RITA *Bureau of Transportation Statistics*

Transportation Statistics Annual Report





TSAR 2010

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

RITA *Bureau of Transportation Statistics*

Transportation Statistics Annual Report

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Preface

The Bureau of Transportation Statistics (BTS) of the Research and Innovative Technology Administration (RITA) has a legislative mandate to report transportation statistics. This *Transportation Statistics Annual Report* is the 16th such report prepared in response to this requirement. The report focuses on transportation indicators pertinent to key initiatives of the U.S. Department of Transportation and the topics specified in this mandate. In addition, BTS highlights efforts to improve transportation statistics.

BTS's *National Transportation Statistics* (NTS), an online companion publication to this annual report, has more comprehensive and longer time-series data than could be accommodated within this publication. NTS comprises more than 260 data tables, plus citations for its data sources, a list of acronyms, and a glossary. NTS, which BTS updates quarterly, is available at http://www.bts.gov/publications/national_transportation_statistics/.

Summary

The *Transportation Statistics Annual Report* (TSAR) presents data and information compiled by the Bureau of Transportation Statistics (BTS), a component of the U.S. Department of Transportation's (USDOT's) Research and Innovative Technology Administration (RITA), to fulfill its legislative mandate. The RITA/BTS mandate covers all modes of transportation and calls for the collection and analysis of transportation data on topics relevant to USDOT's strategic goals.[1]

BTS serves as the lead Federal statistical agency for transportation data and statistics. BTS coordinates efforts with the USDOT administrations[2] to monitor the U.S. transportation system's performance and its impacts. In addition, BTS works closely with other Federal statistical agencies, State and local governments, local transit agencies, trade associations, and the transportation industry.

The *Annual Highlights* section focuses on recent USDOT efforts to collect, compile, analyze, and publish transportation data and analysis. Such efforts include the following:

- the Survey of State Funding for Public Transportation,
- Livable Communities and Environmental Sustainability highlights from the Omnibus Household Survey, and
- Commodity Flow Survey (CFS) data and analysis on Hazardous Materials (Hazmat) shipments.[3]

In addition, this section reviews commercial aviation and the airline industry reported by BTS through its Office of Airline Information (OAI).

BTS has organized chapters in the *U.S. Transportation System* section by the topics relevant to the USDOT's strategic goals, including: promoting safety, building livable communities, improving the state of good repair, fostering economic competitiveness, and supporting environmental sustainability of the U.S. transportation system.

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[1] U.S. Department of Transportation, Research and Innovative Technology Administration, *Research Activities of the Department of Transportation: A Report to Congress* (March 2005), which is available at http://www.rita.dot.gov/publications/research_activities_of_the_department_of_transportation_a_report_to_congress/ as of August 2010.

[2] For additional information on the USDOT administration's roles and responsibilities, please visit the USDOT agencies webpage at http://www.dot.gov/dotagencies.htm as of January 2011.

[3] The Commodity Flow Survey is a source of domestic freight shipments by establishments in the mining, manufacturing, wholesale, auxiliaries, and selected retail industries. The CFS provides data on the types, origins and destinations, values, weights, mode of transportation, distance, and ton-miles of the commodities shipped. The CFS is a survey given to shippers every 5 years as part of the Economic Census. The CFS was conducted in 1993, 1997, 2002, and, most recently, 2007.

In the *Improving Transportation Statistics* section, BTS documents the methods used to obtain the report's statistical information, ensure its quality, and make recommendations for improving transportation statistics. The major BTS program areas respond to this requirement by identifying the guidelines that apply to Federal data quality and the statistics included in this report. In this section, BTS lists the select Federal agencies that collect or compile transportation data and statistics. In addition, this section focuses on data gaps and improving methods for collecting, compiling, analyzing, and publishing transportation statistics.

Appendix A provides a snapshot of the U.S. demographics factors—such as population, labor force, and economic conditions—that influence travel patterns and movement of goods. Appendix B includes a list of acronyms, abbreviations, and initialisms used throughout the report. Appendix C provides a glossary. Appendix D cross-references the topics specified in our legislative mandate with the figures and tables presented in this report. Appendix E provides a list of the data and statistics found in the online *National Transportation Statistics*. Appendix F provides a list of the figures and data tables provided by the online *Key Transportation Indicators*.

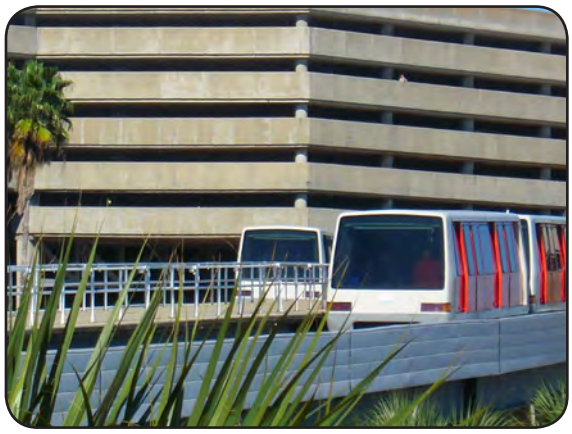
Table of Contents

APPENDICES

Chapter

1

Annual Highlights



Matthew Chambers

2010 Survey of State Funding for Public Transportation

Over the last decade, the Bureau of Transportation Statistics (BTS) in coordination with the American Association of State Highway and Transportation Officials (AASHTO) has conducted the annual *Survey of State Funding for Public Transportation*. The latest survey conducted in 2009 and 2010, reflects fiscal year (FY) 2008 expenditures for each State. The resulting annual report provides a snapshot of State-by-State investment in public transportation from Federal, State, and local funding sources.

Historical funding patterns demonstrate the important role that state departments of transportation fulfill in public transportation finance and administration. Results from the most recent survey demonstrate that, overall, State and local governments are committing over half the funding for the Nation's public transportation. States spent approximately $12.3 billion on transit in FY 2008, including capital or operating expenditures, which is an increase of $4.8 billion over the FY 2000 level of $7.5 billion. Table A-1: *State Funding for Public Transportation: Select Fiscal Years since 2000* illustrates the historical amounts of spending for each State.

The National Transportation Library circulates the final report on the *Survey of State Funding for Public Transportation*, which is available for download at http://ntl.bts.gov/lib/34000/34800/34820/Final_2010__FY_2008_data__ssfp.pdf.

TABLE A-1 State Funding for Public Transportation: Select Fiscal Years Since 2000

Thousands

State	2000	2005	2006	2007	2008
Alabama	$0	$0	$0	$0	$0
Alaska	$0	$59,850	$80,830	$91,359	$86,815
Arizona	$329	$20,068	$18,042	$10,142	$11,780
Arkansas	$0	$2,800	$3,278	$4,252	$4,515
California	$1,344,779	$1,399,800	$2,208,814	$3,110,691	$2,299,579
Colorado	$0	$0	$21,800	$0	$23,048
Connecticut	$163,266	$206,441	$225,605	$876,357	$267,500
Delaware	$35,685	$72,600	$67,180	$72,963	$86,233
District of Columbia	NR	$212,050	$212,147	$250,869	$272,724
Florida	$92,724	$149,738	$176,392	$174,807	$146,339
Georgia	$306,393	$8,223	$4,696	$6,025	$6,141
Hawaii	$0	$0	$0	$0	$0
Idaho	$136	$312	$312	$312	$312
Illinois	$467,622	$445,600	$489,200	$498,900	$519,300
Indiana	$29,201	$37,047	$40,214	$42,695	$55,733
Iowa	$10,411	$10,140	$10,843	$10,841	$13,281
Kansas	$6,000	$6,000	$6,000	$6,000	$5,762
Kentucky	NR	$1,400	$1,700	$3,709	$3,502
Louisiana	NR	$4,963	$4,963	$0	$5,963
Maine	$420	$1,555	$505	$4,503	$1,528
Maryland	$273,844	$727,433	$811,485	$749,371	$844,417
Massachusetts	$771,356	$1,197,138	$1,217,791	$1,351,917	$1,182,785
Michigan	$187,198	$195,149	$200,984	$200,661	$200,087
Minnesota	$80,289	$254,527	$295,853	$237,023	$339,925
Mississippi	$115	$800	$1,600	$1,600	$1,600
Missouri	$17,029	$6,600	$6,800	$7,019	$6,922
Montana	$75	$415	$741	$818	$415
Nebraska	$1,539	$1,500	$1,500	$2,900	$2,900
Nevada	NR	$95	$92	$125	$0
New Hampshire	$0	$225	$588	$1,530	$4,474
New Jersey	$509,237	$910,584	$847,052	$1,008,130	$1,035,472
New Mexico	$0	$2,830	$35,650	$56,478	$9,297
New York	$1,926,571	$2,169,005	$2,573,088	$2,887,985	$3,015,442
North Carolina	$38,247	$111,725	$66,466	$75,866	$73,466
North Dakota	$1,666	$2,204	$2,204	$2,900	$2,900
Ohio	$42,348	$18,300	$16,300	$16,450	$15,817
Oklahoma	$3,530	$3,250	$3,250	$5,750	$5,750
Oregon	$15,553	$26,141	$35,984	$74,093	$39,921
Pennsylvania	$731,800	$835,223	$822,826	$860,963	$1,145,567
Rhode Island	$36,822	$34,848	$47,183	$49,214	$47,338
South Carolina	$4,234	$5,943	$7,400	$6,400	$6,400
South Dakota	$397	$1,891	$750	$750	$770
Tennessee	$22,291	$34,196	$38,050	$38,310	$41,537
Texas	$27,945	$29,741	$28,741	$28,741	$28,741
Utah	$0	$0	$0	$0	$0
Vermont	NR	$6,267	$5,747	$6,167	$5,899
Virginia	$163,959	$157,600	$267,556	$184,418	$228,966
Washington	$84,456	$30,423	$39,339	$42,439	$39,752
West Virginia	$1,395	$2,258	$2,258	$2,523	$3,023
Wisconsin	$100,448	$109,438	$113,412	$119,134	$125,180
Wyoming	NR	$2,956	$2,388	$2,294	$2,496
Total	$7,499,314	$9,517,291	$11,065,598	$13,186,394	$12,267,312

KEY: NR = No response.

SOURCE: American Association for State Highway and Transportation Officials (AASHTO), *Final Report 2010: Survey of State Funding for Public Transportation*, July 2010.

Chester Ford

Livable Communities and Environmental Sustainability

The Bureau of Transportation Statistics (BTS) has been actively involved in various efforts to support the U.S. Department of Transportation's (USDOT's) new strategic goals of *Livable Communities* and *Environmental Sustainability*, as well as providing support for the *U. S. Department of Transportation - U.S. Department of Housing and Urban Development - Environmental Protection Agency Partnership for Sustainable Communities* (established in June 2009). BTS assists with collecting, analyzing, and reporting key data and statistics that support national and local efforts to improve livability.

BTS created a Livability Program page on its website, available at http://www.bts.gov/programs/livability, to identify numerous resources of potential interest to policymakers and transportation planners in their efforts to better understand, assess, and evaluate transportation's role in creating livable communities. The USDOT has also established a departmental Livability website providing a wealth of information on departmental initiatives and accomplishments, grants and programs, case studies, recent publications and news stories, contacts, and other relevant material. This website is available at http://www.dot.gov/livability.

BTS annually conducts the Omnibus Household Survey (OHS) to gather information on the public's satisfaction with various topical aspects of the Nation's transportation system. As part of the 2009 OHS, BTS asked survey respondents to report the importance of several transportation-related neighborhood features

thought to contribute to livable communities. Specific features included:

- sidewalks, paths, or other safe walking routes to shopping, work, or schools;
- bike lanes or paths to shopping, work, or schools;
- reliable local bus, rail, or ferry transportation that can be reached without driving;
- reliable long-distance bus or train transportation to and from major metropolitan areas;
- major roads or highways that access and serve your community; and
- adequate parking in the downtown or central business district.

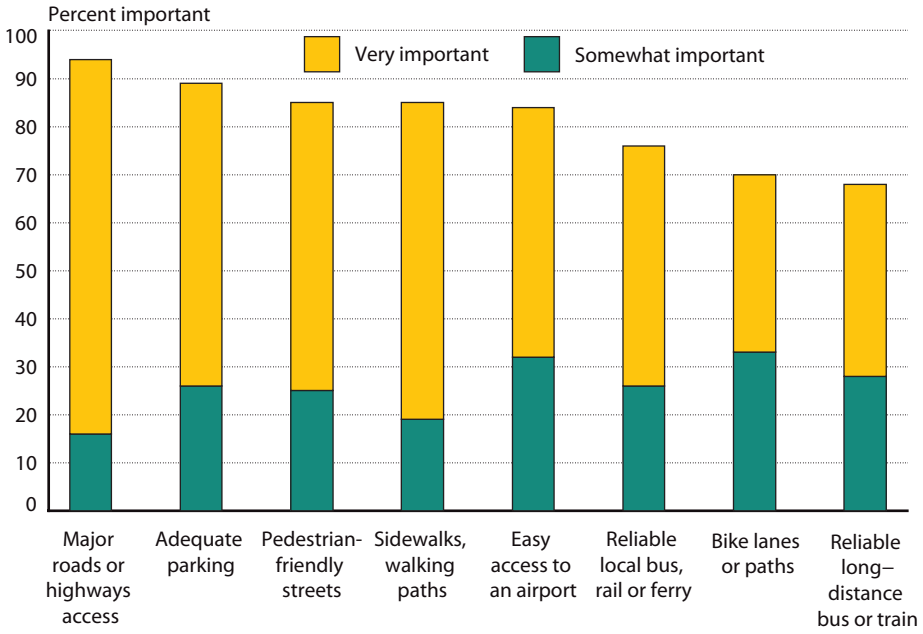
Figure A-2, *Importance of Community Transportation Options: 2009 Omnibus Household Survey*, illustrates the relative importance of ratings as reported by respondents from the 2009 OHS.

For the complete report, please visit the Household Survey website at http://www.bts.gov/programs/omnibus_surveys/household_survey/.

In addition, the Research and Innovative Technology Administration's University Transportation Center program, along with the Transportation Research Board, hosted the *Transportation Systems for Livable Communities* conference on October 18-19, 2010, in Washington, D.C. This conference brought together a diverse group of researchers and practitioners to discuss and share issues and challenges, projects, and research results, and identify new directions for future research.

The chapters on *Livable Communities* and *Environmental Sustainability* in this report present additional information on this important topic.

FIGURE A-2 Importance of Community Transportation Features: 2009 Omnibus Household Survey



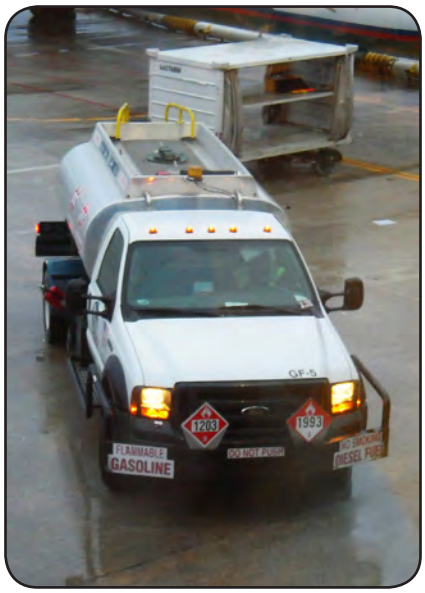
SOURCE: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *2009 Omnibus Household Survey* (October 2009), available at http://www.bts.gov/programs/omnibus_surveys/household_survey/2009/october/html/appendix_d.html as of Oct. 29, 2010.

TABLE A-2 Importance of Community Transportation Features: 2009 Omnibus Household Survey

Percent

How important each transportation option is to have in your community:	Somewhat important	Very important	Total, either somewhat or very important
Major roads or highways access	16	78	94
Adequate parking	26	63	89
Pedestrian-friendly streets	25	60	85
Side walks, walking paths	19	66	85
Easy access to an airport	32	52	83
Reliable local bus, rail, or ferry	26	50	75
Bike lanes or paths	33	37	70
Reliable long-distance bus or train	28	40	68

SOURCE: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *2009 Omnibus Household Survey* (October 2009), available at http://www.bts.gov/programs/omnibus_surveys/household_survey/2009/october/html/appendix_d.html as of Oct. 29, 2010.



Matthew Chambers

Commodity Flow Survey/ Hazardous Materials

The Commodity Flow Survey (CFS) compiles a robust dataset of Hazardous Materials (hazmat) shipment estimates from hazardous materials shippers. These data allow for the identification of hazmat flows and the quantification of exposure—the risk proportionate to the level of activity—by mode of transportation. Policy development, the rule-making process, and program planning use CFS Hazmat data, which is the only publicly available source of hazmat flow data for the highway and air modes.

The 2007 CFS increased its sample of hazmat shippers (also called "oversampling"). Because of this oversampling, hazmat records comprised 5.6 percent of all CFS records in 2007; up from 4.9 percent in 2002 (percentages are prior to weighting of the data).

In 2007, the Nation's transportation system carried 2.2 billion tons of hazmat worth $1.4 trillion accounting for 323 billion ton-miles (see Table A-3: *Hazardous Material Shipment Characteristics by Hazard Class*).[1]

[1] By definition, a ton-mile is the shipment weight multiplied by the mileage traveled by the shipment. Ton-miles represent 1 ton of freight shipped for 1 mile. It is the primary physical measure of freight transportation. By combining the weight (tons) and distance of shipment (miles) into one measurement, ton-miles are useful for transportation data analysis.

Over half of hazmat tonnage is transported by the highway mode. The 2007 CFS recorded over 1.2 billion tons of hazmat transported 104 billion ton-miles over our Nation's highways. Private trucking carried 32 percent and for-hire trucking carried 22 percent of hazmat tonnage (Table A-4: *Hazardous v. Nonhazardous Material Shipment Characteristics by Mode of Transportation)*.

Industries that shipped the most hazmat tonnage in 2007 were Petroleum and Coal Products Manufacturing (NAICS 324)—with 931 million tons, and Petroleum and Petroleum Products Merchant Wholesalers (NAICS 4247)—with 804 million tons (Table A-5: *Hazardous Material Shipment Characteristics for Selected NAICS Code*).

Most of the hazardous materials transported are Flammable Liquids (Hazard Class 3). Of the 2.2 billion tons of hazmat shipped overall, 1.8 billion tons were flammable liquids, consisting primarily of refined petroleum products. This class also accounted for 182 billion of the 323 billion total hazmat ton-miles generated. Single-mode trucking carried more than 45 percent of tonnage for each Hazard Class except Class 6 (Toxic Materials and Infectious Substances), which had roughly half of its tonnage transported by rail.

The hazmat category of "Toxic by Inhalation" (TIH) includes TIH gases and volatile liquids that are toxic when inhaled. In 2007, shippers sent 27 million tons of TIH materials, which accounted for 10 billion ton-miles.

Packing Group I designates materials that have the most rigorous standards of preparation for transport.[2] In 2007, shippers sent 586 million tons of Packing Group I materials, generating 72 billion ton-miles.

The map in figure A-6, *Hazardous Material Tonnage by Originating State, 2007*, shows the amount of hazmat shipments in tons by State of origin. In 2007, Texas was the leading State with 499.5 million tons (accounting for 22.4 percent of the U.S. total), followed by Louisiana's 221 million tons (9.9 percent), and then California's 199.7 million tons (9.0 percent).

BTS sponsored a Commodity Flow Survey (CFS) workshop held on November 16, 2010, at the Transportation Research Board's Keck Center in Washington, D.C. The workshop facilitated discussions of data uses and needs among Commodity Flow Survey users as well as derivative products and applications, such as the Freight Analysis Framework (FAF), and served as a forum on potential future improvements.

The workshop covered the impacts of changes in transportation services and practices on the effectiveness of the CFS, and improvements and methodological changes that may be implemented in the near term to enhance the survey.

[2] The Packing Group designation reflects the level of hazard associated with the material being shipped.

The panelists discussed the Content and Uses of the CFS; the CFS Scope, Classification, and Geography; and the CFS Product Tools and Functionality in three sessions. In addition, attendees presented 13 posters on a range of subjects related to the CFS, such as community, freight, and highway project planning.

For the latest data sets and reports, please visit the CFS program page at http://www.bts.gov/publications/commodity_flow_survey/.

TABLE A-3 Hazardous Material Shipment Characteristics by Hazard Class: 2007

Hazard Class	Value (million dollars)	Tons (thousands)	Ton-miles (millions)	Average miles per shipment
Total	1,448,218	2,231,133	323,457	96
Class 1 (Explosives)	11,754	3,047	911	738
Class 2 (Gases)	131,810	250,506	55,260	51
Class 3 (Flammable Liquids)	1,170,455	1,752,814	181,615	91
Class 4 (Flammable Solids)	4,067	20,408	5,547	309
Class 5 (Oxidizers and Organic Peroxides)	6,695	14,959	7,024	361
Class 6 (Toxic Materials and Infectious Substances)	21,198	11,270	5,667	467
Class 7 (Radioactive Materials)	20,633	515	37	S
Class 8 (Corrosive Materials)	51,475	114,441	44,395	208
Class 9 (Miscellaneous Dangerous Goods)	30,131	63,173	23,002	484

KEY: S = Estimate did not meet publication standards.

SOURCE: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, and U.S. Department of Commerce, U.S. Census Bureau, 2007 Commodity Flow Survey, Hazardous Materials, table 2a, available at http://www.bts.gov/publications/commodity_flow_survey/ as of Nov. 18, 2010.

TABLE A-4 Hazardous Versus Nonhazardous Material Shipment Characteristics by Mode of Transportation: 2007

	Tons (thousands)					Ton-miles (millions)				
		Hazardous		Nonhazardous			Hazardous		Nonhazardous	
Mode	Total	2007	Percent	2007	Percent	Total	2007	Percent	2007	Percent
Total	12,543,425	2,231,133	17.8	10,312,292	82.2	3,344,658	323,457	9.7	3,021,201	90.3
Truck	8,778,713	1,202,825	13.7	7,575,888	86.3	1,342,104	103,997	7.7	1,238,107	92.3
For-Hire Truck	4,075,136	495,077	12.1	3,580,060	87.9	1,055,646	63,288	6.0	992,359	94.0
Private Truck	4,703,576	707,748	15.0	3,995,828	85.0	286,457	40,709	14.2	245,748	85.8
Rail	1,861,307	129,743	7.0	1,731,564	93.0	1,344,040	92,169	6.9	1,251,871	93.1
Water	403,639	149,794	37.1	253,845	62.9	157,314	37,064	23.6	120,251	76.4
Air	3,611	S	S	3,256	90.2	4,510	S	S	4,334	96.1
Pipeline	650,859	628,905	96.6	21,954	3.4	S	S	S	S	S
Multiple Modes	573,729	111,022	19.4	462,708	80.6	416,642	42,886	10.3	373,756	89.7
Parcel	33,900	236	0.7	33,664	99.3	27,961	151	0.5	27,810	99.5
Other Multiple Modes	113,841	56,750	49.8	57,092	50.2	46,402	17,297	37.3	29,105	62.7
Other and Unknown Modes	271,567	8,489	3.1	263,078	96.9	33,764	1,466	4.3	32,298	95.7

KEY: S = Estimate did not meet publication standards.

SOURCE: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, and U.S. Department of Commerce, U.S. Census Bureau, *2007 Commodity Flow Survey, Hazardous Materials*, table 2a, available at http://www.bts.gov/publications/commodity_flow_survey/ as of Nov. 18, 2010.

TABLE A-5 Hazardous Material Shipment Characteristics for Selected NAICS Codes: 2007

Industry	Tons (thousands)			Ton-miles (millions)		
	Total tons	Hazardous tons	Hazardous share of total	Total ton-miles	Hazardous ton-miles	Hazardous share of total
Petroleum and Coal Products Manufacturing (324)	1,415,099	930,698	65.8	207,148	128,090	61.8
Chemical Manufacturing (325)	594,262	248,941	41.9	279,917	101,050	36.1
Chemical and Allied Products Merchant Wholesalers (4246)	119,971	64,533	53.8	31,344	12,813	40.9
Petroleum and Petroleum Products Merchant Wholesalers (4247)	846,636	803,894	95.0	52,112	39,482	75.8
Fuel Dealers (45431)	48,438	47,817	98.7	1,784	1,761	98.7
Corporate, Subsidiary, and Regional Managing Offices (55114)	250,262	72,893	29.1	80,199	17,764	22.1
All Other Surveyed Industries	9,268,757	62,356	0.7	2,692,154	22,497	0.8

NOTE: North American Industry Classification System (NAICS) codes shown had the highest estimated tonnages (without considering the sampling variability). For additional information on the methodology, please see http://www.bts.gov/publications/commodity_flow_survey/2007/hazardous_materials/. For an explaination of NAICS codes, please see "2007 North American Industry Classification System," available at http://www.census.gov/naics as of January 2010.

SOURCE: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, and U.S. Department of Commerce, U.S. Census Bureau, *2007 Commodity Flow Survey, Hazardous Materials*, table 2a, available at http://www.bts.gov/publications/commodity_flow_survey/ as of Nov. 18, 2010.

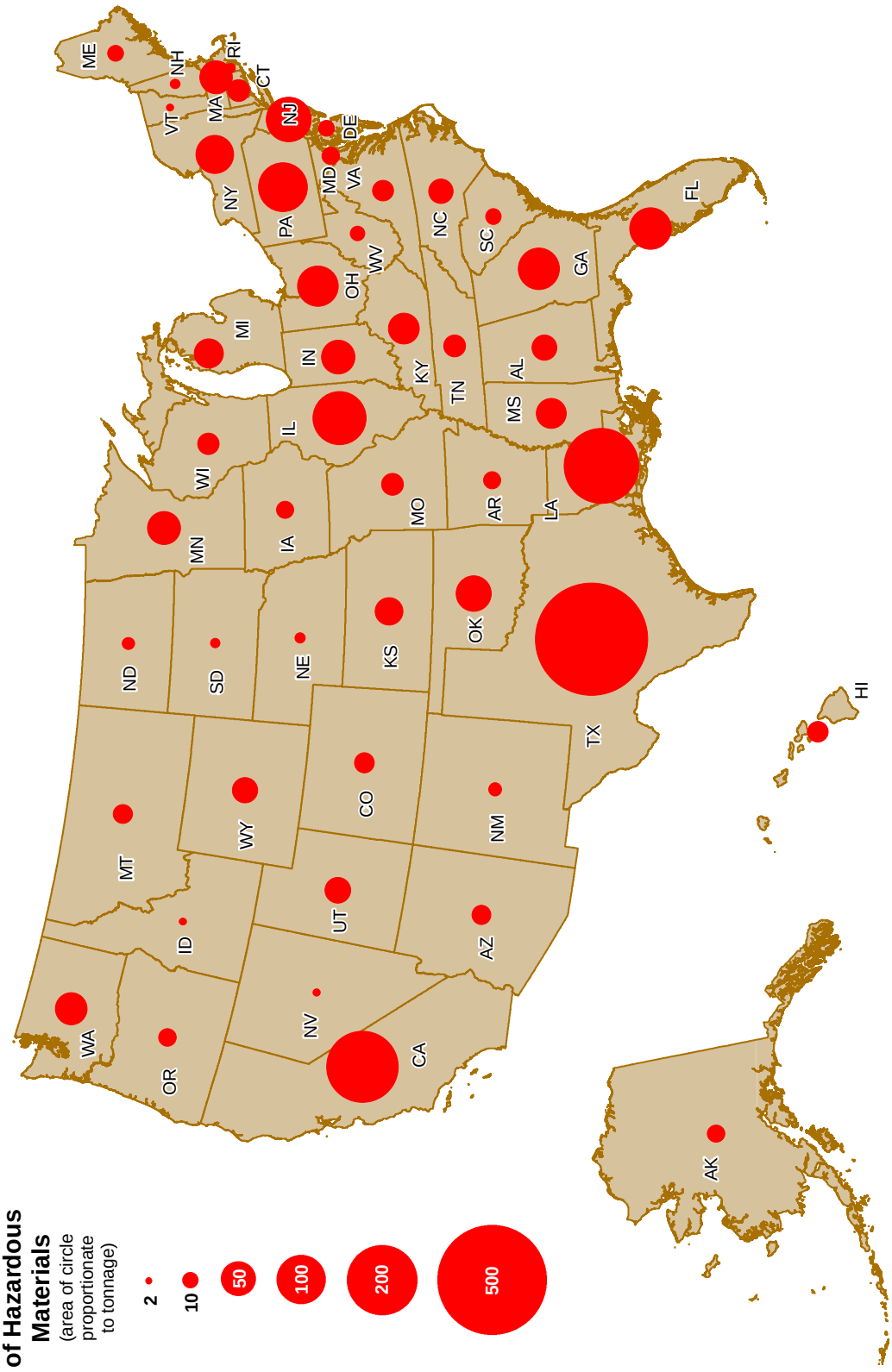


FIGURE A-6 Hazardous Materials Tonnage by Originating State, 2007

SOURCE: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *2007 Commodity Flow Survey Hazardous Materials*, table 5a.

Matthew Chambers

Commercial Aviation and Airline Industry Highlights

The U.S. airline industry has experienced major changes since 2000—when total passengers enplaned, the total number of employees, and airline profits were at all-time highs. Since 2000, the growth of the low-cost carriers has brought a shift to smaller aircraft and an accompanying industry-wide reduction in average aircraft size. With the network carriers operating with high load factors, they entered into more code-sharing partnerships with regional jet carriers, shifting the operation of many shorter segments to smaller aircraft. The combined effect of this trend was a higher frequency of service into mainline hubs.

The effects of 9/11 caused a sudden decrease in demand for air travel and a reduction in total airline operations in 2001. Ultimately, mainline airlines turned over more service to partner regional airlines flying smaller aircraft, which better matched the lower passenger demand. Some short-haul service disappeared in response to passengers changing to other transportation modes or not traveling at all, especially when faced with increased travel times due to the Transportation Security Administration (TSA) implementing enhanced security measures at airports.

The industry experienced record fuel price increases in 2008, quickly followed by an economic downturn. Fuel costs in 2008 were $3.06 per gallon. In 2009, the average price per gallon dropped to $1.89. However, for the first 6 months of 2010, the average price per gallon rose to $2.22 (Table A-7: *Domestic and International U.S. Airline Fuel Cost and Consumption*). U.S. airlines, in the face of rising fuel costs, have improved operational efficiency through increased direct-flight rout-

ing, incorporation of new aircraft and engine technologies to reduce fuel burn and emissions, and accelerated retirement of older, less fuel efficient aircraft.

Since 9/11, competition from low-cost carriers has remained strong and ticket prices have remained depressed. In the face of continuing depressed ticket prices, the industry sought other funding sources, called ancillary revenues. Airlines added separate fees for checked baggage, aisle seats, cancellation of tickets, changes to previously purchased tickets, seats with more legroom, snacks, pillows, and blankets so that ticket prices could remain competitive. Charges for checked baggage and other ancillary fees rose significantly (Table A-8: *U.S. Airline Industry Ancillary Fees*) beginning in 2008. Baggage fees tripled from 2007 to 2008, then doubled from 2008 to 2009. By June of 2010, baggage fees were up more than 10 percent over 2009. Cancellation fees for changing or refunding previously purchased tickets also increased. This unbundling of ticket prices with a base price and an "à la carte" menu of service amenities continued during 2010.

Airline employment dropped steeply in the wake of 9/11 and since that time has steadily decreased. Subsequent events also decreased airline employment levels as the industry weathered the 2008 fuel crisis and the 2009 recession. Early in the decade, there was some employment growth within low-cost carriers, but recently employment at these carriers has also dropped. Since 2000, the number of total U.S. airline industry employees decreased every year but 2007, a clear indication of cost cutting initiatives by the airlines (Table A-9: *Average Annual U.S. Airline Industry Full Time Equivalent Employees*).

The past decade saw increased code sharing, and the end of the decade was marked by airline consolidations and mergers. In 2009, Delta Air Lines acquired Northwest Airlines, and Midwest Airlines and Frontier Airlines combined to form Republic Airlines, although Frontier Airlines maintained its own identity. In 2010, United Airlines announced a merger with Continental Airlines, while Southwest Airlines announced a merger with AirTran Airways. When these actions are completed in 2011, United Airlines will become the world's largest airline as measured by Available Seat-Miles (ASMs). Southwest Airlines will continue to be the largest low-cost carrier. On the regional airline level, Atlantic Southeast Airlines, a wholly owned subsidiary of SkyWest Airlines, completed the purchase of ExpressJet Airlines in November 2010; the expanded regional carrier is one of the largest operators of regional aircraft, operating nearly 4,000 combined departures per day.

The U.S. airline industry data reported by BTS in 2010 showed the industry beginning to recover from the fuel crisis of 2008 and the recession of 2009. Most airlines reported profits in 2nd Quarter 2010, a change from the reported losses in the 1st Quarter 2010 and the annual losses reported in both 2008 and 2009 (Table A-10: *U.S. Airline Net Income (Profit)*).

In terms of passengers, domestic and international combined enplanements were up 1.1 percent from January through July 2010 over the same 7-month period in 2009. U.S. airlines carried 0.5 percent more domestic passengers and 4.9 percent more international passengers in the first 7 months of 2010 than during the same period in 2009. This was a reversal of 2009, when total (domestic and international) enplanements dropped 7.2 percent from the first 7 months of 2008 (Table A-11: *Annual U.S. Airline Passenger Enplanements*).

While total passengers were up in 2010, the number of domestic flights was down 2.1 percent for the first 7 months. Combining the lower number of seats available with the number of miles flown, ASMs were down 0.3 percent (Table A-12: *Domestic and International U.S. Airline Operating Revenue/Cost per Available Seat Mile (ASM)*). The number of miles flown by revenue passengers—Revenue Passenger-Miles—were up 1.3 percent. Increased passenger-miles flown coupled with fewer available seat-miles produced an all-time airline industry high average load factor of 82.3 percent, up from 81.0 percent during the same period in 2009. Airlines showed restraint in adding new seats and flights during 2010 in an effort to regain and maintain profitability.

On-time flight performance in the first half of 2010 was marginally better than 2009. The number of scheduled domestic airline flights arriving on time, i.e., within 15 minutes of the scheduled arrival time, was just slightly under 80 percent (Table A-13: *Major U.S. Air Carrier On-Time Performance*).

In summary, 2010 U.S. airline industry data showed a positive increase in passengers, profits, and a small increase in on-time flight schedule performance.

For latest airline data and statistics, please visit the Office of Airline Information program website at http://www.bts.gov/programs/airline_information/.

TABLE A-7 U.S. Airline Fuel Cost and Consumption: 2004–2010

	Cost per gallon (dollars)	Gallons consumed (millions)
2004	1.15	18,144.7
2005	1.65	18,324.5
2006	1.95	18,239.7
2007	2.09	18,426.8
2008	3.06	17,978.4
2009	1.89	16,234.0
2010	2.22	10,901.1

NOTE: 2010 data are through August.

SOURCE: U.S.Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, Office of Airline Information, *Air Carrier Financial Reports (Form 41 Financial Database)*, special tabulation, October 2010.

TABLE A-8 U.S. Airline Industry Ancillary Fees: 2004–2010

Thousands of dollars

	Passenger revenues	Passenger baggage fees	Cancellation fees	Transport related revenues	Total operating revenues
2004	85,696,753	285,754	706,253	22,914,426	134,660,283
2005	93,633,337	341,935	841,386	28,729,015	151,544,403
2006	101,967,725	441,010	900,862	32,148,106	165,531,803
2007	107,678,067	464,284	915,231	33,669,636	174,696,416
2008	111,541,751	1,149,613	1,668,748	35,893,444	186,118,528
2009	91,504,865	2,728,850	2,380,458	31,007,526	155,051,173
2010	49,704,109	1,660,337	1,147,499	16,163,220	84,156,487

NOTES: 2010 data are through June. *Transport related revenues* are the revenues collected between carriers for code sharing service. *Passenger revenues* are the revenues collected at the time of ticket purchase. *Total operating revenues* is not the sum but includes additional revenue sources such as charter, cargo, and miscellaneous operating revenue.

SOURCE: U.S.Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, Office of Airline Information, *TranStats Database, Air Carrier Financial Reports (Form 41 Financial Data)*, special tablulation, October 2010.

TABLE A-9 Average Annual U.S. Airline Industry Full Time Equivalent Employees: 2004–2010

	Average annual employee count
2004	571,720
2005	562,260
2006	545,189
2007	556,601
2008	553,186
2009	522,777
2010	512,907

NOTES: 1 Part Time Employee = 0.5 Full Time Employees. 2010 data are through August.

SOURCE: U.S.Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, Office of Airline Information, *Airline Industry, Quick Facts, Employment Statistics*,available at http://www.bts.gov/ as of October 2010.

TABLE A-10 U.S. Airline Net Income (Profit): 2004–2010

Millions of current dollars

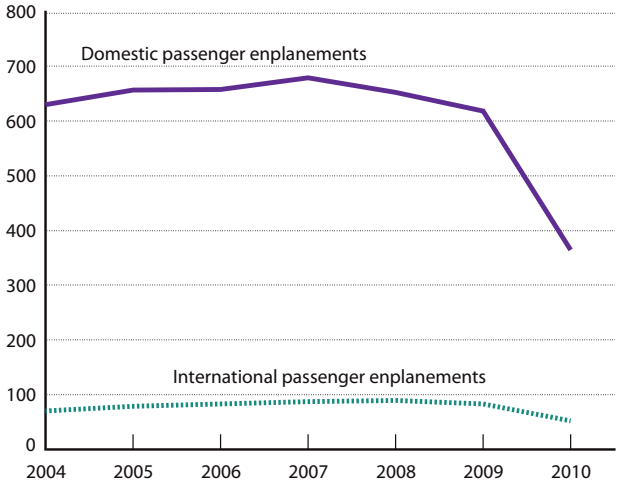
	Net income
2004	-9,104
2005	-27,220
2006	18,186
2007	7,691
2008	-23,747
2009	-2,624
2010	958

NOTE: 2010 data are through June.

SOURCE: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, Office of Airline Information, *TranStats Database*, P11, P12, and F11 databases, special tabulation, October 2010.

FIGURE A-11 Annual U.S. Airline Passenger Enplanements: 2004–2010

Scheduled flights only, millions



NOTE: 2010 data is through July.

SOURCE: U.S.Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, Office of Airline Information, *Airline Industry, Quick Facts, Passengers*, available at http://www.bts.gov/ as of October 2010.

TABLE A-11 Annual U.S. Airline Passenger Enplanements: 2004–2010

Scheduled flights only

	Domestic enplanements	Domestic load factor (percent)	International enplanements	International load factor (percent)	Total domestic and international enplanements	Total domestic and international load factor (percent)
2004	629,768,490	74.5	70,462,237	78.4	700,230,727	75.5
2005	657,261,487	77.2	77,843,181	78.8	735,104,668	77.6
2006	658,362,617	79.2	82,735,582	79.4	741,098,199	79.2
2007	679,168,758	79.9	87,457,824	80.0	766,626,582	79.9
2008	651,703,245	79.8	88,750,993	79.0	740,454,238	79.5
2009	617,962,756	81.1	83,112,177	78.8	701,074,933	80.4
2010	364,429,503	82.3	51,854,250	81.3	416,283,753	82.0

NOTE: 2010 data is through July.

SOURCE: U.S.Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, Office of Airline Information, *Airline Data and Statistics, Passengers*, available at http://www.bts.gov/programs/airline_information/ as of October 2010.

TABLE A-12 U.S. Airline Operating Revenue/ Cost per Available Seat Mile (ASM): 2004–2010

Cents per available seat mile

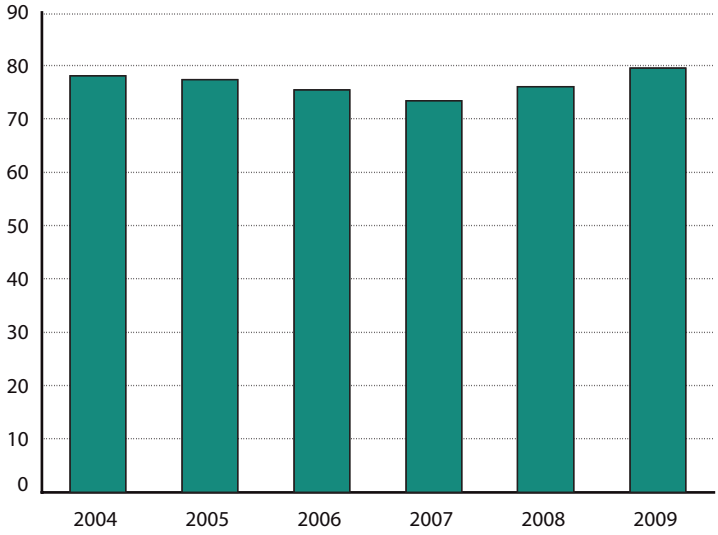
	Revenue per ASM	Cost per ASM
2004	11.09	11.37
2005	11.92	12.06
2006	13.08	12.57
2007	13.43	12.77
2008	14.43	14.98
2009	13.01	12.91
2010	14.13	13.43

NOTES: 2010 data are through June. Data are from *Operating revenues* and *expenses* for scheduled airlines only. *Operating revenues* are revenues from the performance of air transportation and related incidental services. Includes 1) transportation revenues from the carriage of all classes of Traffic in scheduled and nonscheduled services, and 2) non-transportation revenues consisting of federal subsidies (where applicable) and services related to air transportation.

SOURCE: U.S.Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, Office of Airline Information, *Air Carrier Financial Reports (Form 41 Financial Database)*, special tabulation, October 2010.

FIGURE A-13 Major U.S. Air Carrier On-Time Performance: 2004–2009

Percent on-time flight arrivals



SOURCE: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, Office of Airline Information, *Airline On-Time Tables*, table 1 - Summary of Airline On-Time Performance Year-to-date through December 2008, available at http://www.bts.gov/programs/airline_information/airline_ontime_tables as reported in U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, National Transportation Statistics, table 1-62, available at http://www.bts.gov/publications/national_transportation_statistics/ as of October 2010.

TABLE A-13 Major U.S. Air Carrier On-Time Performance: 2004–2009

Thousands of flights

	Late departures	Late arrivals	Cancellations	Diversions	On-time flight arrivals (percent)	Total operations
2004	1,188	1,421	128	14	78.1	7,129
2005	1,279	1,466	134	14	77.4	7,141
2006	1,425	1,616	122	16	75.4	7,142
2007	1,573	1,804	161	17	73.4	7,455
2008	1,327	1,525	137	17	76.0	7,008
2009	1,086	1,218	87	15	79.5	6,450

NOTES: *Late departures* are flights departing 15 minutes or more after the scheduled departure time. *Late arrivals* are flights arriving 15 minutes or more after the scheduled arrival time. Late departures and arrivals are strongly seasonal and are affected by weather in winter and summer months and by heavy demand in summer. *Cancellations* are flights that were not operated but were listed in a carrier's computer reservation system within 7 calendar days of the scheduled departure. *Diversions* are flights that left from the scheduled departure airport but flew to a nondestination point. Diverted flights may or may not ultimately reach their scheduled destination point.

For the monthly number of carriers reporting, please refer to the *Air Travel Consumer Reports* available at http://airconsumer.dot.gov/reports/index.htm

SOURCES: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, Office of Airline Information, *Airline On-Time Tables*, table 1 - Summary of Airline On-Time Performance Year-to-date through December 2008, available at http://www.bts.gov/programs/airline_information/airline_ontime_tables as reported in U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *National Transportation Statistics*, table 1-62, available at http://www.bts.gov/publications/national_transportation_statistics/ as of October 2010.

Chapter

2

U.S. Transportation System

Chester Ford

Safety

Improving transportation safety is the U.S. Department of Transportation's (USDOT's) top priority and the first goal specified in its *Strategic Plan for FY2010–FY2015*.[1] This section summarizes the status of fatalities and injuries related to transportation. In addition, the section presents statistics on distracted driving.

Safety Overview

To reduce fatalities and injuries, the U.S. Department of Transportation has not only promoted safety instructions and enforced regulations and policies, it has also implemented strategies to educate motorists, bicyclists, and pedestrians with the goal of preventing and avoiding accidents. One strategy implemented by the USDOT is increasing awareness about the dangers associated with distracted driving, such as texting and making phone calls behind the wheel. To date, more than 30 States have enacted laws that prohibit motorists from texting or using hand-held communication devices while driving (Figure 1-2: *State Laws on Distracted Driving*, as of August 2010).

The total number of transportation fatalities declined from 45,500 in 2006 to 36,000 (table 1-4) in 2009—a 20 percent reduction. In addition, the total num-

[1] U.S. Department of Transportation, Draft *U.S. DOT Strategic Plan FY2010-FY2015: Transportation for a New Generation* (Apr. 15, 2010), available at http://www.dot.gov/stratplan/dot_strategic_plan_10-15.pdf as of January 2011.

ber of transportation injuries dropped from 2.6 million in 2006 to 2.4 million in 2008—a 9 percent reduction (Table 1-3: *Transportation Accidents, Injuries and Fatalities by Mode*).

In 2009, approximately 89 percent of fatalities connected to motor vehicle incidents involved passenger car occupants, light-truck occupants, motorcyclists, and pedestrians. The percentage of fatalities for passenger car occupants was 37 percent, while the percentages for light-truck occupants, motorcyclists, and pedestrians were 29, 12, and 11 percent, respectively (Table 1-4: *Distribution of Transportation Fatalities*). In 2009, 3,380 fatalities involved large trucks, about 9 percent of total fatalities.

Incidents involving the transportation of hazardous materials (hazmat) is a major concern for public safety and homeland security; however, the number of hazmat incidents declined from 21,000 in 2006 to 15,000 in 2009—a 29 percent reduction (Table 1-5: *Hazardous Materials Transportation Incidents*). Among all the modes involved in hazmat shipments, about 84 percent of hazmat incidents occurred on highways. In 2009, paint or paint-related materials was the number one commodity involved in hazmat-related incidents; the top 20 hazardous materials accounted for more than 20 percent of all hazmat incidents (Table 1-6: *Top 20 Reported Hazardous Materials Incidents*).

Roadside inspection of commercial motor vehicles increased from nearly 2.3 million inspections in 2004 to more than 3.4 million in 2009 to enforce compliance with USDOT regulations for motor carriers and hazmat transportation (Table 1-7: *Roadside Truck Inspections*). The percentage of trucks taken out of service decreased from nearly 24 percent in 2004 to 19 percent in 2009.

To address concerns related to crew and cargo safety on international waters, this report presents statistical data related to international piracy. Since 2006, the number of piracy and armed robberies increased from 240 incidents to 402 in 2009 (Table 1-8: *International Piracy and Armed Robbery at Sea*). More than 50 percent of piracy-related incidents occurred in the waters surrounding East Africa, where the increasing number of attacks involving armed pirates along the coastline of Somalia is now a major international issue.

TABLE 1-1 State Laws on Distracted Driving: Bans on Hand-Held Devices and Texting While Driving as of January 2011

State	Ban on hand-held devices	Texting ban	State	Ban on hand-held devices	Texting ban
AL			MT		
AK		✓	NE		✓
AZ			NV		
AR		✓	NH		✓
CA	✓	✓	NJ	✓	✓
CO		✓	NM		
CT	✓	✓	NY	✓	✓
DE	✓	✓	NC		✓
DC	✓	✓	ND		
FL			OH		
GA		✓	OK		
HI			OR	✓	✓
ID			PA		
IL		✓	RI		✓
IN			SC		
IA		✓	SD		
KS		✓	TN		✓
KY		✓	TX		
LA		✓	UT		✓
ME			VT		✓
MD	✓	✓	VA		✓
MA		✓	WA	✓	✓
MI		✓	WV		
MN		✓	WI		✓
MS			WY		✓
MO			PR		
			U.S., total	9	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, Nebraska, New York, and Virginia, secondary enforcement is applied to texting while driving. In Maryland, secondary enforcement is applied to using hand-held devices while driving. The term "secondary enforcement" means that motorists must be stopped for another violation before they can be cited for texting or using a cell phone.

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 cited in U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *National Transportation Statistics*, table 2-25, available at http://www.bts.gov/publications/national_transportation_statistics/ as of April 2011.

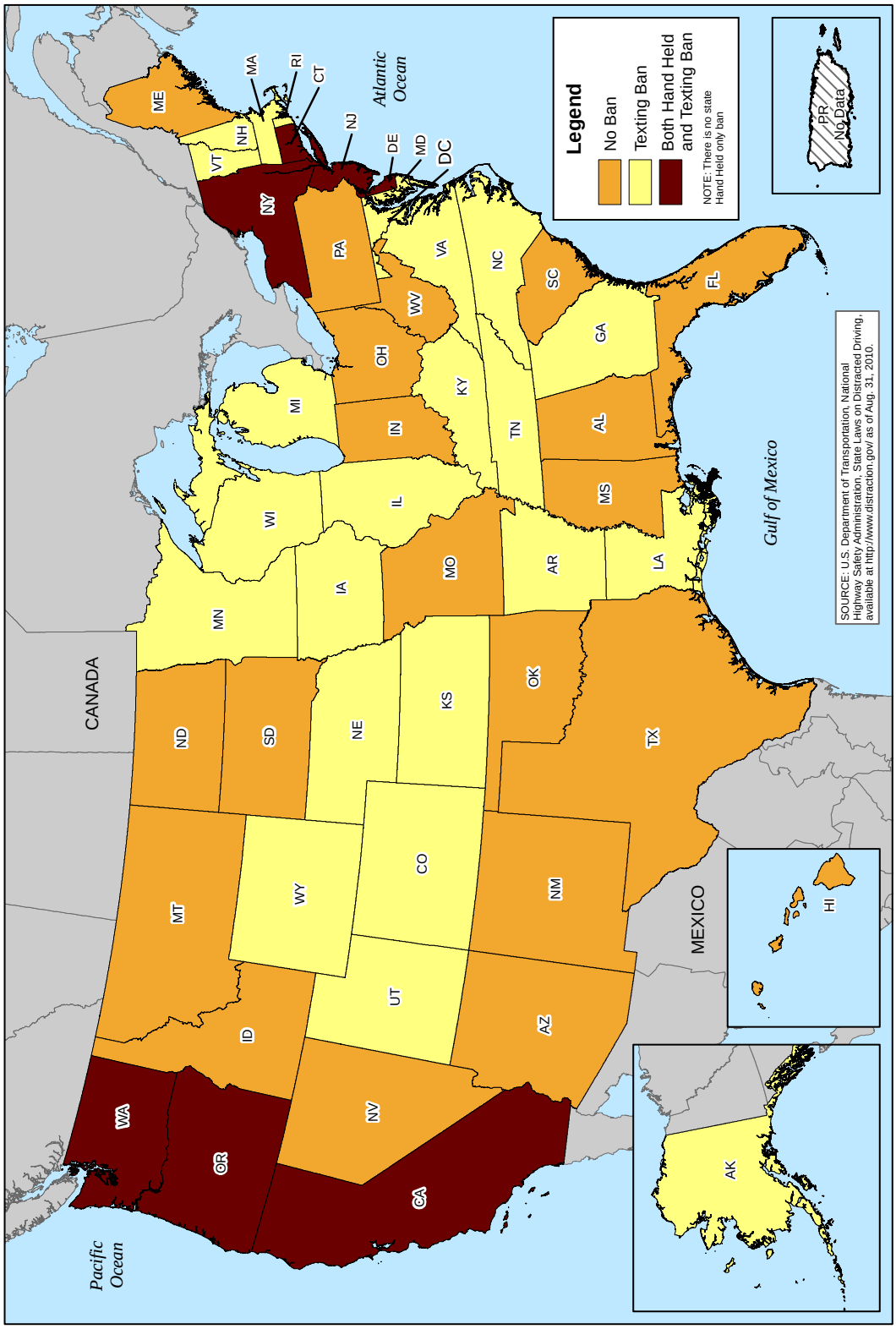


FIGURE 1-2 State Laws on Distracted Driving, as of August 2010

SOURCE: U.S. Department of Transportation, National Highway Safety Administration, State Laws on Distracted Driving, available at http://www.distraction.gov/ as of Aug. 31, 2010.

TABLE 1-3 Transportation Accidents, Injuries, and Fatalities by Mode: 2004–2009

	2004	2005	2006	2007	2008	2009
Air						
Accidents	1,717	1,781	1,611	1,745	1,659	1,553
Injuries	302	305	286	291	295	306
Fatalities	637	603	774	540	566	543
Highway						
Accidents	6,181,000	6,159,000	5,973,000	6,024,000	5,811,000	5,505,000
Injuries	2,788,000	2,699,000	2,575,000	2,491,000	2,346,000	2,217,000
Fatalities	42,836	43,510	42,708	41,259	37,423	33,808
Pipeline						
Accidents	442	495	407	405	436	405
Injuries	60	48	36	53	63	67
Fatalities	23	14	21	15	8	14
Railroad						
Accidents	6,470	6,332	5,936	5,466	4,895	3,818
Injuries	9,194	9,550	8,790	9,638	8,996	7,882
Fatalities	891	884	903	851	804	708
Transit						
Accidents	7,842	8,151	8,851	9,398	5,154	5,360
Injuries	18,982	18,131	18,327	20,944	23,222	21,420
Fatalities	248	236	227	288	240	230
Waterborne						
Accidents	9,866	9,946	9,565	9,885	9,545	9,188
Injuries	4,066	4,095	4,245	4,422	3,947	3,869
Fatalities	822	835	839	811	827	886

NOTES: Some constituents of *Air* fatality, *Railroad* fatality, and *Transit* fatality data are preliminary, as seen in the notes of table 1-4.

Air data includes U.S. air carrier, commuter carrier, on-demand air taxi, and general aviation. 2009 air accidents data is preliminary. Air injuries include all injuries classified as serious.

Highway accidents include passenger cars, motorcycles, light and large trucks, and buses. Highway fatality and injury data includes passenger car occupants, motorcyclists, truck occupants in light and large trucks, bus occupants, pedestrians, pedalcyclists, and other. For *Highway accidents* the U.S. Department of Transportation, National Highway Traffic Safety Administration (NHTSA) uses the term "crash" instead of accident in its highway safety data. *Highway accidents* and *injuries* are not actual counts, but estimates of the actual counts. The estimates are calculated from data obtained from a nationally representative sample of crashes collected through NHTSA's General Estimates System (GES). Estimates are rounded to the nearest 1,000. Estimates less than 500 indicate that the sample size was too small to produce a meaningful estimate and should be rounded to 0. Highway fatalities are actual counts from NHTSA's Fatality Analysis Reporting System (FARS) Encyclopedia database.

Pipeline data includes hazardous liquid pipelines and gas pipelines.

Railroad data includes highway-rail grade crossing, and train accidents (mostly trespassers). Railroad includes Amtrak. *Railroad injuries* include those injuries resulting from train accidents, train incidents, and nontrain incidents. Railroad injuries also include occupational illness. 2009 *Railroad injuries* data is preliminary. The actual number of deaths for passengers on trains from 2004-2009 was: 2004 (3), 2005 (16), 2006 (2), 2007 (5), 2008 (24), 2009 (3).

Transit data include highway-rail grade crossing and transit. *Transit* includes motor bus, commuter rail, heavy rail, light rail, demand response, van pool, and automated gateway. *Transit accidents* figures include collisions with vehicles, objects, and people, derailments / vehicles going off the road of Directly Operated (DO) modes only. *Transit injuries* include those resulting from all reportable incidents, not just from accidents, of Directly Operated (DO) modes only. *Accident* figures do not include fires and personal casualties. 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.

Waterborne data includes commercial vessel-related, not related to vessel, and recreational boating.

Caution is needed in comparing fatalities across modes because of different definitions. For example, rail and transit fatalities include incident-related (not just moving vehicle-related) fatalities, such as fatalities from falls in transit stations or railroad employee fatalities from a workshed fire, while fatalities at airports not caused by moving aircraft or fatalities from accidents in automobile repair shops are not counted.

SOURCES: **Air**: National Transportation Safety Board; **Highway**: National Highway Traffic Safety Administration; **Pipeline**: Pipeline and Hazardous Materials Safety Administration, Office of Pipeline Safety; **Railroad**: Federal Railroad Administration; **Transit**: Federal Transit Administration; **Waterborne**: U.S. Department of Homeland Security, U.S. Coast Guard as cited in U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *National Transportation Statistics*, tables 2-1, 2-2, and 2-3, available at http://www.bts.gov/publications/national_transportation_statistics/ as of January 2011.

TABLE 1-4 Distribution of Transportation Fatalities: 2009

Category	Number of fatalities	Percent
Passenger car occupants	13,095	36.5
Light-truck occupants	10,287	28.6
Motorcyclists	4,462	12.4
Pedestrians struck by motor vehicles	4,092	11.4
Recreational boating	736	2.0
Pedalcyclists struck by motor vehicles	630	1.8
Other and unknown motor vehicle occupants	563	1.6
Large-truck occupants	503	1.4
General aviation	474	1.3
Railroad trespassers (excluding grade crossing)	427	1.2
Other nonoccupants struck by motor vehicles	150	0.4
Heavy-rail transit	96	0.3
Waterborne, not related to vessel casualties	93	0.3
Grade crossings, not including motor vehicles	70	0.2
Waterborne, commercial vessel-related	57	0.2
Air carriers	52	0.1
Light-rail transit	33	0.1
Bus occupants	26	0.1
Railroad employees, contractors, and volunteers on duty	20	0.1
Private grade crossings, with motor vehicles	19	0.1
Air taxi	17	0.0
Gas transmission and distribution pipeline	9	0.0
Hazardous liquid pipeline	4	0.0
Passengers on railroad trains	3	0.0
Commuter air	0	0.0
Total fatalities	35,918	100.0
Other counts, redundant with above		
Large-truck crashes, occupants and nonoccupants	3,380	
Public grade crossings, with motor vehicles	161	
Commuter rail	67	

NOTES: See table 1-3 for detailed notes. Percents may not add to 100 due to rounding. Data for *General aviation*, *Railroad trespassers*, all three grade crossing categories, *Air carriers, Bus occupants, Railroad employees, Air taxi, Passengers on railroad trains, and Commuter* air are preliminary.

SOURCES: **Air**: National Transportation Safety Board; **Highway**: National Highway Traffic Safety Administration; **Pipeline**: Pipeline and Hazardous Materials Safety Administration, Office of Pipeline Safety; **Railroad**: Federal Railroad Administration; **Transit**: Federal Transit Administration; **Waterborne**: U.S. Department of Homeland Security, U.S. Coast Guard 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.

TABLE 1-5 Hazardous Materials Transportation Incidents: 2004–2009

	2004	2005	2006	2007	2008	2009
Highway	13,069	13,460	17,160	16,933	14,808	12,728
Accident related	281	323	308	324	305	253
Injuries	155	178	192	161	153	153
Fatalities	11	24	6	9	6	12
Rail	765	745	703	752	750	643
Accident related	47	51	44	54	28	37
Injuries	122	693	25	56	63	38
Fatalities	3	10	0	0	1	1
Air	993	1,655	2,408	1,556	1,278	1,358
Accident related	0	9	7	7	8	2
Injuries	11	78	2	8	7	10
Fatalities	0	0	0	0	0	0
Water	17	69	68	61	98	90
Accident related	0	0	0	0	0	0
Injuries	0	0	15	3	0	0
Fatalities	0	0	0	0	0	0
Pipeline						
Liquid	146	143	120	120	145	117
Injuries	16	2	2	10	2	4
Fatalities	5	2	0	4	2	4
Gas transmission and gathering	123	182	145	132	141	129
Injuries	3	7	4	7	5	11
Fatalities	0	0	3	2	0	0
Gas distribution	173	170	142	153	149	158
Injuries	41	39	30	36	56	52
Fatalities	18	12	18	9	7	9

NOTES: *Accident related* excludes human errors, package failures, and unreported cases. *Water* data are for incidents involving packaged materials only and do not include incidents where the vessel is the container (e.g., a barge or oil tanker).

In previous years, carriers were exclusively responsible for reporting hazardous materials release incidents. In 2005, PHMSA expanded the reporting requirements to include: reports by person(s) in physical possession of a hazardous material at the time an incident occurs during transport; reports on nonrelease incidents such as structural damage to cargo tanks specified for 1,000 gallons or more and undeclared shipments of hazardous materials.

Pipeline data are derived from three unique data sets, and a comprehensive total for pipeline incidents is not applicable. As of March 2010, the secondary cause designations of incidents in these reports have been updated and improved. Please note that secondary cause category counts and distributions have changed as a result of these improvements and also as a result of preparations for new accident/incident reporting forms which became effective January 1, 2010.

SOURCES: **Highway, Rail, Air,** and **Water**: U.S. Department of Transportation (USDOT), Pipeline and Hazardous Materials Safety Administration (PHMSA), *Incident Statistics*, available at http://www.phmsa.dot.gov/hazmat/library/data-stats/incidents as of December 2010; **Pipeline**: USDOT, PHMSA, Office of Pipeline Safety, *Accident/Incident and Mileage Summary Stats*, available at http://phmsa.dot.gov/pipeline/library/data-stats as of December 2010.

TABLE 1-6 Top 20 Reported Hazardous Material Incidents: 2009

Rank	Commodity Name	Hazard Class	Incidents
1	Paint or Paint-Related Material	Flammable-Combustible Liquid	1,355
2	Paint-Related Material	Flammable-Combustible Liquid	1,070
3	Flammable Liquids, N.O.S.	Flammable-Combustible Liquid	799
4	Paint	Combustible Liquid	612
5	Corrosive Liquids, N.O.S.	Corrosive Material	602
6	Isopropanol	Flammable-Combustible Liquid	481
7	Sodium Hydroxide Solution	Corrosive Material	413
8	Fire Extinguishers	Nonflammable Compressed Gas	320
8	Hydrochloric Acid Solution	Corrosive Material	320
10	Corrosive Liquid, Basic, Inorganic	Corrosive Material	318
11	Printing Ink, Flammable	Flammable-Combustible Liquid	280
12	Resin Solution, Flammable	Flammable-Combustible Liquid	262
13	Corrosive Liquid, Acidic, Inorganic	Corrosive Material	248
14	Methanol	Flammable-Combustible Liquid	236
15	Consumer Commodity	Other Regulated Material, Class D	226
16	Alcohols, N.O.S.	Flammable-Combustible Liquid	222
17	Potassium Hydroxide Solution	Corrosive Material	221
18	Gasoline	Flammable-Combustible Liquid	220
19	Aerosols Flammable	Flammable Compressed Gas	189
20	Sulfuric Acid	Corrosive Material	179

KEY: N.O.S. = Not Otherwise Specified.

NOTES: Due to multiple commodities being involved in a single incident, the totals above may not correspond to the totals in other reports. The *Hazardous materials* incident reporting requirements and the Incident Report Form (Form DOT F 5800.1) were changed as of Jan. 1, 2005. Reportable incidents now include all undeclared hazardous materials shipments and specification cargo tanks that receive damage to their lading retention systems while hauling hazardous materials. *Paint-Related Material* (Flammable-Combustible Liquid) include paint thinning, drying, removing or reducing compound. *Paint* (Combustible Liquid) includes paint, lacquer, enamel, stain, shellac solutions, varnish, polish, liquid filler, and liquid lacquer base.

SOURCE: U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration, *Hazardous Materials Information System*, available at http://www.phmsa.dot.gov/staticfiles/PHMSA/DownloadableFiles/Files/2009comdrank.pdf as of October 2010.

A roadside inspection is an examination of individual commercial motor vehicles and drivers to determine if they are in compliance with the Federal Motor Carrier Safety Regulations or Hazardous Materials Regulations. If a serious violation is detected, the driver is issued an out-of-service order. The violation must then be corrected before the driver or vehicle may return to service.

TABLE 1-7 Roadside Truck Inspections: 2004–2009

Thousands

	Trucks inspected	Trucks taken out of service	Inspected trucks taken out of service (percent)
2004	2,253	532	23.6
2005	2,970	676	22.8
2006	3,194	735	23.0
2007	3,274	717	21.9
2008	3,340	706	21.1
2009	3,463	660	19.1

NOTES: Trucks are taken out of service (OOS) when inspectors find serious violations that warrant the issuance of a driver or vehicle OOS order, such as hazardous mechanical condition, hazardous materials onboard, or lack of required operating authority. Data include United States, Mexico, and Canada. There may be data inconsistencies across the 2004-2006 time series. The Bureau of Transportation Statistics obtained the data at different times and was unable to verify the consistency of the entire data series prior to publication.

SOURCE: U.S. Department of Transportation, Federal Motor Carrier Safety Administration, *Roadside Inspection Activity Summary by Inspection Type*, available at http://ai.fmcsa.dot.gov/siteguide/data.asp as of September 2010.

TABLE 1-8 International Piracy and Armed Robbery at Sea: 2004-2009

Number of incidents

	Malacca Strait	Indian Ocean	East Africa	West Africa	South America	Mediterranean Sea	South China Sea	Total
2004	60	41	13	57	46	0	113	330
2005	20	51	47	23	26	0	97	266
2006	22	53	31	31	31	1	66	240
2007	12	40	60	60	25	3	67	282
2008	2	26	134	50	19	2	72	306
2009	NR	27	222	46	36	NR	71	402

KEY: NR = Not reported.

NOTES: Incidents include attempts and threatening actions. Details may not add to totals because of missing categories.

SOURCE: International Maritime Organization, *Reports on Acts of Piracy and Armed Robbery Against Ships* (Annual Issues), available at http://www.imo.org/home.asp as of June 2010.

Chester Ford

State of Good Repair

Ensuring that the United States proactively maintains its critical transportation infrastructure in a state of good repair is one of the U.S. Department of Transportation's goals in its *Strategic Plan for FY2010–FY2015*. This section presents three topics related to the state of good repair:

1. the extent and condition of the U.S. transportation system,
2. vehicle characteristics and age, and
3. transportation expenditure by government agency and the private sector.

Extent and Condition of Transportation Systems

This section, in two parts, demonstrates improvements in the state of good repair for the U.S. transportation system. The first part highlights the characteristics of the transportation system and service providers. The second part presents the condition of U.S. transportation infrastructure, which includes highways, bridges, transit, airports, and railroads.

Characteristics of the Transportation System and Service Providers

U.S. transportation capital stock[1] steadily increased from 2004 to 2009 and reached more than $6 trillion in 2009. The average annual growth rate for trans-

[1] See glossary for a complete definition of *capital stock*, which is a commonly used economic measure of transportation system capacity.

portation capital stock was 7.5 percent from 2004 to 2007. However, the rate of growth decreased to 3 percent from 2007 to 2008 and further decreased to a negative 0.6 percent from 2008 to 2009 (Table 2-1: *Transportation Capital Stock by Mode*). Public highways and streets as well as consumer motor vehicles are the two largest capital stock items and were worth more than 62 percent of the total value of U.S. transportation capital stock in 2009.

The greatest percentage increase in mileage for any mode from 2004 to 2009 was in light transit rail track, by 24 percent, followed by commuter rail, which increased by 10 percent. The mileage for other modes such as highways, heavy transit rail, and pipeline for hazardous liquid and gas increased on average by 2 percent. However, the mileage of Class I rail track decreased by 4 percent, from 98,000 miles in 2004 to 94,000 miles in 2009 (Table 2-2: *Transportation System Mileage within the United States*).

For railways, the number of new and rebuilt locomotives and freight cars decreased by 40 and 64 percent, respectively, from 2008 to 2009. Because of decreased freight traffic as a result of the economic downturn, about one-fifth of the locomotive fleet and one-third of the railcar fleet were in storage in 2009, reducing the need for new and rebuilt locomotives and freight cars.[2] However, Class I railroads replaced more than 700,000 tons of rail and 15 million crossties in 2008 (Table 2-3: *New and Rebuilt Locomotives and Freight Cars* and Table 2-4: *Rail and Crossties Replaced or Added by U.S. Class I Railroads*).

Coinciding with the economic downturn, the number of airlines, marine vessel service providers, and pipeline operators decreased from 2007 to 2009, although the number of interstate motor carriers increased slightly and railroad companies remained the same. The economic downturn seemed to have affected both airlines and marine vessel operators more than service providers in other modes. The number of air carriers decreased by more than 13 percent to 95 carriers from 2007 to 2008, and marine vessel operators declined by 8 percent to 652 operators in 2008 (Table 2-5: *Number of Air Carriers, Railroads, Interstate Motor Carriers, Marine Vessel Operators and Pipeline Operators*).

Conditions of Transportation Infrastructure

The following section presents key statistics on the physical condition of the U.S. Transportation System:

Highways and Bridges

From 2004 to 2008, the share of urban and rural roads with poor and mediocre ratings decreased by 3 and 5 percent per year on average, respectively. In 2008, 79, 94, and 90 percent of urban interstates, freeways, and rural interstates, respec-

[2] Association of American Railroads, *Railroad Facts 2010* (Washington, DC: 2010), p. 6.

tively, were ranked better than the poor or mediocre rating. Although some moderate improvements were made for collector roads, 17 percent of rural collector roads and 35 percent of urban collector roads were still in poor or mediocre condition in 2008 (Table 2-7: *Rural and Urban Roads in Poor or Mediocre Condition by Functional Class*).

In 2009, there were nearly 71,200 bridges with a structurally deficient rating in the United States, an 8 percent decrease in deficient bridges compared to 2004. In 2009, approximately 82 percent of the deficient bridges were located in rural areas (Table 2-8: *Condition of U.S. Highway Bridges*).

Transit

From 2000 to 2006 (the latest year for which data are available), communication systems, traction power systems, elevated structures, and rail maintenance facilities used by transit have improved, and the percentage of facilities with poor or marginal (i.e., substandard) ratings declined.[3] The largest improvement occurred in communication systems, which had improved from poor and substandard ratings by more than 25 percentage points. However, other transit assets, such as stations, train control systems, revenue collection systems, underground tunnels, and bus maintenance facilities, had either no improvement or an increase in poor and substandard ratings.

From 2008 to 2009, the average ages of heavy rail and commuter rail passenger coaches declined slightly, 1.7 and 0.4 years, respectively. The average ages of vehicles for light rails remained the same level and for full-size transit buses increased 0.1 years (Table 2-11: *Average Age of Urban Transit Vehicles*).

Airports

For nearly 3,400 airports, which are covered in the *National Plan of Integrated Airport Systems* and include commercial service and general aviation airports, more than 97 percent of runways had good or fair ratings in 2010 (Table 2-9: *U.S. Airport Runway Pavement Conditions*).[4]

[3] U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *National Transportation Statistics*, table 1-28b, Condition of Urban Bus and Rail Transit Maintenance Facilities and table 1-28c, Condition of Rail Transit Infrastructure, available at http://www.bts.gov/publications/national_transportation_statistics/#chapter_1 as of October 2010.

[4] The National Plan of Integrated Airport Systems (NPIAS) identifies nearly 3,400 public-use airports that are significant to national air transportation and eligible to receive grants under the Federal Aviation Administration Airport Improvement Program. For additional information on NPIAS, please see "National Plan of Integrated Airport Systems (NPIAS) 2011-2015," Federal Aviation Administration report to the United States Congress, available http://www.faa.gov/airports/planning_capacity/npias/reports/media/2011/npias_2011_narrative.pdf as of November 2010.

Railroad

The number of rail-related accidents declined from nearly 6,500 in 2004 to 3,800 in 2009, which was a 40 percent reduction (Table 1-3: *Transportation Accidents by Mode*). In addition, property damage caused by railroad accidents declined by 35 percent from its peak of $339.8 million dollars in 2005 to $221.8 million dollars in 2009.[5]

[5] U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *National Transportation Statistics*, table 2-39, available at http://www.bts.gov/publications/national_transportation_statistics/ as of November 2010.

TABLE 2-1 Transportation Capital Stock by Mode: 2004–2009

Current dollars (billions)

	2004	2005	2006	2007	2008	2009
Public highways and streets	1,837.6	2,056.0	2,354.5	2,641.4	2,811.9	2,826.3
Consumer motor vehicles	1,268.5	1,302.4	1,306.8	1,318.4	1,263.3	1,277.5
In-house transportation	696.1	738.5	791.2	828.9	823.9	767.3
Other publicly owned transportation	379.3	419.8	477.5	529.9	563.0	568.6
Railroad transportation	302.4	308.9	317.3	326.3	337.5	340.5
Air transportation	237.4	243.6	247.5	252.9	263.2	254.5
Other privately owned transportation	109.0	111.2	116.1	115.8	116.3	111.3
Pipeline transportation	105.2	115.3	123.8	136.5	166.0	167.3
Commercial truck transportation	71.4	82.3	93.8	93.2	94.5	90.2
Water transportation	47.1	49.6	54.6	56.3	59.2	58.9
Private ground passenger transportation	40.4	42.2	44.7	46.6	47.4	45.6
Total	5,094.4	5,469.8	5,927.8	6,346.2	6,546.2	6,508.0

NOTES: Data include only privately owned capital stock unless otherwise noted. Capital stock data are reported after deducting depreciation. *Consumer motor vehicles* are considered consumer durable goods. *In-house transportation* includes transportation services provided within a firm whose main business is not transportation. For example, grocery companies often use their own truck fleets to move goods from their warehouses to their retail outlets. *Other publicly owned transportation* includes publicly owned airway, waterway, and transit structures but does not include associated equipment. *Other privately owned transportation* includes sightseeing, couriers and messengers, and transportation support activities, such as freight transportation brokers. Details may not add to totals due to rounding.

SOURCE: U.S. Department of Commerce, Bureau of Economic Analysis, *Fixed Asset Tables*, tables 3.1ES, 7.1B, 8.1, and *Nonresidential Detailed Estimates*, available at http://www.bea.gov/ as of September 2010.

TABLE 2-2 Transportation System Mileage Within the United States: 2004–2009

Miles

		Rail		Transit rail			Navigable	Pipeline	
	Highway	Class I	Amtrak	Commuter rail	Heavy rail	Light rail	waterways	Oil	Gas
2004	3,981,512	97,662	22,256	6,875	1,596	1,187	26,000	163,469	1,484,813
2005	3,995,635	95,830	22,007	7,118	1,622	1,188	26,000	162,919	1,484,374
2006	4,016,741	94,942	21,708	6,972	1,623	1,280	26,000	162,887	1,503,791
2007	4,032,126	94,440	21,708	7,135	1,623	1,341	25,320	166,256	1,523,411
2008	4,042,778	94,209	21,178	7,261	1,623	1,397	25,320	169,586	1,532,713
2009	4,050,717	93,921	21,178	7,561	1,623	1,477	25,320	172,048	1,539,911

NOTES: *Highway* includes all public road and street mileage in the 50 states and the District of Columbia. Approximately 43,000 miles of Bureau of Land Management Roads are excluded. *Class I* rail data represent miles of road owned (aggregate length of road, excluding yard tracks, sidings, and parallel lines). Portions of *Class I* freight railroads, *Amtrak*, and *Commuter rail* networks share common trackage. *Amtrak* data represent nondirectional route-miles operated. Some *Amtrak* service is operated on the right-of-way owned by *Amtrak*, but the majority of route miles are on right-of-way owned by *Class I* freight railroads or commuter rail networks. Transit system length is measured in directional route-miles. Directional route-miles is 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. Directional route-mileage data for the *Commuter rail* and *Light rail* modes include purchased transportation.

Navigable waterways are estimated sums of all domestic waterways, which include rivers, bays, channels, and the inner route of the Southeast Alaskan Islands, but do not include the Great Lakes or deep ocean traffic. The Waterborne Commerce Statistics Center considers 12,000 miles as commercially significant inland shallow-draft waterways as of 2007. *Oil pipeline* includes trunk and gathering lines for crude-oil pipeline. *Gas pipeline* mileage includes transmission, gathering, and distribution.

Gas pipeline data are obtained from Pipeline and Hazardous Materials Safety Administration, while data from the American Gas Association were used in previous reports.

SOURCES: **Highway**: Federal Highway Administration; **Rail**: Association of American Railroads and National Railroad Passenger Corporation (Amtrak); **Transit**: Federal Transit Administration; **Navigable Waterways**: U.S. Army Corps of Engineers; **Pipeline**: Pipeline and Hazardous Materials Safety Administration, Office of Pipeline Safety as cited in U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *National Transportation Statistics*, table 1-1, available at http://www.bts.gov/publications/national_transportation_statistics as of January 2011.

TABLE 2-3 New and Rebuilt Locomotives and Freight Cars: 2004–2009

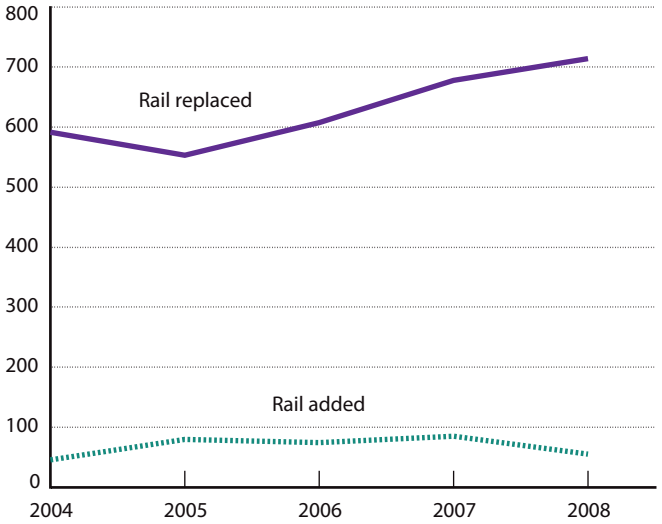
	Locomotives	**Percent of fleet**	Freight cars	**Percent of fleet**
2004	1,126	5.1	47,843	3.7
2005	911	4.0	70,154	5.3
2006	1,080	4.6	76,528	5.6
2007	1,069	4.4	65,196	4.7
2008	948	3.9	60,911	4.4
2009	563	2.3	21,828	1.6

NOTES: *Locomotive* data are for Class I railroads only. *Freight car* data cover Class I railroads, other railroads, private car owners, and shippers.

SOURCE: Association of American Railroads, *Railroad Facts 2010* (Washington, DC: 2010), pp. 49, 51, and 55.

FIGURE 2-4A Rail Replaced or Added by U.S. Class I Railroads: 2004–2008

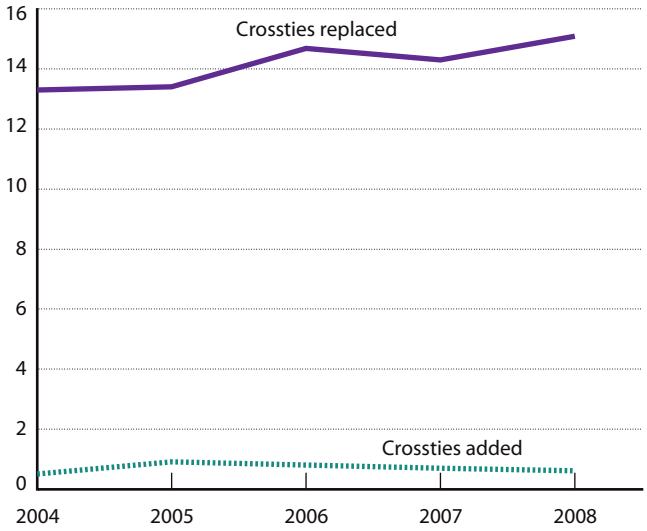
Thousands of tons



SOURCE: Association of American Railroads, *Analysis of Class I Railroads* (Washington, DC: Annual Issues), p. 17, and similar pages in previous editions.

FIGURE 2-4B Crossties Replaced or Added by U.S. Class I Railroads

Millions of crossties



SOURCE: Association of American Railroads, *Analysis of Class I Railroads* (Washington, DC: Annual Issues), p. 18, and similar pages in previous editions.

TABLE 2-4 Rail and Crossties Replaced or Added by U.S. Class I Railroads: 2004–2008

Thousands of tons of rail and millions of crossties

	Rail replaced	Rail added	Crossties replaced	Crossties added
2004	591.4	45.1	13.3	0.5
2005	553.3	79.2	13.4	0.9
2006	608.0	74.0	14.7	0.8
2007	677.8	85.0	14.3	0.7
2008	714.1	54.5	15.1	0.6

SOURCE: Association of American Railroads, *Analysis of Class I Railroads* (Washington, DC: Annual Issues), pp. 17 and 18, and similar pages in previous editions.

TABLE 2-5 Number of Air Carriers, Railroads, Interstate Motor Carriers, Marine Vessel Operators and Pipeline Operators: 2004–2009

	2004	2005	2006	2007	2008	2009
Air carriers	83	85	87	87	88	97
Major air carriers	14	17	21	22	22	21
Other air carriers	69	68	66	65	66	76
Railroads	556	560	559	563	565	563
Class I freight railroads	7	7	7	7	7	7
Other railroads	549	553	552	556	558	556
Interstate motor carriers[a]	677,317	679,744	692,789	711,792	715,011	726,928
Marine vessel operators	767	733	682	707	652	U
Pipeline operators	2,267	2,316	2,358	2,380	2,348	2,338
Hazardous liquid	281	307	337	343	350	349
Natural gas transmission	946	975	1,004	1,012	996	1,027
Natural gas distribution	1,364	1,374	1,368	1,380	1,357	1,317

[a] 2004-2005 figures are for the fiscal year, October through September. 2006-2009 figures are snapshots dated Dec. 22, 2006; Dec. 21, 2007; Dec. 19, 2008; and Dec. 18, 2009.

NOTES: *Air carrier* groups are categorized based on their total annual operating revenues as major, national, large regional, and medium regional. The annual operating revenue threshold for *Major air carriers* is currently $1 billion, which is in Section 04 of Part 241 of Title 14 of the Code of Federal Regulations. The *Other air carriers* category contains all national, large regional, and medium regional air carriers. 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.

There is some overlap among the operators for the pipeline modes so the total number of *Pipeline operators* is lower than the sum for the three pipeline modes.

SOURCES: **Air**: Research and Innovative Technology Administration, Bureau of Transportation Statistics, Office of Airline Information; **Railroads**: Association of American Railroads; Motor Carriers: Federal Motor Carrier Safety Administration; **Marine**: U.S. Army Corps of Engineers; **Pipeline**: Pipeline and Hazardous Materials Safety Administration, Office of Pipeline Safety as cited in U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *National Transportation Statistics*, table 1-2, available at http://www.bts.gov/publications/national_transportation_statistics/ as of April 2011.

TABLE 2-6 Number of U.S. Aircraft, Vehicles, and Other Conveyances: 2004–2009

	2004	2005	2006	2007	2008	2009
Air						
Air carrier	8,186	8,225	8,089	8,044	7,856	U
General aviation (active fleet)	219,426	224,352	221,943	231,607	228,663	223,877
Highway, total (registered vehicles)						
Passenger car	136,430,651	136,568,083	135,399,945	135,932,930	137,079,843	U
Motorcycle	5,767,934	6,227,146	6,678,958	7,138,476	7,752,926	U
Other 2-axle 4-tire vehicle	91,845,327	95,336,839	99,124,775	101,469,615	101,234,849	U
Truck, single-unit 2-axle 6-tire or more	6,161,028	6,395,240	6,649,337	6,806,630	6,790,882	U
Truck, combination	2,010,335	2,086,759	2,169,670	2,220,995	2,215,856	U
Bus	795,274	807,053	821,959	834,436	843,308	U
Transit						
Motor bus	61,318	62,284	64,025	63,359	63,151	63,343
Light rail cars	1,622	1,645	1,801	1,802	1,948	2,059
Heavy rail cars	10,858	11,110	11,052	11,222	11,377	11,461
Trolley bus	597	615	609	559	590	531
Commuter rail cars and locomotives	6,130	6,290	6,300	6,279	6,494	6,722
Demand response	26,333	28,346	29,406	29,433	30,773	34,235
Other	10,544	11,622	12,454	12,953	14,953	17,766
Rail						
Class I, Freight cars	473,773	474,839	475,415	460,172	450,297	416,180
Class I, Locomotive	22,015	22,779	23,732	24,143	24,003	24,045
Nonclass I freight cars	120,169	120,195	120,688	120,463	109,487	108,233
Car companies and shippers freight cars	693,978	717,211	750,404	805,074	833,188	839,020
Amtrak, Passenger train car	1,211	1,186	1,191	1,164	1,177	1,214
Amtrak, Locomotive	276	258	319	270	278	274
Water						
Nonself-propelled vessels	31,296	32,052	32,211	31,654	31,238	U
Self-propelled vessels	8,994	8,976	8,898	9,041	9,063	U
Oceangoing steam and motor ships[a]	423	366	344	275	272	196
Recreational boats	12,781,476	12,942,414	12,746,126	12,875,568	12,692,892	12,721,541

[a] 2004-06 data include 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. 2009 data includes privately owned vessels of 10,000 deadweight tons and above not including the Great Lakes vessels. All the data are year-end data.

NOTES: *Air Carriers* are those aircraft carrying passengers or cargo for hire under 14 CFR 121 and 14 CFR 135. The number of aircraft is the monthly average of the number of aircraft reported in use for the last 3 months of the year. *General aviation* data includes air taxi aircraft. *Other* transit includes aerial tramway, automated guideway transit, Alaska railroad, cable car, ferry boat, inclined plane, monorail, and van-pool. *Nonself-propelled vessels* include dry-cargo barges, tank barges, and railroad-car floats.

Self-propelled vessels include dry-cargo and/or passenger, offshore supply vessels, railroad-car ferries, tankers, and towboats. *Recreational boats* include those that are required to be numbered in accordance with Chapter 123 of Title 46 U.S.C.

SOURCES: **Air Carrier**: Aerospace Industries Association; **General Aviation**: Federal Aviation Administration; **Highway**: Federal Highway Administration; **Transit**: Federal Transit Administration; **Rail**: Association of American Railroads and National Railroad Passenger Corporation (Amtrak); **Water**: U.S. Army Corps of Engineers; U.S. Department of Homeland Security, U.S. Coast Guard; and U.S. Department of Transportation, Maritime Administration as cited in U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *National Transportation Statistics*, table 1-11, available at http://www.bts.gov/publications/national_transportation_statistics as of April 2011.

TABLE 2-7 Rural and Urban Roads in Poor or Mediocre Condition by Functional Class: 2004–2008

Percentage of mileage in roadway class

	Rural				Urban				
	Interstates	Other principal arterials	Minor arterials	Collectors	Interstates	Other freeways and expressways	Other principal arterials	Minor arterials	Collectors
2004	12.4	4.2	6.5	18.8	24.9	9.7	27.8	28.8	34.8
2005	11.2	3.6	5.4	18.5	22.8	7.8	27.4	27.5	33.5
2006	10.0	3.3	5.9	17.9	21.5	6.5	25.6	26.9	34.9
2007	9.8	3.2	5.7	17.8	21.9	7.2	26.9	27.9	36.4
2008	9.7	2.9	5.7	17.7	20.6	6.5	26.8	27.2	35.2

NOTES: Data are for the 50 states and the District of Columbia. The terms *poor* and *mediocre* as used here are Federal Highway Administration (FHWA) pavement condition criteria term categories for quantitative International Roughness Index and Present Serviceability Ratings. For additional information, see U.S. Department of Transportation, Federal Highway Administration, *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 August 2005.

SOURCE: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics* (Washington, DC: Annual Issues), tables HM-63 and HM-64 as reported in U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *National Transportation Statistics*, table 1-26, available at http://www.bts.gov/publications/national_transportation_statistics/ as of October 2010.

TABLE 2-8 Condition of U.S. Highway Bridges: 2004–2009

Number of bridges

	2004	2005	2006	2007	2008	2009
Total all bridges	593,813	595,363	597,340	599,766	601,396	603,259
Urban	137,598	142,408	146,041	151,171	153,407	156,305
Rural	456,215	452,955	451,299	448,595	447,989	446,954
Structurally deficient bridges, total	77,752	75,923	73,784	72,520	71,461	71,177
Urban	12,175	12,600	12,585	12,951	12,896	12,828
Rural	65,577	63,323	61,199	59,569	58,565	58,349
Functionally obsolete bridges, total	80,567	80,412	80,317	79,804	79,933	78,477
Urban	30,298	31,391	32,292	33,139	33,691	33,743
Rural	50,269	49,021	48,025	46,665	46,242	44,734

NOTES: Data for 2004–06 are as of July of those years; data for 2007–09 are as of December of those years.
Definitions for the terms *Structurally deficient* and *Functionally obsolete* can be found on pages 14 and 15 in Chapter 3 of the Federal Highway Administration's 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, and local roads; urban-interstate, other freeways or expressways, other principal arterial, minor arterial, collector, and local roads.

SOURCE: 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 as cited in U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *National Transportation Statistics*, table 1-27, available at http://www.bts.gov/publications/national_transportation_statistics/ as of August 2010.

TABLE 2-9 U.S. Airport Runway Pavement Conditions: 2004–2010

Percent, except as noted

	NPIAS airports (number)	Condition			Commercial service airports (number)	Condition		
		Good	Fair	Poor		Good	Fair	Poor
2004	3,356	75.0	21.0	4.0	513	82.0	16.0	2.0
2005	3,357	75.0	21.0	4.0	517	79.0	19.0	2.0
2006	3,365	77.0	19.0	4.0	517	79.0	18.0	3.0
2007	3,372	78.0	19.0	3.0	514	80.0	18.0	2.0
2008	3,356	79.0	18.0	3.0	522	81.0	17.0	2.0
2009	3,345	78.0	19.0	3.0	528	82.0	16.0	2.0
2010	3,332	79.0	18.0	3.0	503	82.0	16.0	2.0

KEY: NPIAS = National Plan of Integrated Airport Systems.

NOTES: 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 2007, there were about 16,400 non-NPIAS airports. *Commercial service airports* are defined as public airports receiving scheduled passenger service, and having at least 2,500 enplaned passengers per year.

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.

SOURCE: U.S. Department of Transportation, Federal Aviation Administration, personal communication as of December 2010 as cited in U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *National Transportation Statistics*, table 1-24, available at http://www.bts.gov/publications/national_transportation_statistics/ as of January 2011.

Vehicle Age

Overall, the United States had nearly 256 million registered vehicles in 2008, of which 93 percent were passenger cars and other two-axle and four-tire vehicles.[6] The use of recreational boats dipped 1.4 percent from 2007 to 2008, resulting in a decrease of 183,000 vessels and boats[7], but recovered with 28,000 more recreational boats numbered in 2009 than in 2008. The number of transit vehicles increased by 3 percent over those same years (Table 2-6: *Number of U.S. Aircraft, Vehicles, and Other Conveyances*).

From 2004 to 2008, the median age of automobiles in operation increased by 0.5 years and reached 9.4 years. During the same period, the median age for trucks increased by 1 year and reached 7.5 years (Table 2-10: *Median Age of Automobiles and Trucks in Operation in the United States*).

A similar pattern can be observed among buses used by transit agencies. From 2004 to 2009, the average age for full-size transit buses rose by 0.6 years to an average of 7.8 years. Ferryboats were replaced much faster than other transit vehicles, and from 2004 to 2009 the average age for ferryboats decreased by 6.3 years, making the average age 19.3 years (Table 2-11: *Average Age of Urban Transit Vehicles*).

Although the average age of heavy-rail and commuter rail vehicles decreased 1.7 and 0.4 years, respectively, from 2008 to 2009, the average age of Amtrak's locomotives and passenger rail cars reached an all-time high.[8] From 2004 to 2009, the average age of an Amtrak locomotive increased nearly 5 years and reached almost 21 years. Passenger rail cars on average were nearly 26 years old, which was 3 years older than the average age in 2004 (Table 2-12: *Average Age of Amtrak*

[6] Registered vehicle refers to vehicles that have met State safety and/or emissions guidelines and whose owners have paid appropriate fees to the State for such registration.

[7] National Marine Manufacturers Association, *2009 Recreational Boating Statistical Abstract* (Chicago, IL: 2010), available at https://www.nmma.org/statistics/publications/statisticalabstract.aspx as of Feb. 8, 2011.

[8] Joseph H. Boardman, President and Chief Executive Officer of Amtrak, *Statement before the House Appropriations Committee* (Washington, DC: Mar. 23, 2010), available at http://www.amtrak.com/servlet/ContentServer?c=Page&pagename=am%2FLayout&cid=1237608366990 as of Nov.16, 2010.

Locomotive and Train Car Fleets). To support intercity train service and improve performance and reliability, Amtrak has purchased 70 new electric locomotives and 130 new passenger rail cars in 2010.[9]

In 2008, about 47 percent of U.S. flagged vessels were more than 20 years old. Among them, 55 percent (more than 10,000) of vessels were dry barge followed by towboats, which comprised 22 percent (or 4,200 vessels). In contrast, more than 12,300 vessels, or 30 percent of the total number of vessels, were less than 10 years old (Table 2-13: *U.S. Flag Vessels by Type and Age*).

The average age of commercial aircraft in the United States increased from 10.8 years in 2004 to 12.7 years in 2008. The average age of aircraft used by major airlines also rose from 11.1 years to 12.6 years between 2004 and 2008 (Table 2-14: *Average Age of U.S. Commercial Aircraft*).

[9] "Amtrak Awards $466 Million Contract for 70 New Electric Locomotives," Amtrak, News Release, Oct. 29, 2010, available at http://www.amtrak.com/servlet/BlobServer?blobcol=urldata&blobtable=MungoBlobs&blobkey=id&blobwhere=1249216633199&blobheader=application%2Fpdf&blobheadername1=Content-disposition&blobheadervalue1=attachment;filename=Amtrak_ATK-10-141a_Amtrak_Electric_Locos_Release.pdf as of November 2010. "Amtrak Buying 130 New Passenger Rail Cars," Amtrak, News Release, July 23, 2010, available at http://www.amtrak.com/servlet/ContentServer/Page/1237608337144/1237608345018?passedYear=2010 as of November 2010.

TABLE 2-10 Median Age of Automobiles and Trucks in Operation in the United States: 2004–2008

	Cars	Light trucks	All trucks
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

NOTES: *Light trucks* are 14,000 lbs and under (gross vehicle weight classes 1-3). Median age is as of July 1st of each year.

SOURCE: 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 August 2008 as reported in U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *National Transportation Statistics*, table 1-25, available at http://www.bts.gov/publications/national_transportation_statistics/ as of January 2010.

TABLE 2-11 Average Age of Urban Transit Vehicles: 2004–2009

	Heavy-rail passenger cars	Commuter-rail passenger coaches	Light-rail vehicles	Full-size transit buses	Vans	Ferryboats
2004	19.8	17.9	15.5	7.2	3.4	25.6
2005	20.8	18.6	14.5	7.6	3.4	25.6
2006	21.6	18.6	15.3	7.4	3.1	21.7
2007	21.6	18.9	16.1	7.6	3.1	20.3
2008	20.7	18.7	16.4	7.7	3.3	20.1
2009	19.0	18.3	16.4	7.8	3.2	19.3

NOTES: *Full-size transit buses* have more than 35 seats. Data are for directly operated service vehicles only.

SOURCE: U.S. Department of Transportation, Federal Transit Administration, *National Transit Database*, *Data Tables*, table 25, available at http://www.ntdprogram.gov/ and as reported in U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *National Transportation Statistics*, table 1-28, available at http://www.bts.gov/publications/national_transportation_statistics as of January 2011.

TABLE 2-12 Average Age of Amtrak Locomotive and Train Car Fleets: Fiscal Years 2004–2009

Years

	Locomotives	Passenger cars and other rolling stock
2004	15.7	22.4
2005	16.4	23.3
2006	17.5	22.5
2007	18.6	23.5
2008	19.6	24.5
2009	20.6	25.5

NOTE: Roadrailers, highway trailers and semi-trailers that are specially built for use in railroad intermodal service, are not considered as rolling stock in this calculation.

SOURCE: National Railroad Passenger Corporation (Amtrak), personal communication, July 2010 as reported in U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *National Transportation Statistics*, table 1-32, available at http://www.bts.gov/publications/national_transportation_statistics/ as of October 2010.

TABLE 2-13 U.S. Flag Vessels by Type and Age: 2008

Number

	Age group (years)					
Vessel types	< = 5	6–10	11–15	16–20	21–25	> 25
Dry cargo	90	102	96	94	87	425
Tanker	10	8	6	3	12	37
Towboat	475	360	214	155	205	4,003
Passenger	45	72	95	129	138	341
Offshore support	295	292	123	93	88	936
Dry barge	4,494	4,435	4,543	2,524	935	9,395
Tank/liquid Barge	1,127	494	390	259	63	2,225
Total	6,536	5,766	5,469	3,257	1,528	17,375

NOTES: *Total* includes a small number of boats whose ages are unknown. Data includes vessels available for operation. Age is based on the year the vessel was built or rebuilt, using calendar year 2008 as the base year. *Dry cargo* includes dry bulk, containership, general cargo, and specialized cargo. *Dry barges* includes dry cargo barges that may be open or covered, lash/seabee, or deck. *Tank/liquid barges* include single and double hull barges.

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 7, 2010.

TABLE 2-14 Average Age of U.S. Commercial Aircraft: 2004–2008

Years

	All commercial aircraft	Major airlines aircraft	Major airlines share of commercial aircraft (percent)
2004	10.8	11.1	74.9
2005	11.3	11.3	81.5
2006	11.8	11.6	83.6
2007	12.0	11.7	83.2
2008	12.7	12.6	82.2

NOTES: Large Certificated Air Carriers include Major, National, Large Regional, and Medium Regional airlines. Average aircraft age is based on the year that an aircraft was delivered to the original owner from the manufacturer and does not reflect the age of the engines or other parts that may have been replaced more recently. Commercial aircraft are aircraft of air carriers providing scheduled or nonscheduled passenger or freight service, including commuter and air taxi on-demand services. *Major airlines aircraft* includes only airlines with total operating revenues greater than $1 billion annually. In 2008, they were Abx Air, AirTran Airways, Alaska Airlines, American Airlines, American Eagle Airlines, Atlantic Southeast Airlines, Atlas Air International, Comair, Continental Airlines, Delta Air Lines, ExpressJet Airlines, Federal Express, Frontier Airlines, JetBlue Airways, Mesa Airlines, Northwest Airlines, Skywest Airlines, Southwest Airlines, United Airlines, United Parcel Service (UPS), and US Airways.

SOURCE: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, Office of Airline Information, *TranStats Database, Form 41, Schedule B-43*, special tabulation, October 2010.

Transportation Expenditures

In 2009, the value of transportation-related construction that was put in place and sponsored by Federal, State, and local governments reached $111 billion, a 46 percent increase from 2004.[10] Among those transportation construction projects, 74 percent of spending was related to highway and street construction.

To stimulate the U.S. economy, the Federal Government increased spending on highway-related transportation by 32 percent in the first 9 months of 2010 over the same time period in 2009 (Table 2-15: *Federal, State, and Local Expenditures on Highways and Streets*). Much of the spending was through the TIGER (Transportation Investment Generating Economic Recovery) Discretionary Grant Program created by the USDOT in response to the *American Recovery and Reinvestment Act of 2009*.[11]

State and local government spending on nonroadway transportation construction, including air, transit, and water transportation facilities, increased by 13 percent in the first 9 months of 2010; up from the same period in 2009. However, spending on roadways decreased by 1 percent (Table 2-16: *State and Local Expenditures on Nonroadway Transportation Construction* and Table 2-17: *State and Local Expenditures on Air Transportation Construction*).

The private sector also makes investments in transportation facilities, such as airports and railroads. In 2009, 88 percent of the transportation investment made by the private sector was on railroads.[12] From 2008 to 2009, private investment on air and railroad-related facilities decreased by 10 percent to less than $9 billion in 2009 from nearly $10 billion in 2008. It continued to decrease by 8 percent in the first 9 months of 2010 when compared with the same period in 2009 (Table 2-18: *Private Expenditures on Transportation-Related Construction*).

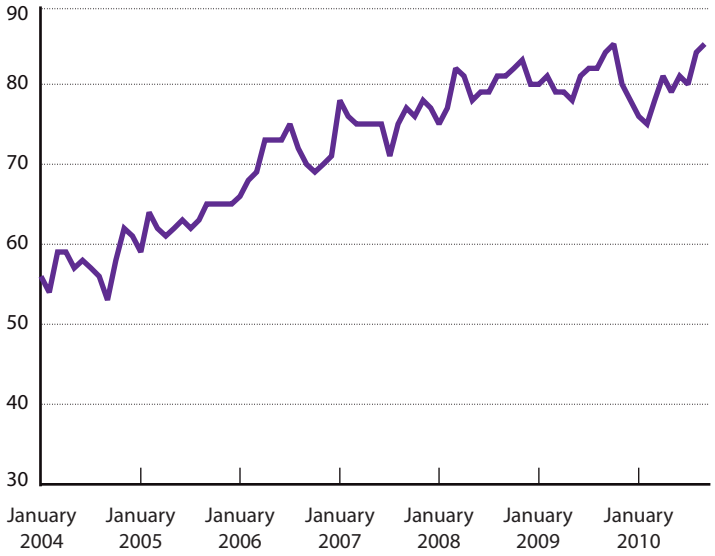
[10] U.S. Department of Commerce, U.S. Census Bureau, *Construction Spending*, available at http://www.census.gov/const/www/c30index.html as of October 2010.

[11] For additional information, please see the U.S. DOT *Recovery Act* website, available at http://www.dot.gov/recovery/ as of November 2010.

[12] U.S. Department of Commerce, U.S. Census Bureau, *Private Construction*, available at http://www.census.gov/const/www/privpage.html as of October 2010.

FIGURE 2-15 State and Local Expenditures on Highways and Streets Construction: January 2004–September 2010

Monthly data, seasonally adjusted annual rate (billions of dollars)



SOURCE: Federal: U.S. Department of Commerce, U.S. Census Bureau, *Construction Spending*, Federal Construction, available at http://www.census.gov/const/www/fedpage.html as of September 2010; **State and local**: U.S. Department of Commerce, U.S. Census Bureau, *Construction Spending,* State and local Construction, available at http://www.census.gov/const/www/statepage.html as of December 2010.

TABLE 2-15 Federal, State, and Local Expenditures on Highways and Streets Construction: January 2009–September 2010

Monthly data, seasonally adjusted annual rate (millions of dollars)

	Total public expenditures	Federal	State and local
January 2009	80,560	806	79,754
February 2009	81,647	797	80,850
March 2009	79,532	708	78,824
April 2009	79,217	690	78,527
May 2009	78,752	719	78,033
June 2009	81,816	794	81,022
July 2009	82,619	1,019	81,600
August 2009	82,666	804	81,862
September 2009	84,528	824	83,704
October 2009	85,795	798	84,997
November 2009	81,245	1,228	80,017
December 2009	78,999	633	78,366
January 2010	76,767	709	76,058
February 2010	75,714	954	74,760
March 2010	79,000	870	78,130
April 2010	82,090	866	81,224
May 2010	80,187	966	79,221
June 2010	82,037	1,053	80,984
July 2010	80,881	1,324	79,557
August 2010	85,378	1,378	84,000
September 2010	85,979	1,340	84,639

NOTES: Expenditure refers to the value of work done on construction projects underway during a given period of time, regardless of when work on each individual project was started or when payment was made to the contractors.

Construction includes new buildings, renovations, mechanical and electrical installations, site preparation, and other materials and structures incidental to construction. Maintenance is not included.

Highways and streets are the largest component of public transportation infrastructure spending. Pavement is the largest part of that spending, accounting for about 70 percent of state and local roadway expenditures.

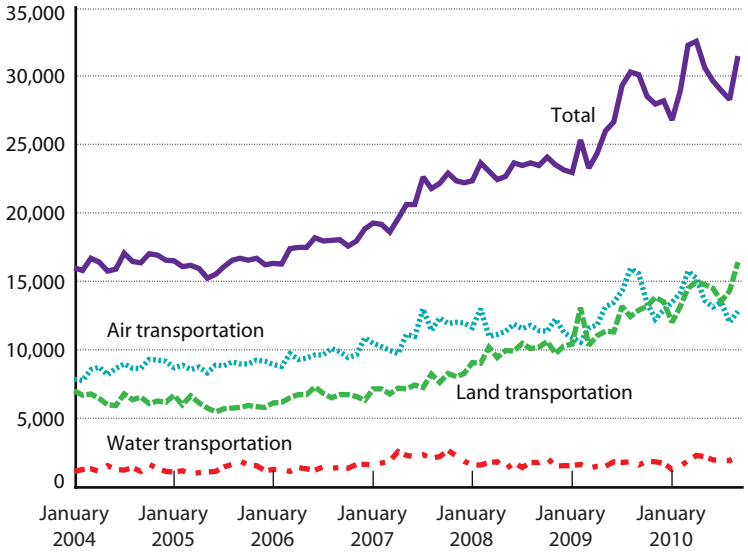
Seasonally adjusted annual rate for an individual month is an estimate of what the annual total would be if non-seasonal conditions were the same all year.

The sum of details may not add to totals due to rounding.

SOURCE: **Federal**: U.S. Department of Commerce, U.S. Census Bureau, *Construction Spending*, Federal Construction, available at http://www.census.gov/const/www/fedpage.html as of September 2010; **State and local**: U.S. Department of Commerce, U.S. Census Bureau, *Construction Spending*, State and Local Construction, available at http://www.census.gov/const/www/statepage.html as of December 2010.

FIGURE 2-16 State and Local Expenditures on Nonroadway Transportation Construction: January 2004–September 2010

Monthly data, seasonally adjusted (millions of dollars)



SOURCE: U.S. Department of Commerce, U.S. Census Bureau, *Construction Spending*, State & local, available at http://www.census.gov/const/www/c30index.html as of December 2010.

TABLE 2-16 State and Local Expenditures on Nonroadway Transportation Construction: January 2009–September 2010

Monthly data, seasonally adjusted (millions of dollars)

	Total	Air transportation	Land transportation[a]	Water transportation
January 2009	22,927	10,923	10,455	1,549
February 2009	25,315	10,572	13,077	1,667
March 2009	23,281	11,584	10,331	1,366
April 2009	24,361	11,824	11,022	1,514
May 2009	25,995	13,134	11,362	1,499
June 2009	26,639	13,453	11,336	1,850
July 2009	29,277	14,291	13,180	1,806
August 2009	30,246	15,940	12,449	1,858
September 2009	30,066	15,554	12,900	1,612
October 2009	28,500	13,420	13,186	1,894
November 2009	27,938	12,241	13,828	1,870
December 2009	28,157	12,904	13,508	1,745
January 2010	26,778	13,482	12,023	1,272
February 2010	28,905	14,174	13,207	1,524
March 2010	32,205	15,776	14,478	1,951
April 2010	32,519	15,241	14,971	2,306
May 2010	30,606	13,618	14,765	2,222
June 2010	29,620	13,139	14,506	1,974
July 2010	28,936	13,459	13,547	1,931
August 2010	28,276	12,023	14,316	1,937
September 2010	31,430	12,830	16,395	2,204

[a] Land transportation construction is primarily related to mass transit systems.

NOTES: Expenditure refers to the value of work done on construction projects underway during a given period of time, regardless of when work on each individual project was started or when payment was made to the contractors. Public expenditures on transportation construction are a measure of growth in system capacity. Construction includes new buildings, infrastructure, renovations, site preparation, and other materials and structures involved in construction. Maintenance of existing facilities and structures is not included. Construction expenditures on completely new routes and terminals are direct additions to system capacity. Construction expenditures (including renovations, expansions, conversions, etc.) on existing transportation infrastructure may improve maintenance and system management, safety, and other attributes that increase capacity.

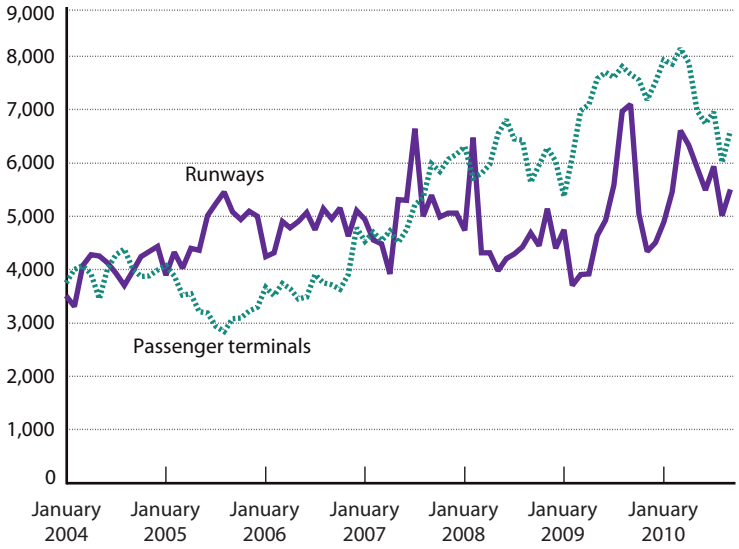
Seasonally adjusted annual rate for an individual month is an estimate of what the annual total would be if nonseasonal conditions were the same all year.

Details may not add to totals due to rounding.

SOURCE: U.S. Department of Commerce, U.S. Census Bureau, *Construction Spending*, State & local, available at http://www.census.gov/const/www/c30index.html as of December 2010.

FIGURE 2-17 State and Local Expenditures on Air Transportation Construction: January 2004–September 2010

Monthly data, seasonally adjusted annual rate (millions of dollars)



SOURCE: U.S. Department of Commerce, U.S. Census Bureau, *Construction Spending*, State and local construction, available at http://www.census.gov/const/www/c30index.html as of December 2010.

TABLE 2-17 State and Local Expenditures on Air Transportation Construction: January 2009–September 2010

Monthly data, seasonally adjusted annual rate (millions of dollars)

	Runways	Passenger terminals
January 2009	4,748	5,367
February 2009	3,705	6,112
March 2009	3,906	6,984
April 2009	3,926	7,101
May 2009	4,638	7,583
June 2009	4,932	7,696
July 2009	5,594	7,601
August 2009	6,973	7,808
September 2009	7,101	7,662
October 2009	5,046	7,555
November 2009	4,345	7,181
December 2009	4,506	7,520
January 2010	4,897	7,930
February 2010	5,452	7,851
March 2010	6,608	8,144
April 2010	6,335	7,875
May 2010	5,908	6,978
June 2010	5,496	6,743
July 2010	5,934	6,957
August 2010	5,008	6,014
September 2010	5,510	6,612

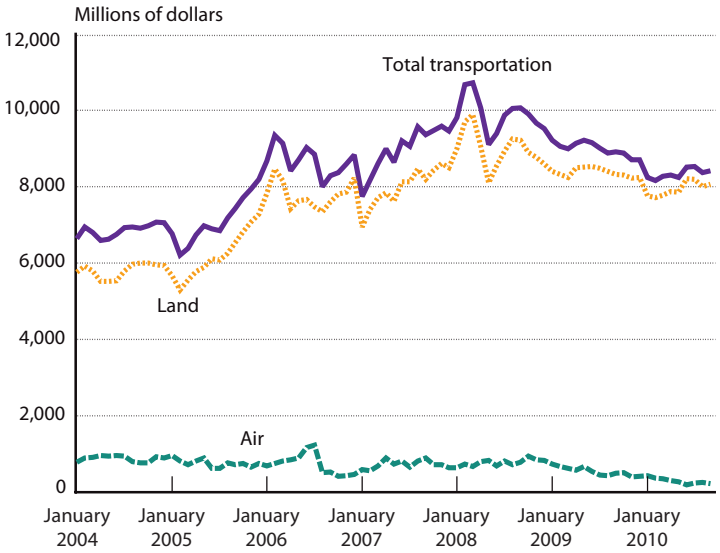
NOTES: Expenditure refers to the value of work done on construction projects underway during a given period time, regardless of when work on each individual project was started or when payment was made to the contractors. *Runways* include airport pavement and lighting. *Passenger terminals* include air passenger terminals. Other categories such as air freight terminals, air traffic towers, hangars, and other related facilities and structures are included for the air transportation total, but are not included in the monthly state and local estimates.

Seasonally adjusted annual rate for an individual month is an estimate of what the annual total would be if non-seasonal conditions were the same all year.

SOURCE: U.S. Department of Commerce, U.S. Census Bureau, *Construction Spending*, State and local construction, available at http://www.census.gov/const/www/c30index.html as of December 2010.

FIGURE 2-18A Private Expenditures on Transportation Infrastructure Construction: January 2004–September 2010

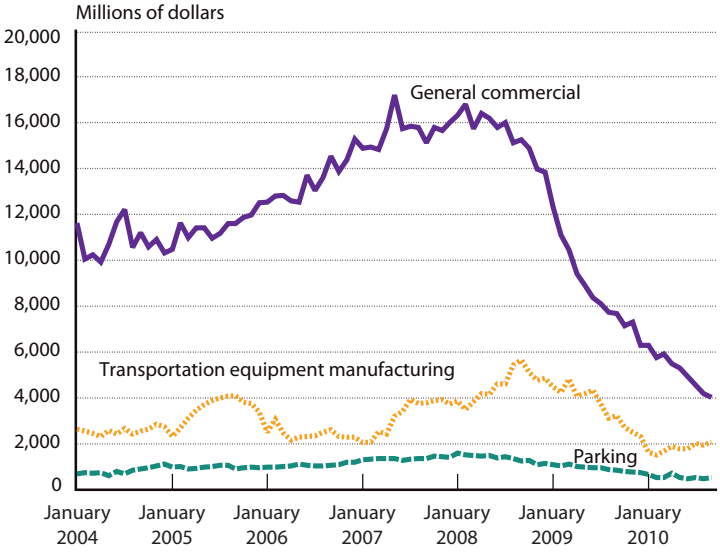
Monthly data, seasonally adjusted annual rate



SOURCE: U.S. Department of Commerce, U.S. Census Bureau, *Construction Spending*, available at http://www.census.gov/const/www/c30index.html as of December 2010.

FIGURE 2-18B Private Expenditures on Transportation-Related Construction: January 2004–September 2010

Monthly data, seasonally adjusted annual rate



SOURCE: U.S. Department of Commerce, U.S. Census Bureau, *Construction Spending*, available at http://www.census.gov/const/www/c30index.html as of December 2010.

TABLE 2-18 Private Expenditures on Transportation-Related Construction: January 2009–September 2010

Monthly data, seasonally adjusted annual rate (millions of dollars)

	Private expenditures on transportation infrastructure construction			Private expenditures on transportation-related construction		
	Total transportation	Air	Land	Transportation equipment manufacturing	Parking	General commercial warehousing
January 2009	9,206	730	8,391	4,471	1,094	12,321
February 2009	9,052	673	8,312	4,231	1,039	11,084
March 2009	8,985	621	8,231	4,825	1,108	10,434
April 2009	9,129	574	8,492	4,066	993	9,414
May 2009	9,202	660	8,499	4,181	970	8,889
June 2009	9,146	531	8,528	4,343	954	8,351
July 2009	8,999	440	8,475	3,716	958	8,086
August 2009	8,873	426	8,393	3,116	875	7,730
September 2009	8,899	489	8,316	3,212	833	7,677
October 2009	8,872	500	8,299	2,719	790	7,144
November 2009	8,700	398	8,221	2,506	770	7,284
December 2009	8,702	415	8,233	2,316	724	6,288
January 2010	8,230	424	7,751	1,604	656	6,280
February 2010	8,149	361	7,703	1,502	525	5,755
March 2010	8,258	347	7,768	1,668	521	5,914
April 2010	8,297	298	7,872	1,886	698	5,486
May 2010	8,238	269	7,851	1,777	517	5,289
June 2010	8,510	187	8,196	1,781	475	4,919
July 2010	8,518	228	8,181	2,003	511	4,556
August 2010	8,358	248	7,993	1,930	479	4,177
September 2010	8,413	221	8,061	2,080	529	4,025

NOTES: Expenditure refers to the value of work done on construction projects underway during a given period of time, regardless of when work on each individual project was started or when payment was made to the contractors. *Total transportation* is the sum of *Air*, *Land*, and *Water* transportation expenditures. Expenditure on water is not separately presented because of lack of monthly estimates. *Air* and *Land* transportation are defined the same as for state and local public expenditures. *General commercial warehousing* includes commercial warehouses, storage warehouses, and distribution buildings. *Transportation equipment manufacturing* includes construction related to transportation equipment-producing industries. *Parking* includes commercial parking lots and garages.

Seasonally adjusted annual rate for an individual month is an estimate of what the annual total would be if non-seasonal conditions were the same all year.

SOURCE: U.S. Department of Commerce, U.S. Census Bureau, *Construction Spending*, available at http://www.census.gov/const/www/c30index.html as of December 2010.

Chester Ford

Economic Competitiveness

In the *U.S. DOT Strategic Plan for FY2010–FY2015*,[1] one goal is to maximize economic returns from transportation policies and investments in the U.S. transportation system to meet future demand. The focus of this section is economic competitiveness. The first part reviews domestic productivity and output, while the second part discusses international freight and passenger movement.

Domestic Productivity and Output

On average, for-hire transportation services in the United States increased at a rate of about 3 percent per year from 2004 to 2008, compared to the U.S. gross domestic product (GDP) growth rate of about 2 percent per year, as measured in 2005 constant dollars, over the same period. Although for-hire transportation services had a much higher growth rate than that of the U.S. GDP, it also decreased much faster than the total GDP when the United States entered the latest economic downturn. Between 2008 and 2009, U.S. GDP attributed to for-hire transportation services decreased 13 percent. Among all transportation modes, decreased consumer spending had the biggest impact on rail and truck transportation services, which decreased an average 8 and 9 percent, respectively, from 2007 to 2009 as fewer goods were transported to markets to be sold. During the same period, water transportation services showed an 11 percent increase, which followed a 42 percent average annual increase from 2004 to 2007 (Table 3-1: *U.S. Gross Domestic Product Attributed to For-Hire Transportation Services*).

[1] U.S. Department of Transportation, Draft *U.S. DOT Strategic Plan FY2010-FY2015: Transportation for a New Generation* (Apr. 15, 2010), available at http://www.dot.gov/stratplan/dot_strategic_plan_10-15.pdf as of January 2011.

Due to decreased global and U.S. demand, both U.S. exports and imports as measured by the volume of international maritime containers (or millions of 20-foot equivalent units (TEUs) decreased. U.S. imports increased more than 7 percent from 2005 to 2006 and then decreased more than 21 percent from 2007 to 2009. The number of TEUs processed for imported goods decreased from a peak of nearly 19 million in 2006 to less than 15 million in 2009. Growth in U.S. exports remained relatively unchanged between 2007 and 2009 (Table 3-3: *U.S. International Maritime Container Volumes*).

The two largest U.S. maritime container ports, Los Angeles/Long Beach, CA, and New York, NY, accounted for 49 percent of the total TEUs processed in the United States in 2009. They experienced decreases of 18 and 8 percent, respectively, in TEUs processed between 2007 and 2009. Charleston, SC, experienced a decrease of 32 percent from 2007 to 2009, although the port processed a relatively small (4 percent) portion of the total TEUs (Table 3-4: *Top 10 U.S. Maritime Container Ports*).

The number of vessel calls at U.S. ports peaked at 65,000 in 2006 and then decreased by 15 percent to 56,000 calls in 2009 (Table 3-5: *Vessel Calls at U.S. Ports*). However, by comparing the first 9 months of 2010 with the same period in 2009, it is evident that U.S. foreign waterborne freight increased by approximately 9 percent (Table 3-6: *U.S. Foreign Waterborne Freight*).

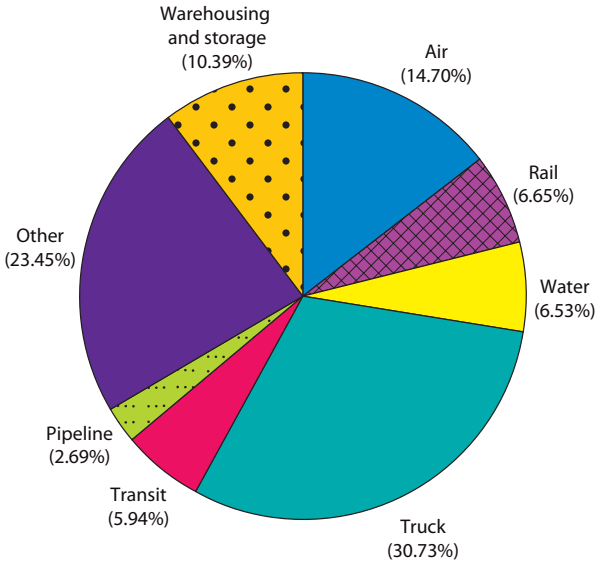
From 2004 to 2008, domestic air and water cargo showed a consistent decrease in ton-miles. Ton-miles for natural gas pipeline increased over the same period, while ton-miles for oil pipeline decreased from 2004 to 2007 before increasing 13 percent from 2007 to 2008 (Table 3-7: *U.S. Ton-Miles of Freight*). Of other freight modes, rail freight ton-miles peaked in the third quarter of 2008 above 450 billion, but decreased by 14 percent in the third quarter of 2009 due to the economic downturn (Figure 4-33: *Rail Freight Average Speeds, Revenue Ton-Miles, and Terminal Dwell Times*). The average loaded freight railcar weight was at a 5-year high in 2009 at 64.2 tons per carload, up from 61.0 in 2005 (Table 3-8: *Average Loaded U.S. Railcar Weight*).

The U.S. airline industry's operating margin, which shows the airlines profits or losses as a percentage of total operating revenue, grew from a 1.1 percent loss in 2004 to a peak of 5.7 percent in 2007. The combined effects of the high cost of fuel (Table 3-12: *Domestic and International U.S. Airline Industry Share of Operating Expenses by Category*) and a decline in the number of passengers enplaned (Table 4-9: *Domestic Enplanements at U.S. Airports*) led to a 1.8 percent loss in operating margin in 2008. However, the operating margin in 2009 recovered to 1.6 percent, and in the first half of 2010 increased to 5.6 percent (Table 3-9: *U.S. Airline Industry Operating Margins*).

Domestic or international yield as measured by revenue per mile and total operating revenue are two additional indicators that track airline performance. Between 2004 and 2008, domestic yield measured in 2000 dollars fluctuated slightly within $0.110 and $0.113 per mile, while international yield steadily increased from $0.097 to $0.108 per mile. In 2009, as a result of the economic slowdown, both domestic and international yields recorded their lowest levels at $0.098 and $0.091, respectively. In the first half of 2010, the airline industry's passenger yields were marginally better than those of 2009 (Table 3-10: *U.S. Airline Industry Passenger Yields*). Beginning in 2004, airline operating revenue increased every year until 2008. However, between 2008 and 2009, it declined from $186 billion to $155 billion, a nearly 17 percent reduction (Table 3-11: *Annual Domestic and International U.S. Airline Industry Operating Revenues*).

FIGURE 3-1 U.S. Gross Domestic Product Attributed to For-Hire Transportation Services: 2009

Percent



NOTE: Percent shares may not add to 100 due to rounding.

SOURCE: U.S. Department of Commerce, Bureau of Economic Analysis, *Industry Economic Accounts* , available at http://www.bea.gov/ as of December 2010 as reported in U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *National Transportation Statistics* , table 3-2, available at http://www.bts.gov/publications/national_transportation_statistics/ as of January 2011.

TABLE 3-1 U.S. Gross Domestic Product Attributed to For-Hire Transportation Services: 2004–2009

Billions of chained 2005 dollars

	U.S. Gross Domestic Product (GDP), total	For-hire transportation services, total	Air	Rail	Water	Truck	Transit and ground passenger transportation	Pipeline	Other transportation and support activities	Warehousing and storage
2004	12,264	346.8	54.9	26.9	6.2	110.2	21.5	10.8	85.1	31.6
2005	12,638	369.7	55.7	27.0	9.3	118.9	21.2	10.4	91.9	35.3
2006	12,976	386.1	57.5	27.3	14.9	125.3	21.9	9.8	93.8	36.6
2007	13,229	389.5	57.1	27.0	18.1	127.9	22.8	10.4	90.1	38.0
2008	13,229	392.7	54.8	26.7	22.0	124.5	22.0	13.6	93.4	38.3
2009	12,881	341.6	50.2	22.7	22.3	105.0	20.3	9.2	80.1	35.5

NOTES: Details may not add to totals due to the nature of chained dollar calculations. This table is not comparable to tables in the previous editions of TSAR because data in this table are reported based on chained 2005 dollars as opposed to chained 2000 dollars in earlier editions.

SOURCE: U.S. Department of Commerce, Bureau of Economic Analysis, *Industry Economic Accounts*, available at http://www.bea.gov/ as of December 2010 as reported in U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, National Transportation Statistics, table 3-2, available at http://www.bts.gov/publications/national_transportation_statistics/ as of January 2011.

TABLE 3-2 U.S. Waterway Facilities: 2004–2009

	Commercial facilities				
	Great Lakes	Inland	Ocean	Total	Lock sites
2004	754	2,361	6,057	9,172	212
2005	754	2,321	6,324	9,399	212
2006	754	2,321	6,509	9,584	212
2007	754	2,321	6,509	9,584	212
2008	754	2,321	6,509	9,584	212
2009[a]	646	1,883	6,467	8,350	192

[a] Includes cargo-handling docks based upon a new database and only active U.S. Army Corps of Engineers-operated locks.

NOTES: *Commercial facilities* is comprised of *Great Lakes, Inland*, and *Ocean* facilities. Only federal and state governments own locks. Therefore, locks are not included in the commercial facilities total.

SOURCE: U.S. Army Corps of Engineers, *The U.S. Waterway System—Transportation Facts* (Alexandria, VA: Annual Issues), Geographic Distribution of U.S. Waterway Facilities, available at http://www.iwr.usace.army.mil/ndc/factcard/fc09/factcard.htm as of July 2010.

TABLE 3-3 U.S. International Maritime Container Volumes: 2004–2009

Millions of TEU

	Exports	Imports	Container balance (exports minus imports)
2004	8.0	15.8	-7.76
2005	8.7	17.4	-8.68
2006	9.0	18.6	-9.64
2007	10.5	18.5	-8.08
2008	11.3	17.0	-5.75
2009	10.4	14.6	-4.14

KEY: TEU = twenty-foot equivalent unit.

NOTE: One twenty-foot container equals one TEU while one forty-foot container equals two TEU.

SOURCE: U.S. Department of Transportation, Maritime Administration, *U.S. Waterborne Foreign Container Trade by U.S. Custom Ports*, (Washington, DC: Annual Issues), available at http://www.marad.dot.gov/library_landing_page/data_and_statistics/Data_and_Statistics.htm as of August 2010.

TABLE 3-4 Top 10 U.S. Maritime Container Ports: 2004–2009

Thousands of TEU

Port	2004	2005	2006	2007	2008	2009	Percent change, 2004-2009	Average annual growth rate, 2004-2009 (percent)
Los Angeles/Long Beach, CA	8,639	9,327	10,460	10,662	10,164	8,759	1.4	0.1
New York, NY	3,163	3,417	3,651	3,893	3,956	3,577	13.1	1.2
Seattle/Tacoma, WA	1,990	2,502	2,306	2,409	2,197	1,939	-2.6	-0.3
Savannah, GA	1,290	1,491	1,588	2,017	2,106	1,907	47.8	4.0
Oakland, CA	1,197	1,378	1,398	1,423	1,388	1,392	16.3	1.5
Norfolk, VA	1,206	1,325	1,414	1,568	1,585	1,372	13.8	1.3
Houston, TX	1,098	1,250	1,276	1,394	1,363	1,255	14.3	1.3
Charleston, SC	1,421	1,522	1,507	1,401	1,326	951	-33.1	-3.9
Miami, FL	795	778	746	673	669	624	-21.5	-2.4
Port Everglades, FL	500	587	635	686	681	535	7.0	0.7
Total top 10 ports	21,299	23,577	24,982	26,126	25,435	22,310	4.7	0.5
Total all ports[a]	23,851	26,092	27,631	29,020	28,309	24,989	4.8	0.5
Top 10, percent of total	89.3	90.4	90.4	90.0	89.8	89.3		

KEY: TEU = twenty-foot equivalent unit.

[a] The statistics include both government and non-government shipments by vessel into and out of U.S. foreign trade zones, the 50 states, District of Columbia, and Puerto Rico.

NOTES: One twenty-foot container equals one TEU while one forty-foot container equals two TEUs. The data in this table include only loaded containers in U.S. international maritime activity. It includes U.S. imports, exports, and transshipments. Therefore, the trade levels will be greater than those reported from U.S. international trade statistics, which excludes transshipments. The statistics exclude postal and military shipments.

SOURCE: U.S. Department of Transportation, Maritime Administration, *U.S. Waterborne Foreign Container Trade by U.S. Custom Ports* (Washington, DC: Annual Issues), available at http://www.marad.dot.gov/library_landing_page/data_and_statistics/Data_and_Statistics.htm as of July 2010.

TABLE 3-5 Vessel Calls at U.S. Ports: 2004–2009

Number of 10,000 deadweight tonnage (dwt) or greater vessel calls

Type	2004	2005	2006	2007	2008	2009	Percent change, 2004–2009
Tanker	19,316	20,118	21,231	21,724	20,907	19,641	1.7
Double hull	14,055	15,869	17,747	19,026	19,036	18,631	32.6
Product	11,572	12,217	13,282	13,277	12,662	11,815	2.1
Double hull	7,712	8,799	10,252	10,811	10,952	10,887	41.2
Crude	7,744	7,901	7,949	8,447	8,245	7,826	1.1
Double hull	6,343	7,070	7,495	8,215	8,084	7,744	22.1
Container	18,279	18,542	19,591	19,863	18,735	18,206	-0.4
Dry Bulk	11,631	11,406	12,508	11,040	10,363	8,587	-26.2
Ro-Ro	5,317	5,663	6,318	6,077	5,964	4,951	-6.9
Vehicle	3,065	3,652	4,182	4,084	4,102	3,336	8.8
Gas	916	969	961	917	769	704	-23.1
LNG	173	203	213	202	171	201	16.2
Combination	459	414	334	235	180	135	-70.6
General	3,967	3,935	4,054	3,948	3,660	3,336	-15.9
All Types	59,885	61,047	64,997	63,804	60,578	55,560	-7.2

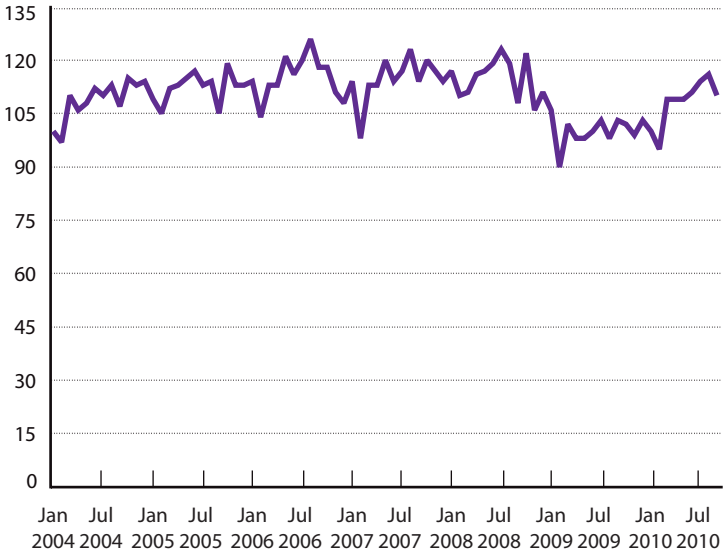
KEY: LNG = Liquefied Natural Gas; Ro-Ro = Roll on-Roll off.

NOTE: See glossary for definitions of vessel types.

SOURCE: U.S. Department of Transportation, Maritime Administration, *Vessel Calls at U.S. Ports Snapshot* (Washington, DC: August 2010), available at http://www.marad.dot.gov/library_landing_page/data_and_statistics/Data_and_Statistics.htm as of October 2010.

FIGURE 3-6 U.S. Foreign Waterborne Freight: January 2004–September 2010

Millions of metric tons of U.S. waterborne imports and exports
(monthly, not seasonally adjusted)



SOURCE: **January 2004–December 2005**: U.S. Department of Transportation, Maritime Administration, *U.S. Foreign Waterborne Transportation Statistics Data* , September 2006; **January 2006–September 2010**: U.S. Department of Commerce, U.S. Census Bureau, *Foreign Trade Statistics , FT920 - U.S. Merchandise Trade: Selected Highlights, Exhibit 3 and Exhibit 9* , available at http://www.census.gov/foreign-trade/statistics/index.html as of December 2010.

TABLE 3-6 U.S. Foreign Waterborne Freight: January 2009–September 2010

Tonnage of U.S. waterborne imports and exports (monthly, not seasonally adjusted)

	Metric tons (thousands)
January 2009	105,683
February 2009	90,112
March 2009	101,643
April 2009	98,033
May 2009	98,033
June 2009	99,988
July 2009	102,577
August 2009	98,347
September 2009	102,538
October 2009	102,230
November 2009	99,452
December 2009	103,180
January 2010	100,240
February 2010	94,891
March 2010	108,785
April 2010	109,433
May 2010	109,320
June 2010	110,989
July 2010	113,795
August 2010	116,427
September 2010	109,778

NOTES: Import and export tonnage helps identify the volume of cargo flowing through U.S. ports and the resulting vessel traffic on U.S. coastal waters. It also helps identify needs for intermodal truck and rail traffic. Most U.S. coastal ports handle both foreign and domestic cargoes.
A metric ton is equal to 2,204.6 pounds.

SOURCE: U.S. Department of Commerce, U.S. Census Bureau, *Foreign Trade Statistics, FT920 - U.S. Merchandise Trade: Selected Highlights, Exhibit 3 and Exhibit 9*, available at http://www.census.gov/foreign-trade/statistics/index.html as of December 2010.

TABLE 3-7 U.S. Ton-Miles of Freight: 2004–2008

Billions

	Air	Railroad	Water	Oil and oil products pipeline	Natural gas pipeline
2004	16	1,684	621	600	338
2005	16	1,733	591	608	331
2006	15	1,856	562	581	325
2007	15	1,820	553	558	346
2008	14	1,730	520	630	348

NOTE: BTS is currently updating its methodology for truck ton-miles, which are tentatively scheduled for release through the quarterly *National Transportation Statistics* update in April 2011.

SOURCE: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, special tabulation as reported in U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *National Transportation Statistics*, table 1-49, available at http://www.bts.gov/publications/national_transportation_statistics/ as of January 2011.

TABLE 3-8 Average Loaded U.S. Railcar Weight: 2004–2009

	Tons per carload
2004	61.3
2005	61.0
2006	60.9
2007	61.7
2008	63.1
2009	64.2

NOTE: Average *loaded U.S. railcar weight* is total tons divided by total carloads transported.

SOURCE: Association of American Railroads, *Railroad Facts 2010* (Washington, DC: 2010), p. 37.

TABLE 3-9 U.S. Airline Industry Operating Margins: 2004–2010

Percent

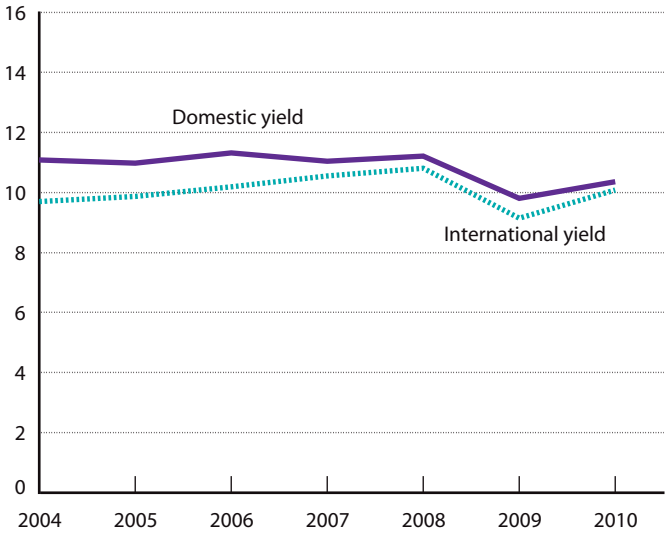
	Operating margin
2004	-1.1
2005	0.3
2006	4.9
2007	5.7
2008	-1.8
2009	1.6
2010	5.6

NOTES: 2010 data are through June. *Operating margin* is the difference between *operating revenues* and *operating expenses*, expressed as either a profit (positive) or a loss (negative), divided by operating revenue and expressed as a percentage.

SOURCE: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, Office of Airline Information, *TranStats Database, Air Carrier Financial Reports (Form 41 Financial Data)*,special tabulation, October 2010.

FIGURE 3-10 U.S. Airline Industry Passenger Yield (CPI Adjusted): 2004–2010

Revenues, cents per mile



SOURCE: **Domestic Yield** and **International Yield**: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, Office of Airline Information, *TranStats Database , Air Carrier Financial Reports* (Form 41 Financial Data), special tabulation, November 2010; **Consumer Price Index**: U.S. Department of Labor, Bureau of Labor Statistics, available at ftp://ftp.bls.gov/pub/special.requests/cpi/cpiai.txt as of November 2010.

TABLE 3-10 U.S. Airline Industry Passenger Yield (CPI Adjusted): 2004–2010

Revenues, cents per mile

	Domestic yield	International yield
2004	11.08	9.69
2005	10.97	9.87
2006	11.31	10.18
2007	11.04	10.55
2008	11.22	10.80
2009	9.81	9.14
2010	10.35	10.09

NOTES: Yields are adjusted to year 2000 dollars using the Consumer Price Index-Urban as the deflator. 2010 yields are through June 2010.

SOURCES: **Domestic Yield and International Yield**: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, Office of Airline Information, *TranStats Database, Air Carrier Financial Reports (Form 41 Financial Data)*, special tabulation, November 2010; **Consumer Price Index**: U.S. Department of Labor, Bureau of Labor Statistics, available at ftp://ftp.bls.gov/pub/special.requests/cpi/cpiai.txt as of November 2010.

TABLE 3-11 Annual Domestic and International U.S. Airline Industry Operating Revenues: 2004–2010

Millions of dollars

	Operating revenues
2004	134,660
2005	151,544
2006	165,532
2007	174,696
2008	186,119
2009	155,051
2010	84,156

NOTES: 2010 data are through June. *Operating revenues* are revenues from the performance of air transportation and related incidental services. Includes 1) transportation revenues from the carriage of all classes of Traffic in scheduled and nonscheduled services, and 2) non-transportation revenues consisting of federal subsidies (where applicable) and services related to air transportation.

SOURCE: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, Office of Airline Information, *Airline Industry, Quick Facts, Operating Revenue*, available at http://www.bts.gov/ as of October 2010.

TABLE 3-12 Domestic and International U.S. Airline Industry Share of Operating Expenses by Category: 2004–2010

Percent

	Salary and benefits	Fuel	Aircraft maintenance	Aircraft ownership	Transport related	All other
2004	30.1	16.9	10.7	18.2	15.8	8.3
2005	25.9	22.0	10.3	16.1	16.7	9.0
2006	24.5	24.6	10.1	15.2	16.5	9.1
2007	24.1	25.3	10.2	14.3	16.7	9.4
2008	20.9	30.9	9.0	12.3	16.5	10.4
2009	26.8	23.0	9.8	12.1	14.0	14.3
2010	26.4	25.1	9.7	11.6	13.5	13.7

NOTE: 2010 data are through June.

SOURCE: U.S.Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, Office of Airline Information, *Air Carrier Financial Reports (Form 41 Financial Database)*, special tabulation, October 2010.

International Freight and Passenger Movement

This section presents information on international freight transportation and passenger travel. The first part summarizes U.S. international trade in transportation-related goods. The second part highlights freight transportation between the United States, Canada, and Mexico. The third part describes U.S. international trade in transportation-related services and the number of passengers who visited the United States from Canada and Mexico.

U.S. Trade in Transportation-Related Goods

Transportation-related goods traded between the United States and other countries include motor vehicles, aircrafts, ships, and railway vehicles. In 2009, total trade (exports plus imports) of transportation-related goods reached $313 billion, comprising 12 percent of total U.S. international trade (Table 3-13: *U.S.-International Trade in Transportation-Related Goods*). U.S. trade for transportation-related goods decreased in 2008 and 2009 from its 2007 peak of $429 billion. Between 2008 and 2009, trade of transportation-related goods decreased by 24 percent. Of that total amount, there was a 31 percent decrease of imports, which was two times greater than the decline in exports.

The United States maintains a competitive edge in exporting aircraft, ships, and railway vehicles. In 2009, these commodities were exported by the United States more than they were imported. Although these exports accounted for 35 percent of trade for transportation-related goods, they made a positive contribution to the U.S. trade balance (Table 3-14: *U.S. Trade in Transportation-Related Goods by Commodity*).

Almost two-thirds of U.S. trade in terms of transportation-related goods was motor vehicles. Although the United States was a net importer of motor vehicles, the magnitude of the trade imbalance (imports over exports) for this commodity has declined. After reaching a peak ($123 billion) in 2006, the trade imbalance for motor vehicles decreased in 2009 to $57 billion, which was a 53 percent decrease (Table 3-14: *U.S. Trade in Transportation-Related Goods by Commodity*).

Freight Transportation between the United States, Canada, and Mexico

Canada and Mexico are two of the top three trading partners of the United States. From 2004 to 2008, merchandise trade between the United States, Canada, and Mexico continued to increase from $712 billion in 2004 to a peak of more than $960 billion in 2008, which was a 35 percent increase. Total U.S. trade with Canada and Mexico decreased to $735 billion in 2009 as well as personal con-

sumption of transportation across North America (Table 3-15: *U.S. Surface Trade with Canada and Mexico*).[2]

Trucks, rail, and pipeline transported more than 80 percent of commodities (by value). Among those surface transportation modes, trucks moved more than 58 percent of trade with Canada and 68 percent of trade with Mexico by value in 2009.

Since 2004, the numbers of incoming trucks and trains from Canada to the United States have consistently declined. The number of incoming trucks from Canada decreased 27 percent from nearly 7 million in 2004 to 5 million in 2009. Similarly, the number of incoming trains from Canada to the United States decreased by 27 percent from 33,000 in 2004 to 24,000 in 2009. In contrast, the number of incoming trucks and trains from Mexico to the United States increased until 2007 and then declined in the next two years due to the economic downturn. (Table 3-16: *Incoming Truck and Train Crossings to the United States from Mexico and Canada*.)

A similar pattern can be observed for incoming loaded rail containers from Canada and Mexico to the United States. From 2004 to 2009, the number of rail containers from Canada decreased by nearly 462,000 and reached about 1 million in 2009. Rail containers coming from Mexico to the United States peaked at 383,000 in 2006 and decreased to 239,000 in 2009, a 38 percent decline (Table 3-17: *Incoming Full Rail Containers to the United States from Mexico and Canada*).

Passenger Travel

From 2004 to 2007, international travel to and from the United States increased 1 to 5 percent each year (measured in 2005 constant dollars), as indicated by the total U.S. trade (exports plus imports) in transportation-related services, which includes passenger fares and other transportation. In 2007, international travel reached a peak of $142 billion dollars (in 2005 constant dollars). International travel is typically sensitive to global economic conditions and changes in currency exchange rates. Due to decreased international passenger travel, total U.S. trade in transportation-related services decreased by 13 percent from 2008 to 2009 and reached $122 billion in 2009 (Table 3-18: *U.S.-International Trade in Transportation-Related Services*).[3]

The total number of visitors from Canada and Mexico declined since 2004. In 2009, the total number of visitors from both countries was about 240,000, which

[2] *North American Transportation Statistics Online Database*, table 2-1, available at http://aplicaciones1.sct.gob.mx/nats/sys/themes.jsp?id=2&i=3 as of Feb. 8, 2011.

[3] *North American Transportation Statistics Online Database*, table 10-1, available at http://aplicaciones1.sct.gob.mx/nats/sys/index.jsp?i=3 as of Feb. 8, 2011.

was 22 percent lower than the number of visitors in 2004 (Table 3-19: *Passenger Crossings into the U.S. by Personal Vehicles, Bus, Train, and Foot from Mexico and Canada*). More than 76 and 95 percent of visitors from Mexico and Canada, respectively, traveled into the United States by motor vehicle. Another popular method for visitors from Mexico to enter the United States is by foot, which accounted for more than 20 percent of visitors per year.

Chapter continues on next page.

TABLE 3-13 U.S.-International Trade in Transportation-Related Goods: 2004–2009

Millions of current dollars

	Imports	Exports	Total	U.S. trade balance
2004	211,111	118,749	329,860	-92,362
2005	219,522	137,214	356,736	-82,308
2006	236,269	164,870	401,139	-71,400
2007	239,903	188,858	428,761	-51,045
2008	220,111	189,713	409,824	-30,398
2009	151,937	160,823	312,760	8,885

NOTES: *Transportation-related goods* are motor vehicles and parts, aircraft and spacecraft and parts, railway vehicles and parts, and ships and boats. Data may not add to total because of independent rounding. *Trade balance* is equal to exports minus imports. All dollar amounts are in current dollars. These data have not been adjusted for inflation because there is no specific deflator available for transportation-related goods. In addition, it is difficult to control for trading partners' inflation rates as well as currency exchange fluctuations when adjusting the value of internationally traded goods and services for inflation.

SOURCE: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, calculations based on data from U.S. Department of Commerce, U.S. International Trade Commission, *Interactive Tariff and Trade DataWeb*, available at http://dataweb.usitc.gov/ as of July 2010.

TABLE 3-14 U.S. Trade in Transportation-Related Goods by Commodity: 2009

Millions of current dollars

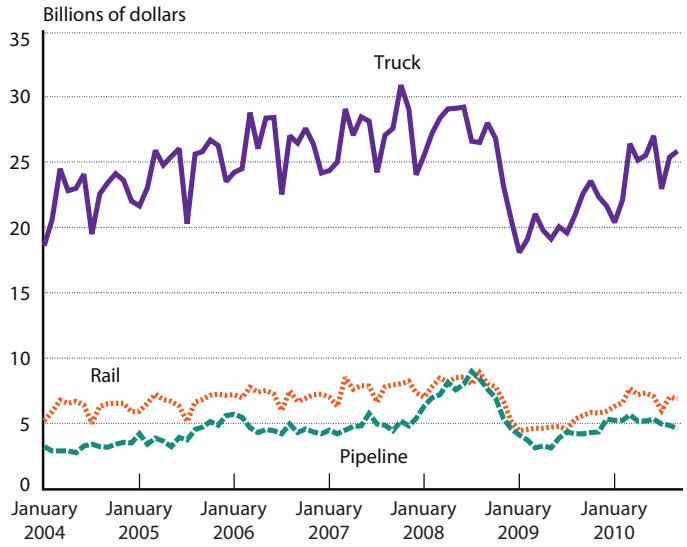
	Total trade	Trade balance
Vehicles other than railway	204,670	-57,466
Aircraft, spacecraft, and parts	101,301	64,613
Ships, boats, and floating structures	3,309	773
Railway locomotives and parts	3,478	964
Total, transportation-related goods	312,760	8,885
Total, all commodities	2,614,808	-500,944

NOTES: These data have not been adjusted for inflation because there is no specific deflator available for transportation-related goods. In addition, it is difficult to control for trading partners' inflation rates as well as currency exchange fluctuations when adjusting the value of internationally traded goods and services for inflation. *Trade balance* is equal to exports minus imports.

SOURCE: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, calculations based on data from U.S. Department of Commerce, U.S. International Trade Commission, *Interactive Tariff and Trade DataWeb*, available at http://dataweb.usitc.gov/ as of July 2010.

FIGURE 3-15A U.S. Surface Trade With Canada: January 2004–September 2010

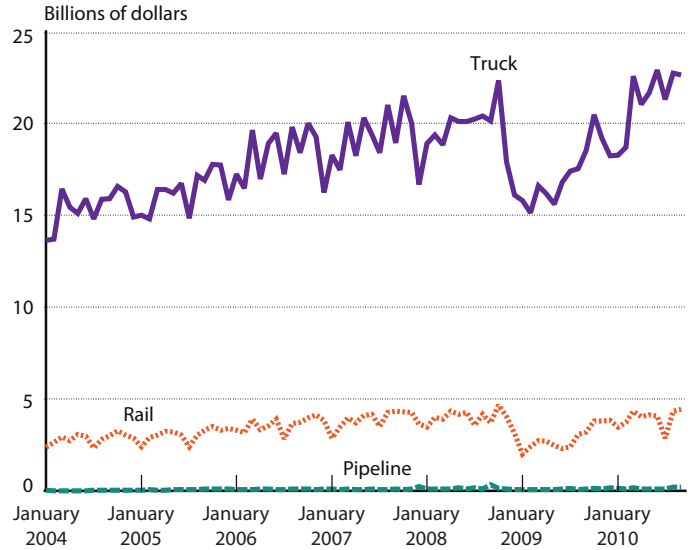
Monthly data, not seasonally adjusted



SOURCE: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *TransBorder Freight Data*, available at http://www.bts.gov/ntda/tbscd/prod.html as of December 2010.

FIGURE 3-15B U.S. Surface Trade With Mexico: January 2004–September 2010

Monthly data, not seasonally adjusted



SOURCE: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *TransBorder Freight Data*, available at http://www.bts.gov/ntda/tbscd/prod.html as of December 2010.

TABLE 3-15 U.S. Surface Trade with Canada and Mexico: January 2009–September 2010

Millions of dollars, not seasonally adjusted

	U.S. - Canada Trade			U.S. - Mexico Trade		
	Truck	Rail	Pipeline	Truck	Rail	Pipeline
January 2009	18,089	4,478	4,121	15,789	1,996	54
February 2009	19,057	4,539	3,736	15,123	2,402	49
March 2009	21,038	4,629	3,147	16,599	2,730	46
April 2009	19,769	4,663	3,285	16,159	2,703	53
May 2009	19,113	4,759	3,151	15,567	2,439	57
June 2009	20,031	4,795	3,911	16,783	2,285	68
July 2009	19,565	4,532	4,373	17,366	2,388	110
August 2009	20,934	5,373	4,215	17,510	3,052	62
September 2009	22,555	5,614	4,247	18,520	3,203	100
October 2009	23,534	5,882	4,339	20,441	3,792	116
November 2009	22,325	5,823	4,380	19,137	3,783	88
December 2009	21,612	5,946	5,358	18,211	3,822	139
January 2010	20,394	6,326	5,253	18,245	3,443	114
February 2010	22,080	6,630	5,244	18,679	3,717	75
March 2010	26,409	7,680	5,680	22,541	4,318	141
April 2010	25,151	7,212	5,199	21,029	4,030	103
May 2010	25,504	7,358	5,194	21,638	4,117	72
June 2010	27,011	7,078	5,332	22,902	4,038	80
July 2010	22,963	5,985	4,969	21,285	2,858	66
August 2010	25,370	7,018	4,873	22,719	4,307	202
September 2010	25,843	6,893	4,604	22,622	4,431	167

NOTES: Surface freight is useful in monitoring the value and modal patterns of trade with Canada and Mexico, which are the United States's North American Free Trade Agreement (NAFTA) partners. Overall, Canada is the largest U.S. trading partner and Mexico ranks third. Surface modes include not only *truck*, *rail*, and *pipeline*, but also government mail and other miscellaneous modes.

SOURCE: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *TransBorder Freight Data*, available at http://www.bts.gov/ntda/tbscd/prod.html as of December 2010.

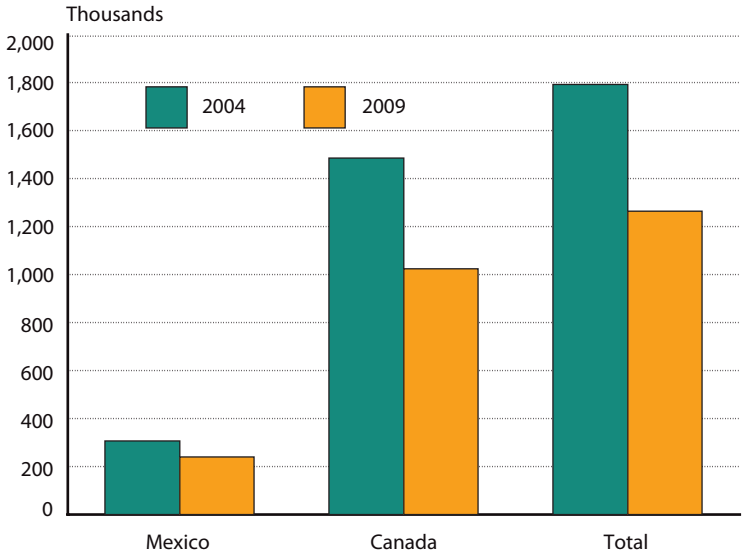
TABLE 3-16 Incoming Truck and Train Crossings to the United States From Canada and Mexico: 2004–2009

	Truck			Train		
	Mexico	Canada	Total	Mexico	Canada	Total
2004	4,503,688	6,903,882	11,407,570	7,844	33,267	41,111
2005	4,675,897	6,783,944	11,459,841	9,458	32,807	42,265
2006	4,759,679	6,649,249	11,408,928	10,166	32,526	42,692
2007	4,882,500	6,559,263	11,441,763	10,648	30,362	41,010
2008	4,866,252	5,894,551	10,760,803	10,262	29,780	40,042
2009	4,291,465	5,020,633	9,312,098	7,475	24,034	31,509

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.transtats.bts.gov/BorderCrossing.aspx as of August 2010.

FIGURE 3-17 Incoming Full Rail Containers to the United States From Canada and Mexico: 2004 and 2009



SOURCE: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *Border Crossing/Entry Data*, available at http://www.transtats.bts.gov/BorderCrossing.aspx as of September 2010.

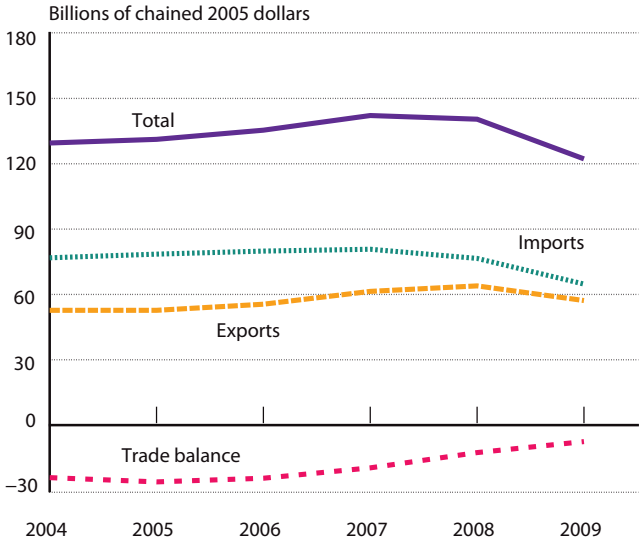
TABLE 3-17 Incoming Full Rail Containers to the United States From Canada and Mexico: 2004–2009

	Mexico	Canada	Total
2004	305,748	1,484,634	1,790,382
2005	335,611	1,458,016	1,793,627
2006	383,253	1,408,391	1,791,644
2007	365,436	1,382,886	1,748,322
2008	332,578	1,312,914	1,645,492
2009	238,669	1,022,932	1,261,601

NOTES: A container is any conveyance entering the United States used for commercial purposes, full or empty. Data here apply only to the number of full rail containers arriving at a surface port and include containers moving as in-bond shipments.

SOURCE: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *Border Crossing/Entry Data*, available at http://www.transtats.bts.gov/BorderCrossing.aspx as of September 2010.

FIGURE 3-18 U.S. International Trade in Transportation-Related Services: 2004–2009



SOURCE: **Imports and exports**: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, calculations based on data from U.S. Department of Commerce, Bureau of Economic Analysis, *International Transactions Accounts Data* , tables 1 and 3a, available at http://www.bea.gov/international/index.htm as of September 2010. **Price Indexes**: Ibid., *National Income and Product Account* , table 4-2-4, available at http://www.bea.gov/ as of September 2010.

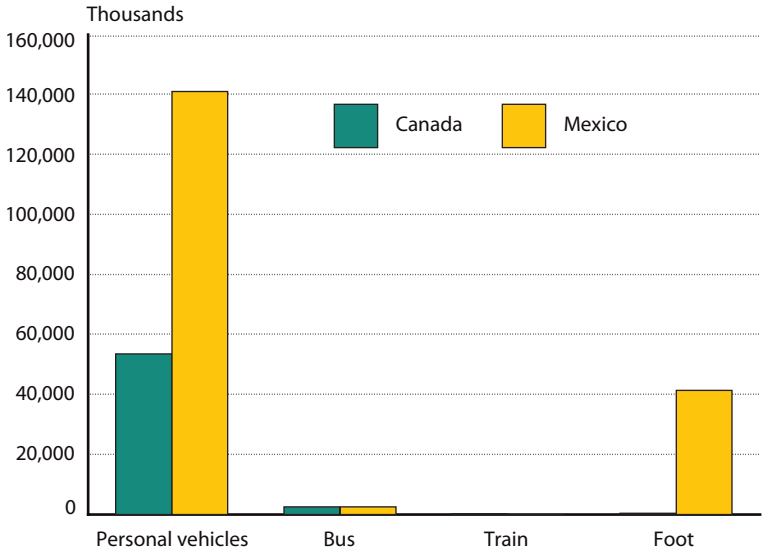
TABLE 3-18 U.S. International Trade in Transportation-Related Services: 2004–2009

	Imports	Exports	Total	Trade balance
Millions of current dollars				
2004	72,470	48,346	120,816	-24,124
2005	78,624	52,674	131,298	-25,950
2006	80,967	57,539	138,506	-23,428
2007	81,950	65,961	147,911	-15,989
2008	86,265	75,118	161,383	-11,147
2009	67,566	61,830	129,396	-5,736
Millions of chained 2005 dollars				
2004	76,791	52,723	129,514	-24,068
2005	78,624	52,674	131,298	-25,950
2006	79,841	55,626	135,467	-24,215
2007	80,693	61,349	142,043	-19,344
2008	76,429	63,918	140,348	-12,511
2009	64,813	57,376	122,188	-7,437

NOTES: *Transportation-related services* include passenger fares and other transportation. It excludes receipts and payments for travel services, which includes purchases of goods and services (e.g., food, lodging, recreation, gifts, entertainment, and any incidental expense on a foreign visit). *Trade balance* is equal to exports minus imports. Price indexes of exports and imports of passenger fare and other transportation services are used to derive chained dollar trade values.

SOURCES: **Imports and exports**: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, calculations based on data from U.S. Department of Commerce, Bureau of Economic Analysis, *International Transactions Accounts Data*, tables 1 and 3a, available at http://www.bea.gov/international/index.htm as of September 2010. **Price Indexes**: Ibid., *National Income and Product Account*, table 4-2-4, available at http://www.bea.gov/ as of September 2010.

FIGURE 3-19 Passenger Crossings Into the U.S. by Personal Vehicles, Bus, Train, and Foot From Canada and Mexico: 2009



NOTE: Train crossings do not appear because they are relatively small in comparison to other modes. Please see Table 3-19 for the number of train crossings from Mexico and Canada.

SOURCE: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *Border Crossing/Entry Data*, available at http://www.transtats.bts.gov/BorderCrossing.aspx as of July 2010.

TABLE 3-19 Passenger Crossings Into the U.S. by Personal Vehicles, Bus, Train, and Foot From Canada and Mexico: 2004–2009

Thousands

	Personal Vehicles		Bus		Train		Foot	
	Mexico	Canada	Mexico	Canada	Mexico	Canada	Mexico	Canada
2004	190,937	63,270	3,389	3,890	13	223	48,084	826
2005	186,067	62,501	3,170	3,855	18	236	45,830	605
2006	179,255	62,986	3,187	3,499	22	245	46,251	534
2007	164,534	58,248	3,389	3,685	20	233	49,539	441
2008	157,982	57,401	3,456	3,404	22	239	44,842	500
2009	141,017	53,509	2,429	2,503	4	218	41,315	380

NOTES: Passengers in *Personal vehicles* (privately owned vehicles) include persons arriving by private automobile, pickup truck, motorcycle, recreational vehicle, taxi, ambulance, hearse, tractor, snow-mobile, and other motorized private ground vehicles. Passengers in *Buses* include both driver(s) and passengers. Passengers in *Trains* include both passengers and crew. Passengers traveling by *Foot* include persons arriving on foot or by certain conveyances (e.g., bicycles, mopeds, or wheel chairs).

SOURCE: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *Border Crossing/Entry Data*, available at http://www.transtats.bts.gov/BorderCrossing.aspx as of July 2010.

Chester Ford

Livable Communities

One of USDOT's goals[1] is to improve and expand transportation's role in creating livable communities.[2] This section, in three parts, describes the characteristics of the U.S. transportation system that contribute to livable communities. The first part captures the transportation infrastructure in place and usage of the U.S. transportation system. The second part covers accessibility to the modes of transportation under USDOT mandate, including accessibility for the disabled. The third part describes transportation congestion trends and causes for each mode that disrupt passenger travel and inhibit economic growth.

Availability and Usage

One of the outcomes within the overarching goal of promoting livable communities is increased access to convenient and affordable transportation choices. A broad, connected network of transportation infrastructure and facilities that are kept in good repair keeps costs down and allows passengers to travel and goods to move without interruption. The number of facilities serving passenger and cargo modes tracked in this report remained relatively constant from 2004 to 2008 and

[1] U.S. Department of Transportation, Draft *U.S. DOT Strategic Plan FY2010-FY2015: Transportation for a New Generation* (April 15, 2010), available at http://www.dot.gov/stratplan/dot_strategic_plan_10-15.pdf as of January 2011.

[2] For additional information on Livable Communities, please visit the U.S. DOT Livability website, available at http://www.dot.gov/livability/ as of November 2010.

declined only slightly for most modes in 2009 despite greater decreases in usage,[3] with the exception of U.S. waterway facilities, for which the count declined from 2008 to 2009 due to new reporting methods (Table 4-1: *Number of U.S. Airports*, Table 4-2: *Number of Stations Served by Amtrak and Rail Transit*, and Table 3-2: *U.S. Waterway Facilities*).

Connectivity between facilities of different modes of passenger travel is measured in the Bureau of Transportation Statistics' *Intermodal Passenger Connectivity Database*.[4] The database counts the number of passenger transportation terminals and the availability of connections among the various scheduled public transportation modes at each facility. As of 2010, there were 1,282 airports, ferry terminals, and intercity/commuter rail stations with intermodal connections, representing exactly 50 percent of total facilities under those modes (Table 4-3: *Airport, Ferry, and Intercity and Commuter Rail Facility Intermodal Connectivity*).

Another strategic outcome for the USDOT is an improved public transit experience. The usage indicators show that transit vehicle-miles grew most consistently, by about 2 to 3 percent per year, from 2004 to 2009. Use of all other modes grew modestly from 2004 to 2007 before declining with the onset of the economic downturn; however, transit vehicle-miles continued to grow by 137 million in 2008 and 100 million in 2009. Rail train-miles, which peaked in 2006, declined by 87 million, or 16 percent, from 2008 to 2009 (Table 4-4: *U.S. Vehicle-Miles*).

Measured in passenger-miles, the transit mode also showed relatively high growth in usage that outpaced the growth in vehicle-miles most years. From 2007 to 2008, travelers shifted away from passenger cars, light trucks, and air travel. Passenger-miles for transit, Amtrak, and bus increased by 4 percent, 7 percent, and 2 percent, respectively, as fuel prices increased (Table 4-5: *U.S. Passenger-Miles*, Figure 5-12: *Fuel Prices*).

Amtrak ridership measured in revenue passengers reached its peak in 2008 at 28.7 million riders after a period of growth starting in 2006 (Table 4-6: *Amtrak Ridership*).[5] Public transit ridership, which shows seasonal variability, increased consistently from 2004 through 2008 but fell slightly in 2009 and into 2010 (Table 4-7: *Public Transit Ridership*). The largest transit agency by ridership in 2009 was the MTA New York City Transit, with 3.2 billion unlinked trips, followed by the Chicago Transit Authority, with 521 million unlinked trips, and the Los Angeles County Metropolitan Transportation Authority, with 481 million unlinked trips (Table 4-8: *Top 20 Transit Agencies by Unlinked Passenger Trips*).

[3] See analysis of usage indicators, vehicle-miles and passenger-miles, below. Transit usage actually increased from 2008 to 2009.

[4] For additional information on Intermodal Passenger Connectivity Database, please see http://www.transtats.bts.gov/DatabaseInfo.asp?DB_ID=640&Link=0 as of January 2011.

[5] *Revenue passengers* are counted as the number of one-way trips by persons holding tickets.

Domestic passenger enplanements are very sensitive to the changes in the U.S. economy. During the period of economic growth from 2004 to 2007, total domestic passenger enplanements rose nearly 9 percent from 669 million to 726 million. Over that period, passenger enplanements at medium hubs increased by 14 percent, which is higher than the growth rates at small and large hubs. Although passenger enplanements at large hubs grew only 7 percent from 2004 to 2007, more than 69 percent of passengers (or more than 500 million passengers) were enplaned at large hubs in 2007. Impacted by the economic downturn, total passenger enplanements declined to 663 million in 2009, and then rose 1.1 percent from January through July 2010 over the same 7-month period in 2009 (Table 4-9: *Domestic Enplanements at U.S. Airports*).

TABLE 4-1 Number of U.S. Airports: 2004–2009

	Airports, total	Public use			Private use			Certificated, total		
		Total	Runways (percent)		Total	Runways (percent)				
			Lighted	Paved		Lighted	Paved		Civil	Military
2004	19,820	5,288	76.3	74.5	14,532	9.0	32.8	599	542	57
2005	19,854	5,270	76.8	74.8	14,584	9.2	33.2	575	U	U
2006	19,983	5,233	77.2	75.3	14,757	9.5	33.3	604	U	U
2007	20,341	5,221	U	U	14,839	U	U	565	U	U
2008	19,930	5,202	U	U	14,451	U	U	560	U	U
2009	19,750	5,178	U	U	14,298	U	U	559	U	U

KEY: U = data are unavailable.

NOTES: 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. Publicly owned facilities are open for public use with no prior authorization or permission. *Certificated* airports serve any— (1) scheduled and unscheduled passenger-carrying air carrier aircraft with more than 30 seats; and (2) scheduled passenger-carrying air carrier operations in aircraft with more than 9 seats but less than 31 seats.

SOURCE: U.S. Department of Transportation, Federal Aviation Administration, *Administrator's Fact Book* (Annual Issues), available at http://www.faa.gov/ as of April 2010 as reported in U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *National Transportation Statistics*, table 1-3, available at http://www.bts.gov/publications/national_transportation_statistics/ as of August 2010.

TABLE 4-2 Number of Stations Served by Amtrak and Rail Transit: FY 2004–2009

	Amtrak	Rail transit
2004	517	2,909
2005	518	2,946
2006	503	2,985
2007	497	2,997
2008	527	3,027
2009	527	3,101

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, thus a single station may be counted in both categories. Stations serving the Alaska Railroad are included in *Rail transit*. *Rail transit* data include service both directly operated and purchased.

SOURCES: **Rail Transit**: Federal Transit Administration, **Amtrak**: National Railroad Passenger Corporation (Amtrak) as cited in U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *National Transportation Statistics*, table 1-7, available at http://www.bts.gov/publications/national_transportation_statistics/ as of December 2010.

TABLE 4-3 Airport, Ferry, Intercity and Commuter Rail Passenger Intermodal Connectivity as of October 2010

Number of facilities

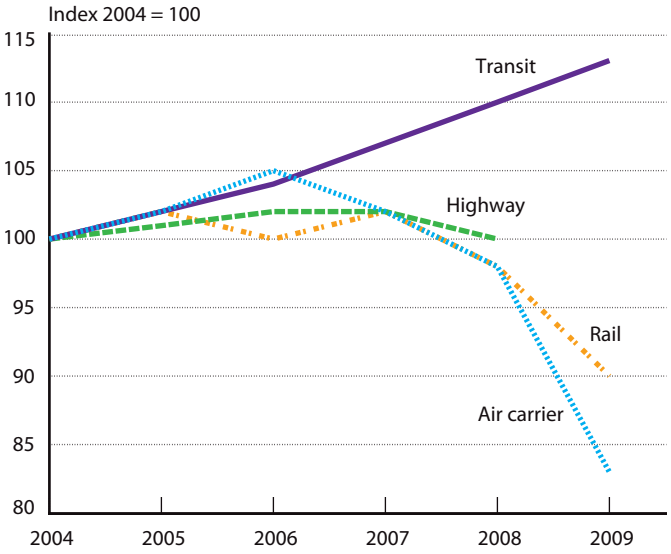
	48 contiguous states	Alaska & Hawaii	Total
Airports	434	237	671
With intermodal connections	148	11	159
Without intermodal connections	286	226	512
Percent with connections	34.1%	4.6%	23.7%
Intercity rail stations[a]	507	22	529
With intermodal connections	271	6	277
Without intermodal connections	236	16	252
Percent with connections	53.5%	27.3%	52.4%
Commuter rail stations[a]	1,160	0	1,160
With intermodal connections	812	0	812
Without intermodal connections	348	0	348
Percent with connections	70.0%	N/A	70.0%
Passenger ferry terminals	256	42	298
With intermodal connections	112	10	122
Without intermodal connections	144	32	176
Percent with connections	43.8%	23.8%	40.9%
Airports, ferry terminals and intercity/ commuter rail stations	2,265	301	2,566
With intermodal connections	1,255	27	1,282
Without intermodal connections	1,010	274	1,284
Percent with connections	55.4%	9.0%	50.0%

[a] There are 92 stations on the national rail network that are served by both intercity and commuter rail. Data for these 92 stations are included in both the commuter and intercity rail categories. However, these stations are counted only once in the totals at the bottom of this table.

NOTES: The *Intermodal Passenger Connectivity Database* measures the connectivity between different modes of passenger transportation by counting the number of passenger transportation terminals and the availability of connections among the various scheduled public transportation modes at each facility. All identifiable regularly scheduled stopping locations, whether or not a terminal building is present, are considered terminals for this database. Data for *Airports, Intercity rail stations, Commuter rail stations*, and *Passenger ferry terminals* were collected from 2006-2010. Updating and collection of data for other modes is ongoing. When facilities of more than one mode are co-located, the facility for each mode is counted separately for purposes of total facilities. However, rail stations on the national network that served both intercity and commuter rail are included only once in the totals at the bottom of the table.

SOURCE: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *Intermodal Passenger Connectivity Database*, October 2010.

FIGURE 4-4 Index of U.S. Vehicle-Miles: 2004–2009



SOURCE: **Air Carrier**: Research and Innovative Technology Administration, Bureau of Transportation Statistics, Office of Airline Information; **Highway**: Federal Highway Administration; **Transit**: Federal Transit Administration; **Rail**: Association of American Railroads as cited in U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *National Transportation Statistics*, table 1-32, available at http://www.bts.gov/publications/national_transportation_statistics/ as of August 2010.

TABLE 4-4 U.S. Vehicle-Miles: 2004–2009

Millions

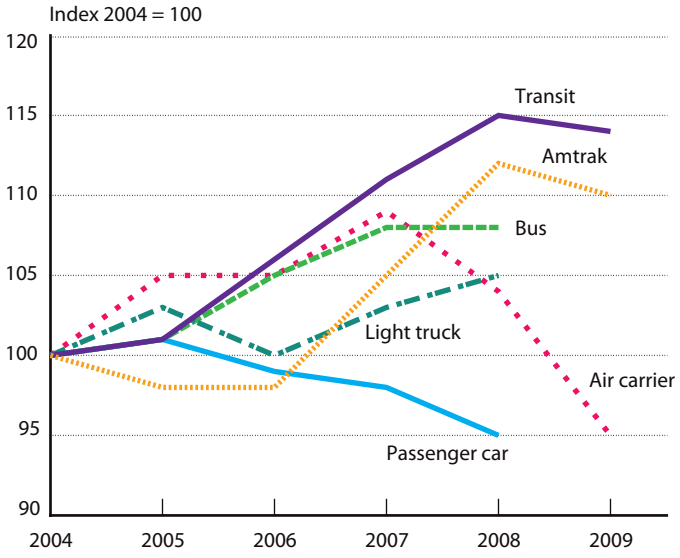
Year	Air carrier, large **certificated,** domestic, all services	Highway	Transit (car-miles)	Rail (train-miles)
2004	6,602	2,964,788	3,972	572
2005	6,716	2,989,430	4,054	584
2006	6,605	3,014,371	4,127	599
2007	6,733	3,032,399	4,238	581
2008	6,446	2,973,509	4,375	562
2009	5,936	U	4,475	475

KEY: U = Data are unavailable.

NOTES: *Transit* rail modes are measured in car-miles—the movement of 1 vehicle the distances of 1 mile. This differs from a train-mile—the movement of a train, which can consist of multiple vehicles (cars), the distance of 1 mile. The *Transit* mode increased by 137 million car-miles from 2007 to 2008 and 100 million car-miles from 2008 to 2009. Rail train-miles decrease by 87 million from 2008 to 2009.

SOURCES: **Air Carrier**: Research and Innovative Technology Administration, Bureau of Transportation Statistics, Office of Airline Information; **Highway**: Federal Highway Administration; **Transit**: Federal Transit Administration; **Rail**: Association of American Railroads as cited in U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *National Transportation Statistics*, table 1-34, available at http://www.bts.gov/publications/national_transportation_statistics/ as of April 2011.

FIGURE 4-5 Index of U.S. Passenger-Miles: 2004–2009



SOURCE: **Air Carrier**: Research and Innovative Technology Administration, Bureau of Transportation Statistics, Office of Airline Information; **Highway**: Federal Highway Administration; **Transit**: Federal Transit Administration; **Amtrak**: Association of American Railroads as cited in U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *National Transportation Statistics*, table 1-39, available at http://www.bts.gov/publications/national_transportation_statistics/ as of April 2011.

TABLE 4-5 U.S. Passenger-Miles: 2004–2009

Millions

	Air, certificated, domestic, all services	Passenger car	Light truck	Bus	Transit	Amtrak
2004	558,166	2,685,827	1,780,771	144,188	46,546	5,511
2005	583,758	2,699,305	1,804,848	147,992	47,125	5,381
2006	588,455	2,671,044	1,876,690	143,816	49,504	5,410
2007	607,551	2,642,498	1,928,319	147,985	51,873	5,784
2008	583,280	2,553,043	1,921,960	150,827	53,712	6,179
2009	552,014	U	U	U	53,898	5,914

NOTES: *Passenger car* does not include motorcycle data. *Light truck* includes pickup trucks, sport utility vehicles, and vans. Bus and demand response are included in both *Bus* and *Transit*, which results in some double counting. *Amtrak* does not include contract commuter passengers. The data above may not be consistent with other sources, particularly data that are revised on an irregular or frequent basis.

SOURCES: **Air Carrier**: Research and Innovative Technology Administration, Bureau of Transportation Statistics, Office of Airline Information; **Highway**: Federal Highway Administration; **Transit**: Federal Transit Administration; **Amtrak**: Association of American Railroads as cited in U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *National Transportation Statistics*, table 1-39, available at http://www.bts.gov/publications/national_transportation_statistics/ as of April 2011.

TABLE 4-6 Amtrak Ridership: 2004–2009

Thousands of revenue passengers

	Passengers (thousands)
2004	25,215
2005	25,076
2006	24,548
2007	26,551
2008	28,705
2009	27,279

SOURCE: U.S. Department of Transportation, Federal Railroad Administration, Office of Safety, *Operational Data Tables*, table 1.02, available at http://safetydata.fra.dot.gov/officeofsafety/ as of July 2010.

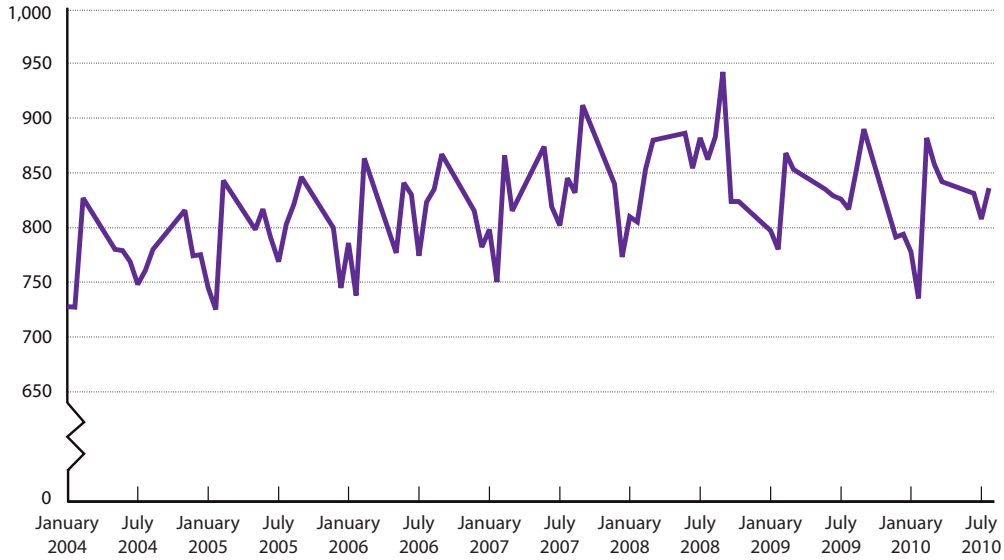
TABLE 4-7 Public Transit Ridership: January 2009–August 2010

	Ridership (millions)
January 2009	797
February 2009	780
March 2009	868
April 2009	853
May 2009	835
June 2009	829
July 2009	826
August 2009	817
September 2009	852
October 2009	890
November 2009	791
December 2009	794
January 2010	778
February 2010	735
March 2010	882
April 2010	858
May 2010	842
June 2010	831
July 2010	808
August 2010	836

NOTES: Unlinked Passenger Trips (UPT) are the number of passengers who board public transportation vehicles. Passengers are counted each time they board vehicles no matter how many vehicles they use to travel from their origin to their destination. Data includes all transit agencies that are recipients of Urbanized Area Formula Grants from the Federal Transit Administration.

SOURCE: U.S. Department of Transportation, Federal Transit Administration, *National Transit Database* (Washington, D.C.: Monthly Report), available at http://www.ntdprogram.gov/ntdprogram/data.htm as of October 2010.

FIGURE 4-7 Public Transit Ridership: January 2004–August 2010



SOURCE: U.S. Department of Transportation, Federal Transit Administration, *National Transit Database* (Washington, D.C.: Monthly Report), available at http://www.ntdprogram.gov/ntdprogram/data.htm as of October 2010.

Table 4-8 Top 20 Transit Agencies by Unlinked Passenger Trips: Fiscal Year 2009

Rank	Agency	Unlinked trips (thousands)
1	MTA New York City Transit (NYCT)	3,206,871
2	Chicago Transit Authority (CTA)	521,242
3	Los Angeles County Metropolitan Transportation Authority (LACMTA)	481,436
4	Washington Metropolitan Area Transit Authority (WMATA)	435,859
5	Massachusetts Bay Transportation Authority (MBTA)	367,248
6	Southeastern Pennsylvania Transportation Authority (SEPTA)	348,315
7	New Jersey Transit Corporation (NJ Transit)	281,448
8	San Francisco Municipal Railway (MUNI)	227,130
9	Metropolitan Atlanta Rapid Transit Authority (MARTA)	156,542
10	Maryland Transit Administration (MTA)	123,697
11	MTA Bus Company (MTABUS)	119,976
12	King County Department of Transportation (King County Metro)	115,834
13	San Francisco Bay Area Rapid Transit District (BART)	114,655
14	Tri-County Metropolitan Transportation District of Oregon (TriMet)	108,552
15	Miami-Dade Transit (MDT)	103,505
16	Denver Regional Transportation District (RTD)	98,205
17	MTA Long Island Railroad (MTA LIRR)	97,351
18	Metropolitan Transit Authority of Harris County, Texas (Metro)	88,511
19	San Diego Metropolitan Transit System (MTS)	88,336
20	Port Authority Trans-Hudson Corporation (PATH)	81,553
	Total, top 20 agencies	7,166,264
	Total, all agencies	10,134,262
	Top 20 agencies, percent of all agencies	70.7

NOTES: Details may not add to total due to rounding. According to the National Transit Database (NTD), an *Unlinked passenger trip* represents a passenger who boards a public transportation vehicle. Passengers are counted each time they board vehicles no matter how many vehicles they use to travel from their origin to their destination. A *Linked trip* is a trip from origin to destination on the transit system. Even if a person must make several transfers during a journey, the trip is counted as one linked trip on the system. MTA Bus Company operates in New York, New York.

SOURCE: U.S. Department of Transportation, Federal Transit Administration (FTA), *National Transit Database*, Data Tables, table 26 (Washington, D.C.: Annual Issues), available at http://www.ntdprogram.gov/ntdprogram/data.htm as of November 2010.

TABLE 4-9 Domestic Enplanements at U.S. Airports: 2004–2010

Thousands of passengers

	Total enplanements	Large hubs	Medium hubs	Small hubs	Nonhubs
2004	668,648	467,082	126,898	52,787	21,881
2005	701,088	483,869	140,896	53,115	23,208
2006	703,517	487,176	140,614	53,047	22,680
2007	726,373	501,736	144,888	57,247	22,502
2008	697,100	478,700	142,096	54,303	22,001
2009	662,966	461,020	126,650	54,910	20,386
2010	328,239	229,309	60,375	28,330	10,225

NOTES: 2010 data are through September. Data are for all scheduled and nonscheduled (chartered) service by large certificated U.S. air carriers at all domestic airports served within the 50 states, the District of Columbia, and other U.S. areas designated by the Federal Aviation Administration (FAA). Not all scheduled service is actually performed.

Since 2007 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, the District of Columbia, and other U.S. areas. For 2004-2006, 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: Large = 1 percent or more, Medium = 0.25 to 0.9999 percent, Small = 0.05 to 0.249 percent, Nonhub = less than 0.05.

SOURCE: 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, October 2010.

Accessibility

Although use of other modes of transportation increased in the last 5 years, travelers in the United States are still largely dependent on passenger vehicles. The share of households with two vehicles, 37.6 percent in 2009, dropped by less than 1 percentage point from 2004. The percent of households without a vehicle remained practically unchanged from 2004 to 2009 at just under 9 percent despite the onset of the economic downturn (Table 4-10: *Household Vehicle Availability*). However, households headed by those aged 65 and older made up approximately 55 percent of the households without vehicles in 2009, indicating a pattern of decreased mobility for this age group.

Passenger vehicle is the most common mode of transportation to work in the United States; 76 percent of the workforce drove themselves to work in 2009, practically unchanged from 2008 (Table 4-11: *How People Get to Work*).[6] A breakdown of the modes used to commute to work shows that 10 percent of the workforce chose to carpool, down from 10.7 percent in 2008; 5 percent of the workforce chose mass transit (bus, rail, streetcar, subway, or elevated trains), unchanged from 2008.

Carpooling as a mode of transportation to work was most prevalent across the southwestern and western United States in 2009. Washington, California, Arizona, Utah, New Mexico, Texas, and Arkansas all had carpool rates of above 11 percent in 2009 (Figure 4-12: *Percent of Workers Carpooling by Car, Truck, or Van*). Commuting alone was most prevalent in the Midwest and South. Eighteen states saw more than 80 percent of workers commute alone in 2009 (Figure 4-13: *Percent of Workers Commuting Alone by Car, Truck, or Van*).[7] Washington, DC, had the highest percentage of workers commuting by public transportation at 37 percent, but a roughly equal share of workers drove alone (Figure 4-14: *Percent of Workers Commuting by Public Transportation*).

The share of stations serving all transit modes that were Americans with Disability Act (ADA) compliant in 2009 was 75 percent, up from 70 percent in 2004.[8] For rail transit, the share of stations that were ADA compliant to total stations

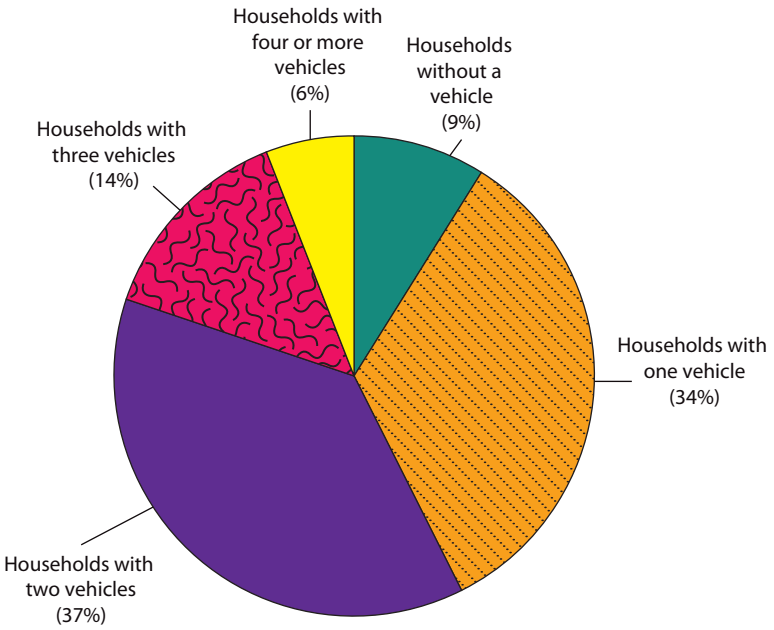
[6] For historical data, please see U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *National Transportation Statistics*, table 1-38, available at http://www.bts.gov/publications/national_transportation_statistics/ as of November 2010.

[7] Alabama, Arkansas, Indiana, Kansas, Kentucky, Louisiana, Michigan, Mississippi, Missouri, Nebraska, New Hampshire, North Carolina, Ohio, Oklahoma, Rhode Island, South Carolina, Tennessee, and West Virginia.

[8] U.S. Department of Transportation, Federal Transit Administration, *National Transit Database*, table 21, available at http://www.ntdprogram.gov/ntdprogram/data.htm as of November 2010.

increased by approximately 13 percent from 2004 to 2009 (Table 4-15: *Transit Rail Stations That Are ADA-Compliant by Service Type*). Buses also maintained a high level of ADA compliance from 2004 to 2007, at 98 percent every year except 2005, in which compliance dipped to 96.5 percent (Table 4-16: *Buses That Are ADA-Compliant*).

FIGURE 4-10 Household Vehicle Availability: 2009



SOURCE: U.S. Department of Commerce, U.S. Census Bureau, *American Community Survey* (Washington, DC: Annual Issues), table B08201, available at http://www.census.gov/acs/www/index.html as of September 2010.

TABLE 4-10 Household Vehicle Availability: 2004 and 2009

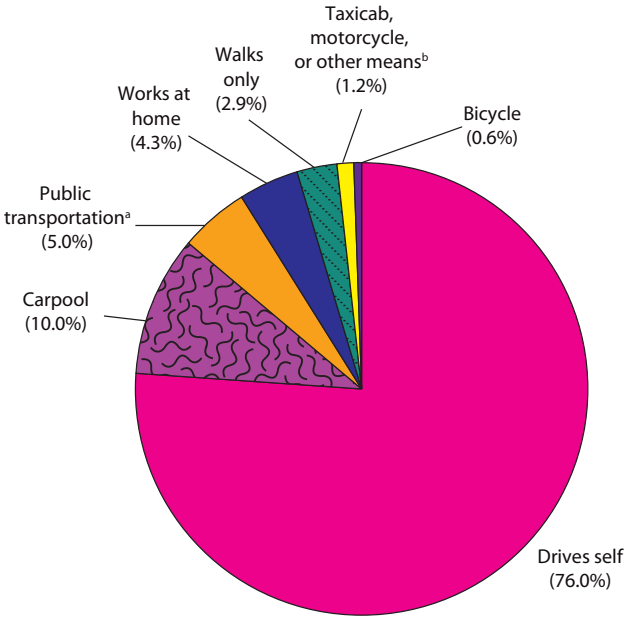
	2004		2009	
	Number of households (thousands)	Percent of all households	Number of households (thousands)	Percent of all households
Households without a vehicle	9,626	8.8	10,109	8.9
Households with one vehicle	36,507	33.2	38,280	33.7
Households with two vehicles	42,350	38.5	42,672	37.6
Households with three vehicles	15,093	13.7	15,804	13.9
Households with four or more vehicles	6,325	5.8	6,751	5.9
Total number of households	109,902	100.0	113,616	100.0

NOTES: The greatest increase for *Households without a vehicle* occurred for householders between 34 and 65 years of age, from 4,101,518 households in 2004 to 4,491,905 households in 2009, increasing from 3.7 percent to 4.0 percent of *Total number of households*. The greatest increase in households with one or more vehicles occurred for householders 65 and older, from 18,879,210 to 20,766,360 households, increasing from 17.2 percent to 18.3 percent of *Total number of households*.

One person in each household is designated as the householder. In most cases, this is the person, or one of the people, in whose name the home is owned, being bought, or rented and who is listed on line one of the survey questionnaire. If there is no such person in the household, any adult household member 15 years old and over could be designated as the householder. For additional information, please refer to the *American Community Survey's 2009 Subject Definitions*, available at http://www.census.gov/acs/.

SOURCE: U.S. Department of Commerce, U.S. Census Bureau, *American Community Survey* (Washington, DC: Annual Issues), table B08201, available at http://www.census.gov/acs/www/index.html as of September 2010.

FIGURE 4-11 How People Get to Work: 2009



NOTE: Percents may not add to 100 due to rounding.

SOURCE: U.S. Department of Commerce, U.S. Census Bureau, *American Community Survey* (Washington, DC: Annual Issues), available at http://www.census.gov/acs/www/index.html as of October 2010 as reported in U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *National Transportation Statistics*, table 1-38, available at http://www.bts.gov/publications/national_transportation_statistics/ as of January 2011.

TABLE 4-11 How People Get to Work: 2009

	Number of workers (thousands)	Percentage of workers
Drives self	105,476	76.1
Carpool	13,917	10.0
Public transportation[a]	6,885	5.0
Works at home	5,918	4.3
Walks only	3,966	2.9
Taxicab, motorcycle, or other means[b]	1,665	1.2
Bicycle	766	0.6
Total	138,592	100.0

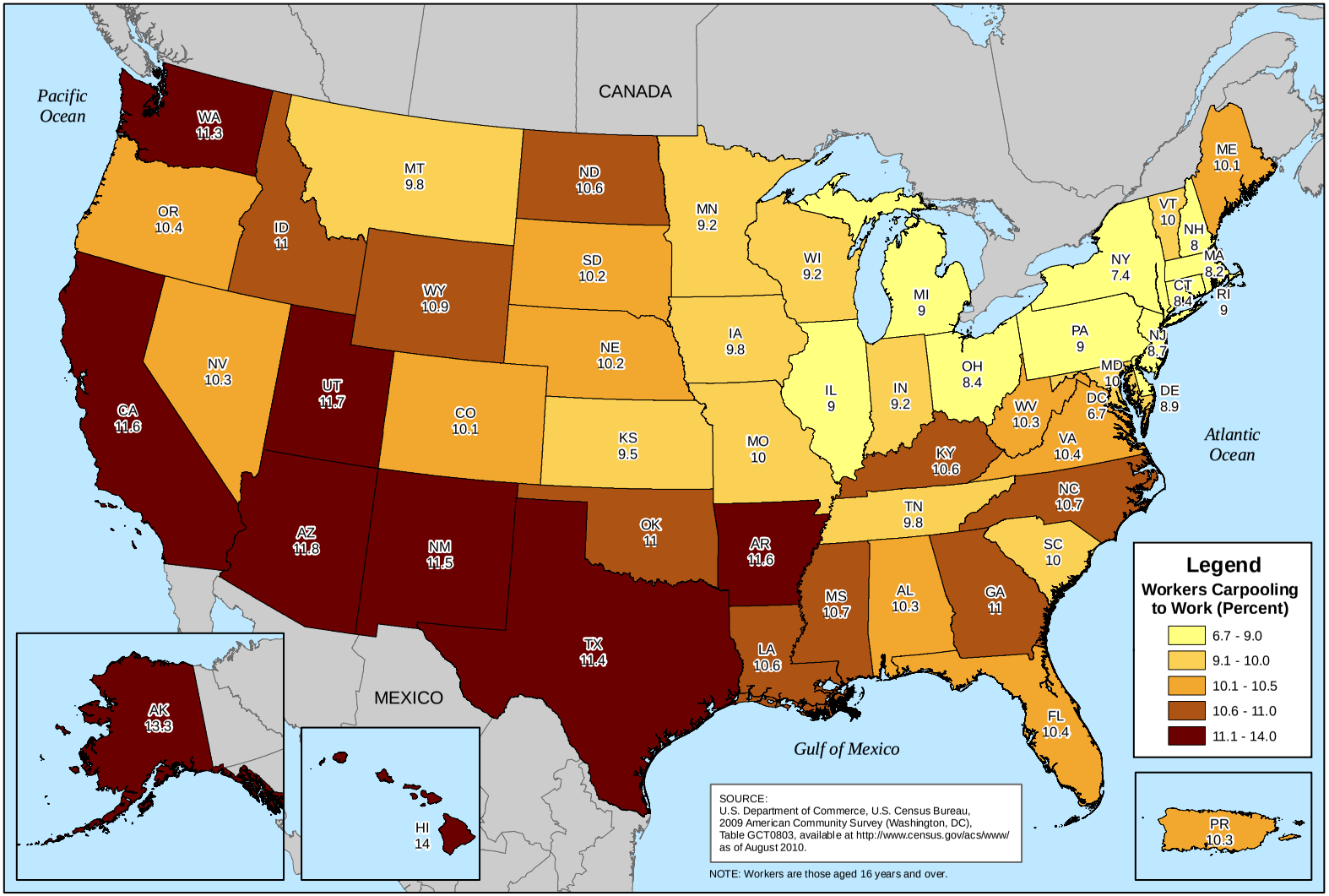
[a] *Public transportation* category includes workers who used a bus or trolley bus, streetcar or trolley car, subway or elevated, railroad, or ferryboat.

[b] *Other means* includes ferryboats, surface trains, and van service and other means not classified.

NOTES: Percents may not add to 100 due to rounding. For additional information, please refer to the *American Community Survey's 2009 Subject Definitions*, available at http://www.census.gov/acs/.

SOURCE: U.S. Department of Commerce, U.S. Census Bureau, *American Community Survey* (Washington, DC: Annual Issues), available at http://www.census.gov/acs/www/index.html as of October 2010 as reported in U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *National Transportation Statistics*, table 1-40, available at http://www.bts.gov/publications/national_transportation_statistics/ as of January 2011.

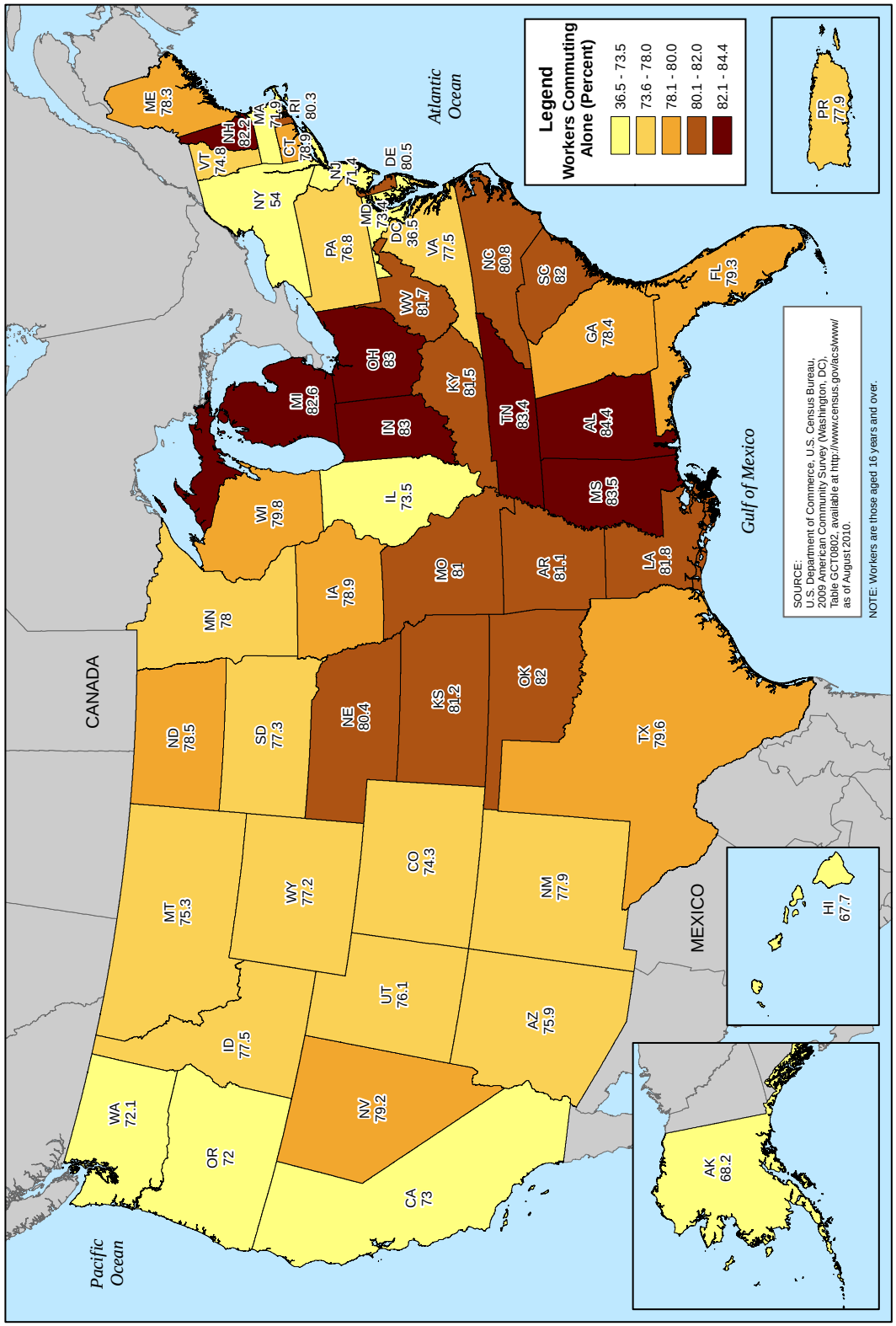
FIGURE 4-12 Percent of Workers Carpooling by Car, Truck, or Van, 2009



SOURCE: U.S. Department of Commerce, U.S. Census Bureau, *2009 American Community Survey* (Washington, DC), table GCT0803, available at http://www.census.gov/acs/www/ as of August 2010.

NOTE: Workers are those aged 16 years and over.

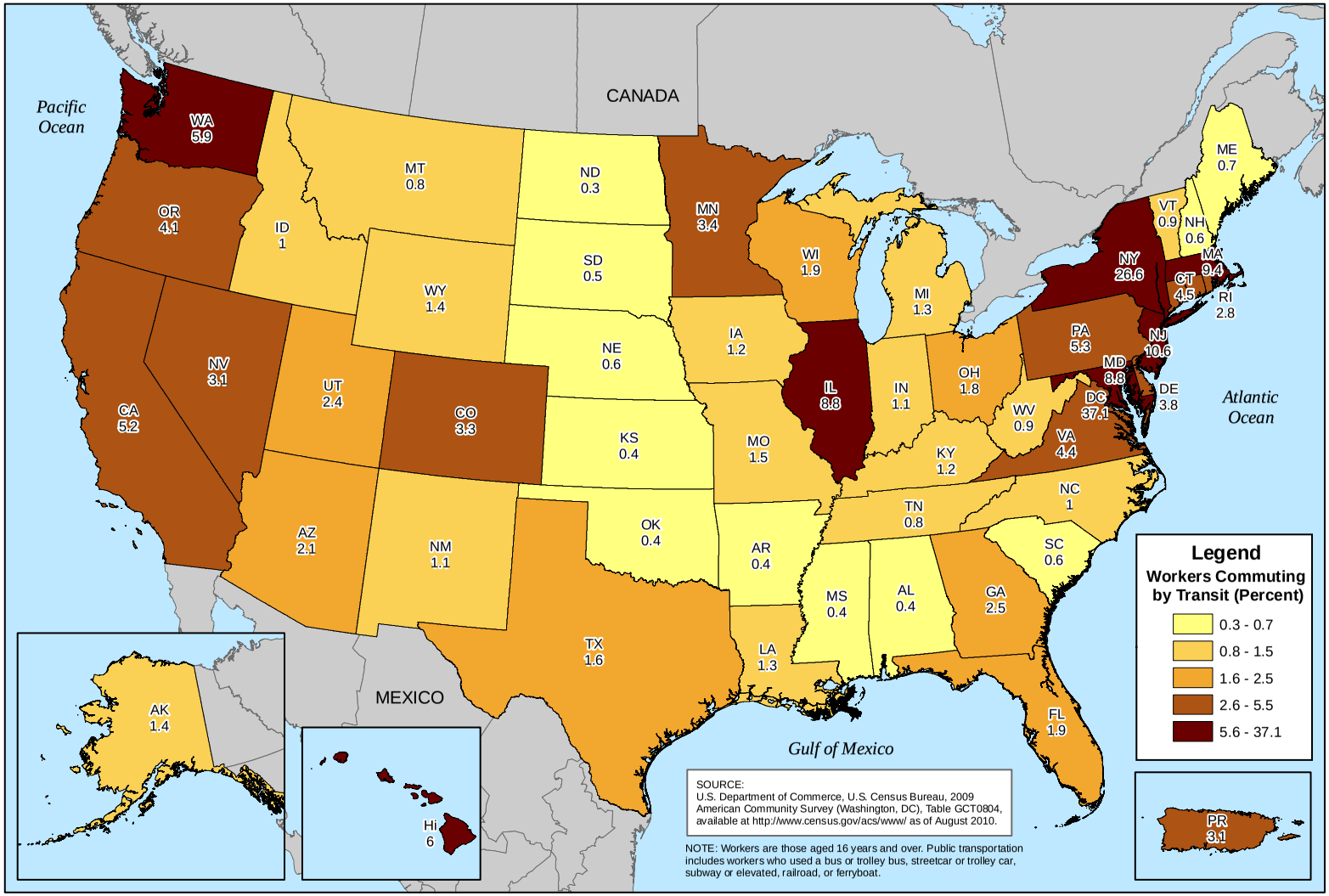
FIGURE 4-13 Percent of Workers Commuting Alone by Car, Truck, or Van, 2009



SOURCE: U.S. Department of Commerce, U.S. Census Bureau, *2009 American Community Survey* (Washington, DC), table GCT0802, available at http://www.census.gov/acs/www/ as of August 2010.

NOTE: Workers are those aged 16 years and over.

FIGURE 4-14 Percent of Workers Commuting by Public Transportation, 2009



SOURCE: U.S. Department of Commerce, U.S. Census Bureau, *2009 American Community Survey* (Washington, DC), table GCT0804, available at http://www.census.gov/acs/www/ as of August 2010.

NOTE: Workers are those aged 16 years and over. Public transportation includes workers who used a bus or trolley bus, streetcar or trolley car, subway or elevated, railroad, or ferryboat.

TABLE 4-15 Transit Rail Stations That Are ADA-Compliant by Service Type: 2004–2009

Number of stations

	Commuter rail	Heavy rail	Light rail	Other rail	Total number of ADA-compliant stations	Total number of stations	ADA-compliant stations (percent)
2004	666	428	589	12	1,695	2,911	58.2
2005	686	459	596	12	1,753	2,948	59.5
2006	712	479	635	12	1,838	2,987	61.5
2007	725	493	642	12	1,872	2,999	62.4
2008	753	508	665	12	1,938	3,029	64.0
2009	784	515	721	12	2,032	3,103	65.5

KEY: ADA = Americans with Disabilities Act.

NOTES: *Other rail* includes monorail and Alaska Railroad. Table does not include station data for automated guideway, jitney, and inclined plane transit services.

ADA-compliant stations are those that are fully compliant with the ADA. Under the ADA, many older stations with elevators were given time, some to year 2020, for replacement or remodeling. In addition, they were given time to add ramps, tile strips along the platform, and communication equipment for full ADA compliance.

SOURCES: U.S. Department of Transportation (USDOT), Federal Transit Administration (FTA), *National Transit Database*, *Data Tables*, table 21, available at http://www.ntdprogram.gov/ as of December 2010.

TABLE 4-16 Buses That Are ADA-Compliant: 2004–2009

Number

	Total number of buses	ADA-compliant buses	ADA-compliant buses (percent)
2004	68,789	67,454	98.1
2005	69,504	67,049	96.5
2006	70,227	68,880	98.1
2007	73,397	71,968	98.1
2008	U	U	U
2009	75,527	74,516	98.7

KEY: ADA = Americans with Disabilities Act; U = Data are unavailable.

NOTE: Data collection and processing for 2008 remain incomplete.

SOURCE: U.S. Department of Transportation, Federal Transit Administration, *National Transit Summaries and Trends* (Annual Issues), available at http://www.ntdprogram.gov/ntdprogram/data.htm as of December 2010.

Congestion and Travel Times

Passenger Travel

Reducing congestion, as listed under the USDOT strategic goals, will lower transportation costs for producers and travelers as well as reduce pollution. The Texas Transportation Institute (TTI), a regional University Transportation Center at Texas A&M University, tracks urban road congestion in the United States and found that annual hours of delay per auto commuter remained steady around 45 hours from 2004 to 2007 before decreasing 13 percent to 39 hours in 2008 and 2009 due to the economic downturn and higher fuel prices.[9] TTI measured annual delay per traveler as the extra travel time faced each year by drivers and passengers of private vehicles who typically travel in the peak periods (6 to 10 a.m. and 3 to 7 p.m.). TTI estimated that travelers in the Washington, DC, and Chicago, IL, metropolitan areas faced the longest average delays in 2009, at 70 hours per year per traveler. Commuters in McAllen, TX, experienced the shortest annual delays in 2009 at 7 hours per year per traveler (Table 4-17: *Average Hours of Annual Delay per Auto Commuter*).

Half of all workers in the United States began their commute to work between 6:30 and 8:30 a.m. in 2009 (Table 4-19: *Departure Time: Leaving Home to Go to Work)*. Approximately 35 percent of workers had a (one-way) commute time of 30 minutes or more, no matter which mode of transportation they used (Table 4-20: *Travel Time to Work*). Commuters in New York, Maryland, and Washington, DC, had the highest mean travel times to work in 2009, all around 30 minutes (Figure 4-21: *Mean Travel Time to Work in Minutes*).

At U.S. borders, congestion for private passenger vehicles was largely on the rise from 2004 to 2008, but decreased cross-border traffic brought down wait times in 2009.[10] At the northern border, the average wait time for private passenger vehicles at the gateways studied in 2009 was 3.3 minutes, up from 2.9 minutes in 2004 but down from the peak of 5.8 minutes in 2007. Seventy-five percent of northern border gateways showed a pattern of declining wait times for private passenger vehicles from 2007 to 2009 (Table 4-22: *Average Daytime Wait Times for Private Vehicles at Selected U.S. Surface Border Gateways*). For commercial vehicles, the average wait time at the northern border decreased consistently from 5.3 minutes in 2004 to 2.3 minutes in 2009. This was largely due to the 2002 implementation

[9] "Economic Recovery Bringing Renewed Congestion Growth," Texas Transportation Institute, Texas A&M University, Press Release, Jan. 20, 2011, available at http://mobility.tamu.edu/ums/media_information/press_release.stm, as of Jan. 20, 2011.

[10] See Table 3-16: *Incoming Truck and Train Crossings to the United States From Canada and Mexico* and Table 3-19: *Passenger Crossings Into the U.S. by Personal Vehicles, Bus, Train, and Foot From Canada and Mexico* and International Freight and Passenger Movement analysis.

of the FAST (Free and Secure Trade) program by the U.S. Department of Homeland Security, Customs and Border Protection agency and increased enrollment in the program in subsequent years (Table 4-23: *Average Daytime Wait Times for Commercial Vehicles at Selected U.S. Surface Border Gateways*).[11]

At the southern border, the average wait time for private vehicles at the gateways studied was 18.5 minutes in 2009, almost 6 times the average wait time at the northern border. Only 25 percent of southern border gateways displayed the same pattern of declining wait times as those at the northern border, due to increasing security and stability issues around the border (Table 4-22: *Average Daytime Wait Times for Private Vehicles at Selected U.S. Surface Border Gateways*). Commercial vehicles at the southern border experienced a peak wait time of 13.4 minutes in 2007 before dropping to 9.2 minutes in 2009, also due to efficiencies stemming from the FAST program mentioned above (Table 4-23: *Average Daytime Wait Times for Commercial Vehicles at Selected U.S. Surface Border Gateways*).

Transit modes also face delays, sometimes due to major and minor mechanical failures. Motor buses consistently had the highest rate of interruptions of service (measured as interruptions of service per 100,000 revenue vehicle-miles) from 2004 to 2009; while commuter rail systems had the lowest. However, all modes for which interruptions of service were tracked (motor bus, light rail, heavy rail, commuter rail, and demand response) showed short-term variation but little change in the long-term trend from 2004 to 2009 (Table 4-24: *Interruptions of Service by Type of Transit*).

The three busiest Amtrak stations in 2009, New York, NY, Washington, DC, and Philadelphia, PA, were all on the Northeast Corridor line. Over 7.8 million tickets were purchased to or from New York's Penn Station in 2009 (Table 4-25: *Top 25 Busiest Amtrak Stations* and Figure 4-26: *Top 25 Busiest Amtrak Stations* and Figure 4-27: *Top Amtrak Stations in the Northeast Corridor*). Amtrak's on-time performance remained steady at around 70 percent from 2004 to 2008 before improving by roughly 10 percentage points in 2009 and 2010. Amtrak's annual hours of delay peaked in 2007 before falling to 6-year lows in 2009 and 2010. Approximately 55 percent of the hours of delay in 2010 were attributed to host-railroad issues such as track and signal related delays, power failures, freight and commuter train interference, or routing delays.[12]

In the first 7 months of 2010, 10 top U.S. airports provided services to 127 million and 32 million domestic and international passengers, respectively. Among these

[11] For information about FAST, please visit http://www.cbp.gov/xp/cgov/trade/cargo_security/ctpat/fast/.

[12] U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *National Transportation Statistics*, table 1-67, available at http://www.bts.gov/publications/national_transportation_statistics/ as of January 2011.

domestic passengers, about 41 percent traveled through the top three U.S. airports, which are Atlanta, Chicago (O'Hare), and Dallas/Fort Worth, while 48 percent of international passengers used either John F. Kennedy Airport,Miami International Airport, or Los Angeles International Airport (Table 4-28: *Top U.S. Airports Ranked by Domestic Scheduled Passenger Enplanements* and Table 4-29: *Top 10 U.S. Airports Ranked by International Scheduled Passenger Enplanements*).

From 2004 to 2009, U.S. airlines scheduled between 6 and 7 million flights annually, and on average, about 20 percent of flight arrivals were classified as delayed by arriving 15 or more minutes later than scheduled. However, from 2008 to 2009, the average length of delays declined from 56.8 minutes to 54.2 minutes in 2009, respectively, indicating that U.S. airlines have improved their performances and reduced delays. From 2004 to 2009, the percentage of delays in arriving flights declined to 19.2 percent in 2009 from a peak of 24.8 percent in 2007. The main reasons reported to have caused delays were:

1. National Aviation System orders to delay for various reasons, 37 percent;
2. aircrafts unavailable at the time needed, 33 percent; and
3. the airlines themselves, due to mechanical problems or other factors, 27 percent (Table 4-30: *Airline Delays by Cause* and Table 4-31: *Airline Delays by Length of Delay by year*).

Freight Transportation

Freight rail delays, measured quarterly in average hours of terminal dwell time, peaked in the first quarter of 2005 but have since steadily declined to 22 hours in the fourth quarter of 2009, up just slightly from a low of 21 hours in the first quarter of 2009. In addition, the average line-haul speed (which excludes stopping times) dipped in 2005 and 2006 but recovered in more recent years. In the first 3 quarters of 2009, the average line-haul speed was over 25 mph, indicating increased efficiency in light of the economic downturn (Table and Figure 4-33: *Rail Freight Average Speeds, Revenue Ton-Miles, and Terminal Dwell Times*).

Delays on the U.S. portion of the St. Lawrence Seaway were down significantly in 2009 due to good weather and fewer vessel-related delays. The St. Lawrence Seaway comprises 15 U.S. and Canadian locks, including the U.S. Eisenhower and Snell Locks, which permit vessel to travel from the Atlantic Ocean all the way to Lake Superior. The percentage of total delays attributed to weather dropped from 66 percent to 40 percent from 2008 to 2009. Total downtime in 2009 was 16.9 hours, down from 60.0 hours in 2008 and a peak of 73.7 hours in 2007 (Table 4-34: *St. Lawrence Seaway (U.S. Portion) Downtime by Cause*).

TABLE 4-17 Average Hours of Annual Delay per Auto Commuter: 2004–2009

Hours

Urban areas	2004	2005	2006	2007	2008	2009
Very Large						
Atlanta, GA	56	58	57	51	45	44
Boston, MA-NH-RI	56	57	56	52	50	48
Chicago, IL-IN	72	77	74	71	64	70
Dallas-Fort Worth-Arlington, TX	49	51	53	51	49	48
Detroit, MI	42	41	42	42	37	33
Houston, TX	52	55	55	54	63	58
Los Angeles-Long Beach-Santa Ana, CA	82	82	84	79	60	63
Miami, FL	44	45	44	43	35	39
New York-Newark, NY-NJ-CT	47	51	50	48	42	42
Philadelphia, PA-NJ-DE-MD	41	42	42	42	38	39
Phoenix, AZ	38	44	41	41	37	36
San Diego, CA	46	46	45	43	41	37
San Francisco-Oakland, CA	68	74	74	71	50	49
Seattle, WA	48	51	50	49	47	44
Washington, DC-VA-MD	83	83	82	85	70	70
Large						
Austin, TX	47	52	50	46	41	39
Baltimore, MD	56	57	57	56	48	50
Buffalo, NY	20	21	23	21	16	17
Charlotte, NC-SC	25	25	26	27	26	26
Cincinnati, OH-KY-IN	29	28	28	27	21	19
Cleveland, OH	19	17	17	16	20	19
Columbus, OH	19	19	18	17	19	17
Denver-Aurora, CO	50	53	52	49	48	47
Indianapolis, IN	32	30	29	28	25	25
Jacksonville, FL	32	31	31	32	28	26
Kansas City, MO-KS	28	30	31	27	22	21
Las Vegas, NV	30	32	32	33	27	32
Louisville, KY-IN	26	25	24	22	21	22
Memphis, TN-MS-AR	28	28	28	25	21	24
Milwaukee, WI	31	31	28	29	27	25
Minneapolis-St. Paul, MN	50	54	50	48	50	43
Nashville-Davidson, TN	43	43	41	39	33	35
New Orleans, LA	25	26	31	29	28	31
Orlando, FL	44	44	44	43	37	41
Pittsburgh, PA	38	37	34	35	31	33
Portland, OR-WA	40	42	41	40	36	36
Providence, RI-MA	26	26	24	26	20	19
Raleigh-Durham, NC	30	31	29	31	25	25
Riverside-San Bernardino, CA	32	37	38	36	30	30
Sacramento, CA	33	35	35	33	24	24
San Antonio, TX	32	33	31	31	28	30
San Jose, CA	52	54	57	55	38	35

(continued next page)

TABLE 4-17 Average Hours of Annual Delay per Auto Commuter: 2004–2009 (continued)

Urban areas	2004	2005	2006	2007	2008	2009
	Hours					
San Juan, PR	36	34	34	33	30	33
St. Louis, MO-IL	37	38	35	32	33	31
Tampa-St. Petersburg, FL	35	34	36	36	35	34
Virginia Beach, VA	41	41	42	40	35	32
Medium						
Akron, OH	19	19	20	16	16	16
Albany-Schenectady, NY	19	19	22	24	17	18
Albuquerque, NM	31	33	34	35	29	26
Allentown-Bethlehem, PA-NJ	24	24	23	24	22	22
Bakersfield, CA	6	7	6	6	9	11
Baton Rouge, LA	37	37	35	34	37	37
Birmingham, AL	32	31	31	30	26	28
Bridgeport-Stamford, CT-NY	45	47	50	50	39	35
Charleston-North Charleston, SC	29	28	31	30	24	27
Colorado Springs, CO	42	53	50	44	31	31
Dayton, OH	17	15	15	13	15	15
El Paso, TX-NM	27	28	28	26	25	21
Fresno, CA	15	16	16	16	12	14
Grand Rapids, MI	19	19	19	18	17	19
Hartford, CT	27	27	31	30	24	24
Honolulu, HI	29	32	32	34	31	31
Indio-Cathedral City-Palm Springs, CA	17	20	21	19	14	14
Lancaster-Palmdale, CA	16	17	18	17	16	18
McAllen, TX	7	7	7	7	6	7
New Haven, CT	32	34	34	33	28	29
Oklahoma City, OK	25	23	27	30	26	25
Omaha, NE-IA	18	18	20	19	21	20
Oxnard-Ventura, CA	21	23	22	24	18	19
Poughkeepsie-Newburgh, NY	10	10	11	10	9	11
Richmond, VA	17	17	17	17	16	19
Rochester, NY	13	13	14	15	13	12
Salt Lake City, UT	27	25	24	25	24	28
Sarasota-Bradenton, FL	20	20	22	20	13	17
Springfield, MA-CT	18	19	20	19	17	19
Toledo, OH-MI	19	17	17	16	10	12
Tucson, AZ	25	28	27	25	21	23
Tulsa, OK	16	16	18	17	16	18
Wichita, KS	20	19	22	22	20	20
Small						
Anchorage, AK	22	21	22	22	16	14
Beaumont, TX	25	26	25	25	23	21
Boise, ID	23	24	25	24	18	21
Boulder, CO	28	28	31	26	22	15
Brownsville, TX	9	10	10	10	13	14

(continued next page)

TABLE 4-17 Average Hours of Annual Delay per Auto Commuter: 2004–2009 (continued)

Urban areas	Hours 2004	2005	2006	2007	2008	2009
Cape Coral, FL	27	28	32	31	23	23
Columbia, SC	20	20	24	28	24	25
Corpus Christi, TX	11	11	9	11	10	10
Eugene, OR	13	14	13	12	10	9
Greensboro, NC	20	19	17	16	14	15
Jackson, MS	19	20	23	23	19	19
Knoxville, TN	24	23	21	22	22	21
Laredo, TX	1	1	2	2	4	12
Little Rock, AR	24	23	24	28	22	24
Madison WI	8	7	7	7	9	11
Pensacola, FL-AL	20	21	23	23	18	19
Provo, UT	13	14	14	14	13	14
Salem, OR	31	32	37	36	22	24
Spokane, WA	18	17	18	19	18	16
Stockton, CA	9	10	11	11	9	9
Winston-Salem, NC	17	20	19	18	15	16
Worcester, MA	21	22	21	22	21	20
101-Area average	45	46	46	44	39	39
Very large area average	58	60	60	57	50	50
Large area average	36	37	36	35	32	31
Medium area average	23	24	25	24	21	22
Small area average	19	20	20	21	18	18

NOTES: *Annual delay per auto commuter* is calculated as the extra travel time during the year divided by the number of people who commute in private vehicles.

Very large urban areas have a population of over 3 million. *Large urban areas* have a population of over 1 million and less than 3 million. *Medium urban areas* have a population of over 500,000 and less than 1 million. *Small urban areas* have a population of less than 500,000.

The *2010 Urban Mobility Report* methodology and data sources have been significantly revised and the total number of cities reported rose from 90 to 101; these figures are not comparable to those in past editions of this publication. This is due to methodological changes such as covering a 24 hour period instead of only peak periods.

SOURCE: Texas A&M University, Texas Transportation Institute, *2010 Urban Mobility Report* (College Station, TX: 2011), available at http://tti.tamu.edu/ as of January 2011 as cited in U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *National Transportation Statistics*, table 1-68, available at http://www.bts.gov/publications/national_transportation_statistics/ as of April 2011.

TABLE 4-18 Travel Time Index by Urban Area: 2004 to 2009

Urban areas	Travel Time Index 2004	2005	2006	2007	2008	2009
Very Large						
Atlanta, GA	1.27	1.28	1.28	1.27	1.23	1.22
Boston, MA-NH-RI	1.32	1.32	1.32	1.30	1.21	1.20
Chicago, IL-IN	1.27	1.29	1.28	1.26	1.26	1.25
Dallas-Fort Worth-Arlington, TX	1.26	1.27	1.29	1.28	1.23	1.22
Detroit, MI	1.22	1.21	1.21	1.21	1.18	1.15
Houston, TX	1.31	1.33	1.32	1.31	1.28	1.25
Los Angeles-Long Beach-Santa Ana, CA	1.41	1.42	1.43	1.42	1.35	1.38
Miami, FL	1.31	1.31	1.31	1.30	1.26	1.23
New York-Newark, NY-NJ-CT	1.35	1.37	1.36	1.35	1.27	1.27
Philadelphia, PA-NJ-DE-MD	1.22	1.22	1.22	1.22	1.19	1.19
Phoenix, AZ	1.18	1.21	1.20	1.20	1.17	1.20
San Diego, CA	1.25	1.25	1.25	1.24	1.20	1.18
San Francisco-Oakland, CA	1.37	1.40	1.41	1.39	1.28	1.27
Seattle, WA	1.32	1.33	1.32	1.30	1.26	1.24
Washington, DC-VA-MD	1.35	1.35	1.35	1.36	1.29	1.30
Large						
Austin, TX	1.30	1.32	1.30	1.28	1.27	1.28
Baltimore, MD	1.19	1.19	1.20	1.20	1.16	1.17
Buffalo, NY	1.13	1.13	1.13	1.12	1.09	1.10
Charlotte, NC-SC	1.22	1.20	1.21	1.21	1.19	1.17
Cincinnati, OH-KY-IN	1.15	1.14	1.14	1.14	1.13	1.12
Cleveland, OH	1.13	1.12	1.12	1.11	1.09	1.10
Columbus, OH	1.11	1.11	1.10	1.10	1.08	1.11
Denver-Aurora, CO	1.26	1.28	1.27	1.27	1.21	1.22
Indianapolis, IN	1.15	1.15	1.15	1.14	1.18	1.18
Jacksonville, FL	1.17	1.17	1.17	1.18	1.13	1.12
Kansas City, MO-KS	1.16	1.15	1.16	1.14	1.11	1.10
Las Vegas, NV	1.29	1.29	1.28	1.28	1.27	1.26
Louisville, KY-IN	1.13	1.12	1.12	1.11	1.08	1.10
Memphis, TN-MS-AR	1.19	1.18	1.18	1.16	1.13	1.13
Milwaukee, WI	1.17	1.17	1.15	1.16	1.17	1.16
Minneapolis-St. Paul, MN	1.31	1.33	1.31	1.30	1.24	1.21
Nashville-Davidson, TN	1.21	1.20	1.19	1.18	1.14	1.15
New Orleans, LA	1.18	1.19	1.20	1.20	1.18	1.15
Orlando, FL	1.22	1.22	1.22	1.22	1.19	1.20
Pittsburgh, PA	1.23	1.22	1.21	1.21	1.20	1.17
Portland, OR-WA	1.26	1.27	1.28	1.27	1.23	1.23
Providence, RI-MA	1.19	1.18	1.17	1.18	1.15	1.14
Raleigh-Durham, NC	1.16	1.17	1.16	1.16	1.13	1.13
Riverside-San Bernardino, CA	1.18	1.19	1.20	1.20	1.16	1.16
Sacramento, CA	1.26	1.26	1.26	1.25	1.19	1.18
San Antonio, TX	1.21	1.21	1.19	1.20	1.16	1.16
San Jose, CA	1.29	1.31	1.33	1.32	1.26	1.23

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TABLE 4-18 Travel Time Index by Urban Area: 2004 to 2009 (continued)

Travel Time Index Urban areas	2004	2005	2006	2007	2008	2009
San Juan, PR	1.25	1.24	1.24	1.24	1.22	1.25
St. Louis, MO-IL	1.17	1.17	1.16	1.14	1.12	1.12
Tampa-St. Petersburg, FL	1.18	1.18	1.19	1.19	1.16	1.16
Virginia Beach, VA	1.23	1.24	1.24	1.23	1.19	1.19
Medium						
Akron, OH	1.09	1.08	1.08	1.07	1.05	1.05
Albany-Schenectady, NY	1.10	1.10	1.11	1.12	1.09	1.10
Albuquerque, NM	1.15	1.16	1.17	1.17	1.15	1.13
Allentown-Bethlehem, PA-NJ	1.08	1.08	1.08	1.08	1.08	1.08
Bakersfield, CA	1.07	1.08	1.08	1.08	1.07	1.08
Baton Rouge, LA	1.21	1.21	1.22	1.22	1.23	1.24
Birmingham, AL	1.15	1.15	1.15	1.15	1.14	1.14
Bridgeport-Stamford, CT-NY	1.24	1.26	1.28	1.28	1.23	1.25
Charleston-North Charleston, SC	1.18	1.17	1.18	1.18	1.15	1.15
Colorado Springs, CO	1.14	1.18	1.17	1.16	1.14	1.12
Dayton, OH	1.08	1.07	1.07	1.06	1.06	1.06
El Paso, TX-NM	1.18	1.18	1.18	1.17	1.15	1.15
Fresno, CA	1.08	1.08	1.09	1.09	1.06	1.07
Grand Rapids, MI	1.06	1.05	1.05	1.05	1.05	1.06
Hartford, CT	1.17	1.17	1.19	1.19	1.15	1.13
Honolulu, HI	1.16	1.18	1.19	1.20	1.19	1.18
Indio-Cathedral City-Palm Springs, CA	1.10	1.12	1.13	1.11	1.09	1.13
Lancaster-Palmdale, CA	1.10	1.10	1.10	1.10	1.06	1.11
McAllen, TX	1.08	1.08	1.09	1.09	1.07	1.09
New Haven, CT	1.14	1.15	1.15	1.15	1.13	1.15
Oklahoma City, OK	1.07	1.07	1.08	1.09	1.09	1.09
Omaha, NE-IA	1.10	1.10	1.10	1.10	1.11	1.08
Oxnard-Ventura, CA	1.12	1.12	1.12	1.13	1.11	1.12
Poughkeepsie-Newburgh, NY	1.05	1.05	1.05	1.05	1.04	1.04
Richmond, VA	1.07	1.07	1.07	1.07	1.06	1.06
Rochester, NY	1.07	1.07	1.07	1.07	1.07	1.07
Salt Lake City, UT	1.18	1.16	1.16	1.16	1.11	1.12
Sarasota-Bradenton, FL	1.11	1.11	1.11	1.11	1.09	1.10
Springfield, MA-CT	1.08	1.09	1.10	1.09	1.07	1.09
Toledo, OH-MI	1.08	1.07	1.07	1.07	1.04	1.05
Tucson, AZ	1.14	1.15	1.15	1.14	1.12	1.11
Tulsa, OK	1.06	1.05	1.06	1.06	1.05	1.07
Wichita, KS	1.06	1.06	1.07	1.07	1.06	1.08
Small						
Anchorage, AK	1.06	1.06	1.06	1.06	1.07	1.05
Beaumont, TX	1.06	1.06	1.06	1.06	1.08	1.08
Boise, ID	1.15	1.15	1.16	1.15	1.14	1.12
Boulder, CO	1.14	1.14	1.16	1.14	1.12	1.13
Brownsville, TX	1.07	1.07	1.07	1.07	1.05	1.04

(continued next page)

TABLE 4-18 Travel Time Index by Urban Area: 2004 to 2009 (continued)

Urban areas	Travel Time Index 2004	2005	2006	2007	2008	2009
Cape Coral, FL	1.12	1.12	1.14	1.14	1.13	1.12
Columbia, SC	1.07	1.07	1.08	1.10	1.08	1.09
Corpus Christi, TX	1.06	1.07	1.06	1.06	1.06	1.07
Eugene, OR	1.12	1.13	1.12	1.11	1.08	1.07
Greensboro, NC	1.07	1.07	1.07	1.06	1.05	1.05
Jackson, MS	1.08	1.09	1.10	1.10	1.08	1.07
Knoxville, TN	1.09	1.09	1.08	1.09	1.07	1.06
Laredo, TX	1.06	1.06	1.07	1.08	1.06	1.07
Little Rock, AR	1.08	1.08	1.09	1.10	1.08	1.10
Madison, WI	1.05	1.05	1.05	1.05	1.05	1.06
Pensacola, FL-AL	1.10	1.10	1.12	1.12	1.08	1.07
Provo, UT	1.05	1.05	1.05	1.05	1.03	1.06
Salem, OR	1.12	1.12	1.14	1.14	1.10	1.10
Spokane, WA	1.11	1.10	1.10	1.11	1.09	1.10
Stockton, CA	1.04	1.05	1.05	1.05	1.02	1.02
Winston-Salem, NC	1.06	1.07	1.07	1.07	1.06	1.06
Worcester, MA	1.08	1.09	1.09	1.09	1.08	1.07
101-Area average[a]	1.24	1.25	1.25	1.24	1.20	1.20
Very large area average[a]	1.31	1.32	1.32	1.31	1.26	1.26
Large area average[a]	1.21	1.21	1.21	1.20	1.17	1.17
Medium area average[a]	1.12	1.12	1.12	1.12	1.10	1.11
Small area average[a]	1.08	1.08	1.09	1.09	1.08	1.08

[a] Averages weighted by vehicle-miles traveled.

NOTES: The Travel Time Index is calculated as 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.

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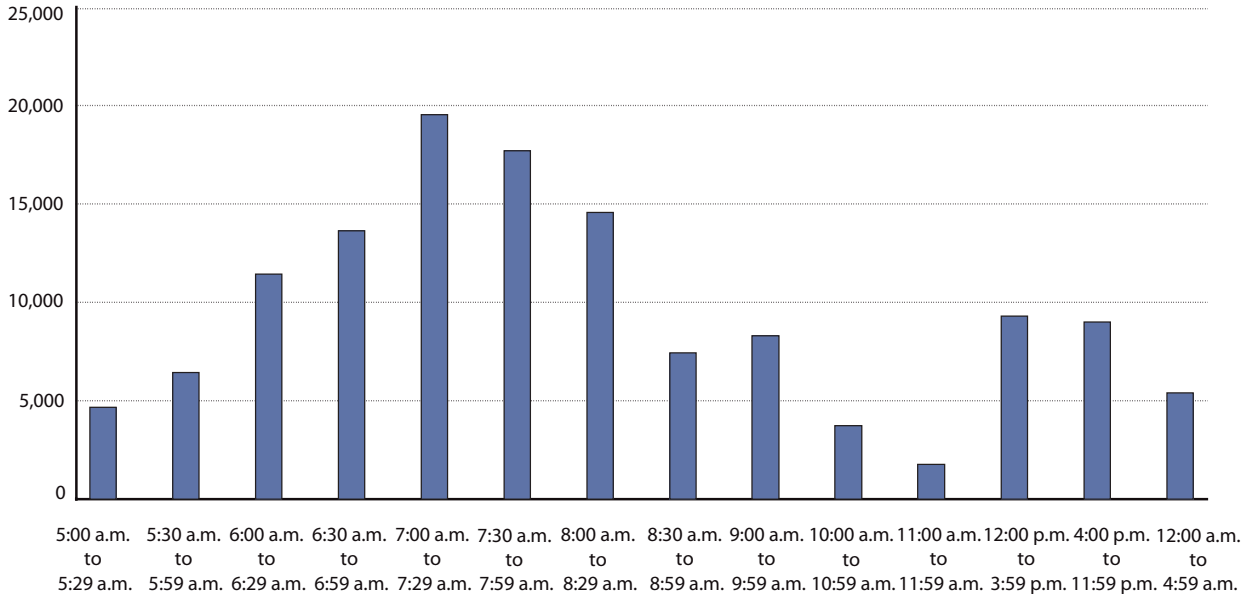
SOURCE: Texas A&M University, Texas Transportation Institute, *2010 Urban Mobility Report* (College Station, TX: 2011), available at http://mobility.tamu.edu as of January 2011 as cited in U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *National Transportation Statistics*, table 1-69, available at http://www.bts.gov/publications/national_transportation_statistics/ as of April 2011.

FIGURE 4-19 Departure Time: Leaving Home to Go to Work: 2009



NOTE: Percents may not add to 100 due to rounding.

SOURCE: U.S. Department of Commerce, U.S. Census Bureau, *American Community Survey* (Washington, DC: Annual Issues), table B08011, available at http://www.census.gov/acs/www/index.html as of October 2010.

TABLE 4-19 Departure Time: Leaving Home to Go to Work: 2009

	Number of workers (thousands)	Percent of workers
5:00 a.m. to 5:29 a.m.	4,647	3.5
5:30 a.m. to 5:59 a.m.	6,420	4.8
6:00 a.m. to 6:29 a.m.	11,408	8.6
6:30 a.m. to 6:59 a.m.	13,620	10.3
7:00 a.m. to 7:29 a.m.	19,536	14.7
7:30 a.m. to 7:59 a.m.	17,686	13.3
8:00 a.m. to 8:29 a.m.	14,565	11.0
8:30 a.m. to 8:59 a.m.	7,425	5.6
9:00 a.m. to 9:59 a.m.	8,287	6.2
10:00 a.m. to 10:59 a.m.	3,705	2.8
11:00 a.m. to 11:59 a.m.	1,747	1.3
12:00 p.m. to 3:59 p.m.	9,270	7.0
4:00 p.m. to 11:59 p.m.	8,972	6.8
12:00 a.m. to 4:59 a.m.	5,386	4.1
Total	132,674	100.0

NOTES: Percents may not add to 100 due to rounding. Workers are those aged 16 years and older who worked outside the home during the reference week and include members of the Armed Forces and civilians. For additional information, please refer to the *American Community Survey's 2009 Subject Definitions*, available at http://www.census.gov/acs/.

SOURCE: U.S. Department of Commerce, U.S. Census Bureau, *American Community Survey* (Washington, DC: Annual Issues), table B08011, available at http://www.census.gov/acs/www/index.html as of October 2010.

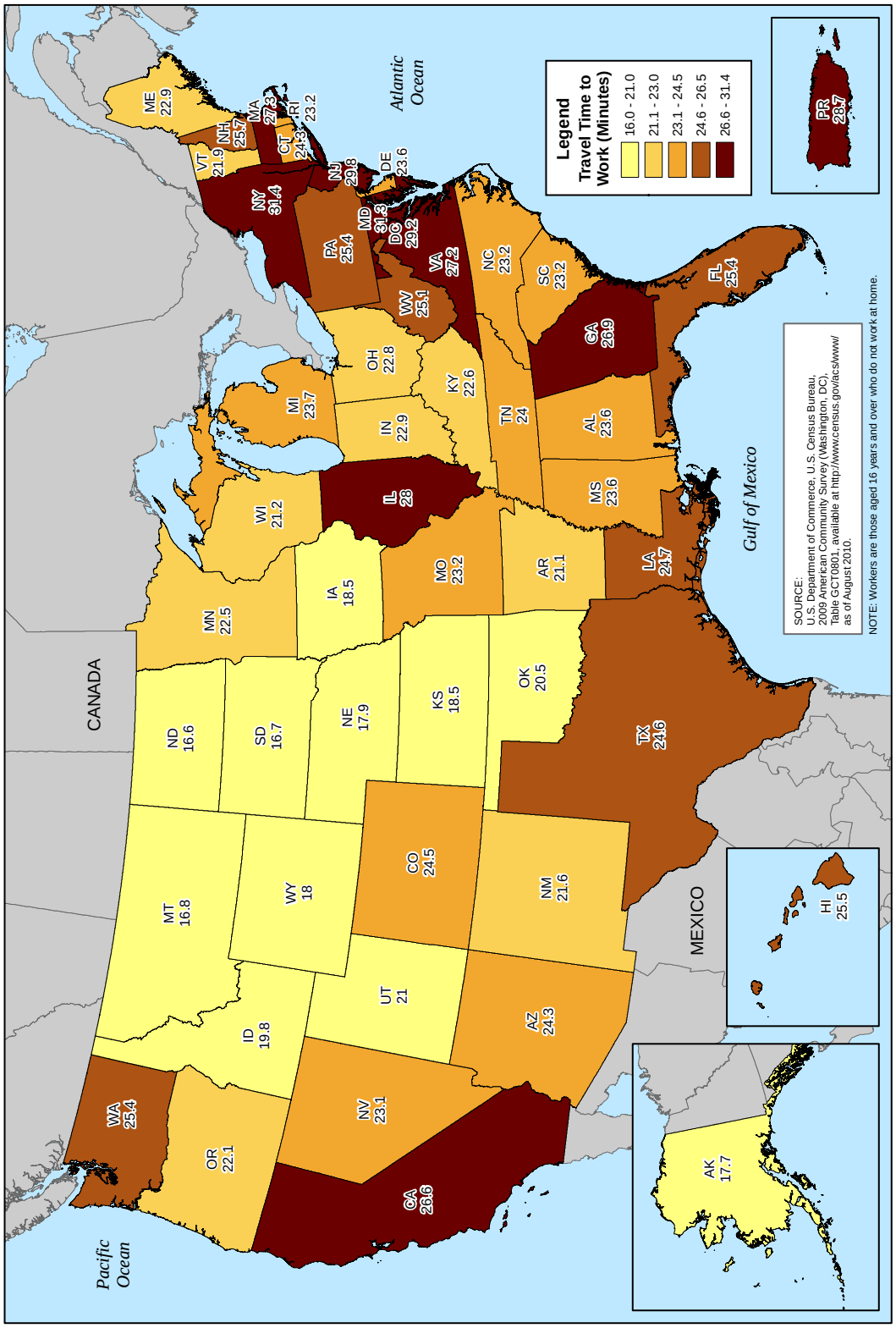
TABLE 4-20 Travel Time to Work: 2009

	Number of workers (thousands)	Percent of population
Less than 10 Minutes	18,565	14.0
10-14 Minutes	19,328	14.6
15-19 Minutes	20,775	15.7
20-24 Minutes	19,559	14.7
25-29 Minutes	8,040	6.1
30-34 Minutes	17,874	13.5
35-44 Minutes	8,321	6.3
45-59 Minutes	9,834	7.4
More than 60 Minutes	10,378	7.8
Total	132,674	100.0

NOTES: Numbers may not add to total due to rounding. *Workers* are those aged 16 years and older who worked outside the home during the reference week and include members of the Armed Forces and civilians. For additional information, please refer to the *American Community Survey's 2009 Subject Definitions*, available at http://www.census.gov/acs/.

SOURCE: U.S. Department of Commerce, U.S. Census Bureau, *2009 American Community Survey* (Washington, DC: Annual Issues), table B08012, available at http://www.census.gov/acs/www/ as of September 2010.

FIGURE 4-21 Mean Travel Time to Work in Minutes, 2009



SOURCE: U.S. Department of Commerce, U.S. Census Bureau, *2009 American Community Survey* (Washington, DC), table GCT0801, available at http://www.census.gov/acs/www/ as of August 2010.

NOTE: Workers are those aged 16 years and over who do not work at home.

TABLE 4-22 Average Daytime Wait Times for Private Passenger Vehicles at Selected U.S. Surface Border Gateways: 2004–2009

Minutes

	2004	2005	2006	2007	2008	2009
United States–Canada border						
Blaine-Peace Arch, WA	8.0	8.0	10.9	14.5	16.4	14.1
Blaine-Pacific Highway, WA	5.4	6.6	9.6	15.1	14.5	13.5
Lynden, WA	N	N	N	N	N	11.6
Detroit-Windsor Tunnel, MI	4.1	3.1	4.1	7.4	8.0	5.9
Sumas, WA	3.3	3.0	5.6	9.5	9.3	5.8
Sweetgrass, MT	2.9	3.7	3.7	5.3	5.7	5.5
Port Huron-Bluewater Bridge, MI	5.0	3.5	5.8	10.3	8.6	4.9
Detroit-Ambassador Bridge, MI	2.2	2.0	5.8	8.1	7.9	4.3
Point Roberts, WA	N	N	N	N	N	3.1
Buffalo/Niagara Falls-Lewiston Bridge, NY	4.2	1.7	3.6	4.2	3.9	2.8
Sault Ste. Marie, MI	3.8	3.5	5.7	4.2	3.8	2.8
Houlton, ME	0.1	0.1	0.9	3.5	3.8	2.5
International Falls, MN	N	N	N	N	N	2.4
Calais-Ferry Point, ME	2.1	2.4	5.0	7.5	3.7	2.3
Highgate Springs, VT	1.9	2.2	4.5	6.2	3.2	2.2
Pembina, ND	2.2	1.4	2.0	3.1	2.6	2.0
Champlain, NY	4.7	4.1	6.3	6.2	3.1	1.4
Calais-Milltown, ME	0.2	0.5	2.5	4.4	2.1	1.2
Buffalo/Niagara Falls-Rainbow Bridge, NY	3.1	0.3	1.0	1.8	1.3	1.1
Madawaska, ME	N	N	N	N	N	1.0
Derby Line, VT	0.5	0.3	1.3	3.8	0.8	0.8
Buffalo/Niagara Falls-Peace Bridge, NY	2.8	0.3	0.8	1.4	1.5	0.7
Alexandria Bay-Thousand Islands Bridge, NY	3.3	2.7	2.1	2.6	1.5	0.7
Jackman, ME	1.3	1.9	1.3	1.8	0.5	0.4
Massena, NY	N	N	N	N	N	0.2
Norton, VT	N	N	N	N	N	0.0
Calais-International Avenue, ME	N	N	N	N	N	0.0
Average	2.9	2.4	4.0	5.8	4.9	3.3
United States-Mexico border						
Calexico-West, CA	20.5	30.0	35.8	42.6	44.8	41.7
San Luis, AZ	14.7	16.8	34.1	36.5	39.9	39.3
San Ysidro, CA	28.3	34.1	41.7	43.5	50.2	39.1
El Paso-Bridge of the Americas (BOTA), TX	17.6	11.8	23.2	36.3	27.4	35.5
Calexico-East, CA	14.0	21.2	25.3	31.7	30.4	33.6
El Paso-Ysleta, TX	12.6	9.6	15.9	24.4	18.8	33.4
El Paso-Paso Del Norte (PDN), TX	11.9	7.6	15.6	31.2	26.1	32.3
Andrade, CA	6.3	7.0	17.4	21.1	26.2	28.5
Nogales-Mariposa, AZ	25.2	22.0	29.9	32.8	32.4	28.0
Otay Mesa, CA	18.8	27.0	33.5	34.1	32.8	27.7
Brownsville-B&M, TX	7.0	8.1	10.9	19.7	20.0	26.1
Brownsville-Veterans International, TX	8.2	7.8	11.0	20.5	19.7	23.7
Laredo-Bridge II, TX	13.1	12.8	18.5	25.2	24.8	22.6
Brownsville-Gateway, TX	7.0	7.9	10.4	17.7	16.9	22.6

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TABLE 4-22 Average Daytime Wait Times for Private Passenger Vehicles at Selected U.S. Surface Border Gateways: 2004–2009 (continued)

Minutes

	2004	2005	2006	2007	2008	2009
Nogales-Deconcini, AZ	22.1	20.0	25.0	27.9	24.7	22.4
Hidalgo/Pharr - Anzalduas International Bridge, TX	N	N	N	N	N	20.6
Tecate, CA	17.7	18.2	25.1	21.1	18.3	19.3
Hidalgo/Pharr-Hidalgo, TX	11.4	13.8	17.4	21.5	16.7	19.1
Laredo-Bridge I, TX	12.4	15.6	18.1	22.4	19.8	18.6
Douglas, AZ	7.3	5.5	8.2	14.4	13.3	16.1
Santa Teresa, NM	0.8	0.1	1.6	8.6	6.7	14.6
Eagle Pass-Bridge I, TX	6.2	8.2	12.6	14.8	11.1	12.0
Brownsville-Los Indios, TX	3.7	3.7	5.2	9.6	8.4	11.5
Hidalgo/Pharr-Pharr, TX	9.4	10.0	14.2	18.8	12.6	11.0
Rio Grande City, TX	3.1	5.9	7.7	7.6	7.7	10.5
Progreso, TX	3.3	3.9	6.7	11.8	9.1	9.2
Fabens, TX	0.0	0.1	1.8	5.3	6.8	8.6
Lukeville, AZ	3.4	4.5	6.8	12.1	9.3	8.4
Eagle Pass-Bridge II, TX	3.9	4.6	8.8	10.0	6.6	7.7
Laredo-Colombia Solidarity, TX	1.4	2.3	3.8	5.0	5.9	7.5
Roma, TX	2.6	3.8	5.4	7.4	6.7	7.4
Presidio, TX	0.2	0.2	2.6	8.3	7.8	6.9
Del Rio, TX	6.5	5.1	6.7	9.8	9.0	6.6
Naco, AZ	0.7	1.4	1.3	2.0	2.3	2.5
El Paso-Stanton DCL, TX	N	N	N	1.8	1.2	2.4
Fort Hancock, TX	N	N	N	0.5	0.5	0.6
Average	9.6	10.4	15.0	19.5	18.1	18.5

KEY: N = Data do not exist.

NOTES: Wait times for private vehicles are recorded hourly. Daytime hours (between 8:00 a.m. and 6:00 p.m.) are generally the busiest portion of the day and are representative of typical delays encountered by the majority of vehicles. Wait times can, however, vary considerably by crossing, time of day, and day of the week, and the actual delays that occur on occasion may be substantially longer than the averages represented above. The Department of Homeland Security has used a new methodology in estimating the average daytime wait times. The averages were calculated by taking the hourly recorded wait time (during hours of operation) and averaging these times for each port/crossing for the calendar year. The yearly average is calculated by taking the hourly recorded wait time (during hours of operation) and averaging these times for each calendar year. These data are not comparable with data from editions published before 2010.

SOURCE: U.S. Department of Homeland Security, Customs and Border Protection, personal communication, August 2010.

TABLE 4-23 Average Daytime Wait Times for Commercial Vehicles at Selected U.S. Surface Border Gateways: 2004–2009

Minutes

	2004	2005	2006	2007	2008	2009
United States–Canada border						
Blaine-Pacific Highway, WA	11.9	11.6	10.6	9.6	7.3	9.1
Sweetgrass, MT	3.8	6.1	6.5	8.4	8.0	7.0
Detroit-Windsor Tunnel, MI	3.4	2.8	3.7	7.3	7.4	5.8
Lynden, WA	N	N	N	N	N	5.4
Port Huron-Bluewater Bridge, MI	19.2	7.8	9.9	13.0	8.1	4.8
Detroit-Ambassador Bridge, MI	10.8	2.0	3.6	6.2	6.0	4.1
Pembina, ND	3.6	4.1	7.0	4.7	4.1	4.0
Sault Ste. Marie, MI	2.6	2.6	5.4	4.2	3.6	2.6
Calais-Ferry Point, ME	2.2	2.3	5.0	7.5	3.7	2.5
Sumas, WA	3.8	4.2	3.8	3.7	3.0	2.4
Houlton, ME	3.1	1.4	2.0	4.7	2.5	2.1
Calais-Milltown, ME	0.3	0.6	2.5	4.3	2.1	1.3
Madawaska, ME	N	N	N	N	N	1.0
Point Roberts, WA	N	N	N	N	N	1.0
Buffalo/Niagara Falls-Lewiston Bridge, NY	3.0	0.7	1.9	0.5	1.2	0.8
Highgate Springs, VT	3.9	3.0	5.5	3.4	1.3	0.8
Alexandria Bay-Thousand Islands Bridge, NY	4.8	5.1	6.0	3.6	0.9	0.6
Derby Line, VT	5.6	3.2	2.2	3.1	0.8	0.6
Buffalo/Niagara Falls-Peace Bridge, NY	8.5	2.9	1.3	1.5	0.9	0.6
International Falls, MN	N	N	N	N	N	0.3
Champlain, NY	8.3	3.9	8.7	0.8	0.3	0.1
Jackman, ME	0.9	1.0	0.7	0.7	0.3	0.1
Calais-International Avenue, ME	N	N	N	N	N	0.1
Massena, NY	N	N	N	N	N	0.0
Norton, VT	0.0	0.0	0.0	0.1	0.0	0.0
Average	5.3	3.4	4.6	4.6	3.2	2.3
United States–Mexico border						
Lukeville, AZ	0.0	0.0	3.7	7.1	34.4	36.3
Nogales-Mariposa, AZ	24.1	23.5	29.4	21.2	22.2	29.5
Progreso, TX	1.3	3.1	10.1	18.0	21.6	21.2
Laredo-World Trade Bridge, TX	24.9	25.6	34.5	38.7	27.2	16.5
Calexico-East, CA	7.1	9.1	27.9	22.1	16.4	15.1
Otay Mesa, CA	18.0	26.9	48.0	41.4	20.2	14.8
El Paso-Bridge of the Americas (BOTA), TX	8.7	13.5	15.4	9.3	9.1	14.7
Brownsville-Veterans International, TX	10.2	7.8	10.3	11.2	10.9	14.0
El Paso-Ysleta, TX	17.0	16.5	11.8	20.4	11.4	9.2
Hidalgo/Pharr, Pharr, TX	7.5	11.7	18.3	15.5	13.9	6.9
Tecate, CA	14.2	10.7	24.3	8.2	5.9	6.4
Columbus, NM	0.0	0.0	1.0	1.9	1.1	6.3
Laredo-Colombia Solidarity, TX	4.7	7.0	12.5	13.4	6.5	6.3
Santa Teresa, NM	0.1	0.1	0.7	2.1	0.6	3.2
Brownsville-Los Indios, TX	1.4	1.2	2.0	2.5	2.1	2.7
Del Rio, TX	2.8	2.3	4.2	6.5	4.7	2.5
Eagle Pass–Bridge II, TX	2.0	3.3	4.2	5.1	4.3	2.5
San Luis, AZ	0.1	0.3	0.3	0.0	3.5	1.9
Douglas, AZ	0.5	0.2	0.2	0.3	0.1	1.5
Rio Grande City, TX	2.5	2.6	2.5	1.5	1.0	0.6
Roma, TX	0.6	0.7	2.2	0.6	0.3	0.5
Naco, AZ	0.1	0.3	0.3	0.3	0.2	0.2
Presidio, TX	0.0	0.0	0.2	0.7	0.2	0.0
Eagle Pass–Bridge I, TX	1.1	5.0	U	U	U	U
Average	7.1	8.3	13.3	13.4	10.0	9.2

KEY: N = Data do not exist; U = Data are unavailable.

NOTES: Wait times for commercial vehicles are recorded hourly. Daytime hours (between 8:00 a.m. and 6:00 p.m.) are generally the busiest portion of the day and are representative of typical delays encountered by the majority of vehicles. Wait times can, however, vary considerably by crossing, time of day, and day of the week, and the actual delays that occur on occasion may be substantially longer than the averages represented above. The Department of Homeland Security has used a new methodology in estimating the average daytime wait times. The averages were calculated by taking the hourly recorded wait time (during hours of operation) and averaging these times for each port/crossing for the calendar year. The yearly average is calculated by taking the hourly recorded wait time (during hours of operation) and averaging these times for each calendar year. These data are not comparable with data from editions published before 2010.

SOURCE: U.S. Department of Homeland Security, Customs and Border Protection, personal communication, August 2010.

TABLE 4-24 Interruptions of Service by Type of Transit: 2004–2009

Number of interruptions per 100,000 revenue vehicle-miles

	Motor bus	Light rail	Heavy rail	Commuter rail	Demand response
2004	21.2	13.7	4.1	0.8	3.1
2005	21.8	15.2	4.9	0.8	3.0
2006	23.1	14.3	8.2	0.6	3.1
2007	22.0	14.1	7.2	0.6	2.6
2008	22.2	11.6	6.3	0.3	2.6
2009	21.6	17.0	5.8	0.3	2.8

NOTES: *Interruptions of service* include major and minor mechanical failures. If the vehicle operator was able to fix the problem and return the vehicle to service without assistance, the incident has not been considered an interruption of service.

A Motor bus is a rubber-tired, self-propelled, manually steered bus with a fuel supply onboard the vehicle. Motorbus types include intercity, school, and transit. *Light rail* is a streetcar-type vehicle operated on city streets, semi-exclusive rights-of-way, or exclusive rights-of-way. Service may be provided by step-entry vehicles or by level boarding. *Heavy rail* is 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).”

Commuter rail is 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. *Demand response* is comprised of passenger cars, vans, or small buses operating in response to calls from passengers or their agents to the transit operator, who then dispatches a vehicle to pick-up the passengers and transport them to their destinations. This service is also known as dial-a-ride or paratransit.

SOURCES: U.S. Department of Transportation (USDOT), Research and Innovative Technology Administration, Bureau of Transportation Statistics, calculations based on various data; **Revenue vehicle-miles**: USDOT, Federal Transit Administration (FTA), National Transit Database, *National Transit Summaries and Trends* (Washington, D.C.: Annual Issues), available at http://www.ntdprogram.gov/ as of December 2010; **Interruptions of service**: USDOT, FTA, *National Transit Database*, *Data Tables*, Revenue Vehicle Maintenance Performance, table 16 (Washington, D.C.: Annual Issues), available at http://www.ntdprogram.gov/ntdprogram/data.htm as of December 2010.

Table 4-25 Top 25 Busiest Amtrak Stations: Fiscal Year 2009

Tickets

Station	Tickets from	Tickets to	Total ridership
New York, NY	3,936,117	3,896,757	7,832,874
Washington, DC	2,146,244	2,132,686	4,278,930
Philadelphia, PA	1,837,854	1,837,907	3,675,761
Chicago, IL	1,542,825	1,537,739	3,080,564
Los Angeles, CA	737,295	738,625	1,475,920
Boston, MA	641,948	645,667	1,287,615
Sacramento, CA	561,533	547,818	1,109,351
Baltimore, MD	465,475	467,352	932,827
San Diego, CA	370,080	361,314	731,394
Albany-Rensselaer, NY	362,555	361,358	723,913
Wilmington, DE	330,966	333,463	664,429
New Haven, CT	331,688	329,968	661,656
Newark, NJ	318,454	312,485	630,939
Irvine, CA	314,587	315,161	629,748
Portland, OR	309,848	308,283	618,131
BWI Airport, MD	306,156	311,193	617,349
Seattle, WA	313,261	302,474	615,735
Providence, RI	288,570	293,726	582,296
Milwaukee, WI	278,079	275,396	553,475
Harrisburg, PA	270,586	268,581	539,167
Emeryville, CA	259,887	261,082	520,969
Lancaster, PA	246,244	246,385	492,629
Davis, CA	222,182	212,597	434,779
Fullerton, CA	208,849	208,800	417,649
Trenton, NJ	205,101	206,768	411,869

SOURCE: National Railroad Passenger Corporation (Amtrak), *National Fact Sheet: FY 2009: 25 Busiest Stations*, (Washington, DC: February 2009), available at http://www.amtrak.com/ as of June 2010.

FIGURE 4-26 Top 25 Busiest Amtrak Stations, 2009

SOURCE: National Railroad Passenger Corporation (Amtrak), *National Fact Sheet: FY 2009: 25 Busiest Stations*, (Washington, DC: February 2009), available at http://www.amtrak.com/ as of June 2010. Amtrak Stations and Amtrak Rail Lines: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics; *National Transportation Atlas Databases* (NTAD) 2010 DVD, available at http://www.bts.gov as of September 2010.

FIGURE 4-27 Top Amtrak Stations in the Northeast Corridor, 2009

SOURCE: National Railroad Passenger Corporation (Amtrak), *National Fact Sheet: FY 2009: 25 Busiest Stations*, (Washington, DC: February 2009), available at http://www.amtrak.com/ as of June 2010. Amtrak Rail Lines: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics; *National Transportation Atlas Databases* (NTAD) 2010 DVD, available at http://www.bts.gov as of September 2010.

TABLE 4-28 Top 10 U.S. Airports Ranked by Domestic Scheduled Passenger Enplanements: 2000 and 2010

U.S. and foreign carriers combined

2010 rank	Airport	2010 enplaned passengers	2000 rank	Airport	2000 enplaned passengers
1	Atlanta, GA	22,235,511	1	Atlanta, GA	36,075,361
2	Chicago (O'Hare), IL	15,553,473	2	Chicago (O'Hare), IL	28,184,368
3	Dallas/Ft. Worth, TX	14,220,213	3	Dallas/Ft. Worth, TX	25,738,408
4	Denver, CO	13,988,888	4	Los Angeles, CA	23,126,721
5	Los Angeles, CA	12,155,623	5	Denver, CO	17,323,890
6	Phoenix, AZ	10,543,870	6	Phoenix,AZ	16,962,276
7	Las Vegas, NV	10,333,125	7	Las Vegas, NV	15,736,030
8	Charlotte, NC	9,719,868	8	Minneapolis, MN	15,282,538
9	Orlando, FL	9,234,665	9	Detroit (Metro), MI	15,193,778
10	Houston (Bush), TX	8,963,378	10	San Francisco, CA	14,965,260

NOTES: *2010 rank and Enplaned passengers* are based on data through July 2010. The year 2000 was a peak year in the U.S. Airline Industry with record passengers carried, high fares and yields, record numbers of scheduled flights, and in most cases, record high profits. 2001 followed with a recession and then the events of 9/11 causing a record drop in virtually every airline measuring statistic. Since 2001 most airline statistics and analyses have compared current years with the year 2000, with the question being asked, "Are we back to the pre-9/11 levels?" or, "How long has it taken the industry to return to the year 2000 levels?" The year 2000 has become a base year for U.S. airline industry data.

SOURCE: U.S.Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, Office of Airline Information, *T100-Market Database*, special tabulation, October 2010.

TABLE 4-29 Top 10 U.S. Airports Ranked by International Scheduled Passenger Enplanements: 2000 and 2010

U.S. and foreign carriers combined

2010 rank	Airport	2010 enplaned passengers	2000 rank	Airport	2000 enplaned passengers
1	New York (JFK), NY	6,260,374	1	New York (JFK), NY	8,779,593
2	Miami, FL	4,665,823	2	Los Angeles. CA	8,104,903
3	Los Angeles, CA	4,374,457	3	Miami, FL	7,661,383
4	Newark, NJ	3,269,981	4	Chicago (O'Hare), IL	4,723,652
5	Chicago (O'Hare), IL	2,996,190	5	Newark, NJ	4,349,280
6	Atlanta, GA	2,699,166	6	San Francisco, CA	3,909,166
7	Houston (Bush), TX	2,438,827	7	Atlanta, GA	3,021,737
8	San Francisco, CA	2,342,979	8	Houston (Bush), TX	2,640,483
9	Washington D.C. (Dulles)	1,664,755	9	Honolulu, HI	2,486,542
10	Dallas/Ft. Worth, TX	1,477,112	10	Dallas/Ft. Worth, TX	2,230,835

NOTES: *2010 rank and Enplaned passengers* are based on data through July 2010. The year 2000 was a peak year in the U.S. Airline Industry with record passengers carried, high fares and yields, record numbers of scheduled flights, and in most cases, record high profits. 2001 followed with a recession and then the events of 9/11 causing a record drop in virtually every airline measuring statistic. Since 2001 most airline statistics and analyses have compared current years with the year 2000, with the question being asked, "Are we back to the pre-9/11 levels?" or, "How long has it taken the industry to return to the year 2000 levels?" The year 2000 has become a base year for U.S. airline industry data.

SOURCE: U.S.Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, Office of Airline Information, *T100-Market Database*, special tabulation, October 2010.

TABLE 4-30 Airline Delays by Cause: 2004–2009

	Number of scheduled operations	Number of **delayed flights**	Average minutes of delay	Percentage of delay minutes due to: Carrier	Extreme weather	National aviation system	Security	Late aircraft
2004	7,129,270	1,421,393	51.4	25.8	6.9	33.5	0.3	33.6
2005	7,140,595	1,466,066	52.2	28.0	6.2	31.4	0.2	34.2
2006	7,141,922	1,615,538	54.0	27.8	5.6	29.4	0.3	37.0
2007	7,455,458	1,804,029	56.0	28.6	5.7	27.9	0.2	37.6
2008	7,009,726	1,524,736	56.8	27.8	5.4	30.2	0.1	36.6
2009	6,450,285	1,218,288	54.2	26.6	3.4	37.0	0.2	32.8

NOTES: For the monthly number of carriers reporting, please refer to the *Air Travel Consumer Reports* available at http://airconsumer.dot.gov/reports/index.htm.

A flight is considered delayed when it arrived 15 or more minutes later than scheduled. Average minutes are calculated for delayed flights only. When multiple causes are assigned to one delayed flight, each cause is prorated based on delayed minutes for which it is responsible. Percents may not add to 100 due to rounding. Additional information is available at http://www.bts.gov/help/aviation/index.html.

SOURCE: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, Office of Airline Information, *TranStats Database, Airline Service Quality Performance 234*, available at http://www.transtats.bts.gov/OT_Delay/OT_DelayCause1.asp as of October 2010.

TABLE 4-31 Airline Delays by Length of Delay by Year: 2004–2009

	Total number of **arriving flights**	Percentage of **arriving flights,** delayed	Average length of delay (minutes)	**Percentage of all delayed flights by length of time delayed:** 15-29 minutes	30-59 minutes	60-89 minutes	90-119 minutes	More than 120 minutes
2004	6,987,729	20.3	51.4	42.3	31.3	12.4	6.1	7.8
2005	6,992,838	21.0	52.2	41.9	31.2	12.5	6.3	8.2
2006	7,003,802	23.1	54.0	40.4	31.3	12.9	6.5	8.9
2007	7,277,467	24.8	56.0	39.1	31.0	13.2	6.9	9.7
2008	6,853,191	22.2	56.8	39.2	30.6	13.1	6.9	10.2
2009	6,345,445	19.2	54.2	40.8	30.8	12.8	6.6	9.0

NOTES: For the monthly number of carriers reporting, please refer to the *Air Travel Consumer Reports* available at http://airconsumer.dot.gov/reports/index.htm. A flight is considered delayed when it arrived 15 or more minutes later than scheduled. Arriving flights consists of scheduled operations less canceled and diverted flights. Average minutes are calculated for delayed flights only. Percents may not add to 100 due to rounding.

SOURCE: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *Transtats Database, Airline On-Time Performance Data*, available at http://www.transtats.bts.gov/databases.asp?Subject_ID=3&Subject_Desc=Passenger%20Travel&Mode_ID2=0 as of October 2010.

TABLE 4-32 Monthly Summary of Tarmac Times: October 2008–August 2010

Number and percent of flights with tarmac times of 3 hours or more

	Number of regularly **scheduled flights**	Tarmac Times of 3 hours or longer		Stage of Operation of the 3-Hour Tarmac Time				
		Total	Percent	Prior to cancellation	Multiple gate departure	Taxi-Out	Taxi-In	At diversion airport
Oct 2008	556,205	46	0.01	2	5	33	0	6
Nov 2008	523,272	7	0.00	0	1	4	0	2
Dec 2008	544,956	183	0.03	40	13	113	7	10
Jan 2009	532,339	85	0.02	7	10	68	0	0
Feb 2009	488,410	40	0.01	5	3	32	0	0
Mar 2009	557,422	85	0.02	6	9	63	0	7
Apr 2009	537,793	74	0.01	10	8	45	0	11
May 2009	546,832	34	0.01	7	2	24	1	0
Jun 2009	557,594	268	0.05	38	40	167	1	22
Jul 2009	580,134	161	0.03	21	20	102	0	18
Aug 2009	568,301	66	0.01	6	10	43	0	7
Sep 2009	510,852	6	0.00	0	0	4	0	2
Oct 2009	531,799	11	0.00	0	0	11	0	0
Nov 2009	509,540	4	0.00	0	1	2	0	1
Dec 2009	529,269	34	0.01	4	3	22	0	5
Jan 2010	521,809	20	0.00	1	3	11	2	3
Feb 2010	481,988	60	0.01	5	1	52	1	1
Mar 2010	549,262	25	0.00	9	2	11	1	2
Apr 2010	529,330	4	0.00	0	0	1	0	3
May 2010	542,747	1	0.00	0	0	1	0	0
Jun 2010	551,687	3	0.00	2	0	1	0	0
Jul 2010	570,788	3	0.00	3	0	0	0	0
Aug 2010	569,217	1	0.00	0	0	0	0	1

NOTES: The tarmac delay rulemaking took effect in October 2008. January 2009 includes one flight with two separate 3-hour tarmac times. Northwest Flight 1491 on Jan. 28 was on the tarmac for 188 minutes before returning to the gate. The flight departed the gate a second time and was on the tarmac for 199 minutes before wheels-off. Details of the flight are listed as a 3-hour *multiple gate departure* and a 3-hour *taxi-out*. Table 12 of the *Air Travel Consumer Report* lists number of flights with 3-hour tarmac times and counts NW Flight 1491 as a single flight. Beginning in April 2010, carriers were subject to fines for 3-hour-or-more tarmac times.

Explanation of Stage of Operation:

Prior to Cancellation: Flight left the gate but was cancelled at the origin airport.

Multiple Gate Departure: Flight left the gate, then returned and then left again to resume normal operation. Tarmac time is the time before the return to the gate.

Taxi-out: The time between gate departure and wheels-off.

Taxi-in: The time between wheels-on and gate arrival.

At Diversion Airport: The tarmac time at the alternate airport.

SOURCE: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, Office of Airline Information, *Tarmac Times*, available at http://www.bts.gov/ as of October 2010.

Line-haul speed is a shipper-related indicator of the performance of the railroad industry. The average speed is the over-the-rail train speed and does not include terminal dwell time, time for local pickup and delivery, and the time shipments spend in storage yards.

TABLE 4-33 Rail Freight Average Speeds, Revenue Ton-Miles, and Terminal Dwell Times: 2004–2009

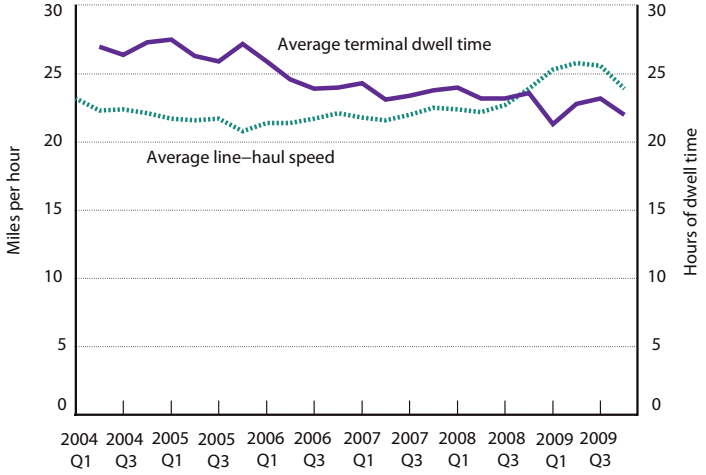
Quarter	Average line-haul speed (mph)	Revenue ton-miles (billions)	Average terminal dwell time (hours)
2004 Q1	23.2	395.6	U
2004 Q2	22.3	409.8	27.0
2004 Q3	22.4	417.3	26.4
2004 Q4	22.1	429.3	27.3
2005 Q1	21.7	416.7	27.5
2005 Q2	21.6	417.8	26.3
2005 Q3	21.7	421.0	25.9
2005 Q4	20.8	420.6	27.2
2006 Q1	21.4	429.8	25.9
2006 Q2	21.4	442.7	24.6
2006 Q3	21.7	443.6	23.9
2006 Q4	22.1	467.2	24.0
2007 Q1	21.8	421.8	24.3
2007 Q2	21.6	432.0	23.1
2007 Q3	22.0	444.3	23.4
2007 Q4	22.5	446.0	23.8
2008 Q1	22.4	442.5	24.0
2008 Q2	22.2	443.0	23.2
2008 Q3	22.7	450.6	23.2
2008 Q4	23.9	428.7	23.6
2009 Q1	25.3	378.3	21.3
2009 Q2	25.8	363.7	22.8
2009 Q3	25.6	387.5	23.2
2009 Q4	23.9	386.1	22.0

KEY: U = Data are unavailable.

NOTES: *Average line-haul speed* data are preliminary for 2005 Q1 through 2009 Q4. Canadian National Railway Co. (CN) data are excluded from average line-haul speed and average terminal dwell time, but not from revenue ton-miles.

SOURCES: **Average line-haul speed and terminal dwell time**: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, special tabulation using data from Association of American Railroads, *Railroad Performance Measures*, available at http://www.railroadpm.org/ as of October 2010, and *Surface Transportation Board (STB), Statistics of Class I Railroads in the United States*, available at http://www.stb.dot.gov/ as of October 2010; *Revenue ton-miles: STB, Quarterly Selected Earnings Report*, available at http://www.stb.dot.gov/ as of October 2010.

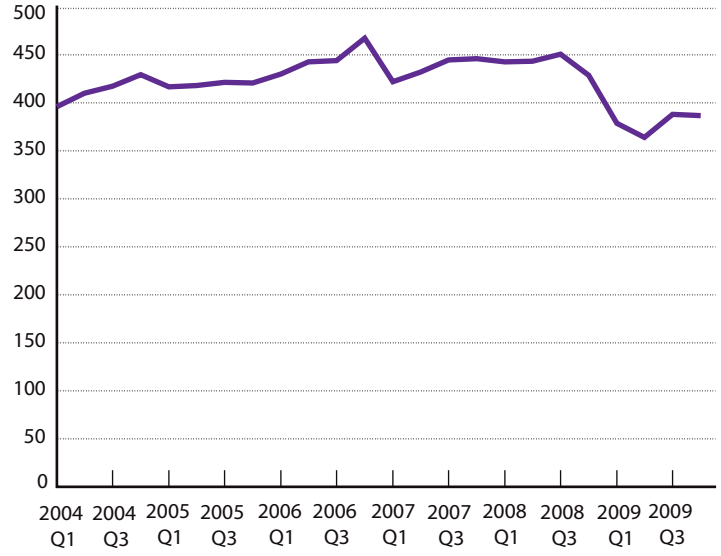
FIGURE 4-33A Rail Freight Average Speeds and Terminal Dwell Times: 2004–2009



SOURCE: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, special tabulation using data from Association of American Railroads, *Railroad Performance Measures*, available at http://www.railroadpm.org/ as of October 2010, and Surface Transportation Board (STB), *Statistics of Class I Railroads*, in the United States , available at http://www.stb.dot.gov/ as of October 2010.

FIGURE 4-33B Rail Freight Revenue Ton-Miles: 2004–2009

Billions of ton-miles



SOURCE: Surface Transportation Board, *Quarterly Selected Earnings Report*, available at http://www.stb.dot.gov/ as of October 2010.

TABLE 4-34 St. Lawrence Seaway (U.S. Portion) Downtime by Cause: 2004–2009

Hours of downtime, unless otherwise noted

	Weather related	Vessel incident	All other causes	Total downtime hours	Weather (percentage of total)	System availability (percentage)
2004	43.8	15.0	7.2	66.0	66.4	99.0
2005	16.9	12.1	6.0	35.0	48.3	99.5
2006	19.1	34.5	8.8	62.4	30.6	99.1
2007	39.7	23.6	10.4	73.7	53.9	98.9
2008	39.4	7.1	13.5	60.0	65.7	99.1
2009	6.7	0.9	9.3	16.9	39.6	99.7

NOTES: *Weather-related* causes include poor visibility, high wind, and ice. *All other causes* includes lock equipment malfunction, civil interference, pilotage, and water level/flow. These data pertain only to the two U.S. locks (Snell and Eisenhower) on the St. Lawrence Seaway between the Port of Montreal and Lake Ontario. Canada operates another five locks along this portion of the Seaway. In addition, Canada operates locks at the Welland Canal along the Seaway. *System availability* does not include the time when the locks are closed for the winter, typically from late December to late March. Hours of downtime for 2009 have significantly decreased due to good weather and fewer vessel-related delays.

SOURCE: U.S. Department of Transportation, Saint Lawrence Seaway Development Corporation (SLSDC), personal communication, September 2010.

Passenger Expenditures

This section presents information on consumer spending on motor vehicles, public transportation, and passenger fares for air travel.

Expenditures on Motor Vehicle Related Transportation

From 2004 to 2009, the average annual household cost of motor vehicle purchases, gasoline, public transportation, and other motor vehicle-related expenses was $8,300 (Table 4-35: *Average Household Transportation Expenditures*). In 2004, motor vehicle purchases were the largest spending items, about 44 percent of the total, decreasing to 35 percent in 2009. Gasoline, 26 percent; public transportation, 6 percent; and other motor vehicle-related expenses, 33 percent, comprised the remainder in 2009.

In recent years, gasoline-related spending has changed drastically due to fluctuating prices. Between 2004 and 2005, the average household spent 26 percent more on gasoline than they did the prior year. Between 2006 and 2008, spending increased 7 to 14 percent each year. Although overall gasoline prices remained at relatively high levels in 2009, the average household spending on gasoline decreased more than 27 percent between 2008 and 2009, which may indicate that the economic downturn, which began in December 2007, resulted in driving cutbacks.[1]

Prices Paid to Motor Vehicle Related Transportation

Except for 2007, from 2004 to 2008, growth was on average higher in the consumer price indices for private and public transportation than growth in the consumer price index (CPI) for expenditures on all items.[2] For example, the CPI for private and public transportation increased by 7 and 4 percent, respectively, from 2004 to 2005. However, the CPI for all items only increased by 3 percent. In 2009, the CPI for private and public transportation decreased by 8 and 6 percent

[1] Longthorne, A.; R. Subramanian; and C.-L. Chen, *An Analysis of the Significant Decline in Motor Vehicle Traffic Fatalities in 2008* (Washington, DC: June 2010), U.S. Department of Transportation, National Highway Transportation Safety Administration, available at http://www-nrd.nhtsa.dot.gov/Pubs/811346.pdf as of November 2010.

[2] CPI for private transportation covers prices for new and used motor vehicles, fuel, insurance, maintenance, etc. CPI for public transportation covers prices for airfare, other intra- and intercity public transportation services. For additional information on the CPI's coverage, please visit the Bureau of Labor Statistic's CPI page available at http://www.bls.gov/cpi/ as of November 2010.

due to the economic downturn (Table 4-36: *Prices Paid by U.S. Households for Transportation Services*).

Costs of Owning and Operating Motor Vehicles

Although the overall average cost per mile of owning and operating an automobile did not change much from 2004 to 2009, variable costs such as fuel, maintenance, and tires increased by 4 cents per mile, or 31 percent. Fixed costs, including insurance, license, and registration, declined by 4 cents per mile or 9 percent. In 2009, variable costs made up 30 percent of the cost of automobile ownership, compared to 23 percent in 2004 (Table 4-37: *Average Cost per Mile of Owning and Operating an Automobile*).

Average Airfare

The average airfare paid by consumers reached a peak and was about $346 per itinerary in 2008, a 13 percent increase from fares paid in 2004. The increase in average airfare was 1 percentage point less than the increase in the CPI between 2004 and 2008. Average airfare increases of 1 percent in 2009 and 10 percent in the first 6 months of 2010 were 12 percentage points and 6 percentage points, respectively, lower than the increase in the CPI when compared with the average airfare in 2004 (Table 4-39: *Average Itinerary Fares and Consumer Price Index Changes*, and Table 4-40: *U.S. Domestic Airline Industry Historical Average Itinerary Fares*).

Highest and Lowest Average Domestic Airfare by Origin Airport

Table 4-41: *Select Highest and Lowest Average Domestic Fares by Origin Airport* presents the top 10 airports with the highest and lowest average domestic airfare for 2000 and the second quarter of 2010. Huntsville, AL, and Cincinnati, OH, were the two airports that appeared on the list for highest airfare for both years. The average airfares for travelers from Huntsville and Cincinnati were $485 and $426, respectively, in the second quarter of 2010. That was a 5-percent increase for Huntsville and a 7-percent decrease for Cincinnati over 2000 levels. Airfares increased at four of the five airports on the list for the lowest airfare in both 2000 and the second quarter of 2010. For example, the average airfare for trips from Dallas Love Field Airport, TX, increased 40 percent, from $183 in 2000 to $256 in 2010.

TABLE 4-35 Average Household Transportation Expenditures: 2004–2009

Current dollars

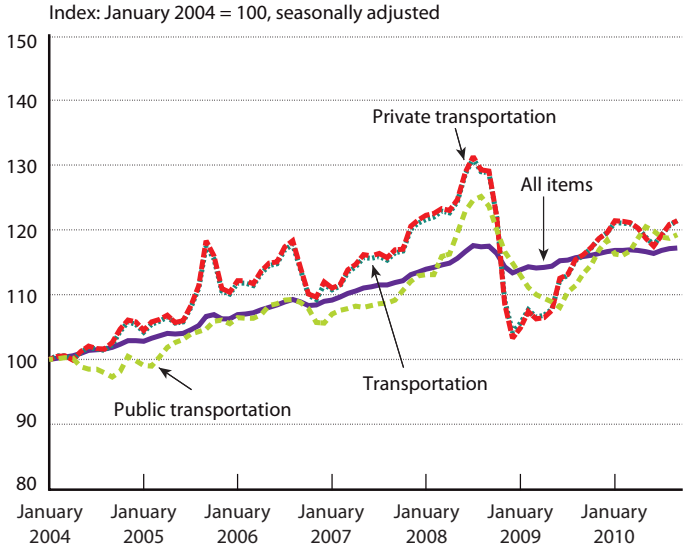
	Vehicle purchases	Gasoline and motor oil	Other vehicle expenses	Public transportation	Total
2004	3,397	1,598	2,365	441	7,801
2005	3,544	2,013	2,339	448	8,344
2006	3,421	2,227	2,355	505	8,508
2007	3,244	2,384	2,592	538	8,758
2008	2,755	2,715	2,621	513	8,604
2009	2,657	1,986	2,536	479	7,658

NOTES: Data are based on survey results and may not add to total because of independent rounding. *Vehicle purchases* are "net outlay." *Public transportation* includes fares for mass transit, buses, trains, airlines, taxis, school buses, and boats for which a fee is charged.

SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, *Consumer Expenditure Survey*, available at http://www.bls.gov/cex/ as of October 2010.

FIGURE 4-36 Prices Paid by U.S. Households for Transportation Services: January 2004–September 2010

Consumer price indices for transportation, U.S. city average



SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, *Consumer Price Index* , available at http://www.bls.gov/cpi/ as of December 2010.

TABLE 4-36 Prices Paid by U.S. Households for Transportation Services: January 2009–September 2010

Consumer price indices for transportation, U.S. city average

Index: January 2004 = 100, seasonally adjusted

	All items	Transportation	Private transportation	Public transportation
January 2009	113.8	105.6	104.9	113.0
February 2009	114.3	107.7	107.4	111.1
March 2009	114.1	106.6	106.3	110.0
April 2009	114.2	106.8	106.5	109.5
May 2009	114.4	107.8	107.6	108.9
June 2009	115.2	112.3	112.5	108.1
July 2009	115.3	113.0	113.1	110.4
August 2009	115.7	115.2	115.4	111.4
September 2009	115.9	116.1	116.2	113.3
October 2009	116.1	117.2	117.3	114.6
November 2009	116.4	118.7	118.7	116.9
December 2009	116.6	119.5	119.5	118.4
January 2010	116.8	121.1	121.4	116.3
February 2010	116.8	121.0	121.3	116.1
March 2010	116.9	120.9	121.1	116.7
April 2010	116.8	120.3	120.3	118.7
May 2010	116.6	118.9	118.7	120.5
June 2010	116.4	117.7	117.5	119.8
July 2010	116.8	119.2	119.2	118.9
August 2010	117.1	120.7	120.8	118.7
September 2010	117.2	121.4	121.4	119.3

NOTES: The Consumer Price Index (CPI) for a specific item is a weighted average of the prices for the individual components. The weights are determined by the expenditure shares of the individual components based on a survey of consumer expenditure during the base year(s). The CPI base year price is then normalized to 100. For some items, BLS establishes weights using several years of consumer expenditure surveys in order to smooth the effects of short-term price shocks and of the business cycle. Weights formed using several years will give a more accurate measure of typical consumer expenditure patterns.

Private transportation is a weighted average of the prices for new and used motor vehicles, motor fuels, motor vehicle parts and equipments, motor vehicle maintenance and repair, motor vehicle insurance, and motor vehicle fees (state and local registration and license fees, parking, and other fees).

Public transportation is a weighted average of the prices for airline fares, intercity bus fares, intercity train fares, ship fares, intracity transportation (intracity mass transit, taxi fares, and car and van pools), and other public transportation.

The base period of the original index is 1982–84. The new reference point, January 2004 = 100, has been set by dividing the values of the original index by the value of January 1998 in the original index. This process changes the reference point, and not the base period of the index because the weight structure of the index did not change.

The Consumer Price Index (CPI) tracks the price of a market basket of goods and services purchased by U.S. households over time.

SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, *Consumer Price Inde*x, available at http://www.bls.gov/cpi/ as of December 2010.

TABLE 4-37 Average Cost Per Mile of Owning and Operating an Automobile: 2004–2009

Current dollars

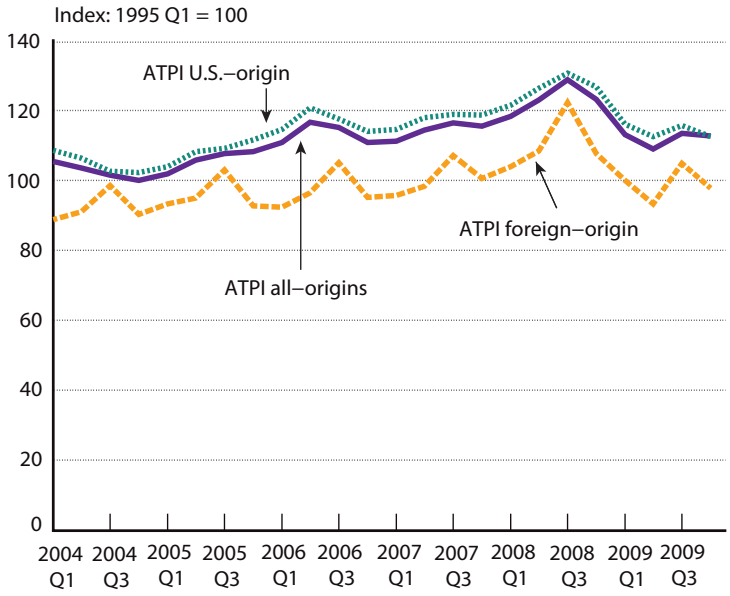
	Variable costs	Fixed costs	Total costs
2004	0.13	0.44	0.56
2005	0.15	0.37	0.52
2006	0.15	0.38	0.52
2007	0.17	0.37	0.54
2008	0.15	0.39	0.54
2009	0.17	0.40	0.57

NOTES: Details may not add to totals due to rounding. Data are the cost per mile based on 15,000 miles per year and a composite of three current model American automobiles. *Variable costs* include fuel, maintenance, and tires. Fuel costs are based on a late year average price per gallon of regular unleaded gasoline. *Fixed costs* (ownership costs) include insurance, license, registration, taxes, depreciation, and finance charges.

SOURCE: American Automobile Association, *Your Driving Costs* (Heathrow, FL: Annual Issues), available at http://www.aaaexchange.com/Main/ as of April 2010 as reported in U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *National Transportation Statistics*, table 3-18, available at http://www.bts.gov/publications/national_transportation_statistics as of October 2010.

FIGURE 4-38 Comparison of Air Travel Price Indexes (ATPI): 1st quarter 2004–4th quarter 2009

Not seasonally adjusted, domestic carriers only



SOURCE: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *Air Travel Price Index* , available at http://www.bts.gov/ as of October 2010.

TABLE 4-38 Comparison of Air Travel Price Indexes (ATPI): 1st quarter 2008–4th quarter 2009

Not seasonally adjusted, domestic carriers only
Index: 1995 Q1 = 100

Quarter	ATPI all-origins	ATPI U.S.-origin	ATPI foreign-origin
2008 Q1	118.20	121.40	103.98
2008 Q2	123.02	126.33	108.30
2008 Q3	128.76	130.56	122.13
2008 Q4	123.20	126.76	107.64
2009 Q1	112.98	116.00	100.05
2009 Q2	108.97	112.50	93.25
2009 Q3	113.38	115.70	104.91
2009 Q4	112.58	112.50	97.76

NOTES: The Bureau of Transportation Statistics computes the *Air Travel Price Index* values using the Fisher Index formula. U.S.-origin measures change in the cost of itineraries originating in the United States, whether the destinations are domestic or international. *Foreign-origin* measures change in the cost of itineraries with a foreign origin and a U.S. destination. *All-origins* combines the U.S.- and foreign-origin itineraries.

SOURCE: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *Air Travel Price Index*, available at http://www.bts.gov/ as of October 2010.

TABLE 4-39 Average Itinerary Fares and Consumer Price Index Changes: 2004–2010

Index: 1982-1984, 3-Year Weighted Annual Average = 100

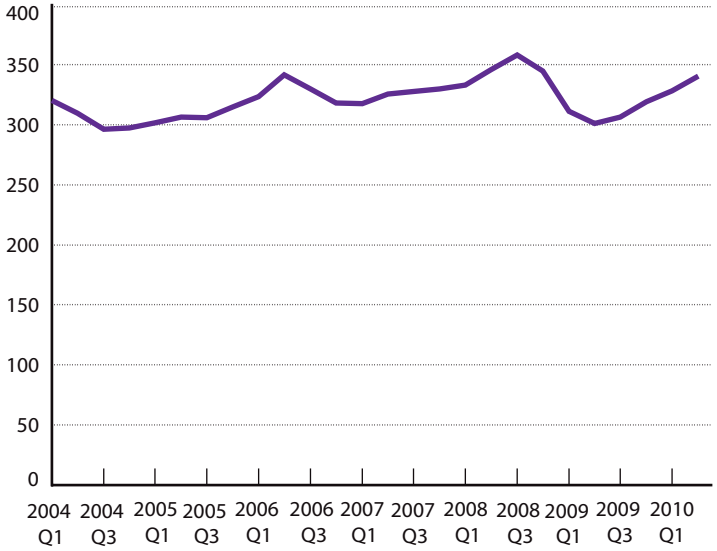
	Average CPI	Change in CPI vs. 2004	Average fare	Change in fares vs. 2004
2004	188.9		$305.41	
2005	195.3	3.4%	$307.31	0.6%
2006	201.6	6.7%	$328.55	7.6%
2007	207.3	9.8%	$325.26	6.5%
2008	215.3	14.0%	$345.73	13.2%
2009	214.5	13.6%	$309.26	1.3%
2010	217.5	15.2%	$334.84	9.6%

NOTE: 2010 data is through June.

SOURCES: Average Fares: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, Office of Airline Information, *TranStats Database, Air Fares*, special tabulation, October 2010. **Consumer Price Index**: U.S. Department of Labor, Bureau of Labor Statistics, *Consumer Price Index*,available at ftp://ftp.bls.gov/pub/special.requests/cpi/cpiai.txt as of October 2010.

FIGURE 4-40 U.S. Domestic Airline Industry Historical Average Itinerary Fares: 2004-2010

Average fares in current dollars for complete roundtrip itinerary



SOURCE: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, Office of Airline Information, available at http://www.bts.gov/xml/atpi/src/avgfareseries.xml, data as of October 2010.

TABLE 4-40 U.S. Domestic Airline Industry Historical Average Itinerary Fares: 2004-2010

Average fares in dollars for complete roundtrip itinerary

	Annual average itinerary fare
2004	305.41
2005	307.31
2006	328.55
2007	325.26
2008	345.73
2009	309.79
2010	334.45

NOTE: 2010 data is an average for the first and second quarters of the year only.

SOURCE: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, Office of Airline Information, available at http://www.bts.gov/xml/atpi/src/avgfareseries.xml, data as of October 2010.

TABLE 4-41 Select Highest and Lowest Average Domestic Fares by Origin Airport: 2000 and 2nd Quarter 2010

Dollars

Highest average fares 2000	Average fare	Highest average fares 2Q 2010	Average fare
White Plains, NY	568.63	Huntsville, AL	484.68
Charlotte, NC	495.69	Charleston, SC	461.47
Greenville/Spartanburg, SC	490.74	Newark-Liberty, NJ	449.65
Richmond, VA	472.42	Knoxville TN	441.37
Huntsville, AL	463.56	Memphis, TN	437.07
Cincinnati, OH	457.69	Houston Bush, TX	433.97
New York, NY (J.F. Kennedy)	455.23	Cincinnati, OH	425.67
Harrisburg, PA	453.51	Washington Dulles, VA	424.05
Charleston, SC	451.90	Dallas-Fort Worth, TX	410.08
San Francisco, CA	451.70	Fresno, CA	405.30
Lowest average fares 2000	**Average fare**	**Lowest average fares 2Q 2010**	**Average fare**
Dallas, TX (Love)	182.79	Atlantic City, NJ	178.02
Burbank, CA	185.65	Long Beach, CA	241.29
Atlantic City, NJ	214.13	Ft. Lauderdale, FL	249.48
Chicago, IL (Midway)	217.52	Orlando, FL	251.20
Houston, TX (Hobby)	217.61	Dallas Love, TX	256.38
Islip Long Island, NY	221.42	Burbank/Glendale/Pasadena, CA	261.28
Reno, NV	221.83	Milwaukee, WI	263.21
Las Vegas, NV	222.77	Ft. Myers, FL	263.35
Lubbock, TX	227.32	Las Vegas, NV	263.63
Oakland, CA	236.98	Islip, NY	265.19

NOTES: *Average fare* is for a complete itinerary beginning at the origin airport. Variations in *Average fares* include the effects of price as well as average distance traveled by all flights from the origin airport. The year 2000 was a peak year in the U.S. airline industry with record passengers carried, high fares and yields, record numbers of scheduled flights, and in most cases, record high profits. 2001 followed with a recession and then the events of 9/11 causing a record drop in virtually every airline measuring statistic. Since 2001 most airline statistics and analyses have compared current years with the year 2000, with the question being asked, “Are we back to the pre-9/11 levels?” or, “How long has it taken the industry to return to the year 2000 levels?” The year 2000 has become a base year for U.S. airline industry data.

Origin airports were selected from the top 100 U.S. domestic (48-states) airports ranked by the total number of domestic passengers in 2009 since 2010 domestic passenger data were not available at the time of publication. Due to the long distances involved and the unique nature of the Alaska, Hawaii, and Puerto Rico markets, these airports have been dropped for average fare comparison purposes.

SOURCE: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, Office of Airline Information, *TranStats Database, Domestic Air Fares Database*, special tabulation, October 2010.

Matthew Chambers

Environmental Sustainability

The USDOT has set environmental sustainability as one of the strategic goals in its *Strategic Plan for FY2010–FY2015*. This chapter examines the environmental impacts of transportation as well as energy consumption and prices.

Environmental Impacts of Transportation

Greenhouse gas (GHG) emission measured by carbon dioxide has been recognized as one of the main sources of climate change.[1] After reaching a peak in 2007, U.S. energy-related GHG emissions began to decline and decreased by 836 million metric tons, or 10 percent, in 2009 (Table 5-1: *U.S. Energy-Related Greenhouse Gas Emissions by End-Use Sector*). Between 2007 and 2009, the industrial sector had the highest decrease (16 percent) among the sectors that generate energy-related GHG emissions, followed by the electric power sector (11 percent decrease) and the transportation sector (9 percent decrease). In 2009, the percentage shares of total GHG emissions generated by the residential/commercial, transportation, and industrial sectors were 40, 26, and 34 percent, respectively. In addition, GHG emissions from electric power, used in all the aforementioned sectors, amounted to 40 percent of total GHG emissions.

GHG emissions generated by passenger cars and light trucks were more than emissions generated by any other transportation mode, including medium and heavy trucks, aircrafts, rail vehicles, ships, and buses. Every year from 2004 to 2008, passenger cars and light trucks generated more than 60 percent of GHG emissions from domestic transportation, compared to medium and heavy trucks, which generated around 20 percent of GHG emissions from domestic transporta-

[1] For more information, see the U.S. Environmental Protection Agency's website on Atmospheric Changes, available at http://www.epa.gov/climatechange/science/recentac.html as of January 2011.

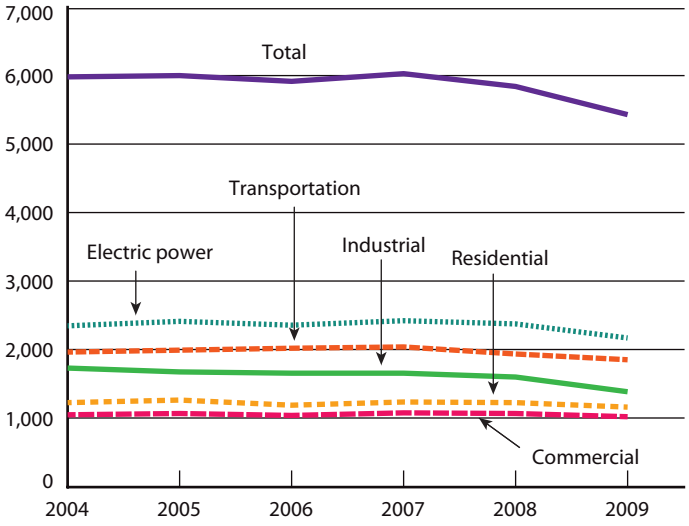
tion each year (Table 5-2: *Greenhouse Gas Emissions by Mode*). An additional 33 percent of GHG emissions was generated by passenger cars, 9 percent by aircraft, 3 percent by rail, 2 percent by ships, and 1 percent by buses. The domestic transportation sector decreased its GHG emissions by 110 million metric tons from 2007 to 2008. From that total, 38, 35, 16, and 16 million metric tons were from trucks, passenger cars, aircraft, and ships, respectively.

Since 2004, other air pollutants, such as carbon monoxide (CO), nitrogen oxides (NO_x), volatile organic compounds (VOC), and sulfur dioxide (SO_2), generated by on-road motor vehicles have decreased, although the transportation sector remains one of the main polluting sources. From 2004 to 2008, more than 50 percent of CO was generated by motor vehicles on highways, while more than 30, 20, and 1 percent of NO_x, VOC, and SO_2 were generated by on-road motor vehicles (Table 5-3: *Transportation Air Pollutant Emissions from On-Road Mobile Sources*). Improvements in vehicle technologies and enforcements for reducing emissions have produced positive results. The amount of air pollutants generated by on-road motor vehicles declined much faster than other pollution sources. For example, CO generated by motor vehicles decreased from 53 million tons in 2004 to 39 million tons in 2008, which was a 26 percent reduction. Over the same time period, CO generated by all sources decreased by only 22 percent.

As shown in the recent *Deepwater Horizon* oil spill in the Gulf of Mexico, an oil spill can have serious impacts on the environment and the regional economy, especially where consumer goods are shipped to market via water channels. In 2005, nearly 10 million gallons of oil were spilled from vessel and nonvessel sources, and 8 million gallons were a result of Hurricane Katrina. In 2007 and 2008, slightly more than 700,000 gallons of oil were spilled, which was less than half of the amount that was spilled in 2004 (Table 5-4: *Volume of Oil Spills from Facilities by Source*).

FIGURE 5-1 U.S. Energy-Related Greenhouse Gas Emissions by End-Use Sector: 2004–2009

Million metric tons of CO_2



SOURCE: U.S. Department of Energy, Energy Information Administration, Monthly Energy Review, *Carbon Dioxide Emissions From Energy Consumption*, tables 12.1 to 12.6, available at http://www.eia.doe.gov/emeu/mer/environ.html as of November 2010.

TABLE 5-1 U.S. Energy-Related Greenhouse Gas Emissions by End-Use Sector: 2004–2009

Million metric tons of CO_2

	Residential	Commercial	Industrial	Transportation	Total[a]	Electric power
2004	1,228	1,054	1,731	1,962	5,975	2,352
2005	1,261	1,069	1,675	1,991	5,996	2,417
2006	1,192	1,043	1,661	2,022	5,918	2,359
2007	1,242	1,079	1,662	2,040	6,022	2,426
2008	1,228	1,073	1,597	1,938	5,836	2,374
2009	1,167	1,019	1,385	1,857	5,428	2,167

[a] *Electric power* is not included in *Total* because it is used (and counted) in each of the other end-use sectors.

SOURCE: U.S. Department of Energy, Energy Information Administration, *Monthly Energy Review, Carbon Dioxide Emissions From Energy Consumption*, tables 12.1 to 12.6, available at http://www.eia.doe.gov/emeu/mer/environ.html as of November 2010.

TABLE 5-2 Greenhouse Gas Emissions by Mode: 2004–2008

Millions of metric tons of CO2, domestic activites only

	Passenger cars	Light-duty trucks	All other trucks	Buses	Aircraft	Ships and boats	Rail	Other	Total, all modes
2004	641.4	542.5	365.6	14.8	184.5	39.5	49.7	43.1	1,881.15
2005	662.0	505.6	396.0	11.8	195.9	44.5	50.3	44.1	1,910.23
2006	638.8	519.2	406.0	12.0	171.1	47.7	52.4	44.1	1,891.11
2007	632.4	528.0	412.5	12.1	171.5	54.4	51.6	46.6	1,909.01
2008	597.5	513.7	388.6	11.7	155.5	38.1	47.9	46.5	1,799.42

NOTES: *All other trucks* category includes medium and heavy trucks. *Other* carbon dioxide emissions are from motorcycles, pipelines, and lubricants. *International bunker fuel* emissions (not included in the total) result from the combustion of fuels purchased in the United States but used for international aviation and maritime transportation. Thus, *Aircraft* and *Ships and boats* data included in U.S. *Total* emissions involve only domestic activities of these modes as do all other data shown. *Aircraft* emissions consist of emissions from all jet fuel (less bunker fuels) and aviation gas consumption. Alternative-fuel vehicle emissions are allocated to the specific vehicle types in which they were classified (i.e., *Passenger cars*, *Light-duty trucks*, *All other trucks*, and *Buses*).

SOURCE: U.S. Environmental Protection Agency, *Inventory of U.S. Greenhouse Gas Emissions and Sinks* (Washington, DC: Annual Issues), table 2-15, available at http://epa.gov/climatechange/emissions/usinventoryreport.html as of April 2010.

TABLE 5-3 Transportation Air Pollutant Emissions From On-Road Mobile Sources: 2004–2008

Millions of short tons

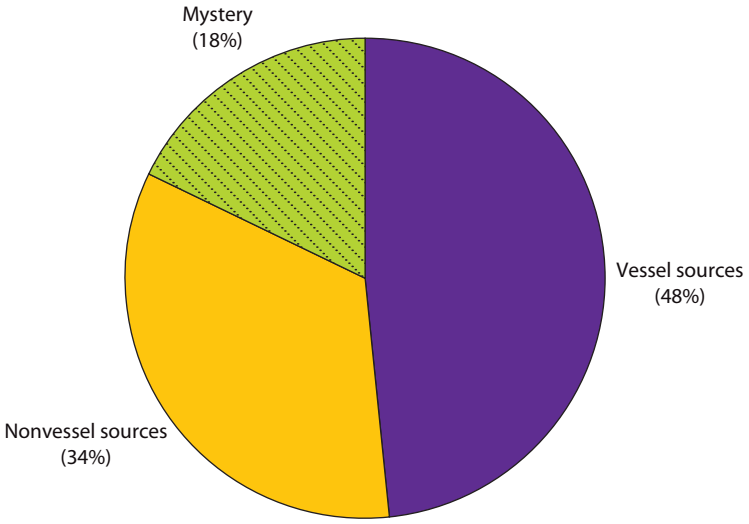
	Carbon monoxide			Nitrogen oxides		
	All sources	Transportation, total	Transportation (percent of total)	All sources	Transportation, total	Transportation (percent of total)
2004	99.04	52.56	53.1	19.79	6.95	35.1
2005	93.03	48.54	52.2	19.12	6.49	34.0
2006	87.92	45.32	51.5	18.11	6.06	33.5
2007	82.80	42.09	50.8	17.32	5.64	32.5
2008	77.69	38.87	50.0	16.34	5.21	31.9

	Volatile organic compounds			Sulfur dioxide		
	All sources	Transportation, total	Transportation (percent of total)	All sources	Transportation, total	Transportation (percent of total)
2004	19.79	4.38	22.1	14.82	0.18	1.2
2005	18.42	4.11	22.3	14.84	0.15	1.0
2006	17.59	3.88	22.1	13.66	0.12	0.9
2007	16.76	3.65	21.8	13.01	0.09	0.7
2008	15.93	3.42	21.5	11.43	0.06	0.6

NOTE: *Transportation, total* data include emissions by highway vehicles only.

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 November 2009 as reported in U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *National Transportation Statistics*, tables 4-40, 4-41, 4-42, and 4-45, available at http://www.bts.gov/publications/national_transportation_statistics/ as of January 2010.

FIGURE 5-4 Breakdown of Oil Spills From Facilities by Source: 2008



SOURCE:U.S. Department of Homeland Security, U.S. Coast Guard, *Polluting Incidents In and Around U.S. Waters, A Spill/Release Compendium: 1969-2008*, as cited in U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, National Transportation Statistics, table 4-50, available at http://www.bts.gov/publications/national_transportation_statistics/ as of January 2011.

TABLE 5-4 Volume of Oil Spills From Facilities by Source: 2004–2008

Thousands of gallons

	Vessel Sources			Nonvessel Sources				
	Tankship	Tank Barge	Other vessels[a]	Offshore pipelines	Onshore Pipelines	Other[b]	Mystery[c]	Total
2004	636.8	215.8	453.9	0.0	15.0	55.5	39.7	1,416.7
2005	3.0	2,006.8	115.1	26.5	110.0	7,645.2	30.1	9,936.6
2006	4.3	287.3	125.4	1.7	0.5	2,288.6	128.5	2,836.3
2007	46.7	4.5	184.1	296.2	0.0	144.6	30.3	706.3
2008	1.3	286.6	248.2	14.8	0.0	182.7	26.6	760.2

[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, and 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.

SOURCE: U.S. Department of Homeland Security, U.S. Coast Guard, *Polluting Incidents In and Around U.S. Waters, A Spill/Release Compendium: 1969-2008*, as cited in U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, National Transportation Statistics, table 4-50, available at http://www.bts.gov/publications/national_transportation_statistics/ as of January 2011.

Energy Consumption and Prices

This section provides information on energy consumption, particularly petroleum-related consumption, by the transportation sector and describes changes in fuel prices.

Energy Consumption

In the United States, petroleum products are the main energy source for operating 256 million motor vehicles,[2] although the share of petroleum products used for transportation has gradually decreased from 97 percent in 2004 to 94 percent in 2009. In addition, the share of natural gas used increased from 2 percent in 2004 to nearly 3 percent in 2009 (Table 5-5: *Energy Consumption by the Transportation Sector*). Compared with other sectors, such as industry, commercial, and utility, the transportation sector used about 71 percent of petroleum products in 2009 (Table 5-6: *U.S. Petroleum Use by Sector*).

In 2008, 86 percent of petroleum products were consumed by on-road motor vehicles, 8 percent by aircraft, and 4 percent by ship and boats (Table 5-7: *Energy Consumption by Mode of Transportation*).[3] For motor vehicles, passenger cars consumed 66 percent of fuel products, while trucks and buses used 20 percent of fuel products. From 2007 to 2008, fuels used by ships and boats decreased by 22 percent due to decreased water freight transportation (Table 3-7: *U.S. Ton-Miles of Freight*). In addition, consumption of aircraft and motor vehicle fuels decreased by 5 and 3 percent, respectively.

Energy Intensity and Efficiency

For motor vehicles, *energy intensity* is defined as the amount of energy required for motor vehicles to travel 1 mile, while *energy efficiency* measures the number of miles that a vehicle can travel per gallon of gasoline or diesel.[4] Declines in motor vehicle energy intensity can be used as a proxy for representing improvements in energy efficiency. From 2004 to 2008, energy intensity decreased by double-digit percentages for light-duty trucks, buses, aircraft, and railway vehicles used by Amtrak. For example, the energy intensity for transit buses decreased by 18 percent. These decreases indicate improvements in bus energy efficiency after transit buses switched to use natural gas (Table 5-8: *Energy Intensity by Passenger Mode*). However, energy intensity for passenger cars barely changed during the same period.

[2] See chapter 2 (*State of Good Repair*) for the number of motor vehicles in the United States.

[3] Data for motor fuel used by transit are unavailable for 2008.

[4] See the definition from the U.S. Department of Energy, Energy Information Administration, available at http://www1.eere.energy.gov/ba/pba/intensityindicators/efficiency_intensity.html as of November 2010.

Although the Corporate Average Fuel Economy (CAFE) standards enforced by the USDOT for passenger cars have not changed since 2004, the energy efficiency for domestic-produced and imported new vehicles is consistently improving. In 2010, the energy efficiency for new passenger cars was 33.8 miles per gallon, which was much higher than the level of efficiency (27.5 mi/gallon) required by CAFE (Table 5-9: *Average Fuel Efficiency of U.S. Passenger Cars and Light Trucks*). Despite gains in the energy efficiency of new cars, energy intensity and average fuel efficiency for *all* U.S. passenger cars has not changed since 2004. This stagnation can likely be attributed to suppressed new car sales and the increased average age of vehicles now on the road. Energy efficiency and intensity measures should eventually improve as older vehicles are retired.

Hybrid or Alternative Fuel Vehicles

New hybrid vehicle sales have increased sharply in the United States since 2004, helping reduce the use of foreign-produced oil and pollution. In 2007, the number of new hybrid car sales reached a peak of 353,000 vehicles, 5 percent of total new passenger car sales.[5] In 2008 and 2009, sales of hybrid vehicles declined along with total vehicle sales, but in 2009, hybrid vehicles remained at a relatively high level of about 290,000 vehicles (Table 5-10: *Hybrid Vehicle Sales in the United States*).

As shown in figure 5-11, *Alternative Fuel Vehicles in Use*, alternative-fuel vehicles are in use throughout the United States. For example, in 2009, more than 100,000 alternative-fuel vehicles were in use in California and Texas, while an additional 10 states (Arizona, Florida, Georgia, Illinois, Michigan, North Carolina, New Jersey, New York, Ohio, and Virginia) had more than 17,300 alternative-fuel vehicles in use.

Fuel Prices

In the 2000s, oil prices as well as gasoline prices fluctuated and rose to a relatively high level overall. The price of fuels used by aviation, highway, and railroad all rose to above $3 per gallon in 2008 and then declined thereafter.[6] From 2004 to 2008, prices for aviation and highway gasoline increased 70 to 80 percent, while jet fuel kerosene, highway diesel, and railroad diesel increased from 150 to 190

[5] For total new passenger car sales, see U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *National Transportation Statistics*, table 1-16, available at http://www.bts.gov/publications/national_transportation_statistics, as of November 2010.

[6] U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *National Transportation Statistics*, table 3-8, Sales Price of Transportation Fuel to End-Users, available at http://www.bts.gov/publications/national_transportation_statistics, as of November 2010.

percent. In 2009, prices for aviation and highway gasoline decreased by 25 to 28 percent, while prices for diesels dropped by more than 40 percent. (Table and Figure 5-12: *Fuel Prices*; and Table 5-13: *Sales Price of Transportation Fuel to End-Users*.)

TABLE 5-5 Energy Consumption by the Transportation Sector: 2004–2009

Quadrillion Btu

	Transportation consumption							
	Primary consumption							
	Natural gas	Petroleum products	Total	Electricity	Electrical system energy losses	Transportation consumption Total	Energy consumption (all sectors)	Transportation as percent of total energy consumption
2004	0.60	26.92	27.82	0.025	0.05	27.90	100.31	27.8
2005	0.62	27.31	28.27	0.026	0.06	28.35	100.44	28.2
2006	0.62	27.65	28.75	0.025	0.05	28.83	99.79	28.9
2007	0.67	27.76	29.03	0.028	0.06	29.12	101.53	28.7
2008	0.69	26.43	27.95	0.026	0.06	28.03	99.40	28.2
2009	0.68	25.32	26.94	0.026	0.06	27.02	94.64	28.6

KEY: Btu = British thermal unit.

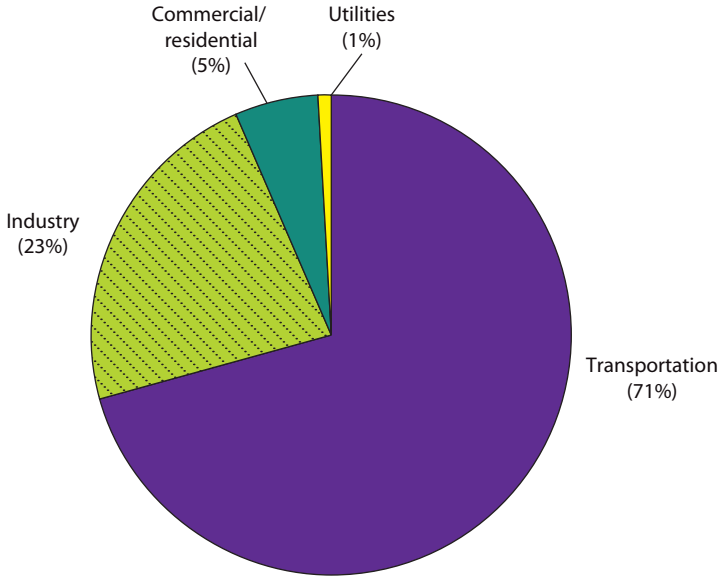
NOTES: *Total transportation consumption* is the sum of *Primary consumption*, *Electricity*, and *Electrical system energy losses* categories. *Total primary consumption* is the sum of *Natural gas, Petroleum products*, and biomass categories. Biomass is not reported separately in this table. *Natural gas* is consumed in the operation of pipelines, primarily in compressors, and small amounts consumed as vehicle fuel.

Petroleum products 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.

Electrical system energy losses are incurred in the generation, transmission, and distribution of electricity plus plant use and unaccounted for electrical system energy losses.

SOURCE: U.S. Department of Energy, Energy Information Administration, *Monthly Energy Review*, tables 2.1 and 2.5, available at http://www.eia.doe.gov as of November 2010 as reported in U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *National Transportation Statistics*, table 4-4, available at http://www.bts.gov/publications/national_transportation_statistics/ as of January 2011.

FIGURE 5-6 Percentage of Total U.S. Petroleum Use by Sector: 2009



SOURCE: U.S. Department of Energy, *Energy Information Administration, Monthly Energy Review* (Washington, DC: November 2010), tables 3.7a - 3.7c, available at http://www.eia.gov/emeu/mer/contents.html as of December 2010.

TABLE 5-6 U.S. Petroleum Use by Sector: 2004–2009

Millions of barrels per day

	Transportation	Industry	Commercial/ residential	Utilities	Total	Transportation as a percentage of total
2004	13.7	5.2	1.3	0.5	20.7	66.2
2005	14.0	5.1	1.2	0.5	20.8	67.1
2006	14.2	5.2	1.0	0.3	20.7	68.5
2007	14.3	5.1	1.0	0.3	20.7	69.1
2008	13.7	4.5	1.1	0.2	19.5	70.3
2009	13.3	4.3	1.0	0.2	18.8	70.7

NOTES: Annual data is calculated as 12-month average by source. Details may not add to totals due to rounding.

SOURCE: U.S. Department of Energy, Energy Information Administration, *Monthly Energy Review* (Washington, DC: November 2010), tables 3.7a - 3.7c, available at http://www.eia.gov/emeu/mer/contents.html as of December 2010.

TABLE 5-7 Energy Consumption by Mode of Transportation: 2004–2008

Trillion Btu, domestic activities only

	2004	2005	2006	2007	2008
Air					
Jet Fuel					
Certificated carriers	1,902	1,887	1,849	1,847	1,710
General aviation	166	206	222	201	230
Aviation gasoline					
General aviation	33	35	34	33	30
Highway					
Gasoline, diesel and other fuels					
Passenger car and motorcycle	9,451	9,701	9,404	9,327	8,969
Other 2-axle 4-tire vehicle	7,927	7,359	7,586	7,730	7,650
Single-unit 2-axle 6-tire or more truck	1,120	1,188	1,232	1,255	1,236
Combination truck	3,355	3,840	3,898	3,959	3,719
Bus	189	155	159	159	154
Transit					
Electricity	20	20	20	22	22
Motor fuel					
Diesel	101	101	102	99	99
Gasoline and other nondiesel fuels	7	7	9	18	21
Compressed natural gas	16	17	20	19	20
Rail, Class I (in freight service)					
Distillate / diesel fuel	563	571	585	567	542
Amtrak					
Electricity	2	2	2	2	2
Distillate / diesel fuel	10	9	9	9	9
Water					
Residual fuel oil	702	775	861	947	758
Distillate / diesel fuel oil	297	278	264	267	165
Gasoline	129	158	155	153	142
Pipeline					
Natural gas	584	602	602	641	668

KEY: Btu = British thermal unit, U = Data are unavailable.

NOTES: *Certificated carriers* are domestic operations only. *General aviation* includes fuel used in air taxi operations, but not commuter operations.

Transit data are preliminary.

The following conversion rates were used:

Jet fuel = 135,000 Btu/gallon

Aviation gasoline = 120,200 Btu/gallon

Compressed natural gas = 138,700 Btu/gallon

Distillate fuel = 138,700 Btu/gallon

Automotive gasoline = 125,000 Btu/gallon

Residual fuel oil = 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**: Federal Aviation Administration; **Highway**: Federal Highway Administration; **Transit**: American Public Transportation Association; **Rail**: Association of American Railroads; **Amtrak**: National Railroad Passenger Corporation (Amtrak), Energy Management Department; **Water**: U.S. Department of Energy, Energy Information Administration and U.S. Department of Transportation, Federal Highway Administration; **Pipeline**: U. S. Department of Energy as cited in U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *National Transportation Statistics*, table 4-6, available at http://www.bts.gov/publications/national_transportation_statistics/ as of January 2011.

TABLE 5-8 Energy Intensity by Passenger Mode: 2004–2008

Btu per passenger-mile

	Passenger cars	Light-duty trucks	Transit buses	Aircraft (domestic)	Amtrak
2004	3,509	4,452	3,240	3,410	2,068
2005	3,585	4,077	2,685	3,232	2,025
2006	3,510	4,042	2,882	3,142	1,948
2007	3,518	4,008	2,771	3,040	1,824
2008	3,501	3,980	2,656	2,931	1,745

KEY: Btu = British thermal unit.

NOTE: Light-duty trucks are defined by the source as "Other 2-axle 4-tire vehicles" and are less than 6,000 lbs gross vehicle weight rating (GVWR).

SOURCES: **Aircraft**: Research and Innovative Technology Administration, Bureau of Transportation Statistics; **Passenger cars and Light-duty trucks**: Federal Highway Administration; **Transit buses**: Federal Transit Administration; **Amtrak**: National Railroad Passenger Corporation (Amtrak) as cited in U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *National Transportation Statistics*, table 4-20, available at http://www.bts.gov/publications/national_transportation_statistics/ as of April 2010.

TABLE 5-9 Average Fuel Efficiency of U.S. Passenger Cars and Light Trucks: 2004–2010

Miles per gallon

	Average U.S. passenger car **fuel efficiency (calendar year)**		**New vehicle fuel efficiency (model year)**				CAFE standards (model year)	
	Passenger car	Other 2-axle 4-tire vehicle	Passenger car	Domestic passenger car	Imported passenger car	Light truck (<8,500 lbs GVWR)	Passenger car	Light truck
2004	22.5	16.2	29.5	29.9	28.7	21.5	27.5	20.7
2005	22.1	17.7	30.3	30.5	29.9	22.1	27.5	21.0
2006	22.5	17.8	30.1	30.3	29.7	22.5	27.5	21.6
2007	22.5	18.0	31.2	30.6	32.2	23.1	27.5	22.2
2008	22.6	18.1	31.5	31.2	31.8	23.6	27.5	22.5
2009	U	U	32.9	32.1	33.8	24.8	27.5	23.1
2010	U	U	33.7	32.9	35.1	25.1	27.5	23.5

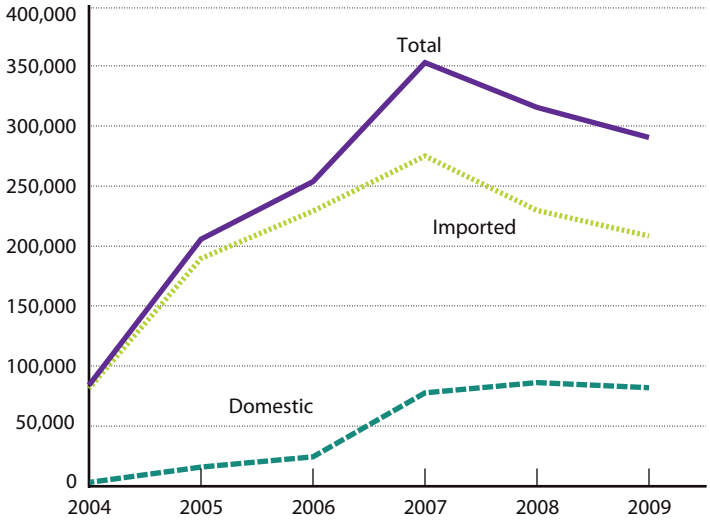
KEY: CAFE = Corporate Average Fuel Economy; GVWR = Gross vehicle weight rating; U = Data are unavailable.

NOTES: *New vehicle fuel efficiency* and *CAFE standards* assume 55% city and 45% highway-miles. The fuel efficiency figures for light duty vehicles represent the sales-weighted harmonic average of the combined passenger car and light truck fuel economies.

Beginning with model year 2008, *Light truck* manufacturers have the option to comply with the unreformed standard values or the new reformed standard values based upon each manufacturers unique vehicle fleet characteristics. In model years 2008-2010, the values shown for *CAFE standards* for *Light truck* are the standard values applicable under the existing "unreformed" CAFE program.

SOURCES: **Average U.S. passenger car fuel efficiency**: Federal Highway Administration; **New vehicle fuel efficiency (based on model year production) and CAFE standards**: National Highway Traffic Safety Administration as cited in U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *National Transportation Statistics*, table 4-23, available at http://www.bts.gov/publications/national_transportation_statistics/ as of October 2010.

FIGURE 5-10 U.S. Hybrid Vehicle Sales: 2004–2009



SOURCE: Ward's Automotive Group, WardsAuto.com, personal communication, April 2010.

TABLE 5-10 U.S. Hybrid Vehicle Sales[a]: 2004–2009

Thousands of vehicles

	Domestic[b]	Imported	Total hybrid sales	Total vehicle sales
2004	3	81	84	17,299
2005	16	190	206	17,445
2006	24	229	254	17,049
2007	78	275	353	16,460
2008	86	230	316	13,493
2009	82	208	290	10,601

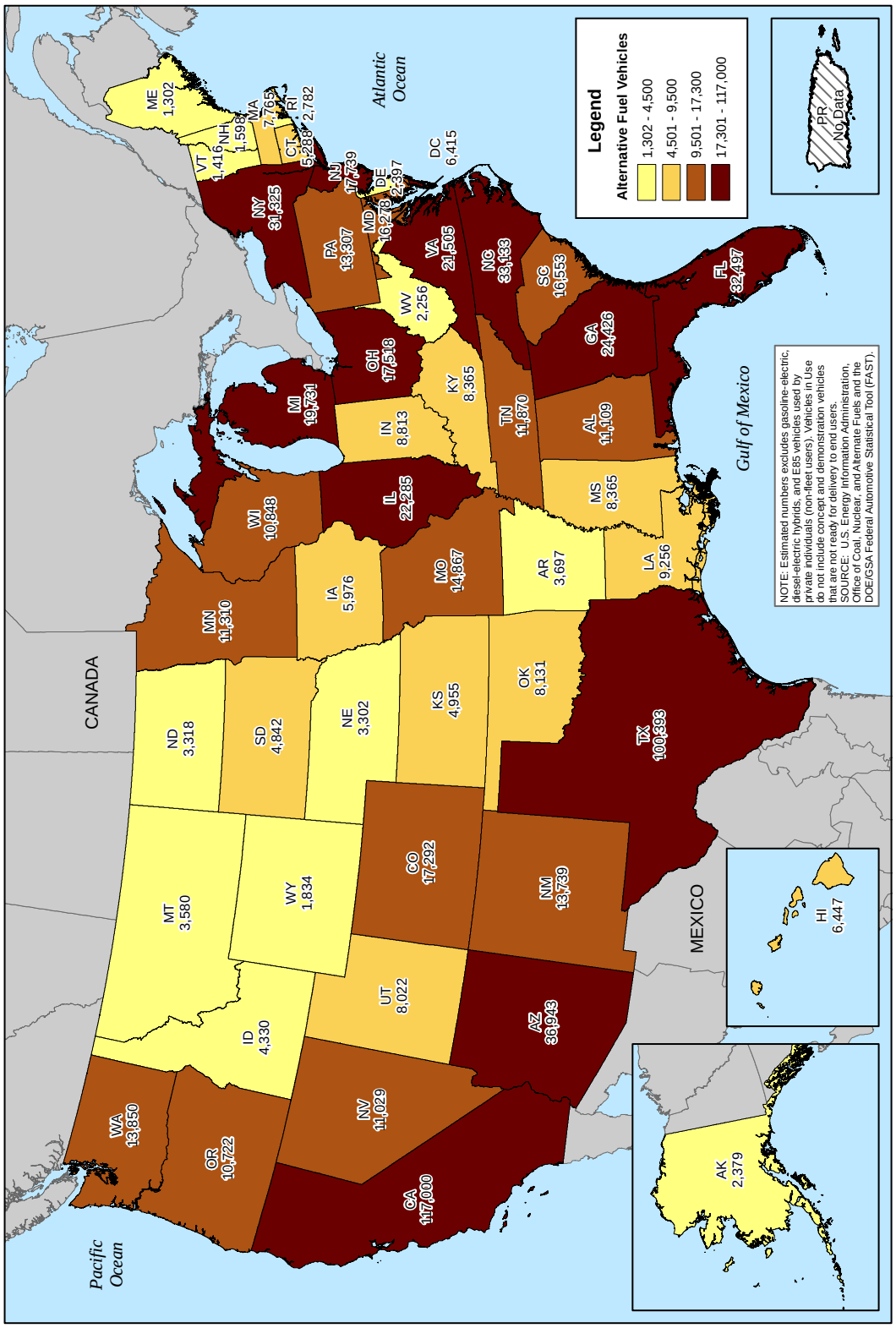
[a] *Sales* includes leased vehicles and fleet sales.

[b] Includes cars produced in Canada and Mexico.

NOTES: The first domestic hybrid vehicle was not introduced in the U.S. market until 2004. See glossary for definition of Hybrid vehicle. Wards is a reliable source and has covered the auto industry for more than 80 years.

SOURCES: **U.S. Hybrid Sales**: Ward's Automotive Group, WardsAuto.com, personal communication, April 2010; **Total Vehicle Sales**: U.S. Department of Commerce, Bureau of Economic Analysis as cited in U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *National Transportation Statistics*, table 1-19, available at http://www.bts.gov/publications/national_transportation_statistics/ as of November 2010.

FIGURE 5-11 Alternative Fuel Vehicles in Use, 2008



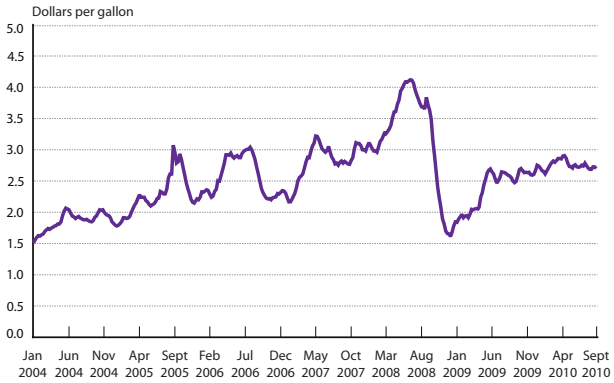
NOTE: Estimated numbers excludes gasoline-electric, diesel-electric hybrids, and E85 vehicles used by private individuals (non-fleet users). Vehicles in Use do not include concept and demonstration vehicles that are not ready for delivery to end users.

SOURCE: U.S. Energy Information Administration, Office of Coal, Nuclear, and Alternate Fuels and the DOE/GSA Federal Automotive Statistical Tool (FAST).

FIGURE 5-12 Fuel Prices

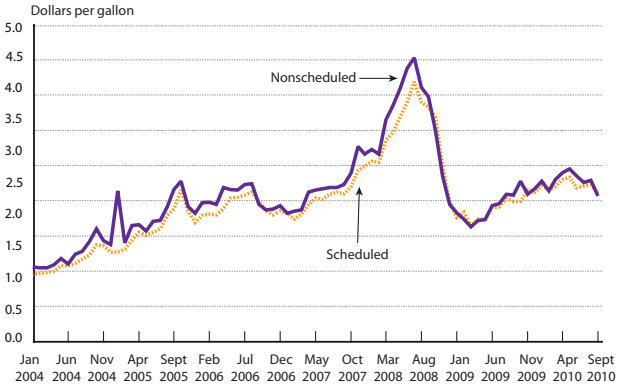
Retail Regular Gasoline Prices (weekly data, not seasonally adjusted): January 2004–September 2010

Dollars per gallon



Jet Fuel Prices (monthly data, not seasonally adjusted): January 2004–September 2010

Dollars per gallon

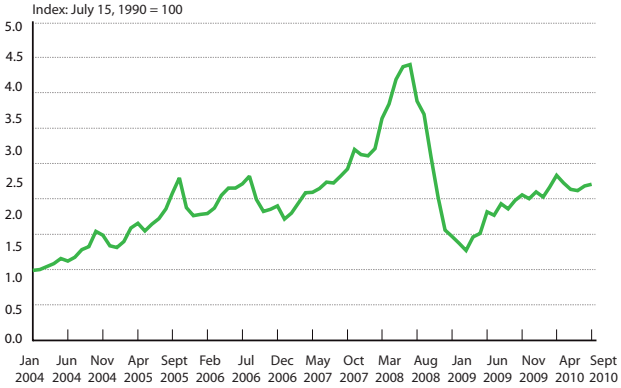


Retail On-Highway Diesel Prices (weekly data, not seasonally adjusted): January 2004–September 2010

Dollars per gallon

Railroad Fuel Prices (monthly data, not seasonally adjusted): January 2004–September 2010

Index: July 15, 1990 = 100



NOTES: Changes in motor fuel prices impact the behavior of both producers and consumers, and affect the demand for transportation in terms of level and modal mix. In the United States, motor gasoline prices follow world crude oil prices more closely than motor diesel prices. Changes in motor fuel prices affect the profit margin of transportation firms, particularly trucking firms. *Jet fuel prices* reported to the Bureau of Transportation Statistics differ from producer prices. Reports to BTS show the cost per gallon of fuel used by an airline during the month rather than the price charged by a producer on a single day. Fuel costs for scheduled airline services reflect contractual and storage advantages available to large buyers, while fuel costs for nonscheduled airline services reflect economic conditions for smaller buyers. *Jet fuel prices* also reflect seasonality due to both the seasonality of aviation and because jet fuel has similar refining requirements to heating oil. The *railroad fuel price*, which includes federal excise taxes, transportation, and handling expenses, represents the average monthly price for fuels purchased by freight railroads during each month.

SOURCES: **Retail gasoline and on-highway diesel prices**: U.S. Department of Energy, Energy Information Administration, *Weekly Retail Gasoline and Diesel Prices* , available at http://tonto.eia.doe.gov/ as of November 2010; **Jet fuel prices**: 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 November 2010; **Railroad fuel prices**: Association of American Railroads, *Index of Monthly Railroad Fuel Prices* (Washington, DC: Monthly Issues), available at http://www.aar.org/~/media/aar/RailCostIndexes/MRF201009.ashx as of November 2010.

TABLE 5-13 Sales Price of Transportation Fuel to End-Users: 2004–2009

Dollars/gallon (in current dollars), annual average

	Aviation fuel (excluding taxes)		Highway fuel (including taxes)				Railroad fuel
	Aviation gasoline	Jet fuel kerosene	Gasoline, premium	Gasoline, regular	Gasoline, all types	Diesel No. 2 (excluding taxes)	Diesel
2004	1.82	1.21	2.07	1.88	1.92	1.24	1.07
2005	2.23	1.74	2.49	2.30	2.34	1.79	1.51
2006	2.68	2.00	2.81	2.59	2.64	2.10	1.92
2007	2.85	2.17	3.03	2.80	2.85	2.27	2.18
2008	3.27	3.05	3.52	3.27	3.32	3.15	3.12
2009	2.44	1.70	2.61	2.35	2.40	1.83	1.77

NOTES: All prices are yearly averages. *Aviation gasoline, Jet fuel kerosene*, and *Diesel No. 2* include sales to end-users (those sales made directly to the ultimate consumer, including bulk customers in agriculture, industry, and utilities). Prices for all types of *Gasoline, Premium* and *Regular* are average retail prices.

SOURCES: **Aviation fuel** and **Highway fuel**: U.S. Department of Energy, Energy Information Administration; **Railroad fuel**: Association of American Railroads as cited in U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *National Transportation Statistics*, table 3-11, available at http://www.bts.gov/publications/national_transportation_statistics/ as of January 2011.

Chapter

3

Improving Transportation Statistics

Chester Ford

Improving Transportation Statistics

The legislative mandate of U.S. Department of Transportation (USDOT), Research and Innovative Technology Administration (RITA), Bureau of Transportation Statistics (BTS) requires annual submission of this *Transportation Statistics Annual Report* to the President and members of Congress. The report must include transportation data and information on topics identified in the *Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU)*, which are presented in the front of this report. Further, the report must document the methods used to obtain the report's statistical data and ensure information quality, and make recommendations for improving transportation statistical information. The final two items, ensuring and improving the quality of statistical information, are the subject of this *Improving Transportation Statistics* section.

Ensuring Information Quality

BTS obtained the data in this report from many sources, including other Federal agencies, private industry, and trade associations. Data based on surveys are subject to sampling variability, and data from all sources may be subject to omissions and errors in reporting, recording, and processing. The data sources cited for each table, figure, and map will provide detailed information about definitions, methodologies, and statistical reliability.

Under Office of Management Budget (OMB) directives, data collected by Federal agencies are subject to guidelines, policies, and practices that pertain to disseminating statistics to the public. Because Federal agencies are subject to these

guidelines, BTS relies mostly on Federal sources for the data contained within this report. Federal agencies, both within and outside of the U.S. Department of Transportation, collect, compile, analyze, and publish transportation data. A partial list of these organizations is included in box A. In some cases, these agencies compile and disseminate data submitted or reported by State and local governments, and/or private industry on transportation operations, planning, financing, or management. Further, some Federal agencies conduct surveys or otherwise directly collect data on specific matters, either through their own initiative or through partnerships with other entities. In addition, other Federal agencies produce data or information relevant to transportation, even though transportation is not the primary purpose.

The OMB chairs an interagency statistical policy committee, comprised of the heads of 13 statistical agencies in the Federal Government, including BTS. This group develops and distributes these statistical policies and guidelines for best practices to these 13 agencies and other agencies involved in statistics.

In response to its legislative mandates, BTS has developed guidelines for statistical practices in the transportation field. Specific topics covered include planning data systems, collecting data, processing data, dissemination of information, and evaluation of information quality. These guidelines apply to all information, including compilations containing data from other sources, appearing in BTS publications. Box B discusses various Federal statistical quality manuals and guidelines pertinent to transportation data.

In addition to government-wide guidance, Federal agencies may have specific requirements and guidelines. For example, they may issue guidelines for data reporting by State agencies, localities, and transportation providers. Such guidance may contribute to greater uniformity, comparability, and quality of the resulting data even though it comes from multiple providers.

In many cases, source agencies document the methods used in collecting, compiling, and assuring the quality of the data they produce and cited Federal agencies often publish source and accuracy statements. The BTS website for *National Transportation Statistics*, an online companion document to this report, summarizes much of this information with respect to particular data series (*National Transportation Statistics*, Appendix E—Data Source and Accuracy Statements, http://www.bts.gov/publications/national_transportation_statistics/).

Box A: Selected Federal Agencies That Provide Transportation Data

Intermodal/Multimodal Data (including Economic Indicators)

- Bureau of Economic Analysis, USDOC
- Bureau of Labor Statistics, USDOL
- Bureau of Transportation Statistics (Research and Innovative Technology Administration), USDOT
- Customs and Border Protection, USDHS
- Federal Highway Administration, USDOT
- U.S. Census Bureau, USDOC

Aviation Data

- Bureau of Transportation Statistics (Research and Innovative Technology Administration), USDOT
- Federal Aviation Administration, USDOT
- National Transportation Safety Board
- Office of Aviation and International Affairs, USDOT

Hazardous Materials (Hazmat) Data

- Bureau of Transportation Statistics (Research and Innovative Technology Administration), USDOT
- Pipeline and Hazardous Materials Safety Administration, USDOT
- U.S. Census Bureau, USDOC

Highway Data

- Federal Highway Administration, USDOT
- Federal Motor Carrier Safety Administration, USDOT
- Federal Transit Administration, USDOT
- National Highway Traffic Safety Administration, USDOT

(continued next page)

Box A: Selected Federal Agencies That Provide Transportation Data (continued)

Maritime Data

- Federal Maritime Commission
- Maritime Administration, USDOT
- Saint Lawrence Seaway Development Corporation, USDOT
- U.S. Army Corps of Engineers, USACE
- U.S. Coast Guard, USDHS

Pipeline Data

- Pipeline and Hazardous Materials Safety Administration, USDOT

Railroad Data

- Federal Railroad Administration, USDOT
- Surface Transportation Board, USDOT

Transit Data

- Federal Transit Administration, USDOT

Other Federal Agencies Collecting Transportation-Related Data

- Agricultural Marketing Service, USDA
- Energy Information Administration, USDOE
- Environmental Protection Agency

KEY: USACE—U.S. Army Corp of Engineers; USDA—U.S. Department of Agriculture; USDHS—U.S. Department of Homeland Security; USDOC—U.S. Department of Commerce; USDOE—U.S. Department of Energy; USDOL—U.S. Department of Labor; USDOT—U.S. Department of Transportation

Box B: Information Quality Guidelines for Federal Transportation Data

As a Federal statistical agency, the Bureau of Transportation Statistics (BTS) has its own standards and participates with other Federal agencies to improve statistical information quality. Under an array of guidelines, other Federal agencies collect, compile, and disseminate statistical data. The following are key guidelines and documents providing guidance on the quality of statistical information:

- BTS Statistical Standards Manual—covers all aspects of RITA/BTS statistical practice: (http://www.bts.gov/programs/statistical_policy_and_research/bts_statistical_standards_manual/index.html).
- Guide to Good Statistical Practice in the Transportation Field—includes the USDOT guidelines for statistical information and additional BTS guidance for good statistical practice: (http://www.bts.gov/publications/guide_to_good_statistical_practice_in_the_transportation_field/).
- Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity of Information Disseminated by Federal Agencies—Federal Register Notice, Vol. 67, No. 36, Feb. 22, 2002, Part IX – Office of Management and Budget: (http://www.bts.gov/publications/federal_register_notice/pdf/volume_67_number_36.pdf).
- Guidelines of the Federal Statistical Organizations—an approach to guidelines for statistical information adopted by the Interagency Council on Statistical Policy (ICSP): (http://www.bts.gov/publications/federal_register_notice/pdf/volume_67_number_107.pdf).
- USDOT Report for Implementing OMB's Information Dissemination Quality Guidelines —is the USDOT implementation of the Office of Management and Budget (OMB) information quality guidelines and correction procedures. The USDOT guidelines permit its agencies to issue their own guidelines, if these guidelines are consistent with the overall USDOT guidelines: (http://docketsinfo.dot.gov/ombfinal092502.pdf).
- Standards and Guidelines for Statistical Surveys—adopted September 2006: (http://www.whitehouse.gov/omb/inforeg/statpolicy/standards_stat_surveys.pdf).
- Title V—Confidential Information Protection and Statistical Efficiency Act of 2002—effective Dec. 17, 2002: (http://www.whitehouse.gov/sites/default/files/omb/assets/omb/inforeg/cipsea/cipsea_statute.pdf).
- OMB released Statistical Policy Directive No. 4: Release and Dissemination of Statistical Products Produced by Federal Statistical Agencies on Mar. 7, 2008: (http://www.whitehouse.gov/sites/default/files/omb/assets/omb/fedreg/2008/030708_directive-4.pdf).

Improving Data Quality

BTS program offices have lead efforts to close data gaps and improve the ways in which they collect, compile, analyze, and publish transportation data.

TransBorder Freight Data

The RITA/BTS North American TransBorder Freight Data Program provides U.S.–Canada and U.S.–Mexico merchandise trade data by commodity type, mode of transportation (rail, truck, pipeline, water, air, and other), and geographic detail for U.S. exports to and imports from Canada and Mexico. These data are an extract of the official foreign trade statistics collected by the U.S. Census Bureau. Data are available dating back to April 1993. The data are available via the Internet at http://www.bts.gov/programs/international/transborder/.

In 2009, the TransBorder Freight Data website added pie charts and interactive line graphs. In June 2010, BTS added a Geographic Information System mapping capability to the website. Further, BTS plans to add transshipment data in 2011.

The TransBorder Freight Data query system, which is available at http://www.bts.gov/programs/international/transborder/, produces:

- *Detailed Statistics* – provides users with the ability to make queries of the following data elements:
    - U.S. State;
    - trading partner;
    - customs port;
    - mode of transportation;
    - value or weight;
    - imports, exports, or total trade;
    - commodity (at the two-digit Harmonized Tariff System level);
    - year; and
    - month.
- *Quick Search* – provides users with fast and simple annual and monthly trade and transportation facts such as the top 10 ports, top U.S. States, and top commodities in terms of trade value or weight for different modes of transportation.

Commodity Flow Survey

BTS released the preliminary estimates from the Commodity Flow Survey (CFS) in December 2008 and continued to process the data in 2009. The final data were released on Dec. 22, 2009. All 2007 CFS data products, as well as those from previous surveys, are available via the Internet at http://www.bts.gov/publications/commodity_flow_survey/ and via the U.S. Census Bureau's American FactFinder (AFF)—http://factfinder.census.gov/. In addition to a comprehensive set of data tables, the AFF also now allows data users to generate and produce quick reports and thematic maps.

Freight Analysis Framework

In 2010, the Federal Highway Administration (FHWA) updated the Freight Analysis Framework to version 3 (FAF3) making use of current freight statistics and enhanced methodologies. The current FAF3 data are based, in large part, on data from the recently published 2007 CFS, but also incorporate data from a variety of other public sources to fill the gaps from industries not covered by the survey.

The Freight Analysis Framework (FAF) estimates the total volume of freight flows and related freight transportation activities among States and major metropolitan areas. FAF also forecasts pressures of future freight flows on the existing transportation network by estimating changes in those flows and activities based on shifts in economic conditions and the availability of transportation facilities, among other factors.

FHWA has continually updated and improved FAF to provide the most accurate and current national freight statistics for Federal policy evaluation, the development of national investment and operations strategies, and the starting point for understanding freight activities at State and metropolitan levels. The current FAF3 data are based, in large part, on data from the recently published 2007 CFS, but also incorporates data from a variety of other public sources to fill the gaps from industries not covered by the survey. Improvements are intended to balance accuracy, completeness, and transparency to make relevant freight transportation data available to the transportation community at a national, State, and regional level.

Released in 2010, FAF3 provides regional freight flow data by commodity and mode, accessible via a new data extraction tool that allows users to summarize, view, and download FAF3 data via the website. Additional products that are part of the 2010 FAF3 release include forecasts for the years 2015 through 2040, an assignment of freight-hauling trucks to individual highway segments on the national network, annual provisional estimates, and national freight flow and congestion maps. Work is also underway to recalculate data used in previous FAF versions (2002 and 1997) utilizing current methods; when complete in 2011,

FAF3 will provide a comparable time-series for comprehensive analysis of freight transportation within, to, and from the United States.

FAF3 data and documentation are available via the Internet at http://www.ops.fhwa.dot.gov/freight/freight_analysis/faf/.

Vehicle Inventory and Use Survey

The Vehicle Inventory and Use Survey (VIUS) delivers critical information for highway cost allocation studies, air quality and greenhouse gas (GHG) emission models, and freight analysis work. Data from VIUS contributes directly to the FAF by providing an essential link between tonnages moved among regions and truck travel on the highway network.

Beyond the uses listed above, the survey provides data on the physical and operational characteristics of the Nation's private and commercial truck fleet. Its primary goal has been to produce national and State-level estimates of the total number of trucks. Discontinued after 2002 for funding reasons, the VIUS was first conducted in 1963 and has historically been carried out by the U.S. Census Bureau every 5 years as part of the Economic Census.

In 2010, the FHWA completed a design study to provide cost estimates for multiple options of a future VIUS program. The options include varying levels of vehicle and geographic characteristics historically part of the VIUS. This study has been conducted to provide specifications for a range of options should funds for reinstating the survey become available in the future.

Airline Information

In FY 2010, the BTS Office of Airline Information (OAI) introduced several new processes and reports to facilitate reporting and to track new areas of interest in regard to airline industry performance.

Electronic Submission of Airline Data (eSubmit) to USDOT

To reduce the reporting burden of U.S. and Foreign Airlines reporting data to USDOT, and reduce the data entry burden within BTS, a new rulemaking was implemented in 2010. Airlines within the United States began submitting data electronically (eSubmit) for the first group of reports on Oct. 1, 2010. Electronic submission of all other airline data is being phased in throughout the following 6 months.

New Interactive Reporting Tool Added to the BTS Website

Interactive tables and reports are now available on the BTS website, http://www.bts.gov/ that allow researchers easy access to tarmac delay data filed by the air-

lines. This tool allows the user to focus on a specific phase of delay: by airport, air carrier, stage of operation (taxi in, taxi out, tarmac time at diverted airports), and length of delay over 1 hour. For example, a data user can now pull up all delays between 2 and 3 hours at JFK Airport during taxi out, or can search for all delays longer than 1 hour for a specific airline. This dynamic tool has added flexibility and power to those researching airline delays.

Chronically Late Airline Flights

During 2010, legislation was enacted imposing fines for aircraft tarmac waiting times longer than 3 hours and brought to light a focus on chronically delayed flights. In answer, BTS developed tables highlighting airline delays that occur repeatedly. Chronically late flights are defined as those airline flights scheduled to fly at least 10 times per month that either have been late 30 or more minutes or canceled, or any combination of the two, at least 50 percent of the time. This monthly report on the BTS website highlights specific airline flights with continuous delay problems.

Airline Oversales Report

When airline flights have been oversold, some passengers voluntarily choose to move to a later flight, usually with some type of incentives furnished by the airline. Some passengers are denied boarding and involuntarily moved to another flight, with compensation provided. The Airline Oversales Report provides data on the number of passengers inconvenienced by oversales and the dollar amounts spent by airlines on denied boarding oversales compensation. This data may now be accessed on the BTS website.

Airline Aircraft Inventory Report

A new online report has been added to the BTS website featuring aircraft fleet sizes by airline with accompanying delivery date information. Three years of data are now available with more years to be added. This report features aircraft in active use by airlines and does not include aircraft parked in a storage location.

Maritime Data

In January 2010, BTS, in cooperation with the U.S. Maritime Administration (MARAD), published two special reports on the cruise industry:

- *U.S. Ocean Passenger Terminals: Serving Larger Vessels Closer to Home and Central Transit Connections* describes the trend towards larger vessels, relocating passenger terminals closer to major metropolitan areas, and transit connectivity with passenger vessel terminals.

- *Ocean Passenger Vessels: Migrating South for the Winter* examines the seasonal pattern of cruise departures from northern ports in the summer and southern ports in the winter.

BTS also released a special report entitled *International Piracy and Armed Robbery at Sea: Hindering Maritime Trade and Water Transportation Around the World* in April 2010. This report describes trends in worldwide piracy and armed robbery at sea, including piracy hotspots such as the coastal waters of East Africa, as well as the international community's response. BTS Special Reports are available via the Internet at http://www.bts.gov/publications/bts_special_report/. MARAD maintains a website providing the latest updates on "Horn of Africa Piracy," which is available at http://www.marad.dot.gov.

To provide timely information to its customer base, BTS issued the BTS Fact Sheet: *Gulf Coast Ports Surrounding the Deepwater Horizon Oil Spill* in June 2010. This fact sheet provides a snapshot of two major seaports (New Orleans, LA, and Mobile, AL) and summary tables of other Gulf Coast seaports close to the *Deepwater Horizon* mobile offshore drilling unit (MODU) explosion and oil spill. The fact sheet and other maritime-related publications are available via the Internet at http://www.bts.gov/programs/maritime_program/.

The Committee on the Marine Transportation System (MTS), of which BTS is a member, and the Transportation Research Board cosponsored the *Transforming the Marine Transportation System: A Vision for Research and Development* in summer 2010, in Irvine, CA. The conference explored the need for research in areas such as MTS capacity, finance, resilience, and safety and security. In addition, the conference sought to foster partnerships between Federal, State, private industry, and academic institutions attendees.

National Census of Ferry Operators

In accordance with Section 1801(e) of the *Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU)*, BTS has established and maintains a national ferry database. The first census of ferry operators was conducted in 2000 for the Federal Highway Administration by the Volpe National Transportation Systems Center, which is a part of RITA. Since 2006, BTS has conducted a biennial census. The National Census of Ferry Operators (NCFO) covers the United States and its possessions, encompassing the 50 States, Puerto Rico, the U.S. Virgin Islands, and the Commonwealth of the Northern Mariana Islands. In addition to ferry operators providing domestic service within the United States and among its possessions, foreign operators providing international services to or from at least one U.S. terminal are also covered.

The NCFO database, which is based on the census results and other data sources, contains operational data and information on ferry routes, passengers, and freight including vehicles, terminals, vessels, and other details. The NCFO database is available via the Internet at http://www.bts.gov. The 2008 NCFO survey results were made available in the summer of 2010. BTS also released a special report on the 2008 NCFO in December 2010. The NCFO database currently includes a compilation of data tables for 2000, 2006, and 2008. With refinement of the survey instrument, the data elements collected by BTS vary between survey years. The NCFO database also contains data from the U.S. Coast Guard and the U.S. Army Corps of Engineers.

The NCFO database, which was first established after the 2000 census, allows one to retrieve the data by views, such as by operator, route segment, terminal, terminal vendor, or vessel. However, one must individually download the lookup tables and then combine them to make sense of the data. In response to customer feedback, BTS is executing plans for making the NCFO database more accessible using an interactive web query tool. In addition, BTS is developing rules for converting the data elements that vary between years and improving data mining. BTS has also launched the 2010 NCFO. The new survey instrument underwent cognitive testing to improve the question formatting and assist respondents with answering items on the form. In addition, an online reporting tool was developed to allow operators to fill out the census questionnaire via the web.

Intermodal Passenger Connectivity Database

The Intermodal Passenger Connectivity Database (IPCD) offers data on the scheduled public transportation modes serving individual passenger transportation terminals in the United States. BTS developed this database to serve as a baseline measurement of the degree of connectivity in the U.S. passenger transportation system. Since the passage of the Intermodal Surface Transportation Act (ISTEA) in 1991, all USDOT authorizing legislation has encouraged the development of intermodal links. Therefore, establishment of a baseline measurement for passenger intermodal connectivity will provide a way to measure U.S. progress toward that effort. Not only do intermodal passenger terminals provide the opportunity for travelers to connect between modes, but they also help create more livable communities by offering multiple travel mode choices in a single location to the residents of the immediate surrounding areas.

BTS is compiling the data in phases, by mode, for the IPCD. Through 2010, the database includes information on 2,566 passenger terminals—671 scheduled service airline airports, 298 ferry terminals, and 1,597 rail stations, including 1,068 served only by commuter rail, 437 served only by intercity rail, and 92 served by both commuter and intercity rail. Data collection is underway for approximately 1,800 transit heavy rail (subway) and light rail (streetcar) stations, as well as

intercity bus, which BTS will add during 2011. This will complete the initial data collection for all modes in the database.

BTS has been collecting the data on modes serving each terminal from numerous public sources including databases at the USDOT, published brochures and timetables from carriers and transit agencies, and information from a range of transportation websites. A mapping application is also being added to the website to show graphically intermodal passenger facilities and the modes serving them. The databases are available via the Internet for downloading as spreadsheets at http://www.transtats.bts.gov/. BTS has issued *Special Reports* using this data examining the degree of connectivity at intercity rail stations, airports, ferry terminals, and commuter rail stations available at http://www.bts.gov/publications/bts_special_report/.

The Intermodal Passenger Connectivity Database includes the following categories of data for each terminal record:

- terminal name, address, zip code, and metropolitan area status;
- latitude and longitude;
- number of modes serving;
- status of service for ferry (intercity and transit), bus (intercity, transit, code share/supplemental), rail (intercity, commuter, heavy rail, and light rail), and air modes;
- terminal website; and
- data sources.

Distracted Driving

The U.S. Department of Transportation sponsored the second Distracted Driving Summit in Washington, DC. There were over 500 attendees and thousands more participated via webcast. This year's summit built on last year's call to action. It brought together researchers, academics, law enforcement officers, and the families of victims to discuss ways to end the distracted driving epidemic.

Secretary Ray LaHood announced three major actions that have taken place since last year's summit: a rule banning commercial bus and truck drivers from texting on the job; a rule restricting train operators from using cell phones and other electronic devices; and a proposed rulemaking that will limit commercial truck drivers' use of all electronic devices while transporting hazardous materials. Secretary LaHood also commended the thousands of U.S. companies that have imposed distracted driving policies of their own.

According to the National Highway Traffic Safety Administration, distracted driving-related crashes caused nearly 5,500 deaths and 450,000 injuries during 2009.

The Federal Motor Carrier Safety Administration also published a Notice of Proposed Rulemaking (NPRM) in December 2010 that would specifically prohibit interstate commercial truck and bus drivers from using hand-held cell phones while operating a commercial motor vehicle. For additional information on distracted driving and this NPRM, please visit http://www.distraction.gov.

National Household Travel Survey

The Federal Highway Administration (FHWA), Office of Highway Policy and Information, released the most recent National Household Travel Survey (NHTS) in 2009. It is the foremost official national source of information on travel by the American public, providing information on the travel behavior of all ages, by all modes, and for all purposes. The data are widely used to estimate fatality rates, develop congestion statistics, identify mobility issues, understand changes in the vehicle fleet and use, and provide insight for policy development on a range of topics. Federal agencies have periodically conducted a survey since 1969, providing information on important trends in travel demand and travel behavior by the U.S. population.

The NHTS is the largest travel survey in the world with over 150,000 total households in the sample. The study encompasses two parts: a national sample that has remained consistent over time and covers all 50 States and the District of Columbia, and an "Add-On" Program in which State Departments of Transportation (DOT) as well as Metropolitan Planning Organizations can purchase additional samples for use in their own local planning. The Add-On Program has grown since 1995, its first year. In the 2009 NHTS, 20 States and local areas participated, purchasing over 125,000 household samples.

Below is a list of the 20 Add-On Program participants in the 2009 NHTS:

1. California DOT
2. Cedar Rapids Regional, IA
3. Chittenden County, VT
4. Florida DOT
5. Georgia DOT
6. Indiana DOT
7. Iowa DOT
8. New York State DOT
9. North Carolina DOT
10. Omaha, NE
11. Phoenix, AZ
12. Piedmont Regional, NC
13. South Carolina DOT
14. South Dakota DOT
15. Tennessee DOT
16. Texas DOT
17. Tucson, AZ
18. Vermont DOT
19. Virginia DOT
20. Wisconsin DOT

The 2009 NHTS improvements include a cell-phone only sample, which is used compensate for non-coverage and provide minimum sample size for low-population States. This ensures that each State can have some descriptive statistics from the survey, and helps estimate the confidence intervals for data analyses.

Improved modeling or data transferring allows the NHTS to represent statistically smaller geographic levels while maintaining confidentiality. For example, Green House Gas emissions and modeling travel demand for small and medium sized communities are currently estimated using modeled data that cannot afford large data collection efforts. In addition, they provide estimates of rural travel as well as household vehicle ownership and use.

Data visualization techniques are currently being developed to help combine statistics into more easily understood indices and graphics to assist planners and policy makers in utilizing the data. The NHTS data series is available for the public use, primarily through the website, which includes an online analysis tool for generating statistical tables. In addition, documentation, statistical reports, briefs, and frequently requested analyses are available on the site.

The 2009 NHTS and the whole survey series are now available at http://nhts.ornl.gov.

Geospatial Information Services

The RITA/BTS Geospatial Information Services (GIS) Program is the lead program for geospatial activities within the USDOT. The GIS Program is a source of spatial data and tools for transportation: http://www.bts.gov/programs/geographic_information_services/.

To emphasize the importance of geospatial data, the USDOT appointed the BTS Geospatial Information Services (GIS) Program Manager as the first Geospatial Information Officer for the USDOT. The GIS Program is the USDOT's lead for the Federal-wide National Spatial Data Infrastructure (NSDI). NSDI activities include representing USDOT in the Federal Geographic Data Committee (FGDC) and OMB e-Gov initiatives, such as the Geospatial Line of Business, as well as leading the development of transportation data content standards for the Geospatial One-Stop and providing spatial data to Data.gov, which is available at http://www.data.gov/.

The BTS GIS program worked closely with the USDOT's Office of the Secretary in developing and maintaining the American Reinvestment and Recovery Act (ARRA) website. An application developed by the program for this website, presents the accumulated awards of ARRA funds by mode of transportation for the U.S.

The BTS GIS Program also works with the various USDOT operating administrations to fill geospatial data gaps. Over the past 5 years, this effort has developed geospatial data for multimodal freight transfer facilities, Metropolitan Planning Organization boundaries, U.S. Environmental Protection Agency non-attainment area boundaries, rail bridges at water crossings, road bridges from the National Bridge Inventory, highway weigh-in-motion stations, highway automated traffic recorder stations, highway hazardous materials routes, ferry routes, and alternative fueling stations. In 2011, the BTS program will collaborate with the Federal Railroad Administration to develop a geospatial database of rail bridges for highway crossings.

The BTS GIS Program annually produces the National Transportation Atlas Databases (NTAD), which was originally mandated by Congress in the *Intermodal Surface Transportation Efficiency Act of 1991*, and that mandate was continued in each subsequent transportation authorization. NTAD is a set of nationwide geospatial databases of transportation facilities, transportation networks, and associated infrastructure. These datasets, compiled from data provided by other USDOT operating administrations and Federal agencies, include geospatial information for transportation modal networks and intermodal terminals, as well as the related attribute information for these features. These data support research, analysis, and decision-making across all modes of transportation. They are most useful at the national level, but have major applications at regional, State, and local levels throughout the transportation community. The NTAD serves as the transportation theme of the NSDI.

The BTS GIS Program develops GIS and web applications to assist transportation analysts in performing complex geospatial analyses. The web applications assist USDOT offices to improve their reach and communication with customers, and give BTS customers' new ways to utilize the BTS data. The web applications listed here, are now or will be viewable on the BTS website at http://www.bts.gov:

RITA/BTS Office of Transportation Analysis

- International Border Crossings
- State Transportation Profiles
- State Transportation Facts

RITA/BTS Office of Advanced Studies

- Intermodal Passenger Connectivity

RITA/BTS Office of Airline Information

- Commercial Flight Delays

RITA Office of Research, Development and Technology

- Research Facilities

Transportation Services Index

The publication of the Transportation Services Index (TSI), in March 2004, marked the entry of the RITA/BTS into the company of Federal statistical agencies that produce a monthly U.S. economic indicator. The index consists of two measures:

- freight transportation service, and
- passenger transportation service.

In addition, BTS creates a Total TSI by combining the freight and passenger transportation indexes. The most recent TSI data are available via the Internet at http://www.bts.gov/xml/tsi/src/index.xml.

Currently, the freight index consists of data from for-hire trucking, rail, inland waterways, pipelines and airfreight. The passenger index consists of data from air, local transit, and intercity rail. BTS used economic and statistical techniques to present the output of the different transportation modes in comparable terms, while adjusting to correct for the seasonal nature of transportation. Using 2000 as a base year with an index value of 100, the Total TSI has ranged from a value of 67 at the beginning of 1990 to approximately 102 at the end of 2009, reflecting an increase of approximately 52 percent over 19 years.

BTS has undertaken research on the turning points of the Freight TSI, possibly serving as a leading indicator for the recent recession. The recent downturn for the Freight TSI was May 2006, approximately 1 ½ years prior to the stated start of the recession in December 2007.[1] The recent upturn for the Freight TSI was May 2009, 1 month prior to the end of the recession, June 2009, as announced by the National Bureau of Economic Analysis.[2] In an effort to incorporate changes in methodology and data source revisions BTS released the 2009 TSI Comprehensive Bi-Annual Revision along with the July TSI release. A detailed analysis and methodology changes are available via the Internet at http://www.bts.gov/programs/economics_and_finance/transportation_services_index/annual_revision/2009/.

[1] Possible explanations for the long lead with the current recession include the rising cost of fuel that occurred in 2005 and 2006, and unique aspects of the current recession, such as its magnitude and the housing and financial crisis that preceded it.

[2] National Bureau of Economic Research, *NBER Business Cycle Dating Committee Announces Trough Date* (September 20, 2010), available at http://www.nber.org/cycles/sept2010.html as of Sept. 30, 2010.

National Transportation Library

The National Transportation Library (NTL) continued to refine and expand its central role in the collection and dissemination of transportation information throughout FY 2010. NTL clients and stakeholders include government staff at all levels (Federal, State, local), transportation professionals and the public. NTL's mandate includes improving the ability of transportation communities to share information and knowledge and working as a national leader and partner to improve the coordination of information collection and archiving efforts.

During FY 2010, NTL staff addressed approximately 2,000 information requests per month. The tools used to field these requests come from both the digital holdings and the extensive physical collection held in the Headquarters Branch. The NTL Digital Repository contains over 30,000 documents including significant works from the University Transportation Centers, State DOTs, transportation associations, and other research and policy institutions. An important 2010 development in the Digital Repository was the addition of new digital assets (e.g., streaming/desktop digital videos, PowerPoint presentations, Excel spreadsheets/tables, datasets, and computer programs) to the more traditional text assets like PDF and HTML documents.

FY 2010 saw extensive growth and improvement in services in our Headquarters (HQ) Branch. Nearly 15,000 people, an average of 60 per day, visited this branch. Duplicative materials were removed from the nearly 150,000 technical and legal collections, bringing greater focus to the collection while providing much needed room for further growth. This streamlining also made it easier for library users to locate items in the collection.

During the year, the HQ library hosted over 30 research database training sessions for USDOT staff on topics including law, national politics and policy, and engineering. NTL also began work on a very important and until now underutilized HQ document collection, archiving the former USDOT Historian's collection of original USDOT historical materials.

NTL continued significant outreach activities throughout the year. NTL is helping to coordinate the growth of a National Transportation Knowledge Network (NKTN). Comprised of Regional TKNs, these networks facilitate the timely and cost effective transfer of information and knowledge among transportation libraries and information centers throughout the country. NTL is also helping to lead the Department's participation in social media tools such as Twitter, Facebook, RSS feeds, and Flickr. Another important outreach function of NTL is its central role in developing a metadata standard and use of controlled vocabularies (e.g., the Transportation Research Thesaurus or TRT, the international standard trans-

portation taxonomy and controlled vocabulary). These standards allow interoperability with other web resources and targeted access to the Digital Repository. NTL also makes the Digital Repository available to Internet search engines such as Google and Yahoo! through implementation of Google Sitemaps and other protocols.

NTL will continue to provide support for the USDOT's *American Recovery and Reinvestment Act* (ARRA) efforts by receiving, reviewing, and responding to all of the Department's ARRA telephone and email inquiries within 24 hours of receipt.

Incorporating Customer Feedback

Beginning in January 2010, BTS implemented the American Customer Satisfaction Index (ACSI) for the BTS website to monitor and address user satisfaction with the responsiveness of information and products delivered through http://www.bts.gov. As a proactive approach to integrating customer feedback into decisions for BTS products, programs, services, and initiatives, BTS regularly reviews and incorporates findings into its data collection and other activities. ACSI is the only uniform, national, cross-industry measure of satisfaction with the quality of goods and services available in the United States. In 1999, the Federal Government selected ACSI to be a standard metric for measuring citizen satisfaction. Over 100 Federal Government agencies have used ACSI to measure citizen satisfaction of more than 200 services and programs.

International Data Exchanges

The North American Transportation Statistics Online Database (NATS-OD) is an international data exchange effort between the United States, Canada, and Mexico. A product of the NATS Interchange established in 1991, the NATS database provides three-country comparative information on transportation activity and its impact. It covers the following subject areas: country overview, transportation and the economy, transportation safety, transportation's impact on energy and the environment, domestic freight activity, North American merchandise trade, international merchandise trade, domestic passenger travel, North American passenger travel, international passenger travel, transportation infrastructure, and vehicles. The NATS database is available via the Internet at http://nats.sct.gob.mx.

The NATS-OD highlights the importance of the various modes of transportation involved in the movement of goods between Canada, Mexico, and the United States, and presents statistics indicating the relationships among transportation, international trade, economy, security, energy and the environment. North America is balancing security, safety, and environmental concerns while simultaneously fa-

cilitating the free flow of people and goods. The transportation data disseminated through the Interchange is a significant resource for both the public and decision-makers to draw upon in achieving this balance.

The XXIV North American Transportation Statistics Interchange was held from June 21-23, 2010. Cosponsored by Transport Canada and Statistics Canada; the NATS Interchange was held at Statistics Canada Headquarters in Ottawa, Canada. One of the key focus areas of this year's Interchange was the further development of transportation energy and environment indicators of the NATS-OD. A new indicator on the fuel efficiency of new vehicles is scheduled to be released in November 2010.

Transportation Research Board

In 2010, RITA/BTS continued to support the diverse research of the National Academy of Sciences' Transportation Research Board (TRB). The TRB is the division of the National Research Council that promotes innovation and progress in transportation through research.

RITA/BTS staff participated in the TRB's 89th Annual Meeting, which had the theme of *Investing in Our Transportation Future—Bold Ideas to Meet BIG Challenges*, including the nearly 3,000 presentations and 600 sessions as well as TRB's mid-year meeting held each Summer. With over 200 standing committees, TRB offers RITA/BTS the opportunity share knowledge and perspectives in transportation research, policy, and practice with other transportation professionals.

Administered through the TRB and sponsored by RITA, the National Cooperative Freight Research Program (NCFRP) conducts applied freight transportation research. BTS and RITA staff supports the NCFRP by contributing to the oversight committee and assisting in choosing research projects for funding. They acted as liaisons to project panels that develops the Statements of Work, drafted and issued a Request for Proposal for funded projects, selected the contractor, and provided guidance to the contractor during the course of the research project.

During 2010, RITA/BTS staff also participated in the TRB administrated cooperative research programs, including the Hazardous Materials Cooperative Research Program (HMCRP), Transit Cooperative Research Program (TCRP), and the National Cooperative Highway Research Program (NCHRP). They supported the HMCRP oversight committee and project panels in the same manner as the NCFRP by RITA/BTS staff, while contributions to the NCHRP and TCRP involved participation in project panels.

Key Transportation Indicators

The BTS Key Transportation Indicators (KTI) project collects the latest monthly and quarterly data on conditions in the transportation sector. The principal focus is on information that reflects short-term fluctuations in the greater context of the economy, as reflected by the movement of goods and people, and the conditions within which both are transported. Recent developments include displaying the files by category, and compiling and publishing a reference page that has links to data that are not already published in the KTI (often because these additional data series are more influenced by long-term policy decisions).

BTS collects data for and publishes the KTI every 2 months. Data are broken down into categories, including general economic data and mode-specific data, such as fuel prices, end-user prices, passenger usage, freight usage, system performance, and capital expenditures. As of the end of FY 2010, there are 23 data files. Research to fill in data gaps is ongoing. BTS added a link to the KTI on the front page of the BTS website, which is available at http://2bts.rita.dot.gov/publications/key_transportation_indicators/, to help users navigate to the information.

Appendices

Appendix A

Appendix A: U.S. Social and Economic Characteristics: 2004-2009

	2004	2005	2006	2007	2008	2009
Total U.S. Resident Population (thousands)	293,046	295,753	298,593	301,580	304,375	307,007
Population by age (thousands)						
Under 18	73,493	73,749	74,010	74,340	74,430	74,548
18-24 years	29,286	29,405	29,541	29,734	30,090	30,412
25-34 years	39,632	39,713	39,944	40,371	40,958	41,566
35-44 years	43,839	43,544	43,279	42,851	42,241	41,530
45-54 years	41,501	42,342	43,104	43,749	44,234	44,592
55-64 years	29,033	30,296	31,510	32,668	33,623	34,787
65 and over	36,263	36,704	37,206	37,867	38,800	39,571
Population by sex (thousands)						
Male	144,138	145,561	147,061	148,612	150,074	151,449
Female	148,908	150,192	151,533	152,968	154,301	155,557
Population in Metropolitan areas (thousands)						
Large (over 1 million)	157,802	159,424	159,921	163,742	166,565	168,350
Medium (250,000-999,999)	58,123	58,780	61,057	60,481	60,034	61,063
Small (less than 250,000)	28,341	28,611	28,416	27,958	28,214	27,942
Population in Regions (thousands)						
Northeast	54,514	54,598	54,710	54,879	55,060	55,284
South	105,874	107,411	108,931	110,573	112,021	113,318
Midwest	65,588	65,806	66,082	66,359	66,596	66,837
West	67,070	67,938	68,870	69,768	70,698	71,568
Immigrants admitted (thousands)	958	1,122	1,266	1,052	1,107	1,131
Gross domestic product (billions of 2005 chained $)	12,264	12,638	12,976	13,229	13,229	12,881
Civilian labor force (thousands)	147,401	149,320	151,428	153,124	154,287	154,142
Participation rate of men (%)	73.3	73.3	73.5	73.2	73.0	72.0
Participation rate of women (%)	59.2	59.3	59.4	59.3	59.5	59.2
Unemployment rate (% of labor force)	5.5	5.1	4.6	4.6	5.8	9.3
Households (thousands)	112,000	113,343	114,384	116,011	116,783	117,181
Average size of households	2.57	2.57	2.57	2.56	2.56	2.57
Median household income (constant 2005 $)	45,820	46,326	46,671	47,297	45,610	45,305
Average household expenditures (constant 2005 $)	44,850	46,409	46,862	46,736	45,776	44,659

NOTES: *Resident population* estimates are as of July 1. New *Metropolitan* area definitions were published by the Office of Budget and Management (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.
Number of immigrants is based on fiscal year data ending Sept. 30.
Median household income and *Average household expenditures* are converted to constant 2005 dollars by the Bureau of Transportation Statistics using the consumer price index for Urban research series (CPI-U-RS).
Details may not add to totals due to independent rounding.
SOURCES: **U.S. resident population; population by age and sex; population by region**: U.S. Department of Commerce, U.S. Census Bureau, *Population Estimates, National*, available at http://www.census.gov/popest/estimates.php as of October 2010.
Population by metropolitan area: U.S. Department of Commerce, U.S. Census Bureau, Population Division, *Annual Estimates of the Population of Metropolitan and Micropolitan Statistical Areas*, table 1, available at http://www.census.gov/popest/estimates.php as of October 2010.
Immigrants Admitted: U.S. Department of Homeland Security, 2009 *Yearbook of Immigration Statistics*, table 1, available at http://www.dhs.gov/files/statistics/publications/yearbook.shtm as of October 2010.
Gross Domestic Product: U.S. Department of Commerce, Bureau of Economic Analysis, *National Income and Product Accounts Tables*, table 1.1.6, available at http://www.bea.gov/national/nipaweb/SelectTable.asp?Selected=N as of October 2010.
Civilian Labor Force, Unemployment Rate, Participation of Men and Women: U.S. Department of Labor, Bureau of Labor Statistics, *Current Population Survey*, Historical Data, table A-1, available at http://www.bls.gov/cps/cpsatabs.htm as of October 2010.
Number of households, Average size of households: U.S. Department of Commerce, U.S. Census Bureau, *Families and Living Arrangements*, Detailed Tables, tables AVG-1, H-2, 17 and HH-6, available at http://www.census.gov/population/www/socdemo/hh-fam.html as of October 2010.
Median household income: U.S. Department of Commerce, U.S. Census Bureau, *Historical Income Data*, table H-5, available at http://www.census.gov/hhes/www/income/income.html as of October 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 October 2010.

Appendix B - Acronyms, Abbreviations, and Initialisms

A

AAR	Association of American Railroads
ADA	Americans with Disabilities Act
APTA	American Public Transportation Association
ATPI	Air Travel Price Index
ARRA	*American Reinvestment and Recovery Act*
AASHTO	American Association of State Highway and Transportation Officials

B

BEA	Bureau of Economic Analysis
BLS	Bureau of Labor Statistics
BTS	Bureau of Transportation Statistics
Btu	British thermal unit

C

CAFE	Corporate Average Fuel Economy
CBP	U.S. Customs and Border Protection
CFS	Commodity Flow Survey
CO	carbon monoxide
CO_2	carbon dioxide
CPI	Consumer Price Index

D

DHS	U.S. Department of Homeland Security
DOC	U.S. Department of Commerce
DOE	U.S. Department of Energy
DOL	U.S. Department of Labor
DOT	Department of Transportation
dwt	deadweight tons

E

EIA	Energy Information Administration
EPA	U.S. Environmental Protection Agency

F

FAA	Federal Aviation Administration
FAF	Freight Analysis Framework
FHWA	Federal Highway Administration
FMCSA	Federal Motor Carrier Safety Administration
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
FY	fiscal year

G

GDP	Gross Domestic Product
GHG	greenhouse gas
GIS	geospatial information systems
GVWR	gross vehicle weight rating

H

HMCRP	Hazardous Materials Cooperative Research Program
HMIS	Hazardous Materials Information System

K

KTI	Key Transportation Indicators

M

MARAD	Maritime Administration
MISLE	Marine Information and Safety Law Enforcement
mmtc	million metric tons of carbon
mpg	miles per gallon
mph	miles per hour
MSA	metropolitan statistical area

N

NAICS	North American Industry Classification System
NCFO	National Census of Ferry Operators
NCFRP	National Cooperative Freight Research Program
NCHRP	National Cooperative Highway Research Program
NEI	National Emissions Inventory
NHTS	National Household Travel Survey
NHTSA	National Highway Traffic Safety Administration
NOS	Not Otherwise Specified
NO_x	nitrogen oxides
NPIAS	National Plan of Integrated Airport Systems
NTAD	National Transportation Atlas Database
NTD	National Transit Database
NTL	National Transportation Library
NTS	*National Transportation Statistics* report
NTSB	National Transportation Safety Board
NATS-OD	North American Transportation Statistics Online Database

O

O&D	origin and destination
OMB	Office of Management and Budget
OOS	out of service
OPEC	Organization of Petroleum Exporting Countries

P

PM-2.5	particulate matter of 2.5 microns in diameter or smaller
PM-10	particulate matter of 10 microns in diameter or smaller
pmt	passenger-miles of travel

Q

quads	quadrillions

R

RITA	Research and Innovative Technology Administration
rpm	revenue passenger-mile

S

SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users
SCTG	Standard Classification of Transported Goods
SE	standard error
SIC	Standard Industrial Classification
STOL	short take-off and landing
SUV	sport utility vehicle

T

TEU	20-foot equivalent unit
TgCO2Eq	teragrams of carbon dioxide equivalent
TSAR	*Transportation Statistics Annual Report*
TRB	Transportation Research Board
TSI	Transportation Services Index
TTI	Texas Transportation Institute
TTI	Travel Time Index

U

USACE	U.S. Army Corps of Engineers
USCG	U.S. Coast Guard
USDA	U.S. Department of Agriculture
USDHS	U.S. Department of Homeland Security
USDOC	U.S. Department of Commerce
USDOL	U.S. Department of Labor
USDOT	U.S. Department of Transportation
USPS	U.S. Postal Service

V

VIUS	Vehicle Inventory and Use Survey
vmt	vehicle-miles of travel
VOC	volatile organic compounds

Appendix C - Glossary

14 CFR Part 121 (air): Prescribes rules governing the operation of domestic, flag, and supplemental air carriers and commercial operators of large aircraft.

14 CFR Part 135 (air): Prescribes rules governing, among others, the operations of commuter air carriers (scheduled) and on-demand air taxi (unscheduled).

ACCIDENT (aircraft): As defined by the National Transportation Safety Board (NTSB), an occurrence associated with the operation of an aircraft that takes place between the time any person boards the aircraft with the intention of flight and all such persons have disembarked, and in which any person suffers death, or serious injury, or in which the 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 in-patient 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 a 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 that involves the vessel or its equipment when 1) A person dies; or 2) A person disappears from the vessel under circumstances that indicate death or injury; or 3) A person is injured and requires medical treatment beyond first aid; or 4) Damage to vessels and other property totals $2,000 or more; or 5) There is a complete loss of any vessel. Under federal regulations (33 CFR Part 173; Subpart C – Casualty and Accident Reporting) the operator of any numbered vessel that was not required to be inspected or a vessel that was used for recreational purposes is required to file a Boating Accident Report (BAR).

ACCIDENT (transit): An incident involving a moving vehicle, including another vehicle, an object, or person (except suicides), or a derailment/left roadway.

AIR CARRIER: 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 TAXI: An aircraft operator who conducts operations for hire or compensation in accordance with 14 CFR 135 in an aircraft with 10 or fewer passenger seats. An air taxi operates on an on-demand basis and does not meet the flight schedule qualifications of a commuter air carrier (see below).

AIRPORT: A landing area regularly used by aircraft for receiving or discharging passengers or cargo.

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, this rail system was created by the Rail Passenger Service Act of 1970 (Public Law 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 bitumen 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 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.

BRITISH THERMAL UNIT (Btu): The quantity of heat needed to raise the temperature of 1 pound (approximately 1 pint) 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, including school buses, intercity buses, and transit buses.

CAPITAL STOCK: Capital stock is a commonly used economic measure of the capacity of the transportation system. It combines the capabilities of modes, components, and owners into a single measure of capacity in dollar value. This measure takes into account both the quantity of each component (through initial investment) and its condition (through depreciation and retirements).

CANCELLATIONS (air): are flights that were not operated, but were listed in a carrier's computer reservation system within seven calendar days of the scheduled departure.

CAR-MILE (rail): The movement of a railroad car a distance of one 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 or containers are moved with or without a waybill.

CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY (air carrier): A certificate issued by the U.S. 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 to conduct scheduled services interstate. These carriers may also conduct non-scheduled or charter operations. Certificated air carriers operate large aircraft (60 seats or more or a maximum load of 18,000 pounds or more) in accordance with FAR Part 121. See also Large Certificated Air Carrier.

CERTIFICATED AIRPORTS: Airports serving any— (1) scheduled passenger-carrying operations of an air carrier operating aircraft designed for more than 9 passenger seats; and (2) unscheduled passenger-carrying operations of an air carrier operating aircraft designed for at least 31 passenger seats.

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 multiplied by the 1991 average index or 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.

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.

COMBINATION (water) includes ore/bulk/oil carriers, and bulk/oil carriers.

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.

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. It does not include rapid rail transit or light rail service.

CONSTANT DOLLARS: Dollar value adjusted for changes in the average price level by dividing a current dollar amount by a price index. See also Chained Dollars and Current Dollars.

CONSUMER PRICE INDEX (CPI): measures monthly change in the prices paid by urban consumers for a representative basket of goods and services.

CONTAINER (water): A large standard size metal box into which cargo is packed for shipment aboard specially configured oceangoing containerships and designed to be moved with common handling equipment enabling high-speed intermodal transfers in economically large units between ships, railcars, truck chassis, and barges using a minimum of labor. The container, therefore, serves as the transfer unit rather than the cargo contained therein.

CRASH (highway): An event that produces injury and/or property damage, involves a motor vehicle in transport, and occurs on a traffic way or while the vehicle is still in motion after running off the traffic way.

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 DOLLARS: Dollar value of a good or service in terms of prices current at the time the good or service is sold. See also Chained Dollars and Constant Dollars.

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 RESPONSE (transit): Is comprised of passenger cars, vans, or small buses operating in response to calls from passengers or their agents to the transit operator, who then dispatches a vehicle to pick-up the passengers and transport them to their destinations. This service is also known as dial-a-ride or paratransit.

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.

DIVERSIONS (air): are flights that left from the scheduled departure airport, but flew to a destination point other than the scheduled destination point.

DOMESTIC FREIGHT (water): All waterborne commercial movement 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 both origins and destinations within the 50 United States, the District of Columbia, U.S. possessions and U.S. Trust Territories.

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, non-self propelled vessels used to transport dry-bulk materials such as coal and ore.

ENERGY EFFICIENCY: The ratio of energy inputs to outputs from a process, for example, miles traveled per gallon of fuel (mpg).

ENPLANED PASSENGERS (air carrier): See Revenue Passenger Enplanements.

FATAL CRASH (highway): A police-reported crash involving a motor vehicle in transport on a traffic way in which at least 1 person dies within 30 days of the crash as a result of that crash.

FATAL INJURY (air): Any injury that results in death within 30 days of the accident.

FATALITY: For purposes of statistical reporting on transportation safety, a fatality is 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 or incident (may include non-train accidents or 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.

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

FOSSIL FUELS: any naturally occurring organic fuel, such as petroleum, coal, and natural gas.

FUNCTIONALLY DEFICIENT (highway): refers to bridges that do not have the lane widths, shoulder widths, or vertical clearances adequate to serve traffic demand or bridges that may not be able to handle occasional roadway flooding.

FREIGHT REVENUE (rail): Revenue from the transportation of freight and from the exercise of transit, stop off, diversion, and reconsignment privileges as provided for in tariffs.

GAS CARRIER (water): includes liquefied natural gas carriers (LNG), liquefied petroleum gas (LPG) carriers, and LNG/LPG carriers.

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.

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 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. 2) All civil aviation activity except that of air carriers certificated in accordance with Federal Aviation Regulations, 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.

GENERAL CARGO (water): includes general cargo carriers, partial containerships, refrigerated ships, barge carriers, and livestock carriers.

GENERAL ESTIMATES SYSTEM (highway): A data-collection system that uses a nationally representative probability sample selected from all police-reported highway crashes. It began operation in 1988.

GRADE CROSSING (rail): a location where a public highway, road, street, or private roadway, including associated sidewalks and pathways, crosses one or more railroad tracks at grade.

GRADE CROSSING (transit): 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.

GROSS DOMESTIC PRODUCT (U.S.): 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 (truck): The maximum rated capacity of a vehicle, including the weight of the base vehicle, all added equipment, driver and passengers, and all cargo.

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, 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.

HYBRID VEHICLE: A hybrid vehicle is a vehicle powered by a combination of battery-electric motor(s) and an internal combustion engine.

INCIDENT (hazardous materials): 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 carrier/ general aviation).

INJURY (gas): Described in U.S. Department of Transportation 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 outpatient 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 un consciousness.
>
> *Non-incapacitating 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, among others, momentary unconsciousness, claim of injuries not obvious, limping, complaint of pain, nausea, and hysteria.

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), the Pacific Coast Waterways, the Great Lakes, and all other channels (waterways) of the United States, exclusive of Alaska, that are usable for commercial navigation.

INTERCITY CLASS I BUS: As defined by the Bureau of Transportation Statistics, an interstate motor carrier of passengers with average annual gross revenue of at least $1 million.

INTERCITY TRUCK: A truck that carries freight beyond local areas and commercial zones.

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. Internal Traffic also applies to carriage on both inland waterways and the water on the Great Lakes; carriage between off-shore 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.

JET FUEL: Includes kerosene-type jet fuel (used primarily for commercial turbojet and turboprop aircraft engines) and naphtha-type jet fuel (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 CARRIER: 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, U.S. possessions and U.S. Trust Territories. 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), 3) large regionals (between $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 TRUCK: Trucks over 10,000 pounds gross vehicle weight rating, including single-unit trucks and truck tractors.

LATE DEPARTURES (air): are flights departing 15 minutes or more after the scheduled departure time.

LATE ARRIVALS (air): are flights arriving 15 minutes or more after the scheduled arrival time.

LIGHT-DUTY VEHICLE: A vehicle category that combines light automobiles and trucks.

LIGHT RAIL (transit): A streetcar-type vehicle operated on city streets, semi-exclusive 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 NAUTRAL GAS CARRIER: is an ocean-going vessel specifically constructed to carry liquefied natural gas carriers in temperature-controlled tanks.

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.

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 Service 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 entering the United States, 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.

MINOR ARTERIALS (highway): Roads linking cities and larger towns in rural areas. In urban areas, roads that link but do not penetrate neighborhoods within a community.

MOTOR BUS (transit): A rubber-tired, self-propelled, manually steered bus with a fuel supply onboard the vehicle. Motorbus types include intercity, school, and transit.

MOTORCYCLE: A two- or three-wheeled motor vehicle designed to transport one or two people, including motor scooters, mini bikes, 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 non-hydrocarbon gases found in porous geologic formations beneath the Earth's surface, often in association with petroleum. The principal constituent is methane.

NONOCCUPANT (Automobile): Any person who is not an occupant of a motor vehicle in transport (e.g., bystanders, pedestrians, pedal-cyclists, or an occupant of a parked motor vehicle).

NONSCHEDULED SERVICE (air): Revenue flights not operated as regular scheduled service, such as charter flights, and all nonrevenue flights incident to such flights.

NONSELF-PROPELLED VESSEL (water): A vessel without the means for self-propulsion, including dry cargo barges 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 (water): 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 (highway): 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.

ON-DEMAND AIR TAXI: See Air Taxi.

OPERATING EXPENSES (air): Expenses incurred in the performance of air transportation, based on overall operating revenues and expenses. Does not include non-operating 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 MARGIN (air): The difference between operating revenues and operating expenses, expressed as either a profit (positive) or a loss (negative) (see OPERATING REVENUES and OPERATING EXPENSES for air), divided by operating revenue and expressed as a percentage.

OPERATING PROFIT (air): Revenues from the performance of air transportation and related incidental services (see OPERATING REVENUES for air) less expenses incurred in the performance of air transportation (see OPERATING EXPENSES for air).

OPERATING REVENUES (air): Revenues from the performance of air transportation and related incidental services. Includes 1) transportation revenues from the carriage of all classes of Traffic in scheduled and nonscheduled services, and 2) non-transportation 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 ARTERIALS (highway): Major streets or highways, many of multi-lane or freeway design, serving high-volume Traffic corridor movements that connect major generators of travel.

OTHER RAIL REVENUE: Includes revenues from miscellaneous operations (i.e., dining- and bar-car services), income from the 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 and railway cars, not covered otherwise.

OTHER 2-AXLE 4-TIRE VEHICLES (truck): Includes vans, pickup trucks, and sport utility vehicles.

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 1 inter-airport flight are calculated by multiplying aircraft-miles flown 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., 1 car transporting 2 passengers 4 miles results in 8 passenger-miles. 3) Transit: The total number of miles traveled by transit passengers; e.g., 1 bus transporting 5 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 were not included.

PASSENGER VESSELS (water): 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, non-motorized wheelchairs, roller skates, sleds, and transport devices used as equipment.

PERSON-MILES: 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: 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 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.

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 non-hydrocarbon 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.

RAPID RAIL TRANSIT: Transit service using railcars 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.

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 non-revenue passengers. Infants, for whom a token fare is charged, are not counted as passengers. Passengers traveling on frequent flyer passes are revenue 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 percentage 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 one mile.

REVENUE PASSENGER TON-MILE (air): One ton of revenue passenger weight (including all baggage) transported one mile. The passenger weight standard for both domestic and international operations is 200 pounds.

REVENUE TON-MILE: One short ton of freight transported one mile.

REVENUE VEHICLE-MILES (transit): One vehicle (bus, trolley bus, or streetcar) traveling one 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.

ROLL ON/ROLL OFF (RO/RO) (water): includes Ro/Ro Vessels, Ro/Ro Containerships, and Pure Car Carriers (PCC), which allow vehicles and other wheeled cargos to be loaded and unloaded using ramps.

RURAL HIGHWAY: Any highway, road, or street that is not an urban highway.

RURAL MILEAGE (highway): Roads outside city, municipal district, or urban boundaries.

STRUCTURALLY DEFICIENT (highway): refers to bridges needing significant maintenance attention, rehabilitation, or replacement.

SCHEDULED SERVICE (air): Transport service operated on published flight schedules.

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, or 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 outlays, maintenance and traffic surfaces, administration and research, highway law enforcement and safety, and interest on debt.

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 one ton of cargo the distance of one 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 one ton of cargo the distance of one 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.

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: The movement of a train, which can consist of many cars, the distance of one mile. A train-mile differs from a vehicle-mile, which is the movement of one car (vehicle) the distance of one 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; motorbus; trolley bus; van pools; automated guide way; 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 is a country other than Canada or Mexico.

TRESPASSER (rail): Any person whose presence on railroad property used in railroad operations is prohibited, forbidden, or unlawful.

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 designated by law to carry out specific purposes and programs. Trust Funds are usually financed with earmarked tax collections.

UNLEADED GASOLINE: See Gasoline.

UNLINKED PASSENGER TRIPS (transit): The number of passengers boarding public transportation vehicles. A passenger is counted each time he/she boards a vehicle even if the boarding is part of 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 (e.g., cleaning and fueling) 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 (water): 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.

Appendix D - Legislative Responsibilities, including Cross Reference

Appendix D: Legislative Responsibilities

For your convenience, this Appendix provides a cross-reference between the tables in this year's Transportation Statistics Annual Report and the topics listed in the data reporting requirements found at 49 U.S.C. 111 (c)(5). BTS is trusted with collecting, compiling, analyzing, and publishing a comprehensive set of transportation statistics on the performance and impacts of the national transportation system, including statistics on the following topics.

Legislative Responsibilities

A productivity in various parts of the transportation sector;

B traffic flows for all modes of transportation;

C other elements of the intermodal transportation database established under subsection (e);

D travel times and measures of congestion;

E vehicle weights and other vehicle characteristics;

F demographic, economic, and other variables influencing traveling behavior, including choice of transportation mode and goods movement;

G transportation costs for passenger travel and goods movement;

H availability and use of mass transit including the number of passengers served by each mass transit authority and other forms of for-hire passenger travel;

I frequency of vehicle and transportation facility repairs and other interruptions of transportation service;

J safety and security for travelers, vehicles, and transportation systems;

K consequences of transportation for the human and natural environment;

L the extent, connectivity, and condition of the transportation system, building on the national transportation atlas database developed under subsection (g); and

M transportation-related variables that influence the domestic economy and global competitiveness.

continued next page

Appendix D: Legislative Responsibilities (continued)

Heading/Title	Figure/ Table	Legislative Responsibilities A	B	C	D	E	F	G	H	I	J	K	L	M
Annual Highlights														
State Funding for Public Transportation														
Survey of State Funding for Public Transportation: Select Fiscal Years Since 2000	A-1												X	
Livable Communities and Environmental Sustainability														
Importance of Community Transportation Features: 2009 Omnibus Household Survey	A-2												X	
Commodity Flow Survey/Hasardous Materials														
Hazardous Material Shipment Characteristics by Hazard Class: 2007	A-3										X	X		
Hazardous Versus Nonhazardous Material Shipment Characteristics by Mode of Transportation: 2007	A-4										X	X		
Hazardous Material Shipment Characteristics for Selected NAICS Codes: 2007	A-5										X	X		
Hazardous Material Tonnage by Originating State	A-6										X	X		
Commercial Aviation and Airline Industry Highlights														
U.S. Airline Fuel Cost and Consumption: 2004-2010	A-7							X						
U.S. Airline Industry Ancillary Fees: 2004-2010	A-8							X						
Average Annual U.S. Airline Industry Full Time Equivalent Employees: 2004-2010	A-9	X												X
U.S. Airline Net Income (Profit): 2004-2010	A-10	X												
Annual U.S. Airline Passenger Enplanements: 2004-2010	A-11		X											X
U.S. Airline Operating Revenue/Cost per Available Seat Mile (ASM): 2004-2010	A-12						X							
Major U.S. Air Carrier On-Time Performance: 2004-2009	A-13				X									
Safety														
State Laws on Distracted Driving: Bans on Handheld Devices and Texting While Driving as of January 2011	1-1										X			
State Laws on Distracted Driving	1-2										X			
Transportation Fatalities, Injuries, and Accidents by Mode: 2004-2009	1-3										X			
Distribution of Transportation Fatalities: 2009	1-4										X			
Hazardous Materials Transportation Incidents: 2004-2009	1-5										X	X		
Top 20 Reported Hazardous Materials Incidents: 2009	1-6										X	X		
Roadside Truck Inspections: 2004-2009	1-7										X			
International Piracy and Armed Robbery at Sea: 2004-2009	1-8										X			
State of Good Repair														
Transportation Capital Stock by Mode: 2004-2009	2-1			X										
Transportation System Mileage Within the United States: 2004-2008	2-2			X										
New and Rebuilt Locomotives and Freight Cars: 2004-2009	2-3					X								
Rail and Crossties Replaced or Added by U.S. Class I Railroads: 2004-2008	2-4			X										
Number of Air Carriers, Railroads, Interstate Motor Carriers, Marine Vessel Operators and Pipeline Operators: 2004-2009	2-5			X										
Number of U.S. Aircraft, Vehicles, and Other Conveyances: 2004-2008	2-6												X	
Rural and Urban Roads in Poor or Mediocre Condition by Functional Class: 2004-2008	2-7												X	
Condition of U.S. Highway Bridges: 2004-2009	2-8												X	
U.S. Airport Runway Pavement Conditions: 2004-2010	2-9												X	
Vehicle Age														
Median Age of Automobiles and Trucks in Operation in the United States: 2004-2008	2-10					X								
Average Age of Urban Transit Vehicle: 2004-2009	2-11					X								
Average Age of Amtrak Locomotive and Train Car Fleets: Fiscal Years 2004-2009	2-12					X								
U.S. Flag Vessels by Type and Age: 2008	2-13					X								
Average Age of U.S. Commercial Aircraft: 2004-2008	2-14					X								
Transportation Expenditures														
Federal, State, and Local Expenditures on Highways and Streets: January 2004-September 2010	2-15							X						
State and Local Expenditures on Nonroadway Transportation Construction: January 2004-September 2010	2-16							X						
State and Local Expenditures on Air Transportation Construction: January 2004-September 2010	2-17							X						

continued next page

Appendix D: Legislative Responsibilities (Continued)

Heading/Title	Figure/ Table	Legislative Responsibilities A	B	C	D	E	F	G	H	I	J	K	L	M
Private Expenditures on Transportation-Related Construction: January 2004-September 2010	2-18							X						
Economic Competitiveness														
U.S. Gross Domestic Product Attributed to For-Hire Transportation Services: 2004-2009	3-1													X
U.S. Waterway Facilities: 2004-2009	3-2												X	
U.S. International Maritime Container Volumes: 2004-2009	3-3					X								X
Top 10 U.S. Maritime Container Ports: 2004-2009	3-4		X											
Vessel Calls at U.S. Ports: 2004-2009	3-5		X											
U.S. Foreign Waterborne Freight: January 2004-September 2010	3-6													X
U.S. Ton-Miles of Freight: 2004-2007	3-7		X											
Average Loaded U.S. Railcar Weight: 2004-2009	3-8		X											
U.S. Airline Industry Operating Margins: 2004-2010	3-9		X				X							
U.S. Airline Industry Passenger Yield (CPI Adjusted): 2004-2010	3-10	X												
Annual Domestic and International U.S. Airline Industry Operating Revenues: 2004-2010	3-11	X												
Domestic and International U.S. Airline Industry Percent of Operating Expenses by Category: 2004-2010	3-12						X							
International Freight and Passenger Movement														
U.S.-International Trade in Transportation-Related Goods: 2004-2009	3-13													X
U.S. Trade in Transportation-Related Goods by Commodity: 2009	3-14													X
U.S. Surface Trade with Canada and Mexico: January 2009-September 2010	3-15													X
Incoming Truck and Train Crossings to the U.S. from Mexico and Canada: 2004-2009	3-16													X
Incoming Full Rail Containers to the U.S. from Mexico and Canada: 2004 and 2009	3-17													X
U.S. International Trade in Transportation-Related Services: 2004-2009	3-18													X
Passenger Crossings Into the U.S. by Personal Vehicles, Bus, Train, and Foot from Mexico and Canada: 2004-2009	3-19													X
Livable Communities														
Number of U.S. Airports: 2004-2009	4-1												X	
Number of Stations Served by Amtrak and Rail Transit: FY 2004-2009	4-2												X	
Airport, Ferry, Intercity and Commuter Rail Passenger Intermodal Connectivity	4-3			X					X				X	
U.S. Vehicle-Miles: 2004-2009	4-4		X											
U.S. Passenger-Miles: 2004-2009	4-5		X											
Amtrak Ridership: 2004-2009	4-6		X											
Public Transit Ridership: January 2004-August 2010	4-7		X						X					
Top 20 Transit Agencies by Unlinked Passenger Trips: FY 2009	4-8		X											
Domestic Enplanements at U.S. Airports: 2004-2010	4-9		X											X
Accessibility														
Household Vehicle Availability: 2004 and 2009	4-10						X							
How People Get to Work: 2009	4-11				X									
Percent of Workers Carpooling by Car, Truck, or Van: 2009	4-12				X									
Percent of Workers Commuting Alone by Car, Truck, or Van: 2009	4-13				X									
Percent of Workers Public Transportation: 2009	4-14				X									
Transit Rail Stations That Are ADA-Compliant by Service Type: 2004-2009	4-15					X			X					
Buses That Are ADA-Compliant: 2004-2009	4-16					X			X					
Congestion and Travel Times														
Average Hours of Annual Delay per Auto Commuter: 2004-2009	4-17				X									
Travel Time Index by Urban Area: 2004-2009	4-18				X									
Departure Time: Leaving Home to Go to Work: 2009	4-19				X									
Travel Time to Work: 2009	4-20				X									
Mean Travel Time to Work: 2009	4-21				X									
Average Daytime Wait Times for Private Passenger Vehicles at Selected U.S. Surface Border Gateways: 2004-2009	4-22				X									

continued next page

Appendix D: Legislative Responsibilities (Continued)

Heading/Title	Figure/ Table	Legislative Responsibilities A	B	C	D	E	F	G	H	I	J	K	L	M
Average Daytime Wait Times for Commercial Vehicles at Selected U.S. Surface Border Gateways: 2004-2009	4-23				X									
Interruptions of Service by Type of Transit: 2004-2009	4-24		X							X				
Top 25 Busiest Amtrak Stations: FY 2009	4-25		X											
Top 25 Busiest Amtrak Stations, FY 2009	4-26		X											
Top Amtrak Stations in the Northeast Corridor, FY 2009	4-27		X											
Top 10 U.S. Airports Ranked by Domestic Scheduled Passenger Enplanements: 2000 and 2010	4-28		X											
Top 10 U.S. Airports Ranked by International Scheduled Passenger Enplanements: 2000 and 2010	4-29		X											
Airline Delays by Cause: 2004-2009	4-30				X					X				
Airline Delays by Length of Delay by Year: 2004-2009	4-31				X									
Monthly Summary of Tarmac Times: October 2008-August 2010	4-32				X									
Rail Freight Average Speeds, Revenue Ton-Miles, and Terminal Dwell Times: 2004-2009	4-33		X											
St. Lawrence Seaway (U.S. Portion) Downtime by Cause: 2004-2009	4-34				X					X				
Passenger Expenditures														
Average Household Transportation Expenditures: 2004-2009	4-35							X						
Prices Paid by U.S. Households for Transportation Services: January 2009-September 2010	4-36							X						
Average Cost per Mile of Owning and Operating an Automobile: 2004-2009	4-37							X						
Comparison of Air Travel Price Indexes (ATPIs): 1st quarter 2008-4th quarter 2009	4-38							X						
Average Itinerary Fares and Consumer Price Index Changes: 2004–2010	4-39							X						
U.S. Domestic Airline Industry Historical Average Itinerary Fares: 2004-2010	4-40							X						
Select Highest and Lowest Average Domestic Fares by Origin Airport: 2000 and 2nd Quarter 2010	4-41							X						
Environmental Sustainability														
U.S. Energy-Related Greenhouse Gas Emissions by End-Use Sector: 2004-2009	5-1											X		
Greenhouse Gas Emissions by Mode: 2004-2008	5-2											X		
Transportation Air Pollutant Emissions From On-Road Mobile Sources: 2004-2008	5-3											X		
Volume of Oil Spills From Facilities by Source: 2004-2008	5-4											X		
Energy Consumption and Prices														
Energy Consumption by Transportation Sector: 2004-2009	5-5							X						
U.S. Petroleum Use by Sector: 2004-2009	5-6							X						
Energy Consumption by Mode of Transportation: 2004-2008	5-7							X						
Energy Intensity by Passenger Mode: 2004-2008	5-8							X						
Average Fuel Efficiency of U.S. Passenger Cars and Light Trucks: 2004-2010	5-9							X						
U.S. Hybrid Vehicles Sales: 2004-2009	5-10						X							
Alternative Fuel Vehicles in Use, 2009	5-11							X						
Fuel Prices	5-12							X						
Sales Price of Transportation Fuel to End-Users: 2004-2009	5-13							X						

Appendix E - National Transportation Statistics List

Appendix E: National Transportation Statistics

April 2011

Appendix E provides a list of the data tables found in BTS's National Transportation Statistics (NTS), an online companion publication to this annual report. The NTS has more comprehensive and longer time-series data than could be accommodated within this publication. Mores specifically, it comprises more than 260 data tables, plus full citations for its data sources, a list of acronyms, and a glossary. NTS, which BTS updates quarterly, is available at http://www.bts.gov.

continued next page

Appendix E: National Transportation Statistics (continued)

April 2011

continued next page

Appendix E: National Transportation Statistics (continued)

April 2011

continued next page

Appendix E: National Transportation Statistics (continued)

April 2011

continued next page

Appendix E: National Transportation Statistics (continued)

April 2011

continued next page

Appendix E: National Transportation Statistics (continued)

April 2011

Appendix F - Key Transportation Indicators List

Appendix F: Key Transportation Indicators

December 2010

Appendix F provides a list of the transportation data and statistics provided in the BTS's Key Transportation Indicators (KTI). BTS updates these timely and easily accessible indicators every two months, which are available on the BTS website at http://www.bts.gov/publications/key_transportation_indicators/. The indicators fall under two broad categories: those that provide context about the economy and society in which transportation functions, and those that convey information about an aspect of transportation. These latter indicators are either transportation-wide in scope or apply to a specific aspect of the transportation system. In addition, the KTI provides a list of links to other Federal data sources.

Heading/Title
Economy
Transportation Services Index
Personal Spending on Transportation
Transportation Employment
U.S. Surface Trade U.S.-Canada and U.S.-Mexico
Fuel Prices
Motor Fuel Prices: Retail Gasoline Prices
Motor Fuel Prices: Retail Diesel Prices
Domestic Airline Jet Fuel Price
Index of Railroad Fuel prices
End-User Prices
Air Travel Price Index
Amtrak Ticket Prices and Yields
Freight Rail Yields
Passenger Usage
U.S. Airline Passengers
U.S. Airline Revenue Passenger-Miles and Load Factor
Amtrak Ridership
Amtrak Revenue Passenger-Miles and Load Factor
Transit Ridership
Freight Usage
U.S. Air Carrier Cargo Revenue Ton-Miles
Rail Freight: Revenue Ton-Miles
System Performance
U.S. Highway Vehicle Miles Traveled
Major U.S. Air Carriers On-Time Performance
Amtrak On-Time Performance
Inland Waterway Commercial Vessel and Tow Delay
Capital Expenditures
State and Local Government Transportation Construction Value

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