17.5 | 2.4 | 16.5 | 2.7 | 19.4 | 3.0 | 23.2 | 3.5 | 23.4 | 3.3 | 23.7 | 3.4 | 23.7 | 3.4 | 26.6 | 3.7 | 29.1 | 4.0 | 27.0 | 3.8 | 28.8 | 4.1 | 28.2 | 3.8 | 30.8 | 4.0 | 33.3 | 4.3 | 37.1 | 5.2 | 38.3 | 5.2 | 32.6 | 4.6 |
| Combined crude and petroleum products, total | 1,236.2 | 100.0 | 1,818.1 | 100.0 | 1,745.4 | 100.0 | 1,572.1 | 100.0 | 1,525.5 | 100.0 | 1,492.4 | 100.0 | 1,396.5 | 100.0 | 1,357.5 | 100.0 | 1,332.8 | 100.0 | 1,275.0 | 100.0 | 1,269.9 | 100.0 | 1,262.3 | 100.0 | 1,289.6 | 100.0 | 1,317.6 | 100.0 | 1,322.7 | 100.0 | 1,248.9 | 100.0 | 1,219.7 | 100.0 | 1,288.0 | 100.0 |
| Pipelines[a] | 740.2 | 59.9 | 858.8 | 47.2 | 823.9 | 47.2 | 852.8 | 54.2 | 877.6 | 57.5 | 904.0 | 60.6 | 900.1 | 64.5 | 904.9 | 66.7 | 901.8 | 67.7 | 842.8 | 66.1 | 841.1 | 66.2 | 855.8 | 67.8 | 861.7 | 66.8 | 875.4 | 66.4 | 886.9 | 67.1 | 848.7 | 68.0 | 814.2 | 66.8 | 919.6 | 71.4 |
| Water carriers[b] | 435.1 | 35.2 | 902.0 | 49.6 | 862.0 | 49.4 | 655.5 | 41.7 | 585.3 | 38.4 | 520.5 | 34.9 | 431.6 | 30.9 | 386.9 | 28.5 | 361.3 | 27.1 | 356.8 | 28.0 | 356.2 | 28.1 | 332.3 | 26.3 | 350.5 | 27.2 | 360.5 | 27.4 | 351.1 | 26.5 | 311.1 | 24.9 | 315.4 | 25.9 | 283.2 | 22.0 |
| Motor carriers[c] | 40.3 | 3.3 | 39.1 | 2.2 | 41.9 | 2.4 | 43.4 | 2.8 | 38.4 | 2.5 | 43.4 | 2.9 | 40.4 | 2.9 | 41.3 | 3.0 | 42.3 | 3.2 | 45.7 | 3.6 | 45.0 | 3.5 | 44.7 | 3.5 | 48.5 | 3.8 | 50.2 | 3.8 | 50.8 | 3.8 | 51.4 | 4.1 | 51.4 | 4.2 | 51.2 | 4.0 |
| Railroads | 20.6 | 1.7 | 18.2 | 1.0 | 17.7 | 1.0 | 20.4 | 1.3 | (R) 24.4 | 1.6 | 24.5 | 1.6 | 24.4 | 1.7 | 24.4 | 1.8 | 27.3 | 2.0 | 29.6 | 2.3 | 27.6 | 2.2 | 29.5 | 2.3 | 28.9 | 2.2 | 31.5 | 2.4 | 33.9 | 2.6 | 37.7 | 3.0 | 38.8 | 3.2 | 33.6 | 2.6 |

[a]Beginning with 2006 data,*Pipeline* data were taken from PHMSA F 7000-1-1. Previously, data were extracted from FERC Form No. 6, which included data for federally-regulated pipelines. For 2005, data for federally regulated pipelines were estimated to include about 90 percent of the total national ton-miles, so that*Pipeline* statistics for that year were adjusted to include an additional 10 percent of ton-miles. From 1990 through 2004, the federally regulated estimate was 84 percent with a 16 percent addition for other pipeline ton-miles.

[b]The large increase in*Water carrier* Ton-miles between 1975 and 1980 reflects the entrance of the Alaska pipeline, moving crude petroleum for water transportation to U.S. refineries.

[c]The amount carried by*Motor carriers* is estimated.

**NOTES**

Details may not add to totals due to rounding in the source publication.

1.459972 tonne-kilometers = 1 ton mile.

**SOURCES**

1975: Association of Oil Pipe Lines,*Shifts in Petroleum Transportation* (Washington, DC), table 6.

1980-85: Ibid., (Washington, DC: Annual Issues), tables 1, 2, and 3.

1990-2009: Ibid., (Washington, DC: Annual Issues), tables 1, 2, and 3, available at http://www.aopl.org/publications/?fa=reports as of Mar. 23, 2011.

**Table 4-3M: Domestic Demand for Refined Petroleum Products by Sector (Petajoules)**

| | 1960 | 1965 | 1970 | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | (R) 1993 | (R) 1994 | (R) 1995 | (R) 1996 | (R) 1997 | (R) 1998 | (R) 1999 | (R) 2000 | (R) 2001 | (R) 2002 | (R) 2003 | (R) 2004 | (R) 2005 | (R) 2006 | (R) 2007 | (R) 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total petroleum demand | 21,016 | 24,541 | 31,156 | 34,533 | 36,086 | 32,625 | (R) 35,400 | 34,654 | (R) 35,373 | 35,602 | 36,464 | 36,332 | 37,637 | 38,150 | 38,843 | 39,921 | 40,370 | 40,288 | 40,330 | 40,944 | 42,511 | 42,615 | 42,155 | 41,959 | 39,332 | 37,210 |
| Transportation | 10,688 | 12,524 | 16,153 | 18,584 | 20,055 | 20,543 | 22,815 | 22,550 | 22,867 | 23,185 | 23,734 | 24,217 | 24,862 | 25,123 | 25,766 | 26,479 | 27,095 | 26,811 | 27,339 | 27,497 | 28,406 | 28,811 | 29,172 | 29,290 | 27,878 | 26,737 |
| Industrial | 6,067 | 7,164 | 8,219 | 8,595 | 10,049 | 8,164 | 8,734 | 8,426 | 9,053 | 8,880 | 9,284 | 9,087 | 9,550 | 9,800 | 9,616 | 9,912 | 9,621 | 9,725 | 9,716 | 9,740 | 10,407 | 10,206 | 10,345 | 10,008 | 9,017 | 8,203 |
| Residential and commercial | 3,682 | 4,083 | 4,547 | 4,014 | 3,203 | (R) 2,767 | 2,490 | 2,413 | 2,407 | 2,350 | 2,329 | 2,232 | 2,362 | 2,249 | 2,083 | 2,251 | 2,447 | 2,406 | 2,261 | 2,436 | 2,418 | 2,296 | 1,954 | 1,967 | 1,943 | 1,859 |
| Electric utilities | 579 | 771 | 2,237 | 3,340 | 2,779 | 1150 | 1,360 | 1,264 | 1,045 | 1,186 | 1,117 | 796 | 862 | 978 | 1,378 | 1,278 | 1,207 | 1,347 | 1,014 | 1,271 | 1,279 | 1,303 | 684 | 693 | 493 | 411 |
| Transportation as percent of total petroleum demand | 50.86 | 51.03 | 51.85 | 53.82 | 55.58 | 62.97 | (R) 64.45 | 65.07 | (R) 64.65 | 65.12 | 65.09 | 66.66 | 66.06 | 65.85 | 66.33 | 66.33 | 67.12 | 66.55 | 67.79 | 67.16 | 66.82 | 67.61 | 69.20 | 69.81 | 70.88 | 71.85 |

**KEY:** R = revised.

**NOTES**

Transportation's share of U.S. petroleum demand in this table differs slightly from table 4-1 because this table takes into account differences within sectors in the use of various grades of petroleum-based fuel that have a different Btu content per unit volume.

The sum of components may not add to totals due to rounding.

1,055.06 petajoules = 1 quadrillion British thermal unit (Btu).

**SOURCES**

1960-70: U.S. Department of Energy, Energy Information Administration, *Annual Energy Review 1997*, DOE/EIA-0384(97) (Washington, DC: July 1998), tables 2.1, 5.12b, and A3.

1975-2009: Ibid., *Monthly Energy Review* (Washington, DC: May 2010), tables 2.2, 2.3, 2.4, 2.5, 2.6, and similar tables in earlier editions, available at http://www.eia.doe.gov/mer/consump.html as of June 14, 2010.

**Table 4-5M: Fuel Consumption by Mode of Transportation**

| | 1960 | 1965 | 1970 | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Air | | | | | | | | | | | | | | | | | | | | | | | | | |
| Certificated carriers[a] | | | | | | | | | | | | | | | | | | | | | | | | | |
| Jet fuel (million liters) | 7,397 | 14,721 | 29,742 | 28,610 | 32,249 | 38,289 | 46,228 | 43,002 | 43,903 | 45,273 | 47,320 | 48,498 | 49,919 | 51,700 | 50,358 | 54,853 | 52,631 | 49,635 | 46,512 | 47,003 | 50,649 | 50,286 | 49,284 | 49,206 | 47,202 |
| General aviation[b] | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aviation gasoline (million liters) | 916 | 1,105 | 2,086 | 1,560 | 1,968 | 1,594 | 1,336 | 1,340 | 1,189 | 1,014 | 1,007 | 1,086 | 1,092 | 1,106 | 1,178 | 1,307 | 1,260 | 1,057 | 1,047 | 1,031 | 1,033 | (R) 1,368 | 1,331 | (R) 1,328 | (P) 1,321 |
| Jet fuel (million liters) | N | 212 | 787 | 1,715 | 2,900 | 2,616 | 2,510 | 2,184 | 1,870 | 1,719 | 1,756 | 2,120 | 2,300 | 2,430 | 3,084 | 3,662 | 3,679 | 3,477 | 3,552 | 3,529 | 4,659 | 5,486 | 5,939 | 5,843 | (P) 5,866 |
| Highway | | | | | | | | | | | | | | | | | | | | | | | | | |
| Gasoline, diesel and other fuels (million liters) | | | | | | | | | | | | | | | | | | | | | | | | | |
| Passenger car and motorcycle | 155,849 | 188,222 | 256,950 | 281,078 | 265,683 | 271,414 | 264,067 | 244,163 | 248,425 | 254,554 | 257,707 | 258,424 | 262,781 | 265,335 | 272,175 | 278,207 | 277,375 | 279,180 | 286,413 | 286,352 | 286,192 | 280,442 | 284,776 | 281,548 | 270,646 |
| Other 2-axle 4-tire vehicle[c] | N | U | 46,610 | 72,229 | 90,078 | 103,580 | 134,802 | 144,667 | 154,933 | 162,209 | 166,982 | 172,632 | 179,255 | 186,953 | 191,019 | 200,093 | 200,395 | 202,602 | 209,031 | 229,994 | 240,059 | 247,638 | 229,719 | 234,076 | 231,663 |
| Single-unit 2-axle 6-tire or more truck | N | 52,420 | 15,021 | 20,517 | 26,206 | 28,008 | 31,635 | 30,934 | 31,180 | 32,131 | 34,190 | 34,887 | 35,617 | 36,249 | 25,805 | 35,477 | 36,200 | 36,595 | 39,068 | 33,616 | 33,914 | 34,228 | 36,273 | 38,020 | 37,433 |
| Combination truck | N | 25,203 | 27,815 | 34,739 | 49,350 | 53,015 | 61,070 | 63,629 | 65,170 | 67,183 | 70,609 | 74,865 | 76,437 | 76,850 | 95,233 | 92,884 | 97,155 | 96,573 | 100,236 | 90,151 | 91,573 | 92,406 | 106,395 | 108,056 | 101,504 |
| Bus | 3,131 | 3,312 | 3,104 | 3,986 | 3,854 | 3,157 | 3,388 | 3,271 | 3,324 | 3,517 | 3,649 | 3,663 | 3,747 | 3,886 | 3,937 | 4,347 | 4,210 | 3,883 | 3,784 | 3,668 | 5,148 | 5,031 | 4,347 | 4,334 | 4,200 |
| Transit[d] | | | | | | | | | | | | | | | | | | | | | | | | | |
| Electricity (million kWh) | 2,908 | 2,584 | 2,561 | 2,646 | 2,446 | 4,216 | 4,837 | 4,853 | 4,716 | 4,865 | 5,081 | 5,068 | (R) 4,923 | (R) 4,908 | (R) 4,962 | (R) 5,126 | (R) 5,382 | (R) 5,485 | (R) 5,529 | (R) 5,508 | (R) 5,657 | (R) 5,765 | 5,770 | 6,216 | 6,337 |
| Motor fuel (million liters) | | | | | | | | | | | | | | | | | | | | | | | | | |
| Diesel | 787 | 939 | 1,026 | 1,382 | 1,632 | 2,304 | 2,464 | 2,518 | 2,593 | 2,568 | 2,567 | 2,568 | (R) 2,025 | (R) 2,041 | (R) 2,122 | (R) 2,180 | (R) 2,236 | (R) 2,256 | (R) 2,548 | (R) 2,098 | (R) 2,052 | (R) 1,819 | 2,000 | 1,949 | 1,890 |
| Gasoline and other nondiesel fuels[e] | 727 | 469 | 257 | 30 | 42 | 174 | 129 | 129 | 141 | 173 | 227 | 230 | (R) 96 | (R) 97 | (R) 84 | (R) 80 | (R) 89 | (R) 98 | (R) 134 | (R) 101 | (R) 117 | (R) 306 | 178 | 194 | 257 |
| Compressed natural gas | N | N | N | N | N | N | N | N | 4 | 6 | 18 | 41 | (R) 43 | (R) 73 | (R) 109 | (R) 132 | (R) 165 | (R) 199 | (R) 249 | (R) 301 | (R) 328 | (R) 355 | 419 | 408 | 427 |
| Rail, Class I (in freight service) | | | | | | | | | | | | | | | | | | | | | | | | | |
| Distillate / diesel fuel (million liters) | 13,109 | 13,597 | 13,419 | 13,843 | 14,778 | 11,773 | 11,792 | 11,000 | 11,375 | 11,689 | 12,621 | 13,173 | 13,548 | 13,533 | 13,563 | 14,063 | 14,006 | 14,044 | 14,120 | 14,483 | 15,365 | 15,513 | 15,868 | 15,376 | 14,710 |
| Amtrak | | | | | | | | | | | | | | | | | | | | | | | | | |
| Electricity (million kWh) | N | N | N | 180 | 254 | 295 | 330 | 303 | 300 | 301 | 309 | 336 | 363 | 390 | 416 | 443 | 470 | 456 | 518 | 537 | 551 | 531 | 549 | 578 | 582 |
| Distillate / diesel fuel (million liters) | N | N | N | 238 | 242 | 246 | 310 | 310 | 310 | 314 | 278 | 274 | 270 | 286 | 288 | 300 | 359 | 367 | 320 | 282 | 260 | 248 | 236 | 234 | 240 |
| Water | | | | | | | | | | | | | | | | | | | | | | | | | |
| Residual fuel oil (million liters) | 14,960 | 11,708 | 14,286 | 15,369 | 33,887 | 17,375 | 23,947 | 25,639 | 24,844 | 19,994 | 20,390 | 22,282 | 21,582 | 18,965 | 21,276 | 22,100 | 24,264 | 20,477 | 18,351 | 14,664 | 17,755 | 19,603 | 21,780 | 23,950 | 19,176 |
| Distillate / diesel fuel oil (million liters) | 2,979 | 2,468 | 3,100 | 4,156 | 5,595 | 6,431 | 7,817 | 7,745 | 8,398 | 8,157 | 8,288 | 8,854 | 9,429 | 9,743 | 9,823 | 9,158 | 8,560 | 7,738 | 7,870 | 8,392 | 8,099 | 7,592 | 7,204 | 7,283 | 4,495 |
| Gasoline (million liters) | N | N | 2,264 | 2,763 | 3,982 | 3,986 | 4,921 | 6,473 | 4,982 | 3,307 | 3,314 | 4,014 | 3,761 | 3,737 | 3,620 | 4,157 | 4,256 | 3,762 | 4,093 | 4,192 | 3,804 | 4,773 | 4,684 | 4,624 | 4,302 |
| Pipeline | | | | | | | | | | | | | | | | | | | | | | | | | |
| Natural gas (million cubic meters) | (R) 9,828 | (R) 14,173 | (R) 20,449 | (R) 16,507 | (R) 17,970 | (R) 14,265 | (R) 18,683 | (R) 17,027 | (R) 16,642 | (R) 17,678 | (R) 19,407 | (R) 19,831 | (R) 20,145 | (R) 21,279 | (R) 17,994 | (R) 18,273 | (R) 18,185 | (R) 17,696 | (R) 18,885 | (R) 16,749 | (R) 16,032 | (R) 16,537 | 16,543 | 17,595 | 18,348 |

**KEY:** kWh = kilowatt-hour; N = data do not exist; P = preliminary; R = revised; U = data are unavailable.

[a] Domestic operations only.
[b] Includes fuel used in air taxi operations, but not commuter operations. Data for 1996 are estimated using new information on nonrespondents and are therefore not comparable to earlier years. See the accuracy statement in the appendix for more detailed information.
[c] 1965 data is included in *Single-unit 2-axle 6-tire or more truck* category.
[d] Data from 1997-2008 are not comparable to data before 1997 due to different sources. Prior to 1984, excludes commuter rail, automated guideway, ferryboat, demand responsive vehicles, and most rural and small systems.
[e] Gasoline and all other nondiesel fuels such as liquefied natural gas, methanol, and propane, except compressed natural gas.

**NOTE**
1 gallon = 3.785412 liters; 1 cubic foot = 0.028316 cubic meters.

**SOURCES**
**Air:**
*Certificated air carriers:*
1960-2008: U.S. Department of Transportation, Bureau of Transportation Statistics, Office of Airline Information,*Fuel Cost and Consumption*, available at http://www.bts.gov/programs/airline_information as of Mar. 4, 2010.
*General aviation:*
1960-70: U.S. Department of Transportation, Federal Aviation Administration, *FAA Statistical Handbook of Aviation - 1972 edition* (Washington, DC: 1973), table 9.12.
1975-93: Ibid., *General Aviation and Air Taxi Activity Survey* (Washington, DC: Annual issues), table 5.1, and similar tables in earlier editions.
1994-2008: Ibid., *FAA Aerospace Forecasts Fiscal Years 2009-2025* (Washington, DC: March 2009), tables 22 and 30, and similar tables in earlier editions, available at http://www.faa.gov/data_research/aviation/aerospace_forecasts/2009-2025/media/2009%20Forecast%20Doc.pdf as of May 28, 2010.
**Highway:**
1960-94: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics, Summary to 1995*, FHWA-PL-97-009 (Washington, DC: July 1997), table VM-201A, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of June 29, 2010.
1995-2008: Ibid., *Highway Statistics* (Washington, DC: Annual Issues), table VM-1, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of May 28, 2010.
**Transit:**
*Electricity / motor fuel / compressed natural gas*:
1960-96: American Public Transportation Association, *2009 Public Transportation Fact Book* (Washington, DC: June 2009), tables 26, 27, 28 and similar tables in earlier editions.
1997-2008: U.S. Department of Transportation, Federal Transit Administration, *National Transportation Database* , table 17 and similar tables in previous years, available at www.ntdprogram.gov as of Mar. 8, 2010.
**Rail:**
1960-2008: Association of American Railroads, *Railroad Facts* (Washington, DC: Annual Issues), p. 40.
**Amtrak:**
1975-2008: National Railroad Passenger Corporation (Amtrak), Energy Management Department and Government Affairs Department, personal communication, Jan. 7, 2010.
**Water:**
*Residual and distillate / diesel fuel oil:*
1960-80: American Petroleum Institute, *Basic Petroleum Data Book* (Washington, DC: Annual issues), tables 10, 10a, 12, and 12a.
1985-2008: U.S. Department of Energy, Energy Information Administration, *Fuel Oil and Kerosene Sales* (Washington, DC: Annual Issues), tables 2, 4, and similar tables in earlier editions.
*Gasoline:*
1970-2008: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics* (Washington, DC: Annual Issues), table MF-24 and similar tables in earlier editions, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of May 28, 2010.
**Pipeline:**
1960-2008: U.S. Department of Energy, *Natural Gas Annual 2008*, DOE/EIA-0131(04) (Washington, DC: March 2010), table 15 and similar tables in earlier editions, available at http://www.eia.doe.gov/natural_gas/data_publications/natural_gas_annual/nga.html as of May 28, 2010.

**Table 4-6M: Energy Consumption by Mode of Transportation (Petajoules)**

| | 1960 | 1965 | 1970 | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Air | | | | | | | | | | | | | | | | | | | | | | | | |
| Certificated carriers[a] | | | | | | | | | | | | | | | | | | | | | | | | |
| Jet fuel | 278 | 554 | 1,119 | 1,077 | 1,213 | 1,441 | 1,755 | 1,639 | 1,675 | 1,703 | 1,764 | 1,805 | 1,883 | 1,932 | 1,899 | 2,051 | (R) 2,117 | (R) 1,975 | (R) 1,841 | (R) 1,863 | (R) 2,007 | (R) 1,991 | (R) 1,951 | 1,949 |
| General aviation[b] | | | | | | | | | | | | | | | | | | | | | | | | |
| Aviation gasoline | 31 | 37 | 70 | 52 | 66 | 53 | 45 | 45 | 40 | 34 | 34 | 36 | 37 | 37 | 39 | 44 | 42 | (R) 35 | (R) 35 | (R) 35 | (R) 35 | (R) 46 | 45 | 45 |
| Jet fuel | U | 8 | 30 | 65 | 109 | 98 | 94 | 82 | 70 | 65 | 66 | 80 | 87 | 91 | 116 | 138 | 138 | (R) 131 | (R) 134 | (R) 133 | (R) 175 | (R) 206 | 223 | 220 |
| Highway | | | | | | | | | | | | | | | | | | | | | | | | |
| Gasoline, diesel and other fuels | | | | | | | | | | | | | | | | | | | | | | | | |
| Passenger car and motorcycle | 5,430 | 6,558 | 8,952 | 9,793 | 9,256 | 9,456 | 9,200 | 8,507 | 8,655 | 8,869 | 8,978 | 9,003 | 9,155 | 9,244 | 9,482 | 9,693 | 9,664 | 9,727 | 9,978 | 9,976 | 9,971 | (R) 10,235 | (R) 9,892 | 9,806 |
| Other 2-axle 4-tire vehicle | U | U | 1,624 | 2,516 | 3,138 | 3,609 | 4,696 | 5,040 | 5,398 | 5,651 | 5,818 | 6,014 | 6,245 | 6,513 | 6,655 | 6,971 | 6,982 | 7,059 | 7,283 | 8,013 | 8,364 | (R) 7,764 | (R) 8,003 | 8,152 |
| Single-unit 2-axle 6-tire or more truck[c] | U | 2,026 | 581 | 793 | 1,013 | 1,083 | 1,223 | 1,196 | 1,205 | 1,242 | 1,322 | 1,349 | 1,377 | 1,401 | 998 | 1,371 | 1,399 | 1,415 | 1,361 | 1,171 | 1,181 | (R) 1,253 | (R) 1,299 | 1,323 |
| Combination truck | U | 974 | 1,075 | 1,343 | 1,908 | 2,049 | 2,361 | 2,460 | 2,519 | 2,597 | 2,730 | 2,894 | 2,955 | 2,971 | 3,682 | 3,591 | 3,756 | 3,733 | 3,875 | 3,485 | 3,540 | (R) 4,052 | (R) 3,707 | 3,761 |
| Bus | 121 | 128 | 120 | 154 | 149 | 122 | 131 | 126 | 128 | 136 | 141 | 142 | 145 | 150 | 152 | 168 | 163 | 150 | 146 | 142 | 199 | (R) 164 | (R) 151 | 151 |
| Transit[d] | | | | | | | | | | | | | | | | | | | | | | | | |
| Electricity | 10 | 9 | 9 | 10 | 9 | 15 | 17 | 17 | 17 | 18 | 18 | 18 | 18 | 18 | 18 | 19 | 20 | 20 | 20 | 20 | 21 | 21 | 21 | (P) 23 |
| Motor fuel | | | | | | | | | | | | | | | | | | | | | | | | |
| Diesel | 30 | 36 | 40 | 53 | 63 | 89 | 95 | 97 | 100 | 99 | 99 | 99 | 101 | 105 | 108 | 112 | 115 | 109 | 106 | 104 | 107 | 107 | 108 | (P) 104 |
| Gasoline and other nondiesel fuels[e] | 25 | 16 | 9 | 1 | 1 | 6 | 4 | 4 | 5 | 6 | 8 | 8 | 8 | 8 | 7 | 6 | 6 | 6 | (R) 7 | 6 | 7 | 8 | 10 | (P) 19 |
| Compressed natural gas | U | U | U | U | U | U | U | U | 0 | 1 | 1 | 2 | 2 | 3 | 5 | 6 | 8 | 10 | 12 | 15 | 16 | 18 | 21 | (P) 20 |
| Rail, Class I (in freight service) | | | | | | | | | | | | | | | | | | | | | | | | |
| Distillate / diesel fuel | 507 | 526 | 519 | 535 | 571 | 455 | 456 | 425 | 440 | 452 | 488 | 509 | 524 | 523 | 524 | 544 | 541 | 543 | 546 | 560 | 594 | (R) 603 | 617 | 598 |
| Amtrak | | | | | | | | | | | | | | | | | | | | | | | | |
| Electricity | U | U | U | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | U | U | U | U | U | U |
| Distillate / diesel fuel | U | U | U | 9 | 9 | 10 | 12 | 12 | 12 | 12 | 11 | 10 | 10 | 11 | 11 | 11 | 11 | 11 | U | U | U | U | U | U |
| Water | | | | | | | | | | | | | | | | | | | | | | | | |
| Residual fuel oil | 624 | 489 | 596 | 641 | 1,414 | 725 | 999 | 1,070 | 1,037 | 834 | 851 | 930 | 900 | 791 | 888 | 922 | 1,012 | 854 | 766 | 612 | 741 | 818 | 909 | 999 |
| Distillate / diesel fuel oil | 115 | 95 | 120 | 161 | 216 | 249 | 302 | 299 | 325 | 315 | 320 | 342 | 364 | 377 | 380 | 354 | 331 | 299 | 304 | 324 | 313 | 293 | 278 | 282 |
| Gasoline | U | U | 79 | 96 | 139 | 139 | 171 | 226 | 174 | 115 | 115 | 140 | 131 | 130 | 126 | 145 | 148 | 131 | 143 | 146 | 133 | 167 | 163 | 161 |
| Pipeline | | | | | | | | | | | | | | | | | | | | | | | | |
| Natural gas | 378 | 544 | 786 | 634 | 690 | 548 | 718 | 654 | 639 | 679 | 746 | 762 | 774 | 817 | 691 | 702 | 699 | 680 | 725 | 643 | 616 | (R) 635 | (R) 635 | 678 |

**KEY:** P = preliminary; R = revised, U = data are unavailable.

[a] Domestic operations only.

[b] Includes fuel used in air taxi operations, but not commuter operations.

[c] 1965 data includes other 2-axle 4-tire vehicles.

[d] Prior to 1984, excludes commuter rail, automated guideway, ferryboat, demand responsive vehicles, and most rural and smaller systems.

[e] Gasoline and all other nondiesel fuels such as liquefied natural gas, methanol, and propane, except compressed

**NOTES**

The following conversion rates were used:

| | |
|---|---|
| Jet fuel = 37,626,700 joules/liter | Compressed natural gas = 38,657,950 joules/liter |
| Aviation gasoline = 33,501,698 joules/liter | Distillate fuel = 38,655,829 joules/liter |
| Automotive gasoline = 34,839,537 joules/liter | Residual fuel = 41,723,829 joules/liter |
| Diesel motor fuel = 38,657,950 joules/liter | Natural gas = 38,413,974 joules/$m^3$ |

Electricity 1kWh = 3,600,000 joules/kWh, negating electrical system losses. To include approximate electrical system losses, multiply this conversion factor by 3.

1.055056 petajoules = 1 trillion British thermal unit (Btu).

**SOURCES**

**Air:**

*Certificated air carriers:*

U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, Office of Airline Information, *Fuel Cost and Consumption* , available at http://www.bts.gov/programs/airline_information as of August 20, 2009.

*General aviation:*

1960-70: U.S. Department of Transportation, Federal Aviation Administration, *FAA Statistical Handbook of Aviation - 1972 edition* (Washington, DC: 1973), table 9.12.

1975-93: Ibid., *General Aviation and Air Taxi Activity Survey* (Washington, DC: Annual issues), table 5.1, and similar tables in earlier editions.

1994-2007: Ibid., *FAA Aerospace Forecasts FY 2009-2025* (Washington, DC: March 2009), table 34 and similar tables in earlier editions, available at http://www.faa.gov/data_research/aviation/ as of August 20, 2009.

**Highway:**

1960-94: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics, Summary to 1995,* FHWA-PL-97-009 (Washington, DC: July 1997), table VM-201A, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of September 28, 2009.

1995-2007: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of September 28, 2009.

**Transit:**

*Electricity / motor fuel / compressed natural gas:*

American Public Transportation Association, *Public Transportation Fact Book, Appendix A: Historical Tables* (Washington, DC: Annual issues), tables 29, 30, 31 and similar tables in earlier editions, available at http://apta.com/resources/statistics/Pages/transitstats.aspx as of September 28, 2009.

**Rail:**

Association of American Railroads, *Railroad Facts* (Washington, DC: Annual issues).

**Amtrak:**

1975-2001: Amtrak, Energy Management Department, personal communication.

**Water:**

*Residual and distillate / diesel fuel oil:*

1960-80: American Petroleum Institute, *Basic Petroleum Data Book* (Washington, DC: Annual issues), tables 10, 10a, 12, and 12a.

1985-2007: U.S. Department of Energy, Energy Information Administration, *Fuel Oil and Kerosene Sales* (Washington, DC: Annual issues), tables 2, 4, and similar tables in earlier editions.

*Gasoline:*

1970-2007: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics* (Washington, DC: Annual issues), table MF-24 and similar tables in earlier editions, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of September 28, 2009.

**Pipeline:**

U.S. Department of Energy, *Natural Gas Annual,* DOE/EIA-0131(04) (Washington, DC: Annual issues), table 15 and similar tables in earlier editions.

**Table 4-7M: Domestic Demand for Gasoline (Million liters) by Mode**

| | 1960 | 1965 | 1970 | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | (R) 2003 | (R) 2004 | (R) 2005 | (R) 2006 | 2007 | 2008 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL demand | 230,005 | 269,471 | 339,178 | 389,882 | 396,854 | 407,121 | 430,044 | 424,806 | 434,878 | 441,300 | 449,392 | 455,209 | 464,074 | 470,279 | 484,449 | 498,845 | 499,261 | (R) 506,261 | (R) 522,543 | 526,764 | 534,295 | 532,036 | 529,178 | 529,569 | 514,726 |
| Highway | 209,820 | 253,541 | 324,025 | 376,094 | 383,019 | 391,960 | 414,614 | 408,496 | 420,084 | 430,282 | 437,904 | 443,125 | 452,412 | 457,800 | 472,018 | 487,345 | 487,879 | 490,900 | (R) 506,247 | 509,679 | 516,402 | 513,546 | 510,585 | 512,596 | 500,450 |
| Nonhighway, total | 20,185 | 15,930 | 15,152 | 13,788 | 13,834 | 15,160 | 15,430 | 16,310 | 14,795 | 11,018 | 11,488 | 12,083 | 11,662 | 12,479 | 12,431 | 11,500 | 11,382 | (R) 15,361 | 16,297 | 17,086 | 17,893 | 18,490 | 18,593 | 16,972 | 14,276 |
| Agriculture | 8,675 | 7,432 | 7,313 | 5,924 | 4,009 | 4,091 | 2,579 | 2,949 | 3,049 | 3,204 | 3,452 | 3,508 | 3,475 | 3,727 | 3,433 | 2,661 | 2,469 | 3,034 | 3,149 | 3,229 | 4,141 | 4,080 | 4,651 | 4,015 | 2,399 |
| Aviation[a] | 5,011 | 1,898 | 1,488 | 1,551 | 1,563 | 1,444 | 1,366 | 1,282 | 1,303 | 1,289 | 1,379 | 1,389 | 1,301 | 1,267 | 1,329 | 1,219 | 1,120 | 1,347 | 1,293 | 1,152 | 1,190 | 1,257 | 1,346 | 1,369 | 1,127 |
| Marine | 230 | 365 | 2,264 | 2,762 | 3,983 | 3,986 | 4,923 | 6,472 | 4,994 | 3,307 | 3,394 | 4,014 | 3,761 | 3,737 | 3,619 | 4,156 | 4,256 | 3,762 | 4,093 | 4,192 | 3,909 | 4,776 | 4,684 | 4,624 | 4,302 |
| Other[b] | 6,270 | 6,235 | 4,087 | 3,551 | 4,280 | 5,639 | 6,562 | 5,608 | 5,448 | 3,218 | 3,263 | 3,172 | 3,124 | 3,749 | 4,050 | 3,464 | 3,537 | 7,218 | 7,762 | 8,512 | 8,654 | 8,377 | 7,912 | 6,964 | 6,449 |

KEY: R = revised.

[a] Does not include aviation jet fuel.
[b] Includes state, county, and municipal use, industrial and commercial use, construction use, and miscellaneous.

**NOTES**

All nonhighway uses of gasoline were estimated by the U.S. Department of Transportation, Federal Highway Administration.
1 gallon = 3.785412 liters.

**SOURCES**

**Highway:**

1960-94: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics*, *Summary to 1995* (Washington, DC: 1996), table MF-221, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of June 17, 2010.

1995-2001: Ibid., *Highway Statistics* (Washington, DC: Annual Issues), table MF-21, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of June 17, 2010.

2002-07: Ibid., personal communication, June 21, 2010.

2008: Ibid., *Highway Statistics* (Washington, DC: Annual Issues), table MF-21, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of June 21, 2010.

**Nonhighway:**

1960-2001: Ibid., *Highway Statistics* (Washington, DC: Annual Issues), tables MF-21 and MF-24, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of June 17, 2010.
2002-07: Ibid., personal communication, June 21, 2010.
2008: Ibid., *Highway Statistics* (Washington, DC: Annual Issues), tables MF-21 and MF-24, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of June 21, 2010.

**Table 4-8M: Certificated Air Carrier Fuel Consumption and Travel[a]**

| | 1960 | 1965 | 1970 | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | (R) 2001 | (R) 2002 | (R) 2003 | (R) 2004 | (R) 2005 | (R) 2006 | (R) 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number of aircraft | 2,135 | 2,125 | 2,679 | 2,495 | 3,808 | 4,678 | 6,083 | 6,054 | 7,320 | 7,297 | 7,370 | 7,411 | 7,478 | 7,616 | 8,111 | 8,228 | 8,055 | 8,497 | 8,194 | 8,176 | 8,186 | 8,225 | 8,089 | 8,044 | 7,856 | 7,857 |
| Average kilometers flown per aircraft (thousands) | 784 | 1,074 | 1,528 | 1,500 | 1,236 | 1,191 | 1,250 | 1,239 | 1,077 | 1,128 | 1,169 | 1,222 | 1,259 | 1,272 | 1,233 | 1,281 | 1,387 | 1,289 | 1,343 | 1,450 | 1,574 | 1,615 | 1,635 | 1,684 | 1,669 | 1,544 |
| Aircraft-Kilometers (millions) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Domestic operations | 1,381 | 1,825 | 3,328 | 3,135 | 4,060 | 4,902 | (R) 6,378 | (R) 6,203 | (R) 6,429 | (R) 6,689 | (R) 7,046 | (R) 7,448 | (R) 7,736 | (R) 7,897 | (R) 8,095 | (R) 8,572 | (R) 9,112 | 8,923 | 9,037 | 9,826 | 10,625 | 10,809 | 10,630 | 10,835 | 10,374 | 9,559 |
| International operations | 293 | 457 | 764 | 607 | 645 | 668 | (R) 1,224 | (R) 1,298 | (R) 1,455 | (R) 1,542 | (R) 1,570 | (R) 1,606 | (R) 1,679 | (R) 1,793 | (R) 1,909 | (R) 1,972 | (R) 2,063 | 2,033 | 1,965 | 2,031 | 2,259 | 2,472 | 2,599 | 2,707 | 2,734 | 2,570 |
| Fuel consumption (million liters) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Domestic operations | (R) 7,398 | (R) 14,721 | (R) 30,318 | 28,610 | 32,249 | 38,289 | 46,648 | 43,557 | 44,527 | 45,268 | 46,880 | 47,967 | 50,033 | 51,341 | 50,479 | 54,518 | 56,272 | 52,496 | 48,916 | 49,520 | 53,339 | 52,904 | 51,839 | 51,791 | 48,020 | 42,924 |
| International operations | (R) 2,141 | (R) 4,846 | (R) 8,086 | 7,378 | 6,614 | 9,418 | 14,797 | 14,913 | 15,596 | 15,571 | 16,196 | 16,817 | 17,483 | 18,605 | 18,636 | 19,875 | 20,850 | 20,198 | 19,226 | 19,755 | 21,169 | 22,616 | 22,779 | 23,487 | 23,419 | 21,657 |
| Aircraft-Kilometers flown per liter | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Domestic operations | (R) 0.19 | (R) 0.12 | (R) 0.11 | 0.11 | 0.13 | 0.13 | (R) 0.14 | (R) 0.14 | (R) 0.14 | (R) 0.15 | (R) 0.15 | (R) 0.16 | (R) 0.15 | (R) 0.15 | (R) 0.16 | (R) 0.16 | (R) 0.16 | 0.17 | 0.18 | 0.20 | 0.20 | 0.20 | 0.21 | 0.21 | 0.22 | 0.22 |
| International operations | (R) 0.14 | (R) 0.09 | (R) 0.09 | 0.08 | 0.10 | 0.07 | (R) 0.08 | (R) 0.09 | (R) 0.09 | (R) 0.10 | (R) 0.10 | (R) 0.10 | (R) 0.10 | (R) 0.10 | (R) 0.10 | (R) 0.10 | (R) 0.10 | 0.10 | 0.10 | 0.10 | 0.11 | 0.11 | 0.11 | 0.12 | 0.12 | 0.12 |

**KEY:** R = revised; U = data are unavailable.

[a] Aircraft operating under 14 CFR 121 and 14 CFR 135

**NOTES**
1.609344 kilometers = 1 mile.
3.785412 liters = 1 gallon.

**SOURCES**
**Number of aircraft:**
1960-65: U.S. Department of Transportation, Federal Aviation Administration,*FAA Statistical Handbook of Aviation, 1970 edition* (Washington, DC: 1970), table 5.3.
1970-75: Ibid., *FAA Statistical Handbook of Aviation, Calendar Year 1979* (Washington, DC: 1979), table 5.1.
1980-85: Ibid., *FAA Statistical Handbook of Aviation, Calendar Year 1986* (Washington, DC: 1986), table 5.1.
1990-97: Ibid., *FAA Statistical Handbook of Aviation, Calendar Year 1997* (Washington, DC: unpublished), personal communication, Mar. 19, 1999.

1998-2008: Aerospace Industries Association,*Aerospace Facts and Figures* (Washington DC: Annual Issues), "Active U.S. Air Carrier Fleet", p. 94 and similar pages in earlier editions.
**Aircraft-miles flown:**
1960: Civil Aeronautics Board,*Handbook of Airline Statistics 1969* (Washington, DC: 1970), part III, tables 2 and 13.
1965-1970: Ibid., *Handbook of Airline Statistics 1973* (Washington, DC: 1974), part III, tables 2 and 13.
1975-1980: Ibid., *Air Carrier Traffic Statistics* (Washington, DC: December 1976), pp. 4 and 14; and (December 1981), pp. 2 and 3.
1985-1995: U.S. Department of Transportation, Bureau of Transportation Statistics, Office of Airline Information,*Air Carrier Traffic Statistics* (Washington, DC: Annual December Issues), pp. 2 and 3, line Z7 plus line 50.
1996-2008: U.S. Department of Transportation, Bureau of Transportation Statistics, Office of Airline Information,*Air Carrier Traffic Statistics,* available at http://www.bts.gov/xml/air_traffic/src/index.xml#CustomizeTable as of June 7, 2010.
**Fuel consumption:**
1960-75: U.S. Department of Transportation, Bureau of Transportation Statistics, Office of Airline Information, available at http://www.bts.gov/programs/oai/fuel/fuelyearly.html as of June 25, 2004.
1980-2008: Ibid., *Fuel Cost and Consumption*, available at http://www.bts.gov/xml/fuel/report/src/index.xml as of Apr. 28, 2010.

**Table 4-9M: Motor Vehicle Fuel Consumption and Travel**

| | 1960 | 1965 | 1970 | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicles registered (thousands)[a] | 73,858 | 90,358 | 111,242 | 137,913 | 161,490 | 177,133 | 193,057 | 192,314 | 194,427 | 198,041 | 201,802 | 205,427 | 210,441 | 211,580 | 215,496 | 220,461 | 225,821 | 235,331 | 234,624 | 236,760 | 237,243 | (R) 247,421 | 241,194 |
| Vehicle-kilometers traveled (millions) | 1,156,735 | 1,428,795 | 1,785,928 | 2,136,668 | 2,457,943 | 2,856,306 | 3,451,016 | 3,495,576 | 3,616,439 | 3,695,662 | 3,794,170 | 3,898,951 | 4,000,585 | 4,122,648 | 4,235,024 | 4,330,835 | 4,420,747 | 4,501,797 | 4,595,495 | 4,651,728 | 4,771,364 | (R) 4,811,021 | 4,850,749 |
| Fuel consumed (million liters) | 219,100 | 269,158 | 349,503 | 412,549 | 435,171 | 459,174 | 494,962 | 486,664 | 503,036 | 519,593 | 533,134 | 544,471 | 557,837 | 569,273 | 588,174 | 611,007 | 615,334 | 618,833 | 638,532 | 643,781 | 675,834 | (R) 661,640 | 662,182 |
| Average kilometers traveled per vehicle (thousands) | 15.7 | 15.8 | 16.1 | 15.5 | 15.2 | 16.1 | 17.9 | 18.2 | 18.6 | 18.7 | 18.8 | 19.0 | 19.0 | 19.5 | 19.7 | 19.6 | 19.6 | 19.1 | 19.6 | 19.6 | 20.1 | (R) 19 | 20 |
| Average kilometers traveled per gallon | 5.3 | 5.3 | 5.1 | 5.2 | 5.6 | 6.2 | 7.0 | 7.2 | 7.2 | 7.1 | 7.1 | 7.2 | 7.2 | 7.2 | 7.2 | 7.1 | 7.2 | 7.3 | 7.2 | 7.2 | 7.1 | (R) 7.3 | 7.3 |
| Average fuel consumed per vehicle (liters) | 2,966 | 2,979 | 3,142 | 2,991 | 2,695 | 2,592 | 2,564 | 2,531 | 2,587 | 2,624 | 2,642 | 2,650 | 2,651 | 2,691 | 2,729 | 2,771 | 2,725 | 2,630 | 2,722 | 2,719 | 2,849 | (R) 2,674 | 2,745 |

**KEY**: R = revised.

[a] Includes personal passenger vehicles, buses, and trucks.

**NOTE**

See tables 4-11, 4-12, 4-13, 4-14, and 4-15 for individual highway vehicles.

**SOURCES**

1960-94: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1995,* FHWA-PL-97-009 (Washington, DC: July 1997), table VM-201A.
1995-2006: Ibid., *Highway Statistics* (Washington, DC: Annual issues), tables MF-21, MV-1, and VM-1.

**Table 4-11M: Passenger Car and Motorcycle Fuel Consumption and Travel**

| | 1960 | 1965 | 1970 | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | (R) 2007 | 2008 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicles registered (thousands) | | | | | | | | | | | | | | | | | | | | | | | | | |
| Passenger cars | 61,671 | 75,258 | 89,244 | 106,706 | 121,601 | 127,885 | 133,700 | 128,300 | 126,581 | 127,327 | 127,883 | 128,387 | 129,728 | 129,749 | 131,839 | 132,432 | 133,621 | 137,633 | 135,921 | 135,670 | 136,431 | 136,568 | 135,400 | 135,933 | 137,080 |
| Motorcycles | 574 | 1,382 | 2,824 | 4,964 | 5,694 | 5,444 | 4,259 | 4,177 | 4,065 | 3,978 | 3,757 | 3,897 | 3,872 | 3,826 | 3,879 | 4,152 | 4,346 | 4,903 | 5,004 | 5,370 | (R) 5,768 | 6,227 | 6,679 | 7,138 | 7,753 |
| Vehicle-kilometers traveled (millions) | | | | | | | | | | | | | | | | | | | | | | | | | |
| Passenger cars[a] | 944,685 | 1,163,556 | 1,475,768 | 1,664,062 | 1,789,591 | 2,006,852 | 2,265,956 | 2,185,489 | 2,208,020 | 2,212,848 | 2,262,738 | 2,314,237 | 2,365,501 | 2,418,129 | 2,493,802 | 2,525,222 | 2,575,412 | 2,620,546 | 2,669,055 | 2,690,950 | 2,735,708 | 2,749,437 | 2,720,651 | 2,691,575 | 2,600,459 |
| Motorcycles | U | U | 4,828 | 9,012 | 16,415 | 14,645 | 15,450 | 14,806 | 15,450 | 15,933 | 16,415 | 15,772 | 15,965 | 16,224 | 16,549 | 17,033 | 16,848 | 15,512 | 15,372 | 15,413 | 16,290 | 16,824 | (R) 19,392 | 21,920 | 23,310 |
| Fuel consumed (million liters) | | | | | | | | | | | | | | | | | | | | | | | | | |
| Passenger cars[a] | 155,849 | 188,222 | 256,723 | 280,650 | 264,911 | 270,725 | 263,344 | 243,466 | 247,702 | 253,804 | 256,931 | 257,681 | 262,030 | 264,571 | 271,396 | 277,406 | 276,582 | 278,450 | 285,690 | 285,627 | 285,427 | (R) 293,059 | 283,940 | 281,548 | 270,646 |
| Motorcycles | U | U | 227 | 428 | 772 | 689 | 723 | 697 | 723 | 750 | 776 | 742 | 751 | 763 | 779 | 801 | 793 | 731 | 723 | 725 | 766 | 715 | 837 | 917 | 970 |
| Average kilometers traveled per vehicle (thousands) | | | | | | | | | | | | | | | | | | | | | | | | | |
| Passenger cars[a] | 15.3 | 15.5 | 16.5 | 15.6 | 14.7 | 15.7 | 16.9 | 17.0 | 17.4 | 17.4 | 17.7 | 18.0 | 18.2 | 18.6 | 18.9 | 19.1 | 19.3 | 19.0 | 19.6 | 19.8 | 20.1 | 20.1 | (R) 20.1 | 19.8 | 19.0 |
| Motorcycles | U | U | 1.7 | 1.8 | 2.9 | 2.7 | 3.6 | 3.5 | 3.8 | 4.0 | 4.4 | 4.0 | (R) 4.1 | (R) 4.2 | (R) 4.3 | (R) 4.1 | 3.9 | (R) 3.2 | 3.1 | 2.9 | 2.8 | 2.7 | 2.9 | 3.1 | 3.0 |
| Average kilometers traveled per liter | | | | | | | | | | | | | | | | | | | | | | | | | |
| Passenger cars[a] | 6.1 | 6.2 | 5.7 | 5.9 | 6.8 | 7.4 | 8.6 | 9.0 | 8.9 | 8.7 | 8.8 | 9.0 | 9.0 | 9.1 | 9.2 | 9.1 | 9.3 | 9.4 | 9.3 | 9.4 | 9.6 | 9.4 | (R) 9.6 | 9.6 | 9.6 |
| Motorcycles | U | U | 21.3 | 21.1 | 21.3 | 21.3 | 21.4 | 21.3 | 21.4 | 21.3 | 21.2 | 21.3 | 21.3 | 21.3 | 21.3 | 21.3 | 21.3 | 21.2 | 21.3 | 21.3 | 21.3 | (R) 23.5 | (R) 23.2 | 23.9 | 24.0 |
| Average fuel consumed per vehicle (liters) | | | | | | | | | | | | | | | | | | | | | | | | | |
| Passenger cars[a] | 2,527.1 | 2,501.0 | 2,876.6 | 2,630.1 | 2,178.5 | 2,116.9 | 1,969.7 | 1,897.6 | 1,956.9 | 1,993.3 | 2,009.1 | 2,007.1 | 2,019.8 | 2,039.1 | 2,058.5 | 2,094.7 | 2,069.9 | 2,023.1 | 2,101.9 | 2,105.3 | 2,092.1 | 2,145.9 | (R)2,097.0 | 2,071.2 | 1,974.4 |
| Motorcycles | U | U | 80.4 | 86.2 | 135.6 | 126.6 | 169.8 | 166.8 | 177.9 | 188.4 | 206.6 | 190.4 | 194.0 | 199.5 | 200.7 | 193.0 | 182.4 | 149.0 | 144.5 | 135.0 | (R) 132.9 | (R) 114.9 | (R) 125.3 | 128.5 | 125.2 |

**KEY:** R = revised; U = data are unavailable.

[a] 1960 and 1965 data include *Motorcycles* .

**NOTES**

See table 4-12 for other 2-axle 4-tire vehicles.

*Average miles traveled per vehicle* , *Average miles traveled per gallon* , and *Average fuel consumed per vehicle* are derived by calculation.

1 Gallon = 3.785412 liters.

1 Mile = 1.609344 Kilometers.

**SOURCES**

1960-94: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1995,* FHWA-PL-97-009 (Washington, DC: July 1997), tables MV-201 and VM-201A, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of Mar. 23, 2009.

1995-2008: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of Apr. 26, 2010.

**Table 4-12M: Other 2-Axle 4-Tire Vehicle Fuel Consumption and Travel**

| | 1970 | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | (R) 2007 | 2008 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number registered (thousands) | 14,211 | 20,418 | 27,876 | 37,214 | 48,275 | 53,033 | 57,091 | 59,994 | 62,904 | 65,738 | 69,134 | 70,224 | 71,330 | 75,356 | 79,085 | 84,188 | 85,011 | 87,187 | (R) 91,845 | 95,337 | 99,125 | 101,470 | 101,235 |
| Vehicle-kilometers traveled (millions) | 197,949 | 323,478 | 468,319 | 629,254 | 925,373 | 1,044,464 | 1,137,806 | 1,200,571 | 1,231,148 | 1,271,382 | 1,314,094 | 1,369,132 | 1,397,353 | 1,450,054 | 1,485,519 | 1,517,945 | 1,554,681 | 1,583,746 | 1,653,060 | 1,675,409 | 1,742,099 | 1,790,026 | 1,784,123 |
| Fuel consumed (million liters) | 46,610 | 72,229 | 90,078 | 103,580 | 134,802 | 144,667 | 154,933 | 162,209 | 166,982 | 172,634 | 179,255 | 186,953 | 191,020 | 200,093 | 200,395 | 202,602 | 209,031 | 229,994 | 240,060 | 222,843 | 229,719 | 234,076 | 231,663 |
| Average kilometers traveled per vehicle (thousands) | 13.9 | 15.8 | 16.8 | 16.9 | 19.2 | 19.7 | 19.9 | 20.0 | 19.6 | 19.3 | 19.0 | 19.5 | 19.6 | 19.2 | 18.8 | (R) 18.0 | 18.3 | 18.2 | 18.0 | 17.6 | 17.6 | 17.6 | 17.6 |
| Average kilometers traveled per liter | 4.2 | 4.5 | 5.2 | 6.1 | 6.9 | 7.2 | 7.3 | 7.4 | 7.4 | 7.4 | 7.3 | 7.3 | 7.3 | 7.2 | 7.4 | 7.5 | 7.4 | 6.9 | 6.9 | 7.5 | 7.6 | 7.6 | 7.7 |
| Average fuel consumed per vehicle (liters) | 3,279.9 | 3,537.5 | 3,231.4 | 2,783.4 | 2,792.4 | 2,727.8 | 2,713.8 | 2,703.8 | 2,654.6 | 2,626.1 | 2,592.9 | 2,662.2 | 2,678.0 | 2,655.3 | 2,533.9 | (R) 2,406.6 | 2,458.9 | 2,638.0 | 2,613.7 | 2,337.4 | 2,317.5 | 2,306.9 | 2,288.4 |

**KEY:** R = revised.

**NOTES**

Nearly all vehicles in this category are light trucks, which include vans, pickup trucks, and sport utility vehicles. In 1995, the U.S. Department of Transportation, Federal Highway Administration revised its vehicle categories beginning with 1993 data. The new categories are passenger car, other 2-axle 4-tire vehicle, single-unit 2-axle 6-tire or more truck, and combination truck. Prior to 1993, some minivans and sport utility vehicles were included under the passenger car category.
1 Gallon = 3.785412 Liters.
1 mile = 1.609344 kilometers.

**SOURCES**

1970-94: U.S. Department of Transportation, Federal Highway Administration,*Highway Statistics Summary to 1995*, FHWA-PL-97-009 (Washington, DC: July 1997), table VM-201A, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of Mar. 23, 2009.
1995-2008: Ibid.,*Highway Statistics* (Washington, DC: Annual issues), table VM-1, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of Apr. 26, 2010.

**Table 4-13M: Single-Unit 2-Axle 6-Tire or More Truck Fuel Consumption and Travel [a]**

| | 1970 | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | (R) 2007 | 2008 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number registered (thousands) | 3,681 | 4,232 | 4,374 | 4,593 | 4,487 | 4,481 | 4,370 | 4,408 | 4,906 | 5,024 | 5,266 | 5,293 | 5,735 | 5,763 | 5,926 | 5,704 | 5,651 | 5,849 | 6,161 | 6,395 | 6,649 | 6,807 | 6,791 |
| Vehicle-kilometers (millions) | 43,613 | 55,683 | 64,052 | 73,064 | 83,525 | 85,134 | 86,744 | 91,411 | 98,653 | 100,914 | 103,114 | 107,654 | 109,469 | 113,143 | 113,459 | 116,594 | 122,094 | 125,138 | 126,239 | 126,327 | 129,301 | 131,989 | 135,105 |
| Fuel consumed (million liters) | 15,021 | 20,517 | 26,206 | 28,008 | 31,635 | 30,934 | 31,180 | 32,131 | 34,190 | 34,886 | 35,617 | 36,249 | 36,874 | 35,477 | 36,200 | 36,595 | 39,068 | 33,616 | 33,912 | 35,965 | 37,295 | 38,020 | 37,433 |
| Average kilometers traveled per vehicle (thousands) | 11.8 | 13.2 | 14.6 | 15.9 | 18.6 | 19.0 | 19.9 | 20.7 | 20.1 | 20.1 | 19.6 | 20.3 | 19.1 | 19.6 | 19.1 | 20.4 | 21.6 | 21.4 | 20.5 | 19.8 | 19.4 | 19.4 | 19.9 |
| Average kilometers traveled per liter | 2.9 | 2.7 | 2.4 | 2.6 | 2.6 | 2.8 | 2.8 | 2.8 | 2.9 | 2.9 | 2.9 | 3.0 | 3.0 | 3.2 | 3.1 | 3.2 | 3.1 | 3.7 | 3.7 | 3.5 | 3.5 | 3.5 | 3.6 |
| Average fuel consumed per vehicle (liters) | 4,080.1 | 4,848.5 | 5,991.7 | 6,097.9 | 7,050.3 | 6,903.7 | 7,135.4 | 7,289.4 | 6,968.4 | 6,944.4 | 6,763.4 | 6,848.1 | 6,429.7 | 6,156.2 | 6,108.7 | 6,416.1 | 6,913.9 | 5,747.8 | 5,504.3 | 5,623.7 | 5,608.9 | 5,585.7 | 5,512.2 |

**KEY:** R = revised.

[a] Beginning in 1998, the Federal Highway Administration (FHWA) used the Census Bureau's *1997 Vehicle Inventory and Use Survey* (VIUS) for its baseline estimate of single-unit 2-axle 6-tire or more trucks. Prior to 1998, the FHWA used the Census Bureau's *1992 Transportation Inventory and Use Survey* (TIUS) for its baseline estimates. Therefore, post-1997 data may not be comparable to 1997 and earlier years.

**NOTES**

In 1995, the U.S. Department of Transportation, Federal Highway Administration revised its vehicle categories beginning with 1993 data to include passenger cars, other 2-axle 4-tire vehicles, single-unit 2-axle 6-tire or more trucks, and combination trucks. Single-unit 2-axle 6-tire or more trucks are on a single frame with at least 2 axles and 6 tires. Pre-1993 data have been reassigned to the most appropriate category.

1 Gallon = 3.785412 liters and 1 mile = 1.609344 kilometers.

**SOURCES**

1970-94: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1995,* FHWA-PL-97-009 (Washington, DC: July 1997), table VM-201A, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of April 16, 2009.

1995-2008: Ibid., Highway Statistics (Washington, DC: Annual issues), table VM-1, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of Aug. 3, 2010.

**Table 4-14M: Combination Truck Fuel Consumption and Travel[a]**

| | 1965 | 1970 | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | (R) 2007 | 2008 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number registered (thousands) | 787 | 905 | 1,131 | 1,417 | 1,403 | 1,709 | 1,691 | 1,675 | 1,680 | 1,682 | 1,696 | 1,747 | 1,790 | 1,997 | 2,029 | 2,097 | 2,154 | 2,277 | 1,908 | 2,010 | 2,087 | 2,170 | 2,221 | 2,216 |
| Vehicle-kilometers traveled (millions) | 51,016 | 56,488 | 75,156 | 110,562 | 125,690 | 151,761 | 155,463 | 160,130 | 165,923 | 175,258 | 185,879 | 191,349 | 200,499 | 206,574 | 213,051 | 217,294 | 219,811 | 223,276 | 225,566 | 229,122 | 231,791 | 228,799 | 233,429 | 230,953 |
| Fuel consumed (million liters) | 25,203 | 27,815 | 34,739 | 49,350 | 53,015 | 61,070 | 63,629 | 65,170 | 67,183 | 70,609 | 74,864 | 76,437 | 76,850 | 95,233 | 92,884 | 97,155 | 96,573 | 100,236 | 90,151 | 91,573 | 104,814 | 106,395 | 108,056 | 101,504 |
| Average kilometers traveled per vehicle (thousands) | 64.9 | 62.4 | 66.5 | 78.0 | 89.6 | 88.8 | 91.9 | 95.6 | 98.7 | 104.2 | 109.6 | 109.6 | 112.0 | 103.4 | 105.0 | 103.6 | 102.0 | 98.1 | 118.2 | 114.0 | 111.1 | 105.5 | 105.1 | 104.2 |
| Average kilometers traveled per liter | 2.0 | 2.0 | 2.2 | 2.2 | 2.4 | 2.5 | 2.4 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.6 | 2.2 | 2.3 | 2.2 | 2.3 | 2.2 | 2.5 | 2.5 | 2.2 | 2.2 | 2.2 | 2.3 |
| Average fuel consumed per vehicle (liters) | 32,044.4 | 30,732.3 | 30,721.9 | 34,830.6 | 37,779.5 | 35,736.6 | 37,620.7 | 38,898.8 | 39,982.9 | 41,991.8 | 44,148.0 | 43,763.7 | 42,933.9 | 47,679.9 | 45,788.0 | 46,339.0 | 44,830.6 | 44,027.8 | 47,240.0 | 45,550.9 | 50,228.3 | 49,037.3 | 48,652.2 | 45,807.9 |

**KEY:** R = revised.

[a] Beginning in 1998, the Federal Highway Administration (FHWA) used the Census Bureau's *1997 Vehicle Inventory and Use Survey* (VIUS) for its baseline estimate of combination trucks. Prior to 1998, the FHWA used the Census Bureau's *1992 Transportation Inventory and Use Survey* (TIUS) for its baseline estimates. Therefore, post-1997 data may not be comparable to 1997 and earlier years.

**NOTES**

1 mile = 1.609344 kilometers.

1 Gallon = 3.785412 liters.

**SOURCES**

1965-94: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1995*, FHWA-PL-97-009 (Washington, DC: July 1997), table VM-201A, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of Mar. 23, 2009.

1995-2008: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of Apr. 26, 2010.

**Table 4-15M: Bus Fuel Consumption and Travel**

| | 1960 | 1965 | 1970 | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | (R) 2007 | 2008 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number registered (thousands) | 272 | 314 | 378 | 462 | 529 | 593 | 627 | 631 | 645 | 654 | 670 | 686 | 695 | 698 | 716 | 729 | 746 | 750 | 761 | 777 | 795 | 807 | 822 | 834 | 843 |
| Vehicle-kilometers traveled (millions) | 6,920 | 7,564 | 7,242 | 9,817 | 9,817 | 7,242 | 9,173 | 9,334 | 9,334 | 9,817 | 10,300 | 10,300 | 10,562 | 11,011 | 11,277 | 12,331 | 12,215 | 11,389 | 11,016 | 10,916 | 10,945 | 11,233 | 10,917 | 11,233 | 11,449 |
| Fuel consumed (million liters) | 3,131 | 3,312 | 3,104 | 3,986 | 3,854 | 3,157 | 3,388 | 3,271 | 3,324 | 3,517 | 3,649 | 3,664 | 3,747 | 3,886 | 3,938 | 4,347 | 4,210 | 3,883 | 3,784 | 3,668 | 5,149 | (R) 4,240 | 4,347 | 4,334 | 4,200 |
| Average kilometers traveled per vehicle (thousands) | 25.4 | 24.1 | 19.2 | 21.2 | 18.6 | 12.2 | 14.6 | 14.8 | 14.5 | 15.0 | 15.4 | 15.0 | 15.2 | 15.8 | 15.8 | 16.9 | 16.4 | (R) 15.2 | 14.5 | 14.1 | 13.8 | 13.9 | 13.3 | 13.5 | 13.6 |
| Average kilometers traveled per liter | 2.2 | 2.3 | 2.3 | 2.5 | 2.5 | 2.3 | 2.7 | 2.9 | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 | 2.9 | 2.8 | 2.9 | 2.9 | 2.9 | 3.0 | 2.1 | (R) 2.6 | 2.5 | 2.6 | 2.7 |
| Average fuel consumed per vehicle (liters) | 11,503.9 | 10,539.0 | 8,221.3 | 8,624.9 | 7,287.5 | 5,319.5 | 5,403.5 | 5,180.9 | 5,155.0 | 5,373.6 | 5,443.0 | 5,345.4 | 5,393.5 | 5,571.0 | 5,503.7 | 5,964.5 | 5,641.8 | 5,181.1 | 4,973.9 | 4,723.3 | 6,474.3 | (R) 5,253.3 | 5,288.8 | 5,193.7 | 4,980.9 |

**KEY:** R = revised.

**NOTES**

This table includes data for both publicly and privately owned school, transit, and other commercial buses.

1 mile = 1.609344 kilometers.

1 Gallon = 3.785412 liters.

**SOURCES**

1960-94: U.S. Department of Transportation, Federal Highway Administration*Highway Statistics Summary to 1995*, FHWA-PL-97-009 (Washington, DC: July 1997), table VM-201A, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of Mar. 23, 2009.

1995-2008: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of Apr. 26, 2010.

**Table 4-16M: Transit Industry Electric Power and Primary Energy Consumption [a] and Travel**

| | 1960 | 1965 | 1970 | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number of vehicles (thousands) | 65 | 62 | 61 | 62 | 75 | 94 | 93 | 97 | 103 | 108 | 116 | 116 | 94 | 98 | 100 | 103 | 106 | 111 | 112 | 115 | 117 | 122 | 126 | 126 | 129 | 136 |
| Vehicle-kilometers traveled (millions) | 3,449 | 3,232 | 3,031 | 3,502 | 3,680 | 4,491 | 5,217 | 5,321 | 5,399 | 5,528 | 5,580 | 5,713 | 4,427 | 4,592 | 4,780 | 5,007 | 5,154 | 5,341 | 5,525 | 5,594 | 5,710 | 5,799 | 5,907 | 6,066 | 6,268 | 6,418 |
| Electric power consumed (million kJ) | (R) 31,406,400 | (R) 27,907,200 | (R) 27,658,800 | (R) 28,576,800 | (R) 26,416,800 | (R) 45,532,800 | (R) 52,239,600 | (R) 52,412,400 | (R) 50,932,800 | (R) 52,542,000 | (R) 54,874,800 | (R) 54,734,400 | (R) 53,166,175 | (R) 53,003,439 | (R) 53,584,844 | (R) 55,357,631 | (R) 58,121,648 | (R) 59,233,940 | (R) 59,716,280 | (R) 59,486,622 | (R) 61,098,196 | (R) 62,262,849 | (R) 62,318,230 | (R) 67,127,693 | (R) 68,438,551 | 70,118,453 |
| Primary energy consumed (thousand liters) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Diesel | 787,744 | 940,296 | 1,024,332 | 1,381,903 | 1,633,027 | 2,304,324 | 2,464,417 | 2,517,897 | 2,592,795 | 2,568,444 | 2,567,365 | 2,567,592 | 2,025,035 | 2,040,977 | 2,121,525 | 2,179,979 | 2,235,701 | 2,255,796 | 2,547,732 | 2,098,201 | 2,051,686 | 1,818,723 | 1,999,591 | 1,949,313 | 1,890,434 | 2,325,884 |
| Gasoline and other nondiesel fuels [b] | 726,421 | 470,148 | 258,165 | 28,678 | 43,154 | 173,008 | 128,348 | 130,472 | 140,738 | 172,887 | 227,136 | 229,888 | 95,494 | 97,382 | 83,684 | 79,862 | 89,492 | 98,453 | 133,983 | 101,033 | 116,870 | 305,558 | 177,562 | 194,192 | 257,102 | 536,272 |
| Compressed natural gas | N | N | N | N | N | N | N | N | 3,819 | 5,977 | 18,302 | 40,655 | 43,443 | 73,204 | 109,018 | 131,826 | 165,333 | 198,772 | 248,980 | 300,774 | 327,798 | 355,322 | 418,830 | 407,700 | 426,818 | 538,120 |

**KEY:** kJ = kilojoule; kWh = kilowatt hour; N = data do not exist.

[a] Prior to 1984, excludes commuter rail, automated guideway, urban ferryboat, demand responsive vehicles, and most rural and smaller systems.
[b] 1960 to 1991 data include propane. Series not continuous between 1991 and 1992. 1992 to 1995 data include propane, liquefied natural gas, bio/soy fuel, biodiesel, hydrogen, methanol and ethynol, except compressed natural gas. 1996 to 2001 data include only propane, liquified natural gas, methanol and ethynol. 2002 to 2009 data include the above, and also biodiesel and grain fuel.

**NOTES**

Data prior to 1996 are not comparable to data from 1996 onward due to a change in sources with differing methodologies. 2009 data for *Gasoline and other nondiesel fuels* is not comparable to previous years' data due to a change in the reporting requirements that require transit agencies to submit energy consumption data for both purchased transportation (PT) services and directly operated (DO) transportation services. The major effect of this reporting change occurred within the following modes: Demand Response, Motor Bus, Publico, and Vanpool.
This table is not comparable to previous editions due to a change in the unit of measure of power consumption.
The heat equivalent factor used in joule conversion for electric = 3,600 kJ/kWh, negating electrical system losses. This table includes approximate electrical system losses, and thus the conversion factor is multiplied by 3.
1.609344 kilometers = 1 mile.
3.785412 liters = 1 gallon.

**SOURCE**

1960-95: American Public Transportation Association, *2009 Public Transportation Fact Book Appendix A: Historical Tables* (Washington, DC: Annual Issues), tables 7, 17, 29, 30, 31 and similar tables in earlier editions, available at http://www.apta.com/resources/statistics/Pages/transitstats.aspx as of Apr. 1, 2010.
1996-2009: U.S. Department of Transportation, Federal Transit Administration, *National Transit Database* , tables 19 and 17 and similar tables in previous editions, available at www.ntdprogram.gov as of Dec. 9, 2010.

**Table 4-17M: Class I Rail Freight Fuel Consumption and Travel**

| | 1960 | 1965 | 1970 | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number in use | | | | | | | | | | | | | | | | | | | | | | | | | |
| Locomotives[a] | 29,031 | 27,780 | 27,077 | 27,846 | 28,094 | 22,548 | 18,835 | 18,344 | 18,004 | 18,161 | 18,505 | 18,812 | 19,269 | 19,684 | 20,261 | 20,256 | 20,028 | 19,745 | 20,506 | 20,774 | 22,015 | 22,779 | 23,732 | 24,143 | 24,003 |
| Cars[b] | 1,965,486 | 1,800,662 | 1,784,181 | 1,723,605 | 1,710,827 | 1,421,686 | 1,212,261 | 1,189,660 | 1,173,136 | 1,173,132 | 1,192,412 | 1,218,927 | 1,240,573 | 1,270,419 | 1,315,667 | 1,368,836 | 1,380,796 | 1,314,136 | 1,299,670 | 1,278,980 | 1,287,920 | (R) 1,316,522 | (R) 1,361,250 | 1,385,709 | 1,392,972 |
| Kilometers traveled (millions) | | | | | | | | | | | | | | | | | | | | | | | | | |
| Freight train-kilometers[c] | 651 | 677 | 687 | 648 | 690 | 559 | 611 | 603 | 628 | 653 | 710 | 738 | 754 | 764 | 764 | 789 | 811 | 804 | 804 | 830 | 861 | 881 | (R) 905 | 875 | 844 |
| Locomotive unit-kilometers | N | N | N | 2,380 | 2,464 | 1,976 | 2,060 | 1,992 | 2,057 | 2,124 | 2,261 | 2,326 | 2,358 | 2,290 | 2,317 | 2,420 | 2,419 | 2,378 | 2,323 | 2,388 | 2,476 | 2,555 | 2,671 | 2,589 | 2,509 |
| Car-kilometers | 45,335 | 47,212 | 48,103 | 44,508 | 47,117 | 40,105 | 42,099 | 41,244 | 42,049 | 43,264 | 45,842 | 48,897 | 51,040 | 50,952 | 52,556 | 54,478 | 55,667 | 55,109 | 55,812 | 57,220 | 59,660 | 60,692 | 62,692 | 61,454 | 59,909 |
| Average kilometers traveled per vehicle (thousands) | | | | | | | | | | | | | | | | | | | | | | | | | |
| Locomotives | N | N | N | 85.5 | 87.7 | 87.6 | 109.4 | 108.6 | 114.2 | 117.0 | 122.2 | 123.6 | 122.4 | 116.3 | 114.4 | 119.5 | 120.8 | 120.4 | 113.3 | 115.0 | 112.5 | 112.2 | 112.6 | 107.2 | 104.5 |
| Cars | 23.1 | 26.2 | 27.0 | 25.8 | 27.5 | 28.2 | 34.7 | 34.7 | 35.8 | 36.9 | 38.4 | 40.1 | 41.1 | 40.1 | 39.9 | 39.8 | 40.3 | 41.9 | 42.9 | 44.7 | 46.3 | (R) 46.1 | (R) 46.1 | 44.3 | 43.0 |
| Average kilometers traveled per liter | | | | | | | | | | | | | | | | | | | | | | | | | |
| Trains | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| Cars | 3.46 | 3.47 | 3.58 | 3.22 | 3.19 | 3.41 | 3.57 | 3.75 | 3.70 | 3.70 | 3.63 | 3.71 | 3.77 | 3.77 | 3.87 | 3.87 | 3.97 | 3.92 | 3.95 | 3.95 | 3.88 | 3.91 | 3.95 | 4.00 | 4.07 |
| Fuel consumed (million liters) | 13,109 | 13,597 | 13,419 | 13,843 | 14,778 | 11,773 | 11,792 | 11,000 | 11,375 | 11,689 | 12,621 | 13,173 | 13,548 | 13,533 | 13,563 | 14,063 | 14,006 | 14,044 | 14,120 | 14,483 | 15,365 | 15,513 | 15,868 | 15,376 | 14,710 |
| Average fuel consumed per locomotive[a] (thousand liters) | 451.5 | 489.5 | 495.6 | 497.1 | 526.0 | 522.1 | 626.0 | 599.7 | 631.8 | 643.7 | 682.0 | 700.3 | 703.1 | 687.5 | 669.4 | 694.3 | 699.3 | 711.3 | 688.6 | 697.2 | 697.9 | 681.0 | 668.7 | 636.9 | 612.8 |

**KEY:** N = data do not exist; R = revised.

[a] For 1960-80, the total includes a small number of steam and electric units, which are not included in the per locomotive fuel consumption figure.
[b] Includes cars owned by Class I railroads, other railroads, car companies, and shippers.
[c] Based on the distance run between terminals and/or stations; does not include yard or passenger train-kilometers.

**NOTES**
1.609344 kilometers = 1 mile.
3.785412 liters = 1 gallon.

**SOURCES**
**All data except for locomotive unit-miles:**
Association of American Railroads, *Railroad Facts 2009* (Washington, DC: 2009), pp. 33, 34, 40, 49, and 51, and similar tables in earlier editions.
**Locomotive unit-miles:**
1975-92, 2002: Ibid., *Railroad Ten-Year Trends* (Washington, DC: Annual issues).
1993-2001, 2003-04: Ibid., *Analysis of Class I Railroads* (Washington, DC: Annual issues).
2005-08: Association of American Railroads, personal communication, June 13, 2007, Apr. 24, 2008, and Apr. 28, 2010.

**Table 4-18M: Amtrak Fuel Consumption and Travel**

| | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number in use | | | | | | | | | | | | | | | | | | | | | | |
| Locomotives | 355 | 419 | 291 | 318 | 316 | 336 | 360 | 338 | 313 | 299 | 332 | 345 | 329 | 378 | 401 | 372 | 442 | 276 | 258 | 319 | 270 | 278 |
| Cars | 1,913 | 2,128 | 1,854 | 1,863 | 1,786 | 1,796 | 1,853 | 1,852 | 1,722 | 1,730 | 1,728 | 1,962 | 1,992 | 1,894 | 2,084 | 2,896 | 1,623 | 1,211 | 1,186 | 1,191 | 1,164 | 1,177 |
| Kilometers traveled (millions) | | | | | | | | | | | | | | | | | | | | | | |
| Train-kilometers | 48 | 48 | 48 | 53 | 55 | 55 | 56 | 55 | 51 | 48 | 51 | 53 | 55 | 56 | 58 | 61 | 60 | 60 | 58 | 58 | 60 | 61 |
| Car-kilometers | 407 | 378 | 404 | 484 | 504 | 494 | 488 | 489 | 470 | 444 | 463 | 502 | 550 | 592 | 608 | 609 | 534 | 496 | 426 | 425 | 429 | 437 |
| Locomotive fuel consumed | | | | | | | | | | | | | | | | | | | | | | |
| Electric (million of kWhs) | (R) 180 | (R) 254 | (R) 295 | (R) 330 | (R) 303 | 300 | 301 | 309 | 336 | 363 | 390 | 416 | 443 | 470 | (R) 456 | (R) 518 | (R) 537 | (R) 551 | (R) 531 | (R) 549 | (R) 578 | 582 |
| Diesel (million liters)[a] | (R) 239 | (R) 240 | (R) 245 | (R) 311 | (R) 310 | (R) 309 | (R) 313 | (R) 278 | (R) 274 | (R) 270 | (R) 286 | (R) 288 | (R) 300 | (R) 359 | (R) 367 | (R) 320 | (R) 282 | (R) 260 | (R) 248 | (R) 236 | (R) 234 | 240 |
| Average kilometers traveled per car (thousands) | 213 | 178 | 218 | 260 | 282 | 275 | 263 | 264 | 273 | 257 | 268 | 256 | 276 | 313 | 292 | 210 | 329 | 410 | 359 | 357 | 369 | 372 |

**KEY:** kWh = kilowatt hour; R = revised; U = data are unavailable.

[a] The conversion factor has changed to "3.785412 liters/gallon" from "3.78541178 liters/gallon" in the previous version of this table, in order to be consistent with this conversion factor used in the other NTS tables. The reported data will not change due to the change of the precision of the conversion factor, however, the precision of the underlying data have changed.

**NOTES**

1 Gallon = 3.785412 liters.
1 mile = 1.609344 kilometers.

**SOURCES**

**Number of locomotives and cars:**

1975–80: National Passenger Railroad Corporation (Amtrak), State and Local Affairs Department, personal communication.
1985–2000: Ibid., *Amtrak Annual Report* , Statistical Appendix (Washington, DC: Annual issues).
2001–08: Association of American Railroads, *Railroad Facts* (Washington, DC: Annual Issues), p. 77 and similar pages in earlier editions.

**Miles traveled:**

*Train-miles:*

1975–2002: National Passenger Railroad Corporation (Amtrak), *Amtrak Annual Report,* Statistical Appendix (Washington, DC: Annual issues).
2003–08: Association of American Railroads, *Railroad Facts* (Washington, DC: Annual Issues), p. 77 and similar pages in earlier editions.

*Car-miles:*

1975: Association of American Railroads, *Yearbook of Railroad Facts 1975* (Washington, DC: 1976), p. 40.
1980–85: National Passenger Railroad Corporation (Amtrak), State and Local Affairs Department and Public Affairs Department, personal communication.
1990–2000: Ibid., Amtrak Corporate Reporting, Route Profitability System, personal communication, Aug. 22, 2001.
2001–08: Association of American Railroads, *Railroad Facts* (Washington, DC: Annual Issues), p. 77 and similar pages in earlier editions.

**Locomotive fuel consumed:**

1975-2001: National Passenger Railroad Corporation (Amtrak), State and Local Affairs Department, personal communication.
2001-08: National Passenger Railroad Corporation (Amtrak), personal communication, Jan. 7, 2010.

## Table 4-19M: U.S. Government Energy Consumption by Agency and Source (Petajoules)

| | Petroleum | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Motor gasoline | Distillate and residual fuel oil | Jet fuel and aviation gas | Other[d] | Total | Electricity | Natural gas | Coal and other[e] | Total |
| FY 1998, total | 34.1 | 188.8 | 502.1 | 18.5 | 743.4 | 195.7 | 150.6 | 45.2 | 1,134.9 |
| Agriculture | 3.3 | 0.1 | 0.0 | 0.2 | 3.6 | 2.1 | 1.6 | 2.1 | 9.4 |
| Defense | 14.2 | 170.6 | 491.9 | 14.7 | 691.4 | 106.8 | 98.0 | 32.4 | 928.6 |
| Energy | 0.3 | 1.3 | 0.1 | 0.1 | 1.8 | 15.7 | 6.8 | 5.9 | 30.2 |
| GSA | 0.1 | 0.1 | 0.0 | 0.0 | 0.2 | 9.7 | 3.4 | 1.5 | 14.8 |
| Health and Human Services | 0.4 | 0.4 | 0.0 | 0.1 | 0.9 | 3.1 | 3.5 | 0.2 | 7.7 |
| Interior | 0.2 | 0.6 | 0.1 | 0.7 | 1.7 | 1.6 | 0.4 | 0.0 | 3.7 |
| Justice | 2.4 | 0.2 | 1.7 | 0.0 | 4.3 | 3.8 | 4.5 | 0.4 | 13.1 |
| NASA | 0.1 | 0.5 | 1.2 | 0.0 | 1.8 | 6.9 | 3.4 | 0.2 | 12.2 |
| Postal Service | 10.7 | 5.1 | 0.0 | 0.8 | 16.6 | 16.8 | 8.0 | 0.0 | 41.4 |
| Transportation | 0.0 | 4.7 | 6.2 | 1.7 | 12.7 | 5.1 | 1.5 | 0.0 | 19.2 |
| Veterans Affairs | 0.6 | 1.2 | 0.0 | 0.0 | 1.8 | 9.8 | 14.5 | 1.6 | 27.7 |
| Other[a] | 1.7 | 3.9 | 0.9 | 0.1 | 6.7 | 14.5 | 5.1 | 0.8 | 27.0 |
| FY 2007, total | (R) 48.4 | (R) 223.1 | 486.9 | (R) 5.8 | (R) 764.2 | (R) 203.8 | 138.0 | (R) 38.6 | (R) 1,144.7 |
| Agriculture | 2.2 | 0.5 | 0.1 | 0.3 | 3.2 | 2.0 | 1.7 | 0.2 | 7.1 |
| Defense | 18.8 | 204.8 | 480.8 | 3.3 | 707.6 | 106.8 | 73.3 | 24.6 | 912.3 |
| Energy | 0.7 | 1.7 | 0.0 | 0.4 | 2.8 | (R) 17.6 | 6.5 | (R) 6.3 | (R) 33.3 |
| GSA | 0.0 | 0.1 | 0.0 | 0.0 | 0.1 | 10.6 | 7.6 | 1.8 | 20.0 |
| Health and Human Services | (R) 0.3 | 0.6 | 0.0 | 0.1 | (R) 1.1 | 3.5 | 5.4 | 0.4 | (R) 10.3 |
| Interior | 2.1 | 1.2 | 0.0 | 0.9 | 4.2 | 2.2 | 1.3 | 0.1 | 7.8 |
| Justice | (R) 3.1 | (R) 0.3 | 0.1 | (R) 0.0 | (R) 3.5 | 6.3 | 11.1 | 0.8 | (R) 21.7 |
| NASA | 0.1 | 0.4 | 1.1 | 0.1 | 1.7 | 5.8 | 2.8 | 0.8 | 11.2 |
| Postal Service | 13.6 | 3.3 | 0.0 | 0.4 | 17.3 | 23.7 | 6.9 | 0.4 | 48.3 |
| Transportation | 0.4 | 0.6 | 0.5 | 0.0 | 1.6 | 3.4 | 0.8 | 0.0 | 5.8 |
| Veterans Affairs | 0.8 | 1.3 | 0.0 | 0.0 | 2.1 | 11.3 | 16.4 | 2.0 | 31.8 |
| Other[c] | 6.2 | 8.3 | 4.3 | 0.2 | 19.1 | 10.7 | 4.2 | 1.1 | 35.0 |
| FY 2008[P], total | 49.2 | 189.6 | 532.6 | 19.1 | 790.5 | 185.5 | 153.4 | 35.9 | 1,165.2 |
| Agriculture | 2.2 | 0.5 | 0.1 | 0.4 | 3.3 | 2.0 | 1.3 | 0.3 | 6.9 |
| Defense | 20.3 | 170.3 | 527.0 | 16.4 | 733.9 | 106.2 | 73.3 | 24.7 | 938.2 |
| Energy | 0.7 | 1.5 | 0.0 | 0.3 | 2.5 | 17.6 | 6.2 | 3.4 | 29.8 |
| GSA | 0.1 | 0.1 | 0.0 | 0.0 | 0.2 | 10.3 | 7.2 | 1.7 | 19.4 |
| Health and Human Services | 0.2 | 0.6 | 0.0 | 0.1 | 0.9 | 3.6 | 5.9 | 0.4 | 10.9 |
| Interior | 1.9 | 1.2 | 0.1 | 1.1 | 4.2 | 2.3 | 1.2 | 0.2 | 7.9 |
| Justice | 2.7 | 0.3 | 0.0 | 0.0 | 3.1 | 5.2 | 10.7 | 0.5 | 19.4 |
| NASA | 0.1 | 0.3 | 0.6 | 0.1 | 1.2 | 5.8 | 3.0 | 0.9 | 10.9 |
| Postal Service | 13.9 | 2.8 | 0.0 | 0.1 | 16.9 | 9.8 | 21.8 | 0.3 | 48.8 |
| Transportation | 0.4 | 0.2 | 0.5 | 0.0 | 1.2 | 0.7 | 3.0 | 0.2 | 5.1 |
| Veterans Affairs | 0.8 | 1.1 | 0.0 | 0.1 | 2.0 | 11.2 | 15.7 | 2.0 | 30.9 |
| Other[c] | 5.7 | 10.7 | 4.2 | 0.5 | 21.1 | 10.7 | 4.2 | 1.2 | 37.1 |

**KEY:** Btu = British thermal unit; FY = fiscal year; GSA = General Services Administration; NASA = National Aeronautics and Space Administration; P = preliminary.
1 Trillion BTU=1.05506 Petajoules

[a] Includes U.S. Department of Commerce, Panama Canal Commission, Tennessee Valley Authority, U.S. Department of Labor, U.S Information Agency, U.S. Department of Housing and Urban Development, Federal Communications Commission, Office of Personnel Management, U.S. Department of State, Federal Emergency Management Agency, U.S. Department of the Treasury, National Archives and Records Administration, Nuclear Regulatory Commission, Railroad Retirement Board, Federal Trade Commission, Equal Employment Opportunity Commission, and Environmental Protection Agency.

**Table 4-20M: Energy Intensity of Passenger Modes (Kilojoule per passenger-kilometer)**

| | 1960 | 1965 | 1970 | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Air, certificated carrier | | | | | | | | | | | | | | | | | | | | | | | |
| Domestic operations | 5,659 | 6,633 | 6,677 | 5,078 | 3,764 | 3,308 | 3,233 | 3,062 | 2,992 | 2,988 | 2,913 | 2,873 | 2,742 | 2,731 | 2,703 | 2,655 | 2,546 | 2,550 | 2,358 | (R) 2,292 | (R) 2,235 | (R) 2,112 | 2,031 |
| International operations | 6,031 | 6,748 | 7,202 | 5,550 | 2,845 | 3,345 | 2,980 | 3,022 | 2,792 | 2,687 | 2,718 | 2,736 | 2,693 | 2,733 | 2,804 | 2,703 | 2,513 | 2,599 | 2,570 | (R) 2,739 | (R) 2,549 | (R) 2,500 | 2,419 |
| Highway[a] | | | | | | | | | | | | | | | | | | | | | | | |
| Passenger car | 2,947 | 2,921 | 3,174 | 3,109 | 2,850 | 2,799 | 2,498 | 2,395 | 2,428 | 2,481 | 2,472 | 2,439 | 2,418 | 2,397 | 2,384 | 2,407 | 2,353 | 2,358 | 2,360 | (R) 2,341 | 2,301 | (R) 2,350 | 2,311 |
| Other 2-axle 4-tire vehicle | N | N | 4,465 | 4,308 | 3,743 | 3,259 | 2,976 | 2,804 | 2,790 | 2,803 | 2,849 | 2,975 | 2,977 | 2,992 | 2,995 | 3,024 | 2,956 | 2,612 | 2,702 | (R) 2,918 | 2,918 | (R) 2,673 | 2,633 |
| Motorcycle | b | b | 1,639 | 1,543 | 1,393 | 1,243 | 1,460 | 1,257 | 1,305 | 1,352 | 1,400 | 1,491 | 1,489 | 1,490 | 1,490 | 1,490 | 1,490 | 1,343 | 1,291 | 1,291 | 1,291 | (R) 1,170 | 1,150 |
| Transit motor bus | N | N | N | N | 1,798 | 2,222 | 2,441 | 2,470 | 2,647 | 2,586 | 2,728 | 2,724 | 2,751 | 2,772 | 2,709 | 2,651 | 2,719 | 2,424 | 2,327 | 2,304 | (R) 2,341 | (R) 2,224 | 2,138 |
| Amtrak | N | N | N | 1,562 | 1,408 | 1,370 | 1,354 | 1,297 | 1,334 | 1,326 | 1,269 | 1,205 | 1,411 | 1,442 | 1,402 | 1,381 | 1,399 | U | U | U | U | U | U |

**KEY:** N = data do not exist; R = revised; U = data are not available.

[a] For 1995 and subsequent years, highway passenger-miles were taken directly from *Highway Statistics* rather than derived from vehicle-miles and average

[b] Included in passenger car.

**NOTES**

To calculate total joules, multiply fuel consumed (see tables 4-21, 4-22, 4-24, 4-25) by 37,626,700 joules/liter for air carrier, 34,839,537 joules/liter for passenger car, other 2-axle 4-tire vehicle, and motorcycle, and 38,657,950 joules/liter for transit motor bus and Amtrak diesel consumption; and 3,599,851 joules/KwH for Amtrak electric consumption

1.609344 kilometers = 1 mile.

**SOURCES**

**Air:**

*Certificated air carriers:*

Passenger-kilometers:

1960-80: Air Transport Association, Internet site http://www.airlines.org as of Aug. 30, 2004.

1985-2006: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, Office of Airline Information, *Air Carrier Traffic Statistics* (Washington DC: Annual December issues).

Fuel consumed:

U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, Office of Airline Information, Internet site http://www.bts.gov/oai/fuel/fuelyearly.html as of Mar. 27, 2008.

**Highway:**

*Passenger car:*

1960-94: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1995,* FHWA-PL-97-009 (Washington, DC: July 1997), table VM-201A.

1995-2006: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1.

*Other 2-axle 4-tire vehicle:*

1970-94: Ibid., *Highway Statistics Summary to 1995,* FHWA-PL-97-009 (Washington, DC: July 1997), table VM-201A.

1995-2006: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1.

*Motorcycle:*

1970-85: Ibid., *Highway Statistics Summary to 1985,* FHWA-PL-97-009 (Washington, DC: July 1997), table VM-201A.

1990-2006: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1.

**Transit motor bus:**

American Public Transportation Association, *2008 Public Transportation Fact Book* (Washington, DC: Annual issues), tables 2 and 28, and similar tables in earlier editions.

**Amtrak:**

Amtrak, State and Local Affairs Department, personal communication April 22, 2008.

**Table 4-21M: Energy Intensity of Certificated Air Carriers, All Services[a]**

| | 1960 | 1965 | 1970 | (R) 1975 | (R) 1980 | (R) 1985 | (R) 1990 | (R) 1991 | (R) 1992 | (R) 1993 | (R) 1994 | (R) 1995 | (R) 1996 | (R) 1997 | (R) 1998 | (R) 1999 | (R) 2000 | (R) 2001 | (R) 2002 | (R) 2003 | (R) 2004 | (R) 2005 | (R) 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aircraft-kilometers (millions) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Domestic operations | 1,381 | 1,825 | 3,328 | 2,635 | 3,663 | 4,869 | 6,378 | 6,203 | 6,429 | 6,689 | 7,046 | 7,448 | 7,736 | 7,897 | 8,095 | 8,572 | 9,112 | 8,923 | 9,037 | 9,826 | 10,625 | 10,809 | 10,630 | 10,835 | 10,374 | 9,553 |
| International operations | 293 | 457 | 764 | 537 | 538 | 668 | 1,224 | 1,298 | 1,455 | 1,542 | 1,570 | 1,606 | 1,679 | 1,793 | 1,909 | 1,972 | 2,063 | 2,033 | 1,965 | 2,031 | 2,259 | 2,472 | 2,599 | 2,707 | 2,730 | 2,570 |
| Available seat-kilometers (millions) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Domestic operations | 84,040 | 152,545 | 343,048 | 346,452 | 525,827 | 728,641 | 918,225 | 887,653 | 912,562 | 936,834 | 962,630 | 992,094 | 1,028,392 | 1,049,334 | 1,064,768 | 1,124,715 | 1,168,853 | 1,134,267 | 1,106,127 | 1,121,674 | 1,208,397 | 1,220,922 | 1,200,537 | 1,228,836 | 1,181,685 | 1,100,538 |
| International operations | 21,480 | 47,529 | 83,622 | 103,220 | 136,011 | 177,958 | 293,950 | 300,091 | 331,250 | 340,909 | 339,746 | 347,011 | 355,194 | 368,039 | 382,079 | 391,040 | 408,850 | 395,445 | 365,526 | 363,003 | 401,270 | 435,612 | 453,107 | 477,216 | 493,415 | 468,885 |
| Passenger-kilometers (millions) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Domestic operations | 49,177 | 83,504 | 167,608 | 192,464 | 307,008 | 443,959 | 556,629 | 544,096 | 570,938 | 582,948 | 625,086 | 650,033 | 699,504 | 725,288 | 744,730 | 785,263 | 829,775 | 782,956 | 778,234 | 813,646 | 898,282 | 939,467 | 947,026 | 977,758 | 938,698 | 888,380 |
| International operations | 13,367 | 27,019 | 44,358 | 56,109 | 86,795 | 117,863 | 203,361 | 201,508 | 223,619 | 231,369 | 239,966 | 249,258 | 259,928 | 272,552 | 277,096 | 290,115 | 310,278 | 287,015 | 276,811 | 271,337 | 312,493 | 340,150 | 356,703 | 377,320 | 387,024 | 366,876 |
| Fuel consumed (million liters) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Domestic operations | 7,397 | 14,721 | 29,742 | 28,610 | 32,249 | 38,289 | 46,228 | 43,002 | 43,903 | 45,273 | 47,320 | 48,498 | 49,919 | 51,700 | 50,358 | 54,853 | 56,272 | 52,496 | 48,916 | 49,520 | 53,339 | 52,904 | 51,839 | 51,791 | 48,021 | 42,924 |
| International operations | 2,143 | 4,845 | 8,491 | 7,378 | 6,614 | 9,418 | 14,906 | 14,717 | 15,442 | 15,565 | 16,373 | 17,078 | 17,633 | 18,782 | 18,607 | 19,974 | 20,850 | 20,197 | 19,226 | 19,755 | 21,169 | 22,616 | 22,779 | 23,487 | 23,419 | 21,657 |
| Seats per aircraft | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Domestic operations | 60.9 | 83.6 | 103.1 | 131.5 | 143.6 | 149.6 | 144.0 | 143.1 | 141.9 | 140.1 | 136.6 | 133.2 | 132.9 | 132.9 | 131.5 | 131.2 | 128.3 | 127.1 | 122.4 | 114.2 | 113.7 | 113.0 | 112.9 | 113.4 | 113.9 | 115.2 |
| International operations | 73.3 | 104.0 | 109.4 | 192.1 | 252.7 | 266.2 | 240.2 | 231.2 | 227.6 | 221.1 | 216.4 | 216.1 | 211.5 | 205.3 | 200.1 | 198.3 | 198.2 | 194.5 | 186.0 | 178.7 | 177.7 | 176.2 | 174.3 | 176.3 | 180.7 | 182.4 |
| Seat-kilometers per liter | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Domestic operations | 11.4 | 10.4 | 11.5 | 12.1 | 16.3 | 19.0 | 19.9 | 20.6 | 20.8 | 20.7 | 20.3 | 20.5 | 20.6 | 20.3 | 21.1 | 20.5 | 20.8 | 21.6 | 22.6 | 22.7 | 22.7 | 23.1 | 23.2 | 23.7 | 24.6 | 25.6 |
| International operations | 10.0 | 9.8 | 9.8 | 14.0 | 20.6 | 18.9 | 19.7 | 20.4 | 21.5 | 21.9 | 20.7 | 20.3 | 20.1 | 19.6 | 20.5 | 19.6 | 19.6 | 19.6 | 19.0 | 18.4 | 19.0 | 19.3 | 19.9 | 20.3 | 21.1 | 21.7 |
| Energy intensity (Kilojoule/passenger-kilometer) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Domestic operations | (R) 5,659 | (R) 6,633 | (R) 6,677 | 5,593 | 3,952 | 3,245 | 3,125 | 2,974 | 2,893 | 2,922 | 2,848 | 2,807 | 2,685 | 2,682 | 2,544 | 2,628 | 2,552 | 2,523 | 2,365 | 2,290 | 2,234 | 2,119 | 2,060 | 1,993 | 1,925 | 1,818 |
| International operations | (R) 6,031 | (R) 6,748 | (R) 7,202 | 4,948 | 2,867 | 3,007 | 2,758 | 2,748 | 2,598 | 2,531 | 2,567 | 2,578 | 2,552 | 2,593 | 2,527 | 2,591 | 2,528 | 2,648 | 2,613 | 2,739 | 2,549 | 2,502 | 2,403 | 2,342 | 2,277 | 2,221 |
| Load factor (percent) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Domestic operations | (R) 58.5 | (R) 54.7 | (R) 48.9 | 55.6 | 58.4 | 60.9 | 60.6 | 61.3 | 62.6 | 62.2 | 64.9 | 65.5 | 68.0 | 69.1 | 69.9 | 69.8 | 71.0 | 69.0 | 70.4 | 72.5 | 74.3 | 76.9 | 78.9 | 79.6 | 79.4 | 80.7 |
| International operations | (R) 62.2 | (R) 56.8 | (R) 53.0 | 54.4 | 63.8 | 66.2 | 69.2 | 67.1 | 67.5 | 67.9 | 70.6 | 71.8 | 73.2 | 74.1 | 72.5 | 74.2 | 75.9 | 72.6 | 75.7 | 74.7 | 77.9 | 78.1 | 78.7 | 79.1 | 78.4 | 78.2 |

**KEY:** R = revised.

[a] U.S. owned carriers only. Operations of foreign-owned carriers in or out of the United States not included.

**NOTES**

*Aircraft-kilometers* include all four large certificated air-carrier groups (majors, nationals, large regionals, and medium regionals), scheduled and charter, passenger, and all-cargo. *Fuel consumed* includes majors, nationals, and large regionals, scheduled and charter, passenger, and all-cargo.

*Passenger-kilometers* include all four large certificated air-carrier groups, scheduled and charter, passenger service only.

International operations include operations outside the United States, including those between the United States and foreign countries and the United States and its territories or possessions.

*Load factor* : Ratio of *Passenger-kilometers* to *Available seat-kilometers*.

Heat equivalent factor used for conversion is 37,626.7 Kilojoules/liter.

1.609344 kilometers = 1 mile.

3.785412 litres = 1 gallon.

**SOURCES**

**Aircraft-kilometers, available seat-kilometers, and passenger-kilometers:**

1960-70: Air Transport Association, available at http://www.air-transport.org/ as of July 31, 2002.

1975-2009: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *T1: U.S. Air Carrier Traffic and Capacity Summary by Service Class*, available at http://www.transtats.bts.gov/Fields.asp?Table_ID=264, as of Dec. 15, 2010.

**Fuel consumed:**

U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, Office of Airline Information, *Airline Fuel Cost and Consumption*, available at http://www.transtats.bts.gov/fuel.asp as of Dec. 15, 2010.

**Seats per aircraft, seat-kilometers per liter, energy intensiveness and load factor:**

Derived by calculation.

**Table 4-22M: Energy Intensity of Passenger Cars, Other 2-Axle 4-Tire Vehicles, and Motorcycles**

| | 1960 | 1965 | 1970 | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | (R) 2005 | 2006 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle-kilometers (millions) | | | | | | | | | | | | | | | | | | | | | | | |
| Passenger car | 944,685 | 1,163,556 | 1,475,768 | 1,664,062 | 1,789,591 | 2,006,852 | 2,265,956 | 2,185,489 | 2,208,020 | 2,212,848 | 2,262,738 | 2,314,237 | 2,365,736 | 2,418,844 | 2,494,483 | 2,525,061 | 2,575,412 | 2,620,546 | 2,669,055 | 2,690,950 | 2,735,708 | 2,749,437 | 2,707,996 |
| Other 2-axle 4-tire vehicle | N | N | 197,949 | 323,478 | 468,319 | 629,254 | 925,373 | 1,044,464 | 1,137,806 | 1,200,571 | 1,231,148 | 1,271,382 | 1,314,834 | 1,369,552 | 1,396,911 | 1,450,019 | 1,485,519 | 1,517,945 | 1,554,681 | 1,583,746 | 1,653,060 | 1,675,409 | 1,752,597 |
| Motorcycle | [b] | [b] | 4,828 | 9,012 | 16,415 | 14,645 | 15,450 | 14,806 | 15,450 | 15,933 | 16,415 | 15,772 | 15,933 | 16,254 | 16,576 | 17,059 | 16,848 | 15,512 | 15,372 | 15,413 | 16,290 | 16,824 | 19,957 |
| Passenger-kilometers (millions)[a] | | | | | | | | | | | | | | | | | | | | | | | |
| Passenger car | 1,842,699 | 2,245,035 | 2,817,961 | 3,144,658 | 3,238,000 | 3,369,966 | 3,672,523 | 3,540,557 | 3,553,432 | 3,561,478 | 3,621,024 | 3,680,570 | 3,761,037 | 3,844,723 | 3,965,424 | 4,015,313 | 4,094,907 | 4,114,257 | 4,217,107 | 4,251,702 | 4,322,420 | 4,344,110 | 4,278,636 |
| Other 2-axle 4-tire vehicle | N | N | 363,712 | 584,192 | 838,468 | 1,107,229 | 1,609,344 | 1,797,637 | 1,934,431 | 2,016,508 | 2,042,258 | 2,021,336 | 2,088,929 | 2,177,442 | 2,222,504 | 2,306,190 | 2,361,976 | 2,701,852 | 2,695,316 | 2,745,707 | 2,865,873 | 2,904,621 | 3,038,437 |
| Motorcycle | [b] | [b] | 4,828 | 9,656 | 19,312 | 19,312 | 19,312 | 19,312 | 19,312 | 19,312 | 19,312 | 17,703 | 17,703 | 17,703 | 17,703 | 19,312 | 18,533 | 18,926 | 19,523 | 19,574 | 20,688 | 21,367 | 25,347 |
| Average occupancy rate | | | | | | | | | | | | | | | | | | | | | | | |
| Passenger car | 1.95 | 1.93 | 1.91 | 1.89 | 1.81 | 1.68 | 1.62 | 1.62 | 1.61 | 1.61 | 1.60 | 1.59 | 1.59 | 1.59 | 1.59 | 1.59 | 1.59 | 1.57 | 1.58 | 1.58 | 1.58 | 1.58 | 1.58 |
| Other 2-axle 4-tire vehicle | N | N | 1.84 | 1.81 | 1.79 | 1.76 | 1.74 | 1.72 | 1.70 | 1.68 | 1.66 | 1.59 | 1.59 | 1.59 | 1.59 | 1.59 | 1.59 | 1.78 | 1.73 | 1.73 | 1.73 | 1.73 | 1.73 |
| Motorcycle | [b] | [b] | 1.00 | 1.07 | 1.18 | 1.32 | 1.25 | 1.30 | 1.25 | 1.21 | 1.18 | 1.12 | 1.11 | 1.09 | 1.07 | 1.13 | 1.10 | 1.22 | 1.27 | 1.27 | 1.27 | 1.27 | 1.27 |
| Fuel consumed (million liters) | | | | | | | | | | | | | | | | | | | | | | | |
| Passenger car | 155,849 | 188,222 | 256,723 | 280,650 | 264,911 | 270,725 | 263,344 | 243,466 | 247,702 | 253,804 | 256,931 | 257,681 | 262,030 | 264,570 | 271,395 | 277,406 | 276,582 | 278,450 | 285,690 | 285,627 | 285,427 | 293,063 | 283,841 |
| Other 2-axle 4-tire vehicle | N | N | 46,610 | 72,229 | 90,078 | 103,580 | 134,802 | 144,667 | 154,933 | 162,209 | 166,982 | 172,634 | 179,254 | 186,954 | 191,019 | 200,093 | 200,395 | 202,602 | 209,031 | 229,994 | 240,060 | 222,843 | 229,631 |
| Motorcycle | [b] | [b] | 227 | 428 | 772 | 689 | 723 | 697 | 723 | 750 | 776 | 742 | 750 | 765 | 780 | 801 | 793 | 730 | 723 | 725 | 766 | 715 | 833 |
| Energy intensity (Btu/passenger-kilometer)[c] | | | | | | | | | | | | | | | | | | | | | | | |
| Passenger car | 2,793 | 2,768 | 3,008 | 2,947 | 2,702 | 2,653 | 2,368 | 2,271 | 2,302 | 2,353 | 2,343 | 2,312 | 2,301 | 2,272 | 2,260 | 2,281 | 2,230 | 2,235 | 2,237 | 2,218 | 2,181 | 2,228 | 2,191 |
| Other 2-axle 4-tire vehicle | N | N | 4,232 | 4,083 | 3,548 | 3,089 | 2,766 | 2,657 | 2,645 | 2,656 | 2,700 | 2,820 | 2,834 | 2,835 | 2,838 | 2,865 | 2,802 | 2,476 | 2,561 | 2,766 | 2,766 | 2,533 | 2,496 |
| Motorcycle | [a] | [a] | 1,553 | 1,463 | 1,320 | 1,178 | 1,236 | 1,191 | 1,236 | 1,282 | 1,327 | 1,384 | 1,398 | 1,426 | 1,455 | 1,370 | 1,412 | 1,273 | 1,223 | 1,223 | 1,223 | 1,106 | 1,085 |

**KEY:** Btu = British thermal unit; N = data do not exist; R = revised.

[b] Included in passenger car.
[c] Energy Intensity (Btu/passenger-kilometer) is calculated by converting the fuel consumption in liters to the energy equivalent Btu units and dividing by the passenger-miles. The heat equivalent factor used for Btu conversion is 33,021.5046605 Btus/liter.

**NOTES:**
In 1995, the U.S. Department of Transportation, Federal Highway Administration revised its vehicle type categories for 1993 and later data.
These new categories include passenger car, other 2-axle 4-tire vehicle, single-unit 2-axle 6-tire or more truck, and combination truck.
car category. Single-unit 2-axle 6-tire or more trucks are on a single frame with at least 2 axles and 6 tires. Pre-1993 data have been reassigned to the closest available category.
Vehicle-miles and passenger-miles data for 1960 through 1999 have been rounded to the nearest billion miles.

**SOURCES:**
**Vehicle-miles:**
*Passenger car:*
1960-94: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1995,* FHWA-PL-97-009 (Washington, DC: July 1997), table VM-201A.
1995-2006: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1.
*Other 2-axle 4-tire vehicle:*
1970-94: Ibid., *Highway Statistics, Summary to 1985* (Washington, DC: 1986), table VM-201A.
1995-2006: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1.
*Motorcycle:*
1970-94: Ibid., *Highway Statistics, Summary to 1985* (Washington, DC: 1986), table VM-201A.
For 1970-94, the unrevised motorcycle vehicle-miles are subtracted from the combined passenger car and motorcycle vehicle-miles from VM-201A.
1995-2006: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1.
**Passenger-miles:**
1960-97: Vehicle-miles multiplied by vehicle occupancy rates.
1998-2006: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1.
**Fuel consumed:**
1960-94: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1995,* FHWA-PL-97-009 (Washington, DC: July 1997), table VM-201A.
For 1970-94, the unrevised motorcycle fuel consumed is subtracted from the combined passenger car and motorcycle fuel consumed from VM-201A.
1995-2006: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1.

**Table 4-23M: Average Fuel Efficiency of U.S. Passenger Cars and Light Trucks**

| | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Average U.S. passenger car fuel efficiency (kmpl) (calendar year) | | | | | | | | | | | | | | | | | | | | | | |
| Passenger car[a] | (R) 6.8 | (R) 7.4 | (R) 8.6 | (R) 9.0 | (R) 8.9 | (R) 8.8 | (R) 8.8 | (R) 9.0 | (R) 9.0 | 9.1 | (R) 9.2 | (R) 9.1 | (R) 9.3 | (R) 9.4 | (R) 9.3 | (R) 9.4 | (R) 9.6 | (R) 9.4 | (R) 9.6 | (R) 9.6 | 9.6 | U |
| Other 2-axle 4-tire vehicle | (R) 5.2 | (R) 6.1 | (R) 6.9 | (R) 7.2 | (R) 7.3 | (R) 7.4 | (R) 7.4 | (R) 7.4 | (R) 7.3 | (R) 7.3 | (R) 7.3 | (R) 7.2 | (R) 7.4 | (R) 7.5 | (R) 7.4 | (R) 6.9 | (R) 6.9 | (R) 7.5 | (R) 7.6 | (R) 7.6 | 7.7 | U |
| New vehicle fuel efficiency (kmpl)[b] (model year) | | | | | | | | | | | | | | | | | | | | | | |
| Light-duty vehicle | | | | | | | | | | | | | | | | | | | | | | |
| Passenger car | 10.3 | 11.7 | 11.9 | 12.1 | 11.9 | 12.1 | 12.0 | 12.2 | 12.1 | 12.2 | 12.2 | 12.0 | 12.1 | 12.2 | 12.3 | 12.5 | 12.5 | 12.9 | 12.8 | 13.3 | 13.3 | 13.9 |
| Domestic | 9.6 | 11.2 | 11.4 | 11.6 | 11.5 | 11.8 | 11.7 | 11.8 | 11.9 | 11.8 | 12.2 | 11.9 | 12.2 | 12.2 | 12.4 | 12.4 | 12.7 | 13.0 | 12.9 | 13.0 | 13.2 | 13.9 |
| Imported | 12.6 | 13.4 | 12.7 | 12.8 | 12.4 | 12.6 | 12.6 | 12.9 | 12.6 | 12.8 | 12.4 | 12.3 | 12.0 | 12.3 | 12.2 | 12.7 | 12.2 | 12.7 | 12.6 | 13.7 | 13.4 | 13.9 |
| Light truck (<8,500 lbs GVWR)[c] | 7.9 | 8.8 | 8.8 | 9.1 | 8.8 | 8.9 | 8.8 | 8.7 | 8.8 | 8.8 | 8.9 | 8.9 | 9.1 | 8.9 | 9.1 | 9.3 | 9.1 | 9.4 | 9.6 | 9.8 | 10.0 | 10.3 |
| CAFE standards (kmpl)[b] (model year) | | | | | | | | | | | | | | | | | | | | | | |
| Passenger car | 8.5 | 11.7 | 11.7 | 11.7 | 11.7 | 11.7 | 11.7 | 11.7 | 11.7 | 11.7 | 11.7 | 11.7 | 11.7 | 11.7 | 11.7 | 11.7 | 11.7 | 11.7 | 11.7 | 11.7 | 11.7 | 11.7 |
| Light truck[d] | U | 8.3 | 8.5 | 8.6 | 8.6 | 8.7 | 8.7 | 8.8 | 8.8 | 8.8 | 8.8 | 8.8 | 8.8 | 8.8 | 8.8 | 8.8 | 8.8 | 8.9 | 9.2 | 9.4 | 9.6 | 9.8 |

**KEY:** CAFE = Corporate Average Fuel Economy; GVWR = gross vehicle weight rating; kmpl = kilometers per liter; R = revised; U = data are not available.

[a] From 1980 to 1994, passenger car fuel efficiency includes motorcycles.

[b] Assumes 55% city and 45% highway-miles. The source calculated average miles per gallon for light-duty vehicles by taking the reciprocal of the sales-weighted average of gallons per mile. This is called the harmonic average. These data were then converted to metric units.

[c] Beginning with FY 1999, the total light truck fleet ceased to be categorized by either domestic or import fleets.

[d] No combined figure is available for 1980. In 1980, CAFE standard for 2 wheel drive, and 4 wheel drive light trucks were 6.8, and 6.0 kmpl respectively.

**NOTES**

The fuel efficiency figures for light duty vehicles represent the sales-weighted harmonic average of the combined passenger car and light truck fuel economies.
1.609344 kilometers = 1 mile.
3.785412 liters = 1 gallon.

**SOURCES**

**Average U.S. passenger car fuel efficiency:**

1980-94: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1995,* FHWA-PL-97-009 (Washington, DC: July 1997), table VM-201A, available at http://www.fhwa.dot.gov/ohim/ohimstat.htm as of Sept. 10, 2010.

1995-2008: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1, available at http://www.fhwa.dot.gov/policy/ohpi/hss/index.cfm as of Sept. 10, 2010.

**New vehicle fuel efficiency (based on model year production) and CAFE standards:**

U.S. Department of Transportation, National Highway Traffic Safety Administration, *Summary of Fuel Economy Performance* (Washington, DC: Annual Issues), available at http://www.nhtsa.gov/ as of Sept. 10, 2010.

**Table 4-24M: Energy Intensity of Transit Motor Buses**

| | 1960 | 1965 | 1970 | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | (R) 1996 | (R) 1997 | (R) 1998 | (R) 1999 | (R) 2000 | (R) 2001 | (R) 2002 | (R) 2003 | (R) 2004 | (R) 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle-kilometers (millions) | (R) 2,537 | (R) 2,460 | 2,268 | 2,456 | 2,699 | 2,998 | 3,428 | 3,487 | 3,505 | 3,556 | 3,479 | 3,514 | 2,692 | 2,744 | 2,841 | 2,931 | 2,993 | 3,079 | 3,077 | 2,997 | 2,976 | 2,961 | 2,956 | 2,995 | 3,050 | 3,060 |
| Passenger-kilometers (millions) | N | N | N | N | (R) 35,068 | (R) 34,055 | 33,766 | 33,941 | 32,728 | 32,584 | 30,307 | 30,285 | 25,460 | 26,565 | 27,248 | 28,253 | 28,365 | 29,535 | 29,104 | 27,463 | 26,847 | 27,413 | 28,149 | 28,131 | 29,449 | 28,976 |
| Energy consumed | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Diesel fuel (million liters) | 787 | 939 | 1,026 | 1,382 | 1,632 | 1,961 | 2,132 | 2,169 | 2,241 | 2,179 | 2,139 | 2,134 | 1,763 | 1,754 | 1,773 | 1,804 | 1,853 | 1,862 | 1,773 | 1,672 | 1,668 | 1,421 | 1,597 | 1,535 | 1,526 | 1,462 |
| Compressed Natural Gas (million liters) | N | N | N | N | N | N | N | N | N | N | N | 38 | 38 | 67 | 103 | 126 | 159 | 193 | 246 | 296 | 323 | 351 | 413 | 402 | 421 | 470 |
| Bio-diesel (million liters) | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | 3 | 3 | 8 | 195 | 61 | 78 | 125 | 134 |
| Liquefied natural gas (million liters) | N | N | N | N | N | N | N | N | N | N | N | 6 | 8 | 12 | 10 | 17 | 33 | 37 | 53 | 44 | 50 | 55 | 58 | 57 | 56 | 52 |
| Gasoline (million liters) | N | N | N | N | N | N | N | N | N | N | N | 9 | 4 | 5 | 6 | 4 | 4 | 5 | 4 | 3 | 5 | 3 | 7 | 7 | 11 | 11 |
| Other major fuels[a] (million liters) | N | N | N | N | N | N | N | N | N | N | N | N | 43 | 34 | 16 | 9 | 3 | 4 | 8 | 8 | 8 | 11 | 8 | 4 | 3 | 4 |
| Power[b] (million KWH) | N | N | N | N | N | N | N | N | N | N | N | N | 0 | 0 | 1 | 1 | 1 | 1 | 3 | 1 | 2 | 1 | 1 | 1 | 1 | 1 |
| Energy consumed, total (Billion kilojoules) | N | N | N | N | N | N | N | N | N | N | N | N | 69,603.1 | 69,471.5 | 69,992.2 | 71,266.4 | 73,643.6 | 74,333.7 | 71,846.4 | 68,022.7 | 68,388.6 | 65,720.8 | 68,316.9 | 66,321.8 | 67,780.2 | 65,974.7 |
| Diesel fuel | 30,437.9 | 36,291.4 | 39,657.1 | 53,412.7 | 63,070.9 | 75,816.8 | 82,409.4 | 83,830.3 | 86,638.2 | 84,251.6 | 82,689.4 | 82,499.6 | 68,159.8 | 67,799.1 | 68,541.0 | 69,750.9 | 71,645.9 | 71,973.7 | 68,535.1 | 64,642.3 | 64,463.8 | 54,914.0 | 61,728.8 | 59,336.9 | 58,981.3 | 56,523.4 |
| Compressed Natural Gas | N | N | N | N | N | N | N | N | N | N | N | 237.4 | 240.3 | 420.4 | 647.0 | 789.9 | 999.5 | 1,211.3 | 1,542.7 | 1,856.4 | 2,027.0 | 2,198.5 | 2,589.3 | 2,521.5 | 2,640.4 | 2,950.1 |
| Bio-diesel | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | 103.1 | 113.4 | 282.7 | 6,849.6 | 2,138.2 | 2,745.3 | 4,379.6 | 4,721.4 |
| Liquefied natural gas | N | N | N | N | N | N | N | N | N | N | N | 152.1 | 200.4 | 288.9 | 229.9 | 392.1 | 781.3 | 874.6 | 1,252.9 | 1,049.4 | 1,178.0 | 1,294.8 | 1,381.4 | 1,354.1 | 1,330.4 | 1,237.7 |
| Gasoline | N | N | N | N | N | N | N | N | N | N | N | 303.3 | 132.0 | 174.5 | 199.4 | 142.6 | 133.7 | 162.5 | 139.3 | 121.6 | 189.9 | 101.8 | 243.3 | 251.3 | 373.5 | 394.4 |
| Other major fuels[a] | N | N | N | N | N | N | N | N | N | N | N | N | 867.4 | 786.0 | 368.0 | 182.2 | 73.0 | 100.9 | 245.8 | 224.8 | 226.4 | 349.1 | 222.9 | 101.5 | 65.1 | 122.0 |
| Power[b] | N | N | N | N | N | N | N | N | N | N | N | N | 3.2 | 2.6 | 6.8 | 8.7 | 10.2 | 10.7 | 27.5 | 14.8 | 20.7 | 13.0 | 13.0 | 11.2 | 10.0 | 7.7 |
| Energy intensity (kilojoules/passenger-kilometer) | N | N | N | N | N | N | N | N | N | N | N | N | 2,734 | 2,615 | 2,569 | 2,522 | 2,596 | 2,517 | 2,469 | 2,477 | 2,547 | 2,397 | 2,427 | 2,358 | 2,302 | 2,277 |

**KEY:** N = data do not exist; R = revised.

[a] Before 2002, *Other major fuels* include liquefied petroleum gas, methanol, ethanol, and bunker fuel. From 2002 to 2009,*Other major fuels* include liquefied petroleum gas, methanol, ethanol, bunker fuel, kerosene, and grain additive.

[b] *Power* includes electric propulsion and electric battery.

**NOTES**

Data from 1996 and after are not comparable to the data for earlier years or to the data published in previous editions of the report due to different data sources used.

Data from 1996 and after are for those vehicles used for directly operated (DO) services only .

*Energy consumed, total* does not include the other types of energy identified in table 17 in the*National Transit Database* due to the lack of information on the unit of measurement for such data before 2008.

The following conversion rates were used:

Diesel =38,657.95 kilojoules/liter.

Compressed Natural Gas = 6,271.117 kilojoules/liter.

Bio-Diesel = 35,174.00 kilojoules/liter.

Liquefied natural gas = 23,635.15 kilojoules/liter.

Gasoline = 34,839.54 kilojoules/liter.

Liquefied petroleum gas = 25,446.80 kilojoules/liter.

Methanol = 18,005.07 kilojoules/liter.

Ethanol = 23,579.40 kilojoules/liter.

Bunker fuel = 41,723.83 kilojoules/liter.

Kerosene = 37,626.70 kilojoules/liter.

Grain additive = 33,696.80 kilojoules/liter.

Electricity 1KWH = 3,412 Btu, negating electrical system losses. This table includes approximate electrical system losses, and thus the conversion factor is multiplied by 3.

1.609344 kilometers = 1 mile.

3.785412 liters = 1 gallon.

1.055056 kilojoules = 1 British thermal unit (Btu).

**SOURCES**

1960-95: American Public Transportation Association,*2010 Public Transportation Fact Book Appendix A: Historical Tables* (Washington, DC: Annual Issues), tables 2, 6, 30, 32 and similar tables in earlier editions, available at http://www.apta.com/resources/statistics/Pages/transitstats.aspx as of Aug 23, 2010.

1996-2009: U.S. Department of Transportation, Federal Transit Administration,*National Transit Database* , tables 17, 19, and similar tables in earlier editions, available at http://www.ntdprogram.gov/ntdprogram/data.htm as of Dec. 20, 2010.

**Table 4-25M: Energy Intensity of Class I Railroad[a] Freight Service**

| | 1960 | 1965 | 1970 | 1975 | 1980 | 1985 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | (R) 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Revenue freight tonne-kilometers (millions) | 835,555 | 1,018,882 | 1,116,600 | 1,101,187 | 1,341,653 | 1,280,372 | 1,509,566 | 1,516,728 | 1,557,470 | 1,619,560 | 1,752,990 | 1,906,268 | 1,979,686 | 1,969,394 | 2,010,092 | 2,092,813 | 2,140,261 | 2,183,347 | 2,200,194 | 2,265,056 | 2,427,347 | 2,476,733 | 2,586,920 | 2,584,946 | 2,594,715 | 2,236,990 |
| Car-kilometers (millions) | 45,335 | 47,212 | 48,103 | 44,508 | 47,117 | 40,105 | 42,099 | 41,244 | 42,049 | 43,264 | 45,842 | 48,897 | 51,040 | 50,952 | 52,556 | 54,478 | 55,667 | 55,109 | 55,812 | 57,220 | 59,660 | 60,692 | 62,692 | 61,454 | 59,909 | 51,684 |
| Tonnes per car load | (R) 40.3 | (R) 44.4 | (R) 49.8 | (R) 55.2 | (R) 60.9 | (R) 61.4 | (R) 60.4 | (R) 60.1 | (R) 59.9 | (R) 58.4 | (R) 57.5 | (R) 59.2 | (R) 60.4 | (R) 57.5 | (R) 58.2 | (R) 57.5 | (R) 56.8 | (R) 58.1 | (R) 57.4 | (R) 56.5 | (R) 55.6 | 55.3 | (R) 55.2 | 56.0 | 57.2 | 58.2 |
| Fuel consumed (million liters) | 13,109 | 13,597 | 13,419 | 13,843 | 14,778 | 11,773 | 11,792 | 11,000 | 11,375 | 11,689 | 12,621 | 13,173 | 13,548 | 13,533 | 13,563 | 14,063 | 14,006 | 14,044 | 14,120 | 14,483 | 15,365 | 15,513 | 15,868 | 15,376 | 14,710 | 12,083 |
| Energy intensity (kilojoule / revenue freight tonne-kilometer) | (R) 606 | (R) 516 | (R) 465 | (R) 486 | (R) 426 | (R) 355 | (R) 302 | (R) 280 | (R) 282 | (R) 279 | (R) 278 | (R) 267 | (R) 265 | (R) 266 | (R) 261 | (R) 260 | (R) 253 | (R) 249 | (R) 248 | (R) 247 | (R) 245 | 242 | 237 | 230 | 219 | 209 |
| Energy intensity (kilojoule / car-kilometer) | (R) 11,178 | (R) 11,133 | (R) 10,784 | (R) 12,023 | (R) 12,124 | (R) 11,347 | (R) 10,827 | (R) 10,310 | (R) 10,457 | (R) 10,444 | (R) 10,642 | (R) 10,414 | (R) 10,261 | (R) 10,267 | (R) 9,976 | (R) 9,979 | (R) 9,726 | (R) 9,851 | (R) 9,779 | (R) 9,784 | (R) 9,956 | 9,880 | 9,784 | 9,672 | 9,492 | 9,037 |

**KEY:** R = revised.

[a] The threshold for classification as a Class I Railroads is based on operating revenues; the 2009 threshold is $389.8 million.

**NOTES**

The heat equivalent factor used for joule conversion is 38,655.900 joules/liter.
1.459972 tonne-kilometer = 1 ton-mile.
1.609344 kilometers = 1 mile.
0.9071847 tonnes = 1 ton.
3.785412 liters = 1 gallon.
1.055056 kilojoules = 1 British thermal unit (Btu).

**SOURCE**

Association of American Railroads, *Railroad Facts 2010* (Washington, DC: 2010), pp. 34, 37, and 40, and similar tables in earlier editions.

# Glossary

**14 CFR 121 (Air):** Code of Federal Regulations, Title 14, part 121. Prescribes rules governing the operation of domestic, flag, and supplemental air carriers and commercial operators of large aircraft.

**14 CFR 135 (Air):** Code of Federal Regulations, Title 14, part 135. Prescribes rules governing the operations of commuter air carriers (scheduled) and on-demand air taxi (unscheduled).

**ACCIDENT (Aircraft):** As defined by the National Transportation Safety Board, an occurrence incidental to flight in which, as a result of the operation of an aircraft, any person (occupant or nonoccupant) receives fatal or serious injury or any aircraft receives substantial damage.

**ACCIDENT (Automobile):** See Crash (Highway)

**ACCIDENT (Gas):** 1) An event that involves the release of gas from a pipeline or of liquefied natural gas (LNG) or other gas from an LNG facility resulting in personal injury necessitating inpatient hospitalization or a death; or estimated property damage of $50,000 or more to the operator or others, or both, including the value of the gas that escaped during the accident; 2) An event that results in an emergency shutdown of an LNG facility; or 3) An event that is significant in the judgment of the operator even though it did not meet the criteria of 1) or 2).

**ACCIDENT (Hazardous liquid or gas):** Release of hazardous liquid or carbon dioxide while being transported, resulting in any of the following: 1) An explosion or fire not intentionally set by the operator; 2) Loss of 50 or more barrels of hazardous liquid or carbon dioxide; 3) Release to the atmosphere of more than 5 barrels a day of highly volatile liquids; 4) Death of any person; 5) Bodily harm resulting in one or more of the following: a) The loss of consciousness, b) The necessity of carrying person from the scene, c) The necessity for medical treatment, d) Disability that prevents the discharge of normal duties; and 6) Estimated damage to the property of the operators and/or others, exceeding $50,000.

**ACCIDENT (Highway-Rail Grade-Crossing):** An impact between on-track railroad equipment and an automobile, bus, truck, motorcycle, bicycle, farm vehicle, or pedestrian or other highway user at a designated crossing site. Sidewalks, pathways, shoulders, and ditches associated with the crossing are considered to be part of the crossing site.

**ACCIDENT (Rail):** A collision, derailment, fire, explosion, act of God, or other event involving operation of railroad on-track equipment (standing or moving) that results in railroad damage exceeding an established dollar threshold.

**ACCIDENT (Recreational Boating):** An occurrence involving a vessel or its equipment that results in 1) A death; 2) An injury that requires medical treatment beyond first aid; 3) Damage to a vessel and other property, totaling to more than $500 or complete loss of a vessel; or 4) The disappearance of the vessel under circumstances that indicate death or injury. Federal regulations (33 CFR 173-4) require the operator of any vessel that is numbered or used for recreational purposes to submit an accident report.

**ACCIDENT (Transit):** An incident involving a moving vehicle. Includes a vehicle, object, or person (except suicides) or a derailment/left roadway.

**ACTIVE AIRCRAFT (General Aviation):** All legally registered civil aircraft that flew one or more hours.

**AERIAL APPLICATION FLYING (General Aviation):** The operation of aircraft for the purposes of dispensing any substances required for agriculture, health, forestry, seeding, firefighting, and insect control purposes.

**AERIAL OBSERVATION FLYING (General Aviation):** Any use of an aircraft for aerial mapping and photography, surveying, patrolling, fish spotting, search and rescue, hunting, sightseeing, or highway traffic advisory not included under Federal Aviation Regulations (FAR) Part 135.

**AIR CARRIER:** A person who undertakes directly, by lease, or other arrangement to engage in air transportation. More specifically, the commercial system of air transportation comprising large certificated air carriers, small certificated air carriers, commuter air carriers, on-demand air taxis, supplemental air carriers, and air travel clubs.

**AIR ROUTE TRAFFIC CONTROL CENTER:** A facility established to provide air traffic control service to aircraft operating on an IFR (instrument flight rule) flight plan within controlled airspace and principally during the en route phase of flight.

**AIR TAXI:** An aircraft operator who conducts operations for hire or compensation in accordance with 14 CFR 135 (for safety purposes) or FAR Part 135 (for economic regulations/reporting purposes) in an aircraft with 30 or fewer passenger seats and a payload capacity of 7,500 pounds or less. An air taxi operates on an on-demand basis and does not meet the flight scheduled qualifications of a commuter air carrier (see below).

**AIRCRAFT REVENUE HOURS:** The airborne hours in revenue service, computed from the moment an aircraft leaves the ground until it lands.

**AIRCRAFT REVENUE MILES:** The miles (computed in airport-to-airport distances) for each interairport hop actually completed in revenue service, whether or not performed in accordance with the scheduled pattern. For this purpose, operation to a flag stop is a hop completed even if a landing is not actually made. In cases where the interairport distances are inapplicable, aircraft-miles flown are determined by multiplying the normal cruising speed for the aircraft type by the airborne hours.

**AIRPORT:** A landing area regularly used by aircraft for receiving or discharging passengers or cargo.

**AIRPORT/AIRWAY TRUST FUND:** See Trust Funds.

**ALTERNATIVE FUELS:** The Energy Policy Act of 1992 defines alternative fuels as methanol, denatured ethanol, and other alcohol; mixtures containing 85 percent or more (but not less than 70 percent as determined by the Secretary of Energy by rule to provide for requirements relating to cold start, safety, or vehicle functions) by volume of methanol, denatured ethanol, and other alcohols with gasoline or other fuels. Includes compressed natural gas, liquid petroleum gas, hydrogen, coal-derived liquid fuels, fuels other than alcohols derived from biological materials, electricity, or any other fuel the Secretary of Energy determines by rule is substantially not petroleum and would yield substantial energy security and environmental benefits.

**AMTRAK:** Operated by the National Railroad Passenger Corporation of Washington, D.C., this rail system was created by the Rail Passenger Service Act of 1970 (P.L. 91-518, 84 Stat. 1327) and given the responsibility for the operation of intercity, as distinct from suburban, passenger trains between points designated by the Secretary of Transportation.

**ARTERIAL HIGHWAY:** A major highway used primarily for through traffic.

**ASPHALT:** A dark brown to black cement-like material containing bitumens as the predominant constituent. The definition includes crude asphalt and finished products such as cements, fluxes, the asphalt content of emulsions, and petroleum distillates blended with asphalt to make cutback asphalt. Asphalt is obtained by petroleum processing.

**AVAILABLE SEAT-MILES (Air Carrier):** The aircraft miles flown in each interairport hop multiplied by the number of seats available on that hop for revenue passenger service.

**AVERAGE HAUL:** The average distance, in miles, one ton is carried. It is computed by dividing ton-miles by tons of freight originated.

**AVERAGE PASSENGER TRIP LENGTH (Bus/Rail):** Calculated by dividing revenue passenger-miles by the number of revenue passengers.

**AVIATION GASOLINE (General Aviation):** All special grades of gasoline used in aviation reciprocating engines, as specified by American Society of Testing Materials (ASTM) Specification D910 and Military Specification MIL-G5572.

Includes refinery products within the gasoline range marketed as or blended to constitute aviation gasoline.

**BARREL (oil):** A unit of volume equal to 42 U.S. gallons.

**BLOOD ALCOHOL CONCENTRATION (Highway):** A measurement of the percentage of alcohol in the blood by grams per deciliter.

**BRITISH THERMAL UNIT:** The quantity of heat needed to raise the temperature of 1 pound of water by 1 °F at or near 39.2 °F.

**BULK CARRIER (Water):** A ship with specialized holds for carrying dry or liquid commodities, such as oil, grain, ore, and coal, in unpackaged bulk form. Bulk carriers may be designed to carry a single bulk product (crude oil tanker), or accommodate several bulk product types (ore/bulk/oil carrier) on the same voyage or on a subsequent voyage after holds are cleaned.

**BUS:** Large motor vehicle used to carry more than 10 passengers, includes school buses, intercity buses, and transit buses.

**BUSINESS TRIP (American Travel Survey):** A trip taken for business or business combined with pleasure, or for attending a convention, conference, or seminar.

**CAFE STANDARDS:** See Corporate Average Fuel Economy Standards.

**CAR-MILE (Rail):** The movement of a railroad car a distance of 1 mile. An empty or loaded car-mile refers to a mile run by a freight car with or without a load. In the case of intermodal movements, the designation of empty or loaded refers to whether the trailers/containers are moved with or without a waybill.

**CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY (Air Carrier):** A certificate issued by the Department of Transportation to an air carrier under Section 401 of the Federal Aviation Act authorizing the carrier to engage in air transportation.

**CERTIFICATED AIR CARRIER:** An air carrier holding a Certificate of Public Convenience and Necessity issued by the U.S. Department of Transportation (DOT) to conduct scheduled services interstate. These carriers may also conduct nonscheduled or charter operations. Certificated air carriers operate large aircraft (30 seats or more or a maximum load of 7,500 pounds or more) in accordance with FAR Part 121. See also Large Certificated Air Carrier.

**CERTIFICATED AIRPORTS:** Airports that service air carrier operations with aircraft seating more than 30 passengers.

**CHAINED DOLLARS:** A measure used to express real prices, defined as prices that are adjusted to remove the effect of changes in the purchasing power of the dollar. Real prices usually reflect buying power relative to a reference year. The "chained-dollar" measure is based on the average weights of goods and services in successive pairs of years. It is "chained" because the second year in each pair, with its weights, becomes the first year of the next pair. Prior to 1996, real prices were expressed in constant dollars, a weighted measure of goods and services in a single year. See also Constant Dollars and Current Dollars.

**CLASS I RAILROAD:** A carrier that has an annual operating revenue of $250 million or more after applying the railroad revenue deflator formula, which is based on the Railroad Freight Price Index developed by the U.S. Department of Labor, Bureau of Labor Statistics. The formula is the current year's revenues x 1991 average index/current year's average index.

**COASTWISE TRAFFIC (Water):** Domestic traffic receiving a carriage over the ocean, or the Gulf of Mexico (e.g., between New Orleans and Baltimore, New York and Puerto Rico, San Francisco and Hawaii, Alaska and Hawaii). Traffic between Great Lakes ports and seacoast ports, when having a carriage over the ocean, is also considered coastwise.

**COEFFICIENT OF VARIATION:** Ratio of the sampling error (or standard error) of a statistic to the value of that statistic. Also referred to as relative standard error.

**COLLECTOR (Highway):** In rural areas, routes that serve intracounty rather than statewide travel. In urban areas, streets that provide direct access to neighborhoods and arterials.

**COLLISION WITH OBJECT (Transit):** An incident in which a transit vehicle strikes an obstacle other than a vehicle or person (e.g., building, utility pole). Reports are made if the accident results in a death, injury, or property damage over $1,000.

**COLLISION WITH PEOPLE (Transit):** An incident in which a transit vehicle strikes a person. Excludes suicides and suicide attempts. Reports are made if the incident results in death, injury, or property damage over $1,000.

**COLLISION WITH VEHICLE (Transit):** An incident in which a transit vehicle strikes or is struck by another vehicle. Reports are made if the incident results in a death, injury, or property damage over $1,000.

**COMBINATION TRUCK:** A power unit (truck tractor) and one or more trailing units (a semitrailer or trailer).

**COMMERCIAL BUS:** Any bus used to carry passengers at rates specified in tariffs; charges may be computed per passenger (as in regular route service) or per vehicle (as in charter service).

**COMMERCIAL SERVICE AIRPORT:** Airport receiving scheduled passenger service and having 2,500 or more enplaned passengers per year.

**COMMUTER AIR CARRIER:** Different definitions are used for safety purposes and for economic regulations and reporting. For safety analysis, commuter carriers are defined as air carriers operating under 14 CFR 135 that carry passengers for hire or compensation on at least five round trips per week on at least one route between two or more points according to published flight schedules, which specify the times, days of the week, and points of service. On March 20, 1997, the size of the aircraft subject to 14 CFR 135 was reduced from 30 to fewer than 10 passenger seats. (Larger aircraft are subject to the more stringent regulations of 14 CFR 121.) Helicopters carrying passengers or cargo for hire, however, are regulated under CFR 135 whatever their size. Although, in practice, most commuter air carriers operate aircraft that are regulated for *safety purposes* under 14 CFR 135 and most aircraft that are regulated under 14 CFR 135 are operated by commuter air carriers, this is not necessarily the case.

For economic regulations and reporting requirements, commuter air carriers are those carriers that operate aircraft of 60 or fewer seats or a maximum payload capacity of 18,000 pounds or less. These carriers hold a certificate issued under section 298C of the Federal Aviation Act of 1958, as amended.

**COMMUTER RAIL (Transit):** Urban passenger train service for short-distance travel between a central city and adjacent suburb. Does not include rapid rail transit or light rail service.

**COMPACT CAR:** An automobile industry designation usually consisting of cars with a wheelbase between 100 and 104 inches.

**COMPRESSED NATURAL GAS:** Natural gas compressed to a volume and density that is practical as a portable fuel supply. It is used as a fuel for natural gas-powered vehicles.

**CONSTANT DOLLAR:** Dollar value adjusted for changes in the average price level by dividing a current dollar amount by a price index. See also Chained Dollar and Current Dollar.

**CORPORATE AVERAGE FUEL ECONOMY STANDARDS (CAFÉ):** Originally established by Congress for new automobiles and later for light trucks. Under CAFE, automobile manufacturers are required by law to produce vehicle fleets with a composite sales-weighted fuel economy not lower than the CAFE standards in a given year. For every vehicle that does not meet the standard, a fine is paid for every one-tenth of a mile per gallon that vehicle falls below the standard.

**CORPORATE FLYING (General Aviation):** Corporate aircraft piloted by a professional crew.

**CRASH (Highway):** An event that produces injury and/or property damage, involves a motor vehicle in transport, and occurs on a trafficway or while the vehicle is still in motion after running off the trafficway.

**CRUDE OIL:** A mixture of hydrocarbons that exists in the liquid phase in natural underground reservoirs and remains liquid at atmospheric pressure after passing through surface-separating facilities.

**CURRENT DOLLAR:** Dollar value of a good or service in terms of prices current at the time the good or service is sold. See also Chained Dollar and Current Dollar.

**DEADWEIGHT TONNAGE (Water):** The carrying capacity of a vessel in long tons (2,240 pounds). It is the difference between the number of tons of water a vessel displaces "light" and the number of tons it displaces when submerged to the "load line."

**DEMAND-RESPONSIVE VEHICLE (Transit):** A nonfixed-route, a nonfixed-schedule vehicle that operates in response to calls from passengers or their agents to the transit operator or dispatcher.

**DERAILMENT/LEFT ROADWAY (Transit):** A noncollision incident in which a transit vehicle leaves the rails or road on which it travels. This also includes rollovers. Reports are made for all occurrences.

**DESTINATION OF TRIP (American Travel Survey):** The place the survey respondent names as the destination of the trip. If more than one location is visited on the same trip, the farthest point from the origin is considered the destination.

**DIESEL FUEL:** A complex mixture of hydrocarbons with a boiling range between approximately 350 and 650 °F. Diesel fuel is composed primarily of paraffins and naphthenic compounds that auto-ignite from the heat of compression in a diesel engine. Diesel is used primarily by heavy-duty road vehicles, construction equipment, locomotives, and by marine and stationary engines.

**DISTILLATE FUEL OIL:** A general classification for one of the petroleum fractions produced in conventional distillation operations. Included are No. 1, No. 2 and No. 4 fuel oils and No. 1, No. 2, and No. 4 diesel fuels. Distillate fuel oil is used primarily for space heating, on- and off-highway diesel engine fuel (including railroad engine fuel and fuel for agricultural machinery), and electric power generation.

**DISTRIBUTION MAINS (Gas):** A network of pipelines, services, and equipment that carry or control the supply of gas from the point of local supply to, and including, the sales meters.

**DOMESTIC FREIGHT (Water):** All waterborne commercial movements between points in the United States, Puerto Rico, and the Virgin Islands, excluding traffic with the Panama Canal Zone. Cargo moved for the military in commercial vessels is reported as ordinary commercial cargo; military cargo moved in military vessels is omitted.

**DOMESTIC OPERATIONS (Air Carrier):** All air carrier operations having destinations within the 50 United States, the District of Columbia, the Commonwealth of Puerto Rico, and the U.S. Virgin Islands.

**DOMESTIC PASSENGER (Water):** Any person traveling on a public conveyance by water between points in the United States, Puerto Rico, and the Virgin Islands.

**DRY CARGO BARGES (Water):** Large flat-bottomed, nonself-propelled vessels used to transport dry-bulk materials such as coal and ore.

**EMERGENCY PREPAREDNESS TRUST FUND:** See Trust Funds.

**ENERGY EFFICIENCY:** The ratio of energy inputs to the outputs from a process; for example, miles traveled per gallon of fuel (mpg).

**ENPLANED PASSENGERS (Air Carrier):** See Revenue Passenger Enplanements.

**ETHANOL:** A clear, colorless, flammable oxygenated hydrocarbon with a boiling point of 78.5 °C. in the anhydrous state. It is used in the United States as a gasoline octane enhancer and oxygenate (10-percent concentration). Ethanol can be used in high concentrations in vehicles optimized for its use. Otherwise known as ethyl alcohol, alcohol, or grain-spirit.

**FATAL CRASH (Highway):** A police-reported crash involving a motor vehicle in transport on a trafficway in which at least one person dies within 30 days of the crash as a result of that crash.

**FATAL INJURY (Air):** Any injury that results in death within thirty days of the accident.

**FATALITY:** For purposes of statistical reporting on transportation safety, a fatality shall be considered a death due to injuries in a transportation crash, accident, or incident that occurs within 30 days of that occurrence.

**FATALITY (Rail):** 1) Death of any person from an injury within 30 days of the accident/incident (may include nontrain accidents/incidents); or 2) Death of a railroad employee from an occupational illness within 365 days after the occupational illness was diagnosed by a physician.

**FATALITY (Recreational Boating):** All deaths (other than deaths by natural causes) and missing persons resulting from an occurrence that involves a vessel or its equipment.

**FATALITY (Transit):** A transit-caused death confirmed within 30 days of a transit incident. Incidents include collisions, derailments, personal casualties, and fires associated with transit agency revenue vehicles, transit facilities on transit property, service vehicles, maintenance areas, and rights of way.

**FATALITY (Water):** All deaths and missing persons resulting from a vessel casualty.

**FEDERAL ENERGY REGULATORY COMMISSION (FERC):** The Federal agency with jurisdiction over, among other things, gas pricing, oil pipeline rates, and gas pipeline certification.

**FERRY BOAT (Transit):** Vessels that carry passengers and/or vehicles over a body of water. Generally steam or diesel-powered, ferry boats 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.

**FIELD AND GATHERING GAS PIPELINES:** A network of pipelines (mains) transporting natural gas from individual wells to a compressor station, processing point, or main trunk pipeline.

**FLAG STOP (Air):** A drop-off or pick-up point along a predetermined route that is visited only by request or if a signal to stop is given.

**FOSSIL FUELS:** Any naturally occurring organic fuel formed in the Earth's crust, such as petroleum, coal, and natural gas.

**FREIGHT REVENUE (Rail):** Revenue from the transportation of freight and from the exercise of transit, stopoff, diversion, and reconsignment privileges as provided for in tariffs.

**FREIGHTERS (Water):** General cargo carriers, full containerships, partial containerships, roll-on/rolloff ships, and barge carriers.

**FULL-SIZE CAR:** As designated by the automobile industry, cars with a wheelbase between 110 and 114 inches.

**GAS TRANSMISSION PIPELINES:** Pipelines installed for the purpose of transmitting gas from a source or sources of supply to one or more distribution centers, or to one or more large volume customers; or a pipeline installed to interconnect sources of supply. Typically, transmission lines differ from gas mains in that they operate at higher pressures and the distance between connections is greater.

**GASOHOL:** A blend of finished motor gasoline (leaded or unleaded) and alcohol (generally ethanol but sometimes methanol) limited to 10 percent by volume of alcohol.

**GASOLINE:** A complex mixture of relatively volatile hydrocarbons, with or without small quantities of additives that have been blended to produce a fuel suitable for use in spark ignition engines. Motor gasoline includes both leaded or unleaded grades of finished motor gasoline, blending components, and gasohol. Leaded gasoline is no longer used in highway motor vehicles in the United States.

**GENERAL AVIATION:** 1) All facets of civil aviation, except facets of those air carriers holding a Certificate of Public Convenience and Necessity. 2) All civil aviation activity except that of air carriers certificated in accordance with Federal Aviation Regulations (FAR) Parts 121, 123, 127, and 135. The types of aircraft used in general aviation range from corporate multiengine jet aircraft piloted by professional crews to amateur-built single-engine piston-driven acrobatic planes to balloons and dirigibles. 3) All civil aviation operations other than scheduled air services and nonscheduled air transport operations for taxis, commuter air carriers, and air travel clubs that do not hold Certificates of Public Convenience and Necessity.

**GENERAL ESTIMATES SYSTEM:** A data collection system that uses a nationally representative probability sample selected from all police-reported highway crashes. It began operation in 1988.

**GROSS DOMESTIC PRODUCT:** The total output of goods and services produced by labor and property located in the United States, valued at market prices. As long as the labor and property are located in the United States, the suppliers (workers and owners) may be either U.S. residents or residents of foreign countries.

**GROSS VEHICLE WEIGHT RATING (gvwr) (Truck):** The maximum rated capacity of a vehicle, including the weight of the base vehicle, all added equipment, driver and passengers, and all cargo.

**HARBOR MAINTENANCE TRUST FUND:** See Trust Funds.

**HAZARDOUS MATERIAL:** Any toxic substance or explosive, corrosive, combustible, poisonous, or radioactive material that poses a risk to the public's health, safety, or property-particularly when transported in commerce.

**HEAVY RAIL (Transit):** An electric railway with the capacity to transport a heavy volume of passenger traffic and characterized by exclusive rights-of-way, multicar trains, high speed, rapid acceleration, sophisticated signaling, and high-platform loading. Also known as "subway," "elevated (railway)," or "metropolitan railway (metro)."

**HIGHWAY-RAIL GRADE CROSSING (Rail):** A location where one or more railroad tracks are crossed by a public highway, road, or street or a private roadway at grade, including sidewalks and pathways at or associated with the crossing.

**HIGHWAY TRUST FUND:** A grant-in-aid type fund administered by the U.S. Department of Transportation, Federal Highway Administration. Most funds for highway improvements are apportioned to States according to formulas that give weight to population, area, and mileage.

**HOUSEHOLD TRIP (American Travel Survey):** A trip in which one or more members of a household travel together.

**HIGHWAY-USER TAX:** A charge levied on persons or organizations based on their use of public roads. Funds collected are usually applied toward highway construction, reconstruction, and maintenance.

**INCIDENT (Hazmat):** Any unintentional release of hazardous material while in transit or storage.

**INCIDENT (Train):** Any event involving the movement of a train or railcars on track equipment that results in a death, a reportable injury, or illness, but in which railroad property damage does not exceed the reporting threshold.

**INCIDENT (Transit):** Collisions, derailments, personal casualties, fires, and property damage in excess of $1,000 associated with transit agency revenue vehicles; all other facilities on the transit property; and service vehicles, maintenance areas, and rights-of-way.

**INJURY (Air):** See SERIOUS INJURY (air and general aviation).

**INJURY (Gas):** Described in DOT Forms 7100.1 or 7100.2 as an injury requiring "in-patient hospitalization" (admission and confinement in a hospital beyond treatment administered in an emergency room or out-patient clinic in which confinement does not occur).

**INJURY (Hazardous Liquid Pipeline):** An injury resulting from a hazardous liquid pipeline accident that results in one or more of the following: 1) Loss of consciousness, 2) A need to be carried from the scene, 3) A need for medical treatment, and/or 4) A disability that prevents the discharge of normal duties or the pursuit of normal duties beyond the day of the accident.

**INJURY (Highway):** Police-reported highway injuries are classified as follows:

*Incapacitating Injury:* Any injury, other than a fatal injury, that prevents the injured person from walking, driving, or normally continuing the activities the person was capable of performing before the injury occurred. Includes severe lacerations, broken or distorted limbs, skull or chest injuries, abdominal injuries, unconsciousness at or when taken from the accident scene, and inability to leave the accident scene without assistance. Exclusions include momentary unconsciousness.

*Nonincapacitating Evident Injury:* Any injury, other than a fatal injury or an incapacitating injury, evident to observers at the scene of the accident. Includes lumps on head, abrasions, bruises, minor lacerations, and others. Excludes limping.

*Possible Injury:* Any injury reported or claimed that is not evident. Includes momentary unconsciousness, claim of injuries not obvious, limping, complaint of pain, nausea, hysteria, and others.

**INJURY (Highway-Rail Grade Crossing):** 1) An injury to one or more persons other than railroad employees that requires medical treatment; 2) An injury to one or more employees that requires medical treatment or that results in restriction of work or motion for one or more days, or one or more lost work days, transfer to another job, termination of employment, or loss of consciousness; 3) Any occupational illness affecting one or more railroad employees that is diagnosed by a physician.

**INJURY (Rail):** 1) Injury to any person other than a railroad employee that requires medical treatment, or 2) Injury to a railroad employee that requires medical treatment or results in restriction of work or motion for one or more workdays, one or more lost workdays, termination of employment, transfer to another job, loss of consciousness, or any occupational illness of a railroad employee diagnosed by a physician.

**INJURY (Recreational Boating):** Injury requiring medical treatment beyond first aid as a result of an occurrence that involves a vessel or its equipment.

**INJURY (Transit):** Any physical damage or harm to a person requiring medical treatment or any physical damage or harm to a person reported at the time and place of occurrence. For employees, an injury includes incidents resulting in time lost from duty or any definition consistent with a transit agency's current employee injury reporting practice.

**INJURY (Water):** All personal injuries resulting from a vessel casualty that require medical treatment beyond first aid.

**INLAND AND COASTAL CHANNELS:** Includes the Atlantic Coast Waterways, the Atlantic Intracoastal Waterway, the New York State Barge Canal System, the Gulf Coast Waterways, the Gulf Intracoastal Waterway, the Mississippi River System (including the Illinois Waterway), Pacific Coast Waterways, the Great Lakes, and all other channels (waterways) of the United States, exclusive of Alaska, that are usable for commercial navigation.

**INSTRUCTIONAL FLYING:** Flying under the supervision of a flight instructor (excludes proficiency flying).

**INTERCITY CLASS BUS I:** As defined by the Bureau of Transportation Statistics, an interstate motor carrier of passengers with an average annual gross revenue of at least $1 million.

**INTERCITY TRUCK:** Truck that carries freight beyond local areas and commercial zones.

**INTERMEDIATE -SIZE CAR:** As designated by the automobile industry, a car with a wheelbase between 105 and 109 inches.

**INTERNAL TRAFFIC (Water):** Vessel movements (origin and destination) that take place solely on inland waterways located within the boundaries of the contiguous 48 states or within the state of Alaska. The term "internal traffic" also applies to carriage on both inland waterways and the water of the Great Lakes; carriage between offshore areas and inland waterways; and carriage occurring within the Delaware Bay, Chesapeake Bay, Puget Sound, and the San Francisco Bay, which are considered internal bodies of water rather than arms of the ocean.

**INTERSTATE HIGHWAY:** Limited access, divided highway of at least four lanes designated by the Federal Highway Administration as part of the Interstate System.

**INTRAPORT (Water):** Movement of freight within the confines of a port whether the port has one or several channels included in the port definition. Does not include car-ferries and general ferries moving within a port.

**INTRATERRITORY TRAFFIC (Water):** Traffic between ports in Puerto Rico and the U.S. Virgin Islands, which are considered a single unit.

**JET FUEL:** The term includes kerosene-type jet fuel and naphtha-type jet fuel. Kerosene-type jet fuel is used primarily for commercial turbojet and turboprop aircraft engines. Naphtha-type jet fuel is used primarily for military turbojet and turboprop aircraft engines.

**LAKEWISE OR GREAT LAKES TRAFFIC:** Waterborne traffic between U.S. ports on the Great Lakes system. The Great Lakes system is treated as a separate waterways system rather than as a part of the inland system.

**LARGE CERTIFICATED AIR CARRIERS:** An air carrier holding a certificate issued under section 401 of the Federal Aviation Act of 1958, as amended, that: 1) Operates aircraft designed to have a maximum passenger capacity of more than 60 seats or a maximum payload capacity of more than 18,000 pounds, or 2) Conducts operations where one or both terminals of a flight stage are outside the 50 states of the United States, the District of Columbia, the Commonwealth of Puerto Rico, and the U.S. Virgin Islands. Large certificated air carriers are grouped by annual operating revenues: 1) Majors (more than $1 billion in annual operating revenues), 2) Nationals (between $100 million and $1 billion in annual

operating revenues), Large regionals ($20 million and $99,999,999 in annual operating revenues), and 4) Medium regionals (less than $20 million in annual operating revenues).

**LARGE REGIONALS (Air):** Air carrier groups with annual operating revenues between $20 million and $99,999,999.

**LARGE CAR:** As designated by the automobile industry, a car with a wheelbase greater than 114 inches.

**LARGE TRUCK:** Trucks over 10,000 pounds gross vehicle weight rating, including single-unit trucks and truck tractors.

**LEASE CONDENSATE:** A mixture consisting primarily of pentanes and heavier hydrocarbons, which are recovered as a liquid from natural gas in lease or field separation facilities. This category excludes natural gas liquids, such as butane and propane, which are recovered at natural gas processing plants or facilities.

**LIGHT-DUTY VEHICLE:** A vehicle category that combines light automobiles and trucks.

**LIGHT RAIL:** A streetcar-type vehicle operated on city streets, semiexclusive rights-of-way, or exclusive rights-of-way. Service may be provided by step-entry vehicles or by level boarding.

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

**LIQUEFIED NATURAL GAS (LNG):** Natural gas, primarily methane, that has been liquefied by reducing its temperature to -260 °F. at atmospheric pressure.

**LIQUEFIED PETROLEUM GAS (LPG):** Propane, propylene, normal butane, butylene, isobutane, and isobutylene produced at refineries or natural gas processing plants, including plants that fractionate new natural gas plant liquids.

**LOCOMOTIVE:** Railroad vehicle equipped with flanged wheels for use on railroad tracks, powered directly by electricity, steam, or fossil fuel, and used to move other railroad rolling equipment.

**LOCOMOTIVE-MILE:** The movement of a locomotive unit, under its own power, the distance of 1 mile.

**MAINS (Gas):** A network of pipelines that serves as a common source of supply for more than one gas service line.

**MAJORS (Air):** Air carrier groups with annual operating revenues exceeding $1 billion.

**MEDIUM REGIONALS (Air):** Air carrier groups with annual operating revenues less than $20 million.

**MERCHANDISE TRADE EXPORTS:** Merchandise transported out of the United States to foreign countries whether such merchandise is exported from within the U.S. Customs territory, from a U.S. Customs bonded warehouse, or from a U.S. Foreign Trade Zone. (Foreign Trade Zones are areas, operated as public utilities, under the control of U.S. Customs with facilities for handling, storing, manipulating, manufacturing, and exhibiting goods.)

**MERCHANDISE TRADE IMPORTS:** Commodities of foreign origin as well as goods of domestic origin returned to the United States with no change in condition or after having been processed and/or assembled in other countries. Puerto Rico is a Customs district within the U.S. Customs territory, and its trade with foreign countries is included in U.S. import statistics. U.S. import statistics also include merchandise trade between the U. S. Virgin Islands and foreign countries even though the Islands are not officially a part of the U.S. Customs territory.

**METHANOL:** A light, volatile alcohol produced commercially by the catalyzed reaction of hydrogen and carbon monoxide. Methanol is blended with gasoline to improve its operational efficiency.

**METHYL TERTIARY BUTYL ETHER (MTBE):** A colorless, flammable, liquid oxygenated hydrocarbon that contains 18.15 percent oxygen. It is a fuel oxygenate produced by reacting methanol with isobutylene.

**MID-SIZE CAR:** See Intermediate-Size Car.

**MINI-COMPACT CAR:** An automobile industry designation usually consisting of cars with a wheelbase of less than 95 inches.

**MINOR ARTERIALS (Highway):** Streets and highways linking cities and larger towns in rural areas, in distributing trips to small geographic areas in urban areas (not penetrating identifiable neighborhoods).

**MOTOR BUS (Transit):** A rubber-tired, self-propelled, manually steered bus with fuel supply onboard the vehicle. Motor bus types include: intercity, school, and transit.

**MOTORCYCLE:** A two- or three-wheeled motor vehicle designed to transport one or two people, including motor scooters, minibikes, and mopeds.

**NATIONALS (Air):** Air carrier groups with annual operating revenues between $100 million and $1 billion.

**NATURAL GAS:** A naturally occurring mixture of hydrocarbon and nonhydrocarbon gases found in porous geologic formations beneath the Earth's surface, often in association with petroleum. The principal constituent is methane.

**NATURAL GAS PLANT LIQUIDS:** Liquids recovered from natural gas in processing plants or field facilities, or extracted by fractionators. They include ethane, propane, normal butane, isobutane, pentanes plus, and other products, such as finished motor gasoline, finished aviation gasoline, special naphthas, kerosene, and distillate fuel oil produced at natural gas processing plants.

**NEAR MIDAIR COLLISION (Air):** An incident in which the possibility of a collision occurred as a result of aircraft flying with less than 500 feet of separation, or a report received from a pilot or flight crew member stating that a collision hazard existed between two or more aircraft.

**NONOCCUPANT (Automobile):** Any person who is not an occupant of a motor vehicle in transport (e.g., bystanders, pedestrians, pedalcyclists, or an occupant of a parked motor vehicle).

**NONRESPONSE ERROR:** Error that results from some members of the sample or census not providing information. Nonresponse bias results from a systematic difference between those who do and those who do not respond to the measurement instrument.

**NONSAMPLING ERROR:** All sources of bias or inaccuracy in a study other than sampling error. Examples of nonsampling errors include processing, recording, or dataentry errors; nonresponse error; and response error.

**NONSCHEDULED SERVICE (Air):** Revenue flights not operated as regular scheduled service, such as charter flights, and all nonrevenue flights incident to such flight.

**NONSELF-PROPELLED VESSEL (Water):** A vessel without the means for self- propulsion. Includes dry cargo and tanker barges.

**NONTRAIN INCIDENT:** An event that results in a reportable casualty, but does not involve the movement of ontrack equipment, and does not cause reportable damage above the threshold established for train accidents.

**NONTRESPASSERS (Rail):** A person lawfully on any part of railroad property used in railroad operations, or a person adjacent to railroad premises when injured as the result of railroad operations.

**NONVESSEL-CASUALTY-RELATED DEATH:** A death that occurs onboard a commercial vessel but not as a result of a vessel casualty, such as a collision, fire, or explosion.

**OCCUPANT:** Any person in or on a motor vehicle in transport. Includes the driver, passengers, and persons riding on the exterior of a motor vehicle (e.g., a skateboard rider holding onto a moving vehicle). Excludes occupants of parked cars unless they are double parked or motionless on the roadway.

**OCCUPATIONAL FATALITY:** Death resulting from a job-related injury.

**OPERATING EXPENSES (Air):** Expenses incurred in the performance of air transportation, based on overall operating revenues and expenses. Does not include nonoperating income and expenses, nonrecurring items, or income taxes.

**OPERATING EXPENSES (Rail):** Expenses of furnishing transportation services, including maintenance and depreciation of the plant used in the service.

**OPERATING EXPENSES (Transit):** The total of all expenses associated with operation of an individual mode by a given operator. Includes distributions of "joint expenses" to individual modes and excludes "reconciling items," such as interest expenses and depreciation. Should not be confused with "vehicle operating expenses."

**OPERATING EXPENSES (Truck):** Includes expenditures for equipment maintenance, supervision, wages, fuel, equipment rental, terminal operations, insurance, safety, and administrative and general functions.

**OPERATING REVENUES (Air):** Revenues from the performance of air transportation and related incidental services. Includes l) Transportation revenues from the carriage of all classes of traffic in scheduled and nonscheduled services, and 2) Nontransportation revenues consisting of federal subsidies (where applicable) and services related to air transportation.

**OTHER FREEWAYS AND EXPRESSWAYS (Highway):** All urban principal arterials with limited access but not part of the Interstate system.

**OTHER PRINCIPAL ARTERIAL (Highway):** Major streets or highways, many of multilane or freeway design, serving high-volume traffic corridor movements that connect major generators of travel.

**OTHER RAIL REVENUE:** This includes revenues from miscellaneous operations (i.e., dining- and bar-car services), income from lease of road and equipment, miscellaneous rental income, income from nonoperating property, profit from separately operated properties, dividend income, interest income, income from sinking and other reserve funds, release or premium on funded debt, contributions from other companies, and other miscellaneous income.

**OTHER REVENUE VEHICLES (Transit):** Other revenue-generating modes of transit service, such as cable cars, personal rapid transit systems, monorail vehicles, inclined railway cars, etc., not covered otherwise.

**OTHER 2-AXLE 4-TIRE VEHICLES (Truck):** Includes vans, pickup trucks, and sport utility vehicles.

**OTHER WORK (General Aviation):** Con-struction work (not Federal Aviation Regulations, Part 135), helicopter hoist, parachuting, aerial advertising, and towing gliders.

**OXYGENATES:** Any substance that when added to motor gasoline increases the amount of oxygen in that gasoline blend. Includes oxygen-bearing compounds such as ethanol, methanol, and methyl tertiary butyl ether. Oxygenated fuel tends to give a more complete combustion of carbon into carbon dioxide (rather than monoxide), thereby reducing air pollution from exhaust emissions.

**PASSENGER CAR:** A motor vehicle designed primarily for carrying passengers on ordinary roads, includes convertibles, sedans, and stations wagons.

**PASSENGER-MILE:** 1) Air: One passenger transported 1 mile; passenger-miles for one interairport flight are calculated by multiplying aircraft miles flow by the number of passengers carried on the flight. The total passenger-miles for all flights is the sum of passenger-miles for all interairport flights. 2) Auto: One passenger traveling 1 mile; e.g., one car transporting two passengers 4 miles results in eight passenger-miles. 3) Transit: The total number of miles traveled by transit passengers; e.g., one bus transporting five passengers 3 miles results in 15 passenger-miles.

**PASSENGER REVENUE:** 1) Rail: Revenue from the sale of tickets. 2) Air: Revenues from the transport of passengers by air. 3) Transit: Fares, transfer, zone, and park-and-ride parking charges paid by transit passengers. Prior to 1984, fare revenues collected by contractors operating transit services are not included.

**PASSENGER VESSELS:** A vessel designed for the commercial transport of passengers.

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

**PEDESTRIAN:** Any person not in or on a motor vehicle or other vehicle. Excludes people in buildings or sitting at a sidewalk cafe. The National Highway Traffic Safety Administration also uses an "other pedestrian" category to refer to pedestrians using conveyances and people in buildings. Examples of pedestrian conveyances include skateboards, nonmotorized wheelchairs, rollerskates, sleds, and transport devices used as equipment.

**PERSON-MILES (American Travel Survey):** An estimate of the aggregate distances traveled by all persons on a given trip based on the estimated transportation-network-miles traveled on that trip.

**PERSON TRIP (American Travel Survey):** A trip taken by an individual. For example, if three persons from the same household travel together, the trip is counted as one household trip and three person trips.

**PERSONAL BUSINESS TRIP (American Travel Survey):** A trip taken for a school-related activity or for personal or family business, including weddings and funerals.

**PERSONAL-USE VEHICLE TRIP (American Travel Survey):** A trip in which the principle means of transportation is a car, pickup truck, or van; other truck; rental car, truck, or van; recreational vehicle or motor home; or motorcycle or moped.

**PLEASURE TRIP (American Travel Survey):** A trip taken to visit friends or relatives or for leisure.

**PERSONAL CASUALTY (Transit):** 1) An incident in which a person is hurt while getting on or off a transit vehicle (e.g., falls or door incidents), but not as a result of a collision, derailment/left roadway, or fire. 2) An incident in which a person is hurt while using a lift to get on or off a transit vehicle, but not as a result of a collision, derailment/left roadway, or fire. 3) An incident in which a person is injured on a transit vehicle, but not as a result of a collision, derailment/left roadway, or fire. 4) An incident in which a person is hurt while using a transit facility. This includes anyone on transit property (e.g., patrons, transit employees, trespassers), but does not include incidents resulting from illness or criminal activity.

**PERSONAL WATERCRAFT:** Craft less than 13 feet in length designed to be operated by a person or persons sitting, standing, or kneeling on the craft rather than within the confines of a hull.

**PETROLEUM (Oil):** A generic term applied to oil and oil products in all forms, such as crude oil, lease condensate, unfinished oils, petroleum products, natural gas plant liquids, and nonhydrocarbon compounds blended into finished petroleum products.

**PROPERTY DAMAGE (Transit):** The dollar amount required to repair or replace transit property (including stations, right of way, bus stops, and maintenance facilities) damaged during an incident.

**PUBLIC ROAD:** Any road under the jurisdiction of and maintained by a public authority (federal, state, county, town, or township, local government, or instrumentality thereof) and open to public travel.

**RAIL MOTOR CARS:** Self-propelled passenger rail cars that are driven by electric motors energized from an electrified roadway or by a generator driven by a diesel or gas turbine engine.

**RAPID RAIL TRANSIT:** Transit service using rail cars driven by electricity usually drawn from a third rail, configured for passenger traffic, and usually operated on exclusive rights-of-way. It generally uses longer trains and has longer station spacing than light rail.

**REFORMULATED GASOLINE:** Gasoline whose composition has been changed to meet performance specifications regarding ozone-forming tendencies and release of toxic substances into the air from both evaporation and tailpipe emissions. Reformulated gasoline includes oxygenates and, compared with gasoline sold in 1990, has a lower content of olefins, aromatics, volatile components, and heavy hydrocarbons.

**RESIDUAL FUEL OIL:** The heavier oils that remain after the distillate fuel oils and lighter hydrocarbons are distilled away in refinery operations and that conform to American Society for Testing and Materials (ASTM) Specifications D396 and 976. Includes, among others, Navy Special oil used in steam-powered vessels in government service and No. 6 oil used to power ships. Imports of residual fuel oil include imported crude oil burned as fuel.

**RESPONSE ERROR:** Error that results from the tendency of people to answer a question falsely, deliberate misrepresentation, unconscious falsification, or misunderstanding of what is required.

**REVENUE:** Remuneration received by carriers for transportation activities.

**REVENUE PASSENGER:** 1) Air: Person receiving air transportation from an air carrier for which remuneration is received by the carrier. Air carrier employees or others, except ministers of religion, elderly individuals, and handicapped individuals, receiving reduced rate charges (less than the applicable tariff) are considered nonrevenue passengers. Infants, for whom a token fare is charged, are not counted as passengers. 2) Transit: Single-vehicle transit rides by initial-board (first-ride) transit passengers only. Excludes all transfer rides and all nonrevenue rides. 3) Rail: Number of one-way trips made by persons holding tickets.

**REVENUE PASSENGER ENPLANEMENTS (Air):** The total number of passengers boarding aircraft. Includes both originating and connecting passengers.

**REVENUE PASSENGER LOAD FACTOR (Air):** Revenue passenger-miles as a percent of available seat-miles in revenue passenger services. The term is used to represent the proportion of aircraft seating capacity that is actually sold and utilized.

**REVENUE PASSENGER-MILE:** One revenue passenger transported 1 mile.

**REVENUE PASSENGER TON-MILE (Air):** One ton of revenue passenger weight (including all baggage) transported 1 mile. The passenger weight standard for both domestic and international operations is 200 pounds.

**REVENUE TON-MILE:** One short ton of freight transported 1 mile.

**REVENUE VEHICLE-MILES (Transit):** One vehicle (bus, trolley bus, streetcar) traveling 1 mile while revenue passengers are on board generates one revenue vehicle-mile. Revenue vehicle-miles reported represent the total mileage traveled by vehicles in scheduled or unscheduled revenue-producing services.

**ROAD OIL:** Any heavy petroleum oil, including residual asphaltic oil, that is used as a dust palliative and surface treatment on roads and highways. It is generally produced in 6 grades from 0, the most liquid, to 5, the most viscous.

**ROLL ON/ROLL OFF VESSEL:** Ships that are designed to carry wheeled containers or other wheeled cargo and use the roll on/roll off method for loading and unloading.

**ROUND-TRIP DISTANCE (American Travel Survey):** The estimated transportation network-miles traveled at the time of the trip from the household residence to the destination and back.

**RURAL HIGHWAY:** Any highway, road, or street that is not an urban highway.

**RURAL MILEAGE (Highway):** Roads outside city, municipal district, or urban boundaries.

**SAMPLING ERROR:** The estimated inaccuracy of the results of a study when a population sample, rather than a census, is used to explain the behavior of the total population. (Also referred to as margin of error and standard error.)

**SCHEDULED SERVICE (Air):** Transport service operated pursuant to published flight schedules.

**SCHOOL BUS:** A passenger motor vehicle that is designed or used to carry more than 10 passengers, in addition to the driver, and, as determined by the Secretary of Transportation, is likely to be significantly used for the purpose of transporting pre-primary, primary, or secondary school students between home and school.

**SCHOOL-BUS-RELATED CRASH:** Any crash in which a vehicle, regardless of body design, used as a school bus is directly or indirectly involved, such as a crash involving school children alighting from a vehicle.

**SCOW (Water):** Any flat-bottomed, nonself-propelled, rectangular vessel with sloping ends. Large scows are used to transport sand, gravel, or refuse.

**SELF-PROPELLED VESSEL:** A vessel that has its own means of propulsion. Includes tankers, containerships, dry bulk cargo ships, and general cargo vessels.

**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.

**SMALL CERTIFICATED AIR CARRIER:** An air carrier holding a certificate issued under section 401 of the Federal Aviation Act of 1958, as amended, that operates aircraft designed to have a maximum seating capacity of 60 seats or fewer or a maximum payload of 18,000 pounds or less.

**STATE AND LOCAL HIGHWAY EXPENDITURES:** Disbursements for capital outlay, maintenance and traffic surfaces, administration and research, highway law enforcement and safety, and interest on debt.

**STREETCARS:** Relatively lightweight passenger rail cars operating singly or in short trains, or fixed rails in right-of-way that are not always separated from other traffic for much of the way. Streetcars do not necessarily have the right-of-way at grade crossings with other traffic.

**SUBCOMPACT CAR:** As designated by the automobile industry, a car with a wheelbase between 95 and 99 inches.

**SUPPLEMENTAL AIR CARRIER:** An air carrier authorized to perform passenger and cargo charter services.

**TANKER:** An oceangoing ship designed to haul liquid bulk cargo in world trade.

**TON-MILE (Truck):** The movement of 1 ton of cargo the distance of 1 mile. Ton-miles are calculated by multiplying the weight in tons of each shipment transported by the miles hauled.

**TON-MILE (Water):** The movement of 1 ton of cargo the distance of 1 statute mile. Domestic ton-miles are calculated by multiplying tons moved by the number of statute miles moved on the water (e.g., 50 short tons moving 200 miles on a waterway would yield 10,000 ton-miles for that waterway). Ton-miles are not computed for ports. For coastwise traffic, the shortest route that safe navigation permits between the port of origin and destination is used to calculate ton-miles.

**TRAFFICWAY (Highway):** Any right-of-way open to the public as a matter of right or custom for moving persons or property from one place to another, including the entire width between property lines or other boundaries.

**TRAIN LINE MILEAGE:** The aggregate length of all line-haul railroads. It does not include the mileage of yard tracks or sidings, nor does it reflect the fact that a mile of railroad may include two or more parallel tracks. Jointly-used track is counted only once.

**TRAIN-MILE:** A train-mile is the movement of a train, which can consist of many cars, the distance of 1 mile. A train-mile differs from a vehicle-mile, which is the movement of one car (vehicle) the distance of 1 mile. A 10-car (vehicle) train traveling 1 mile is measured as 1 train-mile and 10 vehicle-miles. Caution should be used when comparing train-miles to vehicle-miles.

**TRANSIT VEHICLE:** Includes light, heavy, and commuter rail; motor bus; trolley bus; van pools; automated guideway; and demand-responsive vehicles.

**TRANSSHIPMENTS:** Shipments that enter or exit the United States by way of a U.S. Customs port on the northern or southern border, but whose origin or destination was a country other than Canada or Mexico.

**TRAVEL PARTY (American Travel Survey):** Household and nonhousehold members traveling together on a trip.

**TRESPASSER (Rail):** Any person whose presence on railroad property used in railroad operations is prohibited, forbidden, or unlawful.

**TRIP (American Travel Survey):** Roundtrip travel to a destination at least 100 miles from home. The following types of trips are excluded: 1) travel as part of an operating crew on a train, airplane, truck, bus, or ship; 2) regular commuting to work or school; 3) one-way trips to move to a new destination; and 4) trips by members of the Armed Forces while on active duty.

**TROLLEY BUS:** Rubber-tired electric transit vehicle, manually steered and propelled by a motor drawing current, normally through overhead wires, from a central power source.

**TRUST FUNDS:** Accounts that are specifically designated by law to carry out specific purposes and programs. Trust Funds are usually financed with earmarked tax collections.

**TUG BOAT:** A powered vessel designed for the towing or pushing of ships, dumb barges, pushed-towed barges, and rafts, but not for the carriage of goods.

**U.S. FLAG CARRIER OR AMERICAN FLAG CARRIER (Air):** One of a class of air carriers holding a Certificate of Public Convenience and Necessity issued by the U.S. Department of Transportation and approved by the President, authorizing scheduled operations over specified routes between the United States (and/or its territories) and one or more foreign countries.

**UNLEADED GASOLINE:** See Gasoline.

**UNLINKED PASSENGER TRIPS (Transit):** The number of passengers who board public transportation vehicles. A passenger is counted each time he/she boards a vehicle even if on the same journey from origin to destination.

**URBAN HIGHWAY:** Any road or street within the boundaries of an urban area. An urban area is an area including and adjacent to a municipality or urban place with a population of 5,000 or

more. The boundaries of urban areas are fixed by state highway departments, subject to the approval of the Federal Highway Administration, for purposes of the Federal-Aid highway program.

**VANPOOL (Transit):** Public-sponsored commuter service operating under prearranged schedules for previously formed groups of riders in 8- to 18-seat vehicles. Drivers are also commuters who receive little or no compensation besides the free ride.

**VEHICLE MAINTENANCE (Transit):** All activities associated with revenue and nonrevenue (service) vehicle maintenance, including administration, inspection and maintenance, and servicing (cleaning, fueling, etc.) vehicles. In addition, it includes repairs due to vandalism or to revenue vehicle accidents.

**VEHICLE-MILES (Highway):** Miles of travel by all types of motor vehicles as determined by the states on the basis of actual traffic counts and established estimating procedures.

**VEHICLE-MILES (Transit):** The total number of miles traveled by transit vehicles. Commuter rail, heavy rail, and light rail report individual car-miles, rather than train-miles for vehicle-miles.

**VEHICLE OPERATIONS (Transit):** All activities associated with transportation administration, including the control of revenue vehicle movements, scheduling, ticketing and fare collection, system security, and revenue vehicle operation.

**VESSEL CASUALTY (Water):** An occurrence involving commercial vessels that results in 1) Actual physical damage to property in excess of $25,000; 2) Material damage affecting the seaworthiness or efficiency of a vessel; 3) Stranding or grounding; 4) Loss of life; or 5) Injury causing any person to remain incapacitated for a period in excess of 72 hours, except injury to harbor workers not resulting in death and not resulting from vessel casualty or vessel equipment casualty.

**VESSEL-CASUALTY-RELATED DEATH:** Fatality that occurs as a result of an incident that involves a vessel or its equipment, such as a collision, fire, or explosion. Includes drowning deaths.

**WATERBORNE TRANSPORTATION:** Transport of freight and/or people by commercial vessels under U.S. Coast Guard jurisdiction.

**WAYBILL:** A document that lists goods and shipping instructions relative to a shipment.

**WEEKEND TRIP (American Travel Survey):** Travel by persons who stay one or two nights away, including a Friday and/or Saturday night. Travel over three to five nights including a Friday and/or Saturday night stay is defined as a long-weekend trip.

# Acronyms and Initialisms

| | |
|---|---|
| **AAA** | American Automobile Association |
| **AADT** | Annual Average Daily Traffic |
| **AAMA** | American Automobile Manufacturers Association |
| **AAR** | Association of American Railroads |
| **AAS** | Air Activity Statistics of Certificated Air Carriers |
| **AGA** | American Gas Association |
| **AI** | Alcohol Involvement |
| **AIA** | Aerospace Industries Association |
| **ALVW** | Adjusted Loaded Vehicle Weight |
| **AMIO** | Alien Migrant Interdiction Operations |
| **AOPL** | Association of Oil Pipelines |
| **APTA** | American Public Transit Association |
| **ATS** | American Travel Survey |
| **ATV** | All-Terrain Vehicle |
| **BAC** | Blood Alcohol Concentration |
| **BEA** | Bureau of Economic Analysis |
| **BMA** | Bicycle Manufacturer's Association |
| **BTS** | Bureau of Transportation Statistics |
| **Btu** | British Thermal Unit |
| **CFR** | U.S. Code of Federal Regulation |
| **CFS** | Commodity Flow Survey |
| **CNG** | Compressed Natural Gas |
| **CO** | Carbon Monoxide |
| **CVS** | Certification Vehicle Standard |
| **dB** | Decibels |
| **DNL** | Day Night Sound Level |
| **dwt** | Deadweight Tons |
| **EPA** | U.S. Environmental Protection Agency |
| **EIA** | Energy Information Administration |
| **FAA** | Federal Aviation Administration |
| **FARS** | Fatality Analysis Reporting System Database |
| **FERC** | Federal Energy Regulatory Commission |
| **FHWA** | Federal Highway Administration |
| **FRA** | Federal Railway Administration |
| **FTA** | Federal Transit Administration |
| **FTP** | Federal Test Procedure |
| **FTZ** | Foreign Trade Zone |
| **GAATA** | General Aviation and Air Taxi Activity |
| **GAMA** | General Aviation Manufacturers Association |
| **GES** | General Estimates System |
| **GIS** | Geographic Information System |
| **g/mi** | Grams Per Mile |
| **GVWR** | Gross Vehicle Weight Rating |
| **HC** | Hydrocarbon |
| **HPMS** | Highway Performance Monitoring System |
| **ICC** | Interstate Commerce Commission |
| **INM** | Integrated Noise Model |
| **IO** | Investigative Officer |
| **IRI** | International Roughness Index |
| **LDT** | Light-Duty Truck |
| **LMIS** | Lloyd's Maritime Information System |
| **LPG** | Liquefied Petroleum Gas |
| **LR** | Lloyd's Register |
| **LVW** | Loaded Vehicle Weight |
| **MARAD** | Maritime Administration |
| **MCMIS** | Motor Carrier Management Information System |
| **MDPV** | Medium-Duty Passenger Vehicles |
| **MIC** | Motorcycle Industry Council, Inc. |
| **mmbd** | Million Barrels Per Day |
| **MOBILE** | Mobile Source Emissions Factor Model |

**mpg** Miles Per Gallon
**MSIS** Marine Safety Information System
**MTBE** Methyl Tributyl Ether
**MVMA** Motor Vehicle Manufacturers Association

**NANIM** Nationwide Airport Noise Impact Model
**NBDA** National Bicycle Dealers Association
**NDC** Navigation Data Center
**NHS** National Highway System
**NHTSA** National Highway Traffic Safety Administration
**NMAC** Near Mid-Air Collision
**$NO_x$** Nitrogen Oxides
**NOPS** National Operations Center
**NOPUS** National Occupant Protection Use Survey
**NPIAS** National Plan of Integrated Airport Systems
**NPTS** Nationwide Personal Transportation Survey
**NTD** National Transit Database
**NTS** National Transportation Statistics
**NTSB** National Transportation Safety Board

**OAG** Official Airline Guide
**OAI** Office of Airline Information
**OIG** Office of the Inspector General
**OPS** Office of Pipeline Safety
**ORNL** Oak Ridge National Laboratory
**OST** Office of the Secretary of Transportation

**PAR** Police Accident Report
**PIRS** Pollution Incident Reporting System
**PMT** Passenger Miles of Travel
**PSI** Pollutant Standard Index
**PSR** Present Serviceability Rating

**RFG** Reformulated Gasoline
**RO/RO** Roll-On/Roll-Off
**RSPA** Research and Special Programs Administration
**RTECS** Residential Transportation Energy Consumption Survey
**RVP** Reid Vapor Pressure

**SAMIS** Safety Management Information Statistics
**SEC** Securities and Exchange Commission
**SHA** State Highway Agencies
**$SO_2$** Sodium Dioxide
**STB** Surface Transportation Board

**TAF** Terminal Area Forecast
**TIUS** Truck Inventory and Use Survey
**TMG** Traffic Monitoring Guide
**TRFD** Transportation-Related Final Demand
**TSFD** Transborder Surface Freight Data
**TTI** Texas Transportation Institute

**USACE** U.S. Army Corps of Engineers
**USCG** U.S. Coast Guard
**USDOC** U.S. Department of Commerce
**USDOD** U.S. Department of Defense
**USDOT** U.S. Department of Transportation
**USSR** Union of Soviet Social Republic

# Modal Profiles

## Air Carrier Profile

| Financial | 1960 | 1970 | 1980 | 1990 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Operating revenues (thousand dollars) [1] | | | | | | | | | | | | | | | | | |
| Domestic total [a] | 2,178,339 | 7,180,161 | 26,440,297 | 58,201,660 | 66,672,151 | 71,424,865 | 77,396,919 | 82,599,270 | 86,856,624 | 91,351,103 | 98,899,810 | 86,573,051 | 79,336,448 | 88,870,097 | 100,902,509 | 110,269,243 | 120,279,816 |
| Majors, all services | 1,942,635 | 6,272,775 | 23,012,073 | 56,138,825 | 59,846,676 | 63,226,187 | 69,515,318 | 74,942,391 | 77,650,810 | 80,800,698 | 89,293,771 | 78,599,844 | 71,730,250 | 77,196,343 | 85,605,321 | 95,955,258 | 110,175,124 |
| Nationals, all services | 146,481 | 736,831 | 3,182,418 | 1,251,559 | 4,888,701 | 6,329,602 | 6,109,778 | 5,940,674 | 7,225,393 | 9,230,210 | 9,016,171 | 7,494,385 | 6,961,517 | 10,580,912 | 14,064,227 | 13,171,292 | 9,200,672 |
| Large regionals, all services | N | N | 245,806 | 703,526 | 1,031,404 | 1,148,504 | 1,230,628 | 1,366,503 | 1,617,586 | 902,160 | 589,869 | 478,822 | 644,680 | 1,092,842 | 1,232,961 | 1,142,693 | 904,019 |
| International total | 705,938 | 2,109,497 | 6,442,144 | 17,824,538 | 22,364,429 | 23,432,883 | 25,046,819 | 27,318,034 | 26,611,331 | 27,958,958 | 31,348,410 | 28,706,979 | 27,837,150 | 28,897,918 | 33,719,280 | 39,535,274 | 44,388,011 |
| Majors, all services | 705,938 | 2,109,497 | 5,976,221 | 17,083,295 | 19,222,842 | 19,820,215 | 20,960,305 | 23,608,853 | 23,356,233 | 24,447,607 | 28,097,698 | 25,883,361 | 24,528,512 | 24,964,860 | 29,735,873 | 34,226,000 | 38,988,147 |
| Nationals, all services | N | N | 465,923 | 380,294 | 2,568,643 | 2,819,653 | 3,751,539 | 3,338,903 | 2,668,243 | 3,026,884 | 2,801,690 | 2,503,678 | 2,959,809 | 3,408,860 | 3,399,904 | 4,803,265 | 5,160,564 |
| Large regionals, all services | N | N | N | 357,761 | 572,944 | 793,015 | 334,975 | 370,278 | 586,855 | 484,468 | 449,022 | 319,940 | 348,828 | 524,198 | 583,502 | 506,009 | 239,299 |
| Total large-certificated [a] | 2,884,877 | 9,289,658 | 32,882,441 | 76,026,198 | 89,036,580 | 94,857,748 | 102,443,738 | 109,917,304 | 113,467,954 | 119,310,062 | 130,248,220 | 115,280,030 | 107,173,597 | 117,768,015 | 134,621,789 | 149,804,516 | 164,667,827 |
| Operating expenses (thousand dollars) [1] | | | | | | | | | | | | | | | | | |
| Domestic total [a] | 2,052,094 | 7,001,668 | 26,465,999 | 59,183,777 | 64,456,644 | 66,667,151 | 72,145,242 | 76,125,467 | 78,796,175 | 84,816,236 | 93,548,937 | 94,949,876 | 86,826,833 | 91,520,149 | 104,621,676 | 112,363,170 | 116,140,022 |
| Majors, all services | 1,907,785 | 6,256,039 | 23,150,527 | 57,138,322 | 57,824,115 | 58,694,406 | 64,143,384 | 68,307,270 | 70,114,852 | 74,834,600 | 84,206,809 | 86,611,140 | 79,196,985 | 80,810,165 | 89,877,864 | 98,352,872 | 106,259,194 |
| Nationals, all services | 144,309 | 745,629 | 3,058,289 | 1,258,274 | 4,666,546 | 6,178,809 | 6,058,307 | 5,921,639 | 6,672,705 | 8,638,079 | 8,726,001 | 7,814,067 | 6,958,543 | 9,677,656 | 13,501,703 | 12,849,910 | 8,985,641 |
| Large regionals, all services | N | N | 257,183 | 676,688 | 1,077,578 | 1,055,905 | 1,328,760 | 1,502,305 | 1,600,958 | 858,956 | 616,126 | 524,670 | 671,305 | 1,032,329 | 1,242,109 | 1,160,389 | 895,187 |
| International total | 665,660 | 2,065,605 | 6,642,095 | 18,757,740 | 21,842,021 | 22,335,258 | 24,155,202 | 25,249,593 | 25,387,024 | 26,157,262 | 29,685,280 | 30,649,400 | 28,922,103 | 28,340,403 | 31,490,257 | 37,059,043 | 41,001,911 |
| Majors, all services | 665,660 | 2,065,605 | 6,171,366 | 18,086,050 | 18,875,302 | 18,997,478 | 20,406,144 | 21,688,642 | 22,321,441 | 22,993,261 | 26,647,046 | 27,664,641 | 25,687,398 | 24,606,982 | 27,783,564 | 32,207,742 | 35,951,166 |
| Nationals, all services | N | N | 470,729 | 325,273 | 2,372,138 | 2,582,833 | 3,414,618 | 3,209,074 | 2,514,464 | 2,714,754 | 2,556,866 | 2,663,591 | 2,914,105 | 3,253,707 | 3,157,046 | 4,349,805 | 4,818,660 |
| Large regionals, all services | N | N | N | 344,097 | 594,581 | 754,947 | 334,440 | 351,877 | 551,119 | 449,247 | 481,367 | 321,169 | 320,601 | 479,714 | 549,646 | 501,496 | 232,085 |
| Total large-certificated [a] | 2,717,754 | 9,067,273 | 33,108,094 | 77,941,517 | 86,298,665 | 89,002,409 | 96,300,444 | 101,375,060 | 104,183,200 | 110,973,499 | 123,234,216 | 125,599,276 | 115,748,936 | 119,860,552 | 136,111,932 | 149,422,213 | 157,141,933 |
| Inventory for large-certificated carriers[b] | | | | | | | | | | | | | | | | | |
| Number of carriers [c,2] | | | | | | | | | | | | | | | | | |
| Total domestic and international | 55 | 39 | (R) 52 | (R) 58 | (R) 66 | (R) 84 | (R) 88 | (R) 72 | (R) 74 | (R) 75 | (R) 66 | (R) 61 | (R) 62 | 65 | 69 | 67 | 66 |
| Majors | N | N | 14 | 12 | 11 | 11 | 12 | 13 | 13 | 13 | 14 | (R) 14 | 13 | 14 | 14 | 17 | 20 |
| Nationals | N | N | (R) 16 | 15 | (R) 22 | 27 | 31 | (R) 28 | 27 | (R) 28 | (R) 29 | (R) 26 | (R) 25 | 26 | 28 | 28 | 25 |
| Regionals | N | N | (R) 22 | (R) 31 | (R) 33 | (R) 46 | (R) 45 | (R) 31 | (R) 34 | (R) 34 | (R) 23 | (R) 21 | (R) 24 | 25 | 27 | 22 | 21 |
| Number of aircraft available for service [3] | | | | | | | | | | | | | | | | | |
| Total domestic and international | 2,135 | 2,690 | 2,818 | 4,727 | 5,221 | 5,567 | 5,961 | 5,770 | 6,144 | 6,254 | 6,522 | 6,081 | 5,819 | 6,675 | 7,051 | 6,750 | 6,758 |
| Majors | N | N | 2,071 | 3,854 | 4,085 | 4,039 | 4,422 | 4,352 | 4,605 | 4,711 | 5,118 | 4,996 | 4,530 | 4,948 | 4,904 | 5,018 | 5,626 |
| Nationals | N | N | 432 | 650 | 819 | 1,143 | 1,167 | 967 | 1,113 | 1,319 | 1,182 | 952 | 1,079 | 1,299 | 1,858 | 1,478 | 940 |
| Regionals | N | N | 315 | 223 | 317 | 385 | 372 | 451 | 426 | 224 | 222 | 133 | 210 | 428 | 289 | 254 | 192 |
| Number of full-time equivalent employees [c,2] | | | | | | | | | | | | | | | | | |
| Total domestic and international | 169,872 | 304,690 | 347,335 | 555,262 | 535,394 | 555,537 | 575,937 | 593,542 | 631,147 | 659,689 | 667,778 | 599,531 | 590,779 | 558,246 | 563,588 | 547,795 | 539,833 |
| Majors | 118,189 | 214,021 | 312,842 | 517,754 | 481,041 | 484,870 | 511,270 | 540,039 | 564,388 | 590,197 | 612,814 | 557,422 | 537,776 | 489,036 | 478,114 | 478,142 | 490,631 |
| Nationals | 12,470 | 24,913 | 29,269 | 30,225 | 42,785 | 54,447 | 51,921 | 43,630 | 54,205 | 60,756 | 51,384 | 38,446 | 48,685 | 64,348 | 78,090 | 63,246 | 41,908 |
| Regionals | N | N | 5,225 | 7,283 | 11,569 | 16,221 | 12,747 | 9,873 | 12,555 | 8,737 | 3,580 | 3,664 | 4,318 | 4,863 | 7,385 | 6,407 | 7,295 |

*continued*

**Air Carrier Profile** *continued*

| Performance | 1960 | 1970 | 1980 | 1990 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aircraft revenue-miles (thousands) [4] | | | | | | | | | | | | | | | | | |
| Domestic | | | | | | | | | | | | | | | | | |
| Certificated, all services [a,d] | 858,451 | 2,067,598 | 2,523,375 | 3,963,268 | 4,379,929 | 4,629,393 | 4,811,447 | 4,939,436 | 5,033,144 | 5,332,176 | 5,662,443 | 5,549,662 | 5,602,737 | 6,086,649 | 6,591,637 | 6,714,903 | 6,624,022 |
| Majors, all services | 716,961 | 1,778,065 | 2,113,669 | 3,767,330 | 3,760,067 | 3,854,368 | 4,062,122 | 4,218,049 | 4,260,051 | 4,445,133 | 4,784,664 | 4,680,578 | 4,432,285 | 4,267,107 | 4,632,828 | 4,923,387 | 5,388,726 |
| Nationals, all services | 94,794 | 247,055 | 330,528 | 120,599 | 447,024 | 592,345 | 591,638 | 572,654 | 613,823 | 801,719 | 805,439 | 810,665 | 915,170 | 1,259,491 | 1,498,161 | 1,434,676 | 901,647 |
| Large regionals, all services | N | N | 56,995 | 70,881 | 100,478 | 100,004 | 110,976 | 133,571 | 134,852 | 58,329 | 52,390 | 37,399 | 37,516 | 76,478 | 101,418 | 121,016 | 148,692 |
| International | | | | | | | | | | | | | | | | | |
| Certificated, all services [a,d] | 181,605 | 474,666 | 400,971 | 760,334 | 979,769 | 997,656 | 1,043,312 | 1,114,063 | 1,186,222 | 1,225,217 | 1,281,702 | 1,263,543 | 1,221,086 | 1,261,917 | 1,403,378 | 1,535,929 | 1,594,357 |
| Majors, all services | N | N | 330,391 | 694,479 | 809,243 | 815,701 | 853,424 | 917,108 | 1,003,727 | 1,043,730 | 1,117,709 | 1,119,126 | 1,050,808 | 1,028,158 | 1,148,209 | 1,250,037 | 1,325,504 |
| Nationals, all services | N | N | 66,499 | 24,301 | 108,392 | 125,951 | 145,847 | 142,658 | 127,037 | 134,370 | 127,550 | 124,765 | 141,670 | 185,397 | 197,334 | 231,735 | 216,064 |
| Large regionals, all services | N | N | 2,948 | 33,893 | 46,040 | 48,867 | 32,005 | 39,516 | 51,100 | 41,440 | 30,848 | 15,409 | 25,896 | 41,241 | 49,211 | 40,654 | 36,701 |
| Other certificated, all services, domestic and international [d] | N | N | 23,204 | 12,120 | 88,454 | 89,811 | 58,747 | 29,942 | 28,775 | 32,674 | 25,545 | 25,264 | 220,478 | 490,693 | 367,854 | 249,326 | 201,045 |
| Total certificated [d] | 1,040,056 | 2,542,264 | 2,924,346 | 4,723,602 | 5,359,697 | 5,627,048 | 5,854,760 | 6,053,499 | 6,219,366 | 6,557,393 | 6,944,145 | 6,813,205 | 6,823,823 | 7,348,566 | 7,995,015 | 8,250,831 | 8,218,378 |
| Aircraft revenue-hours [4] | | | | | | | | | | | | | | | | | |
| Domestic | | | | | | | | | | | | | | | | | |
| Certificated, all services [a,d] | 3,672,900 | 5,133,161 | 6,247,795 | 9,717,375 | 10,721,577 | 11,378,503 | 11,871,886 | 12,133,348 | 12,443,855 | 13,090,460 | 13,901,641 | 13,510,998 | 13,676,524 | 15,294,961 | 16,405,347 | 16,694,269 | 16,415,836 |
| Majors, all services | 2,802,317 | 4,066,480 | 4,941,327 | 9,053,789 | 8,864,840 | 9,023,772 | 9,512,983 | 9,898,147 | 9,957,390 | 10,349,992 | 11,308,820 | 11,028,054 | 10,328,412 | 9,862,773 | 10,758,395 | 11,519,750 | 12,709,883 |
| Nationals, all services | 606,146 | 908,935 | 919,187 | 458,621 | 1,362,863 | 1,832,909 | 1,934,433 | 1,828,382 | 2,002,173 | 2,515,044 | 2,403,184 | 2,305,781 | 2,407,006 | 3,383,803 | 3,917,027 | 3,761,623 | 2,373,121 |
| Large regionals, all services | N | N | 267,522 | 192,944 | 273,642 | 269,811 | 298,415 | 366,439 | 422,770 | 156,201 | 137,993 | 104,522 | 99,411 | 187,758 | 252,384 | 318,276 | 381,713 |
| International | | | | | | | | | | | | | | | | | |
| Certificated, all services [a,d] | 608,736 | 977,325 | 819,518 | 1,556,760 | 1,978,378 | 2,021,060 | 2,113,467 | 2,235,792 | 2,381,246 | 2,456,580 | 2,595,893 | 2,565,169 | 2,487,258 | 2,593,915 | 2,881,257 | 3,155,013 | 3,281,909 |
| Majors, all services | N | N | 668,199 | 1,410,263 | 1,607,155 | 1,619,755 | 1,699,958 | 1,819,583 | 1,992,776 | 2,071,507 | 2,229,167 | 2,240,214 | 2,105,500 | 2,067,148 | 2,317,972 | 2,541,139 | 2,692,590 |
| Nationals, all services | N | N | 140,329 | 50,293 | 227,077 | 262,285 | 319,919 | 303,335 | 275,180 | 281,706 | 288,953 | 282,776 | 319,353 | 417,332 | 431,858 | 492,092 | 466,897 |
| Large regionals, all services | N | N | 7,583 | 75,786 | 108,717 | 122,659 | 68,418 | 82,063 | 103,813 | 88,224 | 66,058 | 33,173 | 57,086 | 91,932 | 109,372 | 87,461 | 80,143 |
| Other certificated, all services, domestic and international [d] | N | N | 123,411 | 32,439 | 255,661 | 268,372 | 151,227 | 71,191 | 70,999 | 84,366 | 63,359 | 81,647 | 847,014 | 1,878,130 | 1,499,596 | 1,128,941 | 993,398 |
| Total certificated [d] | 4,281,636 | 6,110,486 | 7,190,724 | 11,274,135 | 12,699,955 | 13,399,563 | 13,985,353 | 14,369,140 | 14,825,101 | 15,547,040 | 16,497,534 | 16,076,167 | 16,163,782 | 17,888,876 | 19,286,604 | 19,849,282 | 19,697,745 |
| Revenue passenger-miles (thousands) [4] | | | | | | | | | | | | | | | | | |
| Domestic | | | | | | | | | | | | | | | | | |
| Certificated, all services [a,d] | 31,098,944 | 108,441,978 | 204,367,599 | 345,872,950 | 388,410,210 | 403,911,656 | 434,651,687 | 452,827,860 | 462,753,505 | 488,356,869 | 515,621,596 | 486,506,043 | 481,195,481 | 505,221,674 | 557,890,670 | 583,757,943 | 590,634,648 |
| Majors, all services | 29,430,428 | 99,903,229 | 182,984,795 | 340,628,946 | 352,063,855 | 360,719,108 | 395,099,254 | 413,060,869 | 421,217,665 | 440,442,129 | 472,284,794 | 440,413,336 | 426,401,276 | 424,165,007 | 462,025,653 | 498,200,614 | 527,266,645 |
| Nationals, all services | 1,170,779 | 7,642,071 | 20,466,712 | 2,655,442 | 27,508,958 | 33,696,612 | 30,396,752 | 31,989,076 | 34,070,192 | 43,371,272 | 39,560,329 | 43,541,665 | 48,687,149 | 67,906,918 | 84,458,947 | 78,505,474 | 55,504,378 |
| Large regionals, all services | N | N | 711,868 | 2,285,750 | 5,915,731 | 5,646,715 | 6,366,240 | 6,860,718 | 6,000,206 | 3,205,826 | 2,731,996 | 1,747,222 | 1,748,996 | 3,595,739 | 5,915,613 | 4,850,116 | 5,754,152 |

*continued*

**Air Carrier Profile** *continued*

| Performance (continued) | 1960 | 1970 | 1980 | 1990 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| International | | | | | | | | | | | | | | | | | |
| Certificated, all services [a,d] | 8,950,672 | 39,695,392 | 63,354,387 | 126,362,697 | 149,107,689 | 154,882,007 | 161,512,010 | 169,356,100 | 172,179,498 | 180,269,038 | 192,797,653 | 178,343,116 | 171,998,786 | 168,601,124 | 194,173,889 | 211,359,416 | 219,471,625 |
| Majors, all services | N | N | 54,318,160 | 121,910,801 | 133,299,897 | 137,389,923 | 145,330,811 | 153,564,956 | 157,398,986 | 166,320,739 | 181,585,899 | 169,335,392 | 163,576,484 | 156,267,732 | 179,788,447 | 195,635,675 | 206,669,607 |
| Nationals, all services | N | N | 8,659,592 | 3,152,239 | 12,939,400 | 15,509,364 | 14,681,127 | 13,616,245 | 12,232,424 | 11,504,031 | 7,793,324 | 7,710,903 | 6,803,586 | 8,995,296 | 11,101,736 | 14,120,367 | 12,074,172 |
| Large regionals, all services | N | N | 330,288 | 988,679 | 2,484,738 | 1,685,684 | 505,337 | 760,809 | 2,261,005 | 2,034,607 | 3,218,488 | 1,185,896 | 1,540,681 | 3,211,186 | 3,200,033 | 1,528,876 | 394,327 |
| Other certificated, all services, domestic and international [d] | N | N | 250,571 | 613,790 | 3,305,320 | 4,146,257 | 3,784,176 | 2,331,287 | 1,752,525 | 1,747,303 | 1,244,419 | 914,745 | 4,436,095 | 9,680,920 | 5,574,130 | 2,276,237 | 2,442,992 |
| Total certificated [d] | 40,049,616 | 148,137,370 | 267,972,557 | 472,235,647 | 537,517,899 | 558,793,663 | 596,163,697 | 622,183,960 | 634,933,003 | 668,625,907 | 708,419,249 | 664,849,159 | 653,194,267 | 673,822,798 | 752,064,559 | 795,117,359 | 810,106,273 |
| Average passenger revenue / passenger-mile [5] | | | | | | | | | | | | | | | | | |
| (Domestic, scheduled service) | 6.09 | 6.00 | 11.49 | 13.44 | 13.25 | 12.90 | 13.81 | 13.19 | 13.55 | 13.82 | 13.92 | 14.11 | 13.97 | (R) 14.57 | 13.26 | 12.10 | 12.51 |
| Average passenger fare [5] | | | | | | | | | | | | | | | | | |
| (Domestic, scheduled service) | 30.01 | 40.65 | 84.60 | 107.96 | 106.82 | 103.99 | 110.37 | 103.77 | 107.14 | 110.81 | 113.31 | 114.58 | 115.10 | (R) 121.33 | 111.68 | 103.93 | 108.43 |
| Revenue passenger enplanements (thousands) [4] | | | | | | | | | | | | | | | | | |
| Domestic | | | | | | | | | | | | | | | | | |
| Certificated, all services [a,d] | 56,352 | 153,662 | 275,182 | 428,769 | 489,357 | 506,775 | 538,397 | 553,160 | 566,377 | 589,168 | 616,397 | 574,882 | 564,552 | 596,871 | 645,674 | 674,061 | 675,212 |
| Majors, all services | 48,678 | 122,866 | 223,237 | 411,797 | 428,329 | 432,076 | 466,743 | 482,656 | 486,902 | 502,305 | 537,377 | 496,455 | 468,938 | 453,112 | 487,525 | 523,288 | 567,108 |
| Nationals, all services | 5,949 | 26,726 | 47,145 | 13,374 | 46,461 | 57,670 | 58,383 | 59,690 | 67,237 | 80,995 | 75,156 | 75,600 | 81,722 | 112,715 | 132,037 | 131,142 | 87,167 |
| Large regionals, all services | N | N | 3,748 | 3,190 | 8,854 | 10,127 | 9,122 | 9,665 | 10,276 | 4,234 | 2,444 | 1,383 | 1,338 | 3,542 | 6,623 | 7,930 | 9,383 |
| International | | | | | | | | | | | | | | | | | |
| Certificated, all services [a,d] | 5,904 | 16,620 | 26,514 | 46,121 | 51,330 | 52,863 | 54,519 | 56,759 | 57,758 | 57,694 | 60,830 | 56,641 | 56,904 | 58,837 | 67,479 | 73,090 | 75,449 |
| Majors, all services | N | N | 23,949 | 43,871 | 42,701 | 43,590 | 46,304 | 48,615 | 49,608 | 49,769 | 53,157 | 50,097 | 50,637 | 50,202 | 57,929 | 63,203 | 67,009 |
| Nationals, all services | N | N | 2,343 | 964 | 6,183 | 7,235 | 7,402 | 6,887 | 6,228 | 6,274 | 5,273 | 5,664 | 5,471 | 6,868 | 6,931 | 8,309 | 7,676 |
| Large regionals, all services | N | N | 149 | 825 | 2,168 | 1,790 | 405 | 631 | 1,751 | 1,322 | 2,151 | 779 | 718 | 1,600 | 2,379 | 1,290 | 364 |
| Other certificated, all services, domestic and international [d] | N | N | 1,125 | 871 | 5,992 | 7,150 | 4,558 | 1,776 | 2,133 | 1,964 | 1,668 | 1,546 | 12,631 | 27,669 | 19,729 | 11,989 | 11,953 |
| Total certificated [d] | 62,256 | 169,922 | 302,821 | 474,891 | 540,688 | 559,638 | 592,916 | 609,919 | 624,135 | 646,863 | 677,227 | 631,522 | 621,456 | 655,708 | 713,153 | 747,151 | 750,660 |
| Revenue passenger | | | | | | | | | | | | | | | | | |
| Load factor (%) (scheduled service) [4] | | | | | | | | | | | | | | | | | |
| Domestic | | | | | | | | | | | | | | | | | |
| Certificated [a,d] | 58.5 | 48.9 | 58.0 | 60.4 | 64.7 | 65.4 | 67.9 | 69.1 | 70.0 | 69.8 | 71.2 | 69.1 | 70.3 | 72.6 | 74.4 | 77.0 | 79.0 |
| Majors 59.5 | | 49.3 | 58.1 | 60.5 | 65.0 | 65.8 | 68.5 | 69.6 | 70.4 | 70.2 | 71.6 | 69.3 | 70.6 | 72.9 | 74.8 | 77.7 | 79.4 |
| Nationals | 41.9 | 43.6 | 58.4 | 49.4 | 63.6 | 61.8 | 62.0 | 63.1 | 65.1 | 66.4 | 66.5 | 67.0 | 68.2 | 72.5 | 73.6 | 74.4 | 77.2 |
| Large regionals | N | N | 47.7 | 54.7 | 56.3 | 63.0 | 58.1 | 61.9 | 63.5 | 58.7 | 46.8 | 71.3 | 60.4 | 71.2 | 70.3 | 70.1 | 72.6 |
| International | | | | | | | | | | | | | | | | | |
| Certificated [a,d] | 62.2 | 53.0 | 62.8 | 69.1 | 70.6 | 71.8 | 73.3 | 74.1 | 72.8 | 74.4 | 76.0 | 72.8 | 76.6 | 76.5 | 79.1 | 79.5 | 79.9 |
| Majors | N | N | 62.8 | 69.0 | 70.8 | 72.2 | 73.7 | 74.4 | 72.9 | 74.5 | 76.1 | 72.9 | 76.8 | 76.8 | 79.3 | 79.8 | 80.3 |
| Nationals N | | N | 65.5 | 85.7 | 68.3 | 67.9 | 67.8 | 69.6 | 70.9 | 73.7 | 73.4 | 70.0 | 68.3 | 64.8 | 70.4 | 71.4 | 70.8 |
| Large regionals | N | N | 73.9 | 63.9 | 46.2 | 53.1 | N | 57.2 | 46.0 | 0.0 | 58.0 | 67.0 | 59.1 | 70.4 | 77.6 | 0.0 | 64.3 |
| Other certificated, all services, domestic and international [d] | N | N | 46.7 | 56.8 | 57.6 | 52.5 | 62.8 | 59.3 | 49.6 | 47.6 | 48.8 | 52.2 | 61.4 | 60.1 | 58.9 | 51.4 | 52.9 |

*continued*

**Air Carrier Profile** *continued*

| Performance (continued) | 1960 | 1970 | 1980 | 1990 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| U.S. international passenger travel [e,6] | | | | | | | | | | | | | | | | | |
| Total passenger-arrivals (thousands) | | | | | | | | | | | | | | | | | |
| Flag of carrier | | | | | | | | | | | | | | | | | |
| United States | 1,332 | 5,531 | 10,031 | 19,145 | 23,291 | 24,582 | 25,148 | 26,744 | 27,390 | 27,462 | 29,837 | 27,985 | 26,953 | 26,557 | 29,992 | 31,657 | 33,364 |
| Foreign | 1,234 | 4,343 | 10,231 | 17,269 | 20,527 | 22,328 | 24,704 | 27,571 | 28,791 | 30,324 | 32,380 | 28,715 | 26,912 | 27,395 | 29,591 | 29,042 | 29,587 |
| Total passenger-departures (thousands) | | | | | | | | | | | | | | | | | |
| Flag of carrier | | | | | | | | | | | | | | | | | |
| United States | 1,200 | 4,949 | 9,369 | 17,628 | 21,355 | 22,231 | 22,901 | 24,302 | 24,513 | 25,457 | 27,431 | 25,483 | 23,610 | 24,070 | 27,249 | 29,668 | 31,492 |
| Foreign | 1,136 | 4,147 | 9,886 | 16,418 | 18,993 | 20,795 | 22,884 | 25,382 | 26,350 | 28,399 | 30,068 | 27,111 | 24,996 | 25,897 | 28,682 | 28,877 | 27,985 |
| Total revenue ton-miles (thousands) [f,4] | | | | | | | | | | | | | | | | | |
| Domestic | | | | | | | | | | | | | | | | | |
| Certificated, all services [a,d] | 3,732,949 | 13,876,802 | 24,964,907 | 43,654,400 | 50,632,739 | 52,916,214 | 56,326,750 | 58,920,010 | 60,165,036 | 63,032,298 | 66,544,502 | 61,834,963 | 62,051,071 | 65,753,373 | 72,240,509 | 74,117,030 | 74,923,193 |
| Majors, all services | 3,332,483 | 12,589,057 | 21,427,534 | 42,027,064 | 44,952,734 | 46,142,919 | 49,892,293 | 52,478,725 | 53,424,348 | 55,599,788 | 59,095,406 | 54,883,338 | 54,411,945 | 54,251,883 | 58,514,663 | 61,959,817 | 65,627,369 |
| Nationals, all services | 121,157 | 850,477 | 3,336,057 | 640,398 | 3,967,715 | 4,957,793 | 5,073,195 | 5,068,024 | 5,299,740 | 6,577,361 | 6,699,944 | 6,211,281 | 6,073,565 | 8,192,062 | 11,142,320 | 10,131,320 | 7,860,786 |
| Large regionals, all services | N | N | 180,042 | 944,830 | 1,256,308 | 1,353,436 | 1,048,507 | 1,231,075 | 1,161,148 | 611,809 | 628,394 | 597,407 | 684,963 | 1,584,694 | 1,193,008 | 1,136,544 | 1,200,010 |
| International | | | | | | | | | | | | | | | | | |
| Certificated, all services [a,d] | 1,291,336 | 6,308,701 | 9,689,067 | 19,975,913 | 24,879,793 | 26,296,958 | 28,177,722 | 30,950,867 | 31,192,066 | 32,810,134 | 35,161,434 | 32,782,793 | 33,771,616 | 35,168,498 | 40,923,680 | 44,696,422 | 45,806,946 |
| Majors, all services | N | N | 7,377,733 | 18,348,692 | 20,681,990 | 21,456,604 | 22,705,604 | 24,971,379 | 25,794,347 | 27,764,444 | 30,683,566 | 28,459,230 | 28,020,656 | 27,099,570 | 30,614,976 | 32,690,861 | 34,565,570 |
| Nationals, all services | N | N | 2,261,534 | 803,083 | 2,935,386 | 3,509,127 | 4,504,772 | 4,557,048 | 4,109,500 | 3,989,939 | 3,749,703 | 3,868,703 | 5,090,922 | 7,101,794 | 8,820,202 | 9,980,412 | 9,229,784 |
| Large regionals, all services | N | N | 44,438 | 704,369 | 918,447 | 1,186,218 | 668,766 | 1,038,610 | 1,211,260 | 993,874 | 621,161 | 303,700 | 636,385 | 812,738 | 1,256,237 | 1,421,590 | 1,618,112 |
| Other certificated, all services, domestic and international [d] | N | N | 28,178 | 161,878 | 799,950 | 607,077 | 611,336 | 526,016 | 356,761 | 305,217 | 227,762 | 294,098 | 904,251 | 1,879,129 | 1,622,782 | 1,492,908 | 628,507 |
| Total certificated [d] | 5,024,285 | 20,185,503 | 34,682,153 | 63,630,313 | 75,512,531 | 79,213,173 | 84,504,472 | 89,870,877 | 91,357,103 | 95,842,432 | 101,705,936 | 94,617,756 | 95,822,687 | 100,921,870 | 113,164,189 | 118,813,452 | 120,730,139 |
| Revenue ton-miles of freight (thousands) [g,4] | | | | | | | | | | | | | | | | | |
| Domestic | | | | | | | | | | | | | | | | | |
| Certificated, all services [a,d] | 552,756 | 2,708,900 | 4,528,316 | 9,067,099 | 11,802,776 | 12,524,772 | 12,860,845 | 13,640,994 | 13,886,053 | 14,201,505 | 14,982,612 | 13,172,867 | 13,931,509 | 15,231,204 | 16,451,441 | 15,741,236 | 15,859,729 |
| Majors, all services | 321,176 | U | 3,129,087 | 7,964,164 | 9,746,353 | 10,071,016 | 10,382,373 | 11,172,436 | 11,302,581 | 11,555,576 | 11,866,926 | 10,834,520 | 11,771,815 | 11,835,383 | 12,312,098 | 12,139,755 | 12,900,706 |
| Nationals, all services | 3,850 | U | 1,289,510 | 374,853 | 1,227,775 | 1,588,798 | 2,033,376 | 1,869,146 | 1,889,221 | 2,240,026 | 2,743,705 | 1,856,834 | 1,205,023 | 1,401,369 | 2,696,425 | 2,280,772 | 2,310,348 |
| Large regionals, all services | N | N | 108,864 | 716,256 | 664,768 | 787,828 | 411,285 | 549,046 | 561,109 | 296,660 | 356,013 | 422,682 | 510,401 | 1,225,120 | 601,447 | 651,532 | 624,594 |
| International | | | | | | | | | | | | | | | | | |
| Certificated, all services [a,d] | 268,156 | 1,566,105 | 3,353,371 | 7,340,033 | 9,970,191 | 10,855,442 | 12,031,635 | 14,015,255 | 13,980,493 | 14,782,230 | 15,880,424 | 14,948,684 | 16,572,205 | 18,308,387 | 21,506,293 | 23,560,482 | 23,859,784 |
| Majors, all services | N | N | 1,945,660 | 6,157,984 | 7,352,000 | 7,717,612 | 8,172,522 | 9,614,884 | 10,054,447 | 11,132,370 | 12,524,975 | 11,525,689 | 11,663,007 | 11,472,799 | 12,636,132 | 13,127,294 | 13,898,610 |
| Nationals, all services | N | N | 1,395,575 | 487,873 | 1,641,444 | 2,004,875 | 3,041,774 | 3,195,422 | 2,892,634 | 2,838,536 | 2,970,370 | 3,097,665 | 4,410,564 | 6,202,264 | 7,710,029 | 8,568,375 | 8,022,366 |
| Large regionals, all services | N | N | 11,409 | 605,504 | 671,144 | 1,017,649 | 618,232 | 962,529 | 985,159 | 790,413 | 298,069 | 185,111 | 482,784 | 491,619 | 936,234 | 1,268,703 | 1,578,680 |
| Other certificated, all services, domestic and international [d] | N | N | 3,124 | 100,498 | 469,484 | 192,437 | 232,918 | 292,786 | 181,393 | 130,155 | 102,978 | 199,051 | 460,121 | 911,037 | 1,065,369 | 1,265,286 | 384,208 |
| Total certificated [d] | 820,907 | 3,755,436 | 7,884,811 | 16,407,132 | 21,772,967 | 23,380,215 | 24,892,480 | 27,656,249 | 27,866,545 | 28,983,735 | 30,863,036 | 28,121,551 | 30,503,714 | 33,539,592 | 37,957,734 | 39,301,718 | 39,719,513 |

*continued*

**Air Carrier Profile** *continued*

| Safety [7] | 1960 | 1970 | 1980 | 1990 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Air carrier fatalities | | | | | | | | | | | | | | | | | |
| Operating under 14 CFR 121 (airlines) | | | | | | | | | | | | | | | | | |
| Scheduled services | N | N | 0 | 39 | 239 | 160 | 342 | 3 | 1 | 12 | 89 | 531 | 0 | 22 | 13 | 22 | 50 |
| Nonscheduled services | N | N | 1 | 0 | 0 | 8 | 38 | 5 | 0 | 0 | 3 | 0 | 0 | 0 | 1 | 0 | 0 |
| Operating under 14 CFR 135 | | | | | | | | | | | | | | | | | |
| Scheduled services (commuters) | N | N | 37 | 6 | 25 | 9 | 14 | 46 | 0 | 12 | 5 | 13 | 0 | 2 | 0 | 0 | 2 |
| Nonscheduled services (on–demand air taxis) | N | N | 105 | 51 | 63 | 52 | 63 | 39 | 45 | 38 | 71 | 60 | 35 | 42 | 64 | 18 | 16 |
| Total 499 | | 146 | 143 | 96 | 327 | 229 | 457 | 93 | 46 | 62 | 168 | 604 | 35 | 66 | 78 | 40 | 68 |
| Air carrier accidents | | | | | | | | | | | | | | | | | |
| Operating under 14 CFR 121 (airlines) | | | | | | | | | | | | | | | | | |
| Scheduled services | N | N | 15 | 21 | 18 | 30 | 31 | 43 | 41 | 40 | 49 | 41 | 35 | 51 | (R) 24 | (R) 34 | 25 |
| Nonscheduled services | N | N | 4 | 3 | 5 | 6 | 6 | 6 | 9 | 11 | 7 | 5 | 6 | 3 | (R) 6 | (R) 6 | 6 |
| Operating under 14 CFR 135 | | | | | | | | | | | | | | | | | |
| Scheduled services (commuters) | N | N | 38 | 15 | 10 | 12 | 11 | 16 | 8 | 13 | 12 | 7 | 7 | 2 | 4 | 6 | 3 |
| Nonscheduled services (on–demand air taxis) | N | N | 171 | 107 | 85 | 75 | 90 | 82 | 77 | 74 | 80 | 72 | 60 | (R) 73 | 66 | 66 | 54 |
| Total 90 | | 55 | 228 | 146 | 118 | 123 | 138 | 147 | 135 | 138 | 148 | 125 | 108 | (R) 129 | 100 | (R) 112 | 88 |
| Fatal air carrier accidents | | | | | | | | | | | | | | | | | |
| Operating under 14 CFR 121 (airlines) | | | | | | | | | | | | | | | | | |
| Scheduled services | N | N | 0 | 6 | 4 | 2 | 3 | 3 | 1 | 2 | 3 | 6 | 0 | 2 | 1 | 3 | 2 |
| Nonscheduled services | N | N | 1 | 0 | 0 | 1 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| Operating under 14 CFR 135 | | | | | | | | | | | | | | | | | |
| Scheduled services (commuters) | N | N | 8 | 3 | 3 | 2 | 1 | 5 | 0 | 5 | 1 | 2 | 0 | 1 | 0 | 0 | 1 |
| Nonscheduled services (on–demand air taxis) | N | N | 46 | 29 | 26 | 24 | 29 | 15 | 17 | 12 | 22 | 18 | 18 | 18 | (R) 23 | 11 | 10 |
| Total | 17 | 8 | 55 | 38 | 33 | 29 | 35 | 24 | 18 | 19 | 26 | 26 | 18 | (R) 21 | 25 | 14 | 13 |

**KEY:** N = data do not exist; R = revised; U = data are not available.

[a] Some totals include data not in the table; thus totals may not equal sum of table data.

[b] Includes scheduled and nonscheduled (charter) operators. By Sec. 2 of the Airline Deregulation Act of 1978 "charter air carrier" and "charter air transportation" replaced supplemental air carriers and supplemental air transportation, which were formerly Sec. 101(36) and (37) of the Act. The 24 pre-deregulation supplemental carriers now have scheduled service authority.

[c] Total includes only those carriers who have reported employment statistics to BTS' Office of Airline Information. Full-time equivalent employees count two part-time employees as one full-time equivalent employee. Prior to 1980, there was no breakout for part-time employees so earlier numbers will overstate full-time equivalent employees.

[d] Data does not include small-certificated and commuter carriers prior to 2002. Small-certificated and commuter carriers began reporting T1 data in January of 2002 for Alaskan carriers and in October of 2002 for the remainder of the U.S.

[e] Passenger travel totals do not include Canada because the source does not record departures and arrivals to and from Canada.

[f] Total Revenue Ton-Miles includes passenger, freight, express, and mail.

[g] Total revenue ton-miles of freight includes freight, express, and mail.

**NOTES**

Domestic encompasses operations within and between the 50 states of the United States, the District of Columbia, Puerto Rico, and the Virgin Islands. It also encompasses Canadian and Mexican transborder operations (U.S. airlines only). All other operations are considered international.

Data in the Financial and Performance (excluding International Air Passengers) sectins was revised for 1990 to 2005 to be consistent with the online source as of Nov. 2, 2007.

**SOURCES**

Unless otherwise noted, refer to chapter tables for sources.

[1] 1960-1970: Civil Aeronautics Board, *Handbook of Airline Statistics, 1969 and 1973* (Washington, DC), pp. 69 and 71. 1980: Civil Aeronautics Board, *Air Carrier Financial Statistics*, December 1981 (Washington, DC), pp. 3/28, 42, and 44. 1990-2006: U.S. Department of Transportation, Bureau of Transportation Statistics, Form 41 Air Carrier Financial Reports, Schedules P11 and P12, available at http://www.transtats.bts.gov/databases.asp?Mode_ID=1&Mode_Desc=Aviation&Subject_ID2=0, as of Nov. 2, 2007

[2] 1960: U.S. Department of Transportation, Bureau of Transportation Statistics, Office of Airline Information, http://www.bts.gov/oai/employees/employcov.html as of Oct. 14, 2003. 1970-2006: U.S. Department of Transportation, Bureau of Transportation Statistics, Office of Airline Information, http://www.bts.gov/programs/airline_information/number_of_employees/certificated_carriers/ as of Nov. 2, 2007.

[3] Ibid., personal communication, Oct. 17, 2003, Sept. 10, 2004, Feb. 1, 2007, and Nov. 2, 2007

[4] 1960-1970: Civil Aeronautics Board, *Handbook of Airline Statistics, 1969 and 1973* (Washington, DC), Part III, tables 2, 4, 7, and 13. 1980: Civil Aeronautics Board, *Air Carrier Financial Statistics*, December 1981 (Washington, DC), pp. 2, 5, 46, and 86. 1990-2006: U.S. Department of Transportation, Bureau of Transportation Statistics, *T1: U.S. Air Carrier Traffic and Capacity Summary by Service Class,* available at http://www.transtats.bts.gov/Tables.asp?DB_ID=130&DB_Name=Air%20Carrier%20Summary%20Data%20%28Form%2041%20and%20298C%20Summary%20Data%29&DB_Short_Name=Air%20Carrier%20Summary, as of Nov. 2, 2007

[5] See sources 1 and 4.

[6] 1960-70: U.S. Department of Justice, Immigration and Naturalization Service, *Report of Passenger Travel Between the U.S. and Foreign Countries*, 1960, 1970 (Washington, DC). 1980-2006: U.S. Department of Transportation, Research and Special Programs Administration, *U.S. International Air Travel Statistics* (Washington, DC: Annual issues), tables IIa and IId. 2006: U.S. Department of Commerce, Office of Travel and Tourism Industries, *U.S. International Air Travel Statistics.*

[7] National Transportation Safety Board, Internet site http://www.ntsb.gov/aviation/stats.htm as of November 2007 and personal communication.

## General Aviation Profile

| FINANCIAL | 1960 | 1970 | 1980 | 1990 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Expenditures, total ($ millions) | 895 | 2,035 | 8,053 | 9,907 | 9,332 | 10,379 | 11,605 | 13,797 | 16,372 | 17,553 | 21,909 | 26,499 | U | U | U | U | U | U | U |
| Aircraft | 202 | 339 | 2,853 | 3,398 | 3,910 | 4,260 | 5,298 | 7,174 | 9,573 | 11,262 | 14,291 | 18,524 | U | U | U | U | U | U | U |
| Operating costs | 693 | 1,696 | 5,200 | 6,509 | 5,422 | 6,119 | 6,307 | 6,623 | 6,799 | 6,291 | 7,618 | 7,975 | U | U | U | U | U | U | U |
| INVENTORY | | | | | | | | | | | | | | | | | | | |
| Number of active aircraft by primary use, total | 76,549 | 131,743 | 211,045 | 196,800 | (R) 176,600 | (R) 188,089 | (R) 191,129 | 192,414 | 204,710 | 219,464 | 217,533 | 211,446 | 211,244 | 209,708 | 219,426 | 224,352 | 221,943 | 231,607 | 228,663 |
| Corporate | N | 6,835 | 14,860 | 10,100 | (R) 10,200 | (R) 10,600 | (R) 9,900 | 10,411 | 11,250 | 10,804 | 11,003 | 10,544 | 10,810 | 10,493 | 10,212 | 10,553 | 11,054 | 10,864 | 11,715 |
| Business | N | 26,900 | 49,391 | 33,100 | 26,500 | (R) 28,300 | (R) 30,700 | 27,716 | 32,611 | 24,543 | 25,169 | 25,525 | 24,153 | 25,042 | 24,189 | 25,524 | 24,413 | 24,993 | 22,432 |
| Instructional | N | 10,727 | 14,862 | 18,600 | (R) 15,100 | (R) 14,200 | (R) 12,700 | 14,663 | 11,375 | 16,081 | 14,883 | 14,254 | 13,203 | 12,714 | 13,099 | 13,399 | 14,316 | 14,650 | 14,975 |
| Personal | N | 65,398 | 96,222 | 112,600 | (R) 104,100 | (R) 113,400 | (R) 113,400 | 115,630 | 124,347 | 147,085 | 148,192 | 144,031 | 145,996 | 146,722 | 149,700 | 151,408 | 149,026 | 152,514 | 154,417 |
| Aerial application | N | 5,455 | 7,294 | 6,200 | (R) 4,400 | (R) 5,000 | (R) 5,000 | 4,858 | 4,550 | 4,254 | 4,294 | 3,779 | 3,971 | 3,250 | 3,202 | 3,548 | 3,430 | 4,164 | 3,106 |
| Aerial observation | N | N | N | 4,900 | 5,100 | 4,700 | (R) 3,000 | 3,311 | 3,242 | 3,240 | 5,093 | 5,039 | 4,535 | 4,223 | 4,814 | 4,663 | 4,407 | 5,188 | 5,304 |
| External load | N | N | N | N | 100 | 200 | (R) 400 | 186 | 313 | 190 | 234 | 202 | 151 | 194 | 215 | 226 | 212 | 188 | 374 |
| Other work[a] | N | 2,054 | 2,813 | 1,400 | 1,200 | 1,100 | (R) 1,000 | 679 | 1,116 | 2,363 | 1,787 | 1,528 | 1,733 | 1,726 | 930 | 732 | 729 | 936 | 934 |
| Air taxi / air tours[b] | N | N | N | 5,800 | 3,800 | (R) 4,000 | (R) 4,200 | 4,948 | 5,190 | 4,569 | 4,019 | 4,004 | 4,157 | 2,791 | 6,550 | 7,539 | 7,814 | 8,822 | 7,262 |
| Sightseeing[c] | N | N | N | N | 1,300 | (R) 800 | (R) 700 | 677 | 679 | 832 | 881 | 918 | 641 | 862 | 1,050 | 945 | 906 | 1,275 | 673 |
| Other[d] | N | 8,249 | 17,045 | 4,100 | (R) 4,400 | (R) 5,900 | (R) 5,600 | 5,250 | 6,010 | (R) 1,200 | (R) 2,500 | (R) 2,100 | (R) 2,642 | (R) 2,300 | (R) 5,465 | (R) 5,817 | (R) 5,636 | 8,013 | 7,470 |
| Public use[e,f] | N | N | N | N | N | N | (R) 4,500 | 4,130 | 4,029 | 4,138 | N | N | N | N | N | N | N | N | N |
| PERFORMANCE | | | | | | | | | | | | | | | | | | | |
| Number of flight hours by actual use, total (thousands) | 13,121 | 26,030 | 36,430 | 30,763 | 24,092 | 26,612 | 26,909 | 27,713 | 28,100 | 31,231 | 29,960 | 27,017 | 27,040 | 27,329 | 28,126 | 26,982 | (R) 27,705 | 27,852 | 26,009 |
| Corporate | N | N | 5,332 | 2,913 | 2,486 | 3,069 | 2,898 | 2,878 | 3,213 | 3,535 | 3,341 | 2,657 | 3,275 | 3,227 | 2,849 | 3,072 | (R) 3,114 | 3,214 | 3,092 |
| Business | 5,699 | 7,204 | 8,434 | 4,417 | 3,012 | 3,335 | 3,259 | 3,006 | 3,523 | 3,602 | 3,588 | 3,579 | 3,287 | 3,377 | 3,249 | 3,244 | (R) 3,234 | 3,094 | 2,505 |
| Instructional | 1,828 | 6,791 | 5,748 | 7,244 | (R) 4,382 | 4,410 | 4,759 | 4,956 | 3,961 | 5,795 | 5,050 | 4,307 | 4,182 | 4,393 | 4,035 | 3,635 | (R) 4,322 | 3,804 | 4,427 |
| Personal | 3,172 | 6,896 | 8,894 | 9,276 | 8,248 | 9,659 | 9,037 | 9,644 | 9,781 | 11,072 | 11,477 | 11,266 | 11,025 | 11,251 | 10,239 | 9,266 | (R) 9,141 | 8,676 | 8,279 |
| Aerial application | N | N | 2,044 | 1,872 | 1,364 | 1,526 | 1,713 | 1,562 | 1,306 | 1,408 | 1,318 | 1,038 | 1,182 | 1,099 | 1,142 | 1,031 | (R) 946 | 1,415 | 922 |
| Aerial observation | N | N | N | 1,745 | 1,746 | 1,391 | 1,057 | 1,261 | 812 | 1,244 | 1,545 | 1,442 | 1,366 | 1,262 | 1,457 | 1,265 | (R) 1,197 | 1,364 | 1,427 |
| External load | N | N | N | N | 135 | 128 | 191 | 112 | 153 | 123 | 161 | 131 | 97 | 103 | 125 | 134 | (R) 136 | 152 | 153 |
| Other work[a] | N | N | 1,053 | 572 | 241 | 280 | 265 | 139 | 286 | 605 | 496 | 256 | 369 | 414 | 264 | 176 | (R) 198 | 145 | 317 |
| Air taxi / air tours[b] | N | N | N | 2,249 | 1,545 | 1,527 | 1,834 | 2,122 | 2,583 | 1,985 | 2,122 | 1,587 | 1,495 | 1,332 | 2,764 | 3,210 | (R) 3,041 | 3,621 | 2,642 |
| Sightseeing[c] | N | N | N | N | 309 | 179 | 195 | 127 | 169 | 218 | 197 | 183 | 134 | 175 | 204 | 191 | (R) 171 | 160 | 152 |
| Other[d] | 2,422 | 5,139 | 4,925 | 475 | 622 | 1,107 | 656 | 819 | 940 | 535 | 665 | (R) 571 | (R) 628 | 697 | (R) 1,797 | (R) 1,759 | (R) 2,205 | 2,207 | 2,091 |
| Public use[e,f] | N | N | N | N | N | N | 1,047 | 1,096 | 1,373 | 1,109 | N | N | N | N | N | N | N | N | N |
| Vehicle-miles (millions)[g] | 1,769 | 3,207 | 5,204 | 4,548 | 3,358 | 3,795 | 3,524 | 3,877 | U | U | U | U | U | U | U | U | U | U | U |
| Passenger-miles (millions)[g] | 2,300 | 9,100 | 14,700 | 13,000 | 9,800 | 10,800 | 12,000 | 12,500 | 13,100 | 14,100 | 15,200 | 15,900 | U | U | U | U | U | U | U |
| Fuel consumed, total (million gallons)[g] | 242 | 759 | 1,286 | 1,016 | 731 | 847 | 896 | 934 | 1,126 | 1,313 | (R) 1,305 | (R) 1,198 | (R) 1,215 | 1,205 | 1,504 | (R) 1,822 | (R) 1,926 | 1,759 | 1,954 |
| Aviation gasoline | 242 | 551 | 520 | 353 | 266 | 287 | 289 | 292 | 311 | 345 | (R) 333 | 279 | (R) 277 | 272 | 273 | (R) 295 | (R) 283 | 274 | 248 |
| Jet fuel | N | 208 | 766 | 663 | 464 | 560 | 608 | 642 | 815 | 967 | 972 | (R) 918 | 938 | 932 | 1,231 | (R) 1,527 | (R) 1,643 | 1,486 | 1,706 |
| SAFETY | | | | | | | | | | | | | | | | | | | |
| Fatalities, total[h] | 787 | 1,310 | 1,239 | 770 | 730 | (R) 734 | 636 | 631 | (R) 624 | (R) 621 | 596 | 562 | 581 | (R) 633 | (R) 559 | 563 | (R) 706 | 496 | 494 |
| Corporate | N | 28 | 66 | 21 | 6 | 15 | 20 | 3 | 0 | 30 | 13 | 12 | 5 | 5 | 10 | 8 | 3 | 5 | (P) 0 |
| Business | N | 148 | 126 | 80 | 64 | 73 | 44 | 45 | 42 | 55 | 43 | 50 | 39 | 33 | 45 | 14 | 37 | 25 | (P) 32 |
| Instructional | N | 93 | 73 | 62 | 47 | 44 | 40 | 38 | 38 | 38 | 64 | 40 | 42 | 71 | 31 | 45 | 47 | 30 | (P) 37 |
| Personal | N | 726 | 808 | 492 | 472 | 488 | 413 | 432 | 432 | 383 | 386 | 376 | 407 | 444 | 369 | 415 | 369 | 361 | (P) 332 |
| Aerial application | N | 41 | 32 | 17 | 17 | 15 | 10 | 17 | 6 | 14 | 19 | 14 | 14 | 6 | 10 | 14 | 8 | 7 | (P) 7 |
| Other | N | 174 | 134 | 95 | 138 | 112 | 119 | 106 | 112 | 105 | 87 | 73 | 77 | 84 | 95 | 72 | 234 | 73 | (P) 89 |
| Accidents, total | 4,793 | 4,712 | 3,590 | 2,242 | 2,021 | (R) 2,055 | 1,908 | (R) 1,840 | (R) 1,902 | 1,905 | 1,837 | 1,727 | 1,715 | (R) 1,741 | (R) 1,617 | (R) 1,670 | (R) 1,523 | 1,652 | 1,566 |
| Fatal | 429 | 641 | 618 | 444 | 404 | (R) 412 | 361 | 350 | (R) 364 | 340 | 345 | 325 | 345 | 352 | 314 | 321 | (R) 308 | 288 | 275 |
| Accident rate (per 100,000 flight hours)[i,j] | 36.5 | 18.1 | 9.9 | 7.3 | 8.4 | (R) 7.7 | 7.1 | (R) 6.6 | (R) 6.8 | 6.1 | 6.1 | 6.4 | 6.3 | (R) 6.4 | (R) 5.7 | (R) 6.2 | (R) 5.5 | 5.9 | 6.0 |
| Fatal | 3.3 | 2.5 | 1.7 | 1.4 | 1.7 | 1.5 | 1.3 | 1.3 | 1.3 | 1.1 | 1.2 | 1.2 | 1.3 | 1.3 | 1.1 | 1.2 | (R) 1.1 | 1.0 | 1.1 |

**KEY:** N = data do not exist; P = preliminary; R = revised; U = data are unavailable.

[a] In 1960, 1970, 1980, classified as *Industrial*.
[b] Includes *Air tours* done under 14 CFR 135: *Air taxi* operators and commercial operators.
[c] Includes *Sightseeing* done under 14 CFR 91: general operating and flight rules.
[d] The significant decrease in *Other* for 1990 and later can be attributed to a redefination of the category to only include aerial other, general aviation other, and medical use.
[e] Federal, state or local government-owned or leased aircraft used for the purpose of fulfilling a government fuction.
[f] Beginning in 2000, *Public Use* was included in *Other Work*.
[g] Includes *air taxi* operations. Nautical miles in source multiplied by 1.151 to convert from nautical miles.
[h] The sum of *Fatalities* does not necessarily equal the total due to aircraft involved in midair and on-ground collisions.
[i] Suicide/sabotage cases are included in *Accidents* and *Fatalities* data but are excluded from *Accident rates*.
[j] *Accident rates* are calculated by the Bureau of Transportation Statistics (BTS) using the formula: Accident Rates (per 100,000 flight hours) = Accidents or Fatalities/Flight Hours (thousands)*100.

**NOTES**

Numbers may not add to totals due to changes in sub-categories reported by the source, due to estmation and due to rounding.

Total fatalities in this profile may not match those in table 2-14 due to when the total fatalities data were received and the data breakdown by type of flying. NTSB constantly updates and reclassifies accident and fatality data.

1994-95 data for active aircraft by use, and flight hours, have been revised to reflect changes in the adjustment for nonresponse bias based on factors from the 1996 telephone survey.

1996 *Vehicle-miles* and fuel consumption data are estimated using new information on nonrespondents and are not comparable to earlier years.

**SOURCES**

**Financial:**

*Expenditure:*

1960-2001: Eno Transportation Foundation, Inc., *Transportation in America,* Annual Issues (Washington, DC), pp. 40 and 45, and similar tables in earlier editions.

**Inventory:**

*Number of active aircraft by primary use, total:*

U.S. Department of Transportation, Federal Aviation Administration *General Aviation and Part 135 Activity Surveys* (Washington, DC: 1990-2008 issues), tables 1.1, 1.2 and 1.3, available at http://www.faa.gov/data_research/aviation_data_statistics/general_aviation/ as of Feb. 22, 2010.

**Performance:**

*Number of flight hours by actual use, total:*

Ibid., tables 1.4, 1.5 and 1.6 and similar tables in earlier editions.

*Vehicle-miles and passenger-miles:*

1960-2001: Eno Transportation Foundation, Inc., *Transportation in America,* Annual Issues (Washington, DC), pp. 40 and 45, and similar tables in earlier editions.

*Fuel consumed, total:*

1960-1990: U.S. Department of Transportation, Federal Aviation Administration *General Aviation and Air Taxi Acitivity and Avionics Survey* (Washington, DC: 1990-2000 issues), table 5.1.

1994-2008: Ibid., *Aviation Forecasts*, (Washington, DC: Annual issues), table 30 and similar tables in earlier editions, available at http://www.faa.gov/data_research/aviation/ as of June 24, 2010.

**Safety:**

*Fatalities, total:*

1960-1970: National Transportation Safety Board, RE-50, personal communication.

1980-2006: Ibid., *Annual Review of Aircraft Accident Data*, U.S. General Aviation, Calendar Year 1998 (Washington, DC: July 2000), charts 27, 39, 40, 41, 42 and 43, and personal communications on Sept. 10, 2002, Dec. 22, 2003, Apr. 30, 2004, Mar. 24, 2005, Nov. 7, 2006, and Oct. 30, 2007.

2007-2008: Ibid., *Aviation Accident Statistics*, table 10, available at http://www.ntsb.gov/aviation/stats.htm as of June 24, 2010, and personal communication on Mar. 04, 2010.

*Accidents, total:*

1960-80: National Transportation Safety Board, RE-50, personal communication *Annual Review of Aircraft Accident Data*, U.S. General Aviation, Calendar Year 1998 (Washington, DC: July 2000), table 10, available at http://www.ntsb.gov/aviation/ as of July 22, 2004.

1990-2008: Ibid., *Aviation Accident Statistics*, table 10, available at http://www.ntsb.gov/aviation/stats.htm as of June 24, 2010.

## Highway Profile

| FINANCIAL | 1960 | 1970 | 1980 | 1990 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Government receipts, total ($ millions)[1] | 11,193 | 21,763 | 39,834 | 75,444 | 91,312 | 96,347 | 102,771 | 107,421 | 111,581 | 121,650 | 131,115 | 132,324 | 134,765 | 138,384 | 145,315 | 154,690 | 165,443 | 192,714 |
| Federal, total | 2,771 | 6,160 | 9,949 | 14,576 | 17,854 | 19,851 | 23,196 | 21,648 | 24,509 | 26,008 | 30,819 | 27,670 | 28,527 | 29,875 | 30,911 | 33,070 | 34,171 | 35,490 |
| Highway trust fund[a] | 2,531 | 5,464 | 7,615 | 13,380 | 16,582 | 18,835 | 22,036 | 20,500 | 23,396 | 25,085 | 29,445 | 26,365 | 26,808 | 27,755 | 28,576 | 31,194 | 32,333 | 33,277 |
| Other | 240 | 696 | 2,334 | 1,196 | 1,272 | 1,016 | 1,160 | 1,148 | 1,113 | 923 | 1,374 | 1,305 | 1,719 | 2,120 | 2,335 | 1,876 | 1,838 | 2,213 |
| State and local, total | 8,422 | 15,603 | 29,885 | 60,868 | 73,458 | 76,496 | 79,575 | 85,773 | 87,072 | 95,642 | 100,296 | 104,654 | 106,238 | 108,509 | 114,404 | 121,620 | 131,272 | 157,224 |
| State and D.C. | 6,055 | 11,737 | 19,666 | 40,026 | 47,699 | 50,064 | 52,808 | 58,087 | 58,806 | 63,274 | 66,434 | 68,873 | 68,430 | 67,792 | 72,860 | 77,725 | 83,685 | 105,268 |
| Local | 2,367 | 3,866 | 10,219 | 20,842 | 25,759 | 26,432 | 26,767 | 27,686 | 28,266 | 32,368 | 33,862 | 35,781 | 37,808 | 40,717 | 41,544 | 43,895 | 47,587 | 51,956 |
| Government expenditures, total ($ millions)[1] | 10,757 | 20,829 | 41,763 | 75,408 | 90,192 | 93,478 | 98,082 | 101,953 | 107,975 | 116,011 | 122,697 | 129,900 | 135,919 | 143,807 | 147,489 | 152,699 | 161,061 | 171,753 |
| Federal, total | 197 | 425 | 874 | 664 | 1,306 | 1,402 | 1,598 | 1,315 | 1,375 | 1,428 | 1,680 | 1,913 | 1,761 | 2,383 | 3,470 | 1,902 | 2,191 | 2,256 |
| Highway trust fund[a] | 27 | 83 | 315 | 358 | 965 | 1,092 | 1,384 | 1,103 | 1,170 | 1,249 | 1,304 | 1,463 | 1,261 | 1,685 | 2,436 | 758 | 1,236 | 1,495 |
| Other[b] | 170 | 342 | 559 | 306 | 341 | 310 | 214 | 212 | 205 | 179 | 376 | 450 | 500 | 698 | 1,034 | 1,144 | 955 | 761 |
| State and local, total | 10,560 | 20,404 | 40,889 | 74,744 | 88,886 | 92,076 | 96,484 | 100,638 | 106,600 | 114,583 | 121,017 | 127,987 | 134,158 | 141,424 | 144,019 | 150,797 | 158,870 | 169,497 |
| State and D.C. | 7,125 | 14,100 | 25,936 | 45,609 | 55,569 | 56,981 | 59,709 | 61,534 | 65,507 | 71,415 | 76,997 | 81,803 | 85,653 | 88,377 | 88,026 | 94,484 | 100,090 | 105,013 |
| Local | 3,435 | 6,304 | 14,953 | 29,135 | 33,317 | 35,095 | 36,775 | 39,104 | 41,093 | 43,168 | 44,020 | 46,184 | 48,505 | 53,047 | 55,993 | 56,313 | 58,780 | 64,484 |
| State highway user tax revenues[c], total ($ millions) | 5,323 | 10,284 | 17,178 | 35,944 | 46,437 | 47,424 | 49,756 | 51,381 | 54,507 | 56,269 | 57,144 | 58,508 | 58,299 | 59,642 | 62,830 | 64,801 | 67,345 | 69,326 |
| Motor fuel tax[2] | 3,374 | 6,433 | 9,485 | 19,658 | 25,860 | 26,881 | 27,555 | 28,477 | 29,803 | 30,753 | 31,981 | 32,519 | 33,046 | 34,016 | 35,272 | 35,831 | 36,632 | 37,345 |
| Other motor fuel receipts[d, 2] | 22 | 44 | 92 | 220 | 101 | 108 | 63 | 55 | 58 | 134 | 179 | 298 | 297 | 277 | 194 | 202 | (R) 972 | 1,181 |
| Motor vehicle registration fees[3] | 1,514 | 2,873 | 5,173 | 10,257 | 12,388 | 11,942 | 13,234 | 13,631 | 14,552 | 14,882 | 13,704 | 14,437 | 13,316 | 13,606 | 14,443 | 15,377 | 16,117 | 16,524 |
| Other motor vehicle fees[e, 3] | 235 | 577 | 1,490 | 3,353 | 4,505 | 4,416 | 4,689 | 4,704 | 5,068 | 5,350 | 5,696 | 5,764 | 6,077 | 5,885 | 6,373 | 6,451 | (R) 6,574 | 7,000 |
| Motor carrier taxes[f, 3] | 110 | 176 | 323 | 695 | 875 | 770 | 726 | 729 | 861 | 740 | 784 | 753 | 703 | 709 | 730 | 786 | (R) 812 | 822 |
| Miscellaneous fees[3] | 68 | 181 | 615 | 1,761 | 2,708 | 3,307 | 3,489 | 3,785 | 4,165 | 4,410 | 4,800 | 4,737 | 4,860 | 5,149 | 5,819 | 6,154 | 6,239 | 6,454 |
| INVENTORY | | | | | | | | | | | | | | | | | | |
| Rural / urban mileage by ownership, total[4] | 3,545,693 | 3,730,082 | 3,859,837 | 3,866,926 | 3,906,595 | 3,912,227 | 3,919,652 | 3,944,601 | 3,906,304 | 3,917,245 | 3,936,241 | 3,948,335 | 3,966,494 | 3,974,103 | 3,981,521 | 3,995,644 | 4,016,734 | 4,048,529 |
| Rural mileage, total | 3,116,125 | 3,169,412 | 3,230,936 | 3,122,282 | 3,092,810 | 3,092,521 | 3,092,887 | 3,108,493 | 3,064,650 | 3,071,181 | 3,084,000 | 3,071,332 | 3,071,768 | 3,033,133 | 3,000,247 | 2,985,804 | 2,987,371 | 2,990,869 |
| Under state control | 658,896 | 707,002 | 750,479 | 702,486 | 690,372 | 690,924 | 691,156 | 692,767 | 660,834 | 660,682 | 661,798 | 663,134 | 662,855 | 652,522 | 648,555 | 636,339 | 635,114 | 634,956 |
| Under federal control[g] | 111,912 | 187,696 | 246,130 | 178,188 | 173,650 | 170,568 | 168,938 | 167,369 | 118,369 | 116,846 | 116,698 | 119,270 | 117,751 | 120,208 | 117,740 | 123,413 | 123,370 | 125,783 |
| Under local control | 2,345,317 | 2,274,714 | 2,234,327 | 2,241,608 | 2,228,788 | 2,231,029 | 2,232,793 | 2,248,357 | 2,285,447 | 2,293,653 | 2,305,504 | 2,288,928 | 2,291,162 | 2,260,403 | 2,233,952 | 2,226,052 | 2,228,887 | 2,230,130 |
| County roads | 1,742,404 | 1,732,981 | 1,542,984 | 1,616,634 | 1,624,982 | 1,626,927 | 1,627,639 | 1,642,468 | 1,647,025 | 1,649,291 | 1,656,906 | 1,637,616 | 1,628,510 | 1,623,786 | 1,608,094 | 1,598,718 | 1,605,540 | 1,599,849 |
| Town, township and municipal roads[h] | 538,651 | 510,174 | 458,231 | 437,460 | 423,908 | 424,529 | 426,170 | 426,433 | 426,340 | 590,206 | 592,623 | 595,197 | 606,398 | 580,825 | 573,871 | 575,569 | 571,922 | 581,634 |
| Other local roads[h] | 64,262 | 31,559 | 233,112 | 187,514 | 179,898 | 179,573 | 178,984 | 179,456 | 212,082 | 54,156 | 55,975 | 56,115 | 56,254 | 55,792 | 51,987 | 51,765 | 51,425 | 48,647 |
| Urban mileage, total | 429,568 | 560,670 | 628,901 | 744,644 | 813,785 | 819,706 | 826,765 | 836,108 | 841,654 | 846,064 | 852,241 | 877,003 | 894,726 | 940,970 | 981,274 | 1,009,840 | 1,029,363 | 1,057,660 |
| Under state control | 50,158 | 74,103 | 97,287 | 95,778 | 109,947 | 111,766 | 111,924 | 112,226 | 110,017 | 109,956 | 110,195 | 109,136 | 110,434 | 120,033 | 126,132 | 140,913 | 143,960 | 148,745 |
| Under federal control[g] | N | N | 1,495 | 1,024 | 1,484 | 1,509 | 1,470 | 1,464 | 1,485 | 1,503 | 1,484 | 2,234 | 2,819 | 3,560 | 3,561 | 3,783 | 4,979 | 5,191 |
| Under local control | N | N | 530,119 | 647,842 | 702,354 | 706,431 | 713,371 | 722,418 | 730,152 | 734,605 | 740,562 | 765,633 | 781,473 | 817,377 | 851,581 | 865,144 | 880,424 | 903,724 |
| County roads | N | N | 71,357 | 95,929 | 115,388 | 117,518 | 117,181 | 117,487 | 117,016 | 117,105 | 116,918 | 144,065 | 144,615 | 156,598 | 175,601 | 182,696 | 185,582 | 186,518 |
| Town and township roads[h] | N | N | 37,583 | 42,752 | 74,630 | 60,561 | 60,926 | 74,402 | 75,195 | 605,255 | 611,473 | 608,859 | 624,163 | 647,448 | 662,366 | 668,337 | 680,424 | 710,774 |
| Other local roads[h] | 379,410 | 486,567 | 421,179 | 509,161 | 512,336 | 528,352 | 535,264 | 530,529 | 537,941 | 12,245 | 12,171 | 12,709 | 12,695 | 13,331 | 13,614 | 14,111 | 14,418 | 6,432 |
| Rural / urban mileage by functional system, total[5] | 3,545,693 | 3,730,082 | 3,859,837 | 3,866,926 | 3,906,595 | 3,912,226 | 3,919,652 | 3,944,597 | 3,906,292 | 3,917,240 | 3,936,222 | 3,948,335 | 3,966,485 | 3,974,107 | 3,981,512 | 3,995,635 | 4,016,741 | 4,045,420 |
| Rural mileage, total | 3,116,125 | 3,169,412 | 3,230,936 | 3,122,282 | 3,092,810 | 3,092,520 | 3,092,887 | 3,108,488 | 3,064,649 | 3,071,181 | 3,083,979 | 3,071,331 | 3,071,761 | 3,033,138 | 3,000,236 | 2,985,796 | 2,987,375 | 2,987,758 |
| Interstate | N | N | 31,905 | 33,547 | 32,457 | 32,580 | 32,820 | 32,819 | 32,808 | 32,974 | 33,048 | 33,061 | 32,992 | 32,048 | 31,443 | 30,905 | 30,586 | 30,360 |
| Other principal arterial | N | N | 82,569 | 83,802 | 97,175 | 97,948 | 98,131 | 98,257 | 98,858 | 98,856 | 98,919 | 99,185 | 98,853 | 97,038 | 95,946 | 95,156 | 94,937 | 94,766 |
| Minor arterial | N | N | 149,057 | 144,774 | 138,120 | 137,151 | 137,359 | 137,498 | 137,308 | 137,463 | 137,575 | 137,587 | 137,568 | 135,596 | 135,449 | 135,408 | 135,386 | 135,296 |
| Major collector | N | N | 439,000 | 436,352 | 431,115 | 431,712 | 432,117 | 432,728 | 432,408 | 432,954 | 433,121 | 433,284 | 430,946 | 424,288 | 420,046 | 419,999 | 419,117 | 419,437 |
| Minor collector | N | N | 299,613 | 293,922 | 282,011 | 274,081 | 273,198 | 272,350 | 272,140 | 271,690 | 271,803 | 271,377 | 270,700 | 267,524 | 267,842 | 264,387 | 262,841 | 262,899 |
| Local | N | N | 2,228,792 | 2,129,885 | 2,111,932 | 2,119,048 | 2,119,262 | 2,134,836 | 2,091,127 | 2,097,244 | 2,109,513 | 2,096,837 | 2,100,702 | 2,076,644 | 2,049,510 | 2,039,941 | 2,044,508 | 2,045,000 |
| Urban mileage, total | 429,568 | 560,670 | 628,901 | 744,644 | 813,785 | 819,706 | 826,765 | 836,109 | 841,643 | 846,059 | 852,243 | 877,004 | 894,724 | 940,969 | 981,276 | 1,009,839 | 1,029,366 | 1,057,662 |
| Interstate | N | N | 9,215 | 11,527 | 13,126 | 13,164 | 13,217 | 13,249 | 13,276 | 13,343 | 13,379 | 13,406 | 13,491 | 14,460 | 15,129 | 15,703 | 16,044 | 16,546 |
| Other freeways and expressways | N | N | 6,774 | 7,668 | 8,994 | 8,970 | 9,027 | 9,062 | 9,163 | 9,125 | 9,140 | 9,126 | 9,323 | 9,870 | 10,246 | 10,560 | 10,748 | 10,979 |
| Other principal arterial | N | N | 44,155 | 51,968 | 53,110 | 52,796 | 52,983 | 53,230 | 53,132 | 53,206 | 53,314 | 53,056 | 53,439 | 56,870 | 59,695 | 61,803 | 62,830 | 63,673 |
| Minor arterial | N | N | 66,377 | 74,659 | 87,857 | 88,510 | 89,020 | 89,196 | 89,496 | 89,399 | 89,789 | 89,962 | 90,411 | 93,888 | 97,433 | 101,673 | 102,975 | 105,043 |
| Collector | N | N | 68,387 | 78,254 | 86,089 | 87,331 | 87,790 | 88,042 | 88,071 | 88,008 | 88,200 | 88,713 | 89,247 | 97,114 | 102,150 | 106,109 | 108,833 | 110,789 |
| Local | N | N | 433,993 | 520,568 | 564,609 | 568,935 | 574,728 | 583,330 | 588,505 | 592,978 | 598,421 | 622,741 | 638,813 | 668,767 | 696,623 | 713,991 | 727,936 | 750,632 |
| U.S. roads and streets by surface[6] | | | | | | | | | | | | | | | | | | |
| Paved mileage, total | 1,230,469 | 1,658,421 | 2,072,692 | 2,254,822 | 2,342,179 | 2,378,268 | 2,380,650 | 2,409,935 | 2,420,344 | 2,451,426 | 2,501,716 | 2,523,479 | 2,577,693 | 2,612,069 | 2,577,963 | 2,601,490 | 2,629,638 | 2,635,471 |
| Rural | 919,082 | 1,188,080 | 1,490,050 | 1,550,283 | 1,561,649 | 1,591,334 | 1,582,166 | 1,605,804 | 1,612,251 | 1,641,877 | 1,682,140 | 1,678,795 | 1,714,714 | 1,702,175 | 1,629,423 | 1,625,390 | 1,637,819 | 1,629,207 |
| Urban | 311,387 | 470,341 | 582,642 | 704,539 | 780,530 | 786,934 | 798,484 | 804,131 | 808,093 | 809,549 | 819,576 | 844,684 | 862,979 | 909,894 | 948,540 | 976,100 | 991,819 | 1,006,264 |
| Percent paved | 34.7% | 44.5% | 53.7% | 58.3% | 60.0% | 60.8% | 60.5% | 60.9% | 61.3% | 62.4% | 63.3% | 63.7% | 64.8% | 65.5% | 64.5% | 64.9% | 65.2% | 65.1% |
| Unpaved mileage, total | 2,315,224 | 2,071,661 | 1,787,145 | 1,612,104 | 1,564,416 | 1,533,958 | 1,553,537 | 1,548,349 | 1,528,549 | 1,478,977 | 1,448,319 | 1,438,723 | 1,402,995 | 1,376,283 | 1,417,527 | 1,408,757 | 1,401,791 | 1,411,779 |
| Rural | 2,197,043 | 1,981,332 | 1,740,886 | 1,571,999 | 1,531,161 | 1,501,186 | 1,518,310 | 1,510,330 | 1,490,488 | 1,436,969 | 1,409,279 | 1,400,129 | 1,364,900 | 1,333,969 | 1,373,622 | 1,363,383 | 1,352,456 | 1,361,551 |
| Urban | 118,181 | 90,329 | 46,259 | 40,105 | 33,255 | 32,772 | 35,227 | 38,019 | 38,061 | 42,008 | 39,040 | 38,594 | 38,095 | 42,314 | 43,905 | 45,374 | 49,335 | 50,228 |
| Percent unpaved | 65.3% | 55.5% | 46.3% | 41.7% | 40.0% | 39.2% | 39.5% | 39.1% | 38.7% | 37.6% | 36.7% | 36.3% | 35.2% | 34.5% | 35.5% | 35.1% | 34.8% | 34.9% |
| Number of employees | | | | | | | | | | | | | | | | | | |
| State and local govt. streets and highways[7] | 532,000 | 607,000 | 559,000 | 569,000 | 544,233 | 543,143 | U | 548,486 | 530,097 | 542,612 | 546,215 | 551,706 | 545,249 | 545,617 | 542,642 | 546,220 | 545,089 | 557,526 |
| Highway, street and bridge construction[i,8] | U | U | U | U | 274,000 | 278,100 | 287,500 | 294,200 | 308,000 | 336,300 | 340,100 | 345,800 | 345,900 | 340,100 | 347,000 | (R) 350,800 | 348,300 | U |
| PERFORMANCE | | | | | | | | | | | | | | | | | | |
| Vehicle-miles of travel by functional system (millions), total[j, 9] | 718,762 | 1,109,724 | 1,527,295 | 2,144,362 | 2,357,588 | 2,422,696 | 2,484,080 | 2,552,233 | 2,628,148 | 2,690,241 | 2,746,925 | 2,781,462 | 2,855,756 | 2,890,893 | 2,962,513 | 2,989,807 | 3,014,116 | 3,049,027 |
| Rural mileage, total | 400,463 | 539,472 | 672,030 | 868,878 | 908,341 | 933,289 | 960,194 | 999,277 | 1,032,528 | 1,062,623 | 1,083,152 | 1,105,083 | 1,128,160 | 1,085,385 | 1,070,248 | 1,037,937 | 1,037,069 | 1,036,598 |
| Interstate | 10,514 | 79,516 | 135,084 | 200,173 | 215,568 | 223,382 | 232,565 | 240,255 | 251,520 | 260,166 | 268,180 | 274,024 | 279,962 | 269,945 | 266,996 | 258,790 | 257,913 | 256,833 |
| Other principal arterial | N | N | 132,958 | 175,133 | 207,569 | 215,567 | 221,403 | 228,716 | 237,704 | 244,045 | 248,725 | 253,056 | 257,587 | 245,345 | 241,046 | 233,999 | 231,865 | 232,306 |
| Minor arterial | N | N | 129,816 | 155,733 | 149,760 | 153,028 | 157,444 | 163,341 | 165,780 | 169,275 | 171,874 | 173,889 | 176,218 | 171,251 | 168,898 | 164,933 | 162,634 | 161,679 |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Major collector | N | N | 150,186 | 190,512 | 182,000 | 186,212 | 190,923 | 201,790 | 203,580 | 206,831 | 209,659 | 211,312 | 213,503 | 203,368 | 200,792 | 193,288 | 193,287 | 193,476 |
| Minor collector | N | N | 39,282 | 49,948 | 48,529 | 49,936 | 50,107 | 52,310 | 54,288 | 57,622 | 57,572 | 59,650 | 61,504 | 60,294 | 60,139 | 58,299 | 58,088 | 58,323 |
| Local | N | N | 84,704 | 97,379 | 104,915 | 105,164 | 107,752 | 112,865 | 119,656 | 124,684 | 127,142 | 133,152 | 139,386 | 135,182 | 132,377 | 128,628 | 133,282 | 133,981 |
| Urban mileage, total | 318,299 | 570,252 | 855,265 | 1,275,484 | 1,449,247 | 1,489,407 | 1,523,886 | 1,552,956 | 1,595,620 | 1,627,618 | 1,663,773 | 1,676,379 | 1,727,596 | 1,805,508 | 1,892,265 | 1,951,870 | 1,977,047 | 2,012,429 |
| Interstate | 13,365 | 81,532 | 161,242 | 278,901 | 330,577 | 341,515 | 351,579 | 361,433 | 374,622 | 383,259 | 393,465 | 399,890 | 408,618 | 432,633 | 454,385 | 469,070 | 477,283 | 488,624 |
| Other freeways and expressways | N | N | 79,690 | 127,465 | 147,534 | 151,509 | 157,502 | 159,572 | 165,632 | 171,515 | 177,222 | 182,758 | 189,634 | 199,520 | 207,929 | 213,727 | 217,067 | 221,528 |
| Other principal arterial | N | N | 229,469 | 335,543 | 364,200 | 370,365 | 377,776 | 385,123 | 388,071 | 392,688 | 398,772 | 401,037 | 408,336 | 425,622 | 450,142 | 463,100 | 466,949 | 473,225 |
| Minor arterial | N | N | 175,030 | 236,225 | 286,165 | 293,228 | 299,345 | 301,932 | 309,293 | 313,950 | 324,398 | 329,931 | 339,387 | 348,794 | 362,018 | 371,392 | 376,082 | 381,789 |
| Collector | N | N | 83,043 | 106,297 | 120,088 | 126,883 | 129,310 | 130,146 | 131,905 | 131,603 | 135,372 | 137,922 | 141,874 | 153,751 | 162,108 | 168,038 | 173,210 | 176,909 |
| Local | N | N | 126,791 | 191,053 | 200,683 | 205,907 | 208,374 | 214,750 | 226,097 | 234,603 | 234,544 | 224,841 | 239,747 | 245,188 | 255,683 | 266,543 | 266,456 | 270,354 |
| Highway demand for petroleum, total (thousand barrels) | 1,488,095 | 2,361,310 | 2,882,143 | 3,289,554 | 3,530,071 | 3,602,159 | 3,669,491 | 3,765,003 | 3,889,758 | 4,042,708 | 4,062,573 | 4,081,742 | 4,203,095 | 4,233,039 | 4,328,176 | (R) 4,360,995 | 4,355,057 | 4,373,392 |
| Motor fuel[10] | 1,378,095 | 2,198,310 | 2,737,143 | 3,113,214 | 3,353,320 | 3,424,616 | 3,492,285 | 3,580,620 | 3,699,500 | 3,843,128 | 3,870,337 | 3,892,341 | 4,016,243 | 4,049,263 | 4,131,695 | (R) 4,161,592 | 4,165,008 | 4,193,006 |
| Asphalt and road oil[11] | 110,000 | 163,000 | 145,000 | 176,340 | 176,751 | 177,543 | 177,206 | 184,383 | 190,258 | 199,580 | 192,236 | 189,401 | 186,852 | 183,776 | 196,481 | (R) 199,403 | 190,049 | 180,386 |
| SAFETY[12] | | | | | | | | | | | | | | | | | | |
| Fatalities | 36,399 | 52,627 | 51,091 | 44,599 | 40,716 | 41,817 | 42,065 | 42,013 | 41,501 | 41,717 | 41,945 | 42,196 | 43,005 | 42,884 | 42,836 | (R) 43,510 | 42,642 | 41,059 |
| Injured persons | N | N | N | 3,231,000 | 3,266,000 | 3,465,000 | 3,483,000 | 3,348,000 | 3,192,000 | 3,236,000 | 3,189,000 | 3,033,000 | 2,926,000 | 2,889,000 | 2,788,000 | 2,699,000 | 2,575,000 | 2,491,000 |
| Crashes | N | N | N | 6,471,000 | 6,496,000 | 6,699,000 | 6,770,000 | 6,624,000 | 6,335,000 | 6,279,000 | 6,394,000 | 6,323,000 | 6,316,000 | 6,328,000 | 6,181,000 | 6,159,000 | 5,973,000 | 6,024,000 |

**KEY:** N = data do not exist; R = revised; U = data are not available.

[a] The Federal Highway Trust Fund was created with the enactment of the Highway Revenue Act of 1956. The total receipts shown for 1995 are overstated by approxima $1.59 billion due to a fiscal year (FY) 1994 error by the Treasury Department in reconciling estimated deposits to the actual tax revenue. The correction was made after the close of FY1994 and is shown in FY1995 receipts.

[b] Figures obtained by addition/subtraction and may not appear directly in data source.

[c] Gross amounts collected by state governments from highway users. Does not include tolls. Not all revenues are allocated to highway expenditures.

[d] Includes distributor and dealer licenses, inspection fees, fines and penalties, and miscellaneous receipts.

[e] Includes driver licenses, title fees, special title taxes, fines and penalties; estimated service charges and local collections.

[f] Includes carrier gross receipt taxes; mileage, ton-mile and passenger-mile taxes; special license fees and franchise taxes; and certificate or permit fees.

[g] Mileage in federal parks, forests, and reservations that are not a part of the state and local highway system.

[h] Prior to 1999, mileage for municipal roads is included with the "other local roads" jurisdiction. Mileage for municipal roads is included in "Town, Township and Municipal Road" jurisdiction after 1999.

[i] Data for years 1994 and later are based on the North American Industry Classification System (NAICS). Prior to 1994, data are based on the Standard Industrial Classification System (SIC).

[j] Highway category classifications changed several times before 1980. Actual 1960 data categories were: Main Rural Roads, Local Rural Roads and Urban Streets; 1970 data categories were: Rural Interstate, Rural Other Arterial, Other Rural, Urban Interstate and Other Urban.

**NOTES**

Total system mileage may differ when categorized by ownership and functional system due to rounding at different levels of aggregation. Additionally, total system mileage categorized by surface type is based on sampling and is not comparable to the totals based on the other categorizations.

Motor vehicle injury and crash data in this profile come from the National Highway Traffic Safety Administration's General Estimates System (GES). The data from GES, which began operation in 1988, are obtained from a nationally representative probability sample selected from all police-reported crashes, and the GES sample includes only crashes where a police accident report was completed and the crash resulted in property damage, injury, or death. The resulting figures do not take into account crashes which were not reported to the police or which did not result in at least property damage.

Earlier editions of NTS, particularly the 1993 Historical Compendium, used crash and injury figures estimated by the National Safety Council, which employed a different of methods to arrive at its figures. Thus, the injury and crash figures in this edition of NTS may not be comparable with those found in earlier editions.

In 1998, FHWA instituted a new method of creating mileage based tables derived from the Highway Performance Monitoring System (HPMS). See Chapter 1 accuracy profiles for more information about the HPMS.

**SOURCES**

Unless otherwise noted, please refer to chapter tables for sources.

[1] 1960-94: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics, Summary to 1995*, FHWA-PL-97-009 (Washington, DC: July 1997), table HF-210.

1995-2007: Ibid., *Highway Statistics* (Washington, DC: Annual issues), tables HF-10A and HF-10.

[2] 1960-95: Ibid., *Highway Statistics*, *Summary to 1995*, FHWA-PL-97-009 (Washington, DC: July 1997), table MF-201.

1996-2007: Ibid., *Highway Statistics* (Washington, DC: Annual isssues), table MF-1.

[3] 1960-95: Ibid., *Highway Statistics, Summary to 1995*, FHWA-PL-97-009 (Washington, DC: July 1997), table MV-202.

1996-2007: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table MV-2.

[4] 1960-70: *Highway Statistics, Summary to 1985* (Washington, DC: July 1997), table M-203.

1980-95: Ibid., *Highway Statistics, Summary to 1995*, FHWA-PL-97-009 (Washington, DC: July 1997), table HM-210.

1996-2007: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table HM-10.

[5] 1960-95: Ibid., *Highway Statistics, Summary to 1995*, FHWA-PL-97-009 (Washington, DC: July 1997), tables HM-212 and HM-220.

1996-2007: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table HM-20.

[6] 1960-95: Ibid., *Highway Statistics*, *Summary to 1995*, FHWA-PL-97-009 (Washington, DC: July 1997), table HM-212.

1996-2007: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table HM-12.

[7] 1960-90: U.S. Department of Commerce, U.S Census Bureau, *Statistical Abstract of the United States*, (Washington, DC: Annual issues), State and Local Government Section.

1994-2007: U.S. Department of Commerce, U.S. Census Bureau, *State and Local Government Employment and Payroll Data*, (Washington, DC: Annual issues), Internet site http://www.census.gov/govs/www/apesstl.html as of Sept. 4, 2009.

[8] 1960-2006: U.S. Department of Labor, Bureau of Labor Statistics, Internet site http://www.bls.gov/data/sa.htm as of Apr. 15, 2008.

[9] 1960-70: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics, Summary to 1985*, FHWA-PL-97-009 (Washington, DC: April 1987), table VM-201.

1980-2007: Ibid., *Highway Statistics* (Washington, DC: Annual issues), tables VM-2 and VM-2A.

[10] 1960-90: Ibid., *Highway Statistics, Summary to 1995*, FHWA-PL-97-009 (Washington, DC: July 1997), table VM-201A (total fuel consumed in thousands of gallons divided by 42).

1994-2007: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1 (total fuel consumed in thousands of gallons divided by 42).

[11] 1960-80: U.S. Department of Energy, Energy Information Administration, *State Energy Data Report* (Washington, DC: July 1982), p. 13.

1990-2007: U.S. Department of Energy, Energy Information Administration, *Petroleum Supply Annual: Volume 1* (Washington, DC: Annual issues), table 1.

[12] 1960-80: U.S. Department of Transportation, National Highway Traffic Safety Administration, National Center for Statistics and Analysis, NRD-30, personal communication.

1990-2007: Ibid., *Traffic Safety Facts* (Washington, DC: Annual issues), tables 1 and 4.

## Automobile Profile

| FINANCIAL | 1960 | 1970 | 1980 | 1990 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | (R) 2005 | (R) 2006 | 2007 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Personal auto expenditures, total [a] ($ millions) | 39,886 | 73,390 | 209,563 | 377,492 | 442,346 | 462,166 | 494,691 | 519,828 | 529,047 | 573,429 | 628,952 | 631,527 | 622,369 | 646,756 | 695,320 | 772,607 | 828,900 | 863,036 |
| New and used cars [a,1] | 16,600 | 26,700 | 57,200 | 119,000 | 133,200 | 132,600 | 136,000 | 139,400 | 147,300 | 158,400 | 164,300 | 162,900 | 162,100 | 152,000 | 152,600 | 161,600 | 165,100 | 158,500 |
| Tires, tubes, accessories, and parts [1] | 2,500 | 6,100 | 17,900 | 29,900 | 36,000 | 37,800 | 40,300 | 41,900 | 43,900 | 47,000 | 49,000 | 49,100 | 50,300 | 52,000 | 54,400 | 57,900 | 59,800 | 62,800 |
| Gasoline and oil [1] | 12,000 | 21,900 | 86,700 | 111,200 | 116,200 | 120,200 | 130,400 | 134,400 | 122,400 | 137,900 | 175,700 | 171,600 | 164,500 | 192,700 | 230,400 | 280,700 | 318,600 | 340,600 |
| Tolls [1] | 300 | 700 | 1,100 | 2,300 | 3,400 | 3,700 | 4,000 | 4,400 | 4,400 | 4,800 | 5,100 | 5,100 | 5,300 | 5,500 | 5,700 | 6,500 | 6,900 | 7,400 |
| Insurance premiums less claims paid [1] | 2,000 | 3,800 | 9,400 | 23,500 | 32,800 | 34,500 | 36,700 | 37,800 | 40,400 | 43,200 | 43,000 | 44,600 | 45,800 | 49,200 | 53,700 | 57,800 | 60,100 | 59,400 |
| Repair, greasing, washing, parking, storage, rental, and leasing [1] | 5,500 | 12,300 | 34,000 | 84,900 | 112,500 | 125,500 | 138,700 | 152,900 | 161,100 | 172,600 | 183,500 | 189,100 | 186,000 | 186,800 | 189,500 | 198,400 | 208,400 | 224,200 |
| Auto registration fees [2] | 867 | 1,668 | 2,893 | 6,054 | 7,423 | 7,043 | 7,698 | 8,163 | 8,630 | 8,625 | 7,607 | 8,278 | 7,415 | 7,478 | 7,826 | 8,484 | 8,774 | 8,916 |
| Driver's license fees [2] | 119 | 222 | 370 | 638 | 823 | 823 | 893 | 865 | 917 | 904 | 745 | 849 | 954 | 1,078 | 1,194 | 1,223 | 1,226 | 1,220 |
| Taxi expenditures ($ millions) [1] | 600 | 1,200 | 1,900 | 2,600 | 2,800 | 3,000 | 3,200 | 3,300 | 3,500 | 3,300 | 3,100 | 3,200 | 3,300 | 3,500 | 3,600 | 3,900 | 4,200 | 4,500 |
| INVENTORY | | | | | | | | | | | | | | | | | | |
| Number of vehicle registrations | | | | | | | | | | | | | | | | | | |
| Passenger car [3] | 61,671,390 | 89,243,557 | 121,600,843 | 133,700,496 | 127,883,469 | 128,386,775 | 129,728,341 | 129,748,704 | 131,838,538 | 132,432,044 | 133,621,420 | 137,633,467 | 135,920,677 | 135,669,897 | 136,430,651 | 136,568,083 | 135,399,945 | 135,932,930 |
| Other 2-axle 4-tire vehicle [3] | e | 14,210,591 | 27,875,934 | 48,274,555 | 62,903,589 | 65,738,322 | 68,933,798 | 70,224,082 | 71,330,205 | 75,356,376 | 79,084,979 | 84,187,636 | 85,011,305 | 87,186,663 | 91,845,327 | 95,336,839 | 99,124,775 | 101,469,615 |
| Motorcycle [4] | 574,032 | 2,824,098 | 5,693,940 | 4,259,462 | 3,756,555 | 3,897,191 | 3,871,237 | 3,826,373 | 3,879,450 | 4,152,433 | 4,346,068 | 4,903,056 | 5,004,156 | 5,370,035 | 5,767,934 | 6,227,146 | 6,686,147 | 7,138,476 |
| Motor vehicle licensed drivers [5] | 87,252,563 | 111,542,787 | 145,295,036 | 167,015,250 | 175,403,465 | 176,628,482 | 179,539,340 | 182,709,204 | 184,860,969 | 187,170,420 | 190,625,023 | 191,275,719 | 194,295,633 | 196,165,667 | 198,888,912 | 200,665,267 | 202,810,438 | 205,741,845 |
| Number of employees [6] (based on SIC) | | | | | | | | | | | | | | | | | | |
| Taxicabs | 120,700 | 106,400 | 52,500 | 32,400 | 30,800 | 30,700 | 30,500 | 30,600 | 31,200 | 31,600 | 31,900 | 31,800 | 30,800 | N | N | N | N | N |
| Automotive dealers and service stations | 1,267,200 | 1,617,400 | 1,688,500 | 2,063,100 | 2,116,200 | 2,189,600 | 2,266,700 | 2,310,800 | 2,332,300 | 2,368,100 | 2,409,600 | 2,424,800 | 2,432,200 | N | N | N | N | N |
| Motor vehicles, parts, and supplies | N | N | 434,300 | 456,000 | 471,400 | 492,100 | 502,800 | 513,000 | 516,600 | 523,700 | 516,800 | 502,100 | 498,000 | N | N | N | N | N |
| Auto repair, services, and parking | N | N | 570,900 | 913,700 | 968,300 | 1,020,100 | 1,080,000 | 1,119,600 | 1,145,200 | 1,196,400 | 1,234,200 | 1,257,200 | 1,263,200 | N | N | N | N | N |
| Number of employees [7] (based on NAICS) | | | | | | | | | | | | | | | | | | |
| Taxi service [h] | N | N | N | 33,600 | 31,600 | 31,600 | 31,400 | 31,600 | 32,300 | 32,700 | 33,100 | 33,100 | 31,800 | 31,400 | 30,600 | 30,300 | 30,600 | U |
| Wholesale motor vehicles and parts | N | N | N | 309,400 | 319,900 | 334,600 | 342,500 | 350,200 | 353,600 | 359,500 | 355,700 | 347,300 | 345,600 | 342,100 | 340,700 | 344,200 | 349,200 | 342,010 |
| Retail motor vehicle and parts dealers | N | N | N | 1,494,400 | 1,564,700 | 1,627,100 | 1,685,600 | 1,723,400 | 1,740,900 | 1,796,600 | 1,846,900 | 1,854,600 | 1,879,400 | 1,882,900 | 1,902,300 | 1,918,600 | 1,907,900 | 1,887,020 |
| Gasoline stations | N | N | N | 910,200 | 902,300 | 922,300 | 946,400 | 956,200 | 961,300 | 943,500 | 935,700 | 925,300 | 895,900 | 882,000 | 875,600 | 871,100 | 861,000 | 855,480 |
| Parking lots and garages [h] | N | N | N | 67,600 | 71,100 | 74,800 | 78,400 | 81,800 | 84,700 | 88,900 | 92,800 | 95,500 | 95,900 | 99,600 | 101,800 | 103,400 | 104,800 | U |
| Automotive repair and maintenance | N | N | N | 659,400 | 701,300 | 737,900 | 781,400 | 810,500 | 828,300 | 864,200 | 888,100 | 903,900 | 899,600 | 894,200 | 890,600 | 886,100 | 887,400 | 871,800 |
| PERFORMANCE | | | | | | | | | | | | | | | | | | |
| Vehicle-miles, total (millions) | 587,012 | 1,042,965 | 1,412,745 | 1,992,392 | 2,276,275 | 2,238,120 | 2,294,701 | 2,363,376 | 2,428,135 | 2,480,706 | 2,533,815 | 2,581,178 | 2,634,060 | 2,665,750 | 2,737,177 | 2,759,927 | 2,785,074 | 2,795,883 |
| Passenger car, total [a, 8] | (c) 587,012 | (c) 919,679 | (c) 1,121,810 | (c) 1,417,822 | 1,501,402 | 1,438,294 | 1,468,854 | 1,502,556 | 1,549,577 | 1,569,100 | 1,600,287 | 1,628,332 | 1,658,474 | 1,672,079 | 1,699,890 | 1,708,421 | 1,690,534 | 1,670,994 |
| Rural highway, total | (c) 313,623 | (c) 424,088 | (c) 450,659 | (c) 547,910 | 526,763 | 523,834 | 535,951 | 551,080 | 574,979 | 584,765 | 593,391 | 604,677 | 608,939 | 580,060 | 564,509 | 543,179 | 537,608 | 529,790 |
| Rural interstate | N | (c) 62,342 | (c) 89,488 | (c) 117,519 | 119,535 | 114,933 | 119,268 | 120,045 | 127,335 | 130,856 | 134,466 | 135,966 | 138,819 | 132,101 | 129,415 | 122,789 | 123,847 | 122,183 |
| Rural other arterial | (c) 233,452 | (c) 182,213 | (c) 180,857 | (c) 211,066 | 212,418 | 210,553 | 216,074 | 220,180 | 228,847 | 231,117 | 234,743 | 236,337 | 238,009 | 225,437 | 217,495 | 210,331 | 207,029 | 204,123 |
| Other rural roads | (c) 80,171 | (c) 179,533 | (c) 180,314 | (c) 219,325 | 194,810 | 198,348 | 200,609 | 210,855 | 218,797 | 222,792 | 224,182 | 232,374 | 232,111 | 222,522 | 217,599 | 210,059 | 206,732 | 203,484 |
| Urban highway, total [b] | (c) 273,389 | (c) 495,591 | (c) 671,151 | (c) 869,912 | 974,639 | 914,460 | 932,903 | 951,476 | 974,598 | 984,335 | 1,006,896 | 1,023,655 | 1,049,535 | 1,092,021 | 1,135,381 | 1,165,242 | 1,152,927 | 1,141,203 |
| Urban interstate | N | (c) 69,369 | (c) 124,480 | (c) 184,783 | 217,174 | 204,035 | 210,302 | 214,016 | 220,487 | 224,132 | 230,510 | 236,983 | 243,521 | 251,904 | 258,666 | 266,834 | 267,106 | 267,558 |
| Other urban | N | (c) 426,222 | (c) 546,671 | (c) 685,129 | 757,465 | 710,425 | 722,601 | 737,460 | 754,111 | 760,203 | 776,386 | 786,672 | 806,014 | 840,117 | 876,715 | 898,408 | 885,821 | 873,645 |
| Other 2-axle 4-tire vehicle, total [9] | e | 123,286 | 290,935 | 574,570 | 764,633 | 790,029 | 815,935 | 850,739 | 868,275 | 901,022 | 923,059 | 943,207 | 966,034 | 984,094 | 1,027,164 | 1,041,052 | 1,082,491 | 1,111,278 |
| Rural highway, total | e | 73,591 | 149,560 | 227,831 | 285,325 | 295,472 | 306,891 | 327,316 | 334,806 | 351,658 | 360,355 | 374,736 | 384,185 | 372,891 | 374,515 | 361,562 | 373,037 | 376,627 |
| Rural interstate | e | 6,766 | 19,952 | 46,298 | 60,849 | 63,329 | 65,779 | 69,030 | 72,343 | 76,190 | 79,088 | 82,356 | 85,132 | 82,513 | 83,181 | 80,173 | 81,548 | 82,030 |
| Rural other arterial | e | 29,808 | 56,137 | 87,474 | 113,595 | 118,305 | 122,211 | 129,890 | 132,043 | 138,475 | 141,257 | 146,525 | 150,758 | 148,100 | 148,802 | 143,976 | 145,716 | 145,985 |
| Other rural roads | e | 37,017 | 73,471 | 94,059 | 110,881 | 113,838 | 118,901 | 128,396 | 130,420 | 136,993 | 140,010 | 145,855 | 148,295 | 142,278 | 142,532 | 137,413 | 145,773 | 148,612 |
| Urban highway, total [b] | e | 49,695 | 141,375 | 346,739 | 479,308 | 494,557 | 509,044 | 523,423 | 533,469 | 549,364 | 562,704 | 568,471 | 581,849 | 611,203 | 652,649 | 679,490 | 709,454 | 734,651 |
| Urban interstate | e | 6,252 | 23,067 | 71,500 | 105,317 | 109,807 | 112,908 | 116,680 | 121,700 | 124,399 | 128,291 | 127,989 | 130,174 | 142,472 | 155,714 | 160,470 | 166,660 | 170,669 |
| Other urban | e | 43,443 | 118,308 | 275,239 | 373,991 | 384,750 | 396,136 | 406,743 | 411,769 | 424,965 | 434,413 | 440,482 | 451,675 | 468,731 | 496,935 | 519,020 | 542,794 | 563,982 |
| Motorcycle, total [a, 8] | f | f | f | f | 10,240 | 9,797 | 9,912 | 10,081 | 10,283 | 10,584 | 10,469 | 9,639 | 9,552 | 9,577 | 10,123 | 10,454 | 12,049 | 13,611 |
| Rural highway, total | f | f | f | f | 4,402 | 4,098 | 4,069 | 4,147 | 4,279 | 4,448 | 4,507 | 4,383 | 4,445 | 4,289 | 4,382 | 4,335 | 4,635 | 5,546 |
| Rural interstate | f | f | f | f | 1,279 | 1,058 | 1,056 | 1,050 | 1,112 | 1,100 | 1,164 | 1,121 | 1,212 | 1,279 | 1,354 | 1,356 | 1,367 | 1,420 |
| Rural other arterial | f | f | f | f | 1,698 | 1,510 | 1,500 | 1,552 | 1,588 | 1,662 | 1,680 | 1,649 | 1,623 | 1,472 | 1,435 | 1,413 | 1,602 | 2,306 |
| Other rural roads | f | f | f | f | 1,425 | 1,530 | 1,513 | 1,545 | 1,579 | 1,686 | 1,663 | 1,613 | 1,610 | 1,538 | 1,593 | 1,566 | 1,666 | 1,820 |
| Urban highway, total [b] | f | f | f | f | 5,838 | 5,699 | 5,843 | 5,934 | 6,004 | 6,136 | 5,962 | 5,256 | 5,107 | 5,288 | 5,741 | 6,119 | 7,414 | 8,065 |
| Urban interstate | f | f | f | f | 1,420 | 1,454 | 1,516 | 1,509 | 1,579 | 1,690 | 1,692 | 1,546 | 1,670 | 1,962 | 2,089 | 2,270 | 2,379 | 2,631 |
| Other urban | f | f | f | f | 4,418 | 4,245 | 4,327 | 4,425 | 4,425 | 4,446 | 4,270 | 3,710 | 3,437 | 3,326 | 3,652 | 3,849 | 5,035 | 5,434 |
| Passenger-miles, total (millions) [3] | 1,145,000 | 1,979,787 | 2,545,020 | 3,037,244 | 3,623,364 | 3,553,810 | 3,643,719 | 3,752,829 | 3,855,696 | 3,939,137 | 4,023,637 | 4,247,094 | 4,307,312 | 4,360,151 | 4,479,453 | (R) 4,517,430 | 4,562,368 | 4,584,054 |
| Passenger cars | (a,c) 1,145,000 | (a.c) 1,754,174 | (a,c) 2,024,246 | (c) 2,140,913 | (c) 2,600,050 | 2,286,887 | 2,335,478 | 2,389,065 | 2,463,828 | 2,494,870 | 2,544,457 | 2,556,481 | 2,620,389 | 2,641,885 | 2,685,827 | 2,699,305 | 2,658,621 | 2,640,170 |
| Other 2-axle 4-tire vehicle | e | 225,613 | 520,774 | 896,331 | 1,012,050 | 1,256,146 | 1,297,337 | 1,352,675 | 1,380,557 | 1,432,625 | 1,467,664 | 1,678,853 | 1,674,792 | 1,706,103 | 1,780,771 | 1,804,848 | 1,887,997 | 1,926,597 |
| Motorcycle | f | f | f | f | 11,264 | 10,777 | 10,904 | 11,089 | 11,311 | 11,642 | 11,516 | 11,760 | 12,131 | 12,163 | 12,855 | 13,277 | 15,750 | 17,287 |
| Average miles traveled per vehicle [3] | | | | | | | | | | | | | | | | | | |
| Passenger car | (c) 9,518 | (c) 9,989 | (c) 8,813 | (c) 10,277 | (c) 10,759 | 11,203 | 11,323 | 11,581 | 11,754 | 11,848 | 11,976 | 11,831 | 12,202 | 12,325 | 12,460 | 12,510 | 12,427 | 12,293 |
| Other 2-axle 4-tire vehicle | e | 8,676 | 10,437 | 11,902 | 12,156 | 12,018 | 11,837 | 12,115 | 12,173 | 11,957 | 11,672 | 11,204 | 11,364 | 11,287 | 11,184 | 10,920 | 10,986 | 10,952 |
| Motorcycle | f | f | f | f | 2,726 | 2,514 | 2,561 | 2,635 | 2,651 | 2,549 | 2,409 | 1,966 | 1,909 | 1,783 | 1,755 | 1,679 | 1,855 | 1,907 |
| Fuel consumed (million gallons) [3] | | | | | | | | | | | | | | | | | | |
| Passenger cars | (c) 41,171 | (c) 67,879 | (c) 70,186 | (c) 69,759 | (c) 68,079 | 68,072 | 68,897 | 69,892 | 71,695 | 73,283 | 73,065 | 73,559 | 75,471 | 75,455 | 75,402 | 77,418 | 75,009 | 74,355 |
| Other 2-axle 4-tire vehicle | e | 12,313 | 23,796 | 35,611 | 44,112 | 45,605 | 47,133 | 49,388 | 50,462 | 52,859 | 52,939 | 53,522 | 55,220 | 60,758 | 63,417 | 58,869 | 60,685 | 61,816 |
| Motorcycle | f | f | f | f | 205 | 196 | 198 | 202 | 206 | 212 | 209 | 193 | 191 | 192 | 202 | 189 | 221 | 242 |
| Average fuel consumption per vehicle (gallons) [3] | | | | | | | | | | | | | | | | | | |
| Passenger cars | (c) 668 | (c) 737 | (c) 551 | (c) 506 | (c) 517 | 530 | 531 | 539 | 544 | 553 | 547 | 534 | 555 | 556 | 553 | 567 | 554 | 547 |
| Other 2-axle 4-tire vehicle | e | 866 | 854 | 738 | 701 | 694 | 684 | 703 | 707 | 701 | 669 | 636 | 650 | 697 | 690 | 617 | 612 | 609 |
| Motorcycle | f | f | f | f | 55 | 50 | 51 | 53 | 53 | 51 | 48 | 39 | 38 | 36 | 35 | 30 | 33 | 34 |
| Average miles traveled per gallon of fuel consumed [3] | | | | | | | | | | | | | | | | | | |
| Passenger cars | (c) 14 | (c) 14 | (c) 16.0 | (c) 20.3 | (c) 21 | 21.1 | 21.3 | 21.5 | 21.6 | 21.4 | 21.9 | 22.1 | 22.0 | 22.2 | 22.5 | 22.1 | 22.4 | 22.5 |
| Other 2-axle 4-tire vehicle | e | 10.0 | 12.2 | 16.1 | 17.3 | 17.3 | 17.3 | 17.2 | 17.2 | 17.0 | 17.4 | 17.6 | 17.5 | 16.2 | 16.2 | 17.7 | 18.0 | 18.0 |

| Motorcycle | f | f | f | f | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 55.2 | 56.1 | 56.2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAFETY[10] | | | | | | | | | | | | | | | | | | |
| Number of occupants and nonoccupant fatalities | | | | | | | | | | | | | | | | | | |
| Passenger car | N | N | 27,449 | 24,092 | 21,997 | 22,423 | 22,505 | 22,199 | 21,194 | 20,862 | 20,699 | 20,320 | 20,569 | 19,725 | 19,192 | 18,512 | 17,925 | 16,520 |
| Light Truck | N | N | (R) 1,262 | (R) 705 | (R) 670 | (R) 648 | (R) 621 | (R) 723 | (R) 742 | (R) 759 | (R) 754 | (R) 708 | (R) 689 | (R) 726 | (R) 766 | (R) 804 | 805 | 802 |
| Motorcycle | 790 | 2,280 | 5,144 | 3,244 | 2,320 | 2,227 | 2,161 | 2,116 | 2,294 | 2,483 | 2,897 | 3,197 | 3,270 | 3,714 | 4,028 | 4,576 | 4,837 | 5,154 |
| Bicycle[d] | 490 | 760 | 965 | 859 | 802 | 833 | 765 | 814 | 760 | 754 | 693 | 732 | 665 | 629 | 727 | 786 | 772 | 698 |
| Pedestrian[d] | 7,210 | 8,950 | 8,070 | 6,482 | 5,489 | 5,584 | 5,449 | 5,321 | 5,228 | 4,939 | 4,763 | 4,901 | 4,851 | 4,774 | 4,675 | 4,892 | 4,795 | 4,654 |
| Occupant fatality rates | | | | | | | | | | | | | | | | | | |
| Per 100 million vehicle-miles[g] | | | | | | | | | | | | | | | | | | |
| Passenger car | 4.7 | 3.8 | (R) 2.5 | 1.7 | 1.5 | 1.5 | 1.5 | 1.5 | (R) 1.5 | 1.3 | 1.3 | 1.3 | 1.3 | 1.2 | 1.2 | 1.2 | 1.1 | 1.0 |
| Light Truck | N | N | 2.5 | 1.6 | 1.3 | 1.3 | 1.3 | 1.2 | 1.2 | 1.3 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.1 | 1.1 |
| Motorcycle | N | 76.5 | 50.4 | 33.9 | 22.7 | 22.7 | 21.8 | 21.0 | 22.3 | 23.5 | 27.7 | 33.2 | 34.2 | 38.8 | 39.8 | 43.8 | 40.1 | 37.9 |
| Per 10,000 registered vehicles[g] | | | | | | | | | | | | | | | | | | |
| Passenger car | 5.1 | 3.9 | 2.6 | 2.0 | 1.8 | 1.8 | 1.8 | 1.8 | (R) 1.8 | 1.6 | 1.6 | 1.6 | 1.6 | 1.5 | 1.4 | 1.4 | 1.3 | 1.2 |
| Light Truck | N | N | 2.5 | 1.7 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.4 | 1.4 | 1.3 | 1.2 |
| Motorcycle | 13.8 | 8.1 | 9.0 | 7.6 | 6.2 | 5.7 | 5.6 | 5.5 | 5.9 | 6.0 | 6.7 | 6.5 | 6.5 | 6.9 | 7.0 | 7.3 | 7.2 | 7.2 |
| Fatal Crashes | | | | | | | | | | | | | | | | | | |
| Total Fatal Crashes | U | U | U | 39,836 | 36,254 | 37,241 | 37,494 | 37,324 | 37,107 | 37,140 | 37,526 | 37,862 | 38,491 | 38,477 | 38,444 | 39,252 | 38,648 | 37,248 |
| Number of vehicles involved in fatal crashes | | | | | | | | | | | | | | | | | | |
| Passenger car | U | U | 39,059 | 34,085 | 30,273 | 30,940 | 30,727 | 30,059 | 29,040 | 28,027 | 27,802 | 27,586 | 27,374 | 26,562 | 25,682 | 25,169 | 24,260 | 22,716 |
| Light Truck | U | U | 12,680 | 15,620 | 16,353 | 17,587 | 18,246 | 18,628 | 19,363 | 19,959 | 20,498 | 20,831 | 21,668 | 22,299 | 22,486 | 22,964 | 22,411 | 21,686 |
| Motorcycles | U | U | 5,194 | 3,276 | 2,339 | 2,268 | 2,176 | 2,160 | 2,334 | 2,532 | 2,975 | 3,265 | 3,365 | 3,802 | 4,121 | 4,682 | 4,963 | 5,286 |
| Vehicle involvement rate (fatal crashes) | | | | | | | | | | | | | | | | | | |
| Per 100 million vehicle-miles[g] | | | | | | | | | | | | | | | | | | |
| Passenger car | N | 5.6 | 3.5 | 2.4 | 2.1 | 2.1 | 2.1 | 2.0 | 1.9 | 1.8 | 1.8 | 1.7 | 1.7 | 1.7 | 1.6 | 1.6 | 1.5 | 1.4 |
| Light Truck | N | N | 4.3 | 2.8 | 2.3 | 2.4 | 2.3 | 2.3 | 2.3 | 2.2 | 2.2 | 2.1 | 2.1 | 2.1 | 2.1 | 2.0 | 1.9 | 1.8 |
| Motorcycle | N | 22.9 | 50.9 | 34.3 | 22.8 | 23.2 | 21.9 | 21.4 | 22.7 | 23.9 | 28.4 | 33.9 | 35.2 | 39.7 | 40.7 | 44.8 | 41.2 | 38.8 |
| Per 10,000 registered vehicles[g] | | | | | | | | | | | | | | | | | | |
| Passenger car | N | 5.6 | 3.7 | 2.8 | 2.5 | 2.5 | 2.5 | 2.4 | 2.3 | 2.2 | 2.2 | 2.1 | 2.1 | 2.0 | 1.9 | (R) 1.9 | 1.8 | 1.6 |
| Light Truck | N | N | 4.2 | 3.1 | 2.7 | 2.8 | 2.8 | 2.8 | 2.8 | 2.7 | 2.7 | 2.6 | 2.6 | 2.6 | 2.5 | 2.4 | 2.3 | 2.1 |
| Motorcycle | N | 8.2 | 9.1 | 7.7 | 6.2 | 5.8 | 5.6 | 5.6 | 6.0 | 6.1 | 6.8 | 6.7 | 6.7 | 7.1 | 7.1 | 7.5 | 7.4 | 7.4 |

**KEY:** N = data do not exist; R = revised; U = data are unavailable.

**NOTES**

[a] Figures obtained by addition / subtraction and may not appear directly in data source.
[b] Urban consists of travel on all roads and streets in urban places of 5,000 or greater population.
[c] Includes motorcycle data.
[d] Involvement only with motor vehicle.
[e] Included in single-unit 2-axle 6-tire or more truck category.
[f] Included in passenger cars.

[g] Rates come directly from the source and may differ slightly from rates that could be calculated from the information displayed in this table.

[h] 2007 data are based on the May 2008 OES survey data, which uses 2007 NAICS codes. All other years are based on data that uses 2002 NAICS codes, which do not correspond to 2007 NAICS codes. Thus, no comparable data are available in these categories.

**SOURCES**

Unless otherwise noted, refer to chapter tables for sources.

[1] U.S. Department of Commerce, Bureau of Economic Analysis,*National Income and Product Accounts Tables,* table 2.5.5 available at http://www.bea.gov/national/nipaweb/Index.asp as of September 3, 2009.

[2] 1960-95: U.S. Department of Transportation, Federal Highway Administration (FHWA),*Highway Statistics Summary to 1995,* FHWA-97-009 (Washington, DC: July 1997), table MV-202.

1996-2007: Ibid., *Highway Statistics* (Washington, DC: Annual Issues), table MV-2 (revised tables used when applicable).

[3] 1960-94: Ibid., *Highway Statistics Summary to 1995* , FHWA-97-009 (Washington, DC: July 1997), table VM–201A, table revised in June 1999.

1995-2007: Ibid., *Highway Statistics* (Washington, DC: Annual Issues), table VM-1 (revised tables used when applicable).

[4] 1960-94: Ibid., *Highway Statistics Summary to 1995,* FHWA-PL-97-009 (Washington, DC: July 1997), table MV-201.

1995-2007: Ibid., *Highway Statistics* (Washington, DC: Annual Issues), table MV-1 (revised tables used when applicable).

[5] 1960-95: Ibid., *Highway Statistics Summary to 1995,* FHWA-PI-97-009 (Washington, DC: July 1997), table DL-201.

1996-2007: Ibid., *Highway Statistics* (Washington, DC: Annual Issues), table DL-22 (revised tables used when applicable).

[6] 1960-2002: U.S. Department of Labor, Bureau of Labor Statistics,*BLS Database,* Internet site http://www.bls.gov/data/sa.htm as of April 2004; codes “414120 Taxicabs,” “605500 Automotive Dealers and Service Stations,” “525010 Motor Vehicle Parts, and Supplies” and “807500 Auto Repair, Services, and Parking."

[7] 1990-2007: U.S. Department of Labor, Bureau of Labor Statistics, BLS Database, Internet site http://www.bls.gov/data/sa.htm as of January 2007; codes "48531 Taxi service," "4231 Wholesale motor vehicles and parts," "441 Retail motor vehicle and parts dealers," "447 Gasoline stations," "81293 Parking lots and garages," "8111 Automotive repair and maintenance."

[8] 1960-90: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1995,* FHWA-PL-97-009 (Washington, DC: July 1997), table VM-201.

1994-2007: Ibid., *Highway Statistics* (Washington, DC: Annual Issues), table VM-1 (revised tables used when applicable).

[9] 1970-94: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1995* , FHWA-PL-97-009 (Washington, DC: July 1997), table VM-201.

1995-2007: Ibid., *Highway Statistics* (Washington, DC: Annual Issues), table VM-1 (revised tables used when applicable).

[10] U.S. Department of Transportation, National Highway Traffic Safety Administration (NHTSA),*Traffic Safety Facts* (Washington, DC: Annual Issues), tables 1,3, 4, 7, 8, and 10 in *Traffic Safety Facts 2007* and similar tables in previous issues.

**Truck Profile**

| FINANCIAL | 1960 | 1970 | 1980 | 1990 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | (R) 2006 | 2007 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Operating revenues, total[a] (based on SIC) ($ millions) | U | U | U | 127,314 | 155,713 | 161,806 | 172,743 | 183,153 | 197,490 | U | U | U | U | U | U | U | U | U |
| Local trucking | U | U | U | 31,397 | 40,903 | 43,830 | 46,589 | 49,972 | 55,553 | U | U | U | U | U | U | U | U | U |
| Trucking, except local | U | U | U | 74,465 | 89,369 | 91,675 | 97,586 | 103,847 | 109,351 | U | U | U | U | U | U | U | U | U |
| Local trucking with storage | U | U | U | 4,115 | 4,757 | 5,154 | 5,502 | 5,860 | 6,144 | U | U | U | U | U | U | U | U | U |
| Courier services, except by air | U | U | U | 17,337 | 20,684 | 21,147 | 23,066 | 23,474 | 26,442 | U | U | U | U | U | U | U | U | U |
| Operating expenses, total[a] (based on SIC) ($ millions) | U | U | U | 118,968 | 145,216 | 151,628 | 162,825 | 170,998 | 179,907 | U | U | U | U | U | U | U | U | U |
| Local trucking | U | U | U | 28,049 | 36,455 | 38,695 | 41,325 | 43,871 | 47,478 | U | U | U | U | U | U | U | U | U |
| Trucking, except local | U | U | U | 70,965 | 84,682 | 88,061 | 94,390 | 98,570 | 101,584 | U | U | U | U | U | U | U | U | U |
| Local trucking with storage | U | U | U | 3,885 | 4,543 | 4,817 | 5,121 | 5,439 | 5,638 | U | U | U | U | U | U | U | U | U |
| Courier services, except by air | U | U | U | 16,069 | 19,536 | 20,055 | 21,989 | 23,118 | 25,207 | U | U | U | U | U | U | U | U | U |
| Operating revenues, total[b] (based on NAICS) ($ millions) | U | U | U | U | U | U | U | U | 197,314 | 207,751 | 223,197 | 221,355 | 222,383 | 228,311 | 248,191 | (R) 273,420 | 293,498 | 303,611 |
| Truck transportation | U | U | U | U | U | U | U | U | 148,121 | 155,871 | 165,421 | 162,871 | 164,218 | 168,486 | 185,945 | (R) 206,512 | 221,871 | 228,907 |
| Couriers and messengers | U | U | U | U | U | U | U | U | 49,193 | 51,880 | 57,776 | 58,484 | 58,165 | 59,825 | 62,246 | (R) 66,908 | 71,627 | 74,704 |
| Truck highway-user taxes, total ($ millions) | 2,830 | 5,632 | 9,888 | 19,356 | 23,836 | 25,117 | U | 28,010 | 28,697 | 30,502 | 31,769 | 30,689 | 30,216 | 31,266 | 32,780 | 35,178 | 37,351 | 38,010 |
| State | 1,709 | 3,429 | 6,731 | 12,691 | 13,157 | 13,844 | U | 15,750 | 15,611 | 16,266 | 16,476 | 17,686 | 16,566 | 14,312 | 17,923 | 18,632 | 19,573 | 20,188 |
| Federal | 1,121 | 2,203 | 3,157 | 6,665 | 10,679 | 11,273 | U | 12,260 | 13,086 | 14,236 | 15,293 | 13,003 | 13,650 | 16,954 | 14,857 | 16,546 | 17,778 | 17,822 |
| INVENTORY | | | | | | | | | | | | | | | | | | |
| Number of truck registrations, total | 11,914,249 | 4,586,487 | 5,790,653 | 6,195,876 | 6,587,885 | 6,719,421 | 7,012,615 | 7,083,326 | 7,732,270 | 7,791,426 | 8,022,649 | 7,857,675 | 7,927,280 | 7,756,888 | 8,171,363 | 8,481,999 | 8,819,007 | 9,027,624 |
| Single-unit truck | U | 3,681,405 | 4,373,784 | 4,486,981 | 4,906,385 | 5,023,670 | 5,266,029 | 5,293,358 | 5,734,925 | 5,762,864 | 5,926,030 | 5,703,501 | 5,650,619 | 5,848,523 | 6,161,028 | 6,395,240 | 6,649,337 | 6,806,630 |
| Combination truck | U | 905,082 | 1,416,869 | 1,708,895 | 1,681,500 | 1,695,751 | 1,746,586 | 1,789,968 | 1,997,345 | 2,028,562 | 2,096,619 | 2,154,174 | 2,276,661 | 1,908,365 | 2,010,335 | 2,086,759 | 2,169,670 | 2,220,995 |
| Number of employees | | | | | | | | | | | | | | | | | | |
| Trucking and courier services, except air (based on SIC) | U | 998,500 | 1,182,000 | 1,273,900 | 1,384,200 | 1,440,000 | 1,482,100 | 1,514,200 | 1,568,800 | 1,613,700 | 1,630,500 | 1,619,800 | 1,590,000 | U | U | U | U | U |
| Truck transportation (based on NAICS) | U | U | U | 1,122,400 | 1,206,200 | 1,249,100 | 1,282,400 | 1,308,200 | 1,354,400 | 1,391,500 | 1,405,800 | 1,386,800 | 1,339,300 | 1,325,600 | 1,351,700 | 1,397,600 | 1,435,800 | 1,439,200 |
| Couriers and messengers (based on NAICS) | U | U | U | 375,000 | 466,200 | 516,800 | 539,900 | 546,000 | 568,200 | 585,900 | 605,000 | 587,000 | 560,900 | 561,700 | 556,600 | 571,400 | 582,400 | 580,700 |
| Truck drivers and sales workers[c] (based on NAICS) | 1,477,000 | 1,565,000 | 1,931,000 | 2,148,000 | 2,321,000 | 2,861,000 | 2,542,000 | 2,602,000 | 3,012,000 | 3,028,660 | 2,983,950 | 2,992,700 | 2,867,530 | 2,869,770 | 2,899,010 | 2,963,550 | 3,012,220 | 2,998,850 |
| Number of trucking and courier establishments[a] | U | 64,756 | 69,796 | 90,709 | 108,971 | 112,887 | 116,861 | 121,111 | 119,572 | 120,687 | 122,713 | 122,669 | 124,481 | 125,744 | 128,121 | 131,086 | 134,053 | 135,264 |
| PERFORMANCE | | | | | | | | | | | | | | | | | | |
| Vehicle-miles,total rural and urban (millions) | 127,404 | 62,215 | 108,491 | 146,242 | 170,216 | 178,156 | 182,971 | 191,477 | 196,380 | 202,688 | 205,520 | 209,032 | 214,603 | 217,917 | 220,811 | 222,524 | 222,513 | 226,963 |
| Rural highway, total | 84,508 | 39,244 | 68,776 | 89,692 | 100,865 | 106,031 | 109,480 | 114,698 | 115,142 | 117,941 | 120,410 | 122,736 | 125,884 | 123,689 | 121,330 | 119,684 | 118,346 | 119,617 |
| Rural interstate | U | 10,069 | 25,111 | 35,789 | 40,034 | 43,351 | 45,721 | 49,336 | 49,896 | 51,049 | 52,484 | 53,225 | 54,503 | 52,925 | 51,296 | 51,378 | 50,204 | 49,819 |
| Rural other arterial | U | 17,625 | 24,789 | 31,331 | 35,040 | 37,056 | 37,875 | 39,193 | 39,724 | 40,691 | 41,649 | 41,838 | 42,436 | 41,342 | 40,690 | 39,762 | 39,277 | 40,037 |
| Other rural roads | U | 11,550 | 18,876 | 22,572 | 25,791 | 25,624 | 25,884 | 26,169 | 25,522 | 26,201 | 26,277 | 27,673 | 28,945 | 29,422 | 29,344 | 28,544 | 28,865 | 29,761 |
| Urban highway, total[d] | 42,896 | 22,971 | 39,715 | 56,550 | 69,351 | 72,125 | 73,491 | 76,779 | 81,238 | 84,747 | 85,110 | 86,296 | 88,719 | 94,227 | 99,481 | 102,840 | 104,167 | 107,346 |
| Urban interstate | U | 5,634 | 13,135 | 22,163 | 25,045 | 25,639 | 26,256 | 28,549 | 30,193 | 32,286 | 32,181 | 32,690 | 33,040 | 35,487 | 38,083 | 40,289 | 40,118 | 41,405 |
| Other urban streets | U | 17,337 | 26,580 | 34,387 | 44,306 | 46,486 | 47,235 | 48,230 | 51,045 | 52,461 | 52,929 | 53,606 | 55,679 | 58,740 | 61,398 | 62,551 | 64,049 | 65,941 |
| Passenger-miles, total[e] (millions) | 127,405 | 62,215 | 108,491 | 146,242 | 170,216 | 178,156 | 182,971 | 191,477 | 196,380 | 202,688 | 205,520 | 209,032 | 214,603 | 217,917 | 220,811 | 222,524 | 222,513 | 226,963 |
| Single-unit truck[f] | 98,551 | 27,081 | 39,813 | 51,901 | 61,284 | 62,705 | 64,072 | 66,893 | 68,021 | 70,304 | 70,500 | 72,448 | 75,866 | 77,757 | 78,441 | 78,496 | 80,344 | 81,954 |
| Combination truck | 28,854 | 35,134 | 68,678 | 94,341 | 108,932 | 115,451 | 118,899 | 124,584 | 128,359 | 132,384 | 135,020 | 136,584 | 138,737 | 140,160 | 142,370 | 144,028 | 142,169 | 145,008 |
| Ton-miles (millions) | U | U | 629,675 | 848,779 | 987,923 | 1,034,041 | 1,061,952 | 1,110,554 | 1,139,777 | 1,176,388 | 1,192,825 | 1,213,208 | 1,245,542 | 1,264,773 | 1,281,573 | 1,291,515 | 1,294,492 | U |
| Fuel consumed, all trucks (million gallons) | 15,882 | 11,316 | 19,960 | 24,490 | 27,685 | 28,993 | 29,601 | 29,878 | 31,975 | 33,909 | 35,229 | 35,179 | 36,800 | 32,696 | 33,150 | 37,190 | 37,959 | 38,550 |
| Single-unit truck | U | 3,968 | 6,923 | 8,357 | 9,032 | 9,216 | 9,409 | 9,576 | 6,817 | 9,372 | 9,563 | 9,667 | 10,321 | 8,880 | 8,959 | 9,501 | 9,852 | 10,035 |
| Combination truck | U | 7,348 | 13,037 | 16,133 | 18,653 | 19,777 | 20,192 | 20,302 | 25,158 | 24,537 | 25,666 | 25,512 | 26,480 | 23,815 | 24,191 | 27,689 | 28,107 | 28,515 |
| Average fuel consumption per vehicle, all trucks (gallons) | 1,333 | 2,467 | 3,447 | 3,953 | 4,202 | 4,315 | 4,221 | 4,218 | 4,135 | 4,352 | 4,391 | 4,477 | 4,642 | 4,215 | 4,057 | 4,385 | 4,304 | 4,270 |
| Single-unit truck | U | 1,078 | 1,583 | 1,862 | 1,841 | 1,835 | 1,787 | 1,809 | 1,189 | 1,626 | 1,614 | 1,695 | 1,826 | 1,518 | 1,454 | 1,486 | 1,482 | 1,474 |
| Combination truck | U | 8,119 | 9,201 | 9,441 | 11,093 | 11,663 | 11,561 | 11,342 | 12,596 | 12,096 | 12,241 | 11,843 | 11,631 | 12,479 | 12,033 | 13,269 | 12,954 | 12,839 |
| Average miles traveled per gallon of fuel consumed, all trucks | 8.0 | 5.5 | 5.4 | 6.0 | 6.1 | 6.1 | 6.2 | 6.4 | 6.1 | 6.0 | 5.8 | 5.9 | 5.8 | 6.7 | 6.7 | 6.0 | 5.9 | 5.9 |
| Single-unit truck | U | 6.8 | 5.8 | 6.2 | 6.8 | 6.8 | 6.8 | 7.0 | 10.0 | 7.5 | 7.4 | 7.5 | 7.4 | 8.8 | 8.8 | 8.3 | 8.2 | 8.2 |
| Combination truck | U | 4.8 | 5.3 | 5.8 | 5.8 | 5.8 | 5.9 | 6.1 | 5.1 | 5.4 | 5.3 | 5.4 | 5.2 | 5.9 | 5.9 | 5.2 | 5.1 | 5.1 |
| Average miles traveled per vehicle, all trucks | 10,693 | 13,565 | 18,736 | 23,603 | 25,838 | 26,514 | 26,092 | 27,032 | 25,397 | 26,014 | 25,617 | 26,602 | 27,071 | 28,093 | 27,023 | 26,235 | 25,231 | 25,141 |
| Single-unit truck | U | 7,356 | 9,103 | 11,567 | 12,491 | 12,482 | 12,167 | 12,637 | 11,861 | 12,199 | 11,897 | 12,702 | 13,426 | 13,295 | 12,732 | 12,274 | 12,083 | 12,040 |
| Combination truck | U | 38,819 | 48,472 | 55,206 | 64,783 | 68,083 | 68,075 | 69,601 | 64,265 | 65,260 | 64,399 | 63,404 | 60,939 | 73,445 | 70,819 | 69,020 | 65,526 | 65,290 |
| Average length of haul (domestic freight) (miles) | 272 | 263 | 363 | 391 | 392 | 416 | 426 | 435 | 442 | 458 | 473 | 485 | U | U | U | U | U | U |
| SAFETY | | | | | | | | | | | | | | | | | | |
| Occupant fatalities, large truck | U | U | 1,262 | 705 | 670 | 648 | 621 | 723 | 742 | 759 | 754 | 708 | 689 | 726 | 766 | 804 | 805 | 802 |
| Occupant fatality rate | | | | | | | | | | | | | | | | | | |
| Per 100 million vehicle-miles, large truck | U | U | 1.2 | 0.5 | 0.4 | 0.4 | 0.3 | 0.4 | 0.4 | 0.4 | 0.4 | 0.3 | 0.3 | 0.3 | 0.4 | 0.4 | 0.4 | 0.4 |
| Per 10,000 registered vehicles, large truck | U | U | 2.2 | 1.1 | 1.0 | 1.0 | 0.9 | 1.0 | 1.0 | 1.0 | 0.9 | 0.9 | 0.9 | 0.9 | 0.9 | 0.9 | 0.9 | 0.9 |
| Vehicle involvement rate (fatal crashes) | | | | | | | | | | | | | | | | | | |
| Per 100 million vehicle-miles, large truck | U | U | 5.0 | 3.3 | 2.7 | 2.5 | 2.6 | 2.6 | 2.5 | 2.4 | 2.4 | 2.3 | 2.1 | 2.2 | 2.2 | 2.2 | 2.1 | 2.0 |
| Per 10,000 registered vehicles, large truck | U | U | 9.3 | 7.7 | 7.0 | 6.7 | 6.8 | 6.9 | 6.4 | 6.3 | 6.2 | 6.1 | 5.8 | 6.1 | 6.0 | 5.8 | 5.4 | 5.1 |

**KEY:** R = revised; U = data are unavailable.

[a] **Local trucking (SIC 4212)** - Establishments primarily engaged in furnishing trucking or transfer services without storage for freight generally weighing more than 100 pounds.

**Trucking, except local (SIC 4213)** - Establishments primarily engaged in furnishing "over-the-road" trucking services or trucking services and storage services, including household goods either as common carriers or under special or individual contracts or agreements, for freight generally weighing more than 100 pounds.

**Local trucking, with storage (SIC 4214)** - Establishments primarily engaged in furnishing both trucking and storage services, including household goods.

**Courier services, except by air (SIC 4215)** - Establishments primarily engaged in the delivery of individually addressed letters, parcels, and packages (generally under 100 pounds).

[b] **Truck transportation (NAICS 484)** - Industries primarily engaged in over-the-road transportation of cargo using motor vehicles, truck-tractors, and trailers.

**Couriers and messengers (NAICS 492)** - Establishments primarily engaged in providing air, surface, or combined courier delivery services of parcels or primarily engaged in furnishing local messenger and delivery services of small items within a single metropolitan area or urban center.

[c] In 1999, the Occupational Employment Statistics survey began using the Standard Occupational Classification (SOC) system to organize occupational data. Therefore, estimates from 1999 and subsequent years are not directly comparable to previous occupational data.

[d] Urban consists of travel on all roads and streets in urban places of 5,000 or greater population.

[e] As cited on the Federal Highway Administration (FHWA), highway passenger-miles are calculated by multiplying vehicle-miles of travel and the average number of occupants for each vehicle type.

[f] Includes other 2-axle 4-tire vehicle in 1960.

**NOTES**

In 1995, FHWA revised its vehicle type categories. These new categories include passenger car, other 2-axle 4-tire vehicle, single-unit 2-axle 6-tire or more truck, and combination truck. Other 2-axle 4-tire vehicles include vans, pickup trucks, and sport/utility vehicles. In previous years, some minivans and sport/utility vehicles were included in the passenger car category. Single-unit 2-axle 6-tire or more trucks are on a single frame with at least 2 axles and 6 tires. Occupant fatality rates (OFR) for Light Trucks have been removed, but can be found in the Automobile Profile. The remaining fatality rates are calculated by NHTSA and may be different from what would be calculated from the data presented.

Component values may not add to totals due to independent rounding.

**SOURCES**

Unless otherwise noted, refer to chapter tables for sources.

*Operating revenues, total and Operating expenses, total (based on SIC):*

U.S. Census Bureau, *Transportation Annual Survey* (Washington, DC: December 1998), table 1.

*Operating revenues, total (based on NAICS):*

U.S. Census Bureau, *Service Annual Survey* (Washington, DC: Annual Issues), table 2.1 and similar tables in earlier editions, available at http://www.census.gov/services/index.html as of July 08, 2009.

*Truck highway-user taxes:*

1960-1999: American Trucking Association *American Trucking Trends*, (Washington, DC: Annual issues)

2000-2006: American Trucking Association,*American Trucking Trends,* unpublished data, personal communication, June 30, 2008.

*Number of truck registrations:*

1960-94: U.S. Department of Transportation, Federal Highway Administration,*Highway Statistics Summary to 1995*, FHWA-PL-97-009 (Washington, DC: July 1997), table VM-201A.

1995-2007: Ibid., Federal Highway Administration,*Highway Statistics* (Washington, DC: Annual issues), table VM-1, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of July 08, 2009 .

*Number of employees: Trucking and courier services, except air (based on SIC):*

1960-90: U.S. Department of Labor, Bureau of Labor Statistics,*Employment, Hours and Earnings*, United States, 1909-1994 (Washington, DC: September 1994), SIC 421.

1994-2007: Ibid., *Employment, Hours and Earnings,* available at www.bls.gov as of July 13, 2009, SIC 421

*Number of employees: Truck transportation (based on NAICS) and Couriers and messengers (based on NAICS):*

1990-2007: U.S. Department of Labor, Bureau of Labor Statistics,*Database and Tables*, available at http://www.bls.gov/data/ as of July 10, 2009; NAICS codes "484 Truck transportation" and "492 Couriers and messengers."

*Number of employees: Truck drivers and sales workers (based on NAICS):*

1960-2001: Eno Transportation Foundation, Inc.,*Transportation in America*, 2000 (Washington, DC: 2001), p. 35.

2002-07: U.S. Department of Labor, Bureau of Labor Statistics, Occupational Employment Statistics,*Occupational Employment and Wage estiamates,* (Washington, DC: Annual Issues), available at http://www.bls.gov/oes/2008/may/oes_dl.htm#Time as of July 10, 2009.

*Number of trucking and courier establishments:*

U.S. Bureau of the Census,*County Business Patterns* (Washington, DC: Annual Issues), NAICS 484 and 492/SIC 421, available at http://censtats.census.gov/cbpnaic/cbpnaic.shtml as of September 28, 2009.

*Vehicle-miles, total rural and urban:*

1960-94: U.S. Department of Transportation, Federal Highway Administration,*Highway Statistics Summary to 1995*, FHWA-PL-97-009 (Washington, DC: July 1997), table VM-201.

1995-2007: Ibid. Federal Highway Administration,*Highway Statistics* (Washington, DC: Annual Issues), table VM-1, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of July 10, 2009.

*Ton-miles:*

1960-70: Eno Transportation Foundation, Inc.,*Transportation in America*, 2000 (Washington, DC: 2001), p. 12.

1980-2007: U.S. Department of Transportation, Bureau of Transportation Statistics, special tabulation, as of July 13, 2009.

*Fuel consumed, Average fuel consumption per vehicle, Average miles traveled per gallon of fuel consumed, and Average miles traveled per vehicle:*

1960: Ibid., *Transportation in America*, 2000 (Washington, DC: 2001), p. 35.

1970-94: U.S. Department of Transportation, Federal Highway Administration,*Highway Statistics Summary to 1995*, FHWA-PL-97-009 (Washington, DC: July 1997), table VM-201A.

1995-2007: Ibid., Federal Highway Administration,*Highway Statistics* (Washington, DC: Annual Issues), table VM-1, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of July 10, 2009.

*Average length of haul:*

Eno Transportation Foundation, Inc.,*Transportation in America*, 2001 (Washington, DC: 2001), p.65.

*Safety:*

U.S. Department of Transportation, National Highway Traffic Safety Administration,*Traffic Safety Facts 2007*, DOT HS 811 002 (Washington, DC: Annual Issues), tables 3 and 9, July 13, 2009.

## Bus Profile

| FINANCIAL | 1960 | 1970 | 1980 | 1990 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | (R) 2006 | 2007 | 2008 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Expenditures ($ thousands) | | | | | | | | | | | | | | | | | | | |
| School bus[1] | 486,000 | 1,219,000 | 3,833,000 | 8,031,000 | 7,847,000 | 9,889,000 | 9,082,000 | 10,353,000 | 10,326,000 | 10,340,000 | 12,104,000 | 12,624,000 | U | U | U | U | U | U | U |
| Operating revenues ($ thousands) | | | | | | | | | | | | | | | | | | | |
| Intercity bus, Class *I*[2,a] | 463,100 | 721,700 | 1,397,378 | 943,268 | 1,161,479 | 1,189,235 | 985,537 | 1,080,083 | 1,074,582 | 1,326,909 | 1,133,822 | 1,117,526 | 1,120,422 | 1,345,056 | U | U | U | U | U |
| Operating expenses ($ thousands) | | | | | | | | | | | | | | | | | | | |
| Intercity bus, Class *I*[2,a] | 405,400 | 639,000 | 1,318,372 | 1,026,213 | 1,289,834 | 1,253,537 | 941,014 | 1,022,680 | 1,016,208 | 1,313,900 | 1,078,386 | 1,080,186 | 1,092,596 | 1,321,407 | U | U | U | U | U |
| INVENTORY | | | | | | | | | | | | | | | | | | | |
| Number of operating companies | | | | | | | | | | | | | | | | | | | |
| Intercity bus, Class *I*[2,a] | 143 | 71 | 61 | 31 | 26 | 24 | 20 | 22 | 20 | 18 | 15 | 15 | 16 | 36 | U | U | U | U | U |
| Number of vehicles, all buses[3] | 272,129 | 377,562 | 528,789 | 626,987 | 670,423 | 685,503 | 694,781 | 697,548 | 715,540 | 728,777 | 746,125 | 749,548 | 760,717 | 776,550 | 795,274 | 807,053 | 821,959 | 834,436 | 843,308 |
| Number of employees[4] (SIC based) | | | | | | | | | | | | | | | | | | | |
| Intercity and rural bus transportation | 40,500 | 43,400 | 37,900 | 26,100 | 23,600 | 23,800 | 23,800 | 22,200 | 24,400 | 23,800 | 24,700 | 25,100 | 23,000 | N | N | N | N | N | N |
| School buses | N | N | 79,900 | 111,200 | 125,900 | 131,100 | 132,200 | 136,500 | 141,000 | 146,100 | 146,700 | 147,700 | 148,700 | N | N | N | N | N | N |
| Number of employees[5] (NAICS based) | | | | | | | | | | | | | | | | | | | |
| Interurban and rural bus transportation | 38,200 | 40,900 | 35,800 | 24,600 | 22,300 | 22,500 | 22,500 | 21,000 | 23,000 | 22,500 | 23,400 | 23,600 | 22,800 | 21,900 | 20,100 | 20,200 | 19,600 | U | U |
| School and employee bus transportation | N | N | 81,400 | 114,200 | 130,000 | 135,500 | 136,900 | 141,500 | 146,200 | 151,400 | 152,000 | 153,000 | 161,100 | 164,800 | 166,600 | 168,800 | 172,300 | 176,600 | 182,100 |
| Charter bus industry | N | N | 14,800 | 26,100 | 28,300 | 29,200 | 31,000 | 32,000 | 33,900 | 36,100 | 38,200 | 36,800 | 35,500 | 33,200 | 32,200 | 31,400 | 31,200 | 32,300 | 33,100 |
| PERFORMANCE | | | | | | | | | | | | | | | | | | | |
| Vehicle-miles, all buses (millions)[6] | 4,346 | 4,544 | 6,059 | 5,727 | 6,409 | 6,420 | 6,535 | 6,842 | 7,007 | 7,662 | 7,590 | 7,077 | 6,845 | 6,783 | 6,801 | 6,980 | 6,783 | 6,980 | 7,114 |
| Rural highway, total | 2,332 | 2,549 | 3,035 | 3,444 | 3,730 | 3,854 | 3,933 | 4,109 | 4,251 | 4,667 | 4,489 | 4,165 | (R) 3,941 | (R) 3,806 | (R) 3,691 | (R) 3,667 | 3,521 | 3,723 | 3,819 |
| Interstate rural | N | 339 | 533 | 567 | 683 | 711 | 742 | 794 | 834 | 971 | 978 | 951 | (R) 943 | (R) 995 | (R) 999 | (R) 946 | 950 | 986 | 1,027 |
| Other arterial rural | N | 944 | 991 | 995 | 1,154 | 1,171 | 1,186 | 1,243 | 1,282 | 1,375 | 1,270 | 1,133 | (R) 1,104 | (R) 1,001 | (R) 992 | (R) 973 | 959 | 1,015 | 1,020 |
| Other rural | N | 1,266 | 1,511 | 1,882 | 1,893 | 1,972 | 2,005 | 2,072 | 2,135 | 2,321 | 2,241 | 2,081 | (R) 1,894 | (R) 1,810 | (R) 1,700 | (R) 1,748 | 1,612 | 1,722 | 1,772 |
| Urban highway[b], total | 2,014 | 1,995 | 3,024 | 2,283 | 2,679 | 2,566 | 2,602 | 2,733 | 2,756 | 2,995 | 3,101 | 2,912 | (R) 2,904 | (R) 2,977 | (R) 3,110 | (R) 3,313 | 3,263 | 3,257 | 3,295 |
| Interstate urban | N | 277 | 560 | 455 | 627 | 580 | 599 | 647 | 663 | 752 | 791 | 775 | (R) 803 | (R) 943 | (R) 986 | (R) 1,062 | 1,024 | 1,052 | 1,077 |
| Other urban | N | 1,718 | 2,464 | 1,828 | 2,052 | 1,986 | 2,003 | 2,086 | 2,093 | 2,243 | 2,310 | 2,137 | (R) 2,101 | (R) 2,033 | (R) 2,124 | (R) 2,251 | 2,239 | 2,205 | 2,218 |
| Passenger-miles (millions), all buses[6] | N | N | N | 121,398 | 135,871 | 136,104 | 138,613 | 145,060 | (R) 148,558 | (R) 162,445 | (R) 160,919 | (R) 150,042 | (R) 145,124 | (R) 143,801 | (R) 144,188 | (R) 147,992 | 143,816 | 147,985 | 150,827 |
| Number of revenue passengers (thousands) | | | | | | | | | | | | | | | | | | | |
| Intercity bus, total[2,c] | 366,000 | 401,000 | 370,000 | 334,000 | 343,200 | 366,500 | 347,900 | 350,600 | 357,600 | 358,900 | 364,600 | 356,900 | 585,600 | 547,500 | 534,000 | U | U | U | U |
| Average miles traveled per vehicle, all buses[6] | 15,970 | 12,035 | 11,458 | 9,133 | 9,560 | 9,365 | 9,386 | 9,809 | (R) 9,793 | 10,515 | (R) 10,173 | (R) 9,442 | (R) 8,998 | (R) 8,734 | (R) 8,552 | (R) 8,649 | 8,253 | 8,365 | 8,436 |
| Fuel consumed (million gallons), all buses[6] | 827 | 820 | 1,018 | 895 | 964 | 968 | 985 | 1,027 | 1,040 | 1,148 | (R) 1,112 | (R) 1,026 | (R) 1,000 | (R) 968,945 | (R) 1,360 | (R) 1,120 | 1,148 | 1,145 | 1,110 |
| Average fuel consumption per vehicle (gallons), all buses[6] | 3,039 | 2,172 | 1,925 | 1,427 | 1,438 | 1,412 | 1,414 | 1,472 | 1,454 | 1,576 | (R) 1,490 | (R) 1,369 | (R) 1,314 | (R) 1,248 | (R) 1,710 | (R) 1,388 | 1,397 | 1,372 | 1,316 |
| Average miles traveled per gallon of fuel consumed, all buses[6] | 5.3 | 5.5 | 6.0 | 6.4 | 6.6 | 6.6 | 6.6 | 6.7 | (R) 7 | (R) 7 | (R) 7 | (R) 7 | (R) 7 | 7 | 5.0 | (R) 6 | 5.9 | 6.1 | 6.4 |
| Average revenue per passenger-mile (cents) (intercity)[2,d] | 2.71 | 3.60 | 7.26 | 9.31 | 11.61 | 12.19 | 12.30 | 12.56 | 12.75 | 12.76 | 12.79 | 12.91 | (R) 9.72 | (R) 10.43 | (R) 11.12 | U | U | U | U |
| SAFETY | | | | | | | | | | | | | | | | | | | |
| Number of fatalities[7] | | | | | | | | | | | | | | | | | | | |
| School bus-related | N | N | 150 | 115 | (R) 104 | (R) 121 | 136 | (R) 128 | (R) 126 | (R) 164 | (R) 143 | 141 | (R) 127 | 138 | 130 | 134 | 150 | 141 | 153 |
| School bus occupants | N | N | 9 | 11 | (R) 3 | 13 | 10 | 10 | 6 | 10 | (R) 20 | 18 | 3 | 11 | 7 | 10 | 8 | 5 | 19 |
| Other vehicle | | | | | | | | | | | | | | | | | | | |
| Occupants | N | N | 88 | 64 | 64 | (R) 71 | 101 | (R) 95 | (R) 90 | (R) 126 | (R) 98 | 95 | (R) 98 | 99 | 90 | 87 | 119 | 112 | 105 |
| Nonoccupants | N | N | 53 | 40 | (R) 37 | (R) 37 | 25 | (R) 23 | (R) 30 | (R) 28 | (R) 26 | 28 | 26 | 28 | 33 | 37 | 23 | 24 | 29 |
| Occupant fatalities, all buses[7] | N | N | 46 | 32 | 21 | (R) 32 | 21 | (R) 17 | (R) 36 | (R) 58 | 22 | 34 | 45 | (R) 40 | (R) 41 | 58 | 27 | 37 | 67 |
| School buses | N | N | 14 | 13 | 2 | 12 | 10 | 7 | (R) 4 | 8 | 16 | 16 | 2 | 7 | 7 | 8 | 6 | 3 | 14 |
| Cross country buses | N | N | 23 | 2 | 7 | 6 | 3 | (R) 4 | 13 | 32 | 3 | 3 | 20 | 3 | 23 | 33 | 8 | 19 | 13 |
| Transit buses | N | N | 6 | 3 | 6 | (R) 0 | 5 | 3 | 2 | (R) 5 | 1 | 4 | 6 | 11 | 1 | 3 | 1 | 6 | 23 |
| Other and unknown | N | N | 3 | 14 | 6 | 14 | 3 | (R) 3 | 17 | 13 | 2 | 11 | 17 | 19 | 17 | 14 | 12 | 9 | 17 |
| Fatalities in vehicular accidents[e], all buses[8] | N | N | 390 | 340 | 286 | 311 | 367 | 339 | 329 | 373 | 357 | 331 | 331 | 337 | 315 | 340 | 337 | 325 | 307 |
| Occupant fatality rate | | | | | | | | | | | | | | | | | | | |
| Per 100 million vehicle-miles, all buses[7] | N | N | 0.8 | 0.6 | 0.3 | 0.5 | 0.3 | 0.2 | 0.5 | 0.8 | 0.3 | 0.5 | 0.7 | 0.6 | 0.6 | 0.8 | 0.4 | 0.5 | 0.9 |
| Per 10,000 registered vehicles, all buses[3,7] | N | N | 0.9 | 0.5 | 0.3 | 0.5 | 0.3 | 0.2 | 0.5 | 0.8 | 0.3 | 0.5 | 0.6 | 0.5 | 0.5 | 0.7 | 0.3 | 0.4 | 0.8 |
| Vehicle involvement rate (fatal crashes) | | | | | | | | | | | | | | | | | | | |
| Per 100 million vehicle-miles, all buses[8] | N | N | 6.4 | 5.9 | 4.5 | 4.8 | 5.6 | 5.0 | 4.7 | 4.9 | 3.8 | 3.1 | 5.0 | 4.3 | 4.1 | 4.0 | 4.5 | 4.0 | 3.5 |
| Per 10,000 registered vehicles, all buses[3,8] | N | N | 7.4 | 5.4 | 4.3 | 4.5 | 5.3 | 4.9 | 4.6 | 5.2 | 3.9 | 2.9 | 4.5 | 3.7 | 3.5 | 3.5 | 3.7 | 3.4 | 2.9 |

**KEY:** N = data do not exist; R = revised; U = data are unavailable.

[a] In 2003, the Federal Motor Carrier Safety Administration implemented a program to improve reporting by Class I intercity bus carriers. This accounts for the large increase in *Number of operating companies* between 2002 and 2003, and as a result the large increase in *Operating revenues* and *Operating expenses*. For all years, New Jersey Transit has been excluded from the totals because of its status as a publicly run carrier.
[b] Urban consists of travel on all roads and streets in urban places of 5,000 or greater population.

[c] *Number of revenue passengers* data for 1960 to 1980 are for both regular route and charter buses of all classes. 1990 to 2001 data are for regular route and charter Class I Carriers only. For 2002 to 2004, this category includes charter, tour, sightseeing, airport shuttle, contract and private commuters, and scheduled services.
[d] *Average revenue per passenger mile* data for 2002 to 2004 is Greyhound Lines passenger service revenue per passenger-mile.
[e] Includes all fatalities that occurred in an accident in which a bus was involved.

**NOTE**
See transit profile for transit bus data.

**SOURCES**
[1] 1960-99: Eno Transportation Foundation, *Transportation In America, with Historical Compendium* (Washington, DC: 2001).
2000-01: Ibid., *Transportation in America, 19th Edition* (Washington, DC: 2002)

[2] 1960-95: Interstate Commerce Commission, *Annual Report of the ICC* (Washington, DC: Annual Issues), Appendix F, tables 1 and 6.
1996-2002: U.S. Department of Transportation, Bureau of Transportation Statistics, *Selected Earnings Data*, *Class I Motor Carriers of Passengers* (Washington, DC: Annual Issues).
2003: U.S. Department of Transportation, Federal Motor Carrier Safety Administration, personal communication, Feb. 16, 2005.

[3] U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics* (Washington, DC: Annual Issues), table MV-10, available at http://www.fhwa.dot.gov/policyinformation/ as of July 13, 2010.

[4] 1960-2002: U.S. Department of Labor, Bureau of Labor Statistics, *Employment, Hours, and Earnings from the Current Employment Statistics Survey*. SIC codes: "413 Intercity and rural bus transportation" and "415 School buses," available at http://www.bls.gov/data/archived.htm as of January 2005.

[5] 1960-2008: U.S. Department of Labor, Bureau of Labor Statistics, *Employment, Hours, and Earnings from the Current Employment Statistics Survey* , NAICS codes: "4852 Interurban and rural bus transportation," "4854 School and employee bus transportation," and "4855 Charter bus industry," available at http://www.bls.gov/ces/data.htm as of July 13, 2010.

[6] 1960-95: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics, Summary to 1995*, FHWA-PL-97-009 (Washington, DC: July 1997), table VM-201A, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of July 16, 2010.
1996-2008: Ibid., *Highway Statistics* (Washington, DC: Annual Issues), table VM-1, available at http://www.fhwa.dot.gov/policyinformation/ as of July 13, 2010.

[7] U.S. Department of Transportation, National Highway Traffic Safety Administration, *Traffic Safety Facts* (Washington, DC: Annual Issues), tables 75 and 95 and similar tables in previous issues, available at http://www-nrd.nhtsa.dot.gov/Cats/listpublications.aspx?Id=E&ShowBy=DocType as of July 13, 2010.

[8] U.S. Department of Transportation, Federal Motor Carrier Safety Administration, *Large Truck and Bus Crash Facts 2008*, table 25, available at http://www.fmcsa.dot.gov/facts-research/art-public-reports.aspx as of Feb. 19, 2010.

**Transit Profile**

| FINANCIAL | 1960 | 1970 | 1980 | 1990 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | (R) 2002 | (R) 2003 | (R) 2004 | (R) 2005 | (R) 2006 | (R) 2007 | 2008 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Passenger operating revenues[1], total ($ millions) | 1,407 | 1,707 | 6,510 | 16,053 | 17,968 | 18,241 | (R) 17,964 | (R) 18,310 | (R) 19,031 | (R) 20,400 | (R) 21,774 | (R) 23,503 | 24,186 | 25,433 | 26,792 | 28,597 | 32,074 | 33,717 | 36,462 |
| Operating revenues, total | 1,407 | 1,707 | 2,805 | 6,786 | (R) 7,398 | (R) 8,069 | (R) 9,790 | (R) 10,218 | (R) 10,565 | (R) 11,128 | (R) 11,585 | (R) 11,861 | 11,906 | 12,731 | 13,171 | 13,696 | 16,315 | 15,345 | 16,084 |
| Passenger fares, total | 1,335 | 1,639 | (R) 2,557 | 5,891 | 6,756 | 6,801 | (R) 6,965 | (R) 7,127 | (R) 7,276 | (R) 7,504 | (R) 7,811 | (R) 8,133 | 8,144 | 8,510 | 9,009 | 9,470 | 11,819 | 10,625 | 11,426 |
| Motor bus | 910 | 1,194 | 1,791 | 2,967 | 3,250 | 3,287 | U | U | U | U | U | U | 3,603 | 3,691 | 3,835 | 4,044 | 5,961 | 4,469 | 4,726 |
| Heavy rail | 270 | 369 | 717 | 1,741 | 1,976 | 2,018 | U | U | U | U | U | U | 2,492 | 2,654 | 2,903 | 3,007 | 3,218 | 3,346 | 3,639 |
| Light rail | 74 | 47 | 31 | 83 | 135 | 127 | U | U | U | U | U | U | 226 | 229 | 233 | 249 | 293 | 309 | 368 |
| Trolley bus | 81 | 30 | 26 | 46 | 55 | 54 | U | U | U | U | U | U | 59 | 53 | 55 | 57 | 60 | 59 | 63 |
| Demand responsive | U | U | U | 41 | 171 | 146 | U | U | U | U | U | U | 184 | 176 | 180 | 193 | 209 | 207 | 216 |
| Ferryboat[a] | U | U | U | 56 | 41 | 60 | U | U | U | U | U | U | 63 | 86 | 91 | 93 | 71 | 117 | 119 |
| Commuter rail | U | U | U | 952 | 1,083 | 1,078 | U | U | U | U | U | U | 1,447 | 1,551 | 1,614 | 1,727 | 1,860 | 1,979 | 2,161 |
| Other[b] | U | U | 3 | 6 | 46 | 31 | U | U | U | U | U | U | 69 | 69 | 98 | 101 | 148 | 141 | 133 |
| Other operating revenue | 72 | 68 | 248 | 895 | (R) 642 | (R) 1,268 | (R) 2,825 | (R) 3,091 | (R) 3,288 | (R) 3,624 | (R) 3,774 | (R) 3,728 | 3,762 | 4,221 | 4,163 | 4,225 | 4,497 | 4,720 | 4,657 |
| Operating assistance[c], total | U | U | 3,705 | 9,267 | (R) 10,570 | (R) 10,172 | (R) 8,174 | (R) 8,092 | (R) 8,467 | (R) 9,271 | (R) 10,190 | (R) 11,643 | 12,281 | 12,702 | 13,621 | 14,901 | 15,759 | 18,371 | 20,378 |
| State and local | U | U | 2,611 | 8,297 | (R) 9,655 | (R) 9,355 | (R) 7,621 | (R) 7,488 | (R) 7,725 | (R) 8,411 | (R) 9,205 | (R) 10,525 | 10,979 | 11,106 | 11,597 | 12,658 | 13,235 | 15,831 | 17,811 |
| Federal | U | U | 1,094 | 970 | 916 | 817 | (R) 554 | (R) 604 | (R) 741 | (R) 860 | (R) 984 | (R) 1,117 | 1,302 | 1,596 | 2,024 | 2,243 | 2,523 | 2,540 | 2,568 |
| Operating expenses[2], total ($ millions) | 1,377 | 1,996 | 6,711 | 15,742 | 17,920 | 17,849 | 16,302 | 16,963 | 17,580 | 18,781 | 20,009 | 21,529 | 22,933 | 24,185 | 25,427 | 27,238 | 29,025 | 31,304 | 33,479 |
| Motor bus | U | U | U | 8,903 | 10,144 | 10,321 | 8,996 | 9,422 | 9,713 | 10,342 | 11,026 | 11,814 | 12,613 | 13,316 | 13,790 | 14,666 | 15,796 | 16,812 | 17,963 |
| Heavy rail | U | U | U | 3,825 | 3,786 | 3,523 | 3,402 | 3,474 | 3,530 | 3,693 | 3,931 | 4,180 | 4,267 | 4,446 | 4,734 | 5,145 | 5,287 | 5,888 | 6,129 |
| Light rail | U | U | U | 237 | 413 | 376 | 440 | 471 | 493 | 536 | 597 | 676 | 778 | 815 | 887 | 978 | 1,070 | 1,163 | 1,259 |
| Trolley bus | U | U | U | 109 | 133 | 139 | 135 | 140 | 146 | 167 | 177 | 172 | 187 | 183 | 185 | 196 | 197 | 199 | 214 |
| Demand responsive | U | U | U | 518 | 943 | 1,000 | 750 | 873 | 995 | 1,104 | 1,225 | 1,410 | 1,636 | 1,779 | 1,902 | 2,071 | 2,286 | 2,539 | 2,861 |
| Ferryboat[a] | U | U | U | 171 | 200 | 210 | 188 | 201 | 210 | 226 | 242 | 290 | 314 | 318 | 304 | 332 | 367 | 429 | 507 |
| Commuter rail | U | U | U | 1,939 | 2,228 | 2,211 | 2,294 | 2,275 | 2,355 | 2,569 | 2,679 | 2,852 | 2,995 | 3,173 | 3,436 | 3,657 | 3,765 | 4,001 | 4,294 |
| Other[b] | U | U | U | 41 | 73 | 69 | 98 | 108 | 137 | 144 | 131 | 133 | 143 | 156 | 188 | 193 | 256 | 274 | 253 |
| Average passenger revenue per passenger-mile[3], all modes ($) | U | U | 0.06 | 0.14 | 0.17 | 0.17 | 0.18 | 0.18 | 0.17 | 0.17 | 0.17 | 0.17 | 0.18 | 0.19 | 0.19 | 0.20 | 0.24 | 0.20 | 0.21 |
| Motor bus | U | U | 0.08 | 0.14 | 0.17 | 0.17 | U | U | U | U | U | U | 0.18 | 0.19 | 0.20 | 0.21 | 0.29 | 0.22 | 0.22 |
| Heavy rail | U | U | 0.07 | 0.15 | 0.19 | 0.19 | U | U | U | U | U | U | 0.18 | 0.20 | 0.20 | 0.21 | 0.22 | 0.21 | 0.22 |
| Light rail | U | U | 0.08 | 0.14 | 0.16 | 0.15 | U | U | U | U | U | U | 0.16 | 0.16 | 0.15 | 0.15 | 0.16 | 0.16 | 0.18 |
| Trolley bus | U | U | 0.12 | 0.24 | 0.29 | 0.29 | U | U | U | U | U | U | 0.32 | 0.30 | 0.32 | 0.33 | 0.37 | 0.38 | 0.39 |
| Demand responsive | U | U | U | 0.09 | 0.30 | 0.24 | U | U | U | U | U | U | 0.28 | 0.25 | 0.26 | 0.26 | 0.28 | 0.27 | 0.26 |
| Ferryboat[a] | U | U | U | 0.20 | 0.16 | 0.23 | U | U | U | U | U | U | 0.21 | 0.24 | 0.25 | 0.26 | 0.20 | 0.31 | 0.31 |
| Commuter rail | U | U | U | 0.13 | 0.14 | 0.13 | U | U | U | U | U | U | 0.15 | 0.16 | 0.17 | 0.18 | 0.18 | 0.18 | 0.20 |
| Other[b] | U | U | 0.01 | 0.05 | 0.20 | 0.11 | U | U | U | U | U | U | 0.10 | 0.11 | 0.13 | 0.12 | 0.17 | 0.15 | 0.12 |
| Average passenger fare, per unlinked trip[4], all modes ($) | 0.14 | 0.22 | 0.30 | 0.67 | 0.85 | 0.88 | (R) 0.92 | (R) 0.89 | (R) 0.90 | (R) 0.88 | (R) 0.90 | (R) 0.90 | 0.90 | 0.96 | 1.01 | 1.03 | 1.26 | 1.07 | 1.11 |
| Motor bus | U | U | 0.31 | 0.52 | 0.67 | 0.68 | U | U | U | U | U | U | 0.68 | 0.72 | 0.75 | 0.77 | 1.13 | 0.85 | 0.87 |
| Heavy rail | U | U | 0.34 | 0.74 | 0.91 | 0.99 | U | U | U | U | U | U | 0.93 | 0.99 | 1.06 | 1.07 | 1.10 | 0.97 | 1.03 |
| Light rail | U | U | 0.23 | 0.47 | 0.48 | 0.50 | U | U | U | U | U | U | 0.67 | 0.68 | 0.67 | 0.65 | 0.72 | 0.74 | 0.82 |
| Trolley bus | U | U | 0.18 | 0.36 | 0.46 | 0.45 | U | U | U | U | U | U | 0.51 | 0.49 | 0.52 | 0.54 | 0.60 | 0.61 | 0.63 |
| Demand responsive | U | U | U | 0.60 | 1.94 | 1.66 | U | U | U | U | U | U | 2.33 | 2.15 | 2.17 | 2.22 | 2.36 | 2.28 | 2.26 |
| Ferryboat[a] | U | U | U | (R) 1.12 | 0.87 | (R) 1.28 | U | U | U | U | U | U | 1.25 | 1.43 | 1.58 | 1.59 | 1.26 | 1.90 | 1.94 |
| Commuter rail | U | U | U | 2.90 | 3.19 | 3.13 | U | U | U | U | U | U | 3.49 | 3.79 | 3.90 | 4.08 | 4.22 | 4.32 | 4.58 |
| Other[b] | U | U | 0.75 | (R) 0.20 | (R) 1.41 | (R) 0.95 | U | U | U | U | U | U | 1.06 | 1.06 | 1.15 | 1.18 | 1.73 | 1.67 | 1.63 |

| INVENTORY | 1960 | 1970 | 1980 | 1990 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | (P) 2008 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number of systems[d,5], total | 1,286 | 1,096 | 1,055 | 5,078 | 5,973 | 5,973 | 5,973 | 5,973 | 5,975 | 6,000 | 6,000 | 6,000 | 6,000 | 5,804 | 6,429 | 6,429 | 6,435 | 7,700 | 7,700 |
| Motor bus | 1,236 | 1,075 | 1,022 | 2,688 | 2,250 | 2,250 | 2,250 | 2,250 | 2,250 | 2,262 | 2,262 | 2,264 | 2,264 | 1,982 | 1,500 | 1,500 | 1,500 | 1,200 | 1,086 |
| Heavy rail | 31 | 15 | 11 | 12 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 15 | 15 | 15 | 15 |
| Light rail | – | – | 9 | 17 | 22 | 22 | 22 | 22 | 22 | 24 | 25 | 26 | 27 | 27 | 29 | 29 | 33 | 33 | 33 |
| Trolley bus | 19 | 6 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 4 | 4 | 4 | 4 | 4 | 5 |
| Demand responsive | U | U | U | 3,893 | 5,214 | 5,214 | 5,214 | 5,214 | 5,214 | 5,252 | 5,252 | 5,251 | 5,251 | 5,346 | 5,960 | 5,960 | 5,960 | 7,300 | 7,200 |
| Ferryboat[a] | U | U | 16 | 27 | 25 | 25 | 25 | 25 | 25 | 30 | 33 | 42 | 42 | 46 | 47 | 47 | 47 | 39 | 32 |
| Commuter rail | U | U | 18 | 14 | 16 | 16 | 16 | 16 | 18 | 20 | 19 | 21 | 20 | 21 | 21 | 22 | 22 | 22 | 23 |
| Other[b] | U | U | 5 | 35 | 68 | 69 | 73 | 69 | 70 | 81 | 81 | 82 | 82 | 86 | 85 | 87 | 87 | 97 | 100 |
| Number of vehicles[6], total | 65,292 | 61,350 | 75,388 | 93,430 | 116,416 | 116,341 | (R) 93,675 | (R) 98,381 | (R) 100,346 | (R) 103,308 | (R) 106,136 | (R) 111,266 | (R) 112,104 | (R) 114,932 | (R) 117,402 | (R) 121,912 | (R) 125,647 | (R) 125,607 | 129,286 |
| Motor bus | 49,600 | 49,700 | 59,411 | 58,714 | 68,123 | 67,107 | (R) 53,339 | (R) 54,946 | (R) 55,661 | (R) 57,352 | (R) 58,578 | (R) 60,256 | (R) 60,719 | (R) 61,659 | (R) 61,318 | (R) 62,284 | (R) 64,025 | (R) 63,359 | 63,151 |
| Heavy rail | 9,010 | 9,338 | 9,641 | 10,567 | 10,282 | 10,166 | 10,243 | 10,228 | 10,296 | 10,362 | 10,311 | 10,718 | 10,849 | 10,754 | 10,858 | 11,110 | 11,052 | 11,222 | 11,377 |
| Light rail | 2,856 | 1,262 | 1,013 | 910 | 1,051 | 1,048 | (R) 1,097 | (R) 1,062 | (R) 1,061 | (R) 1,160 | (R) 1,306 | (R) 1,359 | (R) 1,448 | (R) 1,482 | (R) 1,622 | (R) 1,645 | (R) 1,801 | (R) 1,802 | 1,948 |
| Trolley bus | 3,826 | 1,050 | 823 | 610 | 643 | 695 | 675 | 655 | 646 | 657 | 652 | 600 | 616 | 672 | 597 | 615 | 609 | 559 | 590 |
| Demand responsive | U | U | U | 16,471 | 28,729 | 29,352 | (R) 17,738 | (R) 19,820 | (R) 20,042 | (R) 20,761 | (R) 22,087 | (R) 24,668 | (R) 24,808 | (R) 25,873 | (R) 26,333 | (R) 28,346 | (R) 29,406 | (R) 29,433 | 30,773 |
| Ferryboat[a] | U | U | U | 108 | 110 | 112 | (R) 84 | (R) 87 | (R) 97 | (R) 101 | (R) 98 | (R) 109 | (R) 106 | (R) 108 | (R) 115 | (R) 126 | (R) 116 | (R) 130 | 131 |
| Commuter rail[e] | U | U | 4,500 | 4,982 | 5,126 | 5,164 | (R) 5,239 | (R) 5,425 | (R) 5,535 | (R) 5,549 | (R) 5,497 | (R) 5,528 | (R) 5,631 | (R) 5,866 | (R) 6,130 | (R) 6,290 | (R) 6,300 | (R) 6,279 | 6,494 |
| Other[b] | U | U | U | 1,068 | 2,352 | 2,697 | (R) 5,260 | (R) 6,158 | (R) 7,008 | (R) 7,366 | (R) 7,607 | (R) 8,028 | (R) 7,927 | (R) 8,518 | (R) 10,429 | (R) 11,496 | (R) 12,338 | (R) 12,823 | 14,822 |
| Number of employees[f,7], total | 156,400 | 138,040 | 189,300 | 262,176 | 294,087 | 300,491 | 314,944 | 320,759 | 327,752 | 337,885 | 347,841 | 357,266 | 360,722 | 337,982 | 345,871 | 354,458 | 357,484 | 382,673 | 387,155 |
| Motor bus | 121,300 | 101,598 | U | 162,189 | 174,373 | 181,973 | 190,152 | 196,861 | 198,644 | 204,179 | 211,095 | 214,674 | 214,825 | 205,478 | 212,122 | 217,332 | 221,302 | 188,644 | 192,213 |
| Heavy rail | 35,100 | 36,442 | U | 46,102 | 51,062 | 45,644 | 45,793 | 45,935 | 45,163 | 46,311 | 47,087 | 47,865 | 48,464 | 48,327 | 47,211 | 47,806 | 48,323 | 55,164 | 49,982 |
| Light rail | + | + | U | 4,066 | 5,140 | 4,935 | 5,728 | 5,940 | 6,024 | 6,058 | 6,572 | 7,021 | 7,598 | 7,619 | 8,184 | 8,181 | 8,448 | 9,930 | 9,939 |
| Trolley bus | + | + | U | 1,925 | 1,848 | 1,871 | 2,084 | 2,037 | 2,053 | 2,140 | 2,223 | 2,008 | 2,027 | 1,964 | 1,928 | 1,942 | 1,845 | 1,792 | 1,832 |
| Demand responsive | U | U | U | 22,740 | 35,450 | 39,882 | 44,667 | 44,029 | 48,406 | 51,186 | 52,021 | 55,846 | 56,746 | 42,935 | 43,642 | 46,624 | 46,178 | 91,394 | 99,323 |
| Ferryboat[a] | U | U | U | 2,813 | 2,764 | 2,829 | 2,932 | 3,586 | 3,632 | 4,125 | 2,682 | 4,820 | 5,441 | 5,536 | 5,970 | 5,871 | 4,539 | 4,079 | 4,165 |
| Commuter rail | U | U | U | 21,443 | 22,596 | 22,320 | 22,604 | 21,651 | 22,488 | 22,896 | 23,518 | 23,851 | 24,391 | 24,813 | 25,296 | 25,321 | 25,314 | 28,983 | 27,144 |
| Other[b] | U | U | U | 898 | 854 | 1,037 | 984 | 720 | 1,342 | 990 | 2,643 | 1,181 | 1,230 | 1,312 | 1,518 | 1,382 | 1,535 | 2,687 | 2,557 |

| PERFORMANCE | 1960 | 1970 | 1980 | 1990 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle-miles[8], total (millions) | 2,143 | 1,883 | 2,287 | 3,242 | 3,468 | 3,550 | 3,082 | 3,201 | 3,347 | 3,500 | 3,605 | 3,735 | 3,855 | 3,915 | 3,972 | 4,054 | 4,127 | 4,238 | 4,375 |
| Motor bus | 1,576 | 1,409 | 1,677 | 2,130 | 2,162 | 2,184 | 1,813 | 1,849 | 1,904 | 1,985 | 2,041 | 2,104 | 2,156 | 2,177 | 2,169 | 2,192 | 2,214 | 2,241 | 2,272 |
| Heavy rail | 391 | 407 | 385 | 537 | 532 | 537 | 543 | 558 | 566 | 578 | 595 | 608 | 621 | 630 | 642 | 646 | 652 | 657 | 674 |
| Light rail | 75 | 34 | 18 | 24 | 34 | 35 | 37 | 41 | 43 | 48 | 52 | 54 | 61 | 64 | 67 | 69 | 74 | 84 | 88 |
| Trolley bus | (R) 101 | 33 | 13 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 15 | 13 | 14 | 14 | 13 | 13 | 12 | 11 | 12 |
| Demand responsive | U | U | U | 306 | 464 | 507 | 363 | 410 | 469 | 494 | 532 | 578 | 613 | 640 | 651 | 683 | 708 | 752 | 803 |
| Ferryboat[a] | U | U | 2 | 2 | 2 | 3 | 2 | 2 | 2 | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Commuter rail | U | U | 179 | 213 | 231 | 238 | 242 | 251 | 259 | 266 | 271 | 277 | 284 | 286 | 295 | 303 | 315 | 325 | 337 |
| Other[b] | U | U | 13.4 | 16.3 | 29.5 | 34.2 | 67.7 | 77.0 | 89.8 | 112.2 | 96.8 | 99.5 | 103.9 | 100.8 | 130.7 | 144.3 | 149.3 | 163 | 187 |
| Unlinked passenger trips[9], total (millions) | 9,395 | 7,332 | 8,567 | 8,799 | 7,949 | 7,763 | 7,565 | 7,982 | 8,115 | 8,523 | 8,720 | 9,008 | 9,018 | 8,876 | 8,937 | 9,176 | 9,379 | 9,948 | 10,257 |
| Motor bus | 6,425 | 5,034 | 5,837 | 5,677 | 4,871 | 4,848 | 4,506 | 4,602 | 4,754 | 4,992 | 5,040 | 5,215 | 5,269 | 5,146 | 5,094 | 5,227 | 5,274 | 5,278 | 5,448 |
| Heavy rail | 1,850 | 1,881 | 2,108 | 2,346 | 2,169 | 2,033 | 2,157 | 2,429 | 2,393 | 2,521 | 2,632 | 2,728 | 2,688 | 2,668 | 2,748 | 2,808 | 2,927 | 3,460 | 3,547 |
| Light rail | 463 | 235 | 133 | 175 | 284 | 251 | 259 | 259 | 273 | 289 | 316 | 334 | 337 | 338 | 350 | 381 | 407 | 418 | 451 |
| Trolley bus | 657 | 182 | 142 | 126 | 118 | 119 | 117 | 121 | 117 | 120 | 122 | 119 | 116 | 109 | 106 | 107 | 100 | 97 | 101 |
| Demand responsive | U | U | U | 68 | 88 | 88 | 55 | 88 | 66 | 69 | 73 | 77 | 79 | 82 | 83 | 87 | 88 | 91 | 96 |
| Ferryboat[a] | U | U | 63 | 50 | 47 | 47 | 43 | 42 | 48 | 50 | 47 | 48 | 50 | 60 | 57 | 59 | 56 | 61 | 62 |
| Commuter rail | U | U | 280 | 328 | 339 | 344 | 352 | 357 | 381 | 396 | 413 | 418 | 414 | 410 | 414 | 423 | 441 | 458 | 471 |
| Other[b] | U | U | 4 | 29 | 33 | 33 | 76 | 83 | 84 | 88 | 76 | 69 | 65 | 65 | 85 | 85 | 86 | 84 | 81 |
| Passenger-miles[10], total (millions) | U | U | 39,854 | 41,143 | 39,585 | 39,808 | 38,984 | 40,180 | 41,605 | 43,279 | 45,100 | 46,508 | 46,096 | 45,677 | 46,546 | 47,125 | 49,504 | 51,873 | 53,712 |
| Motor bus | U | U | 21,790 | 20,981 | 18,832 | 18,818 | 16,802 | 17,509 | 17,874 | 18,684 | 18,807 | 19,583 | 19,679 | 19,179 | 18,921 | 19,425 | 20,390 | 20,388 | 21,198 |
| Heavy rail | U | U | 10,558 | 11,475 | 10,668 | 10,559 | 11,530 | 12,056 | 12,284 | 12,902 | 13,844 | 14,178 | 13,663 | 13,606 | 14,354 | 14,418 | 14,721 | 16,138 | 16,850 |
| Light rail | U | U | 381 | 571 | 833 | 860 | 955 | 1,024 | 1,115 | 1,190 | 1,339 | 1,427 | 1,432 | 1,476 | 1,576 | 1,700 | 1,866 | 1,930 | 2,081 |
| Trolley bus | U | U | 219 | 193 | 187 | 187 | 184 | 189 | 182 | 186 | 192 | 187 | 188 | 176 | 173 | 173 | 164 | 156 | 161 |
| Demand responsive | U | U | N | 431 | 577 | 607 | 391 | 531 | 513 | 559 | 588 | 626 | 651 | 689 | 704 | 738 | 753 | 778 | 844 |
| Ferryboat[a] | U | U | N | 286 | 260 | 260 | 255 | 254 | 280 | 295 | 298 | 295 | 301 | 367 | 357 | 359 | 360 | 381 | 390 |
| Commuter rail | U | U | 6,516 | 7,082 | 7,996 | 8,244 | 8,350 | 8,037 | 8,702 | 8,764 | 9,400 | 9,544 | 9,500 | 9,555 | 9,715 | 9,470 | 10,359 | 11,137 | 11,032 |
| Other[b] | U | U | 390 | 124 | 232 | 273 | 516 | 579 | 654 | 699 | 632 | 668 | 683 | 629 | 745 | 842 | 891 | 966 | 1,156 |
| Average trip length[11], all modes (miles) | U | U | 4.7 | 4.7 | 5.0 | 5.1 | 5.2 | 5.0 | 5.1 | 5.1 | 5.2 | 5.2 | 5.1 | 5.1 | 5.2 | 5.1 | 5.3 | 5.2 | 5.2 |
| Motor bus | U | U | 3.7 | 3.7 | 3.9 | 3.9 | 3.7 | 3.8 | 3.8 | 3.7 | 3.7 | 3.8 | 3.7 | 3.7 | 3.7 | 3.7 | 3.9 | 3.9 | 3.9 |
| Heavy rail | U | U | 5.0 | 4.9 | 4.9 | 5.2 | 5.3 | 5.0 | 5.1 | 5.1 | 5.3 | 5.2 | 5.1 | 5.1 | 5.2 | 5.1 | 5.0 | 4.7 | 4.8 |
| Light rail | U | U | 2.9 | 3.3 | 2.9 | 3.4 | 3.7 | 3.9 | 4.1 | 4.1 | 4.2 | 4.3 | 4.3 | 4.4 | 4.5 | 4.5 | 4.6 | 4.6 | 4.6 |
| Trolley bus | U | U | 1.5 | 1.5 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 |
| Demand responsive | U | U | U | 6.3 | 6.6 | 6.9 | 7.2 | 6.0 | 7.8 | 8.1 | 8.0 | 8.2 | 8.3 | 8.4 | 8.5 | 8.5 | 8.5 | 8.5 | 8.8 |
| Ferryboat[a] | U | U | U | U | 5.7 | 6.0 | 5.9 | 6.0 | 5.8 | 6.0 | 6.3 | 6.1 | 6.0 | 6.1 | 6.2 | 6.1 | 6.4 | 6.2 | 6.3 |
| Commuter rail | U | U | 23.3 | 21.6 | 23.6 | 24.0 | 23.7 | 22.5 | 22.9 | 22.1 | 22.8 | 22.8 | 22.9 | 23.3 | 23.5 | 22.4 | 23.5 | 24.3 | 23.4 |
| Vanpool | U | U | U | U | 32.4 | 35.0 | 34.6 | 33.2 | 36.5 | 34.4 | 34.6 | 38.4 | 37.2 | 33.1 | 30.8 | 33.9 | 33.7 | 34.6 | 33.2 |
| Other[9] | U | U | 5.8 | 5.2 | 0.5 | 0.7 | 3.6 | 3.6 | 3.7 | 3.8 | 3.5 | 3.7 | 4.3 | 3.6 | 4.1 | 3.8 | 3.1 | 3.0 | 3.2 |
| Average vehicle speed[12], all modes (miles per hour) | U | U | U | U | 14.7 | 15.0 | (R) 14.9 | (R) 14.9 | (R) 15.2 | (R) 14.9 | (R) 14.7 | 14.7 | 14.8 | 14.7 | 14.6 | 14.8 | 14.7 | 14.0 | **14.9** |
| Motor bus | U | U | U | U | 13.0 | 13.0 | (R) 13.1 | 13.0 | 13.0 | (R) 12.9 | (R) 12.8 | 12.8 | 12.8 | 12.7 | 12.6 | 12.7 | 12.6 | 12.6 | 12.6 |
| Heavy rail | U | U | U | U | 20.7 | 21.0 | (R) 20.7 | (R) 20.7 | (R) 20.5 | (R) 20.5 | (R) 20.4 | 20.4 | 20.2 | 20.6 | 20.4 | 20.0 | 20.0 | 20.1 | 20.2 |
| Light rail | U | U | U | U | 14.4 | 14.0 | (R) 14.1 | (R) 15.5 | (R) 15.7 | (R) 15.4 | (R) 15.3 | 15.1 | 15.3 | 15.7 | 15.5 | 14.9 | 14.7 | 15.1 | 15.0 |
| Trolley bus | U | U | U | U | 8.2 | 8.0 | (R) 7.7 | (R) 7.4 | (R) 7.7 | (R) 7.6 | (R) 7.3 | 7.1 | 7.4 | 7.4 | 7.9 | 7.4 | 7.4 | 7.2 | 7.2 |
| Demand responsive | U | U | U | U | 14.0 | 15.0 | (R) 14.7 | (R) 15.3 | (R) 16.5 | (R) 14.7 | (R) 14.7 | 14.5 | 14.7 | 14.5 | 14.4 | 14.7 | 14.6 | 12.1 | 14.6 |
| Ferryboat[a] | U | U | U | U | 8.4 | 6.0 | 7.0 | 7.0 | 8.0 | 8.0 | 8.0 | 8.0 | 8.3 | 8.7 | 8.4 | 8.3 | 9.1 | 9.7 | 9.8 |
| Commuter rail | U | U | U | U | 33.8 | 34.0 | (R) 33.1 | (R) 33.8 | (R) 31.8 | (R) 32.9 | (R) 28.5 | 31.6 | 31.7 | 31.7 | 31.5 | 31.6 | 31.4 | 31.4 | 31.2 |
| Vanpool | U | U | U | U | 32.6 | 35.0 | 37.0 | 36.0 | 37.0 | 38.0 | 31.0 | 38.8 | 38.2 | 32.7 | 37.6 | 38.1 | 38.3 | 38.8 | 39.5 |
| Other[9] | U | U | U | U | 5.7 | 6.0 | 17.6 | 16.5 | 18.5 | 21.1 | 16.9 | 21.3 | 20.8 | 18.0 | 20.0 | 21.8 | 22.5 | 15.4 | 16.5 |
| Energy consumption, diesel[13], total (million gallons) | 208 | 271 | 431 | 651 | 678 | 678 | 535 | 539 | 560 | 576 | 591 | 596 | 673 | 554 | 542 | 480 | 528 | 515 | 499 |
| Motor bus | U | U | U | 563 | 565 | 564 | 466 | 463 | 468 | 477 | 490 | 492 | 468 | 442 | 441 | 375 | 422 | 405 | 403 |
| Heavy rail | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Light rail | NA | NA | NA | NA | NA | NA | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | NA |
| Trolley bus | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Demand responsive | U | U | U | 15 | 30 | 29 | 6 | 7 | 10 | 11 | 13 | 15 | 14 | 26 | 17 | 18 | 18 | 16 | 16 |
| Ferryboat[a] | U | U | U | 20 | 21 | 22 | 20 | 21 | 21 | 23 | 25 | 25 | 25 | 26 | 25 | 25 | 24 | 28 | 26 |
| Commuter rail | U | U | U | 53 | 62 | 63 | 43 | 48 | 62 | 65 | 63 | 64 | 165 | 60 | 59 | 62 | 64 | 66 | 54 |
| Other[b] | U | U | U | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z |
| Energy consumption, other[14], total (million gallons) | 192 | 69 | 11 | 33 | 65 | 71 | 37 | 45 | 51 | 56 | 67 | 79 | 101 | 106 | 117 | 175 | 158 | 159 | 181 |
| Gasoline and other nondiesel fuels[h] | 192 | 68 | 11 | 33 | 60 | 61 | 25 | 26 | 22 | 21 | 24 | 26 | 35 | 27 | 31 | 81 | 47 | 51 | 68 |
| Compressed natural gas | U | U | U | U | 5 | 11 | 11 | 19 | 29 | 35 | 44 | 53 | 66 | 79 | 87 | 94 | 111 | 108 | 113 |
| Energy consumption, electric power[15], total (million kWh) | 2,908 | 2,561 | 2,446 | 4,837 | 5,081 | 5,068 | 4,923 | (R) 4,908 | 4,962 | 5,126 | 5,382 | 5,485 | 5,527 | 5,508 | 5,655 | 5,764 | 5,769 | 6,214 | 6,336 |
| Motor bus | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 3 | 1 | 2 | 1 | 1 | 1 | 0 |
| Heavy rail | 2,098 | 2,261 | U | 3,284 | 3,431 | 3,401 | 3,332 | 3,253 | 3,280 | 3,384 | 3,549 | 3,646 | 3,683 | 3,632 | 3,684 | 3,752 | 3,692 | 3,800 | 3,881 |
| Light rail | 393 | 157 | U | 239 | 282 | 288 | 319 | 360 | 376 | 408 | 450 | 476 | 503 | 500 | 537 | 554 | 605 | 654 | 682 |
| Trolley bus | 417 | 143 | U | 69 | 103 | 100 | 69 | 78 | 74 | 75 | 77 | 74 | 73 | 69 | 68 | 67 | 62 | 61 | 62 |
| Demand responsive | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | Z | Z |
| Ferryboat[a] | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Commuter rail | U | U | U | 1,226 | 1,244 | 1,253 | 1,186 | 1,202 | 1,216 | 1,241 | 1,288 | 1,272 | 1,252 | 1,288 | 1,350 | 1,375 | 1,393 | 1,683 | 1,694 |
| Other[b] | U | U | U | 19 | 21 | 26 | 16 | 15 | 15 | 16 | 16 | 16 | 16 | 17 | 17 | 16 | 16 | 16 | 17 |

| SAFETY[k] | 1960 | 1970 | 1980 | 1990 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | **2008** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fatalities, all modes[16] | U | U | U | 339 | 320 | 274 | 264 | 275 | 286 | 299 | 295 | 267 | 280 | 234 | 248 | 236 | 227 | 284 | 252 |
| Transit highway-rail grade crossing fatalities[l, 17] | U | U | U | U | U | 17 | 7 | 12 | 26 | 21 | 20 | 13 | 24 | 21 | 29 | 23 | 21 | 44 | 27 |
| Other transit fatalities | U | U | U | U | U | 257 | 257 | 263 | 260 | 278 | 275 | 254 | 256 | 213 | 219 | 213 | 206 | 240 | 225 |
| Injured persons, all modes[l, 16] | U | U | U | 54,556 | 58,193 | 57,196 | 55,288 | 56,132 | 55,990 | 55,325 | 56,697 | 53,945 | 19,260 | 18,235 | 18,982 | 18,131 | 19,238 | 20,944 | 25,584 |
| Transit highway-rail grade crossing injuries[l, 17] | U | U | U | U | U | 195 | 184 | 126 | 58 | 159 | 123 | 74 | 108 | 117 | 153 | 194 | 172 | 224 | 308 |
| Other transit injuries | U | U | U | U | U | 57,001 | 55,104 | 56,006 | 55,932 | 55,166 | 56574 | 53871 | 19152 | 18118 | 18,829 | 17,937 | 19,066 | 20,720 | 25,276 |
| Incidents, all modes[16] | U | U | U | 90,163 | 70,693 | 62,471 | 59,392 | 61,561 | 60,094 | 58,703 | 59,898 | 58,149 | 30,331 | 19,797 | 20,939 | 21,016 | 22,275 | 22,718 | 22,261 |
| Transit highway-rail grade crossing incidents[l, 17] | U | U | U | U | U | 127 | 134 | 119 | 106 | 140 | 148 | 101 | 398 | 276 | 311 | 504 | 131 | 134 | 245 |
| Other transit incidents | U | U | U | U | U | 62,344 | 59,258 | 61,442 | 59,988 | 58,563 | 59,750 | 58,048 | 29,933 | 19,521 | 20,628 | 20,512 | 22,144 | 22,584 | 22,016 |
| Major incidents[j] | U | U | U | U | U | U | U | U | U | U | U | U | 2,282 | 1,913 | 2,515 | 3,335 | 2,505 | 2,839 | 4,300 |

**KEY:** ~ = included in heavy rail figure; + = included in motor bus figure; kWh = kilowatt hours; NA = not applicable; P = preliminary; R = revised; U = data are unavailable; Z = a value too small to report.

[a] Excludes international, rural, rural interstate, island and urban park ferries.

[b] Includes aerial tramway, automated guideway transit, cable car, inclined plane, monorail, publico*vanpool*, jitney and Alaska railroad.

[c] Beginning in 1992, *local operating assistance* and *other revenue* declined by about $500 million due to a change in accounting procedures at the New York City Transit Authority. Beginning in 1992, *total operating expense* declined by about $400 million due to a change in accounting procedures at the New York City Transit Authority.

[d] Total is not the sum of all modes since many providers operate more than one mode.

[e] Includes locomotives which make up roughly 10 percent of*commuter rail* vehicles.

[f] Based on employee equivalents of 2,080 hours equals one employee; beginning in 1993, based on number of actual employees.

[g] Includes cable car, inclined plane, aerial tramway, monorail, automated guideway, publico, jitney and Alaska railroad.

[h] Liquefied natural gas, liquefied petroleum gas, methanol, propane, and other nondiesel fuels, except compressed natural gas.

[i] Beginning in 2002, the Federal Transit Administration changed the reporting threshold for injuries. Before 2002, essentially all injuries had to be reported to the National Transit Database. Beginning in 2002, only those injuries requiring immediate medical attention away from the scene of the incident are required to be reported.

[j] From 2002 through 2007, the Federal Transit Administration defined major incidents as safety and/or security incidents resulting in: a fatality, two or more injuries transported for immediat medical treatment away from the scene, grade crossing collisions with injury or $7500 in total damage, rail transit vehicle collisions resulting in one or more injuries, main-line derailments and evacuations due to life safety reasons. Since 2008, reported property damages were equal to or greater than $25,000 and major incidents were reclassified as reportable incidents requiring one or more injuries transported for immediate medical treatment away from the scene.

[k] These data are for *motor bus*, *commuter rail*, *heavy rail*, *light rail*, *automated guideway*, *demand response*, and *vanpool*.

[l] *Transit highway-rail grade crossing fatalities*, *injuries*, and *incidents* are the result of public transit rail mode operations excluding*commuter rail*. Almost all transit highway-rail crossings are light rail crossings. The heavy rail system in Chicago has 5 crossings. For the most part heavy rail operates on rights-of-way that do not include crossings.

**NOTES**

Data may not add to total due to independent rounding.

Beginning in 1996, *Operating expenses*, *Vehicle miles*, *Unlinked passenger trips*, *Passenger miles*, *Average trip length* and *Energy consumption* data are obtained from Federal Transit Administration and are not comparable with earlier years.

Beginning in 2002 passenger fare by mode, other operating revenue and operating assistance data are obtained from Federal Transit Administration and are not comparable with earlier years.

Incident figures include collisions with vehicles, objects, and people, derailments / vehicles going off the road. Accident figures do not include fires and personal casualties. The drop in the number of *injuries* and *incidents* in 2002 is largely due to a change in definitions by the Federal Transit Administration, particularly the definition of*injuries*. Beginning in 2002, only*injuries* requiring immediate medical treatment away from the scene qualified as reportable.

For 2007, the Federal Transit Authority (FTA) collected and made available data for rural agencies for the first time. Based on this survey, the American Public Transportation Association reassessed the distribution of motor bus and paratransit service. Due to this redistribution, data for 2007 and later for the number of*motor buses*, paratransit (*demand responsive*), *other* categories and the number of employees for these modes are not comparable with earlier years.

Energy consumption for purchased transport is not included.

*Other operating revenue* includes *other revenue*, *non-transported funds* and *dedicated and other directly generated funds*

**SOURCES**

Unless otherwise noted, refer to chapter tables for sources.

[1] 1960-95: American Public Transportation Association,*2010 Public Transportation Fact Book Historical Tables*(Washington, DC: Annual Issues), tables 41, 42 and similar tables in earlier years.

[1] 1996-2008: U.S. Department of Transportation, Federal Transit Administration,*National Transit Database* (Washington, D.C.: Annual Reports), available at http://www.ntdprogram.gov/ntdprogram/data.htm as of Sept. 28, 2010.

[2] 1960-95: American Public Transportation Association,*2010 Public Transportation Fact Book Historical Tables*(Washington, DC: Annual Issues), table 38 and similar tables in earlier years.

[2] 1996-2008: U.S. Department of Transportation, Federal Transit Administration,*National Transit Database* (Washington, D.C.: Annual Reports), available at http://www.ntdprogram.gov/ntdprogram/data.htm as of Sept. 20, 2010.

[3] 1960-2001: American Public Transportation Association,*2010 Public Transportation Fact Book Historical Tables*(Washington, DC: Annual Issues), tables 45 to 52 and similar tables in earlier years.

[3] 2002-08: U.S. Department of Transportation, Federal Transit Administration,*National Transit Database* (Washington, D.C.: Annual Reports), available at http://www.ntdprogram.gov/ntdprogram/data.htm as of Sept. 20, 2010.

[4] 1960-2001: American Public Transportation Association,*2010 Public Transportation Fact Book Historical Tables*(Washington, DC: Annual Issues), tables 45 to 52 and similar tables in earlier years.

[4] 2002-08: U.S. Department of Transportation, Federal Transit Administration,*National Transit Database* (Washington, D.C.: Annual Reports), available at http://www.ntdprogram.gov/ntdprogram/data.htm as of Sept. 20, 2010.

[5] American Public Transportation Association,*2010 Public Transportation Fact Book*; *2010 Public Transportation Fact Book Historical Tables*(Washington, DC: Annual Issues), table 1 and similar tables in earlier years. Historical table 15.

[6] 1960-95: American Public Transportation Association,*2010 Public Transportation Fact Book Historical Tables*(Washington, DC: Annual Issues), table 17 and similar tables in earlier years.

[6] 1996-2008: U.S. Department of Transportation, Federal Transit Administration,*National Transit Database* (Washington, D.C.: Annual Reports), available at http://www.ntdprogram.gov/ntdprogram/data.htm as of Sept. 20, 2010.

[7] American Public Transportation Association,*Public Transportation Fact Book* (Washington, DC: Annual Issues), table 27 and similar tables in earlier years; and*2010 Public Transportation Fact Book Historical Tables*, table 17.

[8] 1960-95: Ibid., American Public Transportation Association,*Public Transportation Fact Book* (Washington, DC: Annual Issues), table 8 and similar tables in earlier years; and*2010 Public Transportation Fact Book Historical Tables*, tables 45 to 52.

[8] 1996-2008: U.S. Department of Transportation, Federal Transit Administration,*National Transit Database* (Washington, D.C.: Annual Reports), available at http://www.ntdprogram.gov/ntdprogram/data.htm as of Sept. 20, 2010.

[9] 1960-95: American Public Transportation Association,*Public Transportation Fact Book* (Washington, DC: Annual Issues), table 5 and similar tables in earlier years; and*2010 Public Transportation Fact Book Historical Tables*, tables 45 to 52.

[9] 1996-2008: U.S. Department of Transportation, Federal Transit Administration,*National Transit Database* (Washington, D.C.: Annual Reports), available at http://www.ntdprogram.gov/ntdprogram/data.htm as of Sept. 22, 2010

[10] 1960-95: American Public Transportation Association,*Public Transportation Fact Book* (Washington, DC: Annual Issues), table 6 and similar tables in earlier years; and*2010 Public Transportation Fact Book Historical Tables*, tables 45 to 52.

[10] 1996-2008: U.S. Department of Transportation, Federal Transit Administration,*National Transit Database* (Washington, D.C.: Annual Reports), available at http://www.ntdprogram.gov/ntdprogram/data.htm as of Sept. 20, 2010.

[11] 1960-95: American Public Transportation Association,*Public Transportation Fact Book* (Washington, DC: Annual Issues), table 7 and similar tables in earlier years; and*2010 Public Transportation Fact Book Historical Tables*, table 3.

[11] 1996-2008 U.S. Department of Transportation, Federal Transit Administration,*National Transit Database* (Washington, D.C.: Annual Reports), available at http://www.ntdprogram.gov/ntdprogram/data.htm as of Sept. 20, 2010.

[12] American Public Transportation Association,*Public Transportation Fact Book* (Washington, DC: Annual Issues), table 8 and similar tables in earlier years; and*2010 Public Transportation Fact Book Historical Tables*, table 10.

[12] 1960-95: American Public Transportation Association,*Public Transportation Fact Book* (Washington, DC: Annual Issues), table 15 and similar tables in earlier years; and*2010 Public Transportation Fact Book Historical Tables*, table 30.

[12] 1996-2008: U.S. Department of Transportation, Federal Transit Administration,*National Transit Database* (Washington, D.C.: Annual Reports), available at http://www.ntdprogram.gov/ntdprogram/data.htm as of Sept. 20, 2010.

[14] 1960-95: American Public Transportation Association,*Public Transportation Fact Book* (Washington, DC: Annual Issues), table 15 and similar tables in earlier years; and*2010 Public Transportation Fact Book Historical Tables*, table 31.

[14] 1996-2008: U.S. Department of Transportation, Federal Transit Administration,*National Transit Database* (Washington, D.C.: Annual Reports), available at http://www.ntdprogram.gov/ntdprogram/data.htm as of Sept. 20, 2010.

[15] 1960-95: American Public Transportation Association,*Public Transportation Fact Book* (Washington, DC: Annual Issues), table 15 and similar tables in earlier years; and*2010 Public Transportation Fact Book Historical Tables*, table 29.

[15] 1996-2008: U.S. Department of Transportation, Federal Transit Administration,*National Transit Database* (Washington, D.C.: Annual Reports), available at http://www.ntdprogram.gov/ntdprogram/data.htm as of Sept. 26, 2010.

[16] 1960-2006:***Fatalities and Injured persons:*** U.S. Department of Transportation, Federal Transit Administration,*Transit Safety and Security Statistics and Analysis Annual Report*(previously Safety Management Information Statistics - SAMIS), available at http://transit-safety.volpe.dot.gov/Data/samis/default.asp as of Feb. 22, 2010. 2007-08: U.S. Department of Transportation, Federal Transit Administration, Office of Program Management, personal communication, Jan. 08, 2010 and Sept. 17, 2010.

[16] 1960-2005:***Incidents:*** U.S. Department of Transportation, Federal Transit Administration,*Transit Safety and Security Statistics and Analysis Annual Report*(previously Safety Management Information Statistics - SAMIS), available at http://transit-safety.volpe.dot.gov/Data/samis/default.asp as of Feb. 22, 2010. 2006-08: U.S. Department of Transportation, Federal Transit Administration, Office of Program Management, personal communication, Mar. 08, 2010 and Sept. 17, 2010.

[17] U.S. Department of Transportation, Federal Transit Administration, Office of Program Management, personal communications, Sept. 5, 2007; Jan. 8, 2010, Mar. 8, 2010 and Sept. 17, 2010.

## Rail Profile

| FINANCIAL | 1960 | 1970[f] | 1980 | 1990 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | (R) 2005 | 2006 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Class I [a,1] | | | | | | | | | | | | | | | | | |
| Operating revenues, total ($ millions) | 9,514 | 11,992 | 28,258 | 28,370 | 30,809 | 32,280 | 32,693 | 33,118 | 33,151 | 33,521 | 34,102 | 34,576 | 35,327 | 36,639 | 40,517 | 46,118 | 52,152 |
| Passenger | 640 | 421 | 446 | 94 | 88 | 89 | 59 | 60 | 61 | 61 | 62 | 62 | 61 | 62 | 63 | 65 | 70 |
| Freight | 8,025 | 10,922 | 26,350 | 27,471 | 29,931 | 31,356 | 31,889 | 32,322 | 32,247 | 32,680 | 33,083 | 33,533 | 34,110 | 35,413 | 39,131 | 44,457 | 50,315 |
| Other | 849 | 649 | 1,462 | 805 | 790 | 835 | 745 | 736 | 843 | 780 | 957 | 981 | 1,155 | 1,164 | 1,323 | 1,597 | 1,767 |
| Operating expenses ($ millions)[b] | 8,775 | 11,478 | 26,355 | 24,652 | 25,511 | 27,897 | 26,331 | 27,291 | 27,916 | 28,011 | 29,040 | 29,164 | 29,592 | 31,440 | 35,107 | 37,843 | 40,980 |
| Amtrak[c,2] | | | | | | | | | | | | | | | | | |
| Total revenue ($ millions) | N | 162 | 429 | 1,308 | 1,413 | 1,490 | 1,550 | 1,669 | 2,244 | 2,011 | 2,111 | 2,109 | 2,228 | (R) 1,994 | (R) 1,865 | 1,886 | 2,042 |
| Total expenses ($ millions) | N | 301 | 1,103 | 2,012 | 2,246 | 2,257 | 2,258 | 2,359 | 2,548 | 2,660 | 2,876 | 3,288 | 3,224 | (R) 3,100 | (R) 2,950 | 2,940 | 3,005 |
| INVENTORY | | | | | | | | | | | | | | | | | |
| Class I [a,1] | | | | | | | | | | | | | | | | | |
| Number of vehicles, total | (R) 1,994,517 | (R) 1,811,258 | (R) 1,738,921 | (R) 1,231,096 | (R) 1,210,917 | (R) 1,237,739 | (R) 1,259,842 | (R) 1,290,103 | (R) 1,335,928 | (R) 1,389,092 | (R) 1,400,824 | (R) 1,333,881 | (R) 1,320,176 | (R) 1,299,751 | (R) 1,309,935 | 1,335,024 | 1,370,239 |
| Class I freight cars | 1,658,292 | 1,423,921 | 1,168,114 | 658,902 | 590,930 | 583,486 | 570,865 | 568,493 | 575,604 | 579,140 | 560,154 | 499,860 | 477,751 | 467,063 | 473,773 | 474,839 | 475,415 |
| Other nonclass I freight cars | 307,194 | 360,260 | 542,713 | 553,359 | 601,482 | 635,441 | 669,708 | 701,926 | 740,063 | 789,696 | 820,642 | 814,276 | 821,919 | 811,917 | 814,147 | 837,406 | 871,092 |
| Number of Locomotives | 29,031 | 27,077 | 28,094 | 18,835 | 18,505 | 18,812 | 19,269 | 19,684 | 20,261 | 20,256 | 20,028 | 19,745 | 20,506 | 20,771 | 22,015 | 22,779 | 23,732 |
| Number of companies | 106 | 71 | 38 | 14 | 12 | 11 | 10 | 9 | 9 | 9 | 8 | 8 | 7 | 7 | 7 | 7 | 7 |
| Number of employees | 780,494 | 566,282 | 458,994 | 216,424 | 189,962 | 188,215 | 181,809 | 177,981 | 178,222 | 177,557 | 168,360 | 162,155 | 157,372 | 154,652 | 157,699 | 162,438 | 167,581 |
| Miles of road owned | 207,334 | 196,479 | 164,822 | 119,758 | 109,332 | 108,264 | 105,779 | 102,128 | 100,570 | 99,430 | 99,250 | (R) 97,817 | (R) 100,125 | (R) 99,126 | (R) 97,662 | 95,830 | 94,614 |
| Amtrak | | | | | | | | | | | | | | | | | |
| Number of passenger vehicles[3] | | | | | | | | | | | | | | | | | |
| Train-cars | N | 1,569 | 2,128 | 1,863 | 1,852 | 1,722 | 1,730 | 1,728 | 1,962 | 1,992 | 1,894 | 2,084 | 2,896 | 1,623 | 1,211 | 1,186 | 1,191 |
| Locomotives | N | 185 | 419 | 318 | 338 | 313 | 299 | 332 | 345 | 329 | 378 | 401 | 372 | 442 | 276 | 258 | 319 |
| Number of employees[4] | N | 1,500 | 21,416 | 24,000 | 25,049 | 23,646 | 23,278 | 23,555 | 24,528 | 25,291 | 25,624 | 27,316 | 22,649 | 20,905 | 20,938 | 19,234 | 18,659 |
| System route mileage[5] | N | N | 24,000 | 24,000 | 25,000 | 24,000 | 25,000 | 25,000 | 22,000 | 23,000 | 23,000 | 23,000 | 23,000 | 22,675 | 22,256 | 22,007 | 21,708 |
| PERFORMANCE | | | | | | | | | | | | | | | | | |
| Class I[a] | | | | | | | | | | | | | | | | | |
| Car mileage, freight (thousands)[1] | 28,170,000 | 29,890,000 | 29,277,000 | 26,159,000 | 28,485,000 | 30,383,000 | 31,715,000 | 31,660,000 | 32,657,000 | 33,851,000 | 34,590,000 | 34,243,000 | 34,680,000 | 35,555,000 | 37,071,000 | 37,712,000 | 38,955,000 |
| Train mileage, freight (thousands)[1] | 404,464 | 427,065 | 428,498 | 379,582 | 440,896 | 458,271 | 468,792 | 474,954 | 474,947 | 490,442 | 504,001 | 499,546 | 499,668 | 515,999 | 534,696 | 547,566 | 562,607 |
| Locomotive mileage, total (thousands)[6] | N | N | 1,531,050 | 1,280,365 | 1,404,706 | 1,444,691 | 1,465,149 | 1,423,229 | 1,439,703 | 1,503,947 | 1,502,819 | 1,477,546 | 1,443,531 | 1,484,074 | 1,538,385 | U | U |
| Freight | 421,900 | 1,278,200 | 1,319,010 | 1,144,559 | 1,261,482 | 1,293,851 | 1,311,351 | 1,281,768 | 1,285,706 | 1,349,580 | 1,354,590 | 1,327,669 | 1,300,574 | 1,353,885 | 1,398,450 | U | U |
| Train and yard switching | N | N | 212,040 | 135,806 | 143,224 | 150,840 | 153,798 | 141,461 | 153,997 | 154,367 | 148,229 | 149,876 | 142,957 | 130,190 | 139,935 | U | U |
| Revenue ton-miles of freight (millions)[1] | 572,309 | 764,809 | 918,958 | 1,033,969 | 1,200,701 | 1,305,688 | 1,355,975 | 1,348,926 | 1,376,802 | 1,433,461 | 1,465,960 | 1,495,472 | 1,507,011 | 1,551,438 | 1,662,598 | 1,696,425 | 1,771,897 |
| Average length of haul, freight (miles)[1] | 461 | 515 | 616 | 726 | 817 | 843 | 842 | 851 | 835 | 835 | 843 | 859 | 853 | 862 | 902 | 894 | 906 |
| Fuel consumed in freight service (million gallons)[1] | 3,463 | 3,545 | 3,904 | 3,115 | 3,334 | 3,480 | 3,579 | 3,575 | 3,583 | 3,715 | 3,700 | 3,710 | 3,730 | 3,826 | 4,059 | 4,098 | 4,192 |
| Average miles traveled per vehicle | | | | | | | | | | | | | | | | | |
| Car | 14,124 | 16,502 | 16,836 | 21,249 | 23,523 | 24,547 | 25,174 | 24,541 | 24,445 | 24,369 | 24,693 | 25,672 | 26,269 | 27,355 | 28,300 | 28,248 | 28,429 |
| Locomotive | N | N | 54,497 | 67,978 | 75,910 | 76,796 | 76,037 | 72,304 | 71,058 | 74,247 | 75,036 | 74,831 | 70,396 | 71,449 | 69,879 | U | U |
| Average miles traveled per gallon | | | | | | | | | | | | | | | | | |
| Car | 8.13 | 8.43 | 7.50 | 8.40 | 8.54 | 8.73 | 8.86 | 8.86 | 9.11 | 9.11 | 9.35 | 9.23 | 9.30 | 9.29 | 9.13 | 9.20 | 9.29 |
| Train | 0.12 | 0.12 | 0.11 | 0.12 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.14 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 |
| Amtrak | | | | | | | | | | | | | | | | | |
| Passenger train car-miles (millions)[7] | N | 213 | 235 | 301 | 304 | 292 | 276 | 288 | 312 | 342 | 371 | 378 | 379 | 332 | 308 | 265 | 264 |
| Passenger train-miles (millions)[2] | N | 26 | 30 | 33 | 34 | 32 | 30 | 32 | 33 | 34 | 35 | 36 | 38 | 37 | 37 | 36 | 36 |
| Passenger locomotive-miles (millions)[2] | N | N | 41 | 49 | 51 | 48 | U | U | U | U | U | U | U | U | U | U | U |
| Revenue passengers carried (millions)[2] | N | 17 | 21 | 22 | 21 | 21 | 20 | 20 | 21 | 22 | 23 | 24 | 23 | 25 | 25 | 25 | 25 |
| Revenue passenger-miles (millions)[2] | N | 3,039 | 4,503 | 6,057 | 5,921 | 5,545 | 5,050 | 5,166 | 5,304 | 5,330 | 5,498 | 5,559 | 5,314 | 5,680 | 5,511 | 5,381 | 5,410 |
| Average passenger fare (dollars)[2] | N | 8.30 | 17.72 | 38.50 | 39.10 | 39.92 | 43.31 | 45.26 | 44.75 | 46.85 | 49.61 | 51.58 | 56.05 | 57.78 | 56.81 | 58.29 | 65.43 |
| Average passenger revenue / passenger-mile (cents)[2] | N | 4.5 | 8.2 | 14.1 | 14.0 | 14.9 | 16.9 | 17.7 | 17.8 | 18.9 | 20.3 | 21.8 | 24.5 | 25.0 | 26.0 | 27.16 | 29.69 |
| Average passenger trip length (miles)[2] | N | 182.6 | 217.0 | 273.0 | 279.3 | 267.9 | 256.3 | 255.7 | 251.4 | 247.9 | 244.4 | 236.6 | 228.4 | 230.9 | 218.6 | 214.6 | 220.4 |
| Locomotive fuel consumed[8] | | | | | | | | | | | | | | | | | |
| Diesel (million gallons) | N | N | 64 | 82 | 75 | 66 | 71 | 75 | 75 | 74 | 76 | 75 | 86 | 78 | 70 | 68 | U |
| Electric kWh (millions) | N | N | 254 | 330 | 309 | 304 | 293 | 282 | 275 | 283 | 350 | 377 | 593 | 666 | 648 | 500 | U |

| SAFETY [d,9] | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number of fatalities, railroads and grade crossings, total | 2,345 | 2,331 | 1,424 | 1,300 | 1,226 | 1,146 | 1,039 | 1,063 | 1,008 | 932 | 937 | 971 | 951 | (R) 868 | (R) 895 | 887 | 910 |
| Passengers on Trains | 34 | 10 | 4 | 3 | 5 | 0 | 12 | 6 | 4 | 14 | 4 | 3 | 7 | 3 | 3 | 16 | 2 |
| Employees on duty | 215 | 179 | 97 | 40 | 31 | 34 | 33 | 37 | 27 | 31 | 24 | 22 | 20 | 19 | 25 | 25 | 16 |
| Employees not on duty | N | N | 4 | 0 | 0 | 2 | 0 | 0 | 2 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 |
| Trespassers | 637 | 607 | 566 | 700 | 682 | 660 | 620 | 646 | 644 | 570 | 570 | 673 | 646 | 634 | (R) 621 | 600 | 665 |
| Nontrespassers | 1,459 | 1,535 | 746 | 554 | 505 | 443 | 365 | 363 | 326 | 305 | (R) 335 | 269 | (R) 267 | (R) 206 | (R) 242 | 241 | 220 |
| Contractor employees | N | N | 7 | 3 | 3 | 7 | 9 | 11 | 5 | 12 | 3 | 4 | 10 | 5 | 4 | 5 | 7 |
| Grade crossing only | 1,421 | 1,440 | 772 | 698 | 615 | 579 | 488 | 461 | 431 | 402 | 425 | 421 | 357 | 334 | (R) 372 | 358 | 369 |
| Railroad only[5] | 924 | 785 | 645 | 599 | 611 | 567 | 551 | 602 | 577 | 530 | 512 | 550 | 594 | (R) 534 | (R) 523 | 529 | 541 |

**KEY:** kWh = kilowatt-hour; N = data do not exist; R = revised; U = data are not available.

[a] Excluding Amtrak and all non-Class I railroads, except for Section IV.
[b] Operating expenses include equipment, joint facility rents, leased roads and equipment, and all taxes except Federal income.
[c] Data for 2003 indicates operating revenues and expenses instead of total revenues and expenses, the data source has changed.
[d] Safety figures from U.S. Department of Transportation, Federal Railroad Administration are for all railroads.
[e] Figures may not appear directly in data source.
[f] Amtrak data in this column are for 1972, Amtrak's first full year of operation.

**NOTE**
Amtrak figures are based on Amtrak fiscal year (October 1-September 30).

**SOURCES**
(Unless otherwise noted, refer to chapter tables for sources)

[1] Association of American Railroads,*Railroad Facts 2006* (Washington, DC: 2004), pp. 3, 9, 10, 27, 33, 34, 36, 40, 49, 52, 77 and similar pages in earlier issues.

[2] 1970-2006: Amtrak, *National Railroad Passenger Corporation Annual Report, Statistical Appendix to Amtrak Annual Report,* Annual issues.
[3] 1970-80: Amtrak, *National Railroad Passenger Corporation Annual Report,* 1972, 1980, 1990, and 1993-95. 1990-2000: Ibid., *National Railroad Passenger Corporation Annual Report, Statistical Appendix to Amtrak Annual Report,* Annual issues. 2001-05: Association of American Railroads,*Railroad Facts 2006* (Washington, DC, 2006), p.77.

[4] 1970-90: Amtrak, Public Affairs, personal communication. 1994-1997: Ibid.,*National Railroad Passenger Corporation Annual Report,* 1972, 1980, 1990, and 1993-95. 1998-2005: Association of American Railroads,*Railroad Facts 2006* (Washington, DC: 2006), p. 77 and similar pages in earlier issues.

[5] 1980-90: Amtrak, Route Miles by Railroad, Corp. Planning & Development. 1994-2001: Amtrak,*National Railroad Passenger Corporation Annual Report, Statistical Appendix to Amtrak Annual Report,* Annual issues. 2002-05: Association of American Railroads,*Railroad Facts 2006* (Washington, DC, 2006), p. 77.
[6] 1980-2001: Association of American Railroads,*Analysis of Class 1 Railroads* (Washington, DC: Annual issues). 2002-04: Ibid.,*Railroad Ten-Year Trends* (Washington, DC: 2005), pp. 119 and 121, personal communication, Feb. 16, 2005.

[7] 1970-90: Amtrak, *Train Information System Reports.* 1994-99: Amtrak Corporate Reporting, Route Profitability System, Washington DC, personal communication, August 2001. 2000-05: Association of American Railroads,*Railroad Facts 2006* (Washington, DC: 2006), p. 77 and similar pages in earlier issues.

[8] Amtrak General Accounting, Pennsylvania, personal communication, June 1999. 2002-05: Amtrak, personal communications, Dec. 9, 2005 and Dec. 19, 2007

[9] 1960-80: U.S. Department of Transportation, Federal Railroad Administration, Systems Support Division, RRS-22, personal communication. 1990-94: Ibid.*Accident / Incident Bulletin* (Washington, DC: Annual issues), tables 7 and 9. 1995-2005: Ibid.*Interim Railroad Safety Statistics, Annual Report 2005* (Washington, DC: 2005), table 1-3, and similar tables in earlier editions. 2006: Ibid, Office of Safety Analysis, table 4.08, at http://safetydata.fra.dot.gov/OfficeofSafety/Default.asp as of Dec. 12, 2007.

## Water Transport Profile

| FINANCIAL | 1960 | 1970 | 1980 | 1990 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Operating revenues ($ millions)[1] | | | | | | | | | | | | | | | | | |
| Domestic freight, total | 1,722 | 2,070 | 7,219 | 7,940 | 7,745 | 7,712 | 7,283 | 6,940 | 6,824 | 6,795 | 6,930 | 6,235 | U | U | U | U | U |
| Coastal waterways | 747 | 834 | 3,155 | 3,066 | 2,929 | 2,774 | 2,571 | 2,169 | 1,952 | 1,828 | 1,817 | 1,784 | U | U | U | U | U |
| Inland waterways | 461 | 621 | 2,395 | 2,956 | 2,868 | 2,964 | 2,861 | 2,899 | 2,904 | 2,811 | 2,960 | 2,894 | U | U | U | U | U |
| Great Lakes | 227 | 239 | 513 | 615 | 577 | 585 | 572 | 615 | 610 | 549 | 556 | 486 | U | U | U | U | U |
| Locks, channels | 287 | 376 | 1,156 | 1,303 | 1,371 | 1,389 | 1,279 | 1,257 | 1,358 | 1,607 | 1,597 | 1,071 | U | U | U | U | U |
| International freight[a] | 1,765 | 3,187 | 8,279 | 12,181 | 13,405 | 14,997 | 17,281 | 14,091 | 15,679 | 17,699 | 21,740 | 21,397 | U | U | U | U | U |
| Passenger, total | 281 | 287 | 310 | 1,391 | 1,564 | 1,716 | 1,843 | 1,974 | 2,029 | 2,088 | 4,663 | 4,187 | U | U | U | U | U |
| Domestic passenger, intercity | 14 | 12 | 27 | 100 | 121 | 129 | 140 | 141 | 146 | 152 | 156 | 144 | U | U | U | U | U |
| International passenger[b] | 267 | 275 | 283 | 1,291 | 1,443 | 2,026 | 1,703 | 1,833 | 1,883 | 1,936 | 4,507 | 4,043 | U | U | U | U | U |
| Revenues of U.S. commercial fishing fleet-domestic landings ($ millions)[2] | 354 | 613 | 2,237 | 3,522 | 3,809 | 3,770 | 3,487 | 3,448 | 3,128 | 3,467 | 3,549 | 3,228 | 3,092 | (R) 3,348 | 3,756 | 3,942 | 3,993 |
| INVENTORY | | | | | | | | | | | | | | | | | |
| Number of domestic inland vessel operators[c, 3] | 228 | 380 | 403 | 565 | 555 | 557 | 554 | U | U | U | U | U | U | U | U | U | U |
| Number of employees[4] | | | | | | | | | | | | | | | | | |
| Ships, boat building, and repairing[d] | 141,200 | 171,800 | 220,500 | 187,700 | 158,200 | 159,600 | 158,800 | 158,300 | 166,600 | 167,400 | 167,900 | 161,100 | 146,810 | 145,350 | 149,160 | 153,170 | 152,650 |
| Water transportation[d] | N | 212,300 | 211,200 | 176,600 | 172,400 | 174,500 | 174,100 | 178,700 | 181,300 | 185,500 | 193,900 | 192,400 | 145,370 | 145,400 | 145,340 | 154,980 | 160,160 |
| Number of employees[e, f], total[5] | 49,281 | 35,000 | 19,218 | 12,132 | 11,324 | 10,303 | 9,250 | 8,937 | 8,956 | 9,036 | U | U | U | U | U | U | U |
| Passenger / combo | 8,560 | 2,178 | 618 | 642 | 642 | 642 | 321 | 321 | 321 | 321 | U | U | U | U | U | U | U |
| Cargo | 28,668 | 22,257 | 9,878 | 7,019 | 6,056 | 5,400 | 4,964 | 4,831 | 4,924 | 4,757 | U | U | U | U | U | U | U |
| Tankers | 12,053 | 10,567 | 8,722 | 4,471 | 4,626 | 4,261 | 3,965 | 3,785 | 3,711 | 3,958 | U | U | U | U | U | U | U |
| Mileage of commercially navigable channels[1] | 25,000 | 26,000 | 26,000 | 26,000 | 26,000 | 26,000 | 26,000 | 26,000 | 26,000 | 26,000 | 26,000 | 26,000 | U | U | U | U | U |
| Number of vessels[6] | | | | | | | | | | | | | | | | | |
| Total nonself-propelled | 16,777 | 19,377 | 31,662 | 31,017 | 30,723 | 31,360 | 32,811 | 33,011 | 33,509 | 33,387 | 33,152 | 33,042 | 32,381 | 31,335 | 31,296 | 32,052 | U |
| Dry cargo barges and scows | 14,025 | 15,890 | 27,426 | 27,091 | 26,723 | 27,342 | 28,743 | 29,006 | 29,526 | 29,383 | 29,107 | 28,888 | 28,281 | 27,272 | 27,197 | 27,876 | U |
| Tankers | 2,429 | 3,281 | 4,166 | 3,913 | 3,966 | 3,985 | 4,036 | 3,971 | 3,952 | 3,973 | 4,011 | 4,122 | 4,068 | 4,031 | 4,069 | 4,151 | U |
| Railroad car floats | 323 | 206 | 70 | 13 | 34 | 33 | 32 | 34 | 31 | 31 | 34 | 32 | 32 | 32 | 30 | 25 | U |
| Total self-propelled | 6,519 | 6,447 | 7,126 | 8,236 | 8,334 | 8,281 | 8,293 | 8,408 | 8,523 | 8,379 | 8,202 | 8,546 | 8,621 | 8,648 | 8,994 | 8,976 | U |
| Dry cargo / passenger | 1,796 | 1,761 | 2,036 | 2,678 | 2,785 | 2,804 | 2,782 | 2,905 | 2,938 | 2,910 | 2,780 | 2,697 | 2,738 | 2,765 | 2,948 | 2,967 | U |
| Ferries, railroad car | 31 | 17 | 67 | 135 | 175 | 172 | 173 | 183 | 213 | 229 | 292 | 579 | 595 | 607 | 629 | 619 | U |
| Tankers | 489 | 421 | 330 | 213 | 195 | 178 | 161 | 147 | 135 | 142 | 135 | 120 | 108 | 104 | 103 | 100 | U |
| Towboats / tugs | 4,203 | 4,248 | 4,693 | 5,210 | 5,179 | 5,127 | 5,177 | 5,173 | 5,237 | 5,098 | 4,995 | 5,150 | 5,180 | 5,172 | 5,314 | 5,290 | U |
| U.S. merchant marine ships (over 1,000 gross tons) | | | | | | | | | | | | | | | | | |
| Total U. S. flag[7] | 2,926 | 1,579 | 864 | 636 | 543 | 509 | 495 | 477 | 470 | 463 | 454 | 443 | 426 | (R) 418 | 412 | U | U |
| Passenger / cargo | 309 | 171 | 65 | 10 | 13 | 13 | 15 | 14 | 12 | 11 | 11 | 13 | 12 | (R) 15 | 18 | U | U |
| Freighters[9] | 2,138 | 1,076 | 471 | 367 | 308 | 295 | 292 | 288 | 289 | 284 | 286 | 283 | 276 | (R) 209 | 205 | U | U |
| Bulk carriers | 57 | 38 | 20 | 26 | 22 | 20 | 15 | 14 | 15 | 14 | 15 | 17 | 18 | (R) 20 | 20 | U | U |
| Tankers | 422 | 294 | 308 | 233 | 200 | 181 | 173 | 161 | 154 | 154 | 142 | 130 | 120 | (R) 109 | 104 | U | U |
| Privately owned | 1,008 | U | 578 | 408 | 354 | 319 | 302 | 285 | 281 | 277 | U | U | U | U | U | U | U |
| Government owned | 1,918 | U | 286 | 228 | 189 | 190 | 193 | 192 | 189 | 186 | U | U | U | U | U | U | U |
| Number of recreational boats (thousands)[h,8] | 2,500 | 7,400 | 8,578 | 10,996 | 11,430 | 11,735 | 11,878 | 12,313 | 12,566 | 12,738 | 12,782 | 12,876 | 12,854 | 12,795 | 12,781 | 12,942 | 12,746 |

| PERFORMANCE | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ton-miles (thousands)[i, 9] | | | | | | | | | | | | | | | | | |
| Domestic water freight, total | N | 596,195,000 | 921,835,800 | 833,543,800 | 814,919,200 | 807,727,700 | 764,686,500 | 707,409,900 | 672,795,300 | 655,861,500 | 645,799,300 | 621,686,200 | 612,080,500 | 606,146,300 | 621,170 | 591,277 | U |
| Coastwise | N | 359,784,000 | 631,149,200 | 479,133,600 | 457,600,700 | 440,345,100 | 408,086,100 | 349,843,000 | 314,863,900 | 292,730,000 | 283,871,600 | 274,558,800 | 263,688,200 | 278,918,700 | 279,857 | 263,464 | U |
| Internal | N | 155,816,000 | 227,343,000 | 292,393,300 | 297,762,400 | 306,329,100 | 296,790,600 | 294,023,000 | 294,896,400 | 304,724,100 | 302,558,400 | 294,860,900 | 293,410,300 | 278,352,300 | 284,096 | 274,367 | U |
| Lakewise | N | 79,416,000 | 61,747,100 | 60,929,900 | 58,263,400 | 59,703,800 | 58,335,300 | 62,165,900 | 61,654,300 | 57,045,200 | 57,879,100 | 50,853,500 | 53,652,900 | 47,539,400 | 55,733 | 51,924 | U |
| Intraport | N | 1,179,000 | 1,596,400 | 1,087,000 | 1,292,700 | 1,349,600 | 1,474,500 | 1,378,100 | 1,380,700 | 1,362,200 | 1,490,200 | 1,413,000 | 1,329,000 | 1,335,900 | 1,484 | 1,521 | U |
| Tons of freight hauled (thousands) [9] | | | | | | | | | | | | | | | | | |
| Domestic, total | 760,573 | 950,727 | 1,077,483 | 1,122,299 | 1,099,011 | 1,093,035 | 1,100,679 | 1,112,527 | 1,094,112 | 1,061,787 | 1,069,798 | 1,042,472 | 1,021,001 | 1,016,136 | 1,047,088 | 1,028,910 | U |
| Coastwise | 209,197 | 238,440 | 329,609 | 298,637 | 277,029 | 266,612 | 267,389 | 263,146 | 249,633 | 228,802 | 226,938 | 223,606 | 216,396 | 223,458 | 220,557 | 213,668 | U |
| Internal | 291,057 | 472,123 | 534,979 | 622,595 | 618,409 | 620,324 | 622,081 | 630,558 | 625,028 | 624,575 | 628,445 | 619,784 | 608,038 | 609,598 | 626,598 | 623,980 | U |
| Lakewise | 155,109 | 157,059 | 115,124 | 110,159 | 114,777 | 116,127 | 114,870 | 122,734 | 122,156 | 113,887 | 114,352 | 100,002 | 101,466 | 89,776 | 103,533 | 96,226 | U |
| Intraport | 104,193 | 81,475 | 94,184 | 86,378 | 82,870 | 83,104 | 89,011 | 89,816 | 90,077 | 88,650 | 94,558 | 93,222 | 90,004 | 86,909 | 91,267 | 90,166 | U |
| Intraterritory | 1,017 | 1,630 | 3,588 | 4,529 | 5,926 | 6,868 | 7,327 | 6,273 | 7,217 | 5,873 | 5,505 | 5,858 | 5,097 | 6,395 | 5,484 | 4,871 | U |
| Exports, total | 127,961 | 241,629 | 403,883 | 441,586 | 396,246 | 474,700 | 450,794 | 432,313 | 404,708 | 399,996 | 415,042 | 399,011 | 384,350 | 373,324 | 415,786 | 401,827 | U |
| Great Lakes ports | 23,150 | 35,932 | 45,077 | 32,898 | 27,108 | 32,968 | 31,855 | 33,209 | 36,876 | 40,233 | 40,131 | 40,519 | 38,066 | 32,943 | 36,090 | 37,291 | U |
| Coastal ports | 104,810 | 205,698 | 358,806 | 408,688 | 369,138 | 441,732 | 418,940 | 399,104 | 367,831 | 359,763 | 374,911 | 358,491 | 346,284 | 340,381 | 379,697 | 364,536 | U |
| Imports, total | 211,316 | 339,340 | 517,521 | 599,970 | 719,497 | 672,657 | 732,592 | 788,303 | 840,680 | 860,775 | 939,749 | 951,815 | 934,941 | 1,004,791 | 1,089,065 | 1,096,885 | U |
| Great Lakes ports | 12,851 | 26,406 | 15,515 | 17,558 | 23,028 | 18,897 | 24,503 | 24,532 | 25,558 | 22,196 | 23,917 | 21,391 | 21,548 | 23,336 | 26,086 | 24,114 | U |
| Coastal ports | 198,466 | 312,934 | 502,006 | 582,412 | 696,469 | 653,760 | 708,090 | 763,771 | 815,122 | 838,579 | 915,832 | 929,794 | 929,794 | 981,455 | 1,062,979 | 1,072,771 | U |
| Average haul, domestic system (miles)[i, 9] | | | | | | | | | | | | | | | | | |
| Coastwise | 1,496 | 1,509 | 1,915 | 1,604 | 1,652 | 1,652 | 1,526 | 1,330 | 1,261 | 1,279 | 1,251 | 1,228 | 1,219 | 1,248 | 1,269 | 1,233 | U |
| Internal | 282 | 330 | 405 | 470 | 482 | 494 | 477 | 466 | 472 | 488 | 481 | 476 | 483 | 457 | 454 | 440 | U |
| Lakewise | 522 | 506 | 536 | 553 | 508 | 514 | 508 | 507 | 505 | 501 | 506 | 509 | 529 | 530 | 538 | 540 | U |
| Cargo capacity (short tons)[6] | | | | | | | | | | | | | | | | | |
| Total nonself-propelled vessels | 16,355,657 | 24,026,024 | 44,875,116 | (R) 49,066,020 | 49,708,960 | (R) 51,254,259 | 54,086,973 | 54,974,961 | 55,999,952 | 56,468,065 | 56,581,364 | 57,341,226 | 56,721,816 | 55,053,776 | 55,527,696 | 57,035,748 | U |
| Dry cargo barges | 12,147,006 | 17,695,275 | 34,486,851 | 38,189,490 | 38,643,518 | 39,971,443 | 42,748,644 | 43,710,093 | 44,718,691 | 45,049,209 | 44,814,696 | 45,281,492 | 44,688,157 | 43,094,911 | 43,282,387 | 44,777,151 | U |
| Tankers | 4,208,651 | 6,330,749 | 10,388,265 | 10,757,295 | 11,065,442 | 11,169,087 | 11,338,329 | 11,264,868 | 11,281,261 | 11,418,856 | 11,678,593 | 11,957,598 | 11,925,863 | 11,860,144 | 12,158,254 | 12,172,542 | U |
| Total self-propelled vessels | 15,905,881 | 19,284,050 | 23,906,346 | 19,829,011 | 16,867,458 | 15,783,399 | 14,850,253 | 14,161,739 | 12,970,167 | 13,892,574 | 13,458,519 | 12,770,889 | 12,093,812 | 11,804,878 | 12,546,796 | 12,342,584 | U |
| Dry cargo / passenger | 12,188,956 | 10,815,977 | 8,011,587 | 7,147,054 | 7,118,193 | 6,484,707 | 6,208,011 | 6,685,719 | 6,371,425 | 6,928,684 | 6,740,153 | 6,544,807 | 6,452,715 | 6,570,281 | 7,293,500 | 6,614,973 | U |
| Tankers | 3,716,925 | 8,468,073 | 15,894,753 | 12,681,957 | 9,749,265 | 9,298,692 | 8,642,242 | 7,476,020 | 6,598,742 | 6,963,890 | 6,718,366 | 6,226,082 | 5,641,097 | 5,234,597 | 5,253,396 | 5,727,512 | U |
| Fuel consumption (thousand barrels), total[1] | 122,014 | 123,591 | 273,380 | 232,036 | 210,650 | 225,470 | 213,721 | 187,729 | 183,856 | 208,604 | 233,227 | U | U | U | U | U | U |
| Diesel fuel and distillate | 18,730 | 19,503 | 35,201 | 52,310 | 48,260 | 47,098 | 51,848 | 50,180 | 50,609 | 49,157 | 53,843 | U | U | U | U | U | U |
| Residual fuel oil | 94,084 | 89,850 | 213,131 | 148,764 | 141,544 | 153,125 | 138,214 | 114,044 | 110,480 | 133,301 | 152,616 | U | U | U | U | U | U |
| Gasoline | 9,200 | 14,238 | 25,048 | 30,962 | 20,846 | 25,247 | 23,659 | 23,505 | 22,767 | 26,146 | 26,768 | U | U | U | U | U | U |

| SAFETY | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fatalities in waterborne transport (vessel casualties only), total[j,10] | N | 178 | 206 | 85 | 77 | 52 | 55 | 48 | 67 | 51 | 45 | 31 | 61 | 54 | 48 | 45 | 48 |
| Freight ship | N | 30 | 8 | 0 | 0 | 0 | 1 | 2 | 2 | 0 | 0 | 1 | 3 | 3 | 8 | 2 | 1 |
| Tank ship | N | 4 | 4 | 5 | 3 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| Passenger vessel | N | 1 | 5 | 3 | 4 | 4 | 8 | 1 | 3 | 14 | 0 | 3 | 6 | 29 | 9 | 6 | 3 |
| Tug / towboat | N | 22 | 14 | 13 | 1 | 1 | 1 | 3 | 0 | 5 | 0 | 4 | 8 | 0 | 1 | 10 | 6 |
| Offshore supply | N | N | N | 2 | 1 | 2 | 2 | 0 | 6 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| Fishing vessel | N | 77 | 60 | 47 | 48 | 23 | 37 | 22 | 33 | 23 | 28 | 9 | 15 | 14 | 16 | 16 | 19 |
| Recreational vessel | N | N | N | 3 | 13 | 22 | 3 | 7 | 7 | 5 | 10 | 12 | 14 | 1 | 7 | 9 | 12 |
| MODU[k] | N | N | N | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 1 | 0 | 2 | 1 | 0 | 1 |
| Platform | N | N | N | 1 | U | U | U | U | U | 0 | 0 | 0 | 0 | U | U | U | U |
| Freight barge | N | N | N | 0 | 2 | 0 | 0 | 2 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 2 |
| Tank barge | N | N | N | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 2 | 0 | 0 | 0 |
| Miscellaneous | N | 44 | 56 | 11 | 5 | 0 | 3 | 7 | 14 | 3 | 4 | 0 | 2 | 0 | 0 | 1 | 2 |
| Injuries in waterborne transport, total[j,10] | N | 105 | 180 | 175 | 180 | 152 | 229 | 119 | 130 | 136 | 131 | 185 | 187 | 255 | 228 | 140 | 177 |
| Freight ship | N | 14 | 8 | 10 | 6 | 1 | 7 | 3 | 3 | 2 | 4 | 2 | 7 | 12 | 7 | 12 | 19 |
| Tank ship | N | 19 | 9 | 13 | 10 | 8 | 1 | 5 | 6 | 5 | 3 | 3 | 0 | 3 | 7 | 3 | 2 |
| Passenger vessel | N | 10 | 10 | 51 | 43 | 47 | 142 | 36 | 39 | 71 | 50 | 109 | 57 | 140 | 81 | 58 | 63 |
| Tug / towboat | N | 10 | 27 | 19 | 19 | 19 | 16 | 21 | 12 | 13 | 10 | 18 | 17 | 12 | 27 | 20 | 22 |
| Offshore supply | N | N | N | 9 | 2 | 10 | 7 | 3 | 5 | 1 | 5 | 13 | 0 | 5 | 5 | 1 | 6 |
| Fishing vessel | N | 13 | 28 | 31 | 55 | 41 | 36 | 25 | 35 | 19 | 24 | 15 | 41 | 29 | 37 | 29 | 33 |
| Recreational vessel | N | N | N | 2 | 17 | 20 | 9 | 6 | 9 | 11 | 26 | 15 | 14 | 11 | 37 | 8 | 13 |
| MODU[k] | N | N | N | 13 | 0 | 0 | 0 | 3 | 0 | 2 | 0 | 3 | 0 | 19 | 3 | 2 | 2 |
| Platform | N | N | N | 9 | U | U | U | U | U | 1 | 1 | 0 | 0 | U | U | U | U |
| Freight barge | N | N | N | 3 | 4 | 0 | 0 | 5 | 1 | 0 | 2 | 0 | 0 | 0 | 4 | 0 | 0 |
| Tank barge | N | N | N | 3 | 3 | 5 | 2 | 0 | 0 | 2 | 0 | 2 | 0 | 2 | 3 | 1 | 0 |
| Miscellaneous | N | N | 98 | 12 | 21 | 1 | 9 | 12 | 20 | 9 | 6 | 5 | 9 | 14 | 7 | 3 | 6 |
| Fatalities in recreational boating (vessel casualties only), total[8] | 739 | 1,418 | 1,360 | 865 | 748 | 829 | 709 | 821 | 815 | 734 | 701 | 681 | 750 | 703 | 676 | 697 | 710 |
| Air thrust | N | N | N | N | N | 4 | 1 | 6 | 11 | 2 | 4 | 2 | 1 | 6 | 4 | 3 | 3 |
| Propeller | N | N | N | N | N | 475 | 363 | 436 | 462 | 421 | 439 | 326 | 506 | 421 | 433 | 355 | 438 |
| Inboard | N | 119 | 100 | 50 | 36 | N | N | N | N | 50 | 48 | 34 | 60 | 40 | 39 | 24 | 39 |
| Outboard | N | 774 | 609 | 454 | 341 | N | N | N | N | 326 | 328 | 245 | 372 | 320 | 322 | 259 | 301 |
| Inboard / outboard | N | 28 | 47 | 53 | 49 | N | N | N | N | 35 | 49 | 32 | 47 | 47 | 43 | 61 | 69 |
| Jet | N | N | 10 | 25 | 58 | 68 | 61 | 83 | 82 | 75 | 70 | 45 | 75 | 66 | 65 | 72 | 74 |
| Sail | N | 44 | 43 | 20 | 13 | 4 | 8 | 15 | 5 | 7 | 14 | 19 | 3 | 7 | 11 | 21 | 11 |
| Manual (oars, paddle) | N | 205 | 272 | 182 | 140 | 148 | 109 | 150 | 151 | 114 | 137 | 144 | 107 | 113 | 130 | 134 | 135 |
| Other | N | 29 | 14 | 5 | 12 | 8 | 8 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| Propulsion unknown | N | 219 | 265 | 76 | 135 | 122 | 159 | 121 | 104 | 115 | 37 | 145 | 58 | 90 | 33 | 111 | 48 |

**KEY:** N = data do not exist; R = revised; U = data are not available.

[a] The international water freight operating revenues data was revised in *Transportation in America 1998* for all years except 1994 and 1996. Therefore, the international water freight data for years 1994 and 1996 may not be comparable to other years.
[b] Revenues paid by American travelers to U.S. and foreign flag carriers.
[c] Does not include vessel operators whose primary area of operation is fishing, towing, passenger transport, ferrying, or crew boat utility service.
[d] Data for 2002 is based on new NAICS classifications and therefore comparisons between 2002 data and data for prior years may be misleading. Prior to 2002 water transportation was calculated based on SIC classifications and included commercial port, marina, and other employees; excluding employees of not-for-hire private businesses. Data for water transportation in 2002 includes NAICS categories 483100, 483200, 488300. Data for ships, boat building, and repairing is based on the NAICS category 336600.

[e] Estimate based on established active jobs for licensed and unlicensed personnel aboard oceangoing ships of 1,000 gross-tons and over, privately owned and operated, government-owned ships under bare boat charters, ship managers and General Agency Agreement, supplemented by Military Sealift Command employment totals for ships with Civil Service crews.
[f] Data is current as of January 1 of the following year with the exception of 1999 data, which is current as of Apr. 1, 1999. Due to a change in the source's periodicity, the data for 1999 is not comparable to the data from years prior to 1999.
[g] Freighters data include bulk carriers prior to calendar year 1983.
[h] The U.S. Coast Guard changed its methodology for counting the number of recreational boats. Figures cited represent number of numbered boats, not estimates as previously noted for 1960 and 1970.
[i] Does not include intraterritorial traffic (traffic between ports in Puerto Rico and the Virgin Islands, which are considered a single unit).
[j] 1992-2002 data come from the Marine Safety Management Information System. Data for prior years may not be directly comparable. Beginning in 2000, numbers may not add to totals because data is now recorded in a new information system known as MISLE, which does not associate every fatality and injury with a specific vessel.
[k] Mobile Offshore Drilling Units.

**SOURCES**
Unless otherwise noted, refer to chapter tables for sources.

[1] Eno Transportation Foundation Inc., *Transportation in America, 2002* (Washington, DC: 2002), pp. 38, 40, 51, and 58.
[2] U.S. Department of Commerce, National Marine Fisheries Services, *Fisheries of the United States* (Silver Spring, MD: Annual issues), p. 4 and similar pages in earlier editions.
[3] U.S. Department of Transportation, Maritime Administration, MAR-450, personal communication.
[4] 1960-1990: U.S. Department of Labor, Bureau of Labor Statistics, *Employment, Hours and Earnings, United States, 1909-1994* (Washington, DC: September 1994) and *1988-1996* (Washington, DC: August 1996), SICs 373 and 44. 1994-2006: Ibid., Internet website http://www.bls.gov as of November 2007.
[5] U.S. Department of Transportation, Maritime Administration, *U.S. Merchant Marine Data Sheet* (Washington, DC: Annual issues).
[6] 1960-1998: U.S. Army Corps of Engineers, *Summary of U.S. Flag Passenger & Cargo Vessels* (New Orleans, LA: Annual issues). 1999-2005: Ibid., *Waterborne Transportation Lines of the United States* (New Orleans, LA: Annual issues) part 1, section 1, table 1 and 2.
[7] U.S. Department of Transportation, Maritime Administration, *Merchant Fleets of the World* (Washington, DC: Annual issues), and unpublished revisions.
[8] U.S. Coast Guard, *Boating Statistics* (Washington, DC: Annual issues).
[9] U.S. Army Corps of Engineers, *Waterborne Commerce of the United States* (New Orleans, LA: Annual issues), part 5, section 1, tables 2, 3, and 4.

[10] 1970-A321990: U.S. Coast Guard, Office of Investigations and Analysis, G-MAO-2, personal communication. 1994-2006: Ibid., Data Administration Division (G-MRI-1), personal communication, Feb. 13, 2002, July 2, 2003 and August 29, 2007.

## Oil Pipeline Profile

| FINANCIAL | 1960 | 1970 | 1980 | 1990 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Operating revenues, total ($ millions) | 895 | 1,396 | 7,548 | 8,506 | 8,676 | 9,077 | 8,637 | 8,632 | 8,579 | 9,067 | 8,958 | 9,066 | U | U | U | U | U | U | U |
| FERC-regulated | 770 | 1,188 | 6,340 | 7,164 | 7,353 | 7,751 | 7,310 | 7,278 | 7,212 | 7,645 | 7,551 | 7,649 | 7,812 | 7,704 | 8,020 | 7,917 | 8,517 | 8,996 | 9,244 |
| Nonregulated | 125 | 208 | 1,208 | 1,342 | 1,323 | 1,326 | 1,327 | 1,354 | 1,367 | 1,422 | 1,407 | 1,417 | U | U | U | U | U | U | U |
| INVENTORY | | | | | | | | | | | | | | | | | | | |
| Number of FERC-regulated companies | 87 | 101 | 130 | 150 | 158 | 161 | 160 | U | U | 184 | U | U | U | 195 | 195 | 197 | U | U | 195 |
| Number of employees, pipeline companies [a] | 23,100 | 17,600 | 21,300 | 18,500 | 17,100 | 15,100 | 14,500 | 14,200 | 13,800 | 13,060 | 13,230 | 13,680 | 12,360 | 12,500 | 12,840 | 13,040 | 12,770 | 13,080 | 14,220 |
| Miles of pipeline (statute miles) [b], all lines | 190,944 | 218,671 | 218,393 | 208,752 | 190,350 | 181,912 | 177,535 | 179,873 | 178,648 | 177,463 | 176,996 | 154,877 | 149,619 | 139,901 | 142,200 | 131,348 | 140,861 | 147,235 | 146,822 |
| Crude lines | 141,085 | 146,275 | 129,831 | 118,805 | 103,277 | 97,029 | 92,610 | 91,523 | 87,663 | 86,369 | 85,480 | 52,386 | 52,854 | 50,149 | 50,749 | 46,234 | 47,617 | 46,658 | 50,214 |
| Product lines | 49,859 | 72,396 | 88,562 | 89,947 | 87,073 | 84,883 | 84,925 | 88,350 | 90,985 | 91,094 | 91,516 | 85,214 | 80,551 | 75,565 | 76,258 | 71,310 | 81,103 | 85,666 | 84,914 |
| PERFORMANCE | | | | | | | | | | | | | | | | | | | |
| Intercity ton-miles, total (millions) | 229,000 | 431,000 | 588,200 | 584,100 | 591,400 | 601,100 | 619,200 | 616,500 | 619,800 | 617,700 | 577,300 | 576,100 | 586,200 | 590,200 | 599,600 | 607,500 | 581,300 | 557,700 | U |
| Crude oil | N | N | 362,600 | 334,800 | 322,600 | 335,900 | 338,300 | 337,400 | 334,100 | 321,100 | 283,400 | 277,000 | 286,600 | 284,500 | 283,700 | 293,500 | 300,500 | 266,600 | U |
| Petroleum products | N | N | 225,600 | 249,300 | 268,800 | 265,200 | 280,900 | 279,100 | 285,700 | 296,600 | 293,900 | 299,100 | 299,600 | 305,700 | 315,900 | 314,000 | 280,800 | 291,100 | U |
| Tons transported (millions) | 468.0 | 790.2 | 921.0 | 1,057.4 | 1,063.6 | 1,074.3 | 1,114.1 | 1,108.0 | 1,116.3 | 1,125.2 | 1,146.8 | 1,123.4 | U | U | U | U | U | U | U |
| Average length of haul (statute miles) | | | | | | | | | | | | | | | | | | | |
| Crude oil | 325 | 300 | 871 | 812 | 778 | 797 | 779 | 781 | 767 | 766 | U | U | U | U | U | U | U | U | U |
| Petroleum products | 269 | 357 | 414 | 387 | 414 | 402 | 413 | 413 | 420 | 418 | U | U | U | U | U | U | U | U | U |
| SAFETY | | | | | | | | | | | | | | | | | | | |
| Fatalities | N | 4 | 4 | 3 | 1 | 3 | 5 | 0 | 2 | 4 | 1 | 0 | 1 | 0 | 5 | 2 | 0 | 4 | 2 |
| Injured persons [c] | N | 21 | 15 | 7 | 7 | 11 | 13 | 5 | 6 | 20 | 4 | 10 | 0 | 5 | 16 | 2 | 2 | 10 | 2 |
| Incidents | N | 351 | 246 | 180 | 245 | 188 | 194 | 171 | 153 | 167 | 146 | 130 | (R) 150 | (R) 134 | (R) 146 | (R) 143 | (R) 120 | 120 | 145 |

**KEY:** FERC = Federal Energy Regulatory Commission; N = data do not exist; R = revised; U = data are unavailable.

[a] Includes companies whose pipelines carry crude petroleum, petroleum products, and nonpetroleum pipeline liquids.

[b] Mileages of oil pipeline for years 1960-2000 include regulated and unregulated trunk and gathering crude lines, as well as refined oil trunk lines. Beginning in 2001, data include information for FERC-regulated oil pipeline companies only. For years 2001 and after, total miles of pipeline include both trunk and gathering lines, whereas the individual components, namely, crude and product lines, include the mileages of trunk lines only. Thus, details do not add to the total for this period.

[c] *Injured persons* does not include the 1,851 injuries that required medical treatment, caused by severe flooding near Houston, Texas, reported for October, 1994.

**NOTE**

The Interstate Commerce Committee regulated oil pipelines in the 1960s and 1970s.

The reporting criteria changed in 2002 adding small spills down to 5 gallons. The change was instituted on Feb. 7, 2002. For continuity with past trending, the data from post-2/7/2002 accidents used in the statistical summary includes only accidents meeting the reporting criteria: Accidents with gross loss greater than or equal to 50 barrels; those involving any fatality or injury; fire/explosion not intentionally set; Highly Volatile Liquid releases with gross loss of 5 or more barrels; or those involving total costs greater than or equal to $50,000.

**SOURCES**

**Financial:**

*Operating revenues, total and nonregulated:*

Eno Transportation Foundation, Inc., *Transportation In America 2002* (Washington, DC: 2002), pp. 38 and 39, and similar tables in earlier editions.

*Operating revenues, FERC-regulated:*

1960-2001: Eno Transportation Foundation, Inc., *Transportation In America 2002* (Washington, DC: 2002), pp. 38 and 39, and similar tables in earlier editions.

2002-2008: PennWell Corporation, *Oil and Gas Journal: Transportation Special Report* (Houston, TX), pp. 63 and similar table in earlier editions.

**Inventory:**

*Number of FERC-regulated companies:*

1960-96: Federal Energy Regulatory Commission, personal communication.

1999: Ibid., available at www.ferc.fed.us/oil/oil_list.htm as of June 21, 2001.

2003: Ibid., available at www.ferc.gov/industries/oil/gen-info/reg-central.asp as of Aug. 26, 2004.

2004: Ibid., available at www.ferc.gov/industries/oil/gen-info/reg-central.asp as of Mar. 16, 2005.

2005: Ibid., available at www.ferc.gov/industries/oil/gen-info/reg-central.asp as of Oct. 27, 2006.

2008: Ibid., available at www.ferc.gov/industries/oil/gen-info/reg-central.asp as of Mar. 09, 2010.

*Number of employees, pipeline companies:*

1960-80: U.S. Department of Labor, Bureau of Labor Statistics, *Employment, Hours and Earnings, United States, 1909-94* (Washington, DC: September 1994), SIC 46.

1990-1994: Ibid., *Hours and Earnings, United States, 1988-1996* (Washington, DC: July 1996), SIC 46.

1995-98: Ibid., available at www.bls.gov, SIC 46, as of Apr. 19, 1999.

1999-2001: Ibid., available at http://www.bls.gov/oes/oes_doc.htm, SIC 46, as of Feb. 22, 2010.

2002-08: Ibid, available at http://www.bls.gov/oes/oes_doc.htm, NAICS 486100 and NAICS 486900, as of Feb. 22, 2010.

*Miles of pipeline (statute miles), all lines:*

1960-2000: Eno Transportation Foundation, Inc., *Transportation In America 2002* (Washington, DC: 2002), pp. 58 and 59, and similar tables in earlier editions.

2001-2008: PennWell Corporation, *Oil and Gas Journal: Transportation Special Report* (Houston, TX), pp. 76 and similar table in earlier editions.

**Performance:**

*Intercity ton-miles, total and tons transported:*

1960-70: Ibid., *Transportation in America, 1998* (Washington, DC: 1998), p. 44 and *Transportation in America, Supplement, 1999* (Washington, DC: 1999).

1980-98: Ibid., *Transportation in America, 2002* (Washington, DC: 2002), p. 53, and similar tables in earlier editions.

1999-2007: Association of Oil Pipe Lines, *Shifts in Petroleum Transportation* (Washington, DC), tables 1, 2 and 3, available at http://www.aopl.org/publications/ as of Feb. 19, 2010.

*Average length of haul:*

1960-70: Ibid., *Transportation In America 1999* (Washington, DC: 1999), p. 71.

1980-99: Ibid., *Transportation In America 2000* (Washington, DC: 2000), p. 51.

**Safety:**

U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration, Office of Pipeline Safety, *Hazardous Liquid Pipeline Operators Accident Summary Statistics*, available at http://ops.dot.gov/stats/lq_sum.htm as of July 15, 2010, and earlier tables for 1970 and 1980 data.

## Natural Gas Pipeline Profile

| FINANCIAL ($ millions) | 1960 | 1970 | 1980 | 1990 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Transmission pipeline companies [1] | | | | | | | | | | | | | | | | |
| Total operating revenues | 3,190 | 5,928 | 41,604 | 21,756 | 13,841 | 12,092 | 12,050 | 10,339 | 9,450 | 9,555 | 10,404 | 10,257 | 10,096 | 10,892 | 11,313 | 16,547 |
| Total operating expenses[a] | 2,698 | 5,088 | 39,709 | 19,484 | 11,333 | 9,534 | 9,603 | 7,862 | 6,875 | 6,897 | 7,856 | 7,296 | 7,369 | 7,822 | 8,284 | 10,336 |
| Operation and maintenance | 2,095 | 4,203 | 36,480 | 17,058 | 8,389 | 6,680 | 6,802 | 5,381 | 4,260 | 4,148 | 5,172 | 4,198 | 4,294 | 4,341 | 4,503 | 6,624 |
| Operation expenses | 2,031 | 4,094 | 36,075 | 16,429 | 7,811 | 6,121 | 6,314 | 4,975 | 3,909 | 3,823 | 4,880 | 3,850 | 3,971 | 3,997 | 4,130 | 6,077 |
| Maintenance expenses | 64 | 109 | 405 | 629 | 578 | 558 | 488 | 406 | 351 | 325 | 292 | 347 | 322 | 344 | 373 | 548 |
| Taxes (federal, state, local)[b] | 319 | 376 | 1,991 | 1,245 | 1,757 | 1,582 | 1,643 | 1,531 | 1,560 | 1,645 | 1,570 | 1,859 | 1,773 | 2,088 | 2,302 | 2,861 |
| Federal taxes | 223 | 202 | 1,327 | 768 | 1,172 | 1,048 | 1,085 | 1,076 | 1,035 | 1,109 | 1,029 | 1,249 | 1,243 | 1,603 | 1,701 | 2,048 |
| State and local taxes | 96 | 174 | 664 | 477 | 585 | 534 | 558 | 455 | 525 | 536 | 541 | 610 | 530 | 485 | 601 | 813 |
| Distribution pipeline companies [2] | | | | | | | | | | | | | | | | |
| Total operating revenues | N | N | 14,013 | 18,750 | 20,911 | 19,421 | 30,407 | 30,864 | 28,182 | 28,135 | 34,696 | 39,179 | 31,210 | 38,199 | (R) 40,410 | 48,957 |
| Total operating expenses[a] | N | N | 13,263 | 17,125 | 19,025 | 17,402 | 27,917 | 27,445 | 25,668 | 24,564 | 32,103 | 36,450 | 28,266 | 35,113 | (R) 37,330 | 44,800 |
| Operation and maintenance | N | N | 11,791 | 14,544 | 15,868 | 14,170 | 23,301 | 23,155 | 21,396 | 20,226 | 27,093 | 31,486 | 23,655 | 29,994 | (R) 32,149 | 40,099 |
| Operation expenses | N | N | 11,539 | 14,020 | 15,279 | 13,575 | 22,433 | 22,388 | 20,710 | 18,270 | 26,271 | 30,776 | 22,902 | 29,236 | (R) 31,355 | 39,236 |
| Maintenance expenses | N | N | 252 | 524 | 589 | 596 | 868 | 767 | 687 | 1,956 | 821 | 710 | 753 | 757 | (R) 794 | 862 |
| Taxes (federal, state, local)[b] | N | N | 1,136 | 1,625 | 1,931 | 1,888 | 2,668 | 2,415 | 2,524 | 2,355 | 2,916 | 2,908 | 2,437 | 2,914 | (R) 2,901 | 3,222 |
| Federal taxes | N | N | 351 | 580 | 703 | 720 | 1,041 | 849 | 1,250 | 883 | 1,033 | 1,216 | 891 | 1,108 | (R) 1,096 | 1,075 |
| State and local taxes | N | N | 785 | 1,045 | 1,228 | 1,168 | 1,627 | 1,566 | 1,274 | 1,472 | 1,883 | 1,692 | 1,546 | 1,806 | (R) 1,805 | 2,147 |
| Investor-owned, total industry [c, 3] | | | | | | | | | | | | | | | | |
| Total operating revenues | N | N | 85,918 | 66,027 | 63,446 | 58,435 | 63,600 | 62,660 | 57,548 | 59,142 | 72,075 | 79,276 | 68,594 | 75,567 | (R) 80,331 | 102,062 |
| Total operating expenses[a] | N | N | 81,789 | 60,137 | 56,789 | 50,594 | 56,695 | 55,422 | 51,075 | 51,331 | 64,961 | 71,011 | 59,839 | 66,623 | (R) 71,699 | 89,334 |
| Operation and maintenance | N | N | 74,508 | 51,628 | 45,953 | 40,041 | 45,785 | 44,851 | 41,360 | 41,415 | 54,630 | 58,908 | 48,675 | 55,067 | (R) 59,952 | 77,710 |
| Operation expenses | N | N | 73,288 | 49,718 | 43,879 | 37,998 | 43,742 | 43,258 | 39,971 | 38,752 | 53,138 | 57,184 | 47,037 | 53,477 | (R) 58,277 | 75,725 |
| Maintenance expenses | N | N | 1,220 | 1,910 | 2,074 | 2,043 | 2,043 | 1,593 | 1,390 | 2,664 | 1,492 | 1,722 | 1,637 | 1,590 | (R) 1,675 | 1,985 |
| Taxes (federal, state, local)[b] | N | N | 4,847 | 4,957 | 6,603 | 5,981 | 6,362 | 6,384 | 5,293 | 5,605 | 6,106 | 7,201 | 5,870 | 6,493 | (R) 6,420 | 7,421 |
| Federal taxes | N | N | 2,327 | 2,038 | 3,112 | 2,511 | 2,932 | 3,066 | 2,631 | 2,626 | 2,690 | 3,133 | 2,624 | 3,315 | (R) 3,188 | 3,643 |
| State and local taxes | N | N | 2,520 | 2,919 | 3,491 | 3,470 | 3,430 | 3,318 | 2,662 | 2,979 | 3,416 | 4,068 | 3,246 | 3,178 | (R) 3,232 | 3,778 |
| INVENTORY | | | | | | | | | | | | | | | | |
| Pipeline mileage, total [4] | 630,950 | 913,267 | 1,051,774 | 1,189,200 | 1,288,400 | 1,277,600 | 1,323,600 | 1,331,800 | 1,351,200 | 1,340,300 | 1,369,300 | 1,373,500 | 1,411,381 | 1,424,177 | 1,462,349 | 1,457,438 |
| Transmission | 183,700 | 252,200 | 266,500 | 292,200 | 301,500 | 296,900 | 292,200 | 294,000 | 300,100 | 301,000 | 296,600 | 287,100 | 309,503 | 303,999 | 298,851 | 296,377 |
| Distribution | 391,400 | 594,800 | 701,800 | 864,600 | 955,600 | 949,800 | 1,001,800 | 1,003,100 | 1,022,100 | 1,007,500 | 1,045,600 | 1,066,300 | 1,079,565 | 1,097,870 | 1,139,756 | 1,117,784 |
| Field and gathering | 55,800 | 66,300 | 83,500 | 32,400 | 31,300 | 30,900 | 29,600 | 34,700 | 29,000 | 31,800 | 27,100 | 20,100 | 22,313 | 22,308 | 23,742 | 23,297 |
| Number of employees [5] | | | | | | | | | | | | | | | | |
| Gas utility industry totals | 206,400 | 211,700 | 215,400 | 204,200 | 187,200 | 179,000 | 179,000 | 154,600 | 154,200 | 143,600 | 135,600 | 135,000 | 140,000 | 129,000 | 130,000 | 131,000 |
| Investor-owned companies[d], total | N | N | 202,700 | 192,100 | 175,700 | 168,900 | 163,400 | 145,400 | 142,400 | 133,100 | 125,100 | 123,000 | 123,000 | 114,000 | 111,000 | 119,000 |
| Transmission pipeline companies | 31,400 | 32,400 | 45,200 | 37,400 | 31,000 | 28,000 | 32,300 | 27,500 | 28,400 | 29,400 | 26,400 | 26,000 | 26,000 | 25,000 | 25,000 | 25,000 |
| Distribution pipeline companies | N | N | 52,100 | 64,700 | 62,400 | 61,600 | 79,700 | 75,000 | 71,300 | 71,400 | 69,500 | 53,000 | 55,000 | 51,000 | 51,000 | 51,000 |
| Integrated pipeline companies | N | N | 53,200 | 39,900 | 39,400 | 36,400 | 12,700 | 12,300 | 12,000 | 6,200 | 6,000 | 5,000 | 6,000 | 5,000 | 4,000 | 4,000 |
| Combination pipeline companies | N | N | 52,200 | 50,100 | 42,900 | 42,900 | 38,700 | 30,600 | 30,700 | 26,100 | 23,200 | 39,000 | 36,000 | 33,000 | 31,000 | 39,000 |
| Number of interstate natural gas pipeline companies[e, 6] | 87 | 89 | 91 | 132 | 79 | 92 | 84 | 101 | 97 | U | U | U | U | U | U | U |
| PERFORMANCE (million cubic ft.) [7] | | | | | | | | | | | | | | | | |
| Marketed production, total | 12,771,038 | 21,920,642 | 20,179,724 | 18,593,792 | 19,709,525 | 19,506,474 | 19,812,241 | 19,866,093 | 19,961,348 | 19,804,848 | 20,197,511 | 20,570,295 | 19,884,780 | 19,974,360 | (R) 19,517,491 | 18,950,734 |
| Delivered to consumers, total | 10,382,681 | 19,018,462 | 18,216,233 | 16,818,882 | 18,898,635 | 19,660,161 | 20,005,508 | 20,781,554 | 20,437,798 | 20,680,843 | 21,539,964 | 20,495,108 | 21,227,012 | 20,562,727 | (R) 20,724,883 | 20,544,907 |
| Consumed, total | 11,966,537 | 21,139,386 | 19,877,293 | 18,715,090 | 20,707,717 | 21,580,665 | 21,966,616 | 22,736,203 | 22,245,956 | 22,405,151 | 23,333,121 | 22,238,624 | 23,007,014 | 22,276,502 | (R) 22,388,975 | 22,241,202 |
| Gas used as a pipeline fuel, total | 347,075 | 722,166 | 634,622 | 659,816 | 685,362 | 700,335 | 711,446 | 751,470 | 635,477 | 645,319 | 642,210 | 624,964 | 666,920 | 591,492 | (R) 566,187 | 584,779 |
| SAFETY [8] | | | | | | | | | | | | | | | | |
| Fatalities | N | 26 | 15 | 6 | 21 | 18 | 48 | 10 | 19 | 18 | 37 | 7 | 11 | 12 | 18 | 14 |
| Injured persons | N | 233 | 177 | 69 | 113 | 53 | 114 | 72 | 75 | 88 | 77 | 51 | 49 | (R) 66 | 44 | 45 |
| Incidents | N | 1,077 | 1,524 | 198 | 222 | 161 | 187 | 175 | 236 | 172 | 234 | 211 | (R) 184 | (R) 239 | (R) 299 | 351 |

**KEY**: N = data do not exist; R = revised; U = data are not available.

[a] Does not add due to omission of line from source table for depreciation and other noncash expenses.
[b] Figures obtained by addition / subtraction and may not appear directly in data source.

[c] Industry total includes integrated and combination company totals in addition to distribution and transmission company totals.

[d] Number of employees in investor-owned companies is the sum of employees in distribution, transmission, integrated and combination companies.

[e] Beginning in 1991 the number of interstate natural gas pipeline companies is calculated using the Federal Energy Regulatory Commission's FASTR database, which contains a listing by year of pipeline companies that are regulated and, therefore, required to pay tariff duties to the federal government. Data for the years prior to 1991 were collected from the Energy Information Administration's discontinued publication *Statistics of Interstate Natural Gas Pipeline Companies*. Data from the two sources may not be comparable.

**NOTES**

Numbers may not add to totals due to rounding.
Gas utility industry totals include employees of privately owned companies.

**SOURCES**

[1] 1960-70: American Gas Association, *Gas Facts, 1979* (Arlington, VA: 1980), table 134. 1980-2005: Ibid., *Gas Facts, 2006* (Washington, DC: 2007), table 11-2 and similar tables in earlier editions.
[2] 1980: American Gas Association, *Gas Facts, 1979* (Arlington, VA: 1980), table 134. 1990-2005: Ibid., *Gas Facts, 2006* (Washington, DC: 2007), table 11-1 and similar tables in earlier editions.
[3] 1980-2005: American Gas Association, *Gas Facts, 2006* (Washington, DC: 2007), tables 11-1, 11-2, 11-3, and 11-4 and similar tables in earlier editions.
[4] 1960-70: American Gas Association, *Gas Facts, 1979* (Arlington, VA: 1980), table 44. 1980-2005: Ibid., *Gas Facts, 2006* (Washington, DC: 2007), tables 5-1, 5-3, and similar tables in earlier editions.
[5] 1960-80: American Gas Association, *Gas Facts, 1979* (Arlington, VA: 1980), table 153. 1990-2005: Ibid., *Gas Facts, 2006* (Washington, DC: 2007), table 13-2, and similar tables in earlier editions.

[6] 1960-90: U.S. Department of Energy, Energy Information Administration, *Statistics of Interstate Natural Gas Pipeline Companies* (Washington, DC: Annual issues), preface. 1991-98: Federal Energy Regulatory Commission, *FERC Automated System for Tariff Retrieval* (FASTR database), Internet website http://www.ferc.gov/industries/gas/gen-info/fastr/index.asp as of Feb. 18, 2004.

[7] 1960-95: U.S. Department of Energy, Energy Information Administration, *Natural Gas Annual, 1998* (Washington, DC: October 1999), table 98. 1996-2004: Ibid., *Natural Gas Annual, 2004* (Washington, DC: 2005), table 1, Internet website http://www.eia.doe.gov/oil_gas/natural_gas/data_publications/natural_gas_annual/nga.html as of Sept. 26, 2007.
[8] U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration, Office of Pipeline Safety, Internet website http://ops.dot.gov/stats.htm as of Sept. 26, 2007.

# Source and Accuracy Statements

# Appendix E
# Data Source and Accuracy Statements

## Chapter 1 Extent, Condition, and Performance

**TABLE 1-1. System Mileage Within the United States**

**Highway**

The Highway Performance Monitoring System (HPMS) is the source of road mileage data and is considered reliable. (See box 1-1 for detailed information about the HPMS.) The Federal Highway Administration (FHWA) of the U.S. Department of Transportation (USDOT) collects and reviews state-reported HPMS data for completeness, consistency, and adherence to specifications. Some inaccuracy may arise from variations across states in their adherence to federal guidelines in the Traffic Monitoring Guide and the *Highway Performance Monitoring System Field Manual for the Continuing Analytical and Statistical Database*.

Beginning with the 1997 issue of *Highway Statistics*, FHWA instituted a new method for creating mileage-based tables derived from the HPMS. Previously, adjustments to tables developed from sample data were made using area-wide mileage information provided by states. These adjustments are now being made using universe totals from the HPMS dataset. In addition, FHWA has discontinued the process of spreading rounding and other differences across table cells. Thus, users may note minor differences in table-to-table totals. FHWA considers mileage totals from table HM-20, "Public Road Length, Miles by Functional System" to be the controlling totals should a single value be required.

Reliability may be diminished for comparisons with pre-1980 data, which were collected via different methods and special national studies. For instance, pre-1980 mileage data included some nonpublic roadways (95,000 miles in 1979) while post-1980 data reports only public road mileage (roads or streets governed and maintained by a public authority and open to public travel).

**Class I Rail**

These data are from *Railroad Facts*, published annually by the Association of American Railroads (AAR). AAR data are based on 100-percent reporting by Class I railroads to the Surface Transportation Board (STB) via Schedule 700 of the *R1 Annual Report*. The STB defines Class I railroads as having operating revenues at or above a threshold indexed to a base of $250 million (1991) and adjusted annually in concert with changes in the Railroad Freight Rate Index published by the Bureau of Labor Statistics. In 1999, the adjusted threshold for Class I railroads was $258.5 million. Declassification from Class I status occurs when a railroad falls below the applicable threshold for three consecutive years. Although Class I railroads encompasses only 2 percent of the number of railroads in the country, they account for over 71 percent of the industry's mileage operated.

To obtain railway mileage, AAR subtracts trackage rights from miles of rail traveled on line 57 in the Schedule 700 report. Historical reliability may vary due to changes in the railroad industry, including bankruptcies, mergers, and declassification by the STB. Small data errors may also exist because of because of independent rounding of this series by AAR.

**Amtrak**

These statistics originate from the Statistical Appendix to *Amtrak's Annual Report*. Amtrak estimates track mileage based on point-to-point city timetables that railroad companies provide for engineers. The figures are estimates, but are considered reliable.

**Transit**

These data are based on information in the U.S. Department of Transportation, Federal Transit Administration (FTA), National Transit Database (NTD). The legislative requirement for the NTD is found in Title 49 U.S.C. 5335(a). Transit

agencies receiving funds through the Urbanized Area Formula Program are generally required to report financial and operating data, including vehicle inventories and directly operated mileage. Transit operators that do not report to FTA are those that do not receive Urbanized Area Formula Funding, typically private, small, and rural operators. The data are generally considered accurate because FTA reviews and validates information submitted by individual transit agencies. Reliability may vary because some transit agencies cannot obtain accurate information or may misinterpret certain data definitions.

**Navigable Channels**

These statistics originate from a mid-1950s U.S. Army Corps of Engineers (USACE) estimate that there were approximately 25,000 miles of commercially important navigable channels in the United States. That number has been adjusted from time to time, for example, by addition of the 234-mile Tennessee-Tombigbee Waterway in the early 1980s. The 25,000 plus mile number has been universally quoted for decades, but has definitional and methodological uncertainties. USACE is currently developing a rigorous, Global Information System (GIS)-based approach to facilitate tabulation of the lengths of shallow and deep-draft commercially navigable waterways in the United States; this calculation will be available in several years.

**Oil Pipeline**

The data are from *Transportation in America*, published by the Eno Transportation Foundation, Inc. (Eno). The numbers reprinted here for 1960, 1965, 1970, and 1975 are Eno estimates from the U.S. Department of Energy (DOE) Energy Data Report issues labeled "Crude-oil and Refined Products Mileage in the United States." Eno estimated the 1980 number based on the assumption that refinement of old, less profitable, and smaller lines exceeded in mileage the construction of new, larger, and more profitable lines. Post-1985 data were calculated using a base figure reported in a 1982 USDOT study entitled *Liquid Pipeline Director* and then combined with data from the Association of Oil Pipe Lines and the Oil Pipeline Research Institute. Lack of additional information raises definitional and methodological uncertainties for the data's reliability. Moreover, the three different information sources introduce data discontinuities, making time comparisons unreliable.

**Gas Pipeline**

These statistics originate from annual editions of *Gas Facts*, published by the American Gas Association (AGA). The data reported by the AGA are based on gas utilities participation and reporting to the *Uniform Statistical Report*. Utilities reporting represented 98 percent of gas utility industry sales while the remaining 2 percent was estimated for nonreporting companies based on recent historical experience. Varying percentages of nonreporters from year to year introduce minor reliability problems for time-series comparisons.

**TABLE 1-2. Number of Air Carriers, Railroads, Interstate Motor Carriers, Marine Operators, and Pipeline Operators**

**Air Carriers**

The data are from the *Air Carrier Financial Statistics Quarterly*, published by the Office of Airline Information of the U.S. Department of Transportation, Bureau of Transportation Statistics (BTS). The Alphabetical List of Air Carriers by Carrier Group at the beginning of each fourth quarter edition is used to determine the number of major air carriers and other air carriers in operation at the end of each calendar year. The publication draws its data from the T-100 and T-100(f) databases maintained by BTS. These databases include data obtained from a 100-percent census of BTS Form 41 schedule submissions by large certificated air carriers, which are carriers that hold a certificate issued under section 401 of the Federal Aviation Act of 1958 and that (1) operate aircraft designed to have a maximum passenger seating capacity of more than 60 seats or a maximum payload capacity of more than 18,000 pounds or (2) that conduct international operations. Carriers are grouped as major, national, large regional, or medium regional based on their annual operating revenues. The thresholds were last adjusted July 1, 1999 and the threshold for major air carriers is currently $1 billion. The table combines the number of national, large regional, and medium regional air carriers into the other air carrier category.

**Railroads**

The Association of American Railroads (AAR)'s *Railroad Ten-Year Trends* series is the source for the number of railroads. The number of Class I railroads is based on 100-percent reporting by Class I railroads to the Surface Transportation Board (STB) via Schedule 700 of the *R1 Annual Report*. The STB defines Class I railroads as having operating revenues at or above a threshold indexed to a base of $250 million (1991) and adjusted annually in concert with changes in the Railroad Freight Rate Index published by the Bureau of Labor Statistics. In 2000, the adjusted threshold for Class I railroads was $261.9 million. Declassification from Class I status occurs when a railroad falls below the applicable threshold for three consecutive years. Although Class I railroads encompasses only 1 percent of the number of railroads in the country, they account for over 71 percent of the industry's mileage operated.

The Association of American Railroads determines the number of non-Class I railroads through an annual survey sent to every U.S. freight railroad. By following up with nonrespondents, the AAR obtains essentially a census of railroads. Use of the current survey instrument began in 1986.

**Interstate Motor Carriers**

The Motor Carrier Management Information System (MCMIS), maintained by the U.S. Department of Transportation, Federal Motor Carrier Safety Administration, contains information on the safety of all commercial interstate motor carriers and hazardous material (HM) shippers subject to the Federal Motor Carrier Safety Regulations and the Hazardous Materials Regulations. All carriers operating in interstate or foreign commerce within 90 days of beginning operations must submit a Form MCS-150, Motor Carrier Identification Report. Carriers may also use the form to update their information. The Motor Carrier Safety Improvement Act of 1999 requires that reports be periodically updated, but not more than once every two years. MCMIS is updated as soon as information is provided and verified, and periodic archives are made. Historical data are available from summary information previously prepared, including tables and reports. MCMIS began operations in 1980. Safety data since 1990 are available to the public.

**Marine Vessel Operators**

The U.S. Army Corps of Engineers (USACE) provides the data for marine vessel operators through the *Waterborne Transportation Lines of the United States*. Data are collected by the USACE's Navigation Data Center (NDC) by various means, including the U.S. Coast Guard's registry, maritime service directories, and waterway sector publications. However, an annual survey of companies that operate inland waterway vessels is the principle source of data. More than 3,000 surveys are sent to these companies and response rates are typically above 90 percent. However, a USACE official did report that less than 10 percent of the total number of companies operating inland water vessels either did not receive or respond to the annual survey.

**Pipeline Operators**

The Office of Pipeline Safety (OPS) in the U.S. Department of Transportation's Research and Special Programs Administration collects annual report data from natural gas transmission and distribution operators as required by 49 CFR 191.17 and 191.11, respectively. Annual data must be submitted by March 15 of the following calendar year. No annual report is required for hazardous liquid pipeline operators. However, information is available through the pipeline safety program. Since 1986, the program has been funded by fees assessed to each OPS-regulated pipeline operator based on per-mile of hazardous pipeline operated. Data for each operator and each mile of pipeline are stored in the OPS user-fee database, which is revised annually as updated fees are assessed.

Totals for pipeline operators in this table will differ from those in other tables due to differences in the regulatory authority of USDOT and the Federal Energy Regulatory Commission (FERC). FERC regulates only interstate pipelines, whereas DOT regulates both interstate and intrastate pipelines, except for rural gathering lines and some offshore pipelines, which fall under jurisdiction of the U.S. Coast Guard or the U.S. Department of the Interior's Minerals Management Service. An OPS official stated that FERC regulates about two-thirds the amount of pipeline mileage that USDOT regulates.

**TABLE 1-3. Number of U.S. Airports**

The Federal Aviation Administration (FAA), Office of Airport Safety and Standards *Administrator's Fact Book* (annual issues) furnished the data shown in this table and includes airports certified for air carrier operations with aircraft that seat 30 or more passengers. These airports include civil and joint civil-military use airports, heliports, STOLports (short takeoff and landing), and seaplane facilities. The FAA obtained this data via physical inspections and mail

solicitations of all federally regulated landing facilities. Since this is a census of all U.S. airports, reliability should be high. Data, however, may be subject to reporting errors typical of administrative recordkeeping.

**TABLE 1-4. Public Road and Street Mileage in the United States by Type of Surface**

**TABLE 1-5. U.S. Public Road and Street Mileage by Functional System**

**TABLE 1-6. Estimated U.S. Roadway Lane-Miles by Functional Class**

The Highway Performance Monitoring System (HPMS) is the source of road mileage data and is considered reliable.(See box 1-1 for detailed information about the HPMS.) The U.S. Department of Transportation, Federal Highway Administration collects and reviews state-reported HPMS data for completeness, consistency, and adherence to specifications. Some inaccuracy may arise from variations across states in their adherence to federal guidelines in the Traffic Monitoring Guide and the *Highway Performance Monitoring System Field Manual for the Continuing Analytical and Statistical Database*.

Beginning with the 1997 issue of *Highway Statistics*, FHWA instituted a new method for creating mileage-based tables derived from the HPMS. Previously, adjustments to tables developed from sample data were made using area-wide mileage information provided by states. These adjustments are now being made using universe totals from the HPMS dataset. In addition, FHWA has discontinued the process of spreading rounding and other differences across table cells. Thus, users may note minor differences in table-to-table totals. FHWA considers mileage totals from table HM-20, "Public Road Length, Miles by Functional System" to be the controlling totals should a single value be required.

Lane-miles are calculated by multiplying the centerline length by the number of through lanes. Because the HPMS requires that the number of lanes be reported for all principal arterials, other National Highway System (NHS) roads, and all standard samples, lane length can be computed for the Interstate, other principal arterials, and the NHS on a 100-percent basis. For minor arterials, rural major collectors, and urban collectors, lane length is calculated based on standard sample sections using the reported number of through lanes, length of section, and an expansion factor. FHWA uses the expanded sample to check that the centerline length of a state's functional system matches the universe functional system length. If the centerline length and functional system length do not match, FHWA may ask a state to make adjustments.

Reliability may be diminished for comparisons with pre-1980 data, which were collected via different methods and special national studies. For instance, pre-1980 mileage data included some nonpublic roadways (95,000 miles in 1979) while post-1980 data reports only public road mileage (roads or streets governed and maintained by a public authority and open to public travel).

**TABLE 1-7. Number of Stations Served by Amtrak and Rail Transit, Fiscal Year**

These numbers originate from Amtrak's Statistical Appendix to *Amtrak's Annual Report* and the U.S. Department of Transportation, Federal Transit Administration's National Transit Database.

Amtrak maintains a computer database with a record of every station, locomotive, and car it operates. Those records include for each vehicle the year built, its service status (operating or not on a daily basis), and location. These data should be considered very reliable.

**TABLE 1-8. ADA Accessible Rail Transit Stations by Agency**

**TABLE 1-9. ADA Lift- or Ramp-Equipped Transit Buses**

These data are based on information in the U.S. Department of Transportation, Federal Transit Administration (FTA), National Transit Database (NTD). The legislative requirement for the NTD is found in Title 49 U.S.C. 5335(a). Transit agencies receiving funds through the Urbanized Area Formula Program are generally required to report financial and operating data, including certain aspects of station and vehicle accessibility. Transit operators that do not report to FTA are those that do not receive Urbanized Area Formula Funding, typically private, small, and rural operators. The data are generally considered accurate because FTA reviews and validates information submitted by individual transit

agencies. Reliability may vary because some transit agencies cannot obtain accurate information or may misinterpret certain data definitions.

**TABLE 1-10. U.S. Oil and Gas Pipeline Mileage**

**Oil Pipeline**

The data are from *Transportation in America*, published by the Eno Transportation Foundation, Inc. (Eno). The numbers reprinted here for 1960, 1965, 1970, and 1975 are Eno estimates from the U.S. Department of Energy's *Energy Data Report* issues labeled "Crude-oil and Refined Products Mileage in the United States." Eno estimated the 1980 number based on the assumption that refinement of old, less profitable, and smaller lines exceeded in mileage the construction of new, larger, and more-profitable lines. Figures from 1985 and later years are calculated from a base figure that Eno obtained from the 1982 U.S. Department of Transportation study *Liquid Pipeline Director* and then incorporated that figure with data from the Association of Oil Pipe Lines and the Oil Pipeline Research Institute. Lack of additional information raises definitional and methodological uncertainties for the data's reliability. Moreover, the three different information sources introduce data discontinuities making time comparisons less reliable.

**Gas Pipeline**

These statistics originate from annual editions of *Gas Facts* published by the American Gas Association (AGA). The data reported by AGA are based on gas utilities participation and reporting to the Uniform Statistical Report. Utilities reporting in 1991 represented 98 percent of total gas utility industry sales while the remaining 2 percent was estimated for the nonreporting companies based on recent historical experience. Varying percentages of nonreporters from year to year introduce minor reliability problems for time-series comparisons.

**TABLE 1-11. Number of U.S. Aircraft, Vehicles, Vessels, and Other Conveyances**

**TABLE 1-12. Sales or Deliveries of New Aircraft, Vehicles, Vessels, and Other Conveyances**

**Civilian Aircraft**

The Aerospace Industries Association (AIA) provided this data in their annual issues *Aerospace Facts and Figures*, "Civil Aircraft Shipments." AIA collects their data from aircraft company reports, the General Aviation Manufacturers Association (GAMA), and the U.S. Department of Commerce's (DOC) International Trade Administration. DOC data provide total number of shipments and exports, and the difference computed by AIA equals domestic shipments. DOC collects shipments data separately for individual factories or establishments and not at the company level. A potential limitation of this approach is when a factory producing aircraft for shipment also makes aircraft parts. If the establishment has 80 percent of its production in aircraft and 20 percent in parts, all of the output is attributed to aircraft shipments.

**Transport**

The Aerospace Industries Association (AIA) is the source of these data. AIA obtains quarterly data from Boeing Corp., now the sole U.S. manufacturer of transport aircraft, and publicly available financial disclosure information filed with the U.S. Securities and Exchange Commission (SEC) via Form 10-k. SEC requires a publicly traded company to file an annual report 90 days after the end of the company's fiscal year to provide an overview of that business.

**Helicopters**

AIA surveyed and received data from all 10 major helicopter manufacturers on their sales and deliveries.

**General Aviation**

The general aviation figures are taken from the *General Aviation Statistical Databook* published by the GAMA. General aviation refers usually to the small aircraft industry in the United States. GAMA collects quarterly data from the 10 to 14 manufacturers who nearly equal a census of the general aviation sector.

**Passenger Car, Truck, Bus, and Recreational Vehicles**

Ward's *Motor Vehicle Facts and Figures* is the source of these data. Ward's obtains sales data directly from manufacturers. Readers should note that automobile manufacturers have inflated sales figures in the past, but Ward's does contact companies to verify numbers that appear too high or low.

**Motorcycle**

The Motorcycle Industry Council, Inc. (MIC) publishes the *Motorcycle Statistical Annual*, which is the source for these data. MIC derived the estimate for new retail motorcycle sales for each state from the *MIC Retail Sales Report*, and adjusted for total retail sales. Motorcycle company reports provided sales data. Prior to 1985, all-terrain vehicles (ATVs) were included in the motorcycle total. In 1995, the Motorcycle Industry Council revised its data for the years 1985 to present to exclude all terrain vehicles from its totals.

**Bicycle**

The National Bicycle Dealers Association (NBDA) reported these data, which are based on Bicycle Manufacturers Association (BMA) information through 1996. BMA stopped reporting members' shipments in 1996. Moreover, BMA represents the largest bicycle manufacturers (Huffy, Roadmaster, and Murray), and thus the data do not reflect specialty bike makers or other manufacturers. The Bike Council estimated 1997 through 2001 figures in the table. According to a Bicycle Council representative, the estimates are a combination of domestic forecasts produced by a panel of industry experts and import data from monthly U.S. census databases.

**Transit**

The American Public Transit Association provided these figures, which are based on information in the U.S. Department of Transportation, Federal Transit Administration (FTA), National Transit Database. These data are generally considered accurate because the FTA reviews and validates information submitted by individual transit agencies. Reliability may vary because some transit agencies cannot obtain accurate information or misinterpret data. APTA conservatively adjusts FTA data to include transit operators that do not report to the database (private, very small, and rural operators).

**Class I Rail**

The data are from Railroad Facts, published annually by the Association of American Railroads (AAR). AAR data are based on 100-percent reporting by Class I railroads to the Surface Transportation Board (STB) via Schedule 700 of the *R1 Annual Report*. STB defines Class I railroads as having operating revenues at or above a threshold indexed to a base of $250 million (1991) and adjusted annually in concert with changes in the Railroad Freight Rate Index published by the Bureau of Labor Statistics. In 2000, the threshold for Class I railroads was $261.9 million. Although Class I railroads encompasses only 2 percent of the number of railroads in the country, they account for over 71 percent of the industry's mileage operated. Historical reliability may vary due to changes in the railroad industry, including bankruptcies, mergers, and declassification by the STB. Small data errors may also have occurred because of independent rounding in this series by the AAR.

**Amtrak**

Amtrak maintains a computer database with a record of every locomotive and car it operates. For each vehicle, those records include the year built, its service status (operating or not on a daily basis), and location. These data should be considered very reliable.

**Water Transportation**

U.S. Department of Transportation, Maritime Administration (MARAD), which classifies vessels as merchant based on size and type, reports these data in annual issues of its *Merchant Fleets of the World*. MARAD compiles these figures from a data service provided by Lloyd's Maritime Information Service. The parent company, Lloyd's Register (LR), collects data from several sources: its 200 offices worldwide, data transfers and agreements with other classification societies, questionnaires to ship owners and shipbuilders, feedback from government agencies, and input from port agents. According to an LR official, consistent data gathering methods have been maintained for more

than 30 years but cautioned that inconsistencies may occur in groupings of ship types over time. For example, tank barges are now included in the tanker ship-type grouping rather than the barge grouping.

**TABLE 1-13. Active Air Carrier and General Aviation Fleet by Type of Aircraft**

**Air Carrier, Certificated, All Services**

Prior to 1995, data originated from the U.S. Department of Transportation, Federal Aviation Administration (FAA), FAA *Statistical Handbook of Aviation*. Later data are from the Aerospace Industries Association (AIA), *Aerospace Facts and Figures*. However, Aerospace Facts and Figures is compiled from the FAA *Statistical Handbook of Aviation*. U.S. air carrier fleet data are based on reports collected by FAA field offices from carriers. The reports include information on the number of aircraft by type used in air carrier service. The FAA points out that this information is not an inventory of the aircraft owned by air carriers, but represents the aircraft reported to the FAA as being used in air carrier fleet service. The reported aircraft are all aircraft carrying passengers or cargo for compensation or hire under 14 CFR 121 and 14 CFR 135.

**General Aviation**

The 1960-1980 figures originated from the FAA *Statistical Handbook of Aviation*. Later data are from FAA annual issues of the *General Aviation* and *Air Taxi Activity* (GAATA) Survey report, table 3.1.The FAA collects both aircraft registration data and voluntary information about aircraft operation, equipment, and location. Before 1978, the FAA mandated owners to annually register their aircraft for the Aircraft Registration Master File. This was a complete enumeration of operating aircraft. Registrants were also asked to voluntarily report information on hours flow, avionics equipment, base location, and use. The FAA changed their data collection methodology in 1978. The annual registration requirement became triennial and the General Aviation Activity and Avionics Survey was initiated to sample aircraft operation and equipment data.

The General Aviation Activity and Avionics Survey was renamed the General Aviation and Air Taxi Activity Survey in 1993 to reflect the fact that the survey includes air taxi aircraft. This survey is conducted annually and encompasses a stratified, systematic design from a random start to generate a sample of all general aviation aircraft in the United States. It is based on the FAA registry as the sampling frame. FAA established three stratification design variables in the survey: 1) the average annual hours flown per aircraft by aircraft type, 2) the aircraft manufacturer/model characteristics, and 3) the state of aircraft registration.

**Data Reliability**

Because of the change in 1978, the reliability of comparisons over time will be affected. The FAA asserted that the change to a triennial registration deteriorated the Aircraft Registration Master File in two ways. First, the resulting lag in registration updates caused the number of undeliverable questionnaires to steadily increase over the three-year period. Second, inactive aircraft would remain in the registry, inflating the general aviation fleet count. In addition, a new regulation added two categories of aircraft to the general aviation fleet. However, FAA concluded that these changes resulted in no more than a five-percent error in the fleet population estimate.

The reliability of the GAATA survey can be impacted by two factors: sampling and nonsampling error. A measure, called the standard error, is used to indicate the magnitude of sampling error. Standard errors can be converted for comparability by dividing the standard error value by the estimate (derived from sample survey results) and multiplying it by 100.This quantity, referred to as the percent standard error, totaled seven-tenths of a percent in 1997 for the general aviation fleet. A large standard error relative to an estimate indicates lack of precision and, inversely, a small standard error indicates precision.

Nonsampling errors could include problems such as nonresponse, respondent's inability or unwillingness to provide correct information, differences in interpretation of questions, and data-entry mistakes. Readers should note that non-response bias might be a component of reliability errors in the data from 1980 to 1990.The FAA conducted telephone surveys of nonrespondents in 1977, 1978, and 1979 and found no significant differences or inconsistencies in respondents' and nonrespondents' replies. The FAA discontinued the telephone survey of nonrespondents in 1980 to save costs. Nonresponse surveys were resumed in 1990, and the FAA found notable differences and thus adjusted its fleet estimates. The 1991 through 1996 data have been revised to reflect nonresponse bias. In 1997, a sample of 29,954 aircraft was identified and surveyed from an approximate population of 251,571 registered general aviation aircraft. Just over 65 percent of the sample responded to the survey.

**Highway, Total (registered vehicles)**

The 1960 to 1980 figures are from the U.S. Department of Transportation, Federal Highway Administration (FHWA) document, *Highway Statistics, Summary to 1985,* table MV-201 and related tables. Data quality and consistency will be less reliable for these years because of a diversity of registration practices from state to state. Users should recognize that motor vehicle statistical information is not necessarily comparable across all states or within a state from year to year. For instance, the FHWA reported that separate data on single-unit trucks and combinations was unobtainable from all states in 1990.

After 1980, the FHWA began to use the Highway Performance Monitoring System (HPMS) database, which improved data reliability. FHWA reviews state-reported HPMS data for completeness, consistency, and adherence to these specifications. Some inaccuracy may arise from variations across states in their adherence to federal guidelines in the *Highway Performance Monitoring System Field Manual for the Continuing Analytical and Statistical Database*.

If choosing to compare state data, the FHWA recommends that users carefully select a set of peer states that have characteristics similar to the specific comparison. Improperly selected peer states are likely to yield invalid data comparisons. Characteristics that a user needs to consider in determining compatibility of a peer state include similarities and differences in urban/rural areas, population densities, degrees of urbanization, climate, geography, state laws and practices that influence data definitions, administrative controls of public road systems, state economies, traffic volumes, and degrees of centralization of state functions. The FHWA has developed a set of variables that users may use to determine appropriate peer states.

**Other 2-Axle 4-Tire Vehicle (truck)**

Sources for these figures included FHWA's *Highway Statistics, Summary to 1995* (table VM-201A) and annual issues of *Highway Statistics* (table VM-1). FHWA compiles these figures from the U.S. Bureau of the Census' Truck Inventory and Use Survey (TIUS). Since 1963, Census has conducted the TIUS every five years with the last survey completed in 1997.The Census Bureau changed the name of the survey to the Vehicle Inventory and Use Survey (VIUS) in 1997. The VIUS collects data and the physical and operational characteristics of the nation's truck population. In 1997, 131,000 trucks were surveyed from an estimated universe of over 75 million trucks. Chronological reliability may be diminished due to sampling design changes in 1977, 1982, and 1992. In 1977, the sampling universe was first stratified by the number of trucks in a state: large (> 1.5 million trucks), medium (700,000 to 1.5 million), and small (< 700,000); and then by two truck sizes.

Stratification in 1982 was then based on body type rather than vehicle weight. In 1992 and 1997, the sampling universe was first subdivided geographically and then into five strata: 1) pickups, 2) vans, 3) single-unit light, 4) single-unit heavy, and 5) truck tractor. Cases were then selected randomly within each stratum.

Census delivered a mail-out/mail-back survey to the owner identified in the vehicle registration records. Data collection is staggered as state records become available. Owners report data only for the vehicles selected. In the 1992 survey, a method was employed to also collect data on new truck purchases in the latter half of the year to estimate the fleet for the calendar year. This adjustment in the sampling frame had not been done in previous surveys and may diminish chronological reliability. The sample for 1997 was some 22,500 vehicles smaller than for 1992. The 1997 VIUS had two sampling stages. For the first stage, the Census Bureau surveyed about 131,000 trucks registered as of July 1, 1997.The second stage sampled a total of 3,000 truck owners with state mailing addresses different from the state of truck registration.

The accuracy and reliability of the VIUS survey depends jointly on sampling variability and nonsampling errors. Standard errors arising from sampling variability can be converted for comparability by dividing the standard error value by the estimate and multiplying it by 100. This quantity, referred to as the percent standard error, totaled two-tenths of a percent in 1992 and 1997 for the VIUS sample. A large standard error relative to an estimate indicates lack of precision and, inversely, a small standard error indicates precision. The 1992 TIUS achieved over 90.2 percent reporting and the 1997 response rate equaled 84.5 percent, thus reliability may have decreased in the most recent survey.

**Transit**

The American Public Transit Association (APTA) provided these data, which are based on the Federal Transit Administration (FTA), National Transit Database. These data are generally accurate because the FTA reviews and

validates information submitted by individual transit agencies. Reliability may vary because some transit agencies cannot obtain accurate information or may misinterpret data. APTA conservatively adjusts FTA data to include transit operators that do not report to the database (private, very small, and rural operators).

**Railroad (all categories**)

The data are from *Railroad Facts*, published annually by the Association of American Railroads (AAR). AAR data are based on 100-percent reporting by Class I railroads to the Surface Transportation Board (STB) via Schedule 700 of the *R1 Annual Report*. Thus, data estimates are considered very reliable. The STB defines Class I railroads as having operating revenues at or above a threshold indexed to a base of $250 million (1991) and adjusted annually in concert with changes in the Railroad Freight Rate Index published by the Bureau of Labor Statistics. In 2000, the adjusted threshold for Class I railroads was $ 261.9 million. Declassification from Class I status occurs when a railroad falls below the applicable threshold for three consecutive years. Although Class I railroads encompasses only 2 percent of the number of railroads in the country, they account for over 71 percent of the industry's mileage operated.

AAR determines the number of non-Class I railroads through an annual, comprehensive survey sent to every U.S. freight railroad. By following up with nonrespondents, the AAR obtains essentially a 100 percent census of all railroads. Use of the current survey instrument began in 1986.

**Amtrak**

Amtrak maintains a computer database with a record of every locomotive and car it operates. For each vehicle, those records include the year built, service status (operating or not operating on a daily basis), and location. This data should be considered very reliable.

**Water Transportation**

The source for Inland Nonself-Propelled Vessels, Self-Propelled Vessels, and flag passenger and cargo vessels is the U.S. Army Corps of Engineers (USACE), *Waterborne Transportation Lines of the United States*, annual issues. Data are collected by the USACE's Navigation Data Center (NDC) by various means, including the U.S. Coast Guard's registry, maritime service directories, and waterway sector publications. However, an annual survey of companies that operate inland waterway vessels is the principle source of data. More than 3,000 surveys are sent to these companies, and response rates are typically above 90 percent. However, a USACE official did report that less than 10 percent of the total number of companies operating inland vessels either did not receive or respond to the annual survey.

**Oceangoing Steam Motor Ships**

*Merchant Fleets of the World*, published annually by the U.S. Department of Transportation, Maritime Administration (MARAD), is the source of these data. MARAD, which classifies vessels as merchant based on size and type, compiles these figures from a data service provided by Lloyd's Maritime Information Service (LMIS).The parent company, Lloyd's Register (LR), collects data from 200 offices worldwide, from data transfers and agreements with other classification societies, from questionnaires to ship owners and ship builders, from feedback from government agencies, and from input from port agents. According to an LR official, consistent data-gathering methods have been maintained for more than 30 years. The same official did caution that there are sometimes inconsistencies in groupings of ship types over time. For example, propelled tank barges are now included in the tanker ship-type grouping.

**Recreational Boats**

*Boating Statistics*, published annually by the U.S. Coast Guard (USCG), is the source. The USCG derives these figures from state and other jurisdictional reporting of the actual count of valid boat numbers issued. In accordance with federal requirements, all 55 U.S. states and territories require motor-powered vessels to be numbered. However, over half the states do not require nonpowered vessels to be numbered. Accuracy can also be diminished by noncompliance of boat owners with numbering and registration laws. In 1996, the USCG estimated that approximately eight million recreational boats are not numbered and, thus, are excluded from the reported number of recreational vessels. The USCG did not provide estimates for the number of boats without numbering in their reports

after 1996. Some jurisdictions fail to report by publication deadlines, and the USCG provided estimates based on the previous year's estimate.

**TABLE 1-14. U.S. Automobile and Truck Fleets by Use**

These statistics originate from two sources. The R.L. Polk Co. provides numbers for commercial fleet vehicles from state registrations. Bobit Publishing Co. also obtains fleet vehicle sales data from automobile manufacturers. These two sources cover nearly 100 percent of fleet vehicles in the United States. Thus, the data should be very accurate.

**TABLE 1-15. Annual U.S. Motor Vehicle Production and Factory (Wholesale) Sales**

**TABLE 1-16. Retail New Passenger Car Sales**

**TABLE 1-17. New and Used Passenger Car Sales and Leases**

**TABLE 1-18. Retail Sales of New Cars by Sector**

The U.S. Department of Commerce, Bureau of Economic Analysis, uses data from Ward's Automotive Reports. The sectoral break down is derived from registration data obtained from R.L. Polk. Ward's obtains sales data directly from manufacturers. Readers should note that automobile manufacturers have inflated sales figures in the past, but Ward's does contact companies to verify numbers that appear too high or low.

**TABLES 1-20 and 1-21. Period Sales, Market Shares, and Sales-Weighted Fuel Economies of New Domestic and Imported Automobiles and Light Trucks, Selected Sales Periods**

These data originate from Oak Ridge National Laboratory's (ORNL) Light-Duty MPG and Market Shares System database, which relies on information from monthly Ward's Automotive Reports. Comparisons and observations are made on sales and fuel economy trends from one model year to the next. ORNL has adopted several conventions to facilitate these comparisons, such as the use of sales-weighted average to estimate fuel economy and vehicle characteristics. For example, "sales-weighted" miles per gallon refers to a composite or average fuel economy based on the distribution of vehicle sales. ORNL's methodology for sales-weighting can be found in the Appendix of the *Highway Vehicle MPG and Market Shares Report: Model Year 1990* (the latest published report). The method was changed dramatically in 1983, and data reliability prior to that year is questionable. This information is now published annually in ORNL's *Transportation Energy Data Book.*

**TABLE 1-22. Number of Trucks by Weight**

These data are derived from the Vehicle Inventory and Use Survey (VIUS) conducted in 1997 by the U.S. Bureau of the Census. This survey, formerly known as the Truck Inventory and Use Survey (TIUS), has been conducted every 5 years since 1963. The VIUS collects data and the physical and operational characteristics of the nation's truck population. In 1997, 131,000 trucks were surveyed from an estimated universe of over 75 million trucks. Chronological reliability may be diminished due to sampling design changes in 1977, 1982, and 1992. In 1977, the sampling universe was first stratified by the number of trucks in a state: large (> 1.5 million trucks), medium (700,000 to 1.5 million), and small (< 700,000); and then by two truck sizes.

Stratification in 1982 was then based on body type rather than vehicle weight. In 1992 and 1997, the sampling universe was first subdivided geographically and then into five strata: 1) pickups, 2) vans, 3) single-unit light, 4) single-unit heavy, and 5) truck tractor. Cases were then selected randomly within each stratum.

Census delivered a mail-out/mail-back survey to the owner identified in the vehicle registration records. Data collection is staggered as state records become available. Owners report data only for the vehicles selected. In the 1992 survey, a method was employed to also collect data on new truck purchases in the latter half of the year to estimate the fleet for the calendar year. This adjustment in the sampling frame had not been done in previous surveys and may diminish chronological reliability. The sample for 1997 was some 22,500 vehicles smaller than for 1992. The 1997 VIUS had two sampling stages. For the first stage, the Census Bureau surveyed about 131,000 trucks registered as of July 1, 1997.The second stage sampled a total of 3,000 truck owners with state mailing addresses different from the state of truck registration.

The accuracy and reliability of the VIUS survey depends jointly on sampling variability and nonsampling errors. Standard errors arising from sampling variability can be converted for comparability by dividing the standard error value by the estimate and multiplying it by 100. This quantity, referred to as the percent standard error, totaled two-tenths of a percent in 1992 and 1997 for the VIUS sample. A large standard error relative to an estimate indicates lack of precision and, inversely, a small standard error indicates precision. The 1992 TIUS achieved over 90.2 percent reporting and the 1997 response rate equaled 84.5 percent, thus reliability may have decreased in the most recent survey.

**TABLE 1-23. World Motor Vehicle Production, Selected Countries**

**Motor Vehicle Production, Factory Sales, and New Passenger Car Retail Sales**

Ward's Motor Vehicle Facts & Figures is the source of these data. Ward's obtains sales data directly from manufacturers. Readers should note that automobile manufacturers have inflated sales figures in the past, but Ward's does contact companies to verify numbers that appear too high or low.

**Used Passenger Car Sales and Leased Passenger Cars**

ADT Automotive Used Car Market Report is the source of these data. The Wall Street Journal (WSJ) is the original source of 1999 data. According to an ADT representative, publishing deadlines require ADT to use WSJ numbers until they can be replaced with National Automotive Dealers Association data. ADT Automotive's Market Analysis Department also gathers figures from CNW Marketing/Research and the R.L. Polk Co. CNW estimates used car sales volumes by collecting state title transfer data and determining if a transaction was made between private individuals or between a consumer and a franchised or independent dealer. This estimate is evaluated by comparing total transactions with state automobile sales revenues. Polk, an additional source of data, maintains a state vehicle registration database. For 1998, the ADT representative stated that Polk's data were within 5 percentage points of CNW estimates.

**TABLE 1-24. Number and Size of the U.S. Flag Merchant Fleet and Its Share of the World Fleet**

The U.S. Department of Transportation, Maritime Administration, which classifies vessels as merchant based on size and type, compiles these figures from a data service provided by Lloyd's Maritime Information Service. The parent company, Lloyd's Register (LR), collects data from several sources: its 200 offices worldwide, data transfers and agreements with other classification societies, questionnaires to ship owners and shipbuilders, feedback from government agencies, and input from port agents. According to an LR official, consistent data gathering methods have been maintained for more than 30 years, but cautioned that inconsistencies may occur in groupings of ship types over time. For example, tank barges are now included in the tanker ship-type grouping rather than the barge grouping.

**TABLE 1-25. U.S. Airport Runway Pavement Conditions**

These data originate from the U.S. Department of Transportation, Federal Aviation Administration (FAA), National Plan of Integrated Airport Systems (NPIAS). The NPIAS includes all commercial service airports, all reliever airports, and selected general aviation airports. It does not include more than 1,000 publicly owned public use landing areas, privately owned public use airports, and other civil landing areas not open to the general public. NPIAS airports serve 92 percent of general aviation aircraft (based on an estimated fleet of 200,000 aircraft). In 1998, the NPIAS encompassed 3,344 of the 5,357 airports with public access. Runway pavement condition is classified as follows:

*Good:* All cracks and joints are sealed.

*Fair:* Mild surface cracking, unsealed joints, and slab edge spalling.

*Poor:* Large open cracks, surface and edge spalling, vegetation growing through cracks and joints.

On a rotating basis, the FAA arranges annual inspections for about 2,000 of the approximately 4,700 public-use airports. The inspections are based on funding availability and not on statistical criteria, and nearly all runways are inspected every two years. Inspections are primarily made to collect information for pilots on airport conditions. The FAA relies on state and local agencies to perform inspections, so some inaccuracy may arise from variation in their

adherence to federal guidelines regarding pavement condition reporting. In 1998, the U.S. General Accounting Office found that Pavement Condition Index information was available for about 35 percent of NPIAS airports (GAO/RCED-98-226).

**TABLE 1-26. Median Age of Automobiles and Trucks in Operation in the United States**

The R.L. Polk Co. is a private enterprise that purchases state registration data to maintain a database of operational vehicles. Its data represent a near census of registered vehicles in the United States, and the age estimate should be considered very reliable.

**TABLE 1-27. Condition of U.S. Roadways by Functional System**

U.S. Department of Transportation, Federal Highway Administration (FHWA) collects pavement condition data from each state through the Highway Performance Monitoring System. The FHWA uses two rating schemes-the Present Serviceability Rating (PSR) and the International Roughness Indicator (IRI). IRI is used to measure the condition of Interstates, other principal arterials, rural minor arterials, and other National Highway System roadways. PSR is used to measure the condition of rural major collectors and urban minor arterials and collectors. Rural minor collectors are not measured. Where IRI data are not reported for sampled sections, the PSR data are collected. Using the PSR, values range from 0.1 to 5.0, where 5.0 denotes new pavement in excellent condition and 0.1 denotes pavement in extremely poor condition. On the IRI scale however, lower values indicate smoother roads (e.g., <60 for interstate pavement in very good condition to >170 for interstate pavement in poor condition).

The IRI is an objective measure of pavement roughness developed by the World Bank. The PSR is a more subjective measure of a broader range of pavement characteristics and therefore less comparable. Prior to 1993, all pavement conditions were evaluated using PSR values. Beginning with data published in *Highway Statistics 1993*, the FHWA began a transition to the IRI, which should eventually replace the PSR. The change from PSR to IRI makes comparisons between pre-1993 pavement condition data and 1993 and later pavement condition data difficult. Thus, trend comparisons should be made with care.

FHWA indicates that the protocol of measuring pavement roughness is not followed by all states, and some did not report for all required mileage. Totals only reflect those states reporting usable or partially usable data. Column percentages may not sum to 100 and may differ slightly from percentages in source tables, which were adjusted so that they would add to 100.FHWA believes that the IRI data are of "reasonably good quality."

**TABLE 1-28. Condition of U.S. Bridges**

These figures are from the U. S. Department of Transportation, Federal Highway Administration (FHWA), National Bridge Inventory Database. State highway agencies are required to maintain a bridge inspection program and inspect most bridges on public roadways at a minimum of every two years. With FHWA approval, certain bridges may be inspected less frequently. A complete file of all bridges is collected and maintained, representing a very reliable assessment of bridge conditions. However, some inaccuracy may be attributable to variations in state inspector's adherence to the National Bridge Inspection Standards.

**TABLE 1-29. Average Age of Urban Transit Vehicles**

**TABLE 1-30. Condition of Urban Bus and Rail Transit Maintenance Facilities**

**TABLE 1-31. Condition of Rail Transit Infrastructure**

These figures are based on information in the U.S. Department of Transportation, Federal Transit Administration (FTA), National Transit Database. The legislative requirement for the NTD is found in Title 49 U.S.C. 5335(a). Transit agencies receiving funds through the Urbanized Area Formula Program are generally required to report financial and operating data, including vehicle inventories. Transit operators that do not report to FTA are those that do not receive Urbanized Area Formula Funding, typically private, small, and rural operators. The data are generally considered accurate because FTA reviews and validates information submitted by individual transit agencies. Reliability may vary because some transit agencies cannot obtain accurate information or may misinterpret certain data definitions.

**TABLE 1-32. Class I Railroad Locomotive Fleet by Year Built**

The data are from *Railroad Facts*, published annually by the Association of American Railroads (AAR). Figures reported by AAR are based on 100-percent reporting by Class I railroads to the Surface Transportation Board (STB) via Schedule 700 of the *R1 Annual Report*. STB defines Class I railroads as having operating revenues at or above a threshold indexed to a base of $250 million (1991) and adjusted annually in concert with changes in the Railroad Freight Rate Index published by the Bureau of Labor Statistics. In 2000, the threshold for Class I railroads was $261.9 million. Declassification from Class I status occurs when a railroad falls below the applicable threshold for three consecutive years. Although Class I railroads encompasses only 2 percent of the number of railroads in the country, they account for over 71 percent of the industry's mileage operated.

**TABLE 1-33. Age and Availability of Amtrak Locomotive and Car Fleets**

Amtrak maintains a computer database with a record of every locomotive and car it operates. For each vehicle those records include the year built, its service status (operating or not on a daily basis), and location. These data should be considered very reliable.

**TABLE 1-34. U.S. Flag Vessels by Type and Age**

The data are from the U.S. Army Corps of Engineers (USACE), *Waterborne Transportation Lines of the United States* (WTLUS), annual issues. The WTLUS database contains information on vessel operators and characteristics and descriptions for all domestic vessel operations. Data are collected by the USACE's Navigation Data Center, primarily through a survey of vessel operating companies. More than 3,000 surveys are sent to these companies and response rates are typically above 90 percent. However, a USACE official did report that less than 10 percent of the total number of companies operating inland vessel fleets either did not receive and/or did not respond to the annual survey.

**TABLE 1-35. U.S. Vehicle-Miles**

**TABLE 1-36. Roadway Vehicle-Miles Traveled (VMT) and VMT per Lane-Mile by Functional Class**

**TABLE 1-40. U.S. Passenger-Miles**

**Air Carrier, Certificated, Domestic, All Services**

The U.S. Department of Transportation (USDOT), the Bureau of Transportation Statistics, Office of Airline Information, reports aircraft revenue-miles and passenger-miles in its publication *Air Traffic Statistics*. These numbers are based on 100-percent reporting of passengers and trip length by large certificated air carriers. Minor errors arise from nonreporting but amount to less than 1 percent of all air carrier passenger-miles. The figures do not include data for all airlines, such as most scheduled commuter airlines and all nonscheduled commuter airlines. These, if added, may raise total air passenger-miles by about 5 percent.

**General Aviation**

Passenger-mile numbers for 1975 to present are calculated by adjusting the Interstate Commerce Commission's 1974 figure for air passenger-miles by the percentage change in annual hours flown by general aviation aircraft as published in the USDOT, Federal Aviation Administration (FAA), *FAA Statistical Handbook of Aviation*. Numbers in the handbook are based on the General Aviation and Air Taxi Survey (GAATA). In 1993, the GAATA stopped including commuter aircraft. Commuter-miles collected before 1993 by the GAATA were, according to one FAA official, woefully underreported. Therefore, problems with the estimate of general aviation aircraft include: a break in the series between 1992 and 1993, a possible outdated factor used to calculate passenger-miles, and the classification of commuter operations.

**Highway**

Highway vehicle-miles of travel (vmt) are estimated using data from the Highway Performance Monitoring System (HPMS), a database maintained by FHWA that contains information on highway characteristics supplied by individual states. Annual vmt by highway functional system is calculated as the product of the annual average daily traffic (AADT) along each highway section, the centerline length of each highway section, and the number of days in the

year. Also, expansion factors are used for roadways that are sampled rather than continuously monitored. Vmt by vehicle type is estimated using vehicle share estimates supplied by states.

FHWA has established methods for collecting, coding, and reporting HPMS data in two manuals: *Traffic Monitoring Guide* (TMG) and *Highway Performance Monitoring System Field Manual*. The prescribed sampling process for collecting highway volume data, which is used to estimate AADT, is based on statistical methods. However, in practice, several factors affect the ultimate quality of the data. FHWA discusses many of these issues in their annual *Highway Statistics* report and other publications. However, BTS is not aware of any study or report that has statistically quantified the accuracy of vmt estimates. Some of the primary issues related to data quality are noted here.

1. The sampling procedures suggested in the TMG and HPMS *Field Manual* are designed to produce traffic volume estimates with an average precision level of 80-percent confidence with a 10-percent allowable error at the state level. FHWA provides additional guidance to states through annual workshops and other avenues to help them follow these procedures as closely as possible. However, the actual data quality and consistency of HPMS information are dependent on the programs, actions, and maintenance of sound databases by numerous data collectors, suppliers, and analysts at the state, metropolitan, and other local area levels. Not all states follow the recommended sampling, counting, and estimating procedures contained in the *Traffic Monitoring Guide*, and the exact degree to which the states follow these guidelines overall is unknown. However, FHWA believes that most states generally follow the guidelines.

2. Estimates for higher-level roadway systems are more accurate than those for lower level ones, since traffic volumes on higher-level roadways are sampled at a higher rate. The TMG recommends that traffic counts be collected for all Interstate and principal arterial sections on a three-year cycle. Under this scheme, about one-third of the traffic counts for these roadway sections in a given year are actually measured, while volumes on the remainder are factored to represent present growth. Although some States collect data at all traffic count locations every year, most use some variation of the TMG data collection guidelines. Volumes on urban and rural minor arterials, rural major collectors, and urban collectors are collected using a sampling procedure. States are not required to report volumes for rural/urban local systems and rural minor collectors, though most do so. However, the methods used to estimate travel on these roadways vary from state to state since there are no standard guidelines for calculating travel on these roadways.

3. Vmt estimates by vehicle type are less accurate than are estimates for total motor vehicle vmt for several reasons:1) vehicle classification equipment can frequently misclassify vehicles (see B.A. Harvey et al, *Accuracy of Traffic Monitoring Equipment*, GDOT 9210, (Georgia Tech Research Institute:1995)); 2) vehicle shares are often determined by methods or by special studies that are not directly compatible with HPMS data definitions and/or purposes, and observed local-level vehicle classification counts are difficult to apply on a statewide basis; and 3) vehicle type definitions can vary among states.

4. Vmt estimates for combination trucks in HPMS differ from survey-based estimates from the Truck Inventory and Use Survey (TIUS), as much as 50 percent for some categories of combination trucks. Much of this discrepancy appears to be due to differences in truck classification definitions and biases introduced by data collection practices. See R.D. Mingo et al.1995. *Transportation Research Record*, No. 1511 (Washington, DC: National Academy Press), pp. 42-46.

5. FHWA adjusts questionable data using a variety of standard techniques and professional judgement. For example, national average temporal adjustment factors developed from HPMS and other national highway monitoring programs are applied to State data, when necessary, to compensate for temporal deficiencies in sampling practices. Also, in estimating vmt by vehicle type, FHWA employs an iterative process to reconcile vmt, fuel economy (miles per gallon), fuel consumption, and vehicle registration estimates. Fuel consumption, total vmt by highway functional class, and registrations by vehicle group are used as control totals. This process limits the size of errors and ensures data consistency.

6.Passenger-miles of travel (pmt) are calculated by multiplying vmt estimates by vehicle loading (or occupancy) factors from various sources, such as the Nationwide Personal Transportation Survey conducted by FHWA and TIUS. Thus, pmt data are subject to the same accuracy issues as vmt, along with uncertainties associated with estimating vehicle-loading factors.

**Transit**

The American Public Transit Association (APTA) figures are based on information in USDOT, Federal Transit Administration (FTA), National Transit Database. Transit data are generally considered accurate because FTA reviews and validates information submitted by individual transit agencies. However, reliability may vary because some transit agencies cannot obtain accurate information or may misinterpret data. APTA adjusts the FTA data to include transit operators that do not report to the FTA database (private, very small, and rural operators).

**Class I Rail (vehicle-miles)**

Data are from *Railroad Facts*, published annually by the Association of American Railroads (AAR). AAR data are based on 100-percent reporting by Class I railroads to the Surface Transportation Board (STB) via Schedule 700 of the *R1 Annual Report* required of Class I railroads. STB defines Class I railroads as having operating revenues at or above a threshold indexed to a base of $250 million (1991) and adjusted annually in concert with changes in the Railroad Freight Rate Index published by the Bureau of Labor Statistics. In 1999, the adjusted threshold for Class I railroads was $258.5 million. Declassification from Class I status occurs when a railroad falls below the applicable threshold for three consecutive years. Although Class I railroads encompasses only 2 percent of the number of railroads in the country, they account for over 71 percent of the industry's mileage operated.

**Intercity Train**

The AAR passenger-miles number is based on an almost 100-percent count of tickets and, therefore, is considered accurate.

**TABLE 1-38. Average Length of Haul: Domestic Freight and Passenger Modes**

**Freight**

Air Carrier and Truck

The Eno Transportation Foundation, Inc. estimated these figures.

Class I Rail

The data are from *Railroad Facts*, published annually by the Association of American Railroads (AAR). AAR data are based on 100-percent reporting by Class I railroads to the Surface Transportation Board (STB) via Schedule 700 of the *R1 Annual Report* required of Class I railroads. The STB defined Class I railroads as having operating revenues at or above a threshold indexed to a base of $250 million (1991) and adjusted annually in concert with changes in the Railroad Freight Rate Index published by the Bureau of Labor Statistics. In 2000, the adjusted threshold for Class I railroads was $ 261.9 million. Declassification from Class I status occurs when a railroad falls below the applicable threshold for three consecutive years. Although Class I railroads encompasses only 1percent of the number of railroads in the country, they account for over 71 percent of the industry's mileage operated.

Water

The data are from *Waterborne Commerce of the United States*, published by the U.S. Army Corps of Engineers (USACE). All vessel operators of record report their domestic waterborne traffic movements to USACE via ENG Forms 3925 and 3925b.Cargo movements are reported according to points of loading and unloading. Certain cargo movements are excluded: 1) cargo carried on general ferries, 2) coal and petroleum products loaded from shore facilities directly into vessels for fuel use, 3) military cargo moved in U.S. Department of Defense vessels, and 4) cargo weighing less than 100 tons moved on government equipment. USACE calculates ton-miles by multiplying the cargo's tonnage by the distance between points of loading and unloading.

Oil Pipeline

The Eno Transportation Foundation, Inc., provided these figures, which are estimates based on U.S. Department of Energy and Association of Oil Pipe Lines reports. Figures are derived by dividing estimated pipeline ton-miles by estimated crude and petroleum products tonnage.

**Passenger**

Air Carrier

The U.S. Department of Transportation (USDOT), the Bureau of Transportation Statistics, Office of Airline Information, reports average trip length in its publication *Air Traffic Statistics*. These numbers are based on 100-percent reporting of passengers and trip length by large certificated air carriers via BTS Form 41.The figures do not include data for all airlines, such as most scheduled commuter airlines and all nonscheduled commuter airlines.

Bus

The Eno Transportation Foundation, Inc. estimated these figures based on Class I carrier passenger data and vehicle-miles data from *Highway Statistics*, an annually published report of the USDOT, Federal Highway Administration.

Commuter Rail

The American Public Transit Association (APTA) provided these data, which are based on the USDOT, Federal Transit Administration's (FTA's), National Transit Database. Transit data are generally accurate because the FTA reviews and validates information submitted by individual transit agencies. Reliability may vary because some transit agencies cannot obtain accurate information or may misinterpret data. APTA conservatively adjusts FTA data to include transit operators that do not report to the database (private, very small, and rural operators).

Intercity/Amtrak

The Statistical Appendix to the Amtrak Annual Report is the source of these data. Amtrak data are based on 100 percent of issued tickets, and thus should be accurate.

**TABLE 1-42. Long-Distance Travel in the United States by Selected Trip Characteristics: 1995**

**TABLE 1-43. Long-Distance Travel in the United States by Selected Traveler Characteristics: 1995**

The data presented in these tables are estimates derived from the 1995 American Travel Survey (ATS) conducted for the U.S. Department of Transportation, Bureau of Transportation Statistics. The survey's estimation procedure inflates unweighted sample results to independent estimates of the total population of the United States. Values for missing data are estimated through imputation procedures.

Since ATS estimates come from a sample, they are subject to two possible types of error: nonsampling and sampling. Sources of nonsampling errors include inability to obtain information about all sample cases, errors made in data collection and processing, errors made in estimating values for missing data, and undercoverage.

The accuracy of an estimate depends on both types of error, but the full extent of the nonsampling error is unknown. Consequently, the user should be particularly careful when interpreting results based on a relatively small number of cases or on small differences between estimates.

Standard errors for ATS estimates that indicate the magnitude of sampling error as well as complete documentation of the source and reliability of the data may be obtained from detailed ATS reports. Because of methodological differences, users should use caution when comparing these data with data from other sources.

**TABLE 1-44. Passengers Boarded at the Top 50 U.S. Airports**

The *Airport Activity Statistics of Certificated Air Carriers* (AAS) is the source of these data. Published by USDOT, Bureau of Transportation Statistics, Office of Airline Information (OAI), the AAS presents traffic statistics for all scheduled and nonscheduled service by large certificated U.S. air carriers for each airport served within the 50 states, the District of Columbia, and other U.S. areas designated by the Federal Aviation Administration. The publication draws its data from the T-100 and T-3 databases maintained by OAI. These data are based on a 100-

percent reporting of enplanements, departures, and tonnage information by large certificated U.S. air carriers via BTS Form 41.

Prior to 1993, the AAS included all scheduled and some nonscheduled enplanements for certificated air carriers but did not include enplanements for air carriers offering charter service only. Prior to 1990, the freight category was divided into both freight and express shipments and the mail category was divided into U.S. mail (priority and nonpriority) and foreign mail. Beginning in 1990, only aggregate numbers were reported for freight and mail.

**TABLE 1-45. Air Passenger Travel Arrivals in the United States from Selected Foreign Countries**

**TABLE 1-46. Air Passenger Travel Departures from the United States to Selected Foreign Countries**

The International Trade Administration in the U.S. Department of Commerce publishes the *U.S. International Air Travel Statistics Report* annually. The passenger data is based on information collected by the U.S. Immigration and Naturalization Service using the INS Form I-92. All passengers on international flights must complete the I-92 form with the exception of those passengers on flights arriving or departing from Canada.

The international passenger arrivals and departures data for Canada is obtained from *Air Carrier Traffic at Canadian Airports*, which is published by Statistics Canada. Three surveys are conducted by Statistics Canada in order to collect the necessary passenger data. Since all data is not received by the time of publication and data is occasionally updated or resubmitted by the participating carriers, data should be considered preliminary for the years referenced in the source publication.

**TABLE 1-49. U.S. Ton-Miles of Freight**

**Air Carrier**

*Air Carrier Traffic Statistics*, published by the U.S. Department of Transportation, Bureau of Transportation Statistics (BTS), Office of Airline Information (OAI), is the source of these data. Large certificated U.S. air carriers report domestic freight activities to OAI via BTS Form 41.The information reported in the table represents transportation of freight (excluding passenger baggage), U.S. and foreign mail, and express mail within the 50 states, the District of Columbia, Puerto Rico, and the Virgin Islands. It also covers transborder traffic to Canada and Mexico by U.S. carriers. The data does not include information on small certificated air carriers, which represent less than 5 percent of freight ton-miles.

**Intercity Truck**

The data are estimates from *Transportation in America*, published by the Eno Transportation Foundation, Inc. (Eno). Eno's estimates of intercity truck ton-miles are based on historic data from the former Interstate Commerce Commission (ICC), estimates from the American Trucking Association, and other sources. Eno supplements its estimates by using additional information on vehicle-miles of truck travel published in Highway Statistics by the Federal Highway Administration. Users should note that truck estimates in the tables do not include local truck movements.

**Class I Rail**

The data are from *Railroad Facts*, published annually by the Association of American Railroads (AAR). AAR data are based on 100-percent reporting by Class I railroads to the Surface Transportation Board (STB). The data represent all revenue freight activities of the Class I railroads and are not based on information from the Rail Waybill Sample. The STB defines Class I railroads as having operating revenues at or above a threshold indexed to a base of $250 million (1991) and adjusted annually in concert with changes in the Railroad Freight Rate Index published by the Bureau of Labor Statistics. In 2000, the adjusted threshold for Class I railroads was $ 261.9 million. Declassification from Class I status occurs when a railroad falls below the applicable threshold for three consecutive years. Although Class I railroads encompasses only 1 percent of the number of railroads in the country, they account for over 71 percent of the industry's mileage operated.

**Domestic Water Transport**

The data are from *Waterborne Commerce of the United States*, published by the U.S. Army Corps of Engineers (USACE). All vessel operators of record report their domestic waterborne traffic movements to USACE via ENG Forms 3925 and 3925b.Cargo movements are reported according to points of loading and unloading. Certain cargo movements are excluded: 1) cargo carried on general ferries, 2) coal and petroleum products loaded from shore facilities directly into vessels for fuel use, 3) military cargo moved in U.S. Department of Defense vessels, and 4) cargo weighing less than 100 tons moved on government equipment. USACE calculates ton-miles by multiplying the cargo's tonnage by the distance between the points of loading and unloading.

**Oil Pipeline**

The data for 1960, 1965, and 1970 are from *Transportation in America*, published by the Eno Transportation Foundation, Inc., and the data for 1975 to 1998 are from *Shifts in Petroleum Transportation*, by the Association of Oil Pipe Lines (AOPL). Eno's data are based on information from the former Interstate Commerce Commission's *Transport Economics*. Common carrier oil pipelines reported all freight activities to the ICC.

AOPL obtains barrel-miles from the Federal Energy Regulatory Commission (FERC), which requires petroleum shippers to report annual shipments. AOPL then coverts barrel-miles to ton-miles using conversion figures in the American Petroleum Institute's (API's) *Basic Petroleum Data Book*. Since 16 percent of pipeline shipments are intrastate and not subject to FERC reporting requirements, AOPL makes adjustments to FERC data.

**TABLE 1-51. Top U.S. Foreign Trade Freight Gateways by Value of Shipments: 2001**

The value of U.S. air, maritime, and land imports and exports are captured from administrative documents required by the U.S. Departments of Commerce and Treasury. In 1990, the United States entered into a Memorandum of Understanding with Canada concerning the exchange of import data. As a consequence, each country is using the other's import data to replace its own export data. U.S. international merchandise trade statistics, therefore, are no longer derived exclusively from the administrative records of the Departments of Commerce and Treasury, but from Revenue Canada. Import value is for U.S. general imports, customs value basis. Export value is FAS (free along ship) and represents the value of exports at the U.S. port of export, including the transaction price and inland freight, insurance, and other charges. Trade levels reflect the mode of transportation as a shipment entered or exited a U.S. Customs port.

Truck, rail pipeline, mail, and miscellaneous modes are included in the total for land modes. Data present trade activity between the United States, Puerto Rico, and the U.S. Virgin Islands and Canada and Mexico. These statistics do not include traffic between Guam, Wake Island, and America Samoa and Canada and Mexico. These statistics also exclude imports that are valued at less than $1,250 and for exports that are valued at less than $2,500.

**TABLE 1-56. U.S. Waterborne Freight**

The data are from *Waterborne Commerce of the United States*, published by the U.S. Army Corps of Engineers (USACE). All vessel operators of record report their domestic waterborne traffic movements to USACE via ENG Forms 3925 and 3925b. Cargo movements are reported according to points of loading and unloading. Certain cargo movements are excluded: 1) cargo carried on general ferries, 2) coal and petroleum products loaded from shore facilities directly into vessels for fuel use, 3) military cargo moved in U.S. Department of Defense vessels, and 4) cargo weighing less than 100 tons moved on government equipment. USACE calculates ton-miles by multiplying the cargo's tonnage by the distance between points of loading and unloading.

Foreign waterborne statistics are derived from Census Bureau and U.S. Customs data, which excludes traffic between Guam, Wake Island, and American Samoa and any other foreign country, and imports and exports used by U.S. Armed Forces abroad. Individual vessel movements with origins and destinations at U.S. ports, traveling via the Panama Canal are considered domestic traffic.

**TABLE 1-57. Tonnage of Top 50 U.S. Water Ports, Ranked by Total Tons**

Data on the weight of U.S. maritime imports and exports are captured from administrative documents required by the U.S. Departments of Commerce and Treasury. In 1990, the United States entered into a Memorandum of Understanding with Canada concerning the exchange of import data. As a consequence, each country is using the other's import data to replace its own export data. The United States' merchandise trade statistics, therefore, are no

longer derived exclusively from U.S. government administrative records, but from Revenue Canada. Maritime weight data are initially processed and edited by the Foreign Trade Division, U.S. Census Bureau (Census) as part of the overall edits and quality checks performed on all U.S. international merchandise trade data. After Census processing, the U.S. Army Corps of Engineers (USACE) and the Maritime Administration (MARAD) perform additional maritime-specific processing and quality edits on maritime-related data elements, including the weight of maritime imports and exports. The USACE and MARAD began performing this function in October 1998 after the Foreign Waterborne Trade data program was transferred from the Census Bureau. Prior to October 1998, the USACE historically performed additional specialized edits at the port level, including reassignment of some tonnage data to the actual waterborne port rather than the reported U.S. Customs port.

**TABLE 1-58. Freight Activity in the United States: 1993, 1997, 2002, and 2007**

**TABLE 1-59. Value, Tons, and Ton- Miles of Freight Shipments within the United States by Domestic Establishment, 2007**

**TABLE 1-62. U.S. Hazardous Materials Shipments by Transportation Mode, 2007**

**TABLE 1-63. U.S. Hazardous Materials Shipments by Hazard Class, 2007**

These data are collected via the 1997 Commodity Flow Survey (CFS) undertaken through a partnership between the U.S. Department of Commerce, Census Bureau (Census), and the U.S. Department of Transportation, Bureau of Transportation Statistics. For the 1997 CFS, Census conducted a sample of 100,000 domestic establishments randomly selected from a universe of about 800,000 multiestablishment companies in the mining, manufacturing, wholesale trade, and selected retail industries. It excluded establishments classified as farms, forestry, fisheries, governments, construction, transportation, foreign, services, and most retail.

**Reliability of the Estimates**

An estimate based on a sample survey potentially contains two types of errors-sampling and nonsampling. Sampling errors occur because the estimate is based on a sample, not on the entire universe. Nonsampling errors can be attributed to many sources in the collection and processing of the data and occur in all data, not just those from a sample survey. The accuracy of a survey result is affected jointly by sampling and nonsampling errors.

**Sampling Variability**

Because the estimates are derived from a sample of the survey population, results are not expected to agree with those that might be obtained from a 100-percent census using the same enumeration procedure. However, because each establishment in the Standard Statistical Establishment List had a known probability of being selected for sampling, estimating the sampling variability of the estimates is possible. The standard error of the estimate is a measure of the variability among the values of the estimate computed from all possible samples of the same size and design. Thus, it is a measure of the precision with which an estimate from a particular sample approximates the results of a complete enumeration. The coefficient of variation is the standard error of the estimate divided by the value being estimated. It is expressed as a percent. Note that measures of sampling variability, such as the standard error or coefficient of variation, are estimated from the sample and are also subject to sampling variability. Standard errors and coefficients of variation for CFS data presented in this report are given in Appendix B of the 1997 Economic Census report, and are available online www.census.gov/econ/wwwse0700.html.

**Nonsampling Errors**

In the CFS, as in other surveys, nonsampling errors can be attributed to many sources, including 1) nonresponse; 2) response errors; 3) differences in the interpretation of questions; 4) mistakes in coding or recoding the data; and 5) other errors of collection, response, coverage, and estimation.

A potentially large source of nonsampling error is due to nonresponse, which is defined as the inability to obtain all intended measurements or responses from selected establishments. Nonresponse is corrected by imputation.

**TABLE 1-60. Value of U.S. Land Exports to and Imports from Canada and Mexico by Mode**

The Transborder Surface Freight Data (TSFD) is derived from official U.S. international merchandise import and export data. (For a description of U.S. merchandise trade statistics, see www.census.gov/foreign-trade/www/index.html.) As of December 1995, about 96 percent of the value of all U.S. imports has been collected electronically by the Automated Broker Interface System. About 55 percent of the value of all U.S. exports is collected electronically through the U.S./Canada Data Exchange and the Automated Export Reporting Program. The balance is collected from administrative records required by the U.S. Departments of Commerce and Treasury.

The TSFD incorporates all data, by surface mode, on shipments entering or exiting the United States from or to Canada or Mexico. Prior to January 1997, this dataset also included transshipments-shipments entering or exiting the United States by way of U.S. Customs ports on the northern or southern borders even when the actual origin or final destination of the goods was other than Canada or Mexico. (In other U.S. Bureau of the Census trade statistics, transshipments through Canada and Mexico are credited to the true country of origin or final destination.) To make this dataset more comparable to other U.S. Census Bureau trade statistics, detailed information on transshipments has been removed. The TSFD presents a summary of transshipments by country, direction of trade, and mode of transportation. Shipments that neither originate nor terminate in the United States (i.e., intransits) are beyond the scope of this dataset because they are not considered U.S. international trade shipments.

In general, the reliability of U.S. foreign trade statistics is very good. Users should be aware that trade data fields (e.g., value and commodity classification) are typically more rigorously reviewed than transportation data fields (e.g., the mode of transportation and port of entry/exit). Users should also be aware that the use of foreign trade data to describe physical transportation flows may not be accurate. For example, this dataset provides surface transportation information for individual U.S. Customs districts and ports on the northern and southern borders. However, because of filing procedures for trade documents, these ports may or may not record where goods physically cross the border. This is because the information filer may choose to file trade documents at one port while shipments actually enter or exit at another port. The TSFD, however, is the best publicly available approximation for analyzing transborder transportation flows. Since the dataset was introduced in April 1993, it has gone through several refinements and improvements. When improbabilities and inconsistencies were found in the dataset, extensive analytical reviews were conducted and improvements made. However, accuracy varies by direction of trade and individual field. For example, import data are generally more accurate than export data. This is primarily because the U.S. Customs Bureau uses import documents for enforcement purposes while it performs no similar function for exports. For additional information on TSFD, the reader is referred to the U.S. Department of Transportation, Bureau of Transportation Statistics Internet site at www.bts.gov/transborder.

**TABLE 1-61. Crude Oil and Petroleum Products Transported in the United States by Mode**

**Pipelines**

The Association of Oil Pipelines (AOPL) obtains barrel-miles from the Federal Energy Regulatory Commission (FERC), which requires petroleum shippers to report annual shipments. AOPL then coverts barrel-miles to ton-miles using conversion figures in the American Petroleum Institute's (API's) *Basic Petroleum Data Book*. Since 16 percent of pipeline shipments are intrastate and not subject to FERC reporting requirements, AOPL makes adjustments to FERC data to include intrastate shipments. AOPL also conducts periodic studies to estimate intrastate shipments.

**Water Carriers**

Data are from *Waterborne Commerce of the United States*, published by the U.S. Army Corps of Engineers (USACE). All vessel operators of record report domestic freight and tonnage information to USACE via ENG Forms 3925 and 3925b.Cargo movements are reported according to points of loading and unloading. Certain cargo movements are excluded: 1) cargo carried on general ferries, 2) coal and petroleum products loaded from shore facilities directly into vessels for fuel use, 3) military cargo moved in U.S. Department of Defense vessels, and 4) cargo weighing less than 100 tons moved on government equipment. USACE calculates ton-miles by multiplying the cargo's tonnage by the distance between the points of loading and unloading.

**Motor Carriers**

AOPL estimates ton-miles by multiplying tons by the average length of haul. For crude, the tonnage of the prior year is projected by using a growth rate established by data from the U.S. Department of Energy, Energy Information Administration's *Petroleum Supply Annual*, vol. 1, table 37. For products, the same calculation is made but with a growth rate estimated by the American Trucking Association in *Financial and Operating Statistics, Class I and II,*

*Motor Carriers*, Summary table VI-B. Average length of haul is determined from the prior six years of data for ton-miles and tonnage of crude and petroleum products moved by motor carriers.

**Railroad**

AOPL calculates ton-miles by multiplying tonnage by average length of haul. Tonnage data for crude and products comes from the Association of American Railroad's *Freight Commodity Statistics*, U.S. Class I Railroads. The U.S. Department of Transportation, Federal Railroad Commission provides the average length of haul for crude and products in its Carload Way Bill Statistics.

**TABLE 1-64. Passengers Denied Boarding by the Largest U.S. Air Carriers**

**TABLE 1-65. Mishandled-Baggage Reports Filed by Passengers with the Largest U.S. Air Carriers**

**TABLE 1-66. Flight Operations Arriving On Time for the Largest U.S. Air Carriers**

These numbers are based on data filed with the U.S. Department of Transportation on a monthly basis by the largest U.S. air carriers - those that have at least one percent of total domestic scheduled-service passenger revenues. Data cover nonstop scheduled service flights between points within the United States (including territories). The largest U.S. carriers account for more than 90 percent of domestic operating revenues. They include Alaska Airlines, America West Airlines, American Airlines, Continental Airlines, Delta Air Lines, Northwest Airlines, Trans World Airlines, Southwest Airlines, United Airlines, and US Airways. However, there are other carriers offering domestic scheduled passenger service that are not required to report. In some cases, major airlines sell tickets for flights that are actually operated by a smaller airline that is not subject to the reporting requirement.

**TABLE 1-67. FAA-Cited Causes of Departure and En route Delays**

The source of these data, the U.S. Department of Transportation (USDOT), Federal Aviation Administration (FAA), counts a flight as delayed if it departed or arrived more than 15 minutes after its scheduled gate departure and arrival times. FAA calculates delayed departures based on the difference between the time a pilot requests FAA clearance to taxi and the time an aircraft's wheels lift off the runway, minus the airport's standard unimpeded taxi-out time. Users should note that taxi-out time varies by airport due to differences in configurations. The cause of delay is also recorded, e.g., weather, terminal volume, closed runways, etc.

USDOT guidance defines departure as the time the aircraft parking brake is released and gate arrival as the time the brake is set. According to the USDOT's Office of the Inspector General (OIG), FAA's omission of part of a plane's ground movement compromises the data's validity. A recent OIG report noted that the FAA tracks ground time only after a pilot requests clearance and fails to track a plane's time in the ramp area. OIG found that ramp time comprised 28.7 percent to 40.5 percent of the average taxi-out time at the three major New York area airports (OIG Audit Report CR-2000-112), and would not be counted as an FAA delay.

**Reliability**

Several data collection changes complicate comparisons over time. For example, FAA modified its method for calculating volume-related delays that resulted in a 17 percent drop in such delays. Decreases in volume-related delays from 1998 to 1999 totaled less than one percent. Moreover, prior to 1999, USDOT did not provide a clear definition of what a departure was. An OIG Audit (CE-1999-054) report noted that air carriers used four different departure events: 1) rolling of aircraft wheels; 2) release of parking brake; 3) closure of passenger and/or cargo doors; and 4) a combination of door closures and release of the parking break. The same report also noted errors in the reporting of departure times by the air carriers.

Data are now manually entered in FAA's Operations Network (OSPNET) database, and reporting errors may arise and decrease reliability. The FAA monitors data quality assurance by spot checking the reported delay data and requesting that discrepancies be reviewed by the responsible facility. According to an OIG Audit (CR-2000-112), however, mistakes are not reliably corrected and many air traffic controllers suggested that delays are underreported sometimes by as much as 30 percent.

**TABLE 1-68. Major U.S. Air Carrier Delays, Cancellations, and Diversions**

A second data source for air-carrier delay is the USDOT, Bureau of Transportation Statistics, Office of Airline Information (OAI). This information originates from the Airline Service Quality Performance data. These figures are collected from the largest airlines-those that have at least one percent or more of total domestic scheduled service passenger revenues. Delays are categorized by phase of flight (i.e., gate-hold, taxi-out, airborne, or taxi-in delays). These data differ from FAA's OSPNET information due to differences in definition of delay.

While the FAA tracks delays on the taxiway, runway, and in the air, BTS tracks delays at the departure and arrival gates. OAI calculates delays as the difference between scheduled and actual gate departure. If a flight leaves the gate within 15 minutes of its scheduled time, then OAI would record it as departed on-time even if it sat for several hours on the ramp or runway, in which case the delay would be accounted for as a late arrival.

**TABLE 1-69. Annual Person-Hours of Delay Per Auto Traveler**

**TABLE 1-70. Travel Time Index**

**TABLE 1-71. Annual Roadway Congestion Index**

**TABLE 1-72. Annual Congestion Index and Cost Values**

The Texas Transportation Institute's (TTI) *Urban Roadway Congestion Annual Report* provided figures for tables 1-60through 62.TTI relies on data from the U.S. Department of Transportation, Federal Highway Administration, Highway Performance Monitoring System database (HPMS). TTI utilizes these data as inputs to its congestion estimation model. Detailed documentation for the TTI model and estimations can be found at this website http://mobility.tamu.edu.

**Structure, Assumptions, and Parameters**

Urban roadway congestion levels are estimated using a formula measuring traffic density. Average travel volume per lane on freeways and principal arterial streets are estimated using area wide estimates of vehicle-miles of travel (vmt) and lane miles of roadway. The resulting ratios are combined using the amount of travel on each portion of the system so that the combined index measures conditions on the freeway and principal arterial street systems. Values greater than one are indicative of undesirable congestion levels. Readers seeking the algorithm for the congestion index should examine this website http://mobility.tamu.edu.

Annual person-hours of delay results from the multiplication of daily vehicle-hours of incident and recurring delay times 250 working days per year times 1.25 persons per vehicle. Two types of costs are incurred due to congestion: time delay and fuel consumption. Delay costs are the product of passenger vehicle hours of delay times $12.85 per hour person time value times 1.25 occupants per vehicle. Fuel costs are calculated for passenger and commercial vehicles from the multiplication of peak period congestion speeds, the average fuel economy, fuel costs, and vehicle-hours of delay.

In previous reports, the TTI methodology assumed that 45 percent of all traffic, regardless of the urban location, occurred in congested conditions. TTI indicated that this assumption overestimated travel in congested periods. Thus, their 2002 estimates now vary by urban area anywhere from 18 percent to 50 percent of travel that occurs in congestion. TTI's model structure applies to two types of roads: freeways and principal arterial streets. The model derives estimates of vehicle traffic per lane and traffic speed for an entire urban area. Based on variation in these amounts, travel is then classified under 5 categories: uncongested, moderately congested, heavily congested, severely congested, and extremely congested (a new category in 1999). The threshold between uncongested and congested was changed in 2002. Previous editions classified congested travel when areawide traffic levels reached 14,000 vehicles per lane per day on highways and 5,500vehicles per lane per day on principal arterial streets. For the current edition, these values are 15,500 and 5,500 vehicles per lane per day, respectively. Previous years values have been re-estimated based on these new assumptions. Readers should refer to the TTI Internet site for more detailed algorithms and estimation procedures at http://mobility.tamu.edu.

TTI reviews and adjusts the data used in their models. State and local officials also review the TTI data and estimations. Some of the limitations acknowledged in the TTI report include the macroscopic character of the index. Thus, it does not account for local variations in travel patterns that may affect travel times. The index also does not

account for local improvements, such as ramp metering or travel speed advantages obtained with transit or carpool lanes.

**TABLE 1-73. Amtrak On-Time Performance Trends and Hours of Delay by Cause**

Amtrak determines on-time performance through its computer system maintained at the National Operations Center (NOPS) in Wilmington, Delaware. If a train is delayed, a call is made to the NOPS for recordkeeping. These data can be supplemented with computer entries made for locomotive or car malfunctions that cause delays. These data should be considered reliable.

# Appendix E
# Data Source and Accuracy Statements

## Chapter 2 Safety

## *AIR DATA*

**TABLE 2-1. Transportation Fatalities by Mode**

**TABLE 2-2. Injured Persons by Transportation Mode**

**TABLE 2-3. Transportation Accidents by Mode**

**TABLE 2-4. Distribution of Transportation Fatalities by Mode**

**TABLE 2-7. Transportation-Related Occupational Fatalities**

**TABLE 2-9. U.S. Air Carrier Safety Data**

**TABLE 2-10. U.S. Commuter Air Carrier Safety Data**

**TABLE 2-11. U.S. Air Carrier Fatal Accidents by First Phase of Operation**

**TABLE 2-12. U.S. Commuter Air Carrier Fatal Accidents by First Phase of Operation**

**TABLE 2-13. U.S. On-Demand Air Taxi Safety Data**

**TABLE 2-14. U.S. General Aviation Safety Data**

National Transportation Safety Board investigators perform onsite and offsite investigations of all accidents involving U.S. registered air carriers operating under 14 CFR 121, 14 CFR 135, and general aviation U.S. Department of Transportation (USDOT), Federal Aviation Administration (FAA) regulations. The investigators compile information on fatalities and injuries for all accidents. The counts for fatalities and serious injuries are expected to be extremely accurate. (See glossary for serious injury definition.)

Exposure data (aircraft-miles, aircraft-hours, and aircraft-departures) are obtained from the FAA, which in turn gets some of its exposure data from the USDOT, Bureau of Transportation Statistics, Office of Airline Information (OAI) and other exposure data from its own General Aviation and Air Taxi Activity and Avionics (GAATAA) Survey. The OAI data represent 100 percent reporting by airlines. Tables that include air carriers (14 CFR 121, scheduled and nonscheduled service) and commuter air carriers (14 CFR 135, scheduled service only) use OAI exposure data. Tables that include on-demand air taxi (14 CFR 135, nonscheduled service) and general aviation use GAATAA Survey results. For information about the GAATA Survey, please refer to the chapter 1 data accuracy statement for table 1-9.

The coefficients of variation for aircraft-hours vary by year, but are usually in the 9 to 10 percent range for on-demand air taxi and are approximately 2 percent for general aviation.

**TABLE 2-15. Number of Pilot-Reported Near Midair Collisions by Degree of Hazard**

Near Midair Collision reports are provided voluntarily by air carriers, general aviation companies, and the military, and this information is added to the Near Midair Collisions System database. Factors that may influence whether or not a near midair collision is reported include the pilot's or other crew members' perception of whether a reportable near

midair collision occurred, which in turn can depend on factors such as visibility conditions; the reporter's flying experience; or the size of the aircraft involved. A reportable incident is one in which an aircraft is within 500 feet of another aircraft and a possibility of collision existed.

# HIGHWAY DATA

**TABLE 2-1.Transportation Fatalities by Mode**

**TABLE 2-2. Transportation Injuries by Mode**

**TABLE 2-3. Transportation Accidents by Mode**

**TABLE 2-4. Distribution of Transportation Fatalities by Mode**

**TABLE 2-5. Highway-Rail Grade-Crossing Safety Data and Property Damage**

**TABLE 2-7. Transportation-Related Occupational Fatalities**

**TABLE 2-17. Motor Vehicle Safety Data**

**TABLE 2-18. Motor Vehicle Fatalities, Vehicle-Miles, and Associated Rates by Highway Functional System**

**TABLE 2-19. Occupant Fatalities by Vehicle Type and Nonoccupant Fatalities**

**TABLE 2-20. Occupant and Nonmotorist Fatalities in Crashes by Number of Vehicles and Alcohol Involvement**

**TABLE 2-21. Passenger Car Occupant Safety Data**

**TABLE 2-22. Motorcycle Ride Safety Data**

**TABLE 2-23. Truck Occupant Safety Data**

**TABLE 2-24. Bus Occupant Safety Data**

**TABLE 2-26. Fatalities by Highest Blood Alcohol Concentration in Highway Crashes**

**TABLE 2-28. Motor Vehicle Fatal Crashes by Day of Week, Time of Day, and Weather and Light Conditions**

**TABLE 2-29. Motor Vehicle Fatal Crashes by Posted Speed Limit**

**Fatalities**

Highway fatality data come from the Fatality Analysis Reporting System (FARS), which is compiled by trained FARS analysts at USDOT, National Highway Traffic Safety Administration (NHTSA) regional offices. Data are gathered from a census of police accident reports (PARs), state vehicle registration files, state drivers licensing files, state highway department data, vital statistics, death certificates, coroner/medical examiner reports, hospital medical reports, and emergency medical service reports. A separate form is completed for each fatal crash. Blood alcohol concentration (BAC) is estimated when not known. Statistical procedures used for unknown data in FARS can be found in the NHTSA report: *Transitioning to Multiple Imputation - A New Method to Impute Missing Blood Alcohol Concentration (BAC) values in FARS*, DOT HS 809 403 (Washington, DC: January 2002).

Data are collected from relevant state agencies and electronically submitted for inclusion in the FARs database on a continuous basis. Cross-verification of PARs with death certificates ensures that undercounting is rare. Moreover,

when data are entered, they are checked automatically for acceptable range values and consistency, enabling quick corrections when necessary. Several programs continually monitor the data for completeness and accuracy. Periodically, sample cases are analyzed for accuracy and consistency.

Note that the FARS data do not include motor vehicle fatalities on nonpublic roads. However, previous NHTSA analysis found that these fatalities account for 2 percent or fewer of the total motor vehicle fatalities per year. (See glossary for highway fatality definition.)

**Injuries and Crashes**

NHTSA's General Estimates System (GES) data are a nationally representative sample of police-reported crashes that contributed to an injury or fatality or resulted in property damage, and involved at least one motor vehicle traveling on a trafficway. Trained GES data collectors randomly sample PARs and forward copies to a central contractor for coding into a standard GES system format. Documents such as police diagrams or supporting text provided by the officers may be further reviewed to complete a data entry.

NHTSA suggests that about half of motor vehicle crashes in the United States are not reported to police and that the majority of these unreported crashes involve minor property damage and no significant personal injury. A NHTSA study of injuries from motor vehicle crashes estimated the total count of nonfatal injuries at over 5 million compared with the GES's estimate of 3.2 million in 1998. (See glossary for highway crash and injury definitions.)

(See U.S. Department of Transportation, National Highway Traffic Safety Administration, *Traffic Safety Facts 2008*, DOT HS 811 170 (Washington, DC: 2009), appendices B and C for further information on GES, including a table of standard errors applicable to GES data.)

**TABLE 2-30. Safety Belt and Motorcycle Helmet Use**

The National Occupant Protection Use Survey (NOPUS), conducted biennially between 1994 and 2010 by the U.S. Department of Transportation, National Highway Traffic Safety Administration is the source for these data.

In 1994 and 1996, NOPUS consisted of three separate studies: 1) the Moving Traffic Study, which provides information on overall shoulder belt use, 2) the Controlled Intersection Study, which provides more detailed information about shoulder belt use by type of vehicle, characteristics of the belt users, and child restraint use, and 3) the Shopping Center Study, which provides information on rear-seat belt use and shoulder belt misuse. In 1998, the Shopping Center Study was dropped from the survey. The Controlled Intersection Study includes the collection of license plate information to link seat belt use to vehicle type. As the results of the Controlled Intersection Study for 2000 were not available prior to publication, only the Moving Traffic Study data were used in this table.

In 1998, NOPUS separated pickups from the light truck category, thereby creating three categories of passenger vehicles: passenger cars, pickup trucks, and other passenger vehicles. Other passenger vehicles include vans, minivans, and sport utility vehicles. In this table, 1998 and 2000 data for pickup trucks and other passenger vehicles are combined into the light truck category to allow comparison to data from the earlier surveys. Since 2003, however, the National Highway Traffic Safety Administration (NHTSA) no longer computes an overall light truck belt use estimate. Instead, belt use is computed separately for motorists in: (1) vans and sport utility vehicles, and (2) pickup trucks. Additionally, NHTSA no longer reports separate statistics for passengers and drivers, except at the overall level.

In 1994, operators and riders wearing any type of helmet were counted as helmeted. In 1996, 1998, and 2000, motorcycle helmets that meet USDOT standards are counted as valid protection, whereas those that do not meet USDOT standards were treated as if the operator/rider were not wearing a helmet.

Data collection from the Moving Traffic Study was conducted at 1,823 sites across the country in 2009. Shoulder belt use was obtained for drivers and right-front passengers only. Three observers (two observers in 1994 and 1996) were stationed for 30 minutes at interstate/highway exit ramps, controlled (intersections with stop signs or traffic signals), and uncontrolled intersections. Every day of the week and all daylight hours (7 a.m. to 6 p.m.) were covered in each survey. Commercial and emergency vehicles were excluded.

NOPUS was designed as a multistage probability sample to ensure that the results would represent occupant protection use in the country. In the first stage, counties were grouped by regions (northeast, midwest, south, west), level of urbanization (metropolitan or not), and level of belt use (high, medium, or low). Fifty counties or groups of counties were selected based on vehicle miles of travel in those locations. In the next stage, roadways were selected from two categories: major roads and local roads. Of the originally selected sites, some were found to be ineligible during mapping and data collection, and at some sites no vehicles were observed. In 2006, a newly designed sample of observation sites emerged; subsequent years' NOPUS surveys used a combination of sites from the old and new samples. In 2009, a blend of 65 percent of sites were determined using the new methodology and 35 percent of sites were obtained from the old methodology. In 2009, a total of 100,000 passenger vehicles were observed, down from 116,000 in 2008. 947 motorcycles were also observed during the 2009 NOPUS.

Each reported estimate has been statistically weighted according to the sample design. Two kinds of error can be attributed to all survey research: sampling and nonsampling. A measure, called the standard error, is used to indicate the magnitude of sampling error. The source information provides two standard errors along with each estimate. Nonsampling errors could include problems such as vehicles not counted, incorrect determination of restraint use, and data entry mistakes, among others.

**TABLE 2-31. Estimated Number of Lives Saved by Use of Restraints**

The U.S. Department of Transportation, National Highway Traffic Safety Administration (NHTSA) uses data obtained from the Fatality Analysis Reporting System to calculate the number of lives saved by the use of restraints. The methodology used is outlined in a NHTSA report, *Research Note, Estimating Lives Saved by Restraint Use in Potentially Fatal Crashes* (Washington, DC: June 1995). The general approach is to adjust the observed number of fatalities by a determined effectiveness rate for each type of restraint. This equates to subtracting the actual fatalities from the potential fatalities to determine the number of lives saved. This method is more accurate than earlier estimation methods since all calculations are derived from NHTSA's count of fatalities in which restraints were used. Reported restraint use is believed to be accurate for fatalities.

The key to NHTSA's calculations is the effectiveness estimate for preventing fatalities for each type of restraint. With the exception of an adjustment in the effectiveness estimate for front outboard air bag-only restraint use in passenger cars (NHTSA, *Fourth Report to Congress, Effectiveness of Occupant Protection Systems and Their Use*, Washington, DC, May 1999), a list of effectiveness estimates can be found in a NHTSA report, *Estimating Alcohol Involvement in Fatal Crashes in Light of Increases in Restraint Use*, published in March 1998.This report also includes additional references describing the determination of these effectiveness estimates.

# TRANSIT DATA

**TABLE 2-1. Transportation Fatalities by Mode**

**TABLE 2-2. Transportation Injuries by Mode**

**TABLE 2-3. Transportation Accidents by Mode**

**TABLE 2-4. Distribution of Transportation Fatalities by Mode**

**TABLE 2-32. Transit Safety and Property Damage Data**

**TABLE 2-33. Transit Safety Data by Mode for All Reported Accidents**

**TABLE 2-34. Transit Safety Data by Mode for All Reported Incidents**

**TABLE 2-38. Reports of Violent Crime, Property Crime, and Arrests by Transit Mode**

The data for this report are obtained from the U.S. Department of Transportation, Federal Transit Administration's (FTA's) National Transit Database (NTD) Reporting System. Transit agencies are required to file an NTD report at regular intervals if they are recipients of Urbanized Area Formula Funds. In 2008, 692 agencies reported to the NTD. Of that total, 101 transit agencies received exemptions from detailed reporting because they operated 9 or fewer

vehicles, and 15 were deleted because their data were incomplete. Thus, 576 individual reporters were included in the NTD, accounting for 90 to 95 percent of passenger-miles traveled on transit.

Transit operators report fatalities, injuries, accidents, incidents, and property damage in excess of $1,000. Electronic reporting has recently been implemented for the NTD. Certification from a company's Chief Executive Officer must accompany all NTD reports along with an independent auditor's statement. Upon receipt, an NTD report is reviewed and outstanding items noted in writing to the agency that submitted the form. (See glossary for transit fatality, injury, and accident definitions.)

Four major categories of transit safety are collected: 1) collisions, 2) derailments/buses going off the road, 3) personal casualties, and 4) fires. These major categories are divided into subcategories. The collisions category comprises collisions with vehicles, objects, and people (except suicides). Of the four major categories, only the first two are included in the definition of transit accidents adopted in this report (see glossary). Understanding this definition of accident is relevant to understanding how double counting is removed in the grand total of U.S. transportation fatalities and injuries. (See cross modal comments in box 2-1.)

Transit data submitted to the NTD are generally considered accurate because the FTA reviews and validates information submitted by individual transit agencies. However, reliability may vary because some transit agencies cannot obtain accurate information or misinterpret data.

**Security**

FTA collects security data from transit agencies serving urbanized areas of over 200,000 in population, using Form 405, and manages it in the National Transit Database (NTD). The reporting of security data follows the FBI *Uniform Crime Reporting Handbook* (Washington, DC: 1984) and is divided into two categories: 1) Reported Offenses, including violent and property crime, and 2) Arrests, consisting of less serious crimes. The figures for violent and property crime are based on records of calls for service, complaints, and/or investigations. They do not reflect the findings of a court, coroner, jury, or decision of a prosecutor. Security data were first reported in 1995 and were not compiled for earlier years.

In 2008, the number of agencies reporting to this database was 692. Of that, 101 transit agencies received exemptions from detailed reporting because they operated nine or fewer vehicles, and 15 were deleted because their data were incomplete. Thus, 576 individual reporters are included in the full database in 2000.

# RAILROAD DATA

**TABLE 2-1. Transportation Fatalities by Mode**

**TABLE 2-2. Transportation Injuries by Mode**

**TABLE 2-3. Transportation Accidents by Mode**

**TABLE 2-4. Distribution of Transportation Fatalities by Mode**

**TABLE 2-5. Highway-Rail Grade-Crossing Safety Data and Property Damage**

**TABLE 2-7. Transportation-Related Occupational Fatalities**

**TABLE 2-39. Railroad and Grade-Crossing Fatalities by Victim Class**

**TABLE 2-40. Railroad and Grade-Crossing Injured Persons by Victim Class**

**TABLE 2-41. Train Fatalities, Injuries, and Accidents by Type of Accident**

**TABLE 2-42. Railroad Passenger Safety Data**

**TABLE 2-39. Railroad System Safety and Property Damage Data**

**TABLE 2-40. Fatalities and Injuries of On-Duty Railroad Employees**

Railroads are required to file a report for each train accident resulting in property damage in excess of $9,200 (2010 threshold), each highway-rail accident, and each incident involving the operation of a railroad resulting in a fatality or a reportable injury. (See glossary for reportable injury, train accident and incident, and nontrain incident definitions.)

Reporting requirements, which are fixed in law, are very broad and encompass events not strictly related to transportation. For example, if a passenger falls on a staircase and breaks a leg in the station while going to a train, the injury would be reported and appear in the data as a rail injury.

# WATERBORNE TRANSPORTATION DATA

**TABLE 2-1. Transportation Fatalities by Mode**

**TABLE 2-2. Transportation Injuries by Mode**

**TABLE 2-3. Transportation Accidents by Mode**

**TABLE 2-4. Distribution of Transportation Fatalities by Mode**

**TABLE 2-7. Transportation-Related Occupational Fatalities**

**TABLE 2-45. Waterborne Transportation Safety Data and Property Damage Related to Vessel**

**Casualties**

**TABLE 2-46. Waterborne Transportation Safety Data Not Related to Vessel Casualties**

U.S. waterborne fatality and injury data are based on reports required by CFR Part 4.05-10. This code requires that the owner, agent, master, operator, or person in charge file a written report of any marine casualty or accident within five days of the accident. Reports must be delivered to Investigative Officers (IOs) at a U.S. Coast Guard Marine Safety Office or Marine Inspection Office at the U.S. Department of Transportation, who use these reports as guides to investigate the marine casualty or accident. The IO ensures that all the entries on the forms are filled out and errors are corrected. Regulations require IO notification of marine casualties for certain circumstances, including loss of life; injuries that require medical treatment beyond first aid; and, for individuals engaged or employed onboard a vessel in commercial service, injuries that render a person unfit to perform routine duties.

Incidents requiring an investigation include death, injury resulting in substantial impairment, and other incidents determined important to promoting the safety of life or property or to protect the marine environment. These incidents are investigated in accordance with procedures set forth in the regulations. Furthermore, the Federal Water Pollution Control Act mandates that certain incidents be reported to the U.S. Coast Guard. The reports are entered into the Marine Safety Information System, which is later analyzed and transferred to the Marine Safety Management System maintained in Washington, DC.

# RECREATIONAL BOATING DATA

**TABLE 2-1. Transportation Fatalities by Mode**

**TABLE 2-2. Transportation Injuries by Mode**

**TABLE 2-3. Transportation Accidents by Mode**

**TABLE 2-4. Distribution of Transportation Fatalities by Mode**

**TABLE 2-47. Recreational Boating Safety, Alcohol Involvement, and Property Damage Data**

**TABLE 2-48. Personal Watercraft Safety Data**

**TABLE 2-49. U.S. Coast Guard Search and Rescue Statistics, Fiscal Years**

Operators of boats involved in an accident resulting in 1) a fatality, 2) an injury requiring medical treatment beyond first aid, 3) damage to the vessel or other property greater than $25,000 or complete loss of vessel, or 4) the disappearance of a person from the vessel under circumstances indicating death or injury are required to file a report with the U.S. Coast Guard. If a person dies within 24 hours of the occurrence, requires medical treatment beyond first aid, or disappears from the vessel, reports must be made within 48 hours of the occurrence. In cases involving only damage to the vessel and/or property, reports are to be submitted within 10 days of the occurrence. Although there is no quantitative estimate of the response rate, there may be considerable underreporting, especially of nonfatal accidents, because of the difficulty of enforcing the requirement and because boat operators may not always be aware of the law.

# NATURAL GAS AND LIQUID PIPELINE DATA

**TABLE 2-1. Transportation Fatalities by Mode**

**TABLE 2-2. Transportation Injuries by Mode**

**TABLE 2-3. Transportation Accidents by Mode**

**TABLE 2-4. Distribution of Transportation Fatalities by Mode**

**TABLE 2-6. Hazardous Materials Safety Data and Property Damage Data**

Incidents resulting in certain unintentional releases of hazardous materials must be reported under 49 CFR 171.16. Each carrier must submit a report to the U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration (PHMSA) within 30 days of the incident, including information on the mode of transportation involved, results of the incident, and a narrative description of the accident. These reports are made available on the incident database within 60 days of receipt.

Fatalities and injuries are counted only if they are directly due to a hazardous material. For example, a truck operator killed by impact forces during a motor vehicle crash would not be counted as a hazardous-material fatality. PHMSA verifies all reported fatalities and injuries by telephone with the carrier submitting the report.
Possible sources of error include a release going undetected; even if subsequently detected and reported, it may not be possible to accurately reconstruct the accident. Although PHMSA acknowledges that there is some level of underreporting, it believes that the underreporting is limited to small, nonserious incidents. As incident severity increases, it is more likely that the incident will come to PHMSA's attention and will ultimately be reported. Additionally, the reporting requirements were extended to intrastate highway carriers on October 1, 1998, and the response rate from this new group is expected to increase over time. Property damage figures are estimates determined by the carrier prior to the 30-day reporting deadline and are generally not subsequently updated. Property damage figures, therefore, may underestimate actual damages.

**TABLE 2-50. Hazardous Liquid and Natural Gas Pipeline Safety and Property Damage Data**

U.S. fatality and injury data for natural gas pipelines are based on reports filed with the U.S. Department of Transportation (USDOT), Pipeline and Hazardous Materials Safety Administration (PHMSA), Office of Pipeline Safety (OPS). Accidents must be reported as soon as possible, but no later than 30 days after discovery. Reports are sent to the Information Systems Manager at the OPS. Possible sources of error include a release going undetected; even if subsequently detected and reported, it may not be possible to accurately reconstruct the accident. Property damage figures are estimates. (See glossary for gas and liquid pipeline fatality data and injury definitions.)

# Appendix E
# Data Source and Accuracy Statements

## Chapter 3 Transportation and the Economy

**TABLE 3-1 & 3-2. U.S. Gross Domestic Product Attributed to For-Hire Transportation Services (Current and chained 2005 dollars)**

**TABLE 3-3 & 3-4. U.S. Gross Domestic Product Attributed to Transportation-Related Final Demand (Current and chained 2005 dollars)**

**TABLE 3-5 & 3.6. U.S. Gross Domestic Demand Attributed to Transportation-Related Final Demand (Current and chained 2005 dollars)**

**TABLE 3-7 & 3-8. Contributions to Gross Domestic Product: Selected Industries (Current and chained 2005 dollars)**

**TABLE 3-9. Gross Domestic Product by Major Social Function**

Tables 3-1 through 3-8 present data on transportation's contributions to the economy through consumption (or the money spent on transportation activity). The *Survey of Current Business* (SCB) published by the U.S. Department of Commerce, Bureau of Economic Analysis (BEA). The SCB is a monthly journal that contains estimates of U.S. economic activity, including industry contributions to the Gross Domestic Product (GDP). GDP is defined as the net value of the output of goods and services produced by labor and property located in the United States. BEA constructs two complementary measures of GDP-one based on income and the other on expenditures (product). Together, they represent the National Income and Product Accounts (NIPA), our nation's principle framework for macroeconomic estimates. The product side results from the addition of labor, capital, and taxes for producing output. Consumption derives from household, business, and government expenditures and net foreign purchases.

Tables 3-5 and 3-6 present transportation's economic impact in a different form, Gross Domestic Demand (GDD). Also derived from the national accounts, GDD is the sum of personal consumption, gross private domestic investment, and government purchases. GDD includes imports, but excludes exports, thus counting only what is consumed, purchased, or invested in the United States.

**GDP Methodology**

The 1960 through 1985 data in table 3-1 are from the November 1993 issue of the SCB. The 1990 through 1991 data and 1992 through 1996 data are from an August 1996 and November 1997 SCB issue respectively. The October 1999 issue introduced a revised methodology for GDP estimates (Yuskavage 1996). This section describes BEA's methodology for estimating transportation's share of GDP.

BEA's current-dollar estimates of GDP by industry rely on several sources, including the Bureau of Labor Statistics (BLS), the Health Care Financing Administration, and the Internal Revenue Service (IRS). Some of the tables in this chapter report chained-dollar figures. BEA derived chained dollars by using the Fisher Ideal Quantity Index to calculate changes between adjacent years (Parker and Triplett 1996; Landerfeld and Parker 1997). Annual changes are then chained to form a time series that incorporates the effects of relative price and output composition changes. Please refer to page 142 of the August 1996 issue of the *Survey of Current Business* for the mathematical formulas (Yuskavage 1996). This method produced separate estimates of gross output and intermediate inputs for a sector's GDP calculation. BEA updated the reference year for the chained-dollar estimates from 1992 to 1996.

Transportation GDP in chained dollars was estimated using the double-deflation method, which relies on a chain-type quantity index formula, and requires gross output and intermediate input information. Principal source data for the transportation categories include: 1) operating revenues of air carriers and Federal Express from the U.S. Department of Transportation and public sources (air); 2) operating revenues for Class I motor carriers from historical records of the Interstate Commerce Commission and Census Bureau annual surveys (trucking and warehousing); 3)

BEA personal consumption expenditures (PCE), BLS, and trade sources (local and interurban passenger transit); 4) operating revenues for Class I railroads and Amtrak (rail); and 5) other trade sources (pipelines).Data sources for water were not provided (Yuskavage, 1996).

Table 3-1 reported current dollar estimates from various SCB issues. BEA derived the 1991 data and subsequent years in four steps:

1. BEA's benchmark input-output (I-O) tables produced input compositions for 1977, 1982, and 1987.
2. BEA estimated 1978 through 1981 and 1983 through 1986 input compositions by interpolating the 1977, 1982, and 1987 figures.
3. BEA estimates the 1977 through 1987 imported and domestically imported shares of each detailed input.
4. BEA estimates the 1988 through 1994 input compositions based on the 1987 figures and the Economic Censuses of 1992.

For intermediate input estimations, BEA deflates each of the current-dollar inputs. (BEA deflates import and domestic production separately.) For deflation, quantities are approximated by real values (expressed at present with 1996 as the base period) that are calculated by dividing the current-dollar value of the component by its price index. BEA develops estimates for import prices with data from a variety of sources, but primarily from the BLS import price series.

**Reliability and Accuracy**

BEA views GDP as a reliable measure of output because of the source data underlying the estimates. The following reliability comments are based on the Valliant (1993) SCB article and Ritter (2000). GDP data originate from three types of sources. The foundational data come first from the economic censuses conducted every five years. These approach complete enumerations of sectoral activity in state and local governments, manufacturing, services, retail trade, wholesale trade, construction, transportation, communications and utilities, mining, finance, insurance, and real estate. Annual estimates form the second tier of GDP data and emanate form sources such as IRS tax returns and smaller surveys of establishments. The Annual Retail Trade Survey, for instance, forms one of the major components of the annual estimates. The U.S. Census Bureau collects sales and end-of-year inventory data from about 22,000 retail firms totaling $2 trillion of the $8.8 trillion GDP amount. While considered reliable by many economists, sampling variability may introduce errors into these annual estimates. Moreover, the Census Bureau imputes (substitutes estimates for missing or clearly incorrect data) about 11 percent of reported national annual retail sales because of accounting inconsistencies or raw survey data errors. The third component of the GDP flows from quarterly estimates.

In the October 1993 SCB, Valliant described the reliability and accuracy of the quarterly estimates of GDP, providing insights into the pre-1985 data in terms of dispersion and bias. BEA followed a schedule that produced three successive "current" estimates; advanced, preliminary, and final. BEA analysts developed a dispersion and bias measure based on the difference between these three estimates.

Dispersion is the average of the absolute values of the revisions, or, the difference between P, representing the percentage change in the current estimates, and L representing the percentage change in the latest available estimates, divided by n, representing the number of quarterly changes. Bias is the average of the revisions. According to the October 1993 SCB, dispersion averaged 1.6 percent from 1958 to 63 and dropped to 1.1 percent for 1968 to 1972. BEA stated that these declines in dispersion correspond with more accurate initial and final estimates subsequent to the late 1950s.For years after 1973 until 1991, the BEA concluded that more accurate source data for preliminary and final estimates did not improve reliability by much. BEA also determined that bias was not large enough from 1978 to 1991 to be significant under normality assumptions at the five- percent confidence level. Overall, for the period beginning in 1978 and covering the 1985 data from table 3-1, the BEA concluded there was no evidence of reliability increases. BEA also questioned its own estimating procedures and, in particular, the use of disparate sources of data, which may explain why reliability levels have not increased.

The NIPA framework also undergoes major updates referred to as comprehensive, or benchmark revisions. Eleven of these have been completed including one in 1996 and most recently on October 28, 1999 that provided the data for tables 3-1 through 3-8.The major change encompassed a definitional change reflecting our evolving economic system. Software became a business investment rather than just a "purchased input," or the equivalent of raw material. Unless the company increased the price of its product to cover software purchases, no impact registered in the GDP. With this benchmark revision, the Census Bureau increased the 1996 estimate by $115 billion, or 1.5

percent--the amount of software investments made in that year. Another change involved the Census Bureau's interpretation of the value of "unpriced" banking services such as ATM (automatic teller machine) contributions to an establishment's productivity. Previously, banking service productivity relied only on an index constructed from labor input. Economists argued that this ignored productivity gains from technological improvements such as ATMs and electronic banking. The BLS developed a productivity based instead of bank transactions, and this was used in the 1999 revision. For more detail, readers should refer to Moulton and Seskin (1999).

**Sources of Error for GDP Estimates**

The GDP estimates can contain several kinds of error. One source of error arises from estimates based on preliminary or incomplete tabulations of source data or BEA judgment in the absence of data. Errors may also arise because of sampling errors and biases in monthly, quarterly, annual, or periodic tabulations. Another source of potential error may arise when data are seasonally adjusted. Readers should refer to the October 1993 SCB issue for more detail (Young 1993).

**NIPA and Transportation-Related Final Demand**

For tables 3-7 and 3-8, transportation-related final demand (TRFD) is from NIPA reported in the SCB. It represents the sum of all consumer and government expenditures for transportation purposes, plus the value of goods and services purchased by business as investment for transportation purposes. Since TRFD includes only expenditures on the final products of the economy, it is comparable to GDP and provides a measure of transportation's importance from a consumption perspective.

NIPA tables report the composition of production and the distribution of incomes earned in production. The totals of these produce a GDP estimate that should theoretically be equal, but there is always a difference referred to as the "statistical discrepancy." NIPA is based on four subaccounts of national economic activity. These include 1) the personal income and outlay account, 2) the gross savings and investment account, 3) the government receipts and expenditures account, and 4) the foreign transactions account.

Personal Consumption Expenditures (PCE) for transportation include 1) road motor vehicles, such as new and used automobiles, and motorcycles; 2) motor vehicle parts, such as tires, tubes, accessories; 3) motor fuels and lubricants; and 3) transportation services, such as repair, greasing, washing, parking, storage, rental, leasing, tolls, insurance, and purchased local and intercity transportation services. Motor vehicles used primarily for recreation, boats, noncommercial trailers, and aircraft are excluded.

Gross private domestic fixed investment in transportation includes private purchases of transportation structures and equipment. Transportation structures include railroads and petroleum pipelines. Transportation equipment consists of automobiles, trucks, buses, truck trailers, aircraft, ships and boats, and railroad equipment.

Goods and services that are counted as part of transportation-related exports include 1) civilian aircraft, engines, and parts; 2) road motor vehicles, engines, and parts; 3) passenger fares, including receipts of U.S. air and ocean/cruise carriers for transporting non-U.S. residents between the United States and foreign countries or between two foreign points; and 4) other transportation. The total for road motor vehicles, engines and parts excludes boats, aircraft, and noncommercial trailers. Other transportation includes 1) the freight revenues of U.S.-operated ocean, air, and other carriers (e.g., rail, pipeline, and Great Lakes shipping) for international transport of U.S. exports and for transporting foreign freight between foreign points; 2) port expenditure receipts (representing payments for goods and services purchased in the United States by foreign-operated carriers); and 3) receipts of U.S. owners from foreign operators for the charter of vessels and rental of freight cars and containers.

Goods and services that are counted as part of transportation-related imports include 1) civilian aircraft, engines, and parts; 2) road motor vehicles, engines, and parts; 3) passenger fares, including payments to foreign air and ocean/cruise carriers for the transportation of U.S. residents between the United States and foreign countries or between two foreign points; and 4) other transportation. The total for road motor vehicle, engines and parts excludes boats, aircraft, and non-commercial trailers. Other transportation includes 1) freight revenues of foreign-operated ocean, air, and other carriers (e.g., rail, pipeline, and Great Lakes shipping) for international transport of U.S. imports and for the transportation of foreign freight between foreign points; 2) port expenditure receipts (representing payments for goods and services purchased in foreign countries by U.S.-operated carriers); and 3) payments to foreign owners from U.S. operators for the charter of vessels and rental of freight cars and containers.

Transportation-related government purchases include federal, state, and local purchases of transportation services, and government expenditures on transportation-related structures and equipment. Federal, state, and local purchases represent the sum of consumption expenditures and gross inventory. Defense-related purchases include expenditures on the transportation of materials (care and movement of goods by water, rail, truck, and air); the rental of trucks and other transportation equipment and warehousing fees; and travel of persons (care and movement of Department of Defense military civilian employees), including tickets for all modes of travel, per diem, taxi fares, automobile rental, and mileage allowances for privately owned vehicles.

**Further References**

This data source and accuracy statement is based on several papers that have appeared in the SCB. Data users who desire more methodological detail can refer to the list of references at the end of this chapter.

**TABLE 3-10. National Transportation and Economic Trends**

The *Statistical Abstract of the United States* published by the U.S. Department of Commerce, Census Bureau, is the source of the population data. The *Current Population Reports* are the source of the Abstract's data that are collected through the *Current Population Survey* (CPS). This is a monthly survey administered by the Census Bureau of a scientifically selected sample representative of the noninstitutional civilian population in 754 areas covering every state and the District of Columbia. Like other surveys, the CPS is subject to sampling error. Readers should note that estimates based on the CPS may not agree with census counts because different procedures are used. Changes in the CPS also mean that annual comparisons must be made with caution. For instance, in 1994, the CPS methodology was dramatically changed, and the estimates began to incorporate 1990 census population controls, adjusted for the estimated undercount.

Industrial production data come from the Industrial Production Index, produced by the Board of Governors of the Federal Reserve System and published in the *Economic Report of the President*. For annual figures, individual industrial production (IP) indexes are constructed from a variety of sources, including the quinquennial Censuses of Manufactures and Mineral Industries; the Annual Survey of Manufactures, prepared by the Census Bureau; the Minerals Yearbook, prepared by the U.S. Department of the Interior; and publications of the U.S. Department of Energy. The Federal Reserve Board (FRB) uses these data in a modeling framework to produce estimates of industrial production. Below are brief discussions on three major sources for the IP indexes; the survey of manufactures, the census of manufactures, and the electric utility survey.

**Annual Survey of Manufacturers**

The Census Bureau conducts a mail survey of approximately 55,000 manufactures with three different sample strata. The sampling frame is based on previously surveyed firms and is updated annually based partially on IRS administrative records and other sources. Large manufactures (shipments > $500 million, and > 250 employees), some computer manufacturing firms, and all remaining firms with at least 250 employees are selected. Establishments with employment generally ranging from 20 to 250 employees are sampled with a probability proportional to a composite measure of establishment size. Approximately 5,000 of the smallest firms (5 to 20 employees) are also sampled and receive a shorter survey instrument. Additional information on the survey, readers should refer to www.census.gov/econ/www/ma0300.html.

**Census of Manufacturers**

The Census of Manufactures collects data through mail surveys from approximately 237,000 multiunit and single-unit firms with a minimum payroll figure. This census is supplemented by IRS administrative data from over 142,000 firms not contacted by mail. For additional information on the census, readers should refer to www.census.gov/econ/www/ma0100.html.

**Electric Utility Survey**

Since 1971, the FRB has conducted the *Monthly Survey of Industrial Electricity Use* based on responses from utilities and manufacturing and mining firms that are cogenerators. This survey is the basis for estimates of the amount of electricity power used by 120 industrial sectors. More than 40 industrial production series estimates are based on data from this survey and compose 28 percent of the Industrial Production Index in 1994 value-added proportions.

Survey responses are voluntary and are gathered from a panel of 175 utilities and 186 cogenerating companies with a monthly response rate near 95 percent. In 1992, an additional 71 new cogenerators joined the panel. This resulted, according to an FRB statistical analysis, in a decrease of the standard deviation of errors for electricity growth rates from 3.0 to 1.9 percentage points. Overall, the estimates for total power use produce a standard error of about 0.5 percentage points. The panel accounts for approximately 73 percent of industrial electric power use in the United States.

The *Survey of Current Business*, published by the U.S. Department of Commerce, Bureau of Economic Analysis, is the source of GDP estimates. Readers should refer to the source and accuracy statement for tables 3-1 through 3-5 for information on GDP estimates.

**TABLE 3-11. Sales Price of Transportation Fuel to End-Users**

The U.S. Department of Energy, Energy Information Administration's (EIA's) *Monthly Energy Review*, tables 9.4 and 9.7, provided price data, except for railroad fuel. Pre-1981 data were reported by the EIA from Bureau of Labor Statistics reports. Beginning in 1983, the EIA administered a series of surveys to collect data on petroleum prices, market distribution, supply, and demand. The EIA-782 series encompasses three surveys: 1) Form EIA-782A, Refiners'/Gas Plant Operators' Monthly Petroleum Product Sales Report; 2) Form EIA-782B, Resellers'/Retailers' Monthly Petroleum Product Sales Report; and 3) Form EIA-782C, Monthly Report of Prime Supplier Sales of Petroleum Products Sold for Local Consumption.

EIA developed a method for comparing data from the new surveys with older information gathered by various methods. As a result, a number of adjustment factors were developed and used to "backcast" price estimates. Readers who require a more detailed description of this methodology should refer to EIA's petroleum data publications web page (www.eia.doe.gov/oil gas/petroleum/pet frame.html) and the explanatory notes section.

Changes in sample elements or collection methods may affect data continuity. Two regulatory changes affected data collection in October 1993.The Clean Air Act Amendments of 1990 required that oxygenated gasoline be sold in the winter months in ozone nonattainment areas. Thus, the EIA-782 forms were modified to collect information on fuels divided among conventional, oxygenated, and reformulated categories. Second, requirements for the production and selling of low-sulfur diesel were required and necessitated the separation of diesel fuel into high- and low-sulfur categories. Moreover, surveys prior to October 1993 did not include propane. The EIA followed several different sampling designs during two periods in the 1980s and thus, there may be some price estimate discontinuity for periods between December 1983 and January 1984 as well as between August and September of 1988.

**Data Collection**

The 782 series occurs on a monthly schedule via mail. The 782A and 782C surveys reflect a census of about 115 and 190 firms, respectively. The 782B samples about 2,000 firms. The EIA first stratifies by sales volume for the form 782B survey to ensure that dealers with 5 percent or more of the market are captured with certainty. The remaining elements of the frame were assigned a probability of selection to form a 2,200 firm survey. These "noncertainty" companies were poststratified by geographic area and type of sales category.

**Data Reliability**

EIA has studied its sampling effects on reliability and determined that the sample size of 2,000 should yield a less than 1-percent price coefficient of variation in its estimates. Errors can arise because of nonresponse, but an EIA official indicated that the response rates for the 1997-1999 782A, B, and C surveys averaged 95 percent, 86 percent, and 96 percent, respectively. Because survey data invariably contain incomplete data (because of reporting errors or nonresponse), EIA estimates or "imputes" missing data. Readers requiring imputation algorithms should refer to the 782 series explanatory notes referred to above.

**TABLE 3-12. Price Trend of Gasoline v. Other Consumer Goods and Services**

Data in this table were reproduced from the American Petroleum Institute's (API) *Basic Petroleum Data Book*. API noted that data reported prior to 1981 was obtained from Platt's *Oil Price Handbook and Oilmanac*. Platt's is part of Standard and Poor's, and an independent third party organization that tracks the petroleum industry. Platt's reported the retail price of gasoline based on telephone interviews with gas stations in 55 cities. More detailed historical

information on their data collection methods could not be ascertained and the data's reliability is uncertain. API reported the Bureau of Labor Statistics (BLS) as its data source for 1981 to 2001 retail gasoline prices. The remainder of this section discusses the BLS Consumer Price Index (CPI) data collection and estimation methods used to derive the average retail price of gasoline.

BLS uses the CPI as a measure of average price changes paid by urban consumers for a fixed basket of goods and services. BLS estimates the CPI with a survey-based approach. Survey results define a categorization of goods and services, a representative sample of items to track, and weights according to the consumption of an average consumer during a base period.

**Sample Design**

BLS relies on two sampling frames for their CPI estimates. One represents the universe of retail outlets from which households may purchase defined groups of commodities and services including gasoline. A second represents households across urban areas. Moreover, the household frame is based on an "urban-consumer" population and consists of households in Metropolitan Statistical Areas (MSA's) and in urban places with more than 2,500 inhabitants. This "all urban" CPI (CPI-U) provides the estimates for retail gasoline prices shown in table 3-9.Thus, this frame does not represent non-urban consumers.

For the retail outlet sampling frame, BLS relies on the Point-of-Purchase Survey (CPOPS) conducted by the Census Bureau in 94 Primary Sampling Units (PSUs) identified by BLS. PSUs are based on urban counties, groups of contiguous urban counties, or MSAs. For the household sample, a noncompact clustering procedure was employed which dispersed households evenly within a Census enumeration district (ED). More detailed sampling design information can be found in BLS's *Handbook of Methods* at http://stats.bls.gov/opub/hom/homhome.htm.

Prices for the goods and services used to calculate the CPI are collected in 91 PSUs located in 85 urban areas throughout the country. The sample size for the CPOPS totals about 21,000 retail and service establishments-supermarkets, department stores, gasoline stations, hospitals, etc. Food, fuels, and a few other items are priced monthly in all 85 locations. BLS field representatives collect all price information through visits or telephone calls in the household surveys. Price changes are computed based on a sample of outlets selected from locations identified by consumers. Specific sample items are then selected from each sample outlet to ensure that the market basket is representative of where households shop.

**Estimation**

BLS routinely updates its price estimates for specific items among the collection of goods and services, for example, a new car model year. BLS employs three techniques to produce new price estimates. First, an item that is directly comparable to the previous discontinued good will be used to provide a price estimate. However, a substitute item may be inappropriate when goods change slightly in their characteristics. BLS relies on Hedonic regression modeling as a second "quality adjustment" for price estimates. This statistical technique can model the importance of various quality characteristics that add value to a particular good (the fiber content and construction of apparel products for instance). A researcher can estimate a Hedonic regression model that identifies the factors most important is determining the price of a good, and BLS field representatives will note these in their data collection. Imputation is a third quality adjustment used for "noncomparable" substitutions where BLS estimates the price change from previous averages. Detailed algorithms can be found in chapter 17 of the *BLS Handbook of Methods* at http://stats.bls.gov/opub/hom/homhome.htm.

Effective January 1999, BLS began using a new formula for calculating the basic components of the Consumer Price Index for all Urban Consumers (CPI-U) and the Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W). The new formula, the geometric mean estimator, is used in index categories that comprise approximately 61 percent of total consumer spending represented by the CPI-U. Based on BLS research, it is expected that use of the new formula will reduce the annual rate of increase in the CPI by approximately 0.2 percentage point per year. Additional information on this change was published in the April 1998 CPI Detailed Report and is available on the Internet at http://stats.bls.gov/cpihome.htm.

**Accuracy**

One of the CPI's limitations is that it represents price movements for urban residents and may not correctly represent nonurban consumption patterns. The CPI may also contain sampling error because it is estimated from a sample of

consumer purchases. Nonsampling error may occur if respondents provide BLS field representatives with inaccurate or incomplete information. Another potential source of error identified by BLS may occur because of a time lag between the Point-of-Purchase Survey and the initiation of price collection for commodities and services at resampled outlets. Because of the time lag, the products offered by the outlet at the time pricing is initiated may not coincide with the set from which the CPOPS respondents were purchasing.

The CPI is also subject to response error when data are not collected because of non-response. BLS established a nonresponse auditing program in 1986.It reported that response rates in 1990 for transportation commodities and services were above 90 percent.

**Bias**

Four categories of bias were identified in the BLS report, *Measurement Issues in the Consumer Price Index*, published in 1997. First, because of the fixed-weight nature of the index, the CPI creates substitution bias by placing too much weight on items measured in previous surveys from which consumers may have shifted away. Second, the study found that the index did not account for consumers switching to discount stores. Third, a quality change bias was also identified when the differences between goods priced in two different periods cannot be accurately measured nor deduced from the accompanying price difference between the goods. Finally, the report noted that the CPI also had a new product bias because the index inadequately reflected consumer value of products introduced into the market. The commission concluded that the CPI overstated the true cost-of-living change by 1.1 percentage points per year.

**TABLE 3-13. Producer Price Indices for Transportation Services and Warehousing Services (NAICS)**

**TABLE 3-14. Producer Price Indices for Transportation Equipment (NAICS)**

Data shown in these tables are drawn from annual issues of *The Supplement to Producer Price Indexes* published by the Bureau of Labor Statistics (BLS) in the U.S. Department of Labor. These indexes represent a measure of outputs in all goods-producing American industries as well as partial coverage of service industries including transportation. BLS defines a price as the net revenue accrued to a specified production establishment from a specified kind of buyer for a specific product shipped under specific transaction terms on a specified day of the month. BLS collects this data series through surveys of a sample of establishments that report their prices from economic transactions.

**Data Collection**

A BLS field economist visits an establishment or cluster of establishments selected for price sampling. The economist uses a disaggregation procedure to select a sample of transactions from all the establishment's revenue-producing activities. This disaggregation procedure assigns a probability of selection to each shipping or receipt category proportionate to its value within a reporting unit. In most cases, the final price index produced by the BLS requires that 1) there are at least three different respondents to a survey, 2) at least two reporting units provide price information in a given month, and 3) no single respondent accounts for 50 percent or more of the weight for a given item.

BLS regional offices review field data for consistency and completeness. The national office then conducts a final review and a survey is then tailored specifically to establishments or clusters of establishments. BLS refers to these as repricing schedules and sends them to reporting establishments on a regular basis. Most prices refer to a reporting schedule on a particular day of the month, usually, the first Tuesday or the 13th of a month.

**Estimation**

BLS collects prices for over 100,000 items. It utilizes several different weighting schemes for the numerous indexes produced because some products will have a greater effect on the movement of groupings of individual products. BLS utilizes the net output of shipment values as weights for the 4-digit SIC industries. Net output values include only shipments from establishments in one industry to other industry establishments and, thus, differ from gross shipment values. The latter would include shipments among establishments in the same industry, even if those establishments are separate firms. BLS also makes seasonal adjustments if statistical tests and economic rationale justify them, and computes data when a participating company does not deliver a price report. BLS bases the missing price estimation on the average of price changes for similar products reported by other establishments.

**Accuracy**

As in all surveys, the accuracy of producer price indexes depends on the quality of information voluntarily provided by participating establishments. One of the accuracy concerns of BLS revolves around the preferred use of realistic transaction prices (including discounts, premiums, rebates, allowances, etc.) rather than list or book prices. Before BLS fully changed its data collection method in 1986, a survey indicated that about 20 percent of traditional commodity indexes were based on list prices. The newer and more systematic methodology decreased the use of list prices. BLS documentation (available at http://stats.bls.gov/opub/hom) provided no more details on sampling error, response rates, or the availability of generalized variance parameters or techniques for estimating them.

**TABLE 3-15. Personal Expenditures by Category**

**TABLE 3-16. Personal Consumption Expenditures on Transportation by Subcategory**

Data used in these tables are from the Bureau of Labor Statistics, *Annual Report of Consumer Expenditure Survey*. The Consumer Expenditure Survey (CEX) collects information from U.S. households and families on their buying habits (expenditures), income, and consumer characteristics. The strength of the survey is that it allows data users to relate the expenditures and income of consumers to the characteristics of those consumers. BLS uses 11 standard characteristics to classify consumers, including income, before-tax income class, age, size of the consumer unit, composition of the consumer unit, number of earners, housing tenure, race, type of area (urban or rural), region, and occupation.

The CEX is a national probability sample of households. The sampling frame (i.e., the list from which housing units are chosen) for this survey is generated from the 1990 census 100-percent detail file, which is augmented by a sample drawn from new construction permits. Coverage improvement techniques are also utilized to eliminate recognized deficiencies in the census.

**Data Collection**

The current survey consists of two separate surveys (Interview and Diary), each utilizing a different data collection technique and sample. Data is collected for each survey from approximately 5,000 households. In the Interview survey, each consumer unit (CU) in the sample is interviewed every three months over five calendar quarters. The interviewer uses a structured questionnaire to collect both the demographic and expenditure data in the Interview survey. The interviewer collects the demographic data in the Diary survey whereas the respondent enters the expenditure data on the diary form. Both surveys accept proxy responses from any eligible household member who is at least 16 years old if an adult is not available after a few attempts to contact that person. The respondent family completes the Diary (or recordkeeping) survey at home for two consecutive one-week periods.

A reinterview program for the CEX provides quality control. The program provides a means of evaluating individual interviewer performance to determine how well the procedures are being carried out in the field. A member of the supervisory staff conducts the reinterview. Subsamples of approximately 6 percent of households in the Interview survey and 17 percent in the Diary survey are reinterviewed on an ongoing basis. A new diary form with more categories and expanded use of cues for respondents was introduced in 1991, based on results from earlier field and laboratory studies.

**Estimation**

Missing or invalid data on demographic or work experience are imputed. No imputation is done for missing data on expenditures or income. Selected portions of the Diary data are also adjusted by automated imputation and allocation routines when respondents report insufficient detail to meet publication requirements. These procedures are performed annually on the data. The imputation routines assign qualifying information to data items when there is clear evidence of invalid nonresponse.

The statistical estimation of the population quantities of interest, such as the average expenditure on a particular item by a CU or the total number of CUs in a particular demographic group, is conducted via a weighting scheme. Each CU included in the survey is assigned a weight that is interpreted as representing the number of similar families in the universe of interest, the U.S. civilian noninstitutional population. Readers should refer to http://stats.bls.gov/opub/hom/homch16 c.htm for the detailed weighting method.

Beginning with 1997 data, BLS introduced a new calibration method to compute weights in the Consumer Expenditure Survey. The weights are calculated using a model-assisted, design-based regression estimator.

**Accuracy**

The Consumer Expenditures Survey is a sample survey and hence is subject to two types of errors, nonsampling and sampling. Nonsampling errors can be attributed to many sources, such as differences in the interpretation of questions, inability or unwillingness of the respondent to provide correct information, mistakes in recording or coding the data obtained, and other errors of collection, response, processing, coverage, and estimation for missing data. The full extent of nonsampling error is unknown. Sampling errors occur because the survey data are collected from a sample and not from the entire population. Tables with coefficients of variation and other reliability statistics are available on request from the national office. However, because the statistics are shown at the detailed item level, the tables are extensive.

**TABLE 3-17. Average Cost of Owning and Operating an Automobile**

*Your Driving Costs* produced by the American Automobile Association (AAA) provided the data for this table. Prior to 1985, the cost figures are for a mid-sized, current model, American car equipped with a variety of standard and optional accessories. After 1985, the cost figures are for a composite of three current model American cars:

1. A 1999 Chevrolet Cavalier LS,
2. A 1999 Ford Taurus SEL Deluxe, and
3. A 1999 Mercury Grand Marquis LS.

Thus, the estimates are not reliable estimates for all cars.

Fuel costs were based on an average price of $1.195 per gallon of regular unleaded gasoline, weighted 20 percent full-serve and 80 percent self-serve. Insurance figures were based on personal use of vehicles driven less than 10 miles to or from work, with no young drivers. Normal depreciation costs were based on the vehicle's trade-in value at the end of four years or at 60,000 miles. American Automobile Association (AAA) analysis covers vehicles equipped with standard and optional accessories, including automatic transmission, air conditioning, power steering, power disc brakes, AM/FM stereo, driver-and passenger side air bag, anti-lock brakes, cruise control, tilt steering wheel, tinted glass, emission equipment and rear window defogger.

**TABLE 3-18 & 3-29. Average Passenger Fare (Current and chained 2000 dollars)**

**TABLE 3-22. Total Operating Revenues**

**Air**

The U.S. Department of Transportation, Bureau of Transportation Statistics (BTS), Office of Airline Information, reports passenger fares and operating revenues in its publication *Air Carrier Financial Statistics*. These numbers are based on 100 percent reporting by large certificated air carriers. Minor errors from nonreporting may occur but amount to less than one percent of all passenger or freight activity. The figures do not include data for all airlines; such as most scheduled commuter airlines and all nonscheduled commuter airlines.

**Class I Bus**

Class I passenger motor carriers are required to report financial and operating information to BTS using form MP-1.(Prior to 1996, Class I carriers were required to report to the Interstate Commerce Commission.) Class I passenger motor carriers are defined as those having annual gross operating revenues, as adjusted for inflation, of $5,000,000 or more. This table does not include Class I carriers whose data had not been received at the time of publication. Thus, these data do not represent total Class I passenger motor carrier activity.

**Transit**

The American Public Transit Association (APTA) reports these figures, which are based on the annual National Transit Database (NTD) report published by the USDOT, Federal Transit Administration (FTA). The legislative requirement for the NTD is found in Title 49 U.S.C. 5335(a). Transit agencies receiving funds through the Urbanized Area Formula Program are generally required to report financial and operating data, including capital expenditures, revenues and expenses. These data are generally considered accurate because the FTA reviews and validates information submitted by individual transit agencies. Reliability may vary because some transit agencies cannot obtain accurate information or misinterpret certain data definitions. APTA conservatively adjusts FTA data to include transit operators that do not report to the database (private and very small operators and rural operators).

**Rail**

Data are from *Railroad Facts* published annually by the Association of American Railroads (AAR). AAR figures are based on 100-percent reporting by all nine Class I railroads to the Surface Transportation Board (STB) via Schedule 700 of the *R1 Annual Report*. STB defines Class I railroads as having operating revenues at or above a threshold indexed to a base of $250 million in 1991 and adjusted annually in concert with changes in the "Railroad Freight Rate Index" published by the Bureau of Labor Statistics. In 2000, the adjusted threshold for Class I railroads was $ 261.9 million. Declassification from Class I status occurs when a railroad falls below the applicable threshold for three consecutive years. Although Class I railroads comprise only 1 percent of the number of railroads in the country, they account for over 71 percent of the industry's mileage operated, 91 percent of total freight rail revenue, and 88 percent of railroad employment.

**Intercity/Amtrak**

Average passenger fare data are based on 100 percent of issued tickets, and thus should be accurate. Created as a publicly-owned for-profit corporation, Amtrak collects its own financial data and reports this information in its annual report. Auditing should ensure the accuracy of the operating revenue figures.

**Trucking and Courier Services (except air)**

The Census Bureau's Transportation Annual Survey (formerly known as the Motor Freight Transportation and Warehousing Survey) is the source of this information. The sample survey represents all employer firms with one or more establishments engaged primarily in providing commercial motor freight transportation or public warehousing services. It excludes motor carriers that operate as auxiliary establishments to nontransportation companies, as well as independent owner-operators with no paid employees. Thus, the data do not represent the total trucking industry.

In 1999, Transportation Annual Survey was merged with the Census Bureau's Service Annual Survey (SAS) and is the source of data for years 1998 and later. SAS provides estimates of operating revenue of taxable firms and revenue and expenses of firms exempt from federal income taxes for selected service industries. Unlike the Transportation Annual Survey, the SAS is based on the North American Industry Classification System (NAICS).

As with all sample surveys, two types of errors are possible: sampling and nonsampling. Nonsampling errors may include response errors and mistakes in coding or keying data. For additional information about the survey and data reliability, the reader is referred to the Census Bureau website at www.census.gov.

**Water (Domestic)**

Eno Transportation Foundation, Inc. is the source of these data. Eno estimates these figures by multiplying ton-mile figures by estimated revenue per ton-mile. The U.S. Army Corps of Engineers reports the ton-mile figures in its publication *Waterborne Commerce of the United States*, and the revenue per ton-miles figures are estimated by Eno.

**Oil Pipeline**

Eno Transportation Foundation, Inc., publishes these data, which are based on Federal Energy Regulatory Commission (FERC) data and reported by the Oil Pipeline Research Institute for years 1977 to the present. FERC data originates from required quarterly reports filed by pipeline companies. Prior to 1977, the data are based on the former Interstate Commerce Commission data for regulated pipelines, and estimated to be 16 percent of the total of nonregulated pipelines.

**Gas Pipeline**

These statistics originate from *Gas Facts*, published annually by the American Gas Association (AGA).AGA data are based on gas utilities participation and reporting to the Uniform Statistical Report and estimates for those companies not reporting based on recent historical experience. Varying percentages of nonreporters from year to year introduce minor reliability problems for time-series comparisons.

**TABLE 3-23. Employment in For-Hire Transportation and Selected Transportation-Related Industries (NAICS)**

Employment data by industry are from the National Employment, Hours, and Earnings estimates published by the Bureau of Labor Statistics (BLS), U.S. Department of Labor. These estimates originate from the Current Employment Statistics (CES) survey program. The CES is a monthly survey conducted by state employment security agencies in cooperation with the BLS. The survey provides employment, hours, and earnings estimates based on payroll records of nonfarm business establishments, including government.

BLS uses a stratified sample based on a sector's employment size, or the degree of variability among its establishments, or both. This ensures that BLS captures a more representative survey from employers with large payrolls. Thus, large establishments are certain of selection while smaller ones have less of chance.

**Data Collection**

Data are collected electronically from about two-thirds of the respondents and by mail or fax from the remainder. The primary type of electronic reporting is touch-tone phone self-response; others are computer-assisted phone interviews and phone voice recognition technology. Increasingly, data are collected through electronic data interchange from a small but growing number of companies that have a large number of establishments across the country. Mail respondents submit Form 790 to the BLS each month. It is then edited and returned to the respondent for use again the following month. All firms with 250 employees or more are asked to participate in the survey, as well as a sample of smaller firms.

**Estimation**

Employment estimates are made at what is termed the basic estimating cell level and aggregated upward to broader levels of industry detail by simple addition. Basic cells are defined by industry (usually at the 3- or 4-digit SIC level) and are stratified within industry by geographic region and/or size class in the majority of cases. Within the wholesale trade, retail trade, and services divisions, most industries are stratified into three to five size classes (beginning in 1984).

Most national employment estimates are multiplied by bias adjustment factors to produce the monthly published estimates. Bias adjustment factors are used primarily to compensate for the inability to capture the entry of new firms on a timely basis. New firms contribute a substantial amount to employment growth each year, but there is a lag between the creation of a firm and its inclusion on the sample frame (i.e., the Unemployment Insurance universe file). It is, therefore, necessary to use modeling techniques to capture this segment of the population. BLS also performs seasonal adjustments for certain SIC industries.

**Accuracy**

BLS does not publish data reliability information along with estimates. Instead, it provides estimation formula and the necessary parameters so that users can estimate standard errors. For additional information, see the "Explanatory Notes and Estimates of Error" in the BLS monthly publication *Employment and Earnings*.

The CES survey, which began over 50 years ago, predates the introduction of probability sampling as the internationally recognized standard for sample surveys. Instead, a quota sample has been used since its inception. Quota samples are at risk for potentially significant biases, and recently completed BLS research suggests that, despite the large CES sample size, employment estimates based on that sample at times diverge substantially from those that a more representative sample would have been expected to produce. This leads to an over-reliance on bias adjustment in the estimation procedure. Because bias adjustment is primarily based on past experience, it is limited in its ability to accurately reflect changing economic conditions on a timely basis.

**Government Employment**

The Office of the Secretary provides employment figures for the U.S. Department of Transportation. State and local highway department employment figures are from the *State and Local Government Employment and Payroll Estimates*, published by the U.S. Department of Commerce, Bureau of the Census. The data are for the 50 states and the District of Columbia. Employment and payroll data pertain to the month of October. At present, data are collected for one pay period that includes October 12 (regardless of the period's length) through the Public Employment Survey (PES).

Employment refers to all persons gainfully employed by and performing services for a government. Employees include all persons paid for personal services performed from all sources of funds, including persons paid from federally funded programs, paid elected officials, persons in a paid leave status, and persons paid on a per meeting, annual, semiannual, or quarterly basis. Excluded from employment statistics are unpaid officials, pensioners, persons whose work is performed on a fee basis, and contractors and their employees.

The Census Bureau derives full-time equivalent (FTE) employment by summing the number of full-time employees reported and converting the number of hours worked by part-time employees to a full-time equivalent amount. Up until 1985 data, the method used to calculate FTEs was based solely on payroll data. Effective with 1986 data, the annual employment survey started collecting data on the number of hours worked by part-time employees in order to provide a more accurate representation of full-time equivalent employment. No October 1985 FTE employment data are available.

Beginning in 1999, the Public Employment Survey (PES) was conducted using a separate sample of approximately 11,000 government units to improve data accuracy and survey efficiency. Government units meeting any of the following criteria are included in the survey: 1) counties with populations greater than 100,000; 2) cities with populations greater than 75,000; 3) townships in New England and Mid-Atlantic with populations greater than 50,000; 4) special districts with FTEs greater than 1000; 5) independent school districts with enrollment greater than 10,000; and 6) all dependent and independent schools providing college level education. In 1999, government units were sampled to obtain a relative standard error of 3 percent or less for FTE and total payroll for each of the states by type of government groups.

Prior to 1993, the PES used a joint sample of approximately 24,000 units for both employment and finance. From 1993 to 1998, the sample size was reduced to around 14,000 units. The standard error for the PES prior to 1999 was designed to be around 3 percent for major state- or county-level estimates of finance variables (state-level for 1993-1998 and county-level prior to 1993).Employment estimates are made using regression, except when the number of noncertainty cases contributing to the estimate is less than 20, where a simple unbiased estimate is used.

**TABLE 3-24. Employment in Transportation and Transportation-Related Occupations**

**TABLE 3-26. Median Weekly Earnings of Full-Time Wage and Salary Workers in Transportation by Detailed Occupation**

Employment by detailed transportation occupation data are from the Occupational Employment Statistics (OES) survey, collected by the Bureau of Labor Statistics (BLS). The OES is a periodic mail survey of nonfarm establishments that collects occupational employment data on workers by industry. The OES program surveys approximately 725,000 establishments in 400 detailed industries. The average response rate for the last three years, according to a BLS official, averaged about 70 percent.

The sample is selected primarily from the list of business establishments reporting to the state unemployment insurance program. The OES sample initially stratifies the universe of establishments by three-digit industry code and size- class code. Establishments employing 250 employees or more are sampled with certainty. Establishments employing fewer than 250 employees but more than 4 employees are sampled with probability proportional to the size class employment within each three-digit industry. Establishments employing four or fewer employees (i.e., size class 1 establishments) are not sampled. Instead, the employment for these establishments are accounted for by assigning a larger sampling weight to establishments employing five to nine employees (i.e., size-class 2 establishments).Within each three-digit industry/size- class cell, establishments are systematically selected into the sample through a single random start.

**Data Collection**

Employers are the source of occupational data. Within establishments, the main source of occupational data reported by respondents is personnel records. Data are collected from respondents primarily by mail. Occasionally, visits are made to large employers and to other respondents who indicate particular difficulty in completing the questionnaires. Ordinarily, two mailings follow the initial mailing. After the third mailing, a subsample of the remaining nonrespondents is drawn and contacted by telephone. The OES survey follows a 3-year cycle. Three surveys are conducted alternately for manufacturing, nonmanufacturing, and the balance of nonmanufacturing industries.

**Estimation**

During the sample selection process, each sampled establishment is assigned a sampling weight that is equal to the reciprocal of its probability of selection. For example, if an establishment on the sampling frame had a 1 in 10 chance of being selected into the sample, then its sampling weight is 10. For establishments that did not respond to the survey, a nonresponse adjustment factor is calculated and applied against the sampling weights of the responding establishments within each state/3-digit industry/size-class cell. Multiplying these adjustment factors by sampling weights increases the weight of the responding establishments so they can account for the missing employment data of the nonresponding establishments.

**Accuracy**

The OES survey uses a subsample replication technique to estimate variances in occupational employment at the 3-digit industry/size-class level. For additional information on occupational employment estimates and measurements of sampling error associated with the estimates, the reader is referred to http://stats.bls.gov/oes/home.htm.

**TABLE 3-25. Average Wage and Salary Accruals per Full-Time Equivalent Employee by Transportation Industry (NAICS)**

**TABLE 3-27. Total Wage and Salary Accruals by Transportation Industry (NAICS)**

The *Survey of Current Business* (tables 6.3c and 6.6c) published by the U.S. Department of Commerce, Bureau of Economic Analysis, is the source of transportation wage and salary data. These estimates are based on BLS tabulations of employee wages that are covered by State unemployment insurance. As a component of the income side of National Income and Product Account, wages and salaries comprise part of the GDP calculation. These data reflect the monetary remuneration of employees in terms of wage accruals less disbursements. It is defined as the difference between wages and salaries on a "when-earned" basis, or accrued, and wages and salaries on a "when-paid," or disbursed basis. This computation was instituted in 1992 because a significant portion of bonus payments were missed in previous calculations. Readers should also refer to the earlier discussion of GDP methods and reliability for more detail.

**TABLE 3-28. Labor Productivity Indices for Selected Transportation Industries (NAICS)**

The Bureau of Labor Statistic's (BLS) *Industry Productivity Measures* is the source of transportation labor productivity data. BLS develops industry productivity measures based on various data sources.

For rail, BLS uses freight ton-mile and passenger miles that are collected by the Surface Transportation Board (STB), the Association of American Railroads (AAR), and Amtrak. BLS also aggregates four different air transportation outputs to form a single productivity index: domestic passenger-miles, domestic freight ton-miles, international passenger-miles, and international freight ton-miles. Air transportation data come from *Air Carrier Traffic Statistics and Air Carrier Financial Statistics*, published by the U.S. Department of Transportation, Bureau of Transportation Statistics. For petroleum pipeline, BLS relies on data from the Association of Oil Pipelines and derived an output index based on trunkline barrel-miles. A barrel-mile is one barrel of petroleum moved through one mile of pipeline.

**Estimation**

BLS generally calculates labor productivity by dividing an index of output (in this case, ton-miles) by an index of hours. Output is derived with a weight adjusted Tornqvist formula that produces an output ratio for one year. BLS then combines these in a series that produces a chained output index. The hour indexes are developed from data in BLS's Current Employment Statistics (CES; see discussion above for table 3-12) and are the results of dividing the annual aggregate hours for each year by a base-period figure. Readers who need more detail, such as mathematical

specifications or equations, should refer to Kunze and Jablonski (Kunze and Jablonski 1998) or call the Office of Productivity and Technology at BLS.

**Accuracy**

BLS provides no measures of reliability. However, BLS makes an assumption that transportation outputs should be measured using the production of passenger-miles or freight-miles. Another school of thought might assume that many transportation firms or facilities are actually providing capacity rather than actual use. Thus, an argument can be made that productivity should be based on capacity rather than use. In fact, this is how BEA measures transportation output. To evaluate the BLS assumption, one study compared the two approaches by examining the different growth rates produced by BLS and BEA and found that in 25 of 35 service industries, the differences are within one percentage point. For transportation, differences in growth rates across BLS and BEA estimates were two percentage points or less (Kunze and Jablonski 1998).

Beginning with 1997 data, the indices for bus and petroleum pipelines did not meet BLS publication standards and are considered less reliable than those for other modes. These industries had between 14,000 and 15,000 employees, far below the 50,000-employee threshold established for transportation industries by BLS. However, they both met a basic test of variability of the annual percent changes in the output per hour measure.

# GOVERNMENT REVENUES AND EXPENDITURES

**TABLE 3-29 & 3-30. Federal, State, and Local Government Transportation-Related Revenues and Expenditures, Fiscal Year (Current and constant 1996 dollars)**

**TABLE 3-31. Summary of Transportation Revenues and Expenditures from Own Funds and User Coverage, Fiscal Year (Current and chained 2000 $ millions)**

**TABLE 3-32 & 3-33. Federal Transportation-Related Expenditures by Mode, Fiscal Year (Current and constant 1996 dollars)**

**TABLE 3-34. Cash Balances of the Transportation-Related Federal Trust Funds, Fiscal Year**

The main sources for federal-level data are the *Budget of the United States Government* and the *Appendix to the Budget*. These data are the actual figures as reported for the various transportation-related programs in the appendices of each year's budget document.[1] The figures are consistent from year to year and follow the definitional structure required by the Office of Management and Budget (OMB).

Primary sources for state and local transportation-related revenues and expenditures data are censuses and surveys collected by the U.S. Census Bureau. All units of government are included in the Census of Governments, which is taken at five-year intervals for years ending in 2 or 7, and these data are full counts, which are not subject to sampling error.

State and local government data for noncensus years are obtained by annual surveys, which are subject to sampling error. For U.S. totals of local government revenues and expenditures in this report, sampling variability is less than 3 percent.

Federal figures in this report correspond to the federal fiscal year, which begins on October 1, while state and local data are for fiscal years that generally start in July. While this may create a small error in totals for any given year, the data are suitable for illustrating trends in public transportation finance. Programs terminated before 1985 are excluded from the tables. The totals for transportation revenues and expenditures in this report are the sum of the Census Bureau's state and local numbers plus the total of the federal numbers.

The source of the chained dollar deflators is *The National Income and Product Account Tables*, Bureau of Economic Analysis, table 7.1, "Quantity and Price Indexes for Gross Domestic Product." All inflation-adjusted data are for the base year 1996, instead of 1992 as in previous editions of *National Transportation Statistics*. Note that deflators used for the federal data differ from those used for state and local data. Thus, if expenditures are totaled across different levels of government in chained dollars before and after federal grant transfers, the totals will not match.

**Transportation Revenues**

Transportation revenue estimates include transportation-related user charges, taxes, or fees earmarked for transportation-related expenditures. Estimates include transit fares from systems owned and operated by state and local governments, including those systems operated under contract by a private firm under day-to-day financial oversight by government.

Federal transportation revenues generally consist of trust-fund collections from user charges, such as fuel taxes, vehicle taxes, registration and licensing fees, and air passenger ticket taxes. Damage payments made by private parties are deposited in the funds to reimburse the government for related fund expenditures.

The five transportation-related Federal trust funds are established by law:

1. Highway Trust Fund (HTF), which includes both highway and transit accounts;
2. Airport and Airway Trust Fund (AATF);
3. Harbor Maintenance Trust Fund (HMTF);
4. Inland Waterways Trust Fund (IWATF); and
5. Oil Spill Liability Trust Fund (OSLTF).

Highway Revenues

The Highway Trust Fund (HTF) was established by the Highway Revenue Act of 1956. Highway Trust Fund revenues are derived from various excise taxes on highways users (e.g., motor fuel, motor vehicles, tires, and parts and accessories for trucks and buses) and interest earned on balances. The Transportation Equity Act for the 21st Century (TEA-21), which was enacted in June 1998, made important changes to the Federal Highway Trust Fund legislations (FHWA, 1999):

- extension of deposit provisions of almost all highway user taxes through September 30, 2005;
- after September 30, 1998, the HTF can no longer earn interest on balances, and the balance in the highway account would be transferred to the general fund;
- TEA-21 keys Federal-aid highway funds to receipts of the Highway Account of the HTF; and
- the Transit Account share of fuel tax rose from 2 cents per gallon to 2.86 cents per gallon.

The Excise tax on gasoline is the most important source of the HTF revenues and has changed five times since 1985. It increased from 9 cents per gallon in 1985 to 9.1 cents per gallon on January 1, 1987; to 14.1 cents per gallon on December 1, 1990; to 18.4 cents per gallon on October 1, 1993; to 18.3 cents per gallon on January 1, 1996; and to 18.4 cents per gallon on October 1, 1997 (FHWA, 1999).

Money paid into the fund is earmarked primarily for the Federal-aid Highway program, which is apportioned to states for planning, constructing, and improving the nation's highway system, roads, and bridges. Effective April 1983, the Highway Revenue Act of 1982 created the Mass Transit Account within the HTF.

Some portion of the HTF is dedicated to budget deficit reduction and the Leaking Underground Storage Tank Trust Fund (LUSTTF). For example, 4.3 cents per gallon of the federal excise tax on gasoline has been assigned to the general fund since January 1, 1996, and 0.1 cents per gallon was apportioned to the LUSTTF since October 1, 1997 (FHWA, 1999). These funds are not considered as transportation-related in this report.

State and local highway revenues include state and local taxes on motor fuels, motor vehicle licenses, and motor vehicle operator licenses, along with state and local charges for regular toll highways and local parking charges. Regular highway charges (revenues) include reimbursements for street construction and repairs, fees for curb cuts and special traffic signs, and maintenance assessments for street lighting, snow removal, and other highway or street services unrelated to toll facilities. Local governments use special assessments and property taxes that may be commingled with other local revenue in a general fund to finance local road and street programs. Consistent with federal revenues, state and local transportation revenues in this report do not include general funds that may be allocated to transportation.

Transit Revenues

As mentioned above, the Highway Revenue Act of 1982 created the Mass Transit Account within the HTF. Effective April 1983, the act provided one cent per gallon of the federal excise tax on gasoline sales to be set-aside for the Mass Transit Account to help finance transit capital projects. The rate was increased to 1.5 cents per gallon on December 1, 1990; to 2 cents per gallon on January 1, 1996; and to 2.86 cents per gallon on October 1, 1997 (FHWA, 1999). Although highway users pay these taxes, the funds are treated as federal transit revenues.

State and local transit revenues include revenues from operations of public mass transportation systems (rapid transit, subway, bus, railway, and commuter rail services), such as fares, charter fees, advertising income, and other operations revenues. They exclude subsidies from other governments to support either operations or capital projects.

Air Revenues

The Tax Equity and Fiscal Responsibility Act of 1982, as amended by Omnibus Budget Reconciliation Acts of 1990 and 1993, the Small Business Job Protection Act of 1996, and the Taxpayers Relief Act of 1997, provides for the transfer of receipts received in the U.S. Treasury from the passenger ticket tax and certain other taxes paid by airport and airway users to the Airport and Airways Trust Fund (AATF). Effective October 1, 1997, the Taxpayers Relief Act of 1997 extends aviation excise taxes for 10 years and includes the following major provisions (FAA, 1999):

1. retains existing freight weigh bill, general aviation fuel and gas taxes, and a 6-dollar departure tax on domestic flights to and from Alaska and Hawaii;
2. converts the 10 percent ad valorem tax on domestic passenger tickets to a combination of ad valorem and flight segment tax over three years beginning October 1, 1997;
3. imposes a new 7.5 percent tax on payments to airlines for frequent flyer and similar awards by banks and credit card companies, merchants, frequent flyer program partners-other airlines, hotels, or rental car companies and other businesses;
4. increases the current 6-dollar international departure tax to 12 dollars per passenger and adds a 12-dollar international arrival tax;
5. lowers tax rates on flights to certain rural airports to 7.5 percent without a flight segment component; and
6. transfers revenues from the 4.3 cents-per-gallon aviation fuel taxes currently dedicated to reduce the national U.S. deficit from the general fund to the AATF.

Most of this trust fund is used to finance the Federal Aviation Administration's (FAA's) capital programs, namely, Facilities and Equipment; Research, Engineering, and Development; and Airport Improvement Program. Within certain limits set by Congress, some of the remaining money is used to cover FAA operation and maintenance expenses. The portion of the FAA's operation and Maintenance expenses not paid from the trust fund revenues are financed by U.S. Treasury general funds.

State and local revenues from air transportation are derived from airport charges. Beginning in 1992, local governments began collecting passenger facility charges and spending these revenues (both subject to FAA approval) to finance capital programs.

The collection of passenger facility charges was authorized by the Aviation Safety and Capacity Expansion Act of 1990.[2]

Waterway and Marine Revenues

Federal water revenues come from four primary sources: the Harbor Maintenance Trust Fund (HMTF), the Inland Waterways Trust Fund (IWATF), the Oil Spill Liability Trust Fund (OSLTF), and tolls and other charges collected by the Panama Canal Commission.

The Harbor Maintenance Trust Fund was established in accordance with the Harbor Maintenance Revenue Act of 1986. Revenues for this fund are derived from receipts of a 0.125 percent ad valorem user fee imposed on commercial users of specified U.S. ports, Saint Lawrence Seaway tolls. On March 31, 1998, per a U.S. Supreme Court ruling, the tax on exports was terminated (OMB, 2000). This fund is used to finance up to 100 percent of the U.S. Army Corps of Engineers' harbor operation and maintenance (O&M) costs, including O&M costs associated with Great Lakes navigational projects, and the fund fully finances the operation and maintenance of the Saint Lawrence Seaway Development Corp.

The Inland Waterways Trust Fund was established by the Inland Waterways Revenue Act of 1978 and amended by the Water Resources Development Act of 1986. The trust fund has been in effect since fiscal year 1981. The sources for the fund are taxes imposed on fuel for vessels engaged in commercial waterway transportation and investment interest. From this tax of 24.3 cents per gallon, 4.3 cents goes for deficit reduction, and a statutory maximum of 20 cents (raised to that level from the previous maximum of 19 cents at the beginning of 1995) goes to the Trust Fund. The funds are earmarked for financing one-half of the construction and rehabilitation costs of specified inland waterway projects.

The Oil Spill Liability Trust Fund was established by the Omnibus Budget Reconciliation Act of 1989. Revenues for this fund are raised through tax collection of 5 cents on each barrel of oil produced domestically or imported (OMB, 1999). The resources from this fund are used to finance oil pollution prevention and cleanup activities by various federal agencies. For the U.S. Coast Guard, the fund finances oil spill recovery and payment of claims. Beginning in 1997, the fund also finances the annual disbursement to the Prince William Sound Oil Spill Recovery Institute.

The Panama Canal Commission was established by the Panama Canal Act of 1979 to manage, operate, and maintain the Panama Canal under the Panama Canal Treaty of 1977. The treaty period ended on December 31, 1999, when the Republic of Panama assumed full responsibility for the canal. During the treaty period, the commission collected tolls and other revenues, which were deposited in the U.S. Treasury in an account known as the Panama Canal Revolving Fund. Money from this fund was used to finance canal operations and capital programs, which were reviewed annually by Congress. The revenues reported under this category for FY 2000 are for the first quarter (October 1999 - December 1999) of Panama Canal operations.

State and local water revenues are derived from canal tolls, rents from leases, concession rents, and other charges for use of commercial or industrial water transport and port terminal facilities and related services. Fees and rents related to water facilities provided for recreational purposes, such as marina and public docks, and toll ferries are not included.

Rail Revenues

There are no governmental transportation revenues for rail (Rail generates fuel taxes that are designated for deficit reduction and, thus, are not considered transportation revenues in these tables).

Pipeline Revenues

The Pipeline Safety Program is funded by user fees assessed on a per-mile basis. The assessments are made on each pipeline operator regulated by the Office of Pipeline Safety (OPS) of the Research and Special Programs Administration (RSPA) in the U.S. Department of Transportation. There are no state and local revenues for pipeline.

General Support Revenues

General support revenues come from the Emergency Preparedness Fund, which is generated from fees paid by registered shippers of hazardous materials. RSPA administers and distributes the revenues to states, territories, and tribes through the Hazardous Materials Emergency Preparedness (HMEP) grant program, which is authorized by Federal Hazardous Materials Transportation Law.

**Transportation Expenditures**

Expenditures, rather than obligations, are used in these tables because they represent the final, actual costs to the government, by year, for capital goods and operating services required by transportation programs. Obligations suggest government commitment to future transportation expenditures, but do not indicate when the funds will actually be disbursed or even if the amounts obligated will be spent.

It is important to recognize that in some accounts in the *Budget of the United States Government*, expenditures for a particular year understate total government disbursements. This is because certain offsetting collections of fees and assessments from the public are not treated as government revenues, but deducted from disbursements to determine expenditures. These collections are those mandated, by statute, to directly fund agency expenditures rather than be transferred to the U.S. Treasury. For this reason, expenditures do not necessarily indicate how much the federal government actually spends on transportation each year.

## Highway Expenditures

Federal Highway Administration (FHWA) expenditures include funds for Federal Aid Highways (financed from the HTF) and the Interstate Substitution and Railroad Crossing Demonstration (financed from the general fund). The National Highway Traffic Safety Administration (NHTSA) expenditures include: operations, research, and highway traffic safety grants. Federal highway expenditures also include road construction activities managed by the Department of the Interior's National Park Service, Bureau of Indian Affairs, Bureau of Reclamation, and Bureau of Land Management; the Department of Agriculture's Forest Service; the Department of Housing and Urban Development; and other federal agencies.

State and local governments' highway expenditures reported by the Census Bureau are generally slightly lower than those reported in FHWA's *Highway Statistics* because the FHWA includes some highway expenditure data, such as law enforcement activities and patrols, and policing of streets and highways not included in the Census data. Box 3-1 outlines the major differences in Census Bureau and FHWA calculation of state and local highway transportation financial statistics.

## Transit Expenditures

Federal expenditures include grants to states and local agencies for the construction, acquisition, and improvement of mass transportation facilities and equipment and for the payment of operating expenses. Several other items are also included: Federal Railroad Administration (FRA) commuter rail subsidies related to the transition of Conrail to the private sector; research and administrative expenses of the Federal Transit Administration (FTA); and Federal interest payment contribution to the Washington Metropolitan Area Transportation Authority (WMATA).

## Air Expenditures

Federal expenditures reported here consist of all FAA expenditures, such as those associated with constructing, operating, and maintaining the national air traffic system; administration of the airport grant program; safety regulation; and research and development. NASA expenses related to air transportation are also included.

State and local expenditures for air include the operation and maintenance of airport facilities, as administered by local airport and port authorities- quasigovernment agencies with responsibilities for promoting safe navigation and operations for air modes.

## Waterway and Marine Expenditures

Federal expenditures comprise those parts of the U.S. Coast Guard's expenses that are transportation-related, such as aids to navigation, marine safety, and marine environmental protection. All expenses of the U.S. Maritime Administration are included, such as subsidies for construction and operation of vessels by U.S.-flag operators, research and development, and training of ship officers. Also included are those expenses of the U.S. Army Corps of Engineers for construction and operations and maintenance of channels, harbors, locks and dams; protection of navigation; the salaries and expenses of the Federal Maritime Commission; and the expenses of the Panama Canal Commission. Expenditures of the Panama Canal Commission for FY 2000 include outlays for the first quarter of operations, including severance pay and accumulated leave. FY 2001 expenses are for the settlement of remaining accident and contract claims against the Commission.

State and local governments incur water transportation expenditures by operating and maintaining water terminal facilities within ports and harbors.

## Rail Expenditures

Federal rail transportation expenditures include:

1. expenses for rail safety enforcement;
2. inspection and program administration;
3. railroad research and development;
4. financial assistance to states for planning, acquisition, rail facility construction, and track rehabilitation with respect to low volume freight lines;

5. grants to Amtrak, including funds to upgrade the high-speed line between Boston, Massachusetts, and Washington, DC, owned by Amtrak (the Northeast Corridor Improvement Program); annual appropriations to cover operating losses; and funds to invest in new equipment and facilities;
6. the purchase of redeemable preference shares for track rehabilitation and line acquisition; and
7. loan guarantee defaults for railroad rehabilitation and improvement and Conrail labor protection.[3]

The local rail freight assistance program, a program of FRA grants to state governments, has had a 70:30 percent federal-state funding share since 1982.

Pipeline Expenditures

The Office of Pipeline Safety (OPS) reimburses state agencies up to 50 percent of their costs to carry out state pipeline safety programs. Federal expenditures are for the enforcement programs, research and development, and grants for state pipeline safety programs.

General Support Expenditures

General fund expenditures include all of the expenses of the following agencies: Office of Inspector General, National Transportation Safety Board, all expenses of the Research and Special Programs Administration, (except pipeline expenditures) and the Office of the Secretary of Transportation (except for payments to Air Carriers and the Commission on Aircraft Safety).

**Limitations of the Source Data Sets**

The database covers civilian transportation-related activities of government agencies including those of the U.S. Army Corps of Engineers and U.S. Coast Guard.

As mention earlier, federal government data are compiled for the federal fiscal year, which begins on October 1, while state and local data are for fiscal years that generally start in July except for four states with other starting dates (Alabama and Michigan in October, New York in April, and Texas in September). While this may create a small error in totals for any given year, the data are suitable for illustrating trends in public transportation finance.

Readers should note that state and local governments data for census years are full counts and not subject to sampling errors, whereas the data for noncensus years are estimated from annual surveys of the Bureau of the Census, which are subject to sampling variability of less than three percent. The Census Bureau's database also does not include detailed modal information on interest earnings and bond issue proceeds on the revenue side nor bond retirement and interest payments on the expenditure side

Revenues

Transportation-related revenues like local government property taxes on vehicles, equipment, and streets, and state income taxes to support rail and intercity bus services are not covered because they are not shown in the source materials used to compile the database. In addition, taxes collected from users of the transportation system that go into the general fund are not included. For example, rail generates fuel taxes that are designated for deficit reduction and hence are not considered as transportation revenues. The portion of the Highway Trust Fund (HTF) that goes to the general fund is not considered as transportation revenues.

Expenditures

It is important to recognize that in some accounts in the *Budget of the United States Government*, expenditures for a particular year understate total government disbursements. This is because certain offsetting collections of fees and assessments from the public are not treated as government revenues, but deducted from disbursements to determine expenditures. These collections are those mandated, by statute, to be applied directly to finance agency expenditures rather than being transferred to the Treasury.

In addition, the Census Bureau's highway expenditures data do not include highway law enforcement expenditures, which form a part of the state and local highway expenditures published in the *Highway Statistics*. To maintain

consistency between the different modes regarding the types of expenditures included, these additional data from the *Highway Statistics* report have not been used.

**Data Adjustments**

Revisions and corrections to previously published data have been made in most cases. The base year for chained dollar estimates for current data sets is 1996, while the earlier version was presented in chained 1992 dollars. Moreover, the following adjustments have been incorporated.

Revenues

Transportation-related revenues of the Aquatic Resources Fund have been added to water transportation revenues. In this case, only the excise tax charged on motor boat fuels for the Boat Safety Program is assumed to be transportation-related.

The preceding data series did not account for revenues of Pollution Fund, Off-Shore Oil Pollution Fund, and Deep Water Port Liability Fund prior to FY 1990. The current data sets includes revenues for these funds prior to FY 1990.

Expenditures

Not all expenditures for the U.S. Coast Guard (USCG), as reported by the Office of Management and Budget, are considered transportation-related. A new approach has been used to arrive at more accurate USCG transportation-related expenditures. Similar to the previous approach, the current approach includes all expenditures for Environmental Compliance and Restoration, Alteration of Bridges, and Oil Spill Recovery. Part of the expenditures for Operations, Acquisition, Construction and Improvement, Research & Development, and Test and Evaluation are considered as transportation. Within these program areas, only Aids to Navigation, Marine Safety, and Marine Environmental Protection activities are included in the earlier data sets. In the current version, more activities like Search and Rescue and Ice Operations have been included. In addition, Boat Safety Program expenditures have also been included.

Trust fund share of pipeline safety was added to the Research and Special Programs Administration expenditures since FY 1994. This item was not covered in the previously published data.

**Federal Grants**

Federal grants to state and local governments for the Boat Safety Program have been included. These were not included in the previously reported data.

Data for federal transit grants are obtained from the Office of Management and Budget public budget database. In the previous data series, they were estimated by deducting direct federal transit expenditures grants from the total federal transit expenditures.

# REFERENCES

Corrado, C., C. Gilbert, et al. (1997). "Industrial production and capacity utilization: historical revision and recent developments." *Federal Reserve Bulletin* 83(2): 67.

Korn, E.L. and B.I. Graubard.1991."A Note on the Large Sample Properties of Linearization, Jackknife and Balanced Repeated Replication Methods for Stratified Samples." *The Annals of Statistics* 19 (4):2275-2279.

Krewski, D. and J.N. K. Rao.1981."Inference from Stratified Samples: Properties of Linearization, Jackknife and Balanced Repeated Replication Methods." *The Annals of Statistics* 9(5):1010-1019.

Kunze, K. and M. Jablonski (1998). *Productivity in service-producing industries*. Brookings Workshop on New Service-Sector Data, Washington, DC.

Landerfeld, J. S. and R. P. Parker (1997). "BEA's chain indexes, time series, and measures of long-term economic growth." *Survey of Current Business* 77(5): 58.

Moulton, B.R. and Seskin, E.P. (1999)."A preview of the 1999 comprehensive revision of the National Income and Product Accounts:statistical changes."*Survey of Current Business* 79 (October 1999): 6-17.

Parker, R. P. and J. E. Triplett (1996). "Chain-type measures of real output and prices in the U.S. national income and product accounts: an update." *Business Economics* 31(4): 37.

Ritter, J.A. (2000)."Feeding the national accounts." Federal Reserve Bank of St. Louis Review. March/April:11-20

SCB (1991). "Gross Domestic Product as a measure of U.S. Production." *Survey of Current Business*.

Seskin, E. P. and R. P. Parker (1998). "A guide to the NIPA's." *Survey of Current Business* 78(3):26.

U.S. Department of Labor, Bureau of Labor Statistics.1997.Measurement Issues in the Consumer Price Index.Referenced at http://stats.bls.gov/cpigm697.htm on May 13, 1999.

Valliant, R.1993. "Poststratification and Conditional Vairance Estimation."*Journal of the American Statistical Association* 88 (421):89-96.

Young, A. H. (1993). "Reliability and accuracy of the quarterly estimates of GDP." *Survey of Current Business* 73(10): 29.

Young, A. H. and H. S. Tice (1985). "An introduction to national economic accounting." *Survey of Current Business* 65: 59.

Yuskavage, R. E. (1996). "Improved estimates of gross product by industry, 1959-94." *Survey of Current Business* 76(8): 133.

[1] The federal budget is broken down into 20 functional categories, of which one is transportation (function 400). Function 400 is not tied to any one department or agency, but instead aggregates transportation functions wherever in the federal government they occur. Thus, the transportation function may include many activities, such as highway construction and safety, airways and airports, maritime subsidies, U.S. Coast Guard operations, railroads, and mass transit. It also covers grants-in-aid programs to support state and local activities. A good summary of the federal budget process can be found in Stanley E. Collender, *The Guide to the Federal Budget, Fiscal Year 1996* (Washington, DC: Urban Institute Press. 1995).

[2] Public Law 101-508, 104 Stat. 1388 (November 5, 1990).

[3] Funds in the Conrail Labor Protection Program were provided for benefits to Conrail employees deprived of employment because of work force reductions and other actions. This program no longer exists since Conrail has been returned to the private sector. In 1988, the unobligated balances available from this program were transferred to the USCG, and in 1990 they were returned to the U.S. Treasury.

# Appendix E
# Data Source and Accuracy Statements

## Chapter 2 Safety

## *AIR DATA*

**TABLE 2-1. Transportation Fatalities by Mode**

**TABLE 2-2. Injured Persons by Transportation Mode**

**TABLE 2-3. Transportation Accidents by Mode**

**TABLE 2-4. Distribution of Transportation Fatalities by Mode**

**TABLE 2-7. Transportation-Related Occupational Fatalities**

**TABLE 2-9. U.S. Air Carrier Safety Data**

**TABLE 2-10. U.S. Commuter Air Carrier Safety Data**

**TABLE 2-11. U.S. Air Carrier Fatal Accidents by First Phase of Operation**

**TABLE 2-12. U.S. Commuter Air Carrier Fatal Accidents by First Phase of Operation**

**TABLE 2-13. U.S. On-Demand Air Taxi Safety Data**

**TABLE 2-14. U.S. General Aviation Safety Data**

National Transportation Safety Board investigators perform onsite and offsite investigations of all accidents involving U.S. registered air carriers operating under 14 CFR 121, 14 CFR 135, and general aviation U.S. Department of Transportation (USDOT), Federal Aviation Administration (FAA) regulations. The investigators compile information on fatalities and injuries for all accidents. The counts for fatalities and serious injuries are expected to be extremely accurate. (See glossary for serious injury definition.)

Exposure data (aircraft-miles, aircraft-hours, and aircraft-departures) are obtained from the FAA, which in turn gets some of its exposure data from the USDOT, Bureau of Transportation Statistics, Office of Airline Information (OAI) and other exposure data from its own General Aviation and Air Taxi Activity and Avionics (GAATAA) Survey. The OAI data represent 100 percent reporting by airlines. Tables that include air carriers (14 CFR 121, scheduled and nonscheduled service) and commuter air carriers (14 CFR 135, scheduled service only) use OAI exposure data. Tables that include on-demand air taxi (14 CFR 135, nonscheduled service) and general aviation use GAATAA Survey results. For information about the GAATA Survey, please refer to the chapter 1 data accuracy statement for table 1-9.

The coefficients of variation for aircraft-hours vary by year, but are usually in the 9 to 10 percent range for on-demand air taxi and are approximately 2 percent for general aviation.

**TABLE 2-15. Number of Pilot-Reported Near Midair Collisions by Degree of Hazard**

Near Midair Collision reports are provided voluntarily by air carriers, general aviation companies, and the military, and this information is added to the Near Midair Collisions System database. Factors that may influence whether or not a near midair collision is reported include the pilot's or other crew members' perception of whether a reportable near

midair collision occurred, which in turn can depend on factors such as visibility conditions; the reporter's flying experience; or the size of the aircraft involved. A reportable incident is one in which an aircraft is within 500 feet of another aircraft and a possibility of collision existed.

# HIGHWAY DATA

**TABLE 2-1.Transportation Fatalities by Mode**

**TABLE 2-2. Transportation Injuries by Mode**

**TABLE 2-3. Transportation Accidents by Mode**

**TABLE 2-4. Distribution of Transportation Fatalities by Mode**

**TABLE 2-5. Highway-Rail Grade-Crossing Safety Data and Property Damage**

**TABLE 2-7. Transportation-Related Occupational Fatalities**

**TABLE 2-17. Motor Vehicle Safety Data**

**TABLE 2-18. Motor Vehicle Fatalities, Vehicle-Miles, and Associated Rates by Highway Functional System**

**TABLE 2-19. Occupant Fatalities by Vehicle Type and Nonoccupant Fatalities**

**TABLE 2-20. Occupant and Nonmotorist Fatalities in Crashes by Number of Vehicles and Alcohol Involvement**

**TABLE 2-21. Passenger Car Occupant Safety Data**

**TABLE 2-22. Motorcycle Ride Safety Data**

**TABLE 2-23. Truck Occupant Safety Data**

**TABLE 2-24. Bus Occupant Safety Data**

**TABLE 2-26. Fatalities by Highest Blood Alcohol Concentration in Highway Crashes**

**TABLE 2-28. Motor Vehicle Fatal Crashes by Day of Week, Time of Day, and Weather and Light Conditions**

**TABLE 2-29. Motor Vehicle Fatal Crashes by Posted Speed Limit**

**Fatalities**

Highway fatality data come from the Fatality Analysis Reporting System (FARS), which is compiled by trained FARS analysts at USDOT, National Highway Traffic Safety Administration (NHTSA) regional offices. Data are gathered from a census of police accident reports (PARs), state vehicle registration files, state drivers licensing files, state highway department data, vital statistics, death certificates, coroner/medical examiner reports, hospital medical reports, and emergency medical service reports. A separate form is completed for each fatal crash. Blood alcohol concentration (BAC) is estimated when not known. Statistical procedures used for unknown data in FARS can be found in the NHTSA report: *Transitioning to Multiple Imputation - A New Method to Impute Missing Blood Alcohol Concentration (BAC) values in FARS*, DOT HS 809 403 (Washington, DC: January 2002).

Data are collected from relevant state agencies and electronically submitted for inclusion in the FARs database on a continuous basis. Cross-verification of PARs with death certificates ensures that undercounting is rare. Moreover,

when data are entered, they are checked automatically for acceptable range values and consistency, enabling quick corrections when necessary. Several programs continually monitor the data for completeness and accuracy. Periodically, sample cases are analyzed for accuracy and consistency.

Note that the FARS data do not include motor vehicle fatalities on nonpublic roads. However, previous NHTSA analysis found that these fatalities account for 2 percent or fewer of the total motor vehicle fatalities per year. (See glossary for highway fatality definition.)

**Injuries and Crashes**

NHTSA's General Estimates System (GES) data are a nationally representative sample of police-reported crashes that contributed to an injury or fatality or resulted in property damage, and involved at least one motor vehicle traveling on a trafficway. Trained GES data collectors randomly sample PARs and forward copies to a central contractor for coding into a standard GES system format. Documents such as police diagrams or supporting text provided by the officers may be further reviewed to complete a data entry.

NHTSA suggests that about half of motor vehicle crashes in the United States are not reported to police and that the majority of these unreported crashes involve minor property damage and no significant personal injury. A NHTSA study of injuries from motor vehicle crashes estimated the total count of nonfatal injuries at over 5 million compared with the GES's estimate of 3.2 million in 1998. (See glossary for highway crash and injury definitions.)

(See U.S. Department of Transportation, National Highway Traffic Safety Administration, *Traffic Safety Facts 2008*, DOT HS 811 170 (Washington, DC: 2009), appendices B and C for further information on GES, including a table of standard errors applicable to GES data.)

**TABLE 2-30. Safety Belt and Motorcycle Helmet Use**

The National Occupant Protection Use Survey (NOPUS), conducted biennially between 1994 and 2010 by the U.S. Department of Transportation, National Highway Traffic Safety Administration is the source for these data.

In 1994 and 1996, NOPUS consisted of three separate studies: 1) the Moving Traffic Study, which provides information on overall shoulder belt use, 2) the Controlled Intersection Study, which provides more detailed information about shoulder belt use by type of vehicle, characteristics of the belt users, and child restraint use, and 3) the Shopping Center Study, which provides information on rear-seat belt use and shoulder belt misuse. In 1998, the Shopping Center Study was dropped from the survey. The Controlled Intersection Study includes the collection of license plate information to link seat belt use to vehicle type. As the results of the Controlled Intersection Study for 2000 were not available prior to publication, only the Moving Traffic Study data were used in this table.

In 1998, NOPUS separated pickups from the light truck category, thereby creating three categories of passenger vehicles: passenger cars, pickup trucks, and other passenger vehicles. Other passenger vehicles include vans, minivans, and sport utility vehicles. In this table, 1998 and 2000 data for pickup trucks and other passenger vehicles are combined into the light truck category to allow comparison to data from the earlier surveys. Since 2003, however, the National Highway Traffic Safety Administration (NHTSA) no longer computes an overall light truck belt use estimate. Instead, belt use is computed separately for motorists in: (1) vans and sport utility vehicles, and (2) pickup trucks. Additionally, NHTSA no longer reports separate statistics for passengers and drivers, except at the overall level.

In 1994, operators and riders wearing any type of helmet were counted as helmeted. In 1996, 1998, and 2000, motorcycle helmets that meet USDOT standards are counted as valid protection, whereas those that do not meet USDOT standards were treated as if the operator/rider were not wearing a helmet.

Data collection from the Moving Traffic Study was conducted at 1,823 sites across the country in 2009. Shoulder belt use was obtained for drivers and right-front passengers only. Three observers (two observers in 1994 and 1996) were stationed for 30 minutes at interstate/highway exit ramps, controlled (intersections with stop signs or traffic signals), and uncontrolled intersections. Every day of the week and all daylight hours (7 a.m. to 6 p.m.) were covered in each survey. Commercial and emergency vehicles were excluded.

NOPUS was designed as a multistage probability sample to ensure that the results would represent occupant protection use in the country. In the first stage, counties were grouped by regions (northeast, midwest, south, west), level of urbanization (metropolitan or not), and level of belt use (high, medium, or low). Fifty counties or groups of counties were selected based on vehicle miles of travel in those locations. In the next stage, roadways were selected from two categories: major roads and local roads. Of the originally selected sites, some were found to be ineligible during mapping and data collection, and at some sites no vehicles were observed. In 2006, a newly designed sample of observation sites emerged; subsequent years' NOPUS surveys used a combination of sites from the old and new samples. In 2009, a blend of 65 percent of sites were determined using the new methodology and 35 percent of sites were obtained from the old methodology. In 2009, a total of 100,000 passenger vehicles were observed, down from 116,000 in 2008. 947 motorcycles were also observed during the 2009 NOPUS.

Each reported estimate has been statistically weighted according to the sample design. Two kinds of error can be attributed to all survey research: sampling and nonsampling. A measure, called the standard error, is used to indicate the magnitude of sampling error. The source information provides two standard errors along with each estimate. Nonsampling errors could include problems such as vehicles not counted, incorrect determination of restraint use, and data entry mistakes, among others.

**TABLE 2-31. Estimated Number of Lives Saved by Use of Restraints**

The U.S. Department of Transportation, National Highway Traffic Safety Administration (NHTSA) uses data obtained from the Fatality Analysis Reporting System to calculate the number of lives saved by the use of restraints. The methodology used is outlined in a NHTSA report, *Research Note, Estimating Lives Saved by Restraint Use in Potentially Fatal Crashes* (Washington, DC: June 1995). The general approach is to adjust the observed number of fatalities by a determined effectiveness rate for each type of restraint. This equates to subtracting the actual fatalities from the potential fatalities to determine the number of lives saved. This method is more accurate than earlier estimation methods since all calculations are derived from NHTSA's count of fatalities in which restraints were used. Reported restraint use is believed to be accurate for fatalities.

The key to NHTSA's calculations is the effectiveness estimate for preventing fatalities for each type of restraint. With the exception of an adjustment in the effectiveness estimate for front outboard air bag-only restraint use in passenger cars (NHTSA, *Fourth Report to Congress, Effectiveness of Occupant Protection Systems and Their Use*, Washington, DC, May 1999), a list of effectiveness estimates can be found in a NHTSA report, *Estimating Alcohol Involvement in Fatal Crashes in Light of Increases in Restraint Use*, published in March 1998.This report also includes additional references describing the determination of these effectiveness estimates.

# TRANSIT DATA

**TABLE 2-1. Transportation Fatalities by Mode**

**TABLE 2-2. Transportation Injuries by Mode**

**TABLE 2-3. Transportation Accidents by Mode**

**TABLE 2-4. Distribution of Transportation Fatalities by Mode**

**TABLE 2-32. Transit Safety and Property Damage Data**

**TABLE 2-33. Transit Safety Data by Mode for All Reported Accidents**

**TABLE 2-34. Transit Safety Data by Mode for All Reported Incidents**

**TABLE 2-38. Reports of Violent Crime, Property Crime, and Arrests by Transit Mode**

The data for this report are obtained from the U.S. Department of Transportation, Federal Transit Administration's (FTA's) National Transit Database (NTD) Reporting System. Transit agencies are required to file an NTD report at regular intervals if they are recipients of Urbanized Area Formula Funds. In 2008, 692 agencies reported to the NTD. Of that total, 101 transit agencies received exemptions from detailed reporting because they operated 9 or fewer

vehicles, and 15 were deleted because their data were incomplete. Thus, 576 individual reporters were included in the NTD, accounting for 90 to 95 percent of passenger-miles traveled on transit.

Transit operators report fatalities, injuries, accidents, incidents, and property damage in excess of $1,000. Electronic reporting has recently been implemented for the NTD. Certification from a company's Chief Executive Officer must accompany all NTD reports along with an independent auditor's statement. Upon receipt, an NTD report is reviewed and outstanding items noted in writing to the agency that submitted the form. (See glossary for transit fatality, injury, and accident definitions.)

Four major categories of transit safety are collected: 1) collisions, 2) derailments/buses going off the road, 3) personal casualties, and 4) fires. These major categories are divided into subcategories. The collisions category comprises collisions with vehicles, objects, and people (except suicides). Of the four major categories, only the first two are included in the definition of transit accidents adopted in this report (see glossary). Understanding this definition of accident is relevant to understanding how double counting is removed in the grand total of U.S. transportation fatalities and injuries. (See cross modal comments in box 2-1.)

Transit data submitted to the NTD are generally considered accurate because the FTA reviews and validates information submitted by individual transit agencies. However, reliability may vary because some transit agencies cannot obtain accurate information or misinterpret data.

**Security**

FTA collects security data from transit agencies serving urbanized areas of over 200,000 in population, using Form 405, and manages it in the National Transit Database (NTD). The reporting of security data follows the FBI *Uniform Crime Reporting Handbook* (Washington, DC: 1984) and is divided into two categories: 1) Reported Offenses, including violent and property crime, and 2) Arrests, consisting of less serious crimes. The figures for violent and property crime are based on records of calls for service, complaints, and/or investigations. They do not reflect the findings of a court, coroner, jury, or decision of a prosecutor. Security data were first reported in 1995 and were not compiled for earlier years.

In 2008, the number of agencies reporting to this database was 692. Of that, 101 transit agencies received exemptions from detailed reporting because they operated nine or fewer vehicles, and 15 were deleted because their data were incomplete. Thus, 576 individual reporters are included in the full database in 2000.

# RAILROAD DATA

**TABLE 2-1. Transportation Fatalities by Mode**

**TABLE 2-2. Transportation Injuries by Mode**

**TABLE 2-3. Transportation Accidents by Mode**

**TABLE 2-4. Distribution of Transportation Fatalities by Mode**

**TABLE 2-5. Highway-Rail Grade-Crossing Safety Data and Property Damage**

**TABLE 2-7. Transportation-Related Occupational Fatalities**

**TABLE 2-39. Railroad and Grade-Crossing Fatalities by Victim Class**

**TABLE 2-40. Railroad and Grade-Crossing Injured Persons by Victim Class**

**TABLE 2-41. Train Fatalities, Injuries, and Accidents by Type of Accident**

**TABLE 2-42. Railroad Passenger Safety Data**

**TABLE 2-39. Railroad System Safety and Property Damage Data**

**TABLE 2-40. Fatalities and Injuries of On-Duty Railroad Employees**

Railroads are required to file a report for each train accident resulting in property damage in excess of $9,200 (2010 threshold), each highway-rail accident, and each incident involving the operation of a railroad resulting in a fatality or a reportable injury. (See glossary for reportable injury, train accident and incident, and nontrain incident definitions.)

Reporting requirements, which are fixed in law, are very broad and encompass events not strictly related to transportation. For example, if a passenger falls on a staircase and breaks a leg in the station while going to a train, the injury would be reported and appear in the data as a rail injury.

# WATERBORNE TRANSPORTATION DATA

**TABLE 2-1. Transportation Fatalities by Mode**

**TABLE 2-2. Transportation Injuries by Mode**

**TABLE 2-3. Transportation Accidents by Mode**

**TABLE 2-4. Distribution of Transportation Fatalities by Mode**

**TABLE 2-7. Transportation-Related Occupational Fatalities**

**TABLE 2-45. Waterborne Transportation Safety Data and Property Damage Related to Vessel**

**Casualties**

**TABLE 2-46. Waterborne Transportation Safety Data Not Related to Vessel Casualties**

U.S. waterborne fatality and injury data are based on reports required by CFR Part 4.05-10. This code requires that the owner, agent, master, operator, or person in charge file a written report of any marine casualty or accident within five days of the accident. Reports must be delivered to Investigative Officers (IOs) at a U.S. Coast Guard Marine Safety Office or Marine Inspection Office at the U.S. Department of Transportation, who use these reports as guides to investigate the marine casualty or accident. The IO ensures that all the entries on the forms are filled out and errors are corrected. Regulations require IO notification of marine casualties for certain circumstances, including loss of life; injuries that require medical treatment beyond first aid; and, for individuals engaged or employed onboard a vessel in commercial service, injuries that render a person unfit to perform routine duties.

Incidents requiring an investigation include death, injury resulting in substantial impairment, and other incidents determined important to promoting the safety of life or property or to protect the marine environment. These incidents are investigated in accordance with procedures set forth in the regulations. Furthermore, the Federal Water Pollution Control Act mandates that certain incidents be reported to the U.S. Coast Guard. The reports are entered into the Marine Safety Information System, which is later analyzed and transferred to the Marine Safety Management System maintained in Washington, DC.

# RECREATIONAL BOATING DATA

**TABLE 2-1. Transportation Fatalities by Mode**

**TABLE 2-2. Transportation Injuries by Mode**

**TABLE 2-3. Transportation Accidents by Mode**

**TABLE 2-4. Distribution of Transportation Fatalities by Mode**

**TABLE 2-47. Recreational Boating Safety, Alcohol Involvement, and Property Damage Data**

**TABLE 2-48. Personal Watercraft Safety Data**

**TABLE 2-49. U.S. Coast Guard Search and Rescue Statistics, Fiscal Years**

Operators of boats involved in an accident resulting in 1) a fatality, 2) an injury requiring medical treatment beyond first aid, 3) damage to the vessel or other property greater than $25,000 or complete loss of vessel, or 4) the disappearance of a person from the vessel under circumstances indicating death or injury are required to file a report with the U.S. Coast Guard. If a person dies within 24 hours of the occurrence, requires medical treatment beyond first aid, or disappears from the vessel, reports must be made within 48 hours of the occurrence. In cases involving only damage to the vessel and/or property, reports are to be submitted within 10 days of the occurrence. Although there is no quantitative estimate of the response rate, there may be considerable underreporting, especially of nonfatal accidents, because of the difficulty of enforcing the requirement and because boat operators may not always be aware of the law.

# NATURAL GAS AND LIQUID PIPELINE DATA

**TABLE 2-1. Transportation Fatalities by Mode**

**TABLE 2-2. Transportation Injuries by Mode**

**TABLE 2-3. Transportation Accidents by Mode**

**TABLE 2-4. Distribution of Transportation Fatalities by Mode**

**TABLE 2-6. Hazardous Materials Safety Data and Property Damage Data**

Incidents resulting in certain unintentional releases of hazardous materials must be reported under 49 CFR 171.16. Each carrier must submit a report to the U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration (PHMSA) within 30 days of the incident, including information on the mode of transportation involved, results of the incident, and a narrative description of the accident. These reports are made available on the incident database within 60 days of receipt.

Fatalities and injuries are counted only if they are directly due to a hazardous material. For example, a truck operator killed by impact forces during a motor vehicle crash would not be counted as a hazardous-material fatality. PHMSA verifies all reported fatalities and injuries by telephone with the carrier submitting the report.
Possible sources of error include a release going undetected; even if subsequently detected and reported, it may not be possible to accurately reconstruct the accident. Although PHMSA acknowledges that there is some level of underreporting, it believes that the underreporting is limited to small, nonserious incidents. As incident severity increases, it is more likely that the incident will come to PHMSA's attention and will ultimately be reported. Additionally, the reporting requirements were extended to intrastate highway carriers on October 1, 1998, and the response rate from this new group is expected to increase over time. Property damage figures are estimates determined by the carrier prior to the 30-day reporting deadline and are generally not subsequently updated. Property damage figures, therefore, may underestimate actual damages.

**TABLE 2-50. Hazardous Liquid and Natural Gas Pipeline Safety and Property Damage Data**

U.S. fatality and injury data for natural gas pipelines are based on reports filed with the U.S. Department of Transportation (USDOT), Pipeline and Hazardous Materials Safety Administration (PHMSA), Office of Pipeline Safety (OPS). Accidents must be reported as soon as possible, but no later than 30 days after discovery. Reports are sent to the Information Systems Manager at the OPS. Possible sources of error include a release going undetected; even if subsequently detected and reported, it may not be possible to accurately reconstruct the accident. Property damage figures are estimates. (See glossary for gas and liquid pipeline fatality data and injury definitions.)

# Appendix E
# Data Source and Accuracy Statements

## Chapter 1 Extent, Condition, and Performance

**TABLE 1-1. System Mileage Within the United States**

**Highway**

The Highway Performance Monitoring System (HPMS) is the source of road mileage data and is considered reliable. (See box 1-1 for detailed information about the HPMS.) The Federal Highway Administration (FHWA) of the U.S. Department of Transportation (USDOT) collects and reviews state-reported HPMS data for completeness, consistency, and adherence to specifications. Some inaccuracy may arise from variations across states in their adherence to federal guidelines in the Traffic Monitoring Guide and the *Highway Performance Monitoring System Field Manual for the Continuing Analytical and Statistical Database*.

Beginning with the 1997 issue of *Highway Statistics*, FHWA instituted a new method for creating mileage-based tables derived from the HPMS. Previously, adjustments to tables developed from sample data were made using area-wide mileage information provided by states. These adjustments are now being made using universe totals from the HPMS dataset. In addition, FHWA has discontinued the process of spreading rounding and other differences across table cells. Thus, users may note minor differences in table-to-table totals. FHWA considers mileage totals from table HM-20, "Public Road Length, Miles by Functional System" to be the controlling totals should a single value be required.

Reliability may be diminished for comparisons with pre-1980 data, which were collected via different methods and special national studies. For instance, pre-1980 mileage data included some nonpublic roadways (95,000 miles in 1979) while post-1980 data reports only public road mileage (roads or streets governed and maintained by a public authority and open to public travel).

**Class I Rail**

These data are from *Railroad Facts*, published annually by the Association of American Railroads (AAR). AAR data are based on 100-percent reporting by Class I railroads to the Surface Transportation Board (STB) via Schedule 700 of the *R1 Annual Report*. The STB defines Class I railroads as having operating revenues at or above a threshold indexed to a base of $250 million (1991) and adjusted annually in concert with changes in the Railroad Freight Rate Index published by the Bureau of Labor Statistics. In 1999, the adjusted threshold for Class I railroads was $258.5 million. Declassification from Class I status occurs when a railroad falls below the applicable threshold for three consecutive years. Although Class I railroads encompasses only 2 percent of the number of railroads in the country, they account for over 71 percent of the industry's mileage operated.

To obtain railway mileage, AAR subtracts trackage rights from miles of rail traveled on line 57 in the Schedule 700 report. Historical reliability may vary due to changes in the railroad industry, including bankruptcies, mergers, and declassification by the STB. Small data errors may also exist because of because of independent rounding of this series by AAR.

**Amtrak**

These statistics originate from the Statistical Appendix to *Amtrak's Annual Report*. Amtrak estimates track mileage based on point-to-point city timetables that railroad companies provide for engineers. The figures are estimates, but are considered reliable.

**Transit**

These data are based on information in the U.S. Department of Transportation, Federal Transit Administration (FTA), National Transit Database (NTD). The legislative requirement for the NTD is found in Title 49 U.S.C. 5335(a). Transit

agencies receiving funds through the Urbanized Area Formula Program are generally required to report financial and operating data, including vehicle inventories and directly operated mileage. Transit operators that do not report to FTA are those that do not receive Urbanized Area Formula Funding, typically private, small, and rural operators. The data are generally considered accurate because FTA reviews and validates information submitted by individual transit agencies. Reliability may vary because some transit agencies cannot obtain accurate information or may misinterpret certain data definitions.

**Navigable Channels**

These statistics originate from a mid-1950s U.S. Army Corps of Engineers (USACE) estimate that there were approximately 25,000 miles of commercially important navigable channels in the United States. That number has been adjusted from time to time, for example, by addition of the 234-mile Tennessee-Tombigbee Waterway in the early 1980s. The 25,000 plus mile number has been universally quoted for decades, but has definitional and methodological uncertainties. USACE is currently developing a rigorous, Global Information System (GIS)-based approach to facilitate tabulation of the lengths of shallow and deep-draft commercially navigable waterways in the United States; this calculation will be available in several years.

**Oil Pipeline**

The data are from *Transportation in America*, published by the Eno Transportation Foundation, Inc. (Eno). The numbers reprinted here for 1960, 1965, 1970, and 1975 are Eno estimates from the U.S. Department of Energy (DOE) Energy Data Report issues labeled "Crude-oil and Refined Products Mileage in the United States." Eno estimated the 1980 number based on the assumption that refinement of old, less profitable, and smaller lines exceeded in mileage the construction of new, larger, and more profitable lines. Post-1985 data were calculated using a base figure reported in a 1982 USDOT study entitled *Liquid Pipeline Director* and then combined with data from the Association of Oil Pipe Lines and the Oil Pipeline Research Institute. Lack of additional information raises definitional and methodological uncertainties for the data's reliability. Moreover, the three different information sources introduce data discontinuities, making time comparisons unreliable.

**Gas Pipeline**

These statistics originate from annual editions of *Gas Facts*, published by the American Gas Association (AGA). The data reported by the AGA are based on gas utilities participation and reporting to the *Uniform Statistical Report*. Utilities reporting represented 98 percent of gas utility industry sales while the remaining 2 percent was estimated for nonreporting companies based on recent historical experience. Varying percentages of nonreporters from year to year introduce minor reliability problems for time-series comparisons.

**TABLE 1-2. Number of Air Carriers, Railroads, Interstate Motor Carriers, Marine Operators, and Pipeline Operators**

**Air Carriers**

The data are from the *Air Carrier Financial Statistics Quarterly*, published by the Office of Airline Information of the U.S. Department of Transportation, Bureau of Transportation Statistics (BTS). The Alphabetical List of Air Carriers by Carrier Group at the beginning of each fourth quarter edition is used to determine the number of major air carriers and other air carriers in operation at the end of each calendar year. The publication draws its data from the T-100 and T-100(f) databases maintained by BTS. These databases include data obtained from a 100-percent census of BTS Form 41 schedule submissions by large certificated air carriers, which are carriers that hold a certificate issued under section 401 of the Federal Aviation Act of 1958 and that (1) operate aircraft designed to have a maximum passenger seating capacity of more than 60 seats or a maximum payload capacity of more than 18,000 pounds or (2) that conduct international operations. Carriers are grouped as major, national, large regional, or medium regional based on their annual operating revenues. The thresholds were last adjusted July 1, 1999 and the threshold for major air carriers is currently $1 billion. The table combines the number of national, large regional, and medium regional air carriers into the other air carrier category.

**Railroads**

The Association of American Railroads (AAR)'s *Railroad Ten-Year Trends* series is the source for the number of railroads. The number of Class I railroads is based on 100-percent reporting by Class I railroads to the Surface Transportation Board (STB) via Schedule 700 of the *R1 Annual Report*. The STB defines Class I railroads as having operating revenues at or above a threshold indexed to a base of $250 million (1991) and adjusted annually in concert with changes in the Railroad Freight Rate Index published by the Bureau of Labor Statistics. In 2000, the adjusted threshold for Class I railroads was $261.9 million. Declassification from Class I status occurs when a railroad falls below the applicable threshold for three consecutive years. Although Class I railroads encompasses only 1 percent of the number of railroads in the country, they account for over 71 percent of the industry's mileage operated.

The Association of American Railroads determines the number of non-Class I railroads through an annual survey sent to every U.S. freight railroad. By following up with nonrespondents, the AAR obtains essentially a census of railroads. Use of the current survey instrument began in 1986.

**Interstate Motor Carriers**

The Motor Carrier Management Information System (MCMIS), maintained by the U.S. Department of Transportation, Federal Motor Carrier Safety Administration, contains information on the safety of all commercial interstate motor carriers and hazardous material (HM) shippers subject to the Federal Motor Carrier Safety Regulations and the Hazardous Materials Regulations. All carriers operating in interstate or foreign commerce within 90 days of beginning operations must submit a Form MCS-150, Motor Carrier Identification Report. Carriers may also use the form to update their information. The Motor Carrier Safety Improvement Act of 1999 requires that reports be periodically updated, but not more than once every two years. MCMIS is updated as soon as information is provided and verified, and periodic archives are made. Historical data are available from summary information previously prepared, including tables and reports. MCMIS began operations in 1980. Safety data since 1990 are available to the public.

**Marine Vessel Operators**

The U.S. Army Corps of Engineers (USACE) provides the data for marine vessel operators through the *Waterborne Transportation Lines of the United States*. Data are collected by the USACE's Navigation Data Center (NDC) by various means, including the U.S. Coast Guard's registry, maritime service directories, and waterway sector publications. However, an annual survey of companies that operate inland waterway vessels is the principle source of data. More than 3,000 surveys are sent to these companies and response rates are typically above 90 percent. However, a USACE official did report that less than 10 percent of the total number of companies operating inland water vessels either did not receive or respond to the annual survey.

**Pipeline Operators**

The Office of Pipeline Safety (OPS) in the U.S. Department of Transportation's Research and Special Programs Administration collects annual report data from natural gas transmission and distribution operators as required by 49 CFR 191.17 and 191.11, respectively. Annual data must be submitted by March 15 of the following calendar year. No annual report is required for hazardous liquid pipeline operators. However, information is available through the pipeline safety program. Since 1986, the program has been funded by fees assessed to each OPS-regulated pipeline operator based on per-mile of hazardous pipeline operated. Data for each operator and each mile of pipeline are stored in the OPS user-fee database, which is revised annually as updated fees are assessed.

Totals for pipeline operators in this table will differ from those in other tables due to differences in the regulatory authority of USDOT and the Federal Energy Regulatory Commission (FERC). FERC regulates only interstate pipelines, whereas DOT regulates both interstate and intrastate pipelines, except for rural gathering lines and some offshore pipelines, which fall under jurisdiction of the U.S. Coast Guard or the U.S. Department of the Interior's Minerals Management Service. An OPS official stated that FERC regulates about two-thirds the amount of pipeline mileage that USDOT regulates.

**TABLE 1-3. Number of U.S. Airports**

The Federal Aviation Administration (FAA), Office of Airport Safety and Standards *Administrator's Fact Book* (annual issues) furnished the data shown in this table and includes airports certified for air carrier operations with aircraft that seat 30 or more passengers. These airports include civil and joint civil-military use airports, heliports, STOLports (short takeoff and landing), and seaplane facilities. The FAA obtained this data via physical inspections and mail

solicitations of all federally regulated landing facilities. Since this is a census of all U.S. airports, reliability should be high. Data, however, may be subject to reporting errors typical of administrative recordkeeping.

**TABLE 1-4. Public Road and Street Mileage in the United States by Type of Surface**

**TABLE 1-5. U.S. Public Road and Street Mileage by Functional System**

**TABLE 1-6. Estimated U.S. Roadway Lane-Miles by Functional Class**

The Highway Performance Monitoring System (HPMS) is the source of road mileage data and is considered reliable.(See box 1-1 for detailed information about the HPMS.) The U.S. Department of Transportation, Federal Highway Administration collects and reviews state-reported HPMS data for completeness, consistency, and adherence to specifications. Some inaccuracy may arise from variations across states in their adherence to federal guidelines in the Traffic Monitoring Guide and the *Highway Performance Monitoring System Field Manual for the Continuing Analytical and Statistical Database*.

Beginning with the 1997 issue of *Highway Statistics*, FHWA instituted a new method for creating mileage-based tables derived from the HPMS. Previously, adjustments to tables developed from sample data were made using area-wide mileage information provided by states. These adjustments are now being made using universe totals from the HPMS dataset. In addition, FHWA has discontinued the process of spreading rounding and other differences across table cells. Thus, users may note minor differences in table-to-table totals. FHWA considers mileage totals from table HM-20, "Public Road Length, Miles by Functional System" to be the controlling totals should a single value be required.

Lane-miles are calculated by multiplying the centerline length by the number of through lanes. Because the HPMS requires that the number of lanes be reported for all principal arterials, other National Highway System (NHS) roads, and all standard samples, lane length can be computed for the Interstate, other principal arterials, and the NHS on a 100-percent basis. For minor arterials, rural major collectors, and urban collectors, lane length is calculated based on standard sample sections using the reported number of through lanes, length of section, and an expansion factor. FHWA uses the expanded sample to check that the centerline length of a state's functional system matches the universe functional system length. If the centerline length and functional system length do not match, FHWA may ask a state to make adjustments.

Reliability may be diminished for comparisons with pre-1980 data, which were collected via different methods and special national studies. For instance, pre-1980 mileage data included some nonpublic roadways (95,000 miles in 1979) while post-1980 data reports only public road mileage (roads or streets governed and maintained by a public authority and open to public travel).

**TABLE 1-7. Number of Stations Served by Amtrak and Rail Transit, Fiscal Year**

These numbers originate from Amtrak's Statistical Appendix to *Amtrak's Annual Report* and the U.S. Department of Transportation, Federal Transit Administration's National Transit Database.

Amtrak maintains a computer database with a record of every station, locomotive, and car it operates. Those records include for each vehicle the year built, its service status (operating or not on a daily basis), and location. These data should be considered very reliable.

**TABLE 1-8. ADA Accessible Rail Transit Stations by Agency**

**TABLE 1-9. ADA Lift- or Ramp-Equipped Transit Buses**

These data are based on information in the U.S. Department of Transportation, Federal Transit Administration (FTA), National Transit Database (NTD). The legislative requirement for the NTD is found in Title 49 U.S.C. 5335(a). Transit agencies receiving funds through the Urbanized Area Formula Program are generally required to report financial and operating data, including certain aspects of station and vehicle accessibility. Transit operators that do not report to FTA are those that do not receive Urbanized Area Formula Funding, typically private, small, and rural operators. The data are generally considered accurate because FTA reviews and validates information submitted by individual transit

agencies. Reliability may vary because some transit agencies cannot obtain accurate information or may misinterpret certain data definitions.

**TABLE 1-10. U.S. Oil and Gas Pipeline Mileage**

**Oil Pipeline**

The data are from *Transportation in America*, published by the Eno Transportation Foundation, Inc. (Eno). The numbers reprinted here for 1960, 1965, 1970, and 1975 are Eno estimates from the U.S. Department of Energy's *Energy Data Report* issues labeled "Crude-oil and Refined Products Mileage in the United States." Eno estimated the 1980 number based on the assumption that refinement of old, less profitable, and smaller lines exceeded in mileage the construction of new, larger, and more-profitable lines. Figures from 1985 and later years are calculated from a base figure that Eno obtained from the 1982 U.S. Department of Transportation study *Liquid Pipeline Director* and then incorporated that figure with data from the Association of Oil Pipe Lines and the Oil Pipeline Research Institute. Lack of additional information raises definitional and methodological uncertainties for the data's reliability. Moreover, the three different information sources introduce data discontinuities making time comparisons less reliable.

**Gas Pipeline**

These statistics originate from annual editions of *Gas Facts* published by the American Gas Association (AGA). The data reported by AGA are based on gas utilities participation and reporting to the Uniform Statistical Report. Utilities reporting in 1991 represented 98 percent of total gas utility industry sales while the remaining 2 percent was estimated for the nonreporting companies based on recent historical experience. Varying percentages of nonreporters from year to year introduce minor reliability problems for time-series comparisons.

**TABLE 1-11. Number of U.S. Aircraft, Vehicles, Vessels, and Other Conveyances**

**TABLE 1-12. Sales or Deliveries of New Aircraft, Vehicles, Vessels, and Other Conveyances**

**Civilian Aircraft**

The Aerospace Industries Association (AIA) provided this data in their annual issues *Aerospace Facts and Figures*, "Civil Aircraft Shipments." AIA collects their data from aircraft company reports, the General Aviation Manufacturers Association (GAMA), and the U.S. Department of Commerce's (DOC) International Trade Administration. DOC data provide total number of shipments and exports, and the difference computed by AIA equals domestic shipments. DOC collects shipments data separately for individual factories or establishments and not at the company level. A potential limitation of this approach is when a factory producing aircraft for shipment also makes aircraft parts. If the establishment has 80 percent of its production in aircraft and 20 percent in parts, all of the output is attributed to aircraft shipments.

**Transport**

The Aerospace Industries Association (AIA) is the source of these data. AIA obtains quarterly data from Boeing Corp., now the sole U.S. manufacturer of transport aircraft, and publicly available financial disclosure information filed with the U.S. Securities and Exchange Commission (SEC) via Form 10-k. SEC requires a publicly traded company to file an annual report 90 days after the end of the company's fiscal year to provide an overview of that business.

**Helicopters**

AIA surveyed and received data from all 10 major helicopter manufacturers on their sales and deliveries.

**General Aviation**

The general aviation figures are taken from the *General Aviation Statistical Databook* published by the GAMA. General aviation refers usually to the small aircraft industry in the United States. GAMA collects quarterly data from the 10 to 14 manufacturers who nearly equal a census of the general aviation sector.

**Passenger Car, Truck, Bus, and Recreational Vehicles**

Ward's *Motor Vehicle Facts and Figures* is the source of these data. Ward's obtains sales data directly from manufacturers. Readers should note that automobile manufacturers have inflated sales figures in the past, but Ward's does contact companies to verify numbers that appear too high or low.

**Motorcycle**

The Motorcycle Industry Council, Inc. (MIC) publishes the *Motorcycle Statistical Annual*, which is the source for these data. MIC derived the estimate for new retail motorcycle sales for each state from the *MIC Retail Sales Report*, and adjusted for total retail sales. Motorcycle company reports provided sales data. Prior to 1985, all-terrain vehicles (ATVs) were included in the motorcycle total. In 1995, the Motorcycle Industry Council revised its data for the years 1985 to present to exclude all terrain vehicles from its totals.

**Bicycle**

The National Bicycle Dealers Association (NBDA) reported these data, which are based on Bicycle Manufacturers Association (BMA) information through 1996. BMA stopped reporting members' shipments in 1996. Moreover, BMA represents the largest bicycle manufacturers (Huffy, Roadmaster, and Murray), and thus the data do not reflect specialty bike makers or other manufacturers. The Bike Council estimated 1997 through 2001 figures in the table. According to a Bicycle Council representative, the estimates are a combination of domestic forecasts produced by a panel of industry experts and import data from monthly U.S. census databases.

**Transit**

The American Public Transit Association provided these figures, which are based on information in the U.S. Department of Transportation, Federal Transit Administration (FTA), National Transit Database. These data are generally considered accurate because the FTA reviews and validates information submitted by individual transit agencies. Reliability may vary because some transit agencies cannot obtain accurate information or misinterpret data. APTA conservatively adjusts FTA data to include transit operators that do not report to the database (private, very small, and rural operators).

**Class I Rail**

The data are from Railroad Facts, published annually by the Association of American Railroads (AAR). AAR data are based on 100-percent reporting by Class I railroads to the Surface Transportation Board (STB) via Schedule 700 of the *R1 Annual Report*. STB defines Class I railroads as having operating revenues at or above a threshold indexed to a base of $250 million (1991) and adjusted annually in concert with changes in the Railroad Freight Rate Index published by the Bureau of Labor Statistics. In 2000, the threshold for Class I railroads was $261.9 million. Although Class I railroads encompasses only 2 percent of the number of railroads in the country, they account for over 71 percent of the industry's mileage operated. Historical reliability may vary due to changes in the railroad industry, including bankruptcies, mergers, and declassification by the STB. Small data errors may also have occurred because of independent rounding in this series by the AAR.

**Amtrak**

Amtrak maintains a computer database with a record of every locomotive and car it operates. For each vehicle, those records include the year built, its service status (operating or not on a daily basis), and location. These data should be considered very reliable.

**Water Transportation**

U.S. Department of Transportation, Maritime Administration (MARAD), which classifies vessels as merchant based on size and type, reports these data in annual issues of its *Merchant Fleets of the World*. MARAD compiles these figures from a data service provided by Lloyd's Maritime Information Service. The parent company, Lloyd's Register (LR), collects data from several sources: its 200 offices worldwide, data transfers and agreements with other classification societies, questionnaires to ship owners and shipbuilders, feedback from government agencies, and input from port agents. According to an LR official, consistent data gathering methods have been maintained for more

than 30 years but cautioned that inconsistencies may occur in groupings of ship types over time. For example, tank barges are now included in the tanker ship-type grouping rather than the barge grouping.

**TABLE 1-13. Active Air Carrier and General Aviation Fleet by Type of Aircraft**

**Air Carrier, Certificated, All Services**

Prior to 1995, data originated from the U.S. Department of Transportation, Federal Aviation Administration (FAA), FAA *Statistical Handbook of Aviation*. Later data are from the Aerospace Industries Association (AIA), *Aerospace Facts and Figures*. However, Aerospace Facts and Figures is compiled from the FAA *Statistical Handbook of Aviation*. U.S. air carrier fleet data are based on reports collected by FAA field offices from carriers. The reports include information on the number of aircraft by type used in air carrier service. The FAA points out that this information is not an inventory of the aircraft owned by air carriers, but represents the aircraft reported to the FAA as being used in air carrier fleet service. The reported aircraft are all aircraft carrying passengers or cargo for compensation or hire under 14 CFR 121 and 14 CFR 135.

**General Aviation**

The 1960-1980 figures originated from the FAA *Statistical Handbook of Aviation*. Later data are from FAA annual issues of the *General Aviation* and *Air Taxi Activity* (GAATA) Survey report, table 3.1.The FAA collects both aircraft registration data and voluntary information about aircraft operation, equipment, and location. Before 1978, the FAA mandated owners to annually register their aircraft for the Aircraft Registration Master File. This was a complete enumeration of operating aircraft. Registrants were also asked to voluntarily report information on hours flow, avionics equipment, base location, and use. The FAA changed their data collection methodology in 1978. The annual registration requirement became triennial and the General Aviation Activity and Avionics Survey was initiated to sample aircraft operation and equipment data.

The General Aviation Activity and Avionics Survey was renamed the General Aviation and Air Taxi Activity Survey in 1993 to reflect the fact that the survey includes air taxi aircraft. This survey is conducted annually and encompasses a stratified, systematic design from a random start to generate a sample of all general aviation aircraft in the United States. It is based on the FAA registry as the sampling frame. FAA established three stratification design variables in the survey: 1) the average annual hours flown per aircraft by aircraft type, 2) the aircraft manufacturer/model characteristics, and 3) the state of aircraft registration.

**Data Reliability**

Because of the change in 1978, the reliability of comparisons over time will be affected. The FAA asserted that the change to a triennial registration deteriorated the Aircraft Registration Master File in two ways. First, the resulting lag in registration updates caused the number of undeliverable questionnaires to steadily increase over the three-year period. Second, inactive aircraft would remain in the registry, inflating the general aviation fleet count. In addition, a new regulation added two categories of aircraft to the general aviation fleet. However, FAA concluded that these changes resulted in no more than a five-percent error in the fleet population estimate.

The reliability of the GAATA survey can be impacted by two factors: sampling and nonsampling error. A measure, called the standard error, is used to indicate the magnitude of sampling error. Standard errors can be converted for comparability by dividing the standard error value by the estimate (derived from sample survey results) and multiplying it by 100.This quantity, referred to as the percent standard error, totaled seven-tenths of a percent in 1997 for the general aviation fleet. A large standard error relative to an estimate indicates lack of precision and, inversely, a small standard error indicates precision.

Nonsampling errors could include problems such as nonresponse, respondent's inability or unwillingness to provide correct information, differences in interpretation of questions, and data-entry mistakes. Readers should note that non-response bias might be a component of reliability errors in the data from 1980 to 1990.The FAA conducted telephone surveys of nonrespondents in 1977, 1978, and 1979 and found no significant differences or inconsistencies in respondents' and nonrespondents' replies. The FAA discontinued the telephone survey of nonrespondents in 1980 to save costs. Nonresponse surveys were resumed in 1990, and the FAA found notable differences and thus adjusted its fleet estimates. The 1991 through 1996 data have been revised to reflect nonresponse bias. In 1997, a sample of 29,954 aircraft was identified and surveyed from an approximate population of 251,571 registered general aviation aircraft. Just over 65 percent of the sample responded to the survey.

**Highway, Total (registered vehicles)**

The 1960 to 1980 figures are from the U.S. Department of Transportation, Federal Highway Administration (FHWA) document, *Highway Statistics, Summary to 1985,* table MV-201 and related tables. Data quality and consistency will be less reliable for these years because of a diversity of registration practices from state to state. Users should recognize that motor vehicle statistical information is not necessarily comparable across all states or within a state from year to year. For instance, the FHWA reported that separate data on single-unit trucks and combinations was unobtainable from all states in 1990.

After 1980, the FHWA began to use the Highway Performance Monitoring System (HPMS) database, which improved data reliability. FHWA reviews state-reported HPMS data for completeness, consistency, and adherence to these specifications. Some inaccuracy may arise from variations across states in their adherence to federal guidelines in the *Highway Performance Monitoring System Field Manual for the Continuing Analytical and Statistical Database*.

If choosing to compare state data, the FHWA recommends that users carefully select a set of peer states that have characteristics similar to the specific comparison. Improperly selected peer states are likely to yield invalid data comparisons. Characteristics that a user needs to consider in determining compatibility of a peer state include similarities and differences in urban/rural areas, population densities, degrees of urbanization, climate, geography, state laws and practices that influence data definitions, administrative controls of public road systems, state economies, traffic volumes, and degrees of centralization of state functions. The FHWA has developed a set of variables that users may use to determine appropriate peer states.

**Other 2-Axle 4-Tire Vehicle (truck)**

Sources for these figures included FHWA's *Highway Statistics, Summary to 1995* (table VM-201A) and annual issues of *Highway Statistics* (table VM-1). FHWA compiles these figures from the U.S. Bureau of the Census' Truck Inventory and Use Survey (TIUS). Since 1963, Census has conducted the TIUS every five years with the last survey completed in 1997.The Census Bureau changed the name of the survey to the Vehicle Inventory and Use Survey (VIUS) in 1997. The VIUS collects data and the physical and operational characteristics of the nation's truck population. In 1997, 131,000 trucks were surveyed from an estimated universe of over 75 million trucks. Chronological reliability may be diminished due to sampling design changes in 1977, 1982, and 1992. In 1977, the sampling universe was first stratified by the number of trucks in a state: large (> 1.5 million trucks), medium (700,000 to 1.5 million), and small (< 700,000); and then by two truck sizes.

Stratification in 1982 was then based on body type rather than vehicle weight. In 1992 and 1997, the sampling universe was first subdivided geographically and then into five strata: 1) pickups, 2) vans, 3) single-unit light, 4) single-unit heavy, and 5) truck tractor. Cases were then selected randomly within each stratum.

Census delivered a mail-out/mail-back survey to the owner identified in the vehicle registration records. Data collection is staggered as state records become available. Owners report data only for the vehicles selected. In the 1992 survey, a method was employed to also collect data on new truck purchases in the latter half of the year to estimate the fleet for the calendar year. This adjustment in the sampling frame had not been done in previous surveys and may diminish chronological reliability. The sample for 1997 was some 22,500 vehicles smaller than for 1992. The 1997 VIUS had two sampling stages. For the first stage, the Census Bureau surveyed about 131,000 trucks registered as of July 1, 1997.The second stage sampled a total of 3,000 truck owners with state mailing addresses different from the state of truck registration.

The accuracy and reliability of the VIUS survey depends jointly on sampling variability and nonsampling errors. Standard errors arising from sampling variability can be converted for comparability by dividing the standard error value by the estimate and multiplying it by 100. This quantity, referred to as the percent standard error, totaled two-tenths of a percent in 1992 and 1997 for the VIUS sample. A large standard error relative to an estimate indicates lack of precision and, inversely, a small standard error indicates precision. The 1992 TIUS achieved over 90.2 percent reporting and the 1997 response rate equaled 84.5 percent, thus reliability may have decreased in the most recent survey.

**Transit**

The American Public Transit Association (APTA) provided these data, which are based on the Federal Transit Administration (FTA), National Transit Database. These data are generally accurate because the FTA reviews and

validates information submitted by individual transit agencies. Reliability may vary because some transit agencies cannot obtain accurate information or may misinterpret data. APTA conservatively adjusts FTA data to include transit operators that do not report to the database (private, very small, and rural operators).

**Railroad (all categories**)

The data are from *Railroad Facts*, published annually by the Association of American Railroads (AAR). AAR data are based on 100-percent reporting by Class I railroads to the Surface Transportation Board (STB) via Schedule 700 of the *R1 Annual Report*. Thus, data estimates are considered very reliable. The STB defines Class I railroads as having operating revenues at or above a threshold indexed to a base of $250 million (1991) and adjusted annually in concert with changes in the Railroad Freight Rate Index published by the Bureau of Labor Statistics. In 2000, the adjusted threshold for Class I railroads was $ 261.9 million. Declassification from Class I status occurs when a railroad falls below the applicable threshold for three consecutive years. Although Class I railroads encompasses only 2 percent of the number of railroads in the country, they account for over 71 percent of the industry's mileage operated.

AAR determines the number of non-Class I railroads through an annual, comprehensive survey sent to every U.S. freight railroad. By following up with nonrespondents, the AAR obtains essentially a 100 percent census of all railroads. Use of the current survey instrument began in 1986.

**Amtrak**

Amtrak maintains a computer database with a record of every locomotive and car it operates. For each vehicle, those records include the year built, service status (operating or not operating on a daily basis), and location. This data should be considered very reliable.

**Water Transportation**

The source for Inland Nonself-Propelled Vessels, Self-Propelled Vessels, and flag passenger and cargo vessels is the U.S. Army Corps of Engineers (USACE), *Waterborne Transportation Lines of the United States*, annual issues. Data are collected by the USACE's Navigation Data Center (NDC) by various means, including the U.S. Coast Guard's registry, maritime service directories, and waterway sector publications. However, an annual survey of companies that operate inland waterway vessels is the principle source of data. More than 3,000 surveys are sent to these companies, and response rates are typically above 90 percent. However, a USACE official did report that less than 10 percent of the total number of companies operating inland vessels either did not receive or respond to the annual survey.

**Oceangoing Steam Motor Ships**

*Merchant Fleets of the World*, published annually by the U.S. Department of Transportation, Maritime Administration (MARAD), is the source of these data. MARAD, which classifies vessels as merchant based on size and type, compiles these figures from a data service provided by Lloyd's Maritime Information Service (LMIS).The parent company, Lloyd's Register (LR), collects data from 200 offices worldwide, from data transfers and agreements with other classification societies, from questionnaires to ship owners and ship builders, from feedback from government agencies, and from input from port agents. According to an LR official, consistent data-gathering methods have been maintained for more than 30 years. The same official did caution that there are sometimes inconsistencies in groupings of ship types over time. For example, propelled tank barges are now included in the tanker ship-type grouping.

**Recreational Boats**

*Boating Statistics*, published annually by the U.S. Coast Guard (USCG), is the source. The USCG derives these figures from state and other jurisdictional reporting of the actual count of valid boat numbers issued. In accordance with federal requirements, all 55 U.S. states and territories require motor-powered vessels to be numbered. However, over half the states do not require nonpowered vessels to be numbered. Accuracy can also be diminished by noncompliance of boat owners with numbering and registration laws. In 1996, the USCG estimated that approximately eight million recreational boats are not numbered and, thus, are excluded from the reported number of recreational vessels. The USCG did not provide estimates for the number of boats without numbering in their reports

after 1996. Some jurisdictions fail to report by publication deadlines, and the USCG provided estimates based on the previous year's estimate.

**TABLE 1-14. U.S. Automobile and Truck Fleets by Use**

These statistics originate from two sources. The R.L. Polk Co. provides numbers for commercial fleet vehicles from state registrations. Bobit Publishing Co. also obtains fleet vehicle sales data from automobile manufacturers. These two sources cover nearly 100 percent of fleet vehicles in the United States. Thus, the data should be very accurate.

**TABLE 1-15. Annual U.S. Motor Vehicle Production and Factory (Wholesale) Sales**

**TABLE 1-16. Retail New Passenger Car Sales**

**TABLE 1-17. New and Used Passenger Car Sales and Leases**

**TABLE 1-18. Retail Sales of New Cars by Sector**

The U.S. Department of Commerce, Bureau of Economic Analysis, uses data from Ward's Automotive Reports. The sectoral break down is derived from registration data obtained from R.L. Polk. Ward's obtains sales data directly from manufacturers. Readers should note that automobile manufacturers have inflated sales figures in the past, but Ward's does contact companies to verify numbers that appear too high or low.

**TABLES 1-20 and 1-21. Period Sales, Market Shares, and Sales-Weighted Fuel Economies of New Domestic and Imported Automobiles and Light Trucks, Selected Sales Periods**

These data originate from Oak Ridge National Laboratory's (ORNL) Light-Duty MPG and Market Shares System database, which relies on information from monthly Ward's Automotive Reports. Comparisons and observations are made on sales and fuel economy trends from one model year to the next. ORNL has adopted several conventions to facilitate these comparisons, such as the use of sales-weighted average to estimate fuel economy and vehicle characteristics. For example, "sales-weighted" miles per gallon refers to a composite or average fuel economy based on the distribution of vehicle sales. ORNL's methodology for sales-weighting can be found in the Appendix of the *Highway Vehicle MPG and Market Shares Report: Model Year 1990* (the latest published report). The method was changed dramatically in 1983, and data reliability prior to that year is questionable. This information is now published annually in ORNL's *Transportation Energy Data Book.*

**TABLE 1-22. Number of Trucks by Weight**

These data are derived from the Vehicle Inventory and Use Survey (VIUS) conducted in 1997 by the U.S. Bureau of the Census. This survey, formerly known as the Truck Inventory and Use Survey (TIUS), has been conducted every 5 years since 1963. The VIUS collects data and the physical and operational characteristics of the nation's truck population. In 1997, 131,000 trucks were surveyed from an estimated universe of over 75 million trucks. Chronological reliability may be diminished due to sampling design changes in 1977, 1982, and 1992. In 1977, the sampling universe was first stratified by the number of trucks in a state: large (> 1.5 million trucks), medium (700,000 to 1.5 million), and small (< 700,000); and then by two truck sizes.

Stratification in 1982 was then based on body type rather than vehicle weight. In 1992 and 1997, the sampling universe was first subdivided geographically and then into five strata: 1) pickups, 2) vans, 3) single-unit light, 4) single-unit heavy, and 5) truck tractor. Cases were then selected randomly within each stratum.

Census delivered a mail-out/mail-back survey to the owner identified in the vehicle registration records. Data collection is staggered as state records become available. Owners report data only for the vehicles selected. In the 1992 survey, a method was employed to also collect data on new truck purchases in the latter half of the year to estimate the fleet for the calendar year. This adjustment in the sampling frame had not been done in previous surveys and may diminish chronological reliability. The sample for 1997 was some 22,500 vehicles smaller than for 1992. The 1997 VIUS had two sampling stages. For the first stage, the Census Bureau surveyed about 131,000 trucks registered as of July 1, 1997.The second stage sampled a total of 3,000 truck owners with state mailing addresses different from the state of truck registration.

The accuracy and reliability of the VIUS survey depends jointly on sampling variability and nonsampling errors. Standard errors arising from sampling variability can be converted for comparability by dividing the standard error value by the estimate and multiplying it by 100. This quantity, referred to as the percent standard error, totaled two-tenths of a percent in 1992 and 1997 for the VIUS sample. A large standard error relative to an estimate indicates lack of precision and, inversely, a small standard error indicates precision. The 1992 TIUS achieved over 90.2 percent reporting and the 1997 response rate equaled 84.5 percent, thus reliability may have decreased in the most recent survey.

**TABLE 1-23. World Motor Vehicle Production, Selected Countries**

**Motor Vehicle Production, Factory Sales, and New Passenger Car Retail Sales**

Ward's Motor Vehicle Facts & Figures is the source of these data. Ward's obtains sales data directly from manufacturers. Readers should note that automobile manufacturers have inflated sales figures in the past, but Ward's does contact companies to verify numbers that appear too high or low.

**Used Passenger Car Sales and Leased Passenger Cars**

ADT Automotive Used Car Market Report is the source of these data. The Wall Street Journal (WSJ) is the original source of 1999 data. According to an ADT representative, publishing deadlines require ADT to use WSJ numbers until they can be replaced with National Automotive Dealers Association data. ADT Automotive's Market Analysis Department also gathers figures from CNW Marketing/Research and the R.L. Polk Co. CNW estimates used car sales volumes by collecting state title transfer data and determining if a transaction was made between private individuals or between a consumer and a franchised or independent dealer. This estimate is evaluated by comparing total transactions with state automobile sales revenues. Polk, an additional source of data, maintains a state vehicle registration database. For 1998, the ADT representative stated that Polk's data were within 5 percentage points of CNW estimates.

**TABLE 1-24. Number and Size of the U.S. Flag Merchant Fleet and Its Share of the World Fleet**

The U.S. Department of Transportation, Maritime Administration, which classifies vessels as merchant based on size and type, compiles these figures from a data service provided by Lloyd's Maritime Information Service. The parent company, Lloyd's Register (LR), collects data from several sources: its 200 offices worldwide, data transfers and agreements with other classification societies, questionnaires to ship owners and shipbuilders, feedback from government agencies, and input from port agents. According to an LR official, consistent data gathering methods have been maintained for more than 30 years, but cautioned that inconsistencies may occur in groupings of ship types over time. For example, tank barges are now included in the tanker ship-type grouping rather than the barge grouping.

**TABLE 1-25. U.S. Airport Runway Pavement Conditions**

These data originate from the U.S. Department of Transportation, Federal Aviation Administration (FAA), National Plan of Integrated Airport Systems (NPIAS). The NPIAS includes all commercial service airports, all reliever airports, and selected general aviation airports. It does not include more than 1,000 publicly owned public use landing areas, privately owned public use airports, and other civil landing areas not open to the general public. NPIAS airports serve 92 percent of general aviation aircraft (based on an estimated fleet of 200,000 aircraft). In 1998, the NPIAS encompassed 3,344 of the 5,357 airports with public access. Runway pavement condition is classified as follows:

*Good:* All cracks and joints are sealed.

*Fair:* Mild surface cracking, unsealed joints, and slab edge spalling.

*Poor:* Large open cracks, surface and edge spalling, vegetation growing through cracks and joints.

On a rotating basis, the FAA arranges annual inspections for about 2,000 of the approximately 4,700 public-use airports. The inspections are based on funding availability and not on statistical criteria, and nearly all runways are inspected every two years. Inspections are primarily made to collect information for pilots on airport conditions. The FAA relies on state and local agencies to perform inspections, so some inaccuracy may arise from variation in their

adherence to federal guidelines regarding pavement condition reporting. In 1998, the U.S. General Accounting Office found that Pavement Condition Index information was available for about 35 percent of NPIAS airports (GAO/RCED-98-226).

**TABLE 1-26. Median Age of Automobiles and Trucks in Operation in the United States**

The R.L. Polk Co. is a private enterprise that purchases state registration data to maintain a database of operational vehicles. Its data represent a near census of registered vehicles in the United States, and the age estimate should be considered very reliable.

**TABLE 1-27. Condition of U.S. Roadways by Functional System**

U.S. Department of Transportation, Federal Highway Administration (FHWA) collects pavement condition data from each state through the Highway Performance Monitoring System. The FHWA uses two rating schemes-the Present Serviceability Rating (PSR) and the International Roughness Indicator (IRI). IRI is used to measure the condition of Interstates, other principal arterials, rural minor arterials, and other National Highway System roadways. PSR is used to measure the condition of rural major collectors and urban minor arterials and collectors. Rural minor collectors are not measured. Where IRI data are not reported for sampled sections, the PSR data are collected. Using the PSR, values range from 0.1 to 5.0, where 5.0 denotes new pavement in excellent condition and 0.1 denotes pavement in extremely poor condition. On the IRI scale however, lower values indicate smoother roads (e.g., <60 for interstate pavement in very good condition to >170 for interstate pavement in poor condition).

The IRI is an objective measure of pavement roughness developed by the World Bank. The PSR is a more subjective measure of a broader range of pavement characteristics and therefore less comparable. Prior to 1993, all pavement conditions were evaluated using PSR values. Beginning with data published in *Highway Statistics 1993*, the FHWA began a transition to the IRI, which should eventually replace the PSR. The change from PSR to IRI makes comparisons between pre-1993 pavement condition data and 1993 and later pavement condition data difficult. Thus, trend comparisons should be made with care.

FHWA indicates that the protocol of measuring pavement roughness is not followed by all states, and some did not report for all required mileage. Totals only reflect those states reporting usable or partially usable data. Column percentages may not sum to 100 and may differ slightly from percentages in source tables, which were adjusted so that they would add to 100.FHWA believes that the IRI data are of "reasonably good quality."

**TABLE 1-28. Condition of U.S. Bridges**

These figures are from the U. S. Department of Transportation, Federal Highway Administration (FHWA), National Bridge Inventory Database. State highway agencies are required to maintain a bridge inspection program and inspect most bridges on public roadways at a minimum of every two years. With FHWA approval, certain bridges may be inspected less frequently. A complete file of all bridges is collected and maintained, representing a very reliable assessment of bridge conditions. However, some inaccuracy may be attributable to variations in state inspector's adherence to the National Bridge Inspection Standards.

**TABLE 1-29. Average Age of Urban Transit Vehicles**

**TABLE 1-30. Condition of Urban Bus and Rail Transit Maintenance Facilities**

**TABLE 1-31. Condition of Rail Transit Infrastructure**

These figures are based on information in the U.S. Department of Transportation, Federal Transit Administration (FTA), National Transit Database. The legislative requirement for the NTD is found in Title 49 U.S.C. 5335(a). Transit agencies receiving funds through the Urbanized Area Formula Program are generally required to report financial and operating data, including vehicle inventories. Transit operators that do not report to FTA are those that do not receive Urbanized Area Formula Funding, typically private, small, and rural operators. The data are generally considered accurate because FTA reviews and validates information submitted by individual transit agencies. Reliability may vary because some transit agencies cannot obtain accurate information or may misinterpret certain data definitions.

**TABLE 1-32. Class I Railroad Locomotive Fleet by Year Built**

The data are from *Railroad Facts*, published annually by the Association of American Railroads (AAR). Figures reported by AAR are based on 100-percent reporting by Class I railroads to the Surface Transportation Board (STB) via Schedule 700 of the *R1 Annual Report*. STB defines Class I railroads as having operating revenues at or above a threshold indexed to a base of $250 million (1991) and adjusted annually in concert with changes in the Railroad Freight Rate Index published by the Bureau of Labor Statistics. In 2000, the threshold for Class I railroads was $261.9 million. Declassification from Class I status occurs when a railroad falls below the applicable threshold for three consecutive years. Although Class I railroads encompasses only 2 percent of the number of railroads in the country, they account for over 71 percent of the industry's mileage operated.

**TABLE 1-33. Age and Availability of Amtrak Locomotive and Car Fleets**

Amtrak maintains a computer database with a record of every locomotive and car it operates. For each vehicle those records include the year built, its service status (operating or not on a daily basis), and location. These data should be considered very reliable.

**TABLE 1-34. U.S. Flag Vessels by Type and Age**

The data are from the U.S. Army Corps of Engineers (USACE), *Waterborne Transportation Lines of the United States* (WTLUS), annual issues. The WTLUS database contains information on vessel operators and characteristics and descriptions for all domestic vessel operations. Data are collected by the USACE's Navigation Data Center, primarily through a survey of vessel operating companies. More than 3,000 surveys are sent to these companies and response rates are typically above 90 percent. However, a USACE official did report that less than 10 percent of the total number of companies operating inland vessel fleets either did not receive and/or did not respond to the annual survey.

**TABLE 1-35. U.S. Vehicle-Miles**

**TABLE 1-36. Roadway Vehicle-Miles Traveled (VMT) and VMT per Lane-Mile by Functional Class**

**TABLE 1-40. U.S. Passenger-Miles**

**Air Carrier, Certificated, Domestic, All Services**

The U.S. Department of Transportation (USDOT), the Bureau of Transportation Statistics, Office of Airline Information, reports aircraft revenue-miles and passenger-miles in its publication *Air Traffic Statistics*. These numbers are based on 100-percent reporting of passengers and trip length by large certificated air carriers. Minor errors arise from nonreporting but amount to less than 1 percent of all air carrier passenger-miles. The figures do not include data for all airlines, such as most scheduled commuter airlines and all nonscheduled commuter airlines. These, if added, may raise total air passenger-miles by about 5 percent.

**General Aviation**

Passenger-mile numbers for 1975 to present are calculated by adjusting the Interstate Commerce Commission's 1974 figure for air passenger-miles by the percentage change in annual hours flown by general aviation aircraft as published in the USDOT, Federal Aviation Administration (FAA), *FAA Statistical Handbook of Aviation*. Numbers in the handbook are based on the General Aviation and Air Taxi Survey (GAATA). In 1993, the GAATA stopped including commuter aircraft. Commuter-miles collected before 1993 by the GAATA were, according to one FAA official, woefully underreported. Therefore, problems with the estimate of general aviation aircraft include: a break in the series between 1992 and 1993, a possible outdated factor used to calculate passenger-miles, and the classification of commuter operations.

**Highway**

Highway vehicle-miles of travel (vmt) are estimated using data from the Highway Performance Monitoring System (HPMS), a database maintained by FHWA that contains information on highway characteristics supplied by individual states. Annual vmt by highway functional system is calculated as the product of the annual average daily traffic (AADT) along each highway section, the centerline length of each highway section, and the number of days in the

year. Also, expansion factors are used for roadways that are sampled rather than continuously monitored. Vmt by vehicle type is estimated using vehicle share estimates supplied by states.

FHWA has established methods for collecting, coding, and reporting HPMS data in two manuals: *Traffic Monitoring Guide* (TMG) and *Highway Performance Monitoring System Field Manual*. The prescribed sampling process for collecting highway volume data, which is used to estimate AADT, is based on statistical methods. However, in practice, several factors affect the ultimate quality of the data. FHWA discusses many of these issues in their annual *Highway Statistics* report and other publications. However, BTS is not aware of any study or report that has statistically quantified the accuracy of vmt estimates. Some of the primary issues related to data quality are noted here.

1. The sampling procedures suggested in the TMG and HPMS *Field Manual* are designed to produce traffic volume estimates with an average precision level of 80-percent confidence with a 10-percent allowable error at the state level. FHWA provides additional guidance to states through annual workshops and other avenues to help them follow these procedures as closely as possible. However, the actual data quality and consistency of HPMS information are dependent on the programs, actions, and maintenance of sound databases by numerous data collectors, suppliers, and analysts at the state, metropolitan, and other local area levels. Not all states follow the recommended sampling, counting, and estimating procedures contained in the *Traffic Monitoring Guide*, and the exact degree to which the states follow these guidelines overall is unknown. However, FHWA believes that most states generally follow the guidelines.

2. Estimates for higher-level roadway systems are more accurate than those for lower level ones, since traffic volumes on higher-level roadways are sampled at a higher rate. The TMG recommends that traffic counts be collected for all Interstate and principal arterial sections on a three-year cycle. Under this scheme, about one-third of the traffic counts for these roadway sections in a given year are actually measured, while volumes on the remainder are factored to represent present growth. Although some States collect data at all traffic count locations every year, most use some variation of the TMG data collection guidelines. Volumes on urban and rural minor arterials, rural major collectors, and urban collectors are collected using a sampling procedure. States are not required to report volumes for rural/urban local systems and rural minor collectors, though most do so. However, the methods used to estimate travel on these roadways vary from state to state since there are no standard guidelines for calculating travel on these roadways.

3. Vmt estimates by vehicle type are less accurate than are estimates for total motor vehicle vmt for several reasons:1) vehicle classification equipment can frequently misclassify vehicles (see B.A. Harvey et al, *Accuracy of Traffic Monitoring Equipment*, GDOT 9210, (Georgia Tech Research Institute:1995)); 2) vehicle shares are often determined by methods or by special studies that are not directly compatible with HPMS data definitions and/or purposes, and observed local-level vehicle classification counts are difficult to apply on a statewide basis; and 3) vehicle type definitions can vary among states.

4. Vmt estimates for combination trucks in HPMS differ from survey-based estimates from the Truck Inventory and Use Survey (TIUS), as much as 50 percent for some categories of combination trucks. Much of this discrepancy appears to be due to differences in truck classification definitions and biases introduced by data collection practices. See R.D. Mingo et al.1995. *Transportation Research Record*, No. 1511 (Washington, DC: National Academy Press), pp. 42-46.

5. FHWA adjusts questionable data using a variety of standard techniques and professional judgement. For example, national average temporal adjustment factors developed from HPMS and other national highway monitoring programs are applied to State data, when necessary, to compensate for temporal deficiencies in sampling practices. Also, in estimating vmt by vehicle type, FHWA employs an iterative process to reconcile vmt, fuel economy (miles per gallon), fuel consumption, and vehicle registration estimates. Fuel consumption, total vmt by highway functional class, and registrations by vehicle group are used as control totals. This process limits the size of errors and ensures data consistency.

6.Passenger-miles of travel (pmt) are calculated by multiplying vmt estimates by vehicle loading (or occupancy) factors from various sources, such as the Nationwide Personal Transportation Survey conducted by FHWA and TIUS. Thus, pmt data are subject to the same accuracy issues as vmt, along with uncertainties associated with estimating vehicle-loading factors.

**Transit**

The American Public Transit Association (APTA) figures are based on information in USDOT, Federal Transit Administration (FTA), National Transit Database. Transit data are generally considered accurate because FTA reviews and validates information submitted by individual transit agencies. However, reliability may vary because some transit agencies cannot obtain accurate information or may misinterpret data. APTA adjusts the FTA data to include transit operators that do not report to the FTA database (private, very small, and rural operators).

**Class I Rail (vehicle-miles)**

Data are from *Railroad Facts*, published annually by the Association of American Railroads (AAR). AAR data are based on 100-percent reporting by Class I railroads to the Surface Transportation Board (STB) via Schedule 700 of the *R1 Annual Report* required of Class I railroads. STB defines Class I railroads as having operating revenues at or above a threshold indexed to a base of $250 million (1991) and adjusted annually in concert with changes in the Railroad Freight Rate Index published by the Bureau of Labor Statistics. In 1999, the adjusted threshold for Class I railroads was $258.5 million. Declassification from Class I status occurs when a railroad falls below the applicable threshold for three consecutive years. Although Class I railroads encompasses only 2 percent of the number of railroads in the country, they account for over 71 percent of the industry's mileage operated.

**Intercity Train**

The AAR passenger-miles number is based on an almost 100-percent count of tickets and, therefore, is considered accurate.

**TABLE 1-38. Average Length of Haul: Domestic Freight and Passenger Modes**

**Freight**

Air Carrier and Truck

The Eno Transportation Foundation, Inc. estimated these figures.

Class I Rail

The data are from *Railroad Facts*, published annually by the Association of American Railroads (AAR). AAR data are based on 100-percent reporting by Class I railroads to the Surface Transportation Board (STB) via Schedule 700 of the *R1 Annual Report* required of Class I railroads. The STB defined Class I railroads as having operating revenues at or above a threshold indexed to a base of $250 million (1991) and adjusted annually in concert with changes in the Railroad Freight Rate Index published by the Bureau of Labor Statistics. In 2000, the adjusted threshold for Class I railroads was $ 261.9 million. Declassification from Class I status occurs when a railroad falls below the applicable threshold for three consecutive years. Although Class I railroads encompasses only 1percent of the number of railroads in the country, they account for over 71 percent of the industry's mileage operated.

Water

The data are from *Waterborne Commerce of the United States*, published by the U.S. Army Corps of Engineers (USACE). All vessel operators of record report their domestic waterborne traffic movements to USACE via ENG Forms 3925 and 3925b.Cargo movements are reported according to points of loading and unloading. Certain cargo movements are excluded: 1) cargo carried on general ferries, 2) coal and petroleum products loaded from shore facilities directly into vessels for fuel use, 3) military cargo moved in U.S. Department of Defense vessels, and 4) cargo weighing less than 100 tons moved on government equipment. USACE calculates ton-miles by multiplying the cargo's tonnage by the distance between points of loading and unloading.

Oil Pipeline

The Eno Transportation Foundation, Inc., provided these figures, which are estimates based on U.S. Department of Energy and Association of Oil Pipe Lines reports. Figures are derived by dividing estimated pipeline ton-miles by estimated crude and petroleum products tonnage.

**Passenger**

Air Carrier

The U.S. Department of Transportation (USDOT), the Bureau of Transportation Statistics, Office of Airline Information, reports average trip length in its publication *Air Traffic Statistics*. These numbers are based on 100-percent reporting of passengers and trip length by large certificated air carriers via BTS Form 41.The figures do not include data for all airlines, such as most scheduled commuter airlines and all nonscheduled commuter airlines.

Bus

The Eno Transportation Foundation, Inc. estimated these figures based on Class I carrier passenger data and vehicle-miles data from *Highway Statistics*, an annually published report of the USDOT, Federal Highway Administration.

Commuter Rail

The American Public Transit Association (APTA) provided these data, which are based on the USDOT, Federal Transit Administration's (FTA's), National Transit Database. Transit data are generally accurate because the FTA reviews and validates information submitted by individual transit agencies. Reliability may vary because some transit agencies cannot obtain accurate information or may misinterpret data. APTA conservatively adjusts FTA data to include transit operators that do not report to the database (private, very small, and rural operators).

Intercity/Amtrak

The Statistical Appendix to the Amtrak Annual Report is the source of these data. Amtrak data are based on 100 percent of issued tickets, and thus should be accurate.

**TABLE 1-42. Long-Distance Travel in the United States by Selected Trip Characteristics: 1995**

**TABLE 1-43. Long-Distance Travel in the United States by Selected Traveler Characteristics: 1995**

The data presented in these tables are estimates derived from the 1995 American Travel Survey (ATS) conducted for the U.S. Department of Transportation, Bureau of Transportation Statistics. The survey's estimation procedure inflates unweighted sample results to independent estimates of the total population of the United States. Values for missing data are estimated through imputation procedures.

Since ATS estimates come from a sample, they are subject to two possible types of error: nonsampling and sampling. Sources of nonsampling errors include inability to obtain information about all sample cases, errors made in data collection and processing, errors made in estimating values for missing data, and undercoverage.

The accuracy of an estimate depends on both types of error, but the full extent of the nonsampling error is unknown. Consequently, the user should be particularly careful when interpreting results based on a relatively small number of cases or on small differences between estimates.

Standard errors for ATS estimates that indicate the magnitude of sampling error as well as complete documentation of the source and reliability of the data may be obtained from detailed ATS reports. Because of methodological differences, users should use caution when comparing these data with data from other sources.

**TABLE 1-44. Passengers Boarded at the Top 50 U.S. Airports**

The *Airport Activity Statistics of Certificated Air Carriers* (AAS) is the source of these data. Published by USDOT, Bureau of Transportation Statistics, Office of Airline Information (OAI), the AAS presents traffic statistics for all scheduled and nonscheduled service by large certificated U.S. air carriers for each airport served within the 50 states, the District of Columbia, and other U.S. areas designated by the Federal Aviation Administration. The publication draws its data from the T-100 and T-3 databases maintained by OAI. These data are based on a 100-

percent reporting of enplanements, departures, and tonnage information by large certificated U.S. air carriers via BTS Form 41.

Prior to 1993, the AAS included all scheduled and some nonscheduled enplanements for certificated air carriers but did not include enplanements for air carriers offering charter service only. Prior to 1990, the freight category was divided into both freight and express shipments and the mail category was divided into U.S. mail (priority and nonpriority) and foreign mail. Beginning in 1990, only aggregate numbers were reported for freight and mail.

**TABLE 1-45. Air Passenger Travel Arrivals in the United States from Selected Foreign Countries**

**TABLE 1-46. Air Passenger Travel Departures from the United States to Selected Foreign Countries**

The International Trade Administration in the U.S. Department of Commerce publishes the *U.S. International Air Travel Statistics Report* annually. The passenger data is based on information collected by the U.S. Immigration and Naturalization Service using the INS Form I-92. All passengers on international flights must complete the I-92 form with the exception of those passengers on flights arriving or departing from Canada.

The international passenger arrivals and departures data for Canada is obtained from *Air Carrier Traffic at Canadian Airports*, which is published by Statistics Canada. Three surveys are conducted by Statistics Canada in order to collect the necessary passenger data. Since all data is not received by the time of publication and data is occasionally updated or resubmitted by the participating carriers, data should be considered preliminary for the years referenced in the source publication.

**TABLE 1-49. U.S. Ton-Miles of Freight**

**Air Carrier**

*Air Carrier Traffic Statistics*, published by the U.S. Department of Transportation, Bureau of Transportation Statistics (BTS), Office of Airline Information (OAI), is the source of these data. Large certificated U.S. air carriers report domestic freight activities to OAI via BTS Form 41.The information reported in the table represents transportation of freight (excluding passenger baggage), U.S. and foreign mail, and express mail within the 50 states, the District of Columbia, Puerto Rico, and the Virgin Islands. It also covers transborder traffic to Canada and Mexico by U.S. carriers. The data does not include information on small certificated air carriers, which represent less than 5 percent of freight ton-miles.

**Intercity Truck**

The data are estimates from *Transportation in America*, published by the Eno Transportation Foundation, Inc. (Eno). Eno's estimates of intercity truck ton-miles are based on historic data from the former Interstate Commerce Commission (ICC), estimates from the American Trucking Association, and other sources. Eno supplements its estimates by using additional information on vehicle-miles of truck travel published in Highway Statistics by the Federal Highway Administration. Users should note that truck estimates in the tables do not include local truck movements.

**Class I Rail**

The data are from *Railroad Facts*, published annually by the Association of American Railroads (AAR). AAR data are based on 100-percent reporting by Class I railroads to the Surface Transportation Board (STB). The data represent all revenue freight activities of the Class I railroads and are not based on information from the Rail Waybill Sample. The STB defines Class I railroads as having operating revenues at or above a threshold indexed to a base of $250 million (1991) and adjusted annually in concert with changes in the Railroad Freight Rate Index published by the Bureau of Labor Statistics. In 2000, the adjusted threshold for Class I railroads was $ 261.9 million. Declassification from Class I status occurs when a railroad falls below the applicable threshold for three consecutive years. Although Class I railroads encompasses only 1 percent of the number of railroads in the country, they account for over 71 percent of the industry's mileage operated.

**Domestic Water Transport**

The data are from *Waterborne Commerce of the United States*, published by the U.S. Army Corps of Engineers (USACE). All vessel operators of record report their domestic waterborne traffic movements to USACE via ENG Forms 3925 and 3925b.Cargo movements are reported according to points of loading and unloading. Certain cargo movements are excluded: 1) cargo carried on general ferries, 2) coal and petroleum products loaded from shore facilities directly into vessels for fuel use, 3) military cargo moved in U.S. Department of Defense vessels, and 4) cargo weighing less than 100 tons moved on government equipment. USACE calculates ton-miles by multiplying the cargo's tonnage by the distance between the points of loading and unloading.

**Oil Pipeline**

The data for 1960, 1965, and 1970 are from *Transportation in America*, published by the Eno Transportation Foundation, Inc., and the data for 1975 to 1998 are from *Shifts in Petroleum Transportation*, by the Association of Oil Pipe Lines (AOPL). Eno's data are based on information from the former Interstate Commerce Commission's *Transport Economics*. Common carrier oil pipelines reported all freight activities to the ICC.

AOPL obtains barrel-miles from the Federal Energy Regulatory Commission (FERC), which requires petroleum shippers to report annual shipments. AOPL then coverts barrel-miles to ton-miles using conversion figures in the American Petroleum Institute's (API's) *Basic Petroleum Data Book*. Since 16 percent of pipeline shipments are intrastate and not subject to FERC reporting requirements, AOPL makes adjustments to FERC data.

**TABLE 1-51. Top U.S. Foreign Trade Freight Gateways by Value of Shipments: 2001**

The value of U.S. air, maritime, and land imports and exports are captured from administrative documents required by the U.S. Departments of Commerce and Treasury. In 1990, the United States entered into a Memorandum of Understanding with Canada concerning the exchange of import data. As a consequence, each country is using the other's import data to replace its own export data. U.S. international merchandise trade statistics, therefore, are no longer derived exclusively from the administrative records of the Departments of Commerce and Treasury, but from Revenue Canada. Import value is for U.S. general imports, customs value basis. Export value is FAS (free along ship) and represents the value of exports at the U.S. port of export, including the transaction price and inland freight, insurance, and other charges. Trade levels reflect the mode of transportation as a shipment entered or exited a U.S. Customs port.

Truck, rail pipeline, mail, and miscellaneous modes are included in the total for land modes. Data present trade activity between the United States, Puerto Rico, and the U.S. Virgin Islands and Canada and Mexico. These statistics do not include traffic between Guam, Wake Island, and America Samoa and Canada and Mexico. These statistics also exclude imports that are valued at less than $1,250 and for exports that are valued at less than $2,500.

**TABLE 1-56. U.S. Waterborne Freight**

The data are from *Waterborne Commerce of the United States*, published by the U.S. Army Corps of Engineers (USACE). All vessel operators of record report their domestic waterborne traffic movements to USACE via ENG Forms 3925 and 3925b. Cargo movements are reported according to points of loading and unloading. Certain cargo movements are excluded: 1) cargo carried on general ferries, 2) coal and petroleum products loaded from shore facilities directly into vessels for fuel use, 3) military cargo moved in U.S. Department of Defense vessels, and 4) cargo weighing less than 100 tons moved on government equipment. USACE calculates ton-miles by multiplying the cargo's tonnage by the distance between points of loading and unloading.

Foreign waterborne statistics are derived from Census Bureau and U.S. Customs data, which excludes traffic between Guam, Wake Island, and American Samoa and any other foreign country, and imports and exports used by U.S. Armed Forces abroad. Individual vessel movements with origins and destinations at U.S. ports, traveling via the Panama Canal are considered domestic traffic.

**TABLE 1-57. Tonnage of Top 50 U.S. Water Ports, Ranked by Total Tons**

Data on the weight of U.S. maritime imports and exports are captured from administrative documents required by the U.S. Departments of Commerce and Treasury. In 1990, the United States entered into a Memorandum of Understanding with Canada concerning the exchange of import data. As a consequence, each country is using the other's import data to replace its own export data. The United States' merchandise trade statistics, therefore, are no

longer derived exclusively from U.S. government administrative records, but from Revenue Canada. Maritime weight data are initially processed and edited by the Foreign Trade Division, U.S. Census Bureau (Census) as part of the overall edits and quality checks performed on all U.S. international merchandise trade data. After Census processing, the U.S. Army Corps of Engineers (USACE) and the Maritime Administration (MARAD) perform additional maritime-specific processing and quality edits on maritime-related data elements, including the weight of maritime imports and exports. The USACE and MARAD began performing this function in October 1998 after the Foreign Waterborne Trade data program was transferred from the Census Bureau. Prior to October 1998, the USACE historically performed additional specialized edits at the port level, including reassignment of some tonnage data to the actual waterborne port rather than the reported U.S. Customs port.

**TABLE 1-58. Freight Activity in the United States: 1993, 1997, 2002, and 2007**

**TABLE 1-59. Value, Tons, and Ton- Miles of Freight Shipments within the United States by Domestic Establishment, 2007**

**TABLE 1-62. U.S. Hazardous Materials Shipments by Transportation Mode, 2007**

**TABLE 1-63. U.S. Hazardous Materials Shipments by Hazard Class, 2007**

These data are collected via the 1997 Commodity Flow Survey (CFS) undertaken through a partnership between the U.S. Department of Commerce, Census Bureau (Census), and the U.S. Department of Transportation, Bureau of Transportation Statistics. For the 1997 CFS, Census conducted a sample of 100,000 domestic establishments randomly selected from a universe of about 800,000 multiestablishment companies in the mining, manufacturing, wholesale trade, and selected retail industries. It excluded establishments classified as farms, forestry, fisheries, governments, construction, transportation, foreign, services, and most retail.

**Reliability of the Estimates**

An estimate based on a sample survey potentially contains two types of errors-sampling and nonsampling. Sampling errors occur because the estimate is based on a sample, not on the entire universe. Nonsampling errors can be attributed to many sources in the collection and processing of the data and occur in all data, not just those from a sample survey. The accuracy of a survey result is affected jointly by sampling and nonsampling errors.

**Sampling Variability**

Because the estimates are derived from a sample of the survey population, results are not expected to agree with those that might be obtained from a 100-percent census using the same enumeration procedure. However, because each establishment in the Standard Statistical Establishment List had a known probability of being selected for sampling, estimating the sampling variability of the estimates is possible. The standard error of the estimate is a measure of the variability among the values of the estimate computed from all possible samples of the same size and design. Thus, it is a measure of the precision with which an estimate from a particular sample approximates the results of a complete enumeration. The coefficient of variation is the standard error of the estimate divided by the value being estimated. It is expressed as a percent. Note that measures of sampling variability, such as the standard error or coefficient of variation, are estimated from the sample and are also subject to sampling variability. Standard errors and coefficients of variation for CFS data presented in this report are given in Appendix B of the 1997 Economic Census report, and are available online www.census.gov/econ/wwwse0700.html.

**Nonsampling Errors**

In the CFS, as in other surveys, nonsampling errors can be attributed to many sources, including 1) nonresponse; 2) response errors; 3) differences in the interpretation of questions; 4) mistakes in coding or recoding the data; and 5) other errors of collection, response, coverage, and estimation.

A potentially large source of nonsampling error is due to nonresponse, which is defined as the inability to obtain all intended measurements or responses from selected establishments. Nonresponse is corrected by imputation.

**TABLE 1-60. Value of U.S. Land Exports to and Imports from Canada and Mexico by Mode**

The Transborder Surface Freight Data (TSFD) is derived from official U.S. international merchandise import and export data. (For a description of U.S. merchandise trade statistics, see www.census.gov/foreign-trade/www/index.html.) As of December 1995, about 96 percent of the value of all U.S. imports has been collected electronically by the Automated Broker Interface System. About 55 percent of the value of all U.S. exports is collected electronically through the U.S./Canada Data Exchange and the Automated Export Reporting Program. The balance is collected from administrative records required by the U.S. Departments of Commerce and Treasury.

The TSFD incorporates all data, by surface mode, on shipments entering or exiting the United States from or to Canada or Mexico. Prior to January 1997, this dataset also included transshipments-shipments entering or exiting the United States by way of U.S. Customs ports on the northern or southern borders even when the actual origin or final destination of the goods was other than Canada or Mexico. (In other U.S. Bureau of the Census trade statistics, transshipments through Canada and Mexico are credited to the true country of origin or final destination.) To make this dataset more comparable to other U.S. Census Bureau trade statistics, detailed information on transshipments has been removed. The TSFD presents a summary of transshipments by country, direction of trade, and mode of transportation. Shipments that neither originate nor terminate in the United States (i.e., intransits) are beyond the scope of this dataset because they are not considered U.S. international trade shipments.

In general, the reliability of U.S. foreign trade statistics is very good. Users should be aware that trade data fields (e.g., value and commodity classification) are typically more rigorously reviewed than transportation data fields (e.g., the mode of transportation and port of entry/exit). Users should also be aware that the use of foreign trade data to describe physical transportation flows may not be accurate. For example, this dataset provides surface transportation information for individual U.S. Customs districts and ports on the northern and southern borders. However, because of filing procedures for trade documents, these ports may or may not record where goods physically cross the border. This is because the information filer may choose to file trade documents at one port while shipments actually enter or exit at another port. The TSFD, however, is the best publicly available approximation for analyzing transborder transportation flows. Since the dataset was introduced in April 1993, it has gone through several refinements and improvements. When improbabilities and inconsistencies were found in the dataset, extensive analytical reviews were conducted and improvements made. However, accuracy varies by direction of trade and individual field. For example, import data are generally more accurate than export data. This is primarily because the U.S. Customs Bureau uses import documents for enforcement purposes while it performs no similar function for exports. For additional information on TSFD, the reader is referred to the U.S. Department of Transportation, Bureau of Transportation Statistics Internet site at www.bts.gov/transborder.

**TABLE 1-61. Crude Oil and Petroleum Products Transported in the United States by Mode**

**Pipelines**

The Association of Oil Pipelines (AOPL) obtains barrel-miles from the Federal Energy Regulatory Commission (FERC), which requires petroleum shippers to report annual shipments. AOPL then coverts barrel-miles to ton-miles using conversion figures in the American Petroleum Institute's (API's) *Basic Petroleum Data Book*. Since 16 percent of pipeline shipments are intrastate and not subject to FERC reporting requirements, AOPL makes adjustments to FERC data to include intrastate shipments. AOPL also conducts periodic studies to estimate intrastate shipments.

**Water Carriers**

Data are from *Waterborne Commerce of the United States*, published by the U.S. Army Corps of Engineers (USACE). All vessel operators of record report domestic freight and tonnage information to USACE via ENG Forms 3925 and 3925b.Cargo movements are reported according to points of loading and unloading. Certain cargo movements are excluded: 1) cargo carried on general ferries, 2) coal and petroleum products loaded from shore facilities directly into vessels for fuel use, 3) military cargo moved in U.S. Department of Defense vessels, and 4) cargo weighing less than 100 tons moved on government equipment. USACE calculates ton-miles by multiplying the cargo's tonnage by the distance between the points of loading and unloading.

**Motor Carriers**

AOPL estimates ton-miles by multiplying tons by the average length of haul. For crude, the tonnage of the prior year is projected by using a growth rate established by data from the U.S. Department of Energy, Energy Information Administration's *Petroleum Supply Annual*, vol. 1, table 37. For products, the same calculation is made but with a growth rate estimated by the American Trucking Association in *Financial and Operating Statistics, Class I and II,*

*Motor Carriers*, Summary table VI-B. Average length of haul is determined from the prior six years of data for ton-miles and tonnage of crude and petroleum products moved by motor carriers.

**Railroad**

AOPL calculates ton-miles by multiplying tonnage by average length of haul. Tonnage data for crude and products comes from the Association of American Railroad's *Freight Commodity Statistics*, U.S. Class I Railroads. The U.S. Department of Transportation, Federal Railroad Commission provides the average length of haul for crude and products in its Carload Way Bill Statistics.

**TABLE 1-64. Passengers Denied Boarding by the Largest U.S. Air Carriers**

**TABLE 1-65. Mishandled-Baggage Reports Filed by Passengers with the Largest U.S. Air Carriers**

**TABLE 1-66. Flight Operations Arriving On Time for the Largest U.S. Air Carriers**

These numbers are based on data filed with the U.S. Department of Transportation on a monthly basis by the largest U.S. air carriers - those that have at least one percent of total domestic scheduled-service passenger revenues. Data cover nonstop scheduled service flights between points within the United States (including territories). The largest U.S. carriers account for more than 90 percent of domestic operating revenues. They include Alaska Airlines, America West Airlines, American Airlines, Continental Airlines, Delta Air Lines, Northwest Airlines, Trans World Airlines, Southwest Airlines, United Airlines, and US Airways. However, there are other carriers offering domestic scheduled passenger service that are not required to report. In some cases, major airlines sell tickets for flights that are actually operated by a smaller airline that is not subject to the reporting requirement.

**TABLE 1-67. FAA-Cited Causes of Departure and En route Delays**

The source of these data, the U.S. Department of Transportation (USDOT), Federal Aviation Administration (FAA), counts a flight as delayed if it departed or arrived more than 15 minutes after its scheduled gate departure and arrival times. FAA calculates delayed departures based on the difference between the time a pilot requests FAA clearance to taxi and the time an aircraft's wheels lift off the runway, minus the airport's standard unimpeded taxi-out time. Users should note that taxi-out time varies by airport due to differences in configurations. The cause of delay is also recorded, e.g., weather, terminal volume, closed runways, etc.

USDOT guidance defines departure as the time the aircraft parking brake is released and gate arrival as the time the brake is set. According to the USDOT's Office of the Inspector General (OIG), FAA's omission of part of a plane's ground movement compromises the data's validity. A recent OIG report noted that the FAA tracks ground time only after a pilot requests clearance and fails to track a plane's time in the ramp area. OIG found that ramp time comprised 28.7 percent to 40.5 percent of the average taxi-out time at the three major New York area airports (OIG Audit Report CR-2000-112), and would not be counted as an FAA delay.

**Reliability**

Several data collection changes complicate comparisons over time. For example, FAA modified its method for calculating volume-related delays that resulted in a 17 percent drop in such delays. Decreases in volume-related delays from 1998 to 1999 totaled less than one percent. Moreover, prior to 1999, USDOT did not provide a clear definition of what a departure was. An OIG Audit (CE-1999-054) report noted that air carriers used four different departure events: 1) rolling of aircraft wheels; 2) release of parking brake; 3) closure of passenger and/or cargo doors; and 4) a combination of door closures and release of the parking break. The same report also noted errors in the reporting of departure times by the air carriers.

Data are now manually entered in FAA's Operations Network (OSPNET) database, and reporting errors may arise and decrease reliability. The FAA monitors data quality assurance by spot checking the reported delay data and requesting that discrepancies be reviewed by the responsible facility. According to an OIG Audit (CR-2000-112), however, mistakes are not reliably corrected and many air traffic controllers suggested that delays are underreported sometimes by as much as 30 percent.

**TABLE 1-68. Major U.S. Air Carrier Delays, Cancellations, and Diversions**

A second data source for air-carrier delay is the USDOT, Bureau of Transportation Statistics, Office of Airline Information (OAI). This information originates from the Airline Service Quality Performance data. These figures are collected from the largest airlines-those that have at least one percent or more of total domestic scheduled service passenger revenues. Delays are categorized by phase of flight (i.e., gate-hold, taxi-out, airborne, or taxi-in delays). These data differ from FAA's OSPNET information due to differences in definition of delay.

While the FAA tracks delays on the taxiway, runway, and in the air, BTS tracks delays at the departure and arrival gates. OAI calculates delays as the difference between scheduled and actual gate departure. If a flight leaves the gate within 15 minutes of its scheduled time, then OAI would record it as departed on-time even if it sat for several hours on the ramp or runway, in which case the delay would be accounted for as a late arrival.

**TABLE 1-69. Annual Person-Hours of Delay Per Auto Traveler**

**TABLE 1-70. Travel Time Index**

**TABLE 1-71. Annual Roadway Congestion Index**

**TABLE 1-72. Annual Congestion Index and Cost Values**

The Texas Transportation Institute's (TTI) *Urban Roadway Congestion Annual Report* provided figures for tables 1-60through 62.TTI relies on data from the U.S. Department of Transportation, Federal Highway Administration, Highway Performance Monitoring System database (HPMS). TTI utilizes these data as inputs to its congestion estimation model. Detailed documentation for the TTI model and estimations can be found at this website http://mobility.tamu.edu.

**Structure, Assumptions, and Parameters**

Urban roadway congestion levels are estimated using a formula measuring traffic density. Average travel volume per lane on freeways and principal arterial streets are estimated using area wide estimates of vehicle-miles of travel (vmt) and lane miles of roadway. The resulting ratios are combined using the amount of travel on each portion of the system so that the combined index measures conditions on the freeway and principal arterial street systems. Values greater than one are indicative of undesirable congestion levels. Readers seeking the algorithm for the congestion index should examine this website http://mobility.tamu.edu.

Annual person-hours of delay results from the multiplication of daily vehicle-hours of incident and recurring delay times 250 working days per year times 1.25 persons per vehicle. Two types of costs are incurred due to congestion: time delay and fuel consumption. Delay costs are the product of passenger vehicle hours of delay times $12.85 per hour person time value times 1.25 occupants per vehicle. Fuel costs are calculated for passenger and commercial vehicles from the multiplication of peak period congestion speeds, the average fuel economy, fuel costs, and vehicle-hours of delay.

In previous reports, the TTI methodology assumed that 45 percent of all traffic, regardless of the urban location, occurred in congested conditions. TTI indicated that this assumption overestimated travel in congested periods. Thus, their 2002 estimates now vary by urban area anywhere from 18 percent to 50 percent of travel that occurs in congestion. TTI's model structure applies to two types of roads: freeways and principal arterial streets. The model derives estimates of vehicle traffic per lane and traffic speed for an entire urban area. Based on variation in these amounts, travel is then classified under 5 categories: uncongested, moderately congested, heavily congested, severely congested, and extremely congested (a new category in 1999). The threshold between uncongested and congested was changed in 2002. Previous editions classified congested travel when areawide traffic levels reached 14,000 vehicles per lane per day on highways and 5,500vehicles per lane per day on principal arterial streets. For the current edition, these values are 15,500 and 5,500 vehicles per lane per day, respectively. Previous years values have been re-estimated based on these new assumptions. Readers should refer to the TTI Internet site for more detailed algorithms and estimation procedures at http://mobility.tamu.edu.

TTI reviews and adjusts the data used in their models. State and local officials also review the TTI data and estimations. Some of the limitations acknowledged in the TTI report include the macroscopic character of the index. Thus, it does not account for local variations in travel patterns that may affect travel times. The index also does not

account for local improvements, such as ramp metering or travel speed advantages obtained with transit or carpool lanes.

**TABLE 1-73. Amtrak On-Time Performance Trends and Hours of Delay by Cause**

Amtrak determines on-time performance through its computer system maintained at the National Operations Center (NOPS) in Wilmington, Delaware. If a train is delayed, a call is made to the NOPS for recordkeeping. These data can be supplemented with computer entries made for locomotive or car malfunctions that cause delays. These data should be considered reliable.

# Appendix E
# Data Source and Accuracy Statements

## Chapter 4 Energy and the Environment

## PETROLEUM SUPPLY

**TABLE 4-1. Overview of U.S. Petroleum Production, Imports, Exports, and Consumption**

The petroleum supply system is extremely complicated, with many different processes, products, and entities involved. Briefly, crude oil is produced or imported, transported to refineries where it is refined into various products, and then transported to markets. Imports and exports of crude oil and products must be accounted for, as must be nonpetroleum components of final products, such as natural gas plant liquids and ethanol for gasoline blending.

The U.S. Department of Energy, Energy Information Administration (EIA) collects extensive data at select points in the petroleum supply system. Sixteen surveys are conducted by EIA's Petroleum Supply Reporting System to track the supply and disposition of crude oil, petroleum products, and natural gas plant liquids:

- five weekly surveys cover refineries (form EIA-800), bulk terminal stocks (form EIA-801), product pipelines (form EIA-802), crude stocks (form EIA-803), and imports (form EIA-804).
- eight monthly surveys cover the same five points plus tanker and barge movement (form EIA-817), gas processing facilities (form EIA-816), and oxygenates (form EIA-819M).
- one survey (form EIA-807) collects propane data on a monthly basis in the warmer months (April-September) and on a weekly basis in the colder months.
- one annual survey determines production capacity of oxygenates and fuel ethanol (form EIA-819A), and
- one annual survey determines refinery fuel use, capacity, and crude oil receipts by transportation mode (form EIA-820).

The five weekly surveys target key points in the petroleum supply system. They do not include all companies, but sample 90 percent of volume at each selected point in the supply system. EIA rank-orders the companies involved in the survey and sends surveys as it scrolls down the list, stopping when it reaches the 90 percent level. Although 100 percent coverage is sacrificed, this method keeps the level of incoming data manageable and avoids burdening the smallest companies. All data are reviewed and anomalies checked.

Monthly surveys provide data that are used in the monthly and annual reports. They are similar to the weekly surveys, but are more exhaustive in both the range of data collected and the depth of the collection. Sample sizes and response rates for several of the key points in the supply system are shown in table 1.The eight monthly surveys cover the industry more accurately than the weekly surveys and provide some double-check points that the other surveys do not. EIA expends considerable effort to ensure that its data are as accurate as possible. Revisions are made throughout the year. For example, *EIA's Annual Energy Review 1996*, released in July 1997, provided a preliminary 1996 number for total petroleum production of 8.30 million barrels per day (mmbd). The *Annual Energy Review 1997*, released a year later, revised that to 8.25 mmbd, and the 1999 Review reported 8.29 mmbd.

No complicated survey is likely to be 100 percent accurate. EIA lists four sources of potential systematic errors:

1. Some members of the target population are missed. EIA reports that it continually reviews the lists and searches industry periodicals and newspapers to identify new actors. Considering the nature of the petroleum industry, it is very unlikely that companies with significant production are not surveyed.
2. Some members of the target population do not respond. EIA reports a 97 percent response rate for monthly surveys. For some points in the supply system, the average response is over 99 percent. Survey respondents are required by law to respond, but some nonresponse is inevitable, especially among small companies. EIA assumes that the nonrespondent's value for that month is the same as for the previous month except for imports. Since imports vary widely, with respondents frequently having no imports, EIA assumes a nonresponse means zero imports. It can be assumed that EIA is good at "filling in the blanks."

Assuming for illustration purposes that 0.5 percent of production does not respond, and that EIA is 90 percent accurate in covering the gap, then there is a possibility of a 0.05 percent error. Applying that to total production of 8.29 mmbd in 1999 suggests that there could be an error of 0.0041 mmbd (4,100 barrels per day), which would not affect the published number.

3. The most serious problem may be response error. A company may have poor data, perhaps as a result of imperfect measurements, or it may transmit the wrong number. EIA has no control over a company's data quality. Companies have incentive to measure their inputs and products accurately. Otherwise, they may be cheating themselves or risking ill will with their customers or suppliers. However, no instrumentation is perfectly accurate. The high throughput of, say, a refinery with capacity of several hundred thousand barrels per day, with a variety of products changing density and some lost or used on site, is very complicated to measure. Instrumentation errors are likely to be systematic at any one site, although they will be more nearly random in the aggregate for all facilities. There is potential for small but significant overall errors. Mistakes may be made in recording and transferring the data. EIA reviews the data and flags gross errors or missing data for review by the respondent. However, not all errors will be picked up by EIA and/or the respondent. Overall, response errors probably are several times as large as nonresponse errors, but it is beyond the scope of this profile to estimate them.
4. The final potential source of systematic error is in the clarity of the survey form, i.e., whether all respondents interpret it correctly. No doubt errors and ambiguities can creep into a form, but at least for petroleum supply, that does not appear to be a major risk. The supply system is not changing rapidly, and EIA should be able to keep with it and the terminology. However the final digit of EIA's published supply data is questionable.

For additional information on survey methodology and statistical reliability, the reader is referred to the EIA reference cited in the tables or the EIA Internet site at www.eia.doe.gov.

# FUEL AND ENERGY CONSUMPTION

**TABLE 4-1. Overview of U.S. Petroleum Production, Imports, Exports, and Consumption**

**TABLE 4-2. U.S. Consumption of Energy from Primary Sources by Sector**

**TABLE 4-3. Domestic Demand for Refined Petroleum Products by Sector**

**TABLE 4-4. U.S. Energy Consumption by the Transportation Sector**

**TABLE 4-7. Domestic Demand for Gasoline**

Petroleum consumption is far more complex to measure than supply. Instead of a few hundred companies at most measuring points in the supply system, there are tens of millions of consumers. It would be impossible for any survey of individual consumers to produce the high rate of return of U.S. Department of Energy (DOE), Energy Information Administration's (EIA's) supply surveys. EIA's transportation data collection is further limited by the termination of the Residential Transportation Energy Consumption Survey (RTECS). Therefore, EIA uses surveys of sales of products (e.g., Form EIA-821:Annual Fuel Oil and Kerosene Sales Report) or tax collection data from the U.S. Department of Transportation, Federal Highway Administration (FHWA).

EIA reviewed the accuracy of its energy consumption data in a 1990 monograph *Energy Consumption by End-Use Sector, a Comparison of Measures by Consumption and Supply Surveys*. Unfortunately, this monograph does not discuss the transportation sector because the consumption and supply surveys were not comparable. However, some of the results from other sectors indicate the discrepancies between supply and consumption surveys. Table 4-2 shows the ratio of fuel supplied to the sector to consumption reported by the sector in consumption surveys.

In most cases, supply is reported as substantially larger than consumption. Supplies of fuel oil to the commercial sector are reported at almost twice the level of consumption reported by that sector. Some of the discrepancies may be due to definition differences (e.g., fuel oil for apartment buildings is included in commercial supply surveys but not in consumption surveys.) Overall, however, the differences are too large for great confidence in the accuracy of the data.

If transportation had been reviewed in the same format, it is likely that the discrepancies would have been larger. Most transportation fuel (gasoline for automobiles) is purchased in small quantities at irregular intervals and cannot be checked simply by looking at a utility bill. Hence, highway transportation energy consumption surveys must be extensive to avoid the risk of large uncertainties in the data. But, with the termination of the RTECS, EIA ceased conducting such surveys. Consumption data must be derived indirectly from sales of petroleum products and tax collection data. While petroleum supply may be accurate to one decimal place, it is likely that disaggregating by sector use may be within plus or minus several percentage points, or perhaps about half a quadrillion British thermal unit (Btu) in table 4-1.

**Motor Gasoline**

Almost all gasoline is consumed in the transportation sector. Small amounts are used in the commercial sector for nonhighway use and the industrial sector, which includes agriculture, construction, and other uses. Subtracting estimates of those uses from the known total sales yields the transportation sector's total, which is further subdivided into highway and marine use. Aviation gasoline is, of course, used entirely in the transportation sector (for a very few high-performance automobiles as well as small aircraft).

Data on actual sales is collected by the states for revenue purposes. These data are forwarded to FHWA. EIA uses the data from FHWA to allocate highway consumption of motor gasoline among the states. For 1999, FHWA reported 124.7 billion gallons of gasoline sold nationally for highway use. EIA's table 5.12c of the *Annual Energy Review 2000* lists 8.33 mmbd of gasoline supplied for the transportation sector, the same as 127.7 billion gallons.

Such close agreement between supply and demand is not totally convincing. Definitions are unique to each state (e.g., whether gasohol is counted as pure gasoline or part gasoline and part renewables), measurement points vary from state to state, and each state handles losses differently. Hence, the total of all states' sales of gasoline is not entirely consistent.

Separation of highway from nonhighway uses of gasoline is, by necessity, based in part on careful estimates. Nevertheless, overall gasoline sales are well documented, and the separation is probably fairly accurate. Refinery output of motor gasoline was 7.93 mmbd in 1999, which is probably accurate to the first decimal place and maybe a little better. The transportation sector's 8.33 mmbd would have about the same accuracy.

**Diesel Fuel**

Diesel fuel is used in highway vehicles, railroads, boats, and military vehicles. Sales are only about 30 percent of gasoline in the transportation sector, but uncertainties are greater. More diesel than gasoline is used for nonhighway purposes, especially agriculture and construction. In addition, there has been more potential for cheating to avoid the tax; heating oil is virtually the same as diesel fuel and can easily be transferred to a vehicle. However, this is less significant now that tracers have been added to fuel oil. After the addition of tracers, the amount of transportation diesel fuel use jumped.

To estimate diesel fuel sales by mode, EIA starts with the total supply of distillate fuel and subtracts the small amount sold to electric utilities (the most accurately known sector, as measured by EIA Form EIA-759). The remainder is divided among the other end-use sectors according to EIA's sales surveys (Form EIA-821: Annual Fuel Oil and Kerosene Sales Report, and Form EIA-863: Petroleum Product Sales Identification Survey).

This method introduces several potential elements of inaccuracy. First, the surveys of each sector are probably less accurate than the supply surveys noted earlier. Companies and individuals may inadvertently send incorrect data, or not respond at all. Then EIA has to determine what adjustment factor to use for each end-use sector. Since each sector will have a different response rate to the surveys, the adjustments will be different. Large adjustments can introduce large errors. EIA has not published its adjustments for the transportation sector. As shown in table 2, the adjustments in other sectors range from 5 to 96 percent of reported consumption. Even a 20 percent adjustment could introduce an error of one or two percentage points (plus or minus) for any one sector.

Overall, the accuracy of diesel fuel use in the transportation sector should be viewed with some skepticism.

**Jet Fuel**

Jet fuel is the only other petroleum-based fuel that is used in large quantities (over 1 million barrels/day) in the transportation sector. Virtually all of it is used by airlines. These data are accurate because airlines are required to report usage, and because there are relatively few certificated air carriers, data collection should be manageable.

# NONPETROLEUM FUELS CONSUMPTION

**TABLE 4-10. Estimated Consumption of Alternative and Replacement Fuels for Highway Vehicles**

Collectively, oxygenates, natural gas, electricity, and various alternative fuels amount to only about 3 percent of all energy used in the transportation sector. While this may not be much greater than the error bars associated with petroleum use, it is important to track changes in these fuels accurately.

### Oxygenates

Oxygenates, mostly methyl tributyl ether (MTBE), which is derived from natural gas and ethanol, are part of mainstream gasoline supply. They are measured routinely with petroleum supply (forms EIA-819A and 819M). Consumption is estimated from production, net imports, and stock changes. Refineries and other entities are required to report data on oxygenates, and EIA also monitors production capability to provide a crosscheck. Thus, oxygenates data are likely to be reasonably accurate.

### Natural Gas

Natural gas is used in the transportation sector mainly as the fuel for compressor stations on natural gas transmission lines. A small but growing amount is used in compressed or liquefied form in vehicles. EIA collects data on natural gas much as it does for petroleum, but the system is much simpler. Natural gas transmission companies may not know exactly how much gas is used in compressor stations, but they have a good idea based on the size of the equipment and the load on the line. The reported numbers probably are reasonably accurate. Data on natural gas-fueled vehicles are collected by DOE via Form-886, which is sent to fuel suppliers, vehicle manufacturers, and consumers. In addition, private associations and newsletters are important sources of information on alternative vehicles and alternative fuels use. Since most groups work cooperatively with DOE, it is likely that the data reported are accurate. EIA tracks the number of natural gas vehicles and the number of refueling stations to provide a cross check on estimates of natural gas consumption.

### Electricity

Electricity powers intercity trains (Amtrak) and intracity rail systems. In addition, the number of electric vehicles is growing. There is considerable uncertainty over the energy consumed by these modes. Amtrak no longer provides national totals of its electricity consumption. Data on intracity transit is based on U.S. Department of Transportation, Federal Transit Administration's (FTA's) National Transit Database (NTD). The legislative requirement for the NTD is found in Title 49 U.S.C. 5335(a). Transit agencies receiving funds through the Urbanized Area Formula Program are generally required to report financial and operating data, including energy use. Although the data is generally considered accurate because FTA reviews and validates information submitted, reliability may vary because some transit agencies cannot obtain accurate information or may misinterpret certain data.

If electric vehicles become important over the next decade or two, dedicated charging stations may become commonplace, which could provide accurate data. Fleet owners (e.g., electric utilities) can keep accurate records, but individuals who plug their vehicles in at home may not. Electricity use must be estimated from the number of such vehicles and the expected driving cycles. Hence, data on electric power for transportation must be viewed as an estimate.

It should also be noted that electricity is a form of work that usually is generated from heat with the loss of about two-thirds of the energy. Automobile engines are equivalent to electric generators in that they convert chemical energy to heat and then to work, losing most of the energy as waste heat. When electrical energy is compared to petroleum in transportation, the waste heat must be included for consistency. A kilowatt-hour of electricity is equivalent to 3,413 British thermal units (Btu), but about 10,000 Btu of heat are required to produce it. This factor is dropping as generators become more efficient. High efficiency gas turbines may require 8,000 Btu or less, but the average is much higher. It is usually impossible to tell where the power for a specific use is generated, so average figures for a region are used to estimate the waste energy, a factor that further reduces the accuracy of the data.

**Alternative Fuels**

In addition to oxygenates, natural gas, and electricity, alternative fuels include ethanol and methanol. EIA tracks the numbers of such vehicles through Form-886, state energy offices, federal demonstration programs, manufacturers, and private associations. These numbers probably are fairly accurate although it is difficult to monitor retirements. Fuel consumption is estimated from the types of vehicles in operation, vehicle miles traveled, and expected fuel efficiency. Adjustments are necessary for the relatively few flexible-fuel vehicles. Obviously, the reported data are estimates only.

# FUEL AND ENERGY CONSUMPTION BY MODE

**TABLE 4-5. Fuel Consumption by Mode of Transportation**

**TABLE 4-6. Energy Consumption by Mode of Transportation**

**TABLE 4-8. Certificated Air Carrier Fuel Consumption and Travel**

**TABLE 4-9. Motor Vehicle Fuel Consumption and Travel**

**TABLE 4-11. Passenger Car and Motorcycle Fuel Consumption and Travel**

**TABLE 4-12. Other 2-Axle 4-Tire Vehicle Fuel Consumption and Travel**

**TABLE 4-13. Single-Unit 2-Axle 6-Tire or More Truck Fuel Consumption and Travel**

**TABLE 4-14. Combination Truck Fuel Consumption and Travel**

**TABLE 4-15. Bus Fuel Consumption and Travel**

Fuel consumption data are collected quite differently than supply data collected by the U.S. Department of Energy, Energy Information Administration (EIA). Highway fuel consumption, for example, is based on U.S. Department of Transportation, Federal Highway Administration (FHWA) data collected from states in the course of revenue collection. EIA starts from the fuel delivered to transportation entities.

**Highway**

Highway fuel data (tables 4-5, 4-9, and 4-11 through 4-15) are collected mainly by FHWA. All states plus the District of Columbia report total fuel sold along with travel by highway category and vehicle registration. Data typically flows from state revenue offices to the state departments of transportation to FHWA. Even if reporting is reasonably accurate, some data are always anomalous or missing and must be modified to fit expected patterns. In addition, as discussed earlier, there are some significant differences in methodology and definitions among the states. In particular, states differ in where the tax is applied in the fuel supply system, how gasohol is counted, how nonhighway use is treated, and how losses are handled.

Nonhighway use of gasoline and diesel fuel is a particularly large source of potential error. Some states designate nonhighway users as tax-exempt, others make the tax refundable. In either case, many people won't bother to apply if the amount of money is small. Nonhighway use of diesel fuel is especially large because many construction and agricultural vehicles are diesel powered. Thus, the fraction of petroleum attributed to transportation could be overestimated. On the other hand, some nonhighway fuel finds its way into the transportation system because heating oil can be used as diesel fuel, evading the tax. Tracers are now added to heating oil, which appears to have reduced the level of such tax evasion-if found in a truck's fuel tank, the tracer indicates diversion from a nontaxed source.

Breaking fuel use down by class of motor vehicle introduces the potential for error. FHWA must estimate the miles each class is driven and the fuel economy. Estimation of miles is based on the 1995 Nationwide Personal Transportation Survey (NPTS), administered by FHWA, and the Vehicle Inventory and Use Survey (formerly known

as the Truck Inventory and Use Survey) conducted by the U.S. Census Bureau. For information about these two surveys, the reader is referred to the technical appendix of *Our Nation's Travel*, available from the FHWA, Office of Highway Information Management; and the 1997 Census of Transportation, available from the Economics and Statistics Administration within the Census Bureau. Fuel economy is based on state-supplied data, TIUS, and the National Highway Traffic Safety Administration data on new car fuel economy, which must be reduced by about 15 percent to reflect actual experience on the road. Overall, both vehicle-miles of travel and fuel economy are estimates.

Fuel consumption by buses is particularly uncertain. FHWA collects data on intercity buses, and the American Public Transit Association (APTA) covers local travel. Very little data are collected on school buses. APTA figures are based on data from the USDOT, Federal Transit Administration's (FTA's) National Transit Database, which covers about 90 to 95 percent of total passenger-miles. These data are generally accurate because FTA reviews and validates information submitted by individual transit agencies. Reliability may vary because some transit agencies cannot obtain accurate information or may misinterpret data. APTA conservatively adjusts the FTA data to include transit operators that do not report to FTA, such as private and very small operators and rural operators. Prior to 1984, APTA did not include most rural and demand responsive systems.

**Air**

The U.S. Department of Transportation, Bureau of Transportation Statistics, Office of Airline Information (OAI) is the source of these data. The numbers are based on 100-percent reporting of fuel use by large certificated air carriers (those with revenues of more than $100 million annually) via Form 41.The data are probably reasonably accurate because the airlines report fuel use regularly, and the limited number of airlines aids data management.

Smaller airlines, such as medium size regional and commuter air carriers, are not required to report energy data. OAI estimates that about 8 percent would have to be added to the total of the larger airlines to account for this use, but that has not been done in table 4-5 or 4-8.

General aviation aircraft and air taxis are covered in the General Aviation and Air Taxi and Avionics Survey, conducted by the Federal Aviation Administration (FAA). The survey is conducted annually and encompasses a stratified, systematic design from a random start to generate a sample of all general aviation aircraft in the United States. It is based on the FAA registry as the sampling frame. For instance, in 2000, a sample of 31,039 aircraft was identified and surveyed from an approximate population of 256,927 registered general aviation aircraft.

The reliability of the GAATA survey can be impacted by two factors: sampling and nonsampling error. A measure, called the standard error, is used to indicate the magnitude of sampling error. Standard errors can be converted for comparability by dividing the standard error by the estimate (derived from the sample survey results) and multiplying it by 100. This quantity, referred to as the percent standard error, totaled two and four-tenths of a percent in 2000 for the general aviation fleet. A large standard error relative to an estimate indicates lack of precision, and inversely, a small standard error indicates precision.

Nonsampling errors could include nonresponse, a respondent's inability or unwillingness to provide correct information, differences in interpretation of questions, and data entry mistakes. The reliability of general aviation fleet data comparisons over time would decrease because of changes implemented in 1978 and sampling errors discussed above. Readers should note that nonresponse bias may be a component of reliability errors in the data from 1980 to 1990. The FAA conducted telephone surveys of nonrespondents in 1977, 1978, and 1979 and found no significant differences or inconsistencies between respondent and nonrespondent replies. The FAA discontinued the telephone survey of nonrespondents in 1980 to save costs. Nonresponse surveys were resumed in 1990; and the FAA found notable differences and make adjustments to its data to reflect nonresponse bias.

The U.S. Government, in particular the Department of Defense (DOD), uses a large amount of jet fuel as shown in table4-19 (see discussion on government consumption below). However, DOD reports all fuel purchased, including from foreign sources for operations abroad. While the data may be accurate, it is not comparable to EIA's overall U.S. supply and consumption figures on jet fuel.

International operations are included in table 4-8 but not table 4-5. The fuel use for international operations includes that purchased by U.S. airlines for return trips. OAI does not collect data on foreign airline purchases of fuel in the United States. Thus, a significant use of U.S. jet fuel is missed. However, these two factors approximately balance each other out. As shown in table 1-34,foreign carrier traffic is just slightly less than U.S. carrier international traffic, so presumably the fuel purchased here by foreign carriers is very close to the fuel purchased abroad by U.S. carriers.

**Rail**

The data are from *Railroad Facts*, published annually by the Association of American Railroads (AAR). AAR figures are based on 100 percent reporting by Class I railroads to the Surface Transportation Board (STB) via Schedule 700 of the *R1 Annual Report*. Thus, the data are considered accurate. STB defines Class I railroads as having operating revenues at or above a threshold indexed to a base of $250 million (1991) and adjusted annually in concert with changes in the Railroad Freight Rate Index published by the Bureau of Labor Statistics. In 2001, the adjusted threshold for Class I railroads was $266.7 million. Although Class I railroads represent only 1 percent of the number of railroads in the country, they account for over 70 percent of the industry's mileage operated and more than 90 percent of all freight revenue; energy consumption should be of the same order. For passenger travel, information is unavailable. Amtrak no longer provides data on a national basis, and the regional data appears to be inconsistent.

**Transit**

The APTA figures are based on information in FTA's National Transit Database. APTA conservatively adjusts FTA data to include transit operators that do not report to the FTA Database (private and very small operators and rural operators), which accounts for about 90 to 95 percent of the total passenger-miles. The data are generally accurate because the FTA reviews and validates information submitted by individual transit agencies. Reliability may vary because some transit agencies cannot obtain accurate information or misinterpret certain data definitions in federal guidelines.

**Water**

The EIA collects data on residual and distillate fuel oils and diesel through its *Annual Fuel Oil and Kerosene Sales Report* survey, form EIA-821.The survey targets companies that sell fuel oil and kerosene to end users. This survey commenced in 1984 and data from previous years should be used with caution.

**Sampling Frame and Design**

The sample's target universe includes all companies that sell fuel oil and kerosene to end users. EIA derives the sampling frame from the EIA-863 database containing identity information for approximately 22,300 fuel oil and kerosene sellers. EIA stratifies the sampling frame into two categories: companies selected with certainty and uncertainty. Those in the certainty category varied but included the end use "vessel bunkering," or sales for the fueling of commercial and private watercraft.

**Sampling Error, Imputation, and Estimates**

EIA reported a 92.5 percent response rate for the 2000 survey. The EIA also provides estimates of the sampling error for geographic areas and U.S. averages are 1.8 for residential distillate fuel oil, 0.8 for nonresidential retail distillate fuel oil, and 0.1 for retail residual fuel oil. Some firms inevitably ignore survey requests, causing data gaps. EIA estimates the volumes of these firm's sales by imputation; more detailed information and the algorithm can be obtained at EIA's web site in the technical notes for the Annual Fuel Oil and Kerosene Sales Report. See http://www.eia.doe.gov/oil gas/petroleum/data publications/fuel oil and kerosene sales/foks.html.

**TABLE 4-19. U.S. Government Energy Consumption by Agency and Source**

Energy consumption data are collected by DOE's Office of Federal Energy Management Programs in cooperation with most departments and agencies. DOD is by far the largest consumer, accounting for about 80 percent of the total. As discussed above, the data includes fuel purchased abroad for military bases. Since government agencies are required to report these data, they are probably accurate. However, it is possible that some consumption is missed. For example, some agencies may report only fuel supplied directly, missing consumption such as gasoline purchased by employees while on government business for which they are then reimbursed. In addition, smaller agencies were neglected. Overall, however, the data should provide a fairly good approximation of government energy consumption.

# ENERGY EFFICIENCY

**TABLE 4-20. Energy Intensity of Passenger Modes**

**TABLE 4-21. Energy Intensity of Certificated Air Carriers, All Services**

**TABLE 4-22. Energy Intensity of Passenger Cars, Other 2-Axle 4-Tire Vehicles, and Motorcycles**

**TABLE 4-24. Energy Intensity of Transit Motor Buses**

**TABLE 4-25. Energy Intensity of Class I Railroad Freight Service**

**TABLE 4-26. Energy Intensity of Amtrak Service**

**TABLE 4-27. Energy Intensity of Amtrak Service (Loss-adjusted conversion factors)**

Total energy consumed for each mode can be estimated with reasonable accuracy. Miles traveled are known for some modes, such as air carriers, but less accurately for others, most notably automobiles. When the numbers of passengers or tons are required to calculate energy efficiency, another uncertainty is introduced. Again, air carriers and intercity buses know how many passengers are on board and how far they travel, but only estimates are available for automobiles and intracity buses.

Thus, table 4-21 should be quite accurate for certificated air carriers, though it is missing small airlines and private aircraft. Table 4-22 is based on FHWA fuel tax data, derived from state fuel tax revenues. VMT is as discussed for tables 1-9 and 1-10.Data for motorcycles must be adjusted significantly more than for automobiles because less information is collected from the states or from surveys. Transit bus data (table 4-24) are very uncertain because, unlike intercity buses, the distance each passenger travels is not measured by ticket sales.

The intermodal comparison of passenger travel in table 4-20 must be viewed with considerable caution. Data for the different modes are collected in different ways, and the preparation of the final results is based on different assumptions. As noted above, airlines accurately record passenger miles, but the data on occupancy of private automobiles must be estimated from surveys. Even relatively certain data, such as state sales of gasoline, must be modified to resolve anomalies, and transit data are even harder to make consistent. Furthermore, different groups collect the data for the various modes, and they have different needs, assumptions, and methodologies. Thus, the comparisons are only approximate.

Freight service data (table 4-25) are from *Railroad Facts*, published annually by the Association of American Railroads (AAR).AAR figures are based on 100 percent reporting by Class I railroads to the Surface Transportation Board (STB) via Schedule 700 of the *R1 Annual Report*. STB defines Class I railroads as having operating revenues at or above a threshold indexed to a base of $250 million (1991) and adjusted annually in concert with changes in the Railroad Freight Rate Index published by the Bureau of Labor Statistics. In 2000, the adjusted threshold for Class I railroads was $ 261.9 million. Although Class I railroads comprise only 1 percent of the number of railroads in the country, they account for over 71 percent of the industry's mileage and 91 percent of all freight revenue; energy data should be of the same order.

**TABLE 4-28. Annual Wasted Fuel Due to Congestion**

**TABLE 4-29. Wasted Fuel per Eligible Driver**

The Texas Transportation Institute's (TTI) *Urban Roadway Congestion Annual Report* provided figures for tables 4-27 and 4-28. TTI relies on data from the U.S. Department of Transportation, Federal Highway Administration, Highway Performance Monitoring System database (HPMS). (See box 1-1 for detailed information about the HPMS.) TTI utilizes these data as inputs for its congestion estimation model. Detailed documentation for the TTI model and estimations can be found at http://mobility.tamu.edu/.

The sum of fuel wasted in typical congestion (recurring delay) and incident related delays equal the annual wasted fuel for an urban area. Recurring delay is the product of recurring delay (annual hours in moderate, heavy, and severe delays) and average peak period system speed divided by average fuel economy. Incident delay hours are

multiplied by the average peak period system speed and divided by the average fuel economy to produce the amount of incident fuel wasted.

**Structure, Assumptions, and Parameters**

Urban roadway congestion levels are estimated using a formula measuring traffic density. Average daily travel volume per lane on freeways and principal arterial streets are estimated using area wide estimates of vehicle-miles of travel and lane miles of roadway. The resulting ratios are combined using the amount of travel on each portion of the system (freeway and principal arterials) so that the combined index measures conditions overall. This variable weighting factor allows comparisons between areas such as Phoenix-where principal arterial streets carry 50 percent of the amount of travel of freeways-and cities such as Phoenix where the ratio is reversed. Values greater than one are indicative of undesirable congestion levels. Readers seeking the algorithm for the congestion index should examine http://mobility.tamu.edu/.

In previous reports, TTI assumed that 45 percent of all traffic, regardless of the urban location, occurred in congested conditions. TTI indicated that this presumption overestimated travel in congested periods. Its 2002 estimates now vary by urban area anywhere from 18 to 50 percent of travel that occurs in congestion. TTI's model structure applies to two types of roads: freeways and principal arterial streets. The model derives estimates of vehicle traffic per lane and traffic speed for an entire urban area. Based on variation in these amounts, travel is then classified under 5 categories: uncongested, moderately congested, heavily congested, severely congested, and extremely congested (a new category in 1999). The threshold between uncongested and congested was changed in 1999. Previous editions classified congested travel when area wide traffic levels reached 14,000 vehicles per lane per day on highways and 5,500 vehicles per lane per day on principal arterial streets. For the current edition these values are 15,500 and 5,500 vehicles per lane per day respectively. Previous years values have been re-estimated based on these new assumptions. Readers should refer to the TTI website for more detailed information on its estimation procedures http://mobility.tamu.edu/.

TTI reviews and adjusts the data used in its model, including statewide average fuel cost estimates (published by the American Automobile Association) and the number of eligible drivers for each urban area (taken from the Statistical Abstract of the United States, published by the U.S. Department of Commerce, Bureau of the Census).The model has some limitations because it does not include local variations (such as bottlenecks, local travel patterns, or transportation improvements) that affect travel times. TTI documentation does not provide information on peer-review, sensitivity analysis, or estimation errors for their model. Information about sensitivity analysis or external reviews of the model could not be obtained and users should interpret the data cautiously.

# ENVIRONMENT

**TABLE 4-43. Estimated National Average Vehicle Emissions Rates by Vehicle Type and Fuel**

**TABLE 4-44. National Average Vehicle Emissions Rates by Vehicle Type Using Reformulated Gasoline**

The U.S. Environmental Protection Agency uses its Mobile Source Emissions Factor Model (MOBILE) to generate average emissions factors for each vehicle and fuel type. The methods used in the model are theoretically sound, the assumptions are reasonable, but the data vary in quality, and no formal analysis of the accuracy of these estimates has been performed. Emissions rate estimates for light-duty vehicles are considered more reliable than those for heavy-duty vehicles because in-use emissions tests are performed on a sample of vehicles each year. Deterioration for heavy-duty vehicles in the national fleet are based only on manufacturer's engine deterioration tests. In addition, because reformulated fuels (table 4-39) are newer than other gasoline fuels (table 4-38), in use emissions test data for reformulated fuels are not as extensive.

The estimates in the tables represent average emissions rates taking into account the characteristics of the nation's fleet, including vehicle type and age, and fuel used. The model also assumes Federal Test Procedure conditions. The model does not take into account actual travel distributions across different highway types with their associated average speeds and operating mode fractions, nor do they consider ambient local temperatures. However, fleet composition and deterioration because of age are considered. Thus, these rates illustrate only trends due to vehicle emissions control improvements and their increasing use in the national fleet and should not be used for other purposes.

**TABLES 4-45, 4-46, 4-47, 4-48, 4-49, 4-50. Estimates of National Emissions of Carbon Monoxide, Nitrogen Oxides, Volatile Organic Compounds, Particular Matter, Sulfur Dioxide**

Emissions by sector and source are estimated using various models and calculation techniques and are based on a number of assumptions and on data that vary in precision and reliability. The methods used are theoretically sound, the assumptions are reasonable, but the data vary in quality, and no formal analysis of the accuracy of these estimates has been performed.

**Carbon Monoxide (CO), Nitrogen Oxides (NOx), and Volatile Organic Compounds (VOCs)**

Highway vehicle emissions of CO, NOx, and VOC are generated by the U.S. Environmental Protection Agency's (EPA's) Mobile Source Emissions Factor Model (MOBILE), which uses per-mile vehicle emissions factors and vehicle travel (vehicle-miles) to calculate county-level emissions. Emissions rates are then adjusted based on fuel characteristics, vehicle fleet composition, emissions control measures, average vehicle speed, and other factors that can affect emissions. (Emissions rates used in MOBILE are based on vehicle certification tests, emissions standards, and in-use vehicle tests and are updated approximately every three years.) The U.S. Department of Transportation, Federal Highway Administration's Highway Performance Monitoring System is the source of vehicle travel estimates used in the model. Although the methodology for this survey data is sound and well documented, analyses have shown that individual states vary in how rigorously they follow the established sampling guidelines.

The non-highway vehicle emissions are calculated annually by running EPA's NONROAD model for all categories except aircraft, commercial marine vessels, and railroads, which are calculated via emission factors and relevant activity data. Inputs to the NONROAD model include average temperatures, Reid vapor pressure, fuel usage programs and controls.

**Particulate Matter Under 10 Microns (PM-10) and 2.5 Microns (PM-2.5) in Size**

Highway vehicle emissions are estimated using the U.S. Environments Protection Agency's PART model, which estimates emissions factors for exhaust emissions and brake and tire wear by vehicle type. Exhaust emissions factors are based on certification tests, while brake wear (per vehicle) and tire wear (per tire) are assumed values, which are constant over all years. Per-mile emissions factors are multiplied by vehicle travel (vehicle-miles) and adjusted to account for other factors that effect exhaust emissions (e.g., fuel composition, weather, etc.). The U.S. Department of Transportation, Federal Highway Administration's Highway Performance Monitoring System is the source of vehicle-miles of travel (VMT) estimates used in the model. While the methodology for this survey data is sound and well documented, analyses have shown that individual states vary in how rigorously they follow the established sampling guidelines.

Fugitive dust estimates for paved and unpaved roads are calculated by multiplying VMT on each type of road by emissions factors for each vehicle type and road type.

The non-highway vehicle emissions are calculated annually by running EPA's NONROAD model for all categories except aircraft, commercial marine vessels, and railroads, which are calculated via emission factors and relevant activity data. Inputs to the NONROAD model include average temperatures, Reid vapor pressure, fuel usage programs and controls.

**Sulfur Dioxide (SO2)**

Highway vehicle SO2 emissions are estimated by multiplying vehicle travel (for each vehicle type and highway type) by an emissions factor reflecting each vehicle type and highway type. Highway SO2 emissions factors are based on vehicle type and model year, sulfur content of fuel by type and year, fuel density by fuel type, and vehicle fuel efficiency by type and model year.

In general, estimates for non-highway vehicles are calculated based on fuel consumption and sulfur content of fuel, though other factors may be considered.

**Lead**

In general, lead emissions are estimated by multiplying an activity level by an emissions factor that represents the rate at which lead is emitted for the given source category. This estimate is then adjusted by a factor that represents the assumed effectiveness of control technologies. For lead released during combustion, a top-down approach is used to share national estimates of fuel consumption by fuel type to each consumption category (e.g., motor fuel, electric utility, etc.) and, subsequently, each source (e.g., passenger cars, light-duty trucks, etc.).

**TABLE 4-51. Air Pollution Trends in Selected Metropolitan Statistical Areas (MSAs)**

**TABLE 4-52. Areas in Nonattainment of National Ambient Air Quality Standards for Criteria Pollutants**

The U.S. Environmental Protection Agency measures concentrations of pollutants in the ambient air at its air quality monitoring sites, which are operated by state and local agencies. These sites conform to uniform criteria for monitor siting, instrumentation, and quality assurance, and each site is weighted equally in calculating the composite average trend statistics. Furthermore, trend sites must have complete data for 8 of the 10 years in the trend time period to be included. However, monitoring devices are placed in areas most likely to observe significant concentrations of air pollutants rather than a random sampling of sites throughout the nation.

**TABLE 4-53. U.S. Carbon Dioxide Emissions from Energy Use by Sector**

The combustion of fossil fuels, such as coal, petroleum, and natural gas, is the principal anthropogenic (human caused) source of carbon dioxide (CO2) emissions. Since fossil fuels are typically 75 percent to 90 percent carbon by weight, emissions from the combustion of these fuels can be easily measured in carbon units, as is shown in the table.

CO2 emissions data are derived from estimates. The U.S. Department of Energy, Energy Information Administration (EIA), estimates CO2emissions by multiplying energy consumption for each fuel type by its carbon emissions coefficient, then subtracting carbon that is sequestered by nonfuel use of fossil fuels. Carbon emissions coefficients are values used for scaling emissions to specific activities (e.g., pounds of CO2emitted per barrel of oil consumed).

Emissions estimates are based on energy consumption data collected and published by EIA Several small adjustments are made to its energy consumption data to eliminate double counting or miscounting of emissions. For example, EIA subtracts the carbon in ethanol from transportation gasoline consumption because of its biological origin.

Emissions coefficients are based on the density, carbon content, and heat content of petroleum products. For many fuels, except liquefied petroleum gas (LPG), jet fuel, and crude oil, EIA assumed coefficients to be constant over time. For LPG, jet fuel, and crude oil, EIA annualized carbon emissions coefficients to reflect changes in chemical composition or product mix.

Since the combustion of fossil fuels is a major producer of CO2emissions, sources of uncertainty are related to: 1) volumes of fuel consumed; 2) characteristics of fuel consumed; 3) emissions coefficients; and 4) coverage. EIA notes that volumetric fuel data are fairly reliable in the 3 percent to 5 percent range of uncertainty. The density and energy content of fuels are usually estimated. According to EIA, the reliability of these estimates vary. For example, estimates of the energy content of natural gas are reliable to 0.5 percent, while estimates for coal and petroleum products are lower because they are more heterogeneous fuels. The reliability of emissions coefficients depends on whether the characteristics of a fuel are difficult to measure accurately. Finally, uncertainties may result because data may be excluded or unknown sources of emissions not included.

EIA's estimation methods, emissions coefficients, and the reliability of emissions estimates are discussed in detail in U.S. Department of Energy, Energy Information Administration, *Emissions of Greenhouse Gases in the United States*, 1998 available on: www.eia.doe.gov/oiaf/1605/ggrpt/index.html.

**TABLE 4-54. Petroleum Oil Spills Impacting U.S. Waterways**

The U. S. Coast Guard's (USCG) Marine Safety Information System (MSIS) is the source of these data. It includes data on all oil spills impacting U.S. navigable waters and the Coastal Zone. The USCG learns of spills through direct observation, reports from responsible parties and third parties. Responsible parties are required by law to report spills to the National Response Center (NRC).Reports may be made to the USCG or Environmental Protection Agency pre-

designated On Scene Coordinator for the geographic area where the discharge occurs if direct reporting to the NRC is not practicable. There is no standard format for these reports, but responsible personnel face significant penalties for failing to do so. Most reports are made by telephone, and USCG personnel complete investigations based on the information provided. The type and extent of an investigation conducted varies depending on the type and quantity of the material spilled. Each investigation will determine as closely as possible source of the pollutant, the quantity of the material spilled, the cause of the accident, as well as whether there is evidence that any failure of material (either physical or design) was involved or contributed to the incident. These are so financial responsibility may be properly assigned for the incidents, as well as proper recommendations for the prevention of the recurrence of similar incidents may be made.

Some spills may not be entered into MSIS because they are either not reported to or discovered by the USCG. The probability of a spill not being reported is inversely proportional to its size. Large spills impact a large area and a large number of people, resulting in numerous reports of such spills. Small spills are less likely to be reported, particularly if they occur at night or in remote areas where persons other than the responsible party are unlikely to detect them. Responsible parties are required by law to report spills and face penalties for failing to do so, providing a strong incentive to report spills that might be detected by others. Experience with harbor patrols shows that the number of spills increases as the frequency of patrols increases. However, the volume of material spilled does not increase significantly, indicating that the spills discovered through increased harbor patrols generally involved very small quantities.

**Data Collection**

From 1973 to 1985, data were collected on forms completed by the investigator and later entered into the Pollution Incident Reporting System (PIRS) by data entry clerks at USCG headquarters. Since 1985, data have been entered directly into MSIS by the investigator. From 1985 to 1991, data were entered into a specific electronic form that captured information on the spilled substance and pollution response actions. Since 1995, a growing number of reports of pollution incidents of 100 gallons or less of oil have been captured on a Notice of Violation ticket form, which are then entered into MSIS.

The information shown in this table comes from the USCG Spill Compendium, which contains spill data from the applications described above. The Compendium contains summary data from 1969 through 2000 and is intended to provide general information to the public, the maritime industry and other interested persons about spills in and around U.S. waterways. For more information about spill data, please refer to the USCG Internet site at http://www.uscg.mil/hq/g-m/nmc/response/stats/aa.htm

**Nonsampling Errors**

According to the USCG, nonsampling errors, such as nonreporting and mistakes made in data collection and entry, should not have a major impact on most interpretations of the data, but the impact will vary depending on the data used. The error rate for volume spilled is estimated to be less than 5 percent because larger spills, which account for most of the volume of oil spilled, are thoroughly reviewed at several levels. The error rate for the number of spills is difficult to estimate primarily due to low reporting rates for small spills. Most of the error in spill counts involves spills of less than 100 gallons.

**TABLE 4-55. Leaking Underground Storage Tank Releases and Cleanups**

A national inventory of reported spills and corrective actions taken for leaking underground storage tanks is compiled biannually based on state counts of leaking tanks reported by owners as required by the Resource Conservation and Recovery Act of 1976.[1] These data may be affected by general accounting errors, some of which have changed semiannual counts by as many as 2,000 actions.

**TABLE 4-56. Highway Noise Barrier Construction**

State highway agencies (SHAs) provide data on highway noise barrier construction, extent, and costs to the U.S. Department of Transportation, Federal Highway Administration. Individual SHA definitions of barriers and costs may differ. This could lead to nonuniformity and/or anomalies among state data, which will in turn affect national totals.

**TABLE 4-57. Number of People Residing in High-Noise Areas Around U.S. Airports**

The number of the people exposed to aircraft noise around airports is estimated by computer modeling rather than by actual measurements. The U.S. Department of Transportation (USDOT), Federal Aviation Administration's (FAA's) Integrated Noise Model (INM) has been the primary tool for assessing aircraft noise around airports for nearly 30 years. This model uses information on aircraft mix, average daily operations, flight tracks, and runway distribution to generate and plot contours of Day Night Sound Level (DNL).With the addition of a digitized population census database, the model can estimate the number of residents exposed to noise levels of 65 decibels (db) DNL.

The U.S. Environmental Protection Agency (EPA) produced the first estimate of airport noise exposure in 1975.It reported that 7 million residents were exposed to significant levels of aircraft noise in 1978.This number became the "anchor point" for all future estimates of the nationwide noise impacts. In 1980, FAA developed another methodology for estimating the change in the number of people impacted by noise (from the 1975 anchor value) as a function of changes in both the national fleet and in the FAA's Terminal Area Forecast (TAF). In 1990, the FAA created an improved method of estimating the change in number of people impacted (relative to the 1980 estimates).

In 1993, the FAA began using its newly developed Nationwide Airport Noise Impact Model (NANIM) to estimate the impact of airplane noise on residential communities surrounding U.S. airports that support jet operations. FAA uses this model to determine the relative changes in number of people and land area exposed to 65 db DNL as a result of changes in nationwide aircraft fleet mix and operations. NANIM uses data on air traffic patterns found in the Official Airline Guide (OAG), air traffic growth projections found in FAA's TAF, population figures from the U.S. Census Bureau, and information on noise contour areas for the top 250 U.S. civil airports with jet operations.

The methodology used in NANIM has been peer reviewed and approved. However, a formal evaluation of the model's accuracy has not been conducted. Some data used in NANIM are updated manually, thus the possibility of data entry errors does exist. Entries are reviewed and then corrected as appropriate. The aircraft mix and operations files from FAA's TAF and OAG are updated automatically. Changes to either of the sources could introduce errors. For example, it was recently discovered that OAG redefined some aircraft codes and altered some data fields in its database. These changes make it impossible for the NANIM utility program to accurately read the current OAG database. A rewrite of the source code is necessary to eliminate this error. Also, since airport authorities are not required to produce noise exposure maps and reports unless they intend to apply for Federal grants, 14 of the 50 busiest commercial airports, including JFK and LaGuardia, have not produced (for public consumption) noise exposure maps in several years. In the absence of actual data, the NANIM database contains approximations of the noise contours areas based on airports of similar size and similar operation. Without actual airport data, it is impossible to quantify the error introduced by the approximation.

The number of people exposed to aircraft noise for 1998 through 2001 was estimated by the FAA's latest version of its MAGENTA model. This new, more accurate model is based on 2000 census data and uses input data on aircraft and operations specific to U.S. airports. This revised model also uses the FAA Terminal Forecast (TAF), which provides information on how operations will increase on an airport specific basis. Updated monthly, the TAF allows a more accurate forecast of U.S. operations.

**TABLE 4-58. Motor Vehicles Scrapped**

The Polk Company's Vehicles in Operation database is the source of these data. This database is a census of vehicles that are currently registered in all states within the United States. It is based on information from state department of motor vehicles. Polk updates the database quarterly (March, June, September, and December).

Scrapped vehicles are those that Polk removes from its database when: 1) States indicate registered vehicles have suffered major damage (such as a flood or accident), or 2) No renewal (reregistration) notice is received by Polk within a state's allotted time (normally one year). In the latter case, if a vehicle is subsequently reregistered, it is returned to the database. The Polk data on motor vehicles is broken down into passenger cars and trucks, and this identification comes with the registration data from the DMV.

# REFERENCES

U.S. Department of Energy, Energy Information Administration. 1994. *Accuracy of Petroleum Supply Data*. Tammy G. Heppner and Carol L. French, eds.Washington, DC.

U.S. Department of Energy, Energy Information Administration. 1990. *Energy Consumption by End-Use Sector, A Comparison of Measures by Consumption and Supply Surveys*, DOE/EIA-0533.Washington, DC.

U.S. Environmental Protection Agency, Office of Mobile Sources. 1998.*MOBILE5 Information Sheet #7: NOx Benefits of Reformulated Gasoline Using MOBILE5a*. Ann Arbor, MI. September 30.

U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards.1998.*National Air Pollutant Emission Trends, Procedure Document, 1900-1996*. EPA-454/R-98-008.Research Triangle Park, NC.May.

U.S. Environmental Protection Agency, Office of Mobile Sources. 1996.Memorandum on Release of MOBILE5b.(Revised Chapter 2 for the Users Guide to MOBILE5).October 11.

U.S. Environmental Protection Agency, Office of Air Quality and Standards, Emission Factor and Inventory Group.1995.*Compilation of Air Pollutant Emission Factors AP-42, Volume II: Mobile Sources*. Appendix H. Fifth ed.June 30.

U.S. Environmental Protection Agency, Office of Mobile Sources (OMS). 1995. Draft User's Guide to PART5: *A Program for Calculating Particle Emissions from Motor Vehicles*, EPA-AA-AQAB-94-2.Ann Arbor, MI.February.

U.S. EPA, Office of Mobile Sources.1994. *Users Guide to MOBILE5 (Mobile Source Emission Factor Model*),EPA-AA-TEB-94-01.Ann Arbor, MI.May.

U.S. Environmental Protection Agency, Office of Air and Radiation. 1992. *Procedures for Emission Inventory Preparation, Volume IV: Mobile Sources*, EPA-450/4-81-026d (Revised).

[1] Public Law 94-580, 90 Stat. 2795 (October 21, 1976).

# Appendix E
# Data Source and Accuracy Statements

## Chapter 4 Energy and the Environment

## PETROLEUM SUPPLY

**TABLE 4-1. Overview of U.S. Petroleum Production, Imports, Exports, and Consumption**

The petroleum supply system is extremely complicated, with many different processes, products, and entities involved. Briefly, crude oil is produced or imported, transported to refineries where it is refined into various products, and then transported to markets. Imports and exports of crude oil and products must be accounted for, as must be nonpetroleum components of final products, such as natural gas plant liquids and ethanol for gasoline blending.

The U.S. Department of Energy, Energy Information Administration (EIA) collects extensive data at select points in the petroleum supply system. Sixteen surveys are conducted by EIA's Petroleum Supply Reporting System to track the supply and disposition of crude oil, petroleum products, and natural gas plant liquids:

- five weekly surveys cover refineries (form EIA-800), bulk terminal stocks (form EIA-801), product pipelines (form EIA-802), crude stocks (form EIA-803), and imports (form EIA-804).
- eight monthly surveys cover the same five points plus tanker and barge movement (form EIA-817), gas processing facilities (form EIA-816), and oxygenates (form EIA-819M).
- one survey (form EIA-807) collects propane data on a monthly basis in the warmer months (April-September) and on a weekly basis in the colder months.
- one annual survey determines production capacity of oxygenates and fuel ethanol (form EIA-819A), and
- one annual survey determines refinery fuel use, capacity, and crude oil receipts by transportation mode (form EIA-820).

The five weekly surveys target key points in the petroleum supply system. They do not include all companies, but sample 90 percent of volume at each selected point in the supply system. EIA rank-orders the companies involved in the survey and sends surveys as it scrolls down the list, stopping when it reaches the 90 percent level. Although 100 percent coverage is sacrificed, this method keeps the level of incoming data manageable and avoids burdening the smallest companies. All data are reviewed and anomalies checked.

Monthly surveys provide data that are used in the monthly and annual reports. They are similar to the weekly surveys, but are more exhaustive in both the range of data collected and the depth of the collection. Sample sizes and response rates for several of the key points in the supply system are shown in table 1.The eight monthly surveys cover the industry more accurately than the weekly surveys and provide some double-check points that the other surveys do not. EIA expends considerable effort to ensure that its data are as accurate as possible. Revisions are made throughout the year. For example, *EIA's Annual Energy Review 1996*, released in July 1997, provided a preliminary 1996 number for total petroleum production of 8.30 million barrels per day (mmbd). The *Annual Energy Review 1997*, released a year later, revised that to 8.25 mmbd, and the 1999 Review reported 8.29 mmbd.

No complicated survey is likely to be 100 percent accurate. EIA lists four sources of potential systematic errors:

1. Some members of the target population are missed. EIA reports that it continually reviews the lists and searches industry periodicals and newspapers to identify new actors. Considering the nature of the petroleum industry, it is very unlikely that companies with significant production are not surveyed.
2. Some members of the target population do not respond. EIA reports a 97 percent response rate for monthly surveys. For some points in the supply system, the average response is over 99 percent. Survey respondents are required by law to respond, but some nonresponse is inevitable, especially among small companies. EIA assumes that the nonrespondent's value for that month is the same as for the previous month except for imports. Since imports vary widely, with respondents frequently having no imports, EIA assumes a nonresponse means zero imports. It can be assumed that EIA is good at "filling in the blanks."

Assuming for illustration purposes that 0.5 percent of production does not respond, and that EIA is 90 percent accurate in covering the gap, then there is a possibility of a 0.05 percent error. Applying that to total production of 8.29 mmbd in 1999 suggests that there could be an error of 0.0041 mmbd (4,100 barrels per day), which would not affect the published number.

3. The most serious problem may be response error. A company may have poor data, perhaps as a result of imperfect measurements, or it may transmit the wrong number. EIA has no control over a company's data quality. Companies have incentive to measure their inputs and products accurately. Otherwise, they may be cheating themselves or risking ill will with their customers or suppliers. However, no instrumentation is perfectly accurate. The high throughput of, say, a refinery with capacity of several hundred thousand barrels per day, with a variety of products changing density and some lost or used on site, is very complicated to measure. Instrumentation errors are likely to be systematic at any one site, although they will be more nearly random in the aggregate for all facilities. There is potential for small but significant overall errors. Mistakes may be made in recording and transferring the data. EIA reviews the data and flags gross errors or missing data for review by the respondent. However, not all errors will be picked up by EIA and/or the respondent. Overall, response errors probably are several times as large as nonresponse errors, but it is beyond the scope of this profile to estimate them.
4. The final potential source of systematic error is in the clarity of the survey form, i.e., whether all respondents interpret it correctly. No doubt errors and ambiguities can creep into a form, but at least for petroleum supply, that does not appear to be a major risk. The supply system is not changing rapidly, and EIA should be able to keep with it and the terminology. However the final digit of EIA's published supply data is questionable.

For additional information on survey methodology and statistical reliability, the reader is referred to the EIA reference cited in the tables or the EIA Internet site at www.eia.doe.gov.

# FUEL AND ENERGY CONSUMPTION

**TABLE 4-1. Overview of U.S. Petroleum Production, Imports, Exports, and Consumption**

**TABLE 4-2. U.S. Consumption of Energy from Primary Sources by Sector**

**TABLE 4-3. Domestic Demand for Refined Petroleum Products by Sector**

**TABLE 4-4. U.S. Energy Consumption by the Transportation Sector**

**TABLE 4-7. Domestic Demand for Gasoline**

Petroleum consumption is far more complex to measure than supply. Instead of a few hundred companies at most measuring points in the supply system, there are tens of millions of consumers. It would be impossible for any survey of individual consumers to produce the high rate of return of U.S. Department of Energy (DOE), Energy Information Administration's (EIA's) supply surveys. EIA's transportation data collection is further limited by the termination of the Residential Transportation Energy Consumption Survey (RTECS). Therefore, EIA uses surveys of sales of products (e.g., Form EIA-821:Annual Fuel Oil and Kerosene Sales Report) or tax collection data from the U.S. Department of Transportation, Federal Highway Administration (FHWA).

EIA reviewed the accuracy of its energy consumption data in a 1990 monograph *Energy Consumption by End-Use Sector, a Comparison of Measures by Consumption and Supply Surveys*. Unfortunately, this monograph does not discuss the transportation sector because the consumption and supply surveys were not comparable. However, some of the results from other sectors indicate the discrepancies between supply and consumption surveys. Table 4-2 shows the ratio of fuel supplied to the sector to consumption reported by the sector in consumption surveys.

In most cases, supply is reported as substantially larger than consumption. Supplies of fuel oil to the commercial sector are reported at almost twice the level of consumption reported by that sector. Some of the discrepancies may be due to definition differences (e.g., fuel oil for apartment buildings is included in commercial supply surveys but not in consumption surveys.) Overall, however, the differences are too large for great confidence in the accuracy of the data.

If transportation had been reviewed in the same format, it is likely that the discrepancies would have been larger. Most transportation fuel (gasoline for automobiles) is purchased in small quantities at irregular intervals and cannot be checked simply by looking at a utility bill. Hence, highway transportation energy consumption surveys must be extensive to avoid the risk of large uncertainties in the data. But, with the termination of the RTECS, EIA ceased conducting such surveys. Consumption data must be derived indirectly from sales of petroleum products and tax collection data. While petroleum supply may be accurate to one decimal place, it is likely that disaggregating by sector use may be within plus or minus several percentage points, or perhaps about half a quadrillion British thermal unit (Btu) in table 4-1.

**Motor Gasoline**

Almost all gasoline is consumed in the transportation sector. Small amounts are used in the commercial sector for nonhighway use and the industrial sector, which includes agriculture, construction, and other uses. Subtracting estimates of those uses from the known total sales yields the transportation sector's total, which is further subdivided into highway and marine use. Aviation gasoline is, of course, used entirely in the transportation sector (for a very few high-performance automobiles as well as small aircraft).

Data on actual sales is collected by the states for revenue purposes. These data are forwarded to FHWA. EIA uses the data from FHWA to allocate highway consumption of motor gasoline among the states. For 1999, FHWA reported 124.7 billion gallons of gasoline sold nationally for highway use. EIA's table 5.12c of the *Annual Energy Review 2000* lists 8.33 mmbd of gasoline supplied for the transportation sector, the same as 127.7 billion gallons.

Such close agreement between supply and demand is not totally convincing. Definitions are unique to each state (e.g., whether gasohol is counted as pure gasoline or part gasoline and part renewables), measurement points vary from state to state, and each state handles losses differently. Hence, the total of all states' sales of gasoline is not entirely consistent.

Separation of highway from nonhighway uses of gasoline is, by necessity, based in part on careful estimates. Nevertheless, overall gasoline sales are well documented, and the separation is probably fairly accurate. Refinery output of motor gasoline was 7.93 mmbd in 1999, which is probably accurate to the first decimal place and maybe a little better. The transportation sector's 8.33 mmbd would have about the same accuracy.

**Diesel Fuel**

Diesel fuel is used in highway vehicles, railroads, boats, and military vehicles. Sales are only about 30 percent of gasoline in the transportation sector, but uncertainties are greater. More diesel than gasoline is used for nonhighway purposes, especially agriculture and construction. In addition, there has been more potential for cheating to avoid the tax; heating oil is virtually the same as diesel fuel and can easily be transferred to a vehicle. However, this is less significant now that tracers have been added to fuel oil. After the addition of tracers, the amount of transportation diesel fuel use jumped.

To estimate diesel fuel sales by mode, EIA starts with the total supply of distillate fuel and subtracts the small amount sold to electric utilities (the most accurately known sector, as measured by EIA Form EIA-759). The remainder is divided among the other end-use sectors according to EIA's sales surveys (Form EIA-821: Annual Fuel Oil and Kerosene Sales Report, and Form EIA-863: Petroleum Product Sales Identification Survey).

This method introduces several potential elements of inaccuracy. First, the surveys of each sector are probably less accurate than the supply surveys noted earlier. Companies and individuals may inadvertently send incorrect data, or not respond at all. Then EIA has to determine what adjustment factor to use for each end-use sector. Since each sector will have a different response rate to the surveys, the adjustments will be different. Large adjustments can introduce large errors. EIA has not published its adjustments for the transportation sector. As shown in table 2, the adjustments in other sectors range from 5 to 96 percent of reported consumption. Even a 20 percent adjustment could introduce an error of one or two percentage points (plus or minus) for any one sector.

Overall, the accuracy of diesel fuel use in the transportation sector should be viewed with some skepticism.

**Jet Fuel**

Jet fuel is the only other petroleum-based fuel that is used in large quantities (over 1 million barrels/day) in the transportation sector. Virtually all of it is used by airlines. These data are accurate because airlines are required to report usage, and because there are relatively few certificated air carriers, data collection should be manageable.

# NONPETROLEUM FUELS CONSUMPTION

**TABLE 4-10. Estimated Consumption of Alternative and Replacement Fuels for Highway Vehicles**

Collectively, oxygenates, natural gas, electricity, and various alternative fuels amount to only about 3 percent of all energy used in the transportation sector. While this may not be much greater than the error bars associated with petroleum use, it is important to track changes in these fuels accurately.

### Oxygenates

Oxygenates, mostly methyl tributyl ether (MTBE), which is derived from natural gas and ethanol, are part of mainstream gasoline supply. They are measured routinely with petroleum supply (forms EIA-819A and 819M). Consumption is estimated from production, net imports, and stock changes. Refineries and other entities are required to report data on oxygenates, and EIA also monitors production capability to provide a crosscheck. Thus, oxygenates data are likely to be reasonably accurate.

### Natural Gas

Natural gas is used in the transportation sector mainly as the fuel for compressor stations on natural gas transmission lines. A small but growing amount is used in compressed or liquefied form in vehicles. EIA collects data on natural gas much as it does for petroleum, but the system is much simpler. Natural gas transmission companies may not know exactly how much gas is used in compressor stations, but they have a good idea based on the size of the equipment and the load on the line. The reported numbers probably are reasonably accurate. Data on natural gas-fueled vehicles are collected by DOE via Form-886, which is sent to fuel suppliers, vehicle manufacturers, and consumers. In addition, private associations and newsletters are important sources of information on alternative vehicles and alternative fuels use. Since most groups work cooperatively with DOE, it is likely that the data reported are accurate. EIA tracks the number of natural gas vehicles and the number of refueling stations to provide a cross check on estimates of natural gas consumption.

### Electricity

Electricity powers intercity trains (Amtrak) and intracity rail systems. In addition, the number of electric vehicles is growing. There is considerable uncertainty over the energy consumed by these modes. Amtrak no longer provides national totals of its electricity consumption. Data on intracity transit is based on U.S. Department of Transportation, Federal Transit Administration's (FTA's) National Transit Database (NTD). The legislative requirement for the NTD is found in Title 49 U.S.C. 5335(a). Transit agencies receiving funds through the Urbanized Area Formula Program are generally required to report financial and operating data, including energy use. Although the data is generally considered accurate because FTA reviews and validates information submitted, reliability may vary because some transit agencies cannot obtain accurate information or may misinterpret certain data.

If electric vehicles become important over the next decade or two, dedicated charging stations may become commonplace, which could provide accurate data. Fleet owners (e.g., electric utilities) can keep accurate records, but individuals who plug their vehicles in at home may not. Electricity use must be estimated from the number of such vehicles and the expected driving cycles. Hence, data on electric power for transportation must be viewed as an estimate.

It should also be noted that electricity is a form of work that usually is generated from heat with the loss of about two-thirds of the energy. Automobile engines are equivalent to electric generators in that they convert chemical energy to heat and then to work, losing most of the energy as waste heat. When electrical energy is compared to petroleum in transportation, the waste heat must be included for consistency. A kilowatt-hour of electricity is equivalent to 3,413 British thermal units (Btu), but about 10,000 Btu of heat are required to produce it. This factor is dropping as generators become more efficient. High efficiency gas turbines may require 8,000 Btu or less, but the average is much higher. It is usually impossible to tell where the power for a specific use is generated, so average figures for a region are used to estimate the waste energy, a factor that further reduces the accuracy of the data.

**Alternative Fuels**

In addition to oxygenates, natural gas, and electricity, alternative fuels include ethanol and methanol. EIA tracks the numbers of such vehicles through Form-886, state energy offices, federal demonstration programs, manufacturers, and private associations. These numbers probably are fairly accurate although it is difficult to monitor retirements. Fuel consumption is estimated from the types of vehicles in operation, vehicle miles traveled, and expected fuel efficiency. Adjustments are necessary for the relatively few flexible-fuel vehicles. Obviously, the reported data are estimates only.

# FUEL AND ENERGY CONSUMPTION BY MODE

**TABLE 4-5. Fuel Consumption by Mode of Transportation**

**TABLE 4-6. Energy Consumption by Mode of Transportation**

**TABLE 4-8. Certificated Air Carrier Fuel Consumption and Travel**

**TABLE 4-9. Motor Vehicle Fuel Consumption and Travel**

**TABLE 4-11. Passenger Car and Motorcycle Fuel Consumption and Travel**

**TABLE 4-12. Other 2-Axle 4-Tire Vehicle Fuel Consumption and Travel**

**TABLE 4-13. Single-Unit 2-Axle 6-Tire or More Truck Fuel Consumption and Travel**

**TABLE 4-14. Combination Truck Fuel Consumption and Travel**

**TABLE 4-15. Bus Fuel Consumption and Travel**

Fuel consumption data are collected quite differently than supply data collected by the U.S. Department of Energy, Energy Information Administration (EIA). Highway fuel consumption, for example, is based on U.S. Department of Transportation, Federal Highway Administration (FHWA) data collected from states in the course of revenue collection. EIA starts from the fuel delivered to transportation entities.

**Highway**

Highway fuel data (tables 4-5, 4-9, and 4-11 through 4-15) are collected mainly by FHWA. All states plus the District of Columbia report total fuel sold along with travel by highway category and vehicle registration. Data typically flows from state revenue offices to the state departments of transportation to FHWA. Even if reporting is reasonably accurate, some data are always anomalous or missing and must be modified to fit expected patterns. In addition, as discussed earlier, there are some significant differences in methodology and definitions among the states. In particular, states differ in where the tax is applied in the fuel supply system, how gasohol is counted, how nonhighway use is treated, and how losses are handled.

Nonhighway use of gasoline and diesel fuel is a particularly large source of potential error. Some states designate nonhighway users as tax-exempt, others make the tax refundable. In either case, many people won't bother to apply if the amount of money is small. Nonhighway use of diesel fuel is especially large because many construction and agricultural vehicles are diesel powered. Thus, the fraction of petroleum attributed to transportation could be overestimated. On the other hand, some nonhighway fuel finds its way into the transportation system because heating oil can be used as diesel fuel, evading the tax. Tracers are now added to heating oil, which appears to have reduced the level of such tax evasion-if found in a truck's fuel tank, the tracer indicates diversion from a nontaxed source.

Breaking fuel use down by class of motor vehicle introduces the potential for error. FHWA must estimate the miles each class is driven and the fuel economy. Estimation of miles is based on the 1995 Nationwide Personal Transportation Survey (NPTS), administered by FHWA, and the Vehicle Inventory and Use Survey (formerly known

as the Truck Inventory and Use Survey) conducted by the U.S. Census Bureau. For information about these two surveys, the reader is referred to the technical appendix of *Our Nation's Travel*, available from the FHWA, Office of Highway Information Management; and the 1997 Census of Transportation, available from the Economics and Statistics Administration within the Census Bureau. Fuel economy is based on state-supplied data, TIUS, and the National Highway Traffic Safety Administration data on new car fuel economy, which must be reduced by about 15 percent to reflect actual experience on the road. Overall, both vehicle-miles of travel and fuel economy are estimates.

Fuel consumption by buses is particularly uncertain. FHWA collects data on intercity buses, and the American Public Transit Association (APTA) covers local travel. Very little data are collected on school buses. APTA figures are based on data from the USDOT, Federal Transit Administration's (FTA's) National Transit Database, which covers about 90 to 95 percent of total passenger-miles. These data are generally accurate because FTA reviews and validates information submitted by individual transit agencies. Reliability may vary because some transit agencies cannot obtain accurate information or may misinterpret data. APTA conservatively adjusts the FTA data to include transit operators that do not report to FTA, such as private and very small operators and rural operators. Prior to 1984, APTA did not include most rural and demand responsive systems.

**Air**

The U.S. Department of Transportation, Bureau of Transportation Statistics, Office of Airline Information (OAI) is the source of these data. The numbers are based on 100-percent reporting of fuel use by large certificated air carriers (those with revenues of more than $100 million annually) via Form 41.The data are probably reasonably accurate because the airlines report fuel use regularly, and the limited number of airlines aids data management.

Smaller airlines, such as medium size regional and commuter air carriers, are not required to report energy data. OAI estimates that about 8 percent would have to be added to the total of the larger airlines to account for this use, but that has not been done in table 4-5 or 4-8.

General aviation aircraft and air taxis are covered in the General Aviation and Air Taxi and Avionics Survey, conducted by the Federal Aviation Administration (FAA). The survey is conducted annually and encompasses a stratified, systematic design from a random start to generate a sample of all general aviation aircraft in the United States. It is based on the FAA registry as the sampling frame. For instance, in 2000, a sample of 31,039 aircraft was identified and surveyed from an approximate population of 256,927 registered general aviation aircraft.

The reliability of the GAATA survey can be impacted by two factors: sampling and nonsampling error. A measure, called the standard error, is used to indicate the magnitude of sampling error. Standard errors can be converted for comparability by dividing the standard error by the estimate (derived from the sample survey results) and multiplying it by 100. This quantity, referred to as the percent standard error, totaled two and four-tenths of a percent in 2000 for the general aviation fleet. A large standard error relative to an estimate indicates lack of precision, and inversely, a small standard error indicates precision.

Nonsampling errors could include nonresponse, a respondent's inability or unwillingness to provide correct information, differences in interpretation of questions, and data entry mistakes. The reliability of general aviation fleet data comparisons over time would decrease because of changes implemented in 1978 and sampling errors discussed above. Readers should note that nonresponse bias may be a component of reliability errors in the data from 1980 to 1990. The FAA conducted telephone surveys of nonrespondents in 1977, 1978, and 1979 and found no significant differences or inconsistencies between respondent and nonrespondent replies. The FAA discontinued the telephone survey of nonrespondents in 1980 to save costs. Nonresponse surveys were resumed in 1990; and the FAA found notable differences and make adjustments to its data to reflect nonresponse bias.

The U.S. Government, in particular the Department of Defense (DOD), uses a large amount of jet fuel as shown in table4-19 (see discussion on government consumption below). However, DOD reports all fuel purchased, including from foreign sources for operations abroad. While the data may be accurate, it is not comparable to EIA's overall U.S. supply and consumption figures on jet fuel.

International operations are included in table 4-8 but not table 4-5. The fuel use for international operations includes that purchased by U.S. airlines for return trips. OAI does not collect data on foreign airline purchases of fuel in the United States. Thus, a significant use of U.S. jet fuel is missed. However, these two factors approximately balance each other out. As shown in table 1-34,foreign carrier traffic is just slightly less than U.S. carrier international traffic, so presumably the fuel purchased here by foreign carriers is very close to the fuel purchased abroad by U.S. carriers.

**Rail**

The data are from *Railroad Facts*, published annually by the Association of American Railroads (AAR). AAR figures are based on 100 percent reporting by Class I railroads to the Surface Transportation Board (STB) via Schedule 700 of the *R1 Annual Report*. Thus, the data are considered accurate. STB defines Class I railroads as having operating revenues at or above a threshold indexed to a base of $250 million (1991) and adjusted annually in concert with changes in the Railroad Freight Rate Index published by the Bureau of Labor Statistics. In 2001, the adjusted threshold for Class I railroads was $266.7 million. Although Class I railroads represent only 1 percent of the number of railroads in the country, they account for over 70 percent of the industry's mileage operated and more than 90 percent of all freight revenue; energy consumption should be of the same order. For passenger travel, information is unavailable. Amtrak no longer provides data on a national basis, and the regional data appears to be inconsistent.

**Transit**

The APTA figures are based on information in FTA's National Transit Database. APTA conservatively adjusts FTA data to include transit operators that do not report to the FTA Database (private and very small operators and rural operators), which accounts for about 90 to 95 percent of the total passenger-miles. The data are generally accurate because the FTA reviews and validates information submitted by individual transit agencies. Reliability may vary because some transit agencies cannot obtain accurate information or misinterpret certain data definitions in federal guidelines.

**Water**

The EIA collects data on residual and distillate fuel oils and diesel through its *Annual Fuel Oil and Kerosene Sales Report* survey, form EIA-821.The survey targets companies that sell fuel oil and kerosene to end users. This survey commenced in 1984 and data from previous years should be used with caution.

**Sampling Frame and Design**

The sample's target universe includes all companies that sell fuel oil and kerosene to end users. EIA derives the sampling frame from the EIA-863 database containing identity information for approximately 22,300 fuel oil and kerosene sellers. EIA stratifies the sampling frame into two categories: companies selected with certainty and uncertainty. Those in the certainty category varied but included the end use "vessel bunkering," or sales for the fueling of commercial and private watercraft.

**Sampling Error, Imputation, and Estimates**

EIA reported a 92.5 percent response rate for the 2000 survey. The EIA also provides estimates of the sampling error for geographic areas and U.S. averages are 1.8 for residential distillate fuel oil, 0.8 for nonresidential retail distillate fuel oil, and 0.1 for retail residual fuel oil. Some firms inevitably ignore survey requests, causing data gaps. EIA estimates the volumes of these firm's sales by imputation; more detailed information and the algorithm can be obtained at EIA's web site in the technical notes for the Annual Fuel Oil and Kerosene Sales Report. See http://www.eia.doe.gov/oil gas/petroleum/data publications/fuel oil and kerosene sales/foks.html.

**TABLE 4-19. U.S. Government Energy Consumption by Agency and Source**

Energy consumption data are collected by DOE's Office of Federal Energy Management Programs in cooperation with most departments and agencies. DOD is by far the largest consumer, accounting for about 80 percent of the total. As discussed above, the data includes fuel purchased abroad for military bases. Since government agencies are required to report these data, they are probably accurate. However, it is possible that some consumption is missed. For example, some agencies may report only fuel supplied directly, missing consumption such as gasoline purchased by employees while on government business for which they are then reimbursed. In addition, smaller agencies were neglected. Overall, however, the data should provide a fairly good approximation of government energy consumption.

# ENERGY EFFICIENCY

**TABLE 4-20. Energy Intensity of Passenger Modes**

**TABLE 4-21. Energy Intensity of Certificated Air Carriers, All Services**

**TABLE 4-22. Energy Intensity of Passenger Cars, Other 2-Axle 4-Tire Vehicles, and Motorcycles**

**TABLE 4-24. Energy Intensity of Transit Motor Buses**

**TABLE 4-25. Energy Intensity of Class I Railroad Freight Service**

**TABLE 4-26. Energy Intensity of Amtrak Service**

**TABLE 4-27. Energy Intensity of Amtrak Service (Loss-adjusted conversion factors)**

Total energy consumed for each mode can be estimated with reasonable accuracy. Miles traveled are known for some modes, such as air carriers, but less accurately for others, most notably automobiles. When the numbers of passengers or tons are required to calculate energy efficiency, another uncertainty is introduced. Again, air carriers and intercity buses know how many passengers are on board and how far they travel, but only estimates are available for automobiles and intracity buses.

Thus, table 4-21 should be quite accurate for certificated air carriers, though it is missing small airlines and private aircraft. Table 4-22 is based on FHWA fuel tax data, derived from state fuel tax revenues. VMT is as discussed for tables 1-9 and 1-10.Data for motorcycles must be adjusted significantly more than for automobiles because less information is collected from the states or from surveys. Transit bus data (table 4-24) are very uncertain because, unlike intercity buses, the distance each passenger travels is not measured by ticket sales.

The intermodal comparison of passenger travel in table 4-20 must be viewed with considerable caution. Data for the different modes are collected in different ways, and the preparation of the final results is based on different assumptions. As noted above, airlines accurately record passenger miles, but the data on occupancy of private automobiles must be estimated from surveys. Even relatively certain data, such as state sales of gasoline, must be modified to resolve anomalies, and transit data are even harder to make consistent. Furthermore, different groups collect the data for the various modes, and they have different needs, assumptions, and methodologies. Thus, the comparisons are only approximate.

Freight service data (table 4-25) are from *Railroad Facts*, published annually by the Association of American Railroads (AAR).AAR figures are based on 100 percent reporting by Class I railroads to the Surface Transportation Board (STB) via Schedule 700 of the *R1 Annual Report*. STB defines Class I railroads as having operating revenues at or above a threshold indexed to a base of $250 million (1991) and adjusted annually in concert with changes in the Railroad Freight Rate Index published by the Bureau of Labor Statistics. In 2000, the adjusted threshold for Class I railroads was $ 261.9 million. Although Class I railroads comprise only 1 percent of the number of railroads in the country, they account for over 71 percent of the industry's mileage and 91 percent of all freight revenue; energy data should be of the same order.

**TABLE 4-28. Annual Wasted Fuel Due to Congestion**

**TABLE 4-29. Wasted Fuel per Eligible Driver**

The Texas Transportation Institute's (TTI) *Urban Roadway Congestion Annual Report* provided figures for tables 4-27 and 4-28. TTI relies on data from the U.S. Department of Transportation, Federal Highway Administration, Highway Performance Monitoring System database (HPMS). (See box 1-1 for detailed information about the HPMS.) TTI utilizes these data as inputs for its congestion estimation model. Detailed documentation for the TTI model and estimations can be found at http://mobility.tamu.edu/.

The sum of fuel wasted in typical congestion (recurring delay) and incident related delays equal the annual wasted fuel for an urban area. Recurring delay is the product of recurring delay (annual hours in moderate, heavy, and severe delays) and average peak period system speed divided by average fuel economy. Incident delay hours are

multiplied by the average peak period system speed and divided by the average fuel economy to produce the amount of incident fuel wasted.

**Structure, Assumptions, and Parameters**

Urban roadway congestion levels are estimated using a formula measuring traffic density. Average daily travel volume per lane on freeways and principal arterial streets are estimated using area wide estimates of vehicle-miles of travel and lane miles of roadway. The resulting ratios are combined using the amount of travel on each portion of the system (freeway and principal arterials) so that the combined index measures conditions overall. This variable weighting factor allows comparisons between areas such as Phoenix-where principal arterial streets carry 50 percent of the amount of travel of freeways-and cities such as Phoenix where the ratio is reversed. Values greater than one are indicative of undesirable congestion levels. Readers seeking the algorithm for the congestion index should examine http://mobility.tamu.edu/.

In previous reports, TTI assumed that 45 percent of all traffic, regardless of the urban location, occurred in congested conditions. TTI indicated that this presumption overestimated travel in congested periods. Its 2002 estimates now vary by urban area anywhere from 18 to 50 percent of travel that occurs in congestion. TTI's model structure applies to two types of roads: freeways and principal arterial streets. The model derives estimates of vehicle traffic per lane and traffic speed for an entire urban area. Based on variation in these amounts, travel is then classified under 5 categories: uncongested, moderately congested, heavily congested, severely congested, and extremely congested (a new category in 1999). The threshold between uncongested and congested was changed in 1999. Previous editions classified congested travel when area wide traffic levels reached 14,000 vehicles per lane per day on highways and 5,500 vehicles per lane per day on principal arterial streets. For the current edition these values are 15,500 and 5,500 vehicles per lane per day respectively. Previous years values have been re-estimated based on these new assumptions. Readers should refer to the TTI website for more detailed information on its estimation procedures http://mobility.tamu.edu/.

TTI reviews and adjusts the data used in its model, including statewide average fuel cost estimates (published by the American Automobile Association) and the number of eligible drivers for each urban area (taken from the Statistical Abstract of the United States, published by the U.S. Department of Commerce, Bureau of the Census).The model has some limitations because it does not include local variations (such as bottlenecks, local travel patterns, or transportation improvements) that affect travel times. TTI documentation does not provide information on peer-review, sensitivity analysis, or estimation errors for their model. Information about sensitivity analysis or external reviews of the model could not be obtained and users should interpret the data cautiously.

# ENVIRONMENT

**TABLE 4-43. Estimated National Average Vehicle Emissions Rates by Vehicle Type and Fuel**

**TABLE 4-44. National Average Vehicle Emissions Rates by Vehicle Type Using Reformulated Gasoline**

The U.S. Environmental Protection Agency uses its Mobile Source Emissions Factor Model (MOBILE) to generate average emissions factors for each vehicle and fuel type. The methods used in the model are theoretically sound, the assumptions are reasonable, but the data vary in quality, and no formal analysis of the accuracy of these estimates has been performed. Emissions rate estimates for light-duty vehicles are considered more reliable than those for heavy-duty vehicles because in-use emissions tests are performed on a sample of vehicles each year. Deterioration for heavy-duty vehicles in the national fleet are based only on manufacturer's engine deterioration tests. In addition, because reformulated fuels (table 4-39) are newer than other gasoline fuels (table 4-38), in use emissions test data for reformulated fuels are not as extensive.

The estimates in the tables represent average emissions rates taking into account the characteristics of the nation's fleet, including vehicle type and age, and fuel used. The model also assumes Federal Test Procedure conditions. The model does not take into account actual travel distributions across different highway types with their associated average speeds and operating mode fractions, nor do they consider ambient local temperatures. However, fleet composition and deterioration because of age are considered. Thus, these rates illustrate only trends due to vehicle emissions control improvements and their increasing use in the national fleet and should not be used for other purposes.

**TABLES 4-45, 4-46, 4-47, 4-48, 4-49, 4-50. Estimates of National Emissions of Carbon Monoxide, Nitrogen Oxides, Volatile Organic Compounds, Particular Matter, Sulfur Dioxide**

Emissions by sector and source are estimated using various models and calculation techniques and are based on a number of assumptions and on data that vary in precision and reliability. The methods used are theoretically sound, the assumptions are reasonable, but the data vary in quality, and no formal analysis of the accuracy of these estimates has been performed.

**Carbon Monoxide (CO), Nitrogen Oxides (NOx), and Volatile Organic Compounds (VOCs)**

Highway vehicle emissions of CO, NOx, and VOC are generated by the U.S. Environmental Protection Agency's (EPA's) Mobile Source Emissions Factor Model (MOBILE), which uses per-mile vehicle emissions factors and vehicle travel (vehicle-miles) to calculate county-level emissions. Emissions rates are then adjusted based on fuel characteristics, vehicle fleet composition, emissions control measures, average vehicle speed, and other factors that can affect emissions. (Emissions rates used in MOBILE are based on vehicle certification tests, emissions standards, and in-use vehicle tests and are updated approximately every three years.) The U.S. Department of Transportation, Federal Highway Administration's Highway Performance Monitoring System is the source of vehicle travel estimates used in the model. Although the methodology for this survey data is sound and well documented, analyses have shown that individual states vary in how rigorously they follow the established sampling guidelines.

The non-highway vehicle emissions are calculated annually by running EPA's NONROAD model for all categories except aircraft, commercial marine vessels, and railroads, which are calculated via emission factors and relevant activity data. Inputs to the NONROAD model include average temperatures, Reid vapor pressure, fuel usage programs and controls.

**Particulate Matter Under 10 Microns (PM-10) and 2.5 Microns (PM-2.5) in Size**

Highway vehicle emissions are estimated using the U.S. Environments Protection Agency's PART model, which estimates emissions factors for exhaust emissions and brake and tire wear by vehicle type. Exhaust emissions factors are based on certification tests, while brake wear (per vehicle) and tire wear (per tire) are assumed values, which are constant over all years. Per-mile emissions factors are multiplied by vehicle travel (vehicle-miles) and adjusted to account for other factors that effect exhaust emissions (e.g., fuel composition, weather, etc.). The U.S. Department of Transportation, Federal Highway Administration's Highway Performance Monitoring System is the source of vehicle-miles of travel (VMT) estimates used in the model. While the methodology for this survey data is sound and well documented, analyses have shown that individual states vary in how rigorously they follow the established sampling guidelines.

Fugitive dust estimates for paved and unpaved roads are calculated by multiplying VMT on each type of road by emissions factors for each vehicle type and road type.

The non-highway vehicle emissions are calculated annually by running EPA's NONROAD model for all categories except aircraft, commercial marine vessels, and railroads, which are calculated via emission factors and relevant activity data. Inputs to the NONROAD model include average temperatures, Reid vapor pressure, fuel usage programs and controls.

**Sulfur Dioxide (SO2)**

Highway vehicle SO2 emissions are estimated by multiplying vehicle travel (for each vehicle type and highway type) by an emissions factor reflecting each vehicle type and highway type. Highway SO2 emissions factors are based on vehicle type and model year, sulfur content of fuel by type and year, fuel density by fuel type, and vehicle fuel efficiency by type and model year.

In general, estimates for non-highway vehicles are calculated based on fuel consumption and sulfur content of fuel, though other factors may be considered.

**Lead**

In general, lead emissions are estimated by multiplying an activity level by an emissions factor that represents the rate at which lead is emitted for the given source category. This estimate is then adjusted by a factor that represents the assumed effectiveness of control technologies. For lead released during combustion, a top-down approach is used to share national estimates of fuel consumption by fuel type to each consumption category (e.g., motor fuel, electric utility, etc.) and, subsequently, each source (e.g., passenger cars, light-duty trucks, etc.).

**TABLE 4-51. Air Pollution Trends in Selected Metropolitan Statistical Areas (MSAs)**

**TABLE 4-52. Areas in Nonattainment of National Ambient Air Quality Standards for Criteria Pollutants**

The U.S. Environmental Protection Agency measures concentrations of pollutants in the ambient air at its air quality monitoring sites, which are operated by state and local agencies. These sites conform to uniform criteria for monitor siting, instrumentation, and quality assurance, and each site is weighted equally in calculating the composite average trend statistics. Furthermore, trend sites must have complete data for 8 of the 10 years in the trend time period to be included. However, monitoring devices are placed in areas most likely to observe significant concentrations of air pollutants rather than a random sampling of sites throughout the nation.

**TABLE 4-53. U.S. Carbon Dioxide Emissions from Energy Use by Sector**

The combustion of fossil fuels, such as coal, petroleum, and natural gas, is the principal anthropogenic (human caused) source of carbon dioxide (CO2) emissions. Since fossil fuels are typically 75 percent to 90 percent carbon by weight, emissions from the combustion of these fuels can be easily measured in carbon units, as is shown in the table.

CO2 emissions data are derived from estimates. The U.S. Department of Energy, Energy Information Administration (EIA), estimates CO2emissions by multiplying energy consumption for each fuel type by its carbon emissions coefficient, then subtracting carbon that is sequestered by nonfuel use of fossil fuels. Carbon emissions coefficients are values used for scaling emissions to specific activities (e.g., pounds of CO2emitted per barrel of oil consumed).

Emissions estimates are based on energy consumption data collected and published by EIA Several small adjustments are made to its energy consumption data to eliminate double counting or miscounting of emissions. For example, EIA subtracts the carbon in ethanol from transportation gasoline consumption because of its biological origin.

Emissions coefficients are based on the density, carbon content, and heat content of petroleum products. For many fuels, except liquefied petroleum gas (LPG), jet fuel, and crude oil, EIA assumed coefficients to be constant over time. For LPG, jet fuel, and crude oil, EIA annualized carbon emissions coefficients to reflect changes in chemical composition or product mix.

Since the combustion of fossil fuels is a major producer of CO2emissions, sources of uncertainty are related to: 1) volumes of fuel consumed; 2) characteristics of fuel consumed; 3) emissions coefficients; and 4) coverage. EIA notes that volumetric fuel data are fairly reliable in the 3 percent to 5 percent range of uncertainty. The density and energy content of fuels are usually estimated. According to EIA, the reliability of these estimates vary. For example, estimates of the energy content of natural gas are reliable to 0.5 percent, while estimates for coal and petroleum products are lower because they are more heterogeneous fuels. The reliability of emissions coefficients depends on whether the characteristics of a fuel are difficult to measure accurately. Finally, uncertainties may result because data may be excluded or unknown sources of emissions not included.

EIA's estimation methods, emissions coefficients, and the reliability of emissions estimates are discussed in detail in U.S. Department of Energy, Energy Information Administration, *Emissions of Greenhouse Gases in the United States*, 1998 available on: www.eia.doe.gov/oiaf/1605/ggrpt/index.html.

**TABLE 4-54. Petroleum Oil Spills Impacting U.S. Waterways**

The U. S. Coast Guard's (USCG) Marine Safety Information System (MSIS) is the source of these data. It includes data on all oil spills impacting U.S. navigable waters and the Coastal Zone. The USCG learns of spills through direct observation, reports from responsible parties and third parties. Responsible parties are required by law to report spills to the National Response Center (NRC).Reports may be made to the USCG or Environmental Protection Agency pre-

designated On Scene Coordinator for the geographic area where the discharge occurs if direct reporting to the NRC is not practicable. There is no standard format for these reports, but responsible personnel face significant penalties for failing to do so. Most reports are made by telephone, and USCG personnel complete investigations based on the information provided. The type and extent of an investigation conducted varies depending on the type and quantity of the material spilled. Each investigation will determine as closely as possible source of the pollutant, the quantity of the material spilled, the cause of the accident, as well as whether there is evidence that any failure of material (either physical or design) was involved or contributed to the incident. These are so financial responsibility may be properly assigned for the incidents, as well as proper recommendations for the prevention of the recurrence of similar incidents may be made.

Some spills may not be entered into MSIS because they are either not reported to or discovered by the USCG. The probability of a spill not being reported is inversely proportional to its size. Large spills impact a large area and a large number of people, resulting in numerous reports of such spills. Small spills are less likely to be reported, particularly if they occur at night or in remote areas where persons other than the responsible party are unlikely to detect them. Responsible parties are required by law to report spills and face penalties for failing to do so, providing a strong incentive to report spills that might be detected by others. Experience with harbor patrols shows that the number of spills increases as the frequency of patrols increases. However, the volume of material spilled does not increase significantly, indicating that the spills discovered through increased harbor patrols generally involved very small quantities.

**Data Collection**

From 1973 to 1985, data were collected on forms completed by the investigator and later entered into the Pollution Incident Reporting System (PIRS) by data entry clerks at USCG headquarters. Since 1985, data have been entered directly into MSIS by the investigator. From 1985 to 1991, data were entered into a specific electronic form that captured information on the spilled substance and pollution response actions. Since 1995, a growing number of reports of pollution incidents of 100 gallons or less of oil have been captured on a Notice of Violation ticket form, which are then entered into MSIS.

The information shown in this table comes from the USCG Spill Compendium, which contains spill data from the applications described above. The Compendium contains summary data from 1969 through 2000 and is intended to provide general information to the public, the maritime industry and other interested persons about spills in and around U.S. waterways. For more information about spill data, please refer to the USCG Internet site at http://www.uscg.mil/hq/g-m/nmc/response/stats/aa.htm

**Nonsampling Errors**

According to the USCG, nonsampling errors, such as nonreporting and mistakes made in data collection and entry, should not have a major impact on most interpretations of the data, but the impact will vary depending on the data used. The error rate for volume spilled is estimated to be less than 5 percent because larger spills, which account for most of the volume of oil spilled, are thoroughly reviewed at several levels. The error rate for the number of spills is difficult to estimate primarily due to low reporting rates for small spills. Most of the error in spill counts involves spills of less than 100 gallons.

**TABLE 4-55. Leaking Underground Storage Tank Releases and Cleanups**

A national inventory of reported spills and corrective actions taken for leaking underground storage tanks is compiled biannually based on state counts of leaking tanks reported by owners as required by the Resource Conservation and Recovery Act of 1976.[1] These data may be affected by general accounting errors, some of which have changed semiannual counts by as many as 2,000 actions.

**TABLE 4-56. Highway Noise Barrier Construction**

State highway agencies (SHAs) provide data on highway noise barrier construction, extent, and costs to the U.S. Department of Transportation, Federal Highway Administration. Individual SHA definitions of barriers and costs may differ. This could lead to nonuniformity and/or anomalies among state data, which will in turn affect national totals.

**TABLE 4-57. Number of People Residing in High-Noise Areas Around U.S. Airports**

The number of the people exposed to aircraft noise around airports is estimated by computer modeling rather than by actual measurements. The U.S. Department of Transportation (USDOT), Federal Aviation Administration's (FAA's) Integrated Noise Model (INM) has been the primary tool for assessing aircraft noise around airports for nearly 30 years. This model uses information on aircraft mix, average daily operations, flight tracks, and runway distribution to generate and plot contours of Day Night Sound Level (DNL).With the addition of a digitized population census database, the model can estimate the number of residents exposed to noise levels of 65 decibels (db) DNL.

The U.S. Environmental Protection Agency (EPA) produced the first estimate of airport noise exposure in 1975.It reported that 7 million residents were exposed to significant levels of aircraft noise in 1978.This number became the "anchor point" for all future estimates of the nationwide noise impacts. In 1980, FAA developed another methodology for estimating the change in the number of people impacted by noise (from the 1975 anchor value) as a function of changes in both the national fleet and in the FAA's Terminal Area Forecast (TAF). In 1990, the FAA created an improved method of estimating the change in number of people impacted (relative to the 1980 estimates).

In 1993, the FAA began using its newly developed Nationwide Airport Noise Impact Model (NANIM) to estimate the impact of airplane noise on residential communities surrounding U.S. airports that support jet operations. FAA uses this model to determine the relative changes in number of people and land area exposed to 65 db DNL as a result of changes in nationwide aircraft fleet mix and operations. NANIM uses data on air traffic patterns found in the Official Airline Guide (OAG), air traffic growth projections found in FAA's TAF, population figures from the U.S. Census Bureau, and information on noise contour areas for the top 250 U.S. civil airports with jet operations.

The methodology used in NANIM has been peer reviewed and approved. However, a formal evaluation of the model's accuracy has not been conducted. Some data used in NANIM are updated manually, thus the possibility of data entry errors does exist. Entries are reviewed and then corrected as appropriate. The aircraft mix and operations files from FAA's TAF and OAG are updated automatically. Changes to either of the sources could introduce errors. For example, it was recently discovered that OAG redefined some aircraft codes and altered some data fields in its database. These changes make it impossible for the NANIM utility program to accurately read the current OAG database. A rewrite of the source code is necessary to eliminate this error. Also, since airport authorities are not required to produce noise exposure maps and reports unless they intend to apply for Federal grants, 14 of the 50 busiest commercial airports, including JFK and LaGuardia, have not produced (for public consumption) noise exposure maps in several years. In the absence of actual data, the NANIM database contains approximations of the noise contours areas based on airports of similar size and similar operation. Without actual airport data, it is impossible to quantify the error introduced by the approximation.

The number of people exposed to aircraft noise for 1998 through 2001 was estimated by the FAA's latest version of its MAGENTA model. This new, more accurate model is based on 2000 census data and uses input data on aircraft and operations specific to U.S. airports. This revised model also uses the FAA Terminal Forecast (TAF), which provides information on how operations will increase on an airport specific basis. Updated monthly, the TAF allows a more accurate forecast of U.S. operations.

**TABLE 4-58. Motor Vehicles Scrapped**

The Polk Company's Vehicles in Operation database is the source of these data. This database is a census of vehicles that are currently registered in all states within the United States. It is based on information from state department of motor vehicles. Polk updates the database quarterly (March, June, September, and December).

Scrapped vehicles are those that Polk removes from its database when: 1) States indicate registered vehicles have suffered major damage (such as a flood or accident), or 2) No renewal (reregistration) notice is received by Polk within a state's allotted time (normally one year). In the latter case, if a vehicle is subsequently reregistered, it is returned to the database. The Polk data on motor vehicles is broken down into passenger cars and trucks, and this identification comes with the registration data from the DMV.

# REFERENCES

U.S. Department of Energy, Energy Information Administration. 1994. *Accuracy of Petroleum Supply Data*. Tammy G. Heppner and Carol L. French, eds.Washington, DC.

U.S. Department of Energy, Energy Information Administration. 1990. *Energy Consumption by End-Use Sector, A Comparison of Measures by Consumption and Supply Surveys*, DOE/EIA-0533.Washington, DC.

U.S. Environmental Protection Agency, Office of Mobile Sources. 1998.*MOBILE5 Information Sheet #7: NOx Benefits of Reformulated Gasoline Using MOBILE5a*. Ann Arbor, MI. September 30.

U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards.1998.*National Air Pollutant Emission Trends, Procedure Document, 1900-1996*. EPA-454/R-98-008.Research Triangle Park, NC.May.

U.S. Environmental Protection Agency, Office of Mobile Sources. 1996.Memorandum on Release of MOBILE5b.(Revised Chapter 2 for the Users Guide to MOBILE5).October 11.

U.S. Environmental Protection Agency, Office of Air Quality and Standards, Emission Factor and Inventory Group.1995.*Compilation of Air Pollutant Emission Factors AP-42, Volume II: Mobile Sources*. Appendix H. Fifth ed.June 30.

U.S. Environmental Protection Agency, Office of Mobile Sources (OMS). 1995. Draft User's Guide to PART5: *A Program for Calculating Particle Emissions from Motor Vehicles*, EPA-AA-AQAB-94-2.Ann Arbor, MI.February.

U.S. EPA, Office of Mobile Sources.1994. *Users Guide to MOBILE5 (Mobile Source Emission Factor Model*),EPA-AA-TEB-94-01.Ann Arbor, MI.May.

U.S. Environmental Protection Agency, Office of Air and Radiation. 1992. *Procedures for Emission Inventory Preparation, Volume IV: Mobile Sources*, EPA-450/4-81-026d (Revised).

[1] Public Law 94-580, 90 Stat. 2795 (October 21, 1976).