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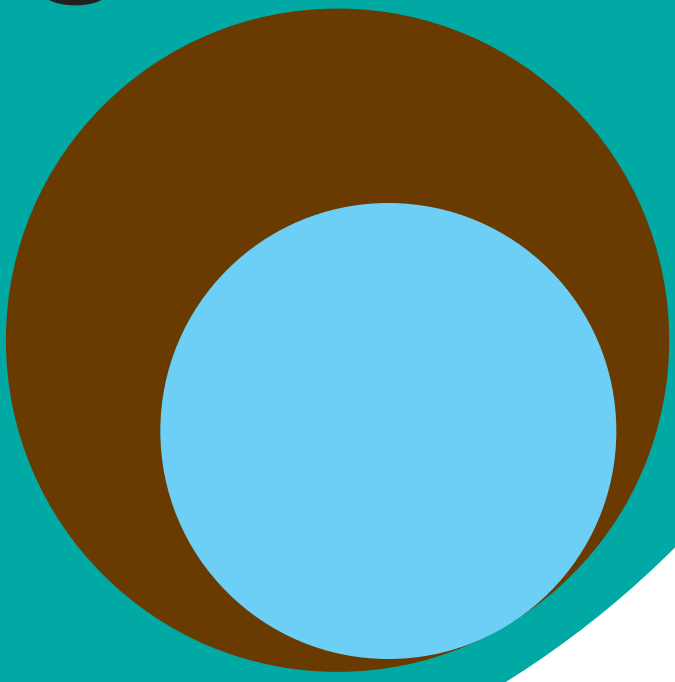

U.S. Department of Transportation
Research and Innovative Technology Administration
Bureau of Transportation Statistics

National Transportation Statistics

2008

Bureau of Transportation Statistics

U.S. Department of Transportation

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Introduction

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

The report has four chapters:

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

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

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Oil Pipeline Profile (Updated December 2007)
Natural Gas Pipeline Profile (Updated December 2007)

Appendix E. Data Source and Accuracy Statements

Table A: Social and Economic Characteristics of the United States

	1980	1985	1990	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
TOTAL U.S. resident population [a] (thousands)	226,546	237,924	248,791	266,278	269,394	272,647	275,854	279,040	(R) 282,217	(R) 285,226	(R) 288,126	(R) 290,796	(R) 293,638	296,507	299,398
Population by Age (thousands)															
Under 18	63,754	62,623	63,949	69,465	70,226	70,917	71,428	71,947	(R) 72,366	(R) 72,635	(R) 72,906	(R) 73,085	(R) 73,295	73,534	73,736
18-24 years	30,022	28,902	26,961	25,482	25,275	25,479	26,059	26,685	(R) 27,319	(R) 27,999	(R) 28,484	(R) 28,889	(R) 29,236	29,333	29,455
25-34	37,082	41,696	43,174	45,052	41,809	41,345	40,757	40,178	(R) 39,852	(R) 39,702	(R) 39,768	(R) 39,830	(R) 40,006	40,145	40,416
35-44	25,634	31,691	37,444	42,711	43,552	44,229	44,748	45,077	(R) 45,187	(R) 45,139	(R) 44,803	(R) 44,387	(R) 44,097	43,866	43,667
45-54	22,800	22,460	25,062	31,480	32,800	34,178	35,232	36,578	(R) 37,998	(R) 39,378	(R) 39,981	(R) 40,809	(R) 41,619	42,487	43,278
55-64	21,703	22,135	21,116	21,320	21,590	22,099	23,011	23,778	(R) 24,417	(R) 25,041	(R) 26,590	(R) 27,838	(R) 29,076	30,355	31,587
65 and over	25,550	28,415	31,084	33,769	34,143	34,402	34,619	34,798	(R) 35,078	(R) 35,333	(R) 35,594	(R) 35,958	(R) 36,309	36,787	37,260
Population by Sex [a] (thousands)															
Male	110,053	115,730	121,284	130,215	131,807	133,474	135,130	136,803	138,056	(R) 140,079	(R) 141,592	(R) 142,938	(R) 144,467	145,974	147,512
Female	116,493	122,194	127,507	136,063	137,587	139,173	140,724	142,237	143,368	(R) 145,147	(R) 146,534	(R) 147,858	(R) 149,171	150,534	151,886
Population in Metropolitan areas [bh] (Thousands)	177,000	U	198,000	210,000	212,000	214,000	216,000	U	232,580	236,095	238,737	241,514	244,096	246,639	249,228
Large (over 1 million)	119,000	U	139,000	147,000	149,000	151,000	153,000	U	149,246	151,771	153,520	156,252	157,898	159,511	161,046
Medium (250,000-999,999)	41,000	U	41,000	44,000	44,000	43,000	43,000	U	55,791	57,033	57,671	57,232	58,131	59,036	60,302
Small (less than 250,000)	17,000	U	18,000	19,000	19,000	20,000	20,000	U	27,543	27,291	27,547	28,031	28,067	28,092	27,880
Population in Micropolitan areas [b] (Thousands)	NA	NA	NA	NA	NA	NA	NA	NA	29,478	29,629	29,787	29,687	29,835	29,986	30,211
Population in Rural / Urban [c] areas (thousands)															
Rural	59,495	U	61,656	U	U	U	U	U	59,061	U	U	U	U	U	U
Urban	167,051	U	187,053	U	U	U	U	U	222,361	U	U	U	U	U	U
Population in Regions [a] (millions)															
Northeast	49136.0	49900.0	50828.3	52,278.4	52,513.3	52,745.4	53,022.8	53,343.8	(R) 53,667.6	(R) 53,910.1	(R) 54,128.8	(R) 54,327.4	(R) 54,458.7	(R) 54,504.7	54,590.2
South	75372.0	81400.0	85455.8	93,249.2	94,717.2	96,245.1	97,722.3	99,164.5	(R) 100,568.0	(R) 100,869.1	(R) 103,188.4	(R) 104,431.8	(R) 105,867.0	(R) 107,384.9	108,894.6
Midwest	58868.0	58800.0	59669.3	62,473.3	62,944.7	63,345.0	63,715.9	64,100.1	(R) 64,496.6	(R) 64,820.7	(R) 65,094.8	(R) 65,347.3	(R) 65,626.8	(R) 65,853.8	66,128.5
West	43173.3	47800.0	52837.5	58,277.6	59,219.1	60,311.5	61,393.0	62,431.9	(R) 63,462.0	(R) 61,512.2	(R) 65,476.0	(R) 66,341.2	(R) 67,239.1	(R) 68,152.4	69,141.6
Number of Immigrants admitted [d]	524,295	568,149	1,535,872	720,177	915,560	797,847	653,206	644,787	841,002	1,058,902	1,059,356	703,542	957,883	1,122,257	1,266,129
Total area [e] (square miles)	3,618,770	U	3,717,796	U	U	U	U	U	3,794,083	U	U	U	U	U	U
Gross domestic product (chained $ 2005 billions) [f]	5,946.6	7,670.9	8,977.7	10,134.8	10,327.0	10,498.7	10,615.3	10,768.8	11,003.5	11,267.5	11,464.2	11,708.2	12,044.6	12,433.9	12,826.5
Government, total	509.7	736.2	906.9	1,103.1	1,131.7	1,157.3	1,185.4	1,222.3	1,262.6	1,310.5	1,371.2	1,434.8	1,502.0	1,568.7	1,642.0
Private industry, total	5,398.1	6,915.3	8,072.4	9,074.5	9,224.0	9,366.9	9,426.4	9,540.6	9,726.4	9,924.7	10,072.9	10,254.5	10,540.8	10,861.5	11,169.3
Agriculture, forestry, fishing, and hunting	155.0	131.8	153.9	151.4	169.0	149.0	141.1	125.0	116.5	124.2	114.8	128.1	149.2	128.8	124.3
Mining	87.9	98.1	76.5	60.7	76.7	78.3	63.7	70.9	105.1	108.6	104.0	141.2	167.2	225.7	247.3
Utilities	126.5	196.4	185.4	212.0	210.5	215.9	219.0	214.6	207.4	233.1	229.1	227.4	234.9	249.5	279.8
Construction	172.9	231.3	284.3	329.3	340.3	358.5	381.9	405.0	431.7	464.2	486.4	510.8	553.7	607.9	670.3
Manufacturing	1,209.1	1,369.6	1,542.4	1,604.3	1,588.8	1,585.1	1,560.0	1,527.4	1,493.0	1,486.8	1,458.7	1,449.5	1,442.1	1,483.9	1,505.7
Wholesale trade	543.8	621.1	695.4	740.0	725.7	697.6	652.2	659.5	678.3	650.4	652.9	661.6	699.0	723.7	749.4
Retail trade	638.5	769.2	824.8	872.5	846.8	825.3	818.8	821.3	819.1	799.5	814.2	818.3	824.4	812.7	807.8
Transportation and warehousing	249.9	298.3	313.8	324.4	320.8	331.2	345.3	347.9	348.0	351.8	353.1	359.7	358.9	358.5	366.2
Information	370.6	527.9	574.1	616.3	629.0	635.5	632.1	626.9	624.4	624.5	619.2	608.9	591.4	570.5	558.7
Finance, insurance, real estate, rental, and leasing	924.3	1,344.9	1,678.5	1,983.2	2,054.0	2,125.4	2,162.1	2,191.7	2,235.5	2,295.4	2,366.1	2,422.1	2,493.8	2,549.0	2,604.7
Professional and business services	515.2	724.2	886.1	1,076.3	1,106.6	1,149.3	1,189.6	1,231.3	1,278.6	1,315.4	1,343.5	1,351.8	1,392.0	1,453.2	1,504.0
Educational services, health care, and social assistance	246.6	370.9	524.4	673.3	692.8	713.6	742.7	769.8	800.9	845.8	877.9	901.6	932.9	961.5	987.4
Arts, entertainment, recreation, accomodation, and food services	174.5	222.3	281.1	325.6	333.7	351.5	358.7	370.8	383.5	398.8	413.6	419.6	433.1	448.4	465.4
Other services, except government	84.3	121.3	151.4	181.8	190.2	199.2	207.6	217.7	229.5	246.0	256.4	264.2	272.3	288.1	302.0
Total civilian labor force (thousands)	106,940	115,461	125,840	132,304	133,943	136,297	137,673	139,368	142,583	143,734	144,863	146,510	147,401	149,320	151,428
Participation rate of men (percent)	77.4	76.3	76.4	75.0	74.9	75.0	74.9	74.7	74.8	74.4	74.1	73.5	73.3	73.3	73.5
Participation rate of women (percent)	51.5	54.5	57.5	58.9	59.3	59.8	59.8	60.0	59.9	59.8	59.6	59.5	59.2	59.3	59.4
Number of households (thousands)	80,776	86,789	93,347	98,990	99,627	101,018	102,528	103,874	104,705	108,209	109,297	111,278	112,000	113,343	114,384
Average size of households	2.76	2.69	2.63	2.65	2.65	2.64	2.62	2.61	2.62	2.58	2.58	2.57	2.57	2.57	2.57
Median household income [g] (constant $ 2005)	U	50,291	53,942	57,159	58,384	60,265	62,023	62,493	62,697	62,779	63,344	64,132	64,186	64,457	64,771
Average household expenditures [g] (constant $ 2005)	U	40,643	41,095	41,039	41,874	42,228	42,503	43,345	43,130	43,576	44,141	43,326	44,850	46,409	46,862

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

[a] Estimates as of July 1 except 1980, 1990, and 2000, which are as of April 1.

[u] 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.

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

[d] Fiscal year ending September 30.

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

[f] Sums of chained-dollar estimates for individual industries do not add to national totals because the chain-type indices used to derive them are based on weights of more than one period. Values are calculated to 2005 dollars by the Bureau of Transportation Statistics, using Chain-type Price Indexes for Value Added by Industry.

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

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

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Chapter 1

The Transportation System

Section A
Physical Extent

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

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Highway[a]	3,545,693	3,689,666	3,730,082	3,838,146	3,859,837	3,863,912	3,866,926	3,883,920	3,901,081	3,905,211	3,906,595	3,912,226	3,919,652	3,945,872	3,906,290	3,917,243	3,936,222	3,948,335	3,966,485	3,974,107	3,981,512	3,995,635	4,016,741
Class I rail[b,c]	207,334	199,798	196,479	191,520	164,822	145,764	119,758	116,626	113,056	110,425	109,332	108,264	105,779	102,128	100,570	99,430	99,250	97,817	100,125	99,126	97,662	95,830	94,942
Amtrak[c]	N	N	N	N	24,000	24,000	24,000	25,000	25,000	25,000	25,000	24,000	25,000	25,000	22,000	23,000	23,000	23,000	23,000	22,675	22,256	22,007	21,708
Transit[d]																							
Commuter rail[c]	N	N	N	N	N	3,574	4,132	4,038	4,013	4,090	4,090	4,160	3,682	4,417	5,172	5,191	5,209	5,209	6,831	6,809	6,875	7,118	6,972
Heavy rail	N	N	N	N	N	1,293	1,351	1,369	1,403	1,452	1,455	1,458	1,478	1,527	1,527	1,540	1,558	1,572	1,572	1,597	1,596	1,622	1,623
Light rail	N	N	N	N	N	384	483	551	558	537	562	568	638	659	676	802	834	897	960	996	1,187	1,188	1,280
Navigable channels[e]	25,000	25,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000
Oil pipeline[f,g]	190,944	210,867	218,671	225,889	218,393	213,605	208,752	203,828	196,545	193,980	190,350	181,912	177,535	179,873	178,648	177,463	176,996	158,248	160,990	159,889	161,670	159,512	169,346
Gas pipeline[h]	630,950	767,520	913,267	979,263	1,051,774	1,118,875	1,189,200	1,208,200	1,216,100	1,277,200	1,288,400	1,277,600	1,323,600	1,331,800	1,351,200	1,340,300	1,369,300	1,373,500	1,411,400	1,424,200	1,462,300	1,437,500	1,534,300

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

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

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

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

[d] Transit system length is measured in directional route-miles. Directional route-miles 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. Beginning in 2002, directional route-mileage data for the commuter and light rail modes include purchased transportation.

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

[f] The large drop in mileage between 2000 and 2001 is due to a change in the source of the data.

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

[h] Excludes service pipelines. Data not adjusted to common diameter equivalent. Mileage as of the end of each year. Includes gathering, transmission, and distribution mains. Prior to 1990 data also include field lines. See table 1-10 for a more detailed breakout of oil and gas pipeline mileage. Length data reported in *Gas Facts* prior to 1990 was taken from the American Gas Association's member survey, the Uniform Statistical Report, supplemented with estimates for companies that did not participate. *Gas Facts* length data is now based on information reported to the U.S. Department of Transportation on Form 7100.

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

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

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

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

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

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

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

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

SOURCES

Air carriers:

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

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

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

Railroads:

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

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

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

Interstate motor carriers:

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

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

Marine vessel operators:

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

Pipeline Operators:

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

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

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

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

[a] Includes civil and joint-use civil-military airports, heliports, STOL (short takeoff and landing) ports, and seaplane bases in the United States and its territories.

[b] Certificated airports serve air-carrier operations with aircraft seating more than 9 passengers. As of 2005, the Federal Aviation Administration (FAA) no longer certificates military airports.

SOURCE

U.S. Department of Transportation, Federal Aviation Administration, *Administrator's Fact Book* (Washington, DC: March 2007), available at http://www.faa.gov/about/office_org/headquarters_offices/aba/admin_factbook/ as of Sep. 23, 2008.

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

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

KEY: N = data do not exist.

[a] 1960-95 data include the 50 states and the District of Columbia; 1996-2006 data include the 50 states, District of Columbia, and Puerto Rico.

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

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

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

NOTES

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

Numbers may not add to totals due to rounding.

SOURCES

1960-95: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1995,* FHWA-PL-97-009 (Washington, DC: July 1997), table HM-212.

1996-2006: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics* (Washington, DC: Annual issues), table HM-12, Internet site www.fhwa.dot.gov/policy/ohpi as of Jan. 4, 2008.

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

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

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

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

NOTE

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

SOURCES

1990-95: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1995,* FHWA-PL-97-009 (Washington, DC: July 1997), table HM-220.

1996-2006: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics* (Washington, DC: Annual issues), table HM-20, Internet site www.fhwa.dot.gov/policy/ohpi as of Jan. 4, 2008.

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

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

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

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

[c] Includes minor and major collectors.

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

NOTE

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

SOURCES

(unpublished).

1996-2006: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics* (Washington, DC: Annual issues), table HM-60, Internet site www.fhwa.dot.gov/policy/ohpi as of Jan. 4, 2008.

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

	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Amtrak	510	503	491	487	498	504	516	523	524	535	540	530	542	516	508	510	515	512	515	526	526	527	505	518
Rail transit	1,822	1,895	1,920	2,164	2,027	2,143	2,169	2,192	2,240	2,286	2,376	2,382	2,325	2,391	2,524	2,567	2,595	2,621	2,784	2,797	2,909	2,936	2,975	U

KEY: U = data are not available.

NOTES

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

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

SOURCES

Amtrak:

1984-2002: Amtrak, *Amtrak Annual Report*, Statistical Appendix (Washington, DC: Annual issues).

2003-04: Ibid., *State Fact Sheets*, Internet site http://www.amtrak.com as of Nov. 11, 2005.

2005: Ibid., *State Fact Sheets*, Internet site http://www.amtrak.com as of Mar. 22, 2006.

2006: Ibid., *State Fact Sheets*, Internet site http://www.amtrak.com as of Feb. 16, 2007.

2007: Amtrak, personal contact as of March 17, 2008.

Rail transit:

U.S. Department of Transportation, Federal Transit Administration, *National Transit Database 2006* (Washington, DC: 2008), table 21 and similar tables in earlier editions.

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

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

KEY: ADA = Americans with Disabilities Act of 1992.

NOTES

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

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

SOURCE

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

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

		Number of stations											Percent of Stations Not ADA-Accessible										
Type of rail transit / agency	Primary city served	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Heavy rail																							
San Francisco Bay Area Rapid Transit District	San Francisco, CA	36	39	39	39	39	39	39	43	43	43	43	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Los Angeles County Metropolitan Transportation Authority	Los Angeles, CA	5	8	8	13	16	16	16	16	16	16	16	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Washington Metropolitan Area Transit Authority	Washington, DC	74	75	75	76	78	83	83	83	83	86	86	0%	0%	0%	0%	0%	0%	35%	0%	0%	0%	0%
Miami-Dade Transit	Miami, FL	21	21	21	21	21	21	21	22	22	22	20	100%	100%	100%	100%	100%	100%	0%	0%	0%	0%	0%
Metropolitan Atlanta Rapid Transit Authority	Atlanta, GA	36	36	36	36	36	38	38	38	38	38	38	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Chicago Transit Authority	Chicago, IL	140	141	141	142	142	144	144	144	144	144	144	100%	100%	100%	90%	62%	56%	56%	54%	50%	50%	48%
Massachusetts Bay Transportation Authority	Boston, MA	53	53	53	53	53	53	53	53	53	53	53	38%	38%	38%	30%	30%	28%	25%	21%	21%	21%	21%
Maryland Transit Administration	Baltimore, MD	14	14	14	14	14	14	14	14	14	14	14											
Metropolitan Transportation Authority New York City Transit	New York, NY	468	468	468	468	468	468	468	468	468	468	468	94%	94%	94%	93%	91%	91%	91%	89%	88%	86%	85%
Port Authority Trans-Hudson Corporation	New York, NY	13	13	13	13	13	13	11	13	13	13	13	54%	54%	54%	54%	54%	54%	55%	46%	46%	46%	46%
Metropolitan Transportation Authority Staten Island Railway	New York, NY	22	22	22	22	22	23	23	23	23	23	23	91%	91%	91%	91%	91%	87%	83%	83%	83%	78%	78%
The Greater Cleveland Regional Transit Authority	Cleveland, OH	18	18	18	18	18	18	18	18	18	18	18	78%	67%	67%	61%	56%	56%	50%	50%	44%	44%	33%
Southeastern Pennsylvania Transportation Authority	Philadelphia, PA	76	76	76	76	76	76	53	75	75	75	75	95%	95%	95%	95%	95%	95%	75%	77%	76%	76%	76%
Port Authority Transit Corporation	Philadelphia, PA	13	13	13	13	13	13	13	13	13	13	13	77%	77%	62%	62%	62%	62%	62%	62%	62%	62%	62%
Commuter rail																							
Altamont Commuter Express	San Jose, CA	U	U	U	U	U	U	10	10	10	10	10	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
North San Diego County Transit District	San Diego, CA	U	U	U	U	U	U	8	8	8	8	8	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Peninsula Corridor Joint Powers Board	San Francisco, CA	U	U	U	U	U	U	34	34	34	33	32	NA	NA	NA	NA	NA	NA	35%	29%	29%	27%	28%
Southern California Regional Rail Authority	Los Angeles, CA	U	45	46	46	47	49	51	53	53	54	54	NA	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Connecticut Department of Transportation	New Haven, CT	U	U	U	U	U	U	8	8	8	8	8	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
South Florida Regional Transportation Authority	Miami, FL	U	U	U	U	U	U	18	18	18	18	18	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Northeast Illinois Regional Commuter Railroad Corporation	Chicago, IL	226	226	226	227	227	227	227	227	230	231	238	60%	54%	54%	51%	49%	45%	42%	41%	40%	37%	33%
Northern Indiana Commuter Transportation District	Chicago, IL	18	18	18	18	18	18	20	20	20	20	20	61%	61%	61%	61%	61%	61%	45%	45%	40%	40%	35%
Massachusetts Bay Transportation Authority	Boston, MA	U	U	117	119	120	121	124	125	126	126	126	NA	NA	43%		38%	38%	37%	35%	35%	35%	33%
Maryland Transit Administration	Baltimore, MD	U	U	U	U	U	U	42	42	42	42	42	NA	NA	NA	NA	NA	NA	48%	48%	48%	48%	48%
New Jersey Transit Corporation	New York, NY	158	158	158	162	162	162	167	168	167	167	162	86%	86%	74%	72%	72%	72%	69%	69%	59%	59%	59%
Metropolitan Transportation Authority Long Island Rail Road	New York, NY	134	134	124	124	124	124	124	124	124	124	124	89%	89%	29%	22%	22%	22%	20%	20%	20%	20%	20%
Metropolitan Transportation Authority Metro-North Railroad	New York, NY	106	106	106	106	108	108	109	109	109	109	109	84%	82%	81%	81%	81%	74%	73%	71%	71%	71%	65%
Pennsylvania Department of Transportation	Pennslyvania, PA	U	U	U	U	U	U	14	12	12	12	12	NA	NA	NA	NA	NA	NA	71%	67%	67%	67%	67%
Southeastern Pennsylvania Transportation Authority	Philadelphia, PA	181	177	177	177	177	177	153	156	156	156	156	86%	83%	83%	83%	83%	83%	69%	67%	67%	65%	65%
Dallas Area Rapid Transit	Dallas, TX	U	U	U	U	U	U	4	4	4	4	4	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Fort Worth Transportation Authority	Fort Worth,TX	U	U	U	U	U	U	5	5	5	5	5	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Virginia Railway Express	Washington, DC	U	U	U	U	U	U	18	18	18	18	18	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Central Puget Sound Regional Transit Authority	Seattle, WA	U	U	U	U	U	U	7	9	9	9	9	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Light rail																							
Los Angeles County Metropolitan Transportation Authority	Los Angeles, CA	36	36	36	36	36	36	36	36	49	49	49	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
San Francisco Municipal Railway	San Francisco, CA	11	11	11	11	11	11	9	9	9	9	9	100%	100%	100%	100%	100%	100%	0%	0%	0%	0%	0%
Sacramento Regional Transit District	Sacramento, CA	28	28	28	29	29	29	29	31	41	41	41	100%	100%	100%	0%	0%	0%	0%	3%	2%	2%	2%
San Diego Trolley, Inc.	San Diego, CA	38	41	49	49	49	49	49	49	49	49	53	0%	0%	0%	0%	0%	0%	2%	2%	2%	2%	0%
Santa Clara Valley Transportation Authority	San Jose, CA	33	34	34	34	47	49	44	44	57	57	65	85%	85%	85%	85%	55%	53%	0%	0%	0%	0%	0%
Denver Regional Transportation District	Denver, CO	15	15	15	15	20	20	20	24	23	23	36	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Hillsborough Area Regional Transit Authority	Tampa-St. Petersburg, FL	NA	NA	NA	NA	NA	NA	NA	8	8	8	8	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
New Orleans Regional Transit Authority	New Orleans, LA	2	9	9	9	9	9	9	9	9	NA	9	0%	0%	0%	0%	0%	0%	0%	0%	0%	NA	0%
Massachusetts Bay Transportation Authority	Boston, MA	95	95	95	95	95	78	78	70	70	70	70	91%	91%	91%	87%	87%	79%	79%	64%	64%	64%	64%
Maryland Transit Administration	Baltimore, MD	24	24	32	32	32	32	32	32	32	33	33	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
City of Detroit Department of Transportation	Detroit, MI	NA	NA	NA	NA	NA	8	8	8	NA	NA	NA	NA	NA	NA	NA	NA	100%	100%	100%	NA	NA	NA
Bi-State Development Agency	St. Louis, MO	18	18	18	18	18	26	26	28	28	28	28	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
New Jersey Transit Corporation	Newark, NJ	11	11	11	11	11	11	26	27	49	52	52	100%	100%	100%	100%	100%	100%	42%	44%	14%	13%	13%
Niagara Frontier Transportation Authority	Buffalo, NY	14	14	14	14	14	14	15	15	15	15	15	50%	50%	50%	50%	50%	50%	53%	53%	53%	53%	53%
The Greater Cleveland Regional Transit Authority	Cleveland, OH	33	33	33	34	34	34	34	34	34	34	34	94%	85%	85%	79%	79%	76%	76%	76%	76%	76%	76%
Tri-County Metropolitan Transportation District of Oregon	Portland, OR	27	27	29	47	47	47	52	52	62	63	63	4%	4%	3%	2%	2%	2%	0%	0%	0%	0%	0%
Port Authority of Allegheny County	Pittsburgh, PA	13	13	13	13	13	13	14	14	25	25	25	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Southeastern Pennsylvania Transportation Authority	Philadelphia, PA	64	64	64	64	64	64	68	46	46	46	46	100%	100%	100%	100%	100%	100%	96%	100%	98%	98%	98%
Memphis Area Transit Authority	Memphis, TN	20	20	27	28	28	28	28	1	7	7	7	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Dallas Area Rapid Transit	Dallas, TX	14	20	20	20	20	22	29	34	34	34	34	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Island Transit	Galveston, TX	3	3	3	U	U	U	3	3	3	3	3	0%	0%	0%	NA	NA	NA	0%	0%	0%	0%	0%
Metropolitan Transit Authority of Harris County	Houston, TX	NA	NA	NA	NA	NA	NA	NA	NA	16	16	16	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%
Utah Transit Authority	Salt Lake City, UT	NA	NA	NA	16	16	20	20	23	23	24	25	NA	NA	NA	0%	0%	0%	0%	0%	0%	0%	0%
Central Puget Sound Regional Transit Authority	Seattle, WA	NA	NA	NA	NA	NA	NA	NA	6	6	6	6	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
King County Department of Transportation	Seattle, WA	14	14	14	9	9	9	9	9	9	9	9	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Kenosha Transit	Kenosha, WI	NA	NA	NA	NA	1	1	2	2	2	1	2	NA	NA	NA	NA	100%	100%	50%	50%	50%	0%	0%

KEY: ADA = Americans with Disabilities Act of 1992; NA = not applicable; U = data are not available.

NOTE

Rail transit data for 2002 and beyond include both directly operated and purchased transportation. Prior to 2002, the data include directly operated service only.

SOURCE

U.S. Department of Transportation, Federal Transit Administration, *National Transit Database* (Washington, DC: Annual Issues), table 21, Internet site http://www.ntdprogram.gov as of Feb. 12, 2008.

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

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Oil pipeline, total	190,944	210,867	218,671	225,889	218,393	213,605	208,752	203,828	196,545	193,980	190,350	181,912	177,535	179,873	178,648	177,463	176,996	(R) 158,248	(R) 160,900	(R) 159,648	(R) 161,670	(R) 159,512	169,346
Crude lines[a]	141,085	149,424	146,275	145,679	129,831	117,812	118,805	115,860	110,651	107,246	103,277	97,029	92,610	91,523	87,663	86,369	85,480	U	U	U	U	U	U
Product lines	49,859	61,443	72,396	80,210	88,562	95,793	89,947	87,968	85,894	86,734	87,073	84,883	84,925	88,350	90,985	91,094	91,516	U	U	U	U	U	U
Gas pipeline[b,c], total	630,900	767,500	913,300	979,300	1,051,800	1,118,900	1,189,200	1,218,200	1,216,100	1,277,200	1,288,400	1,277,600	1,323,600	1,331,800	1,351,200	1,340,300	1,369,300	1,373,500	1,411,400	1,424,200	1,462,300	1,437,500	1,534,300
Distribution mains	391,400	494,500	594,800	648,200	701,800	753,400	864,600	891,400	892,000	951,800	955,600	949,800	1,001,800	1,003,100	1,022,100	1,007,500	1,045,600	1,066,300	1,079,600	1,097,900	1,139,800	1,117,800	1,214,000
Transmission pipelines[d]	183,700	211,300	252,200	262,600	266,500	271,200	292,200	294,100	291,500	293,300	301,500	296,900	292,200	294,000	300,100	301,000	296,600	287,100	309,500	304,000	298,900	296,400	300,400
Gathering lines[e]	55,800	61,700	66,300	68,500	83,500	94,300	32,400	32,700	32,600	32,100	31,300	30,900	29,600	34,700	29,000	31,800	27,100	20,100	22,300	22,300	23,700	23,300	19,900

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

[a] Includes trunk and gathering lines.
[b] Excludes service pipe. Data are not adjusted to common diameter equivalent. Mileage as of the end of each year.
[c] Total gas pipeline in 2004 does not add to total due to rounding by the data source.
[d] After 1975, includes 5,000-6,200 miles of underground storage pipe.
e Before 1990, data include field line mileage.

NOTE

Mileage data reported in *Gas Facts, prior to 1990,* was taken from the American Gas Association's member survey, the Uniform Statistical Report, supplemented with estimates for companies that did not participate. *Gas Facts* mileage data is now based on information reported to the U.S. Department of Transportation on Form 7100.

SOURCES

Oil pipeline:

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

2001-06: U.S. Department of Transportation, Research and Special Programs Administration, Office of Pipeline Safety, Pipeline Statistics, Internet site http://ops.dot.gov/stats.htm as of June 4, 2008.

Gas pipeline:

1960-2006: American Gas Association, *Gas Facts* (Washington, DC: Annual issues), table 5-1 and similar tables in earlier editions.

Section B
Vehicle, Aircraft, and Vessel Inventory

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

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Air																							
Air carrier[a]	2,135	2,125	2,679	2,495	3,808	4,678	6,083	6,054	7,320	7,297	7,370	7,411	7,478	7,616	8,111	8,228	8,055	8,497	8,194	8,176	8,186	8,225	U
General aviation[b] (active fleet)	76,549	95,442	131,743	168,475	211,045	210,654	198,000	196,874	185,650	177,120	172,935	188,089	191,129	192,414	204,710	219,464	217,533	(R) 211,535	(R) 211,345	(R) 209,778	219,426	224,352	221,943
Highway, total (registered vehicles)	74,431,800	91,739,623	111,242,295	137,912,779	161,490,159	177,133,282	193,057,376	192,313,834	194,427,346	198,041,338	201,801,921	205,427,212	210,441,249	211,580,033	215,496,003	220,461,056	225,821,241	235,331,382	234,624,135	236,760,033	243,010,549	247,421,120	250,851,833
Passenger car	61,671,390	75,257,588	89,243,557	106,705,934	121,600,843	127,885,193	133,700,496	128,299,601	126,581,148	127,327,189	127,883,469	128,386,775	129,728,341	129,748,704	131,838,538	132,432,044	133,621,420	137,633,467	135,920,677	135,669,897	136,430,651	136,568,083	135,399,945
Motorcycle	574,032	1,381,956	2,824,098	4,964,070	5,693,940	5,444,404	4,259,462	4,177,365	4,065,118	3,977,856	3,756,555	3,897,191	3,871,599	3,826,373	3,879,450	4,152,433	4,346,068	4,903,056	5,004,156	5,370,035	5,767,934	6,227,146	6,686,147
Other 2-axle 4-tire vehicle	N	[l]	14,210,591	20,418,250	27,875,934	37,213,863	48,274,555	53,033,443	57,091,143	59,993,706	62,903,589	65,738,322	69,133,913	70,224,082	71,330,205	75,356,376	79,084,979	84,187,636	85,011,305	87,186,663	91,845,327	95,336,839	99,124,775
Truck, single-unit 2-axle 6-tire or more	N	13,999,285	3,681,405	4,231,622	4,373,784	4,593,071	4,486,981	4,480,815	4,369,842	4,407,850	4,906,385	5,023,670	5,266,029	5,293,358	5,734,925	5,762,864	5,926,030	5,703,501	5,650,619	5,848,523	6,161,028	6,395,240	6,649,337
Truck, combination[c]	11,914,249	786,510	905,082	1,130,747	1,416,869	1,403,266	1,708,895	1,691,331	1,675,363	1,680,305	1,681,500	1,695,751	1,746,586	1,789,968	1,997,345	2,028,562	2,096,619	2,154,174	2,276,661	1,908,365	2,010,335	2,086,759	2,169,670
Bus	272,129	314,284	377,562	462,156	528,789	593,485	626,987	631,279	644,732	654,432	670,423	685,503	694,781	697,548	715,540	728,777	746,125	749,548	760,717	776,550	795,274	807,053	821,959
Transit[d]																							
Motor bus	49,600	49,600	49,700	50,811	59,411	64,258	58,714	60,377	63,080	64,850	68,123	67,107	71,678	72,770	72,142	74,228	75,013	76,075	76,190	77,328	81,033	82,027	(P) 83,080
Light rail cars	2,856	1,549	1,262	1,061	1,013	717	910	1,092	1,055	1,001	1,051	1,048	1,114	1,078	1,076	1,180	1,327	1,371	1,448	1,482	1,622	1,645	(P) 1,801
Heavy rail cars	9,010	9,115	9,286	9,608	9,641	9,326	10,567	10,478	10,391	10,282	10,282	10,166	10,243	10,228	10,296	10,362	10,311	10,718	10,849	10,754	10,858	11,110	(P) 11,052
Trolley bus	3,826	1,453	1,050	703	823	676	610	551	665	635	643	695	675	655	646	657	652	600	616	672	597	615	(P) 609
Commuter rail cars and locomotives	N	N	N	N	4,500	4,035	4,982	5,126	5,164	4,982	5,126	5,164	5,240	5,426	5,536	5,550	5,498	5,572	5,724	5,959	6,228	6,392	(P) 6,403
Demand response	N	N	N	N	N	14,490	16,471	17,879	20,695	23,527	28,729	29,352	30,804	32,509	29,646	31,884	33,080	34,661	34,699	35,954	37,078	41,958	(P) 43,509
Other[e]	N	N	N	N	N	867	1,197	1,595	1,853	2,308	2,505	2,809	3,003	3,808	4,703	5,059	5,208	5,727	6,330	6,272	6,566	(R) 7,080	(P) 8,741
Rail																							
Class I, Freight cars	1,658,292	1,478,005	1,423,921	1,359,459	1,168,114	867,070	658,902	633,489	605,189	587,033	590,930	583,486	570,865	568,493	575,604	579,140	560,154	499,860	477,751	467,063	473,773	474,839	475,415
Class I, Locomotive	29,031	27,780	27,077	27,846	28,094	22,548	18,835	18,344	18,004	18,161	18,505	18,812	19,269	19,684	20,261	20,256	20,028	19,745	20,506	20,774	22,015	22,779	23,732
Nonclass I freight cars	32,104	37,164	29,787	29,407	102,161	111,086	103,527	97,492	90,064	88,513	86,120	84,724	87,364	116,108	121,659	126,762	132,448	125,470	130,590	124,580	120,169	120,195	120,688
Car companies and shippers freight cars	275,090	285,493	330,473	334,739	440,552	443,530	449,832	458,679	477,883	497,586	515,362	550,717	582,344	585,818	618,404	662,934	688,194	688,806	691,329	687,337	693,978	717,211	750,404
Amtrak, Passenger train car	N	N	N	1,913	2,128	1,854	1,863	1,786	1,796	1,853	1,852	1,722	1,730	1,728	1,962	1,992	1,894	2,084	2,896	1,623	1,211	1,186	1,191
Amtrak, Locomotive	N	N	N	355	419	291	318	316	336	360	338	313	299	332	345	329	378	401	372	442	276	258	319
Water																							
Nonself-propelled vessels[f]	16,777	17,033	19,377	25,515	31,662	33,597	31,209	[k]	30,899	30,785	30,730	31,360	32,811	33,011	33,509	33,387	33,152	33,042	32,381	31,335	31,296	32,052	32,211
Self-propelled vessels[g]	6,543	6,083	6,455	6,144	7,126	7,522	8,236	[k]	8,311	8,323	8,334	8,281	8,293	8,408	8,523	8,379	8,202	8,546	8,621	8,648	8,994	8,976	8,898
Oceangoing steam and motor ships (1,000 gross tons and over)[h]	2,914	2,391	1,579	870	849	748	635	621	600	586	544	512	509	495	473	470	461	454	443	416	412	357	286
Recreational boats[i]	2,450,484	4,138,140	5,128,345	7,303,286	8,577,857	9,589,483	10,996,253	11,068,440	11,132,386	11,282,736	11,429,585	11,734,710	11,877,938	12,312,982	12,565,930	12,738,271	12,782,143	12,876,346	12,854,054	12,794,616	12,781,476	12,942,414	12,746,126

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

[a] Air carrier aircraft are those carrying passengers or cargo for hire under 14 CFR 121 and 14 CFR 135. Beginning in 1990, the number of aircraft is the monthly average of the number of aircraft reported in use for the last three months of the year. Prior to 1990, it was the number of aircraft reported in use during December of a given year.
[b] 1991-94 data revised to reflect changes in adjustment for nonresponse bias with 1996 telephone survey factors; 1995-97 data may not be comparable to 1994 and earlier years due to changes in methodology. Includes air taxi aircraft.
[c] In 1960, this category includes all trucks and other 2-axle 4-tire vehicles.
[d] Prior to 1984, excludes most rural and smaller systems funded via Sections 18 and 16(b)(2), Urban Mass Transportation Act of 1964, as amended. Also prior to 1984, includes total vehicles owned and leased.
[e] Other includes aerial tramway, automated guideway transit, cablecar, ferry boat, inclined plane, monorail, and vanpool.
[f] Nonself-propelled vessels include dry-cargo barges, tank barges, and railroad-car floats.
[g] Self-propelled vessels include dry-cargo and/or passenger, offshore supply vessels, railroad-car ferries, tankers, and towboats.
[h] Beginning in 2006, vessels are reported if they are greater than 10,000 deadweight tons and prior to 2006 boats of greater than 1000 deadweight tons were reported.
[i] Recreational vessels that are required to be numbered in accordance with Chapter 123 of Title 46 U.S.C.
[j] All trucks.
[k] Data for Jan. 1, 1991-June 30, 1991 included in 1990 figure.

NOTES

Transit motor bus figure is also included as part of bus in the highway category.
For more detail on oceangoing vessels, see table 1-23.

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1970-75: Ibid., *1979 edition* (Washington, DC: 1979), table 5.1.
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1995-2005: Aerospace Industries Association, *Aerospace Facts and Figures 2005/6* (Washington, DC: 2006), p. 90 and similar tables in earlier editions.
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1960-65: U.S. Department of Transportation, Federal Aviation Administration,*FAA Statistical Handbook of Aviation, 1969* (Washington, DC: 1969), table 9.10.
1970-75: Ibid., *Calendar Year 1976* (Washington, DC: 1976), table 8-6.
1980: Ibid., *General Aviation Activity Survey, Calendar Year 1980* (Washington, DC: 1981), table 1-3.
1985: Ibid., *Calendar Year 1985* (Washington, DC: 1987), table 2-9.
1990-2006: Ibid.,*General Aviation and Air Taxi Activity Survey (*Annual Issues), table 1.2, and similar tables in earlier editions.
Highway:
Passenger car:

1960-94: U.S. Department of Transportation, Federal Highway Administration,*Highway Statistics Summary to 1995,* FHWA-PL-97-009 (Washington, DC: July 1997), table MV-201.
1995-2006: Ibid.,*Highway Statistics* (Washington, DC: Annual issues), table VM-1.
Motorcycle:

1960-94: U.S. Department of Transportation, Federal Highway Administration,*Highway Statistics Summary to 1995,* FHWA-PL-97-009 (Washington, DC: July 1997), table MV-201.
1995-2005: Ibid.,*Highway Statistics* (Washington, DC: Annual issues), table VM-1.
Other 2-axle 4-tire vehicles:

1970-94: U.S. Department of Transportation, Federal Highway Administration,*Highway Statistics Summary to 1995,* FHWA-PL-97-009 (Washington, DC: July 1997), table VM-201A.
1995-2006: Ibid.,*Highway Statistics* (Washington, DC: Annual issues), table VM-1.
Single-unit and combination trucks, and buses:

1960-94: U.S. Department of Transportation, Federal Highway Administration,*Highway Statistics Summary to 1995,* FHWA-PL-97-009 (Washington, DC: July 1997), table VM-201A.
1995-2006: Ibid.,*Highway Statistics* (Washington, DC: Annual issues), table VM-1.
Transit:
1960-97: American Public Transit Association, *Transit Fact Book* (Washington, DC: 1999), table 44.
1998-2006: Ibid., Public Transportation Fact Book (Washington, DC: 2008), table 15 and similar tables in earlier editions.
Rail (all categories, except Amtrak):
1960-2006: Association of American Railroads, *Railroad Facts 2007* (Washington, DC: 2007), pgs. 49 and 51.
Amtrak:
Passenger train-cars and locomotives:
1975-80: Amtrak, State and Local Affairs Department, personal communication.
1985-2000: Ibid.,*Amtrak Annual Report*, Statistical Appendix (Washington, DC: Annual issues), p. 47.
2001-06: Association of American Railroads, *Railroad Facts 2006* (Washington, DC: 2006), p. 77 and similar tables in earlier editions.
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Nonself-propelled vessels and self-propelled vessels:

1960-2006: U.S. Army, Corps of Engineers, *Volume 1, National Summaries* (New Orleans, LA : Annual issues), table 1.
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2004: Ibid., *Top 20 Merchant Fleet of the World* (Washington, DC: 2004), available at http://www.marad.dot.gov/ as of Dec. 27, 2005.

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Recreational boats:
1960-2006: U.S. Department of Transportation, U.S. Coast Guard, *Boating Statistics* (Washington, DC: Annual issues), available at http://www.uscgboating.org/statistics/stats.htm as of Mar. 11, 2008.

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

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Number of civilian aircraft (shipments)																						
Transport [a]	245	233	311	315	387	278	521	589	567	408	309	256	269	374	559	620	485	526	379	281	283	296
Helicopters	N	598	482	864	1,366	384	603	571	324	258	308	292	278	346	363	361	493	415	318	517	805	947
General aviation	7,588	11,852	7,283	14,072	11,881	2,029	1,144	1,021	899	964	928	1,077	1,115	1,549	2,193	2,475	2,802	2,618	2,196	2,130	2,352	2,853
Highway																						
Passenger car (new retail sales)	6,641,000	9,332,000	8,399,000	8,624,000	8,979,000	11,043,000	9,300,000	8,175,000	8,214,000	8,518,000	8,990,000	8,635,000	8,526,000	8,272,000	8,141,721	8,698,284	8,846,625	8,422,625	8,103,229	7,610,481	7,505,932	7,667,066
Motorcycle (new retail sales)[b]	N	N	1,125,000	940,000	1,070,000	710,000	303,000	280,000	278,000	293,000	306,000	309,000	330,000	356,000	432,000	546,000	710,000	850,000	936,000	1,001,000 R)	1,063,000	1,149,000
Truck (factory sales)[c]	1,194,475	1,716,564	1,660,446	2,231,630	1,667,283	3,464,327	3,725,205	3,387,503	4,062,002	4,895,224	5,640,275	5,713,469	5,775,730	6,152,817	6,435,185	7,345,019	7,022,478	6,223,586	6,963,720	7,143,429	7,466,739	7,767,313
Bus; includes school bus (factory sales)	i	35,241	31,994	40,530	34,385	33,533	32,731	24,058	22,484	24,549	22,409	23,918	27,583	26,882	27,483	i	i	i	i	i	i	i
Recreational vehicle (shipments)	N	192,830	380,300	339,600	178,500	351,700	347,300	293,700	382,700	420,200	518,800	475,200	466,800	438,800	441,300	481,200	418,300	321,000	378,700	377,800	412,100	419,500
Bicycle[d]	N	N	N	N	9,000,000	11,400,000	10,800,000	11,600,000	11,600,000	13,000,000	12,500,000	12,000,000	10,900,000	11,000,000	11,100,000	11,600,000	11,900,000	11,300,000	13,600,000	12,900,000	13,000,000	14,000,000
Transit cars (deliveries)																						
Motor bus [e]	2,415	3,000	1,424	5,261	4,572	3,367	4,779	4,722	3,426	4,836	5,418	6,022	6,016	6,329	7,135	6,815	7,696	11,018	7,214	6,854	6,156	(P) 4,669
Light rail	0	0	0	0	32	63	55	17	35	54	72	38	39	76	80	123	136	111	107	(R) 169	(R) 127	(P) 129
Heavy rail	416	580	308	127	130	441	10	6	163	260	55	72	10	34	120	122	204	751	828	470	76	(P) 50
Trolley bus	0	0	0	1	98	0	118	149	0	24	36	3	3	0	54	0	0	149	88	103	31	(P) 23
Commuter rail	214	666	302	2,165	152	179	83	187	110	8	47	38	111	198	122	132	116	54	166	338	571	(P) 476
Class I rail (deliveries)																						
Freight car [f]	57,047	77,822	66,185	72,392	85,920	12,080	32,063	24,678	25,761	35,239	48,819	60,853	57,877	50,396	75,685	74,223	55,791	34,260	17,714	32,184	46,871	68,612
Locomotive	389	1,387	1,029	772	1,480	522	530	472	321	504	821	928	761	743	889	709	640	710	745	587	1,121	827
Amtrak (deliveries)																						
Passenger train car	N	N	N	109	109	N	58	0	0	0	64	76	92	10	0	0	26	U	U	U	U	U
Locomotive	N	N	N	30	17	10	0	0	20	26	18	10	0	111	35	0	4	U	U	U	U	U
Water transport																						
Merchant vessel [g]	20	13	13	15	23	14	0	0	3	0	1	1	0	1	4	2	0	2	2	6	(R) 5	7
Recreational boat [h]	N	N	N	N	569,700	636,800	494,700	448,000	466,750	498,775	576,200	663,760	634,750	610,100	573,300	585,300	576,800	880,300	844,100	837,900	870,100	864,000

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

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

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

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

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

[e] Buses or bus-type vehicles only. Includes demand response. Excludes vanpool vans and most rural and smaller systems prior to 1984. Transit motor bus figure is also included as part of the bus total in the highway category.

[f] Includes all railroads and private car owners.

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

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

[i] Included in truck figure.

SOURCES

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1960-2005: Aerospace Industries Association, *Aerospace Facts and Figures* (Washington, DC: Annual issues), "Civil Aircraft Shipments".

Highway:

Passenger cars and trucks:

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

1985-2005: Ward's Communications, *Motor Vehicle Facts & Figures*, *2006* (Detroit, MI: 2006), p. 21 (passenger car) and p. 8 (truck).

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Recreational vehicles:

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1980-2005: Ward's Communications, *Motor Vehicle Facts & Figures*, *2006* (Detroit, MI: 2006), p. 13.

Bicycles:

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

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1960-2005: American Public Transit Association, *Public Transportation Fact Book 2006* (Washington, DC: 2006), table 29 and similar tables in earlier editions.

Class I rail:

1960-2005: Association of American Railroads, *Railroad Facts 2006* (Washington, DC: 2006), p. 55 and similar pages in earlier editions.

Amtrak:

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

Water:

Merchant vessel:

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

2003-05: U.S. Department of Transportation, Maritime Administration, personal communications June 21, 2007.

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

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

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

KEY: N = data do not exist.

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

[b] Columns may not add to totals due to estimation procedures and rounding. Beginning in 1993, excludes commuters. Prior to 1993, single engine turboprops were included in "Other turboprops"; single and multiengine turbine rotorcraft were not shown separately; gliders and lighter-than-air aircraft were combined into the "Other" category; and experimental aircraft were included in the appropriate aircraft type. For example, prior to 1993, the single engine piston aircraft type included both experimental and nonexperimental aircraft Starting in 1993, that aircraft type only includes nonexperimental aircraft. Due to changes in methodology beginning in 1995, estimates may not be comparable to those for 1994 and earlier years. Values for 1991 through 1994 were revised to reflect changes in adjustment for nonresponse bias.

[c] Total includes 574 turbine aircraft of unspecified subtype.

[d] Multiengine.

[e] Single-engine.

[f] Source reported rounded data for general aviation.

NOTE

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

SOURCES

Air carriers:

1965: U.S. Department of Transportation, Federal Aviation Administration, *FAA Statistical Handbook of Aviation, 1966 Edition.* (Washington, DC: 1966), table 7.5.
1970: Ibid., *Calendar Year 1971.* (Washington, DC: 1972), table 5.5.
1975: Ibid., *Calendar Year 1975.* (Washington, DC: Dec. 31, 1975), table 5.3.
1980: Ibid., *Calendar Year 1980.* (Washington, DC: Dec. 31, 1980), table 5.2.
1985: Ibid., *Calendar Year 1993.* FAA-APO-95-5 (Washington, DC: 1995), table 5.2.
1990-94: Ibid., *Calendar Year 1996,* Internet site: http://www.api.faa.gov/handbook96/toc96.htm, as of Mar. 31, 2000, table 5.2.
1995-2005: Aerospace Industries Association, *Aerospace Facts and Figures* (Washington DC: 2006), "Active U.S. Air Carrier Fleet," and similar tables in earlier editions.

General aviation:

1965: U.S. Department of Transportation, Federal Aviation Administration, *FAA Statistical Handbook of Aviation, 1966 Edition.* (Washington, DC: 1966), table 5.1.
1970: Ibid., *Calendar Year 1971.* (Washington, DC: 1972), table 8.3.
1975: Ibid., *Calendar Year 1975.* (Washington, DC: Dec. 31, 1975), table 8.4.
1980: Ibid., *General Aviation Activity and Avionics Survey, Annual Report Calendar Year 1980,* FAA-MS-81-5 (Washington, DC: December 1985), table 2-6.
1985: Ibid., *Annual Summary Report 1994 Data,* FAA-APO-95-10 (Washington, DC: 1996), table 1.2.
1990: Ibid., *General Aviation and Air Taxi Activity Survey, Calendar Year 1999* (Washington, DC: 2001), table 1.2.
1991: Ibid., *General Aviation and Air Taxi Activity Survey, Calendar Year 2002* (Washington, DC: 2004), table 1.2.
1992-2006: Ibid., *General Aviation and Air Taxi Activity Survey, Calendar Year 2006* (Washington, DC: 2006), table 1.2, Internet site http://www.faa.gov/data_statistics/aviation_data_statistics/general_aviation/ as of Dec. 18, 2007.

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

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

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

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

[b] Includes driver schools.

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

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

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

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

SOURCE

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

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

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Production, total	7,905	11,120	8,284	8,987	8,010	11,638	9,767	8,790	9,691	10,855	12,239	11,995	11,830	12,131	12,003	13,025	12,774	11,425	12,280	12,087	11,960	11,947	11,260
Passenger cars	6,703	9,335	6,550	6,717	6,376	8,186	6,078	5,440	5,667	5,982	6,601	6,340	6,083	5,934	5,554	5,638	5,542	4,879	5,019	4,510	4,230	4,321	4,367
Commercial vehicles[a]	1,202	1,785	1,734	2,270	1,634	3,452	3,690	3,350	4,025	4,873	5,638	5,655	5,747	6,197	6,448	7,387	7,231	6,546	7,261	7,577	7,731	7,625	6,893
Factory (wholesale) sales, total	7,869	11,057	8,239	8,985	8,067	11,467	9,775	8,795	9,747	10,857	12,189	12,023	11,916	12,223	12,112	12,127	12,527	11,108	U	U	U	U	U
Passenger cars	6,675	9,306	6,547	6,713	6,400	8,002	6,050	5,407	5,685	5,962	6,549	6,310	6,140	6,070	5,677	5,428	5,504	4,884	U	U	U	U	U
Commercial vehicles[a]	1,194	1,752	1,692	2,272	1,667	3,464	3,725	3,388	4,062	4,895	5,640	5,713	5,776	6,153	6,435	6,699	7,022	6,224	(R) 7,286	(R) 7,606	(R) 7,759	(R) 7,656	6,925

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

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

NOTES

Factory sales can be greater than production total because of sales from previous year's inventory.
Numbers may not add to totals due to rounding.

SOURCE

1960-2006: Ward's, *Motor Vehicle Facts & Figures 2007* (Southfield, MI: 2007), p. 3.

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

	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Total new passenger car sales	8,400	8,624	8,949	10,979	9,303	8,189	8,213	8,518	8,991	8,635	8,526	8,272	8,142	8,698	8,847	8,423	8,103	7,610	7,506	7,667	7,781
Domestic[b]	7,119	7,053	6,580	8,205	6,919	6,162	6,286	6,742	7,255	7,129	7,255	6,917	6,762	6,979	6,831	6,325	5,878	5,527	5,357	5,481	5,436
Imports	1,280	1,572	2,369	2,775	2,384	2,028	1,927	1,776	1,735	1,506	1,271	1,355	1,380	1,719	2,016	2,098	2,226	2,083	2,149	2,187	2,345
Japan	313	808	1,894	2,171	1,719	1,505	1,452	1,328	1,239	982	726	726	691	758	863	837	930	830	810	923	1,154
Germany	750	493	292	408	263	193	201	186	192	207	237	297	367	467	517	523	547	544	542	534	561
Other	217	271	184	196	402	330	275	262	303	317	308	332	322	494	637	738	749	709	797	729	630

[a] Retail new car sales include both sales to individuals and to corporate fleets. It also includes leased cars.

[b] Includes cars produced in Canada and Mexico.

NOTE

Numbers may not add to totals due to rounding.

SOURCES

1970: American Automobile Manufacturers Association,*Motor Vehicle Facts & Figures 1992* (Detroit, MI: 1992), p. 16.

1975: Ward's, *Motor Vehicle Facts & Figures 2004* (Southfield, MI: 2004), p. 22.

1980-2006: Ward's, *Motor Vehicle Facts & Figures 2007* (Southfield, MI: 2007), p. 22.

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

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Total, vehicle sales and leases	51,390	49,599	49,807	51,940	55,186	56,476	55,891	56,351	56,375	57,618	58,964	59,742	59,835	60,215	59,411	61,086	59,070	58,547
New vehicle sales and leases	13,860	12,309	12,857	13,883	15,045	14,718	15,090	15,114	15,534	16,879	17,344	17,118	16,810	16,643	16,866	16,948	16,504	17,129
Passenger cars	9,300	8,175	8,214	8,518	8,990	8,636	8,527	8,273	8,142	8,697	8,852	8,422	8,102	7,615	7,505	7,667	7,781	8,085
Light Trucks	4,560	4,134	4,643	5,365	6,055	6,081	6,563	6,842	7,392	8,183	8,492	8,696	8,708	9,029	(R) 9,361	9,281	8,724	9,044
New vehicle sales[a]	13,285	11,566	11,654	12,031	12,526	12,070	12,127	11,690	11,947	12,468	13,181	13,510	13,639	13,594	13,609	13,551	13,271	13,671
Passenger cars	8,766	7,508	7,332	7,321	7,275	6,841	6,721	6,211	5,968	6,396	6,580	6,407	6,370	5,932	5,737	5,806	6,088	6,342
Light Trucks	4,519	4,058	4,322	4,710	5,251	5,228	5,406	5,480	5,979	6,073	6,601	7,103	7,269	7,663	7,872	7,745	7,184	7,329
New vehicle leases[b]	575	743	1,203	1,852	2,519	2,648	2,963	3,424	3,587	4,411	4,163	3,608	3,171	3,049	3,257	3,397	3,233	3,458
Passenger cars	534	667	882	1,197	1,715	1,795	1,806	2,062	2,174	2,301	2,272	2,015	1,732	1,683	1,768	1,861	1,693	1,743
Light Trucks	41	76	321	655	804	853	1,157	1,362	1,413	2,110	1,891	1,593	1,439	1,366	1,489	1,536	1,540	1,715
Used vehicle sales[c]	37,530	37,290	36,950	38,057	40,141	41,758	40,801	41,237	40,841	40,739	41,620	42,624	43,025	43,572	42,545	44,138	42,566	41,418
Value ($ in billions)[d]																		
Total, new and used vehicle sales	446	438	486	524	582	611	627	642	651	698	(R) 737	737	721	738	(R) 765	(R) 776	786	774
New vehicle sales	227	208	240	267	291	292	298	306	316	348	380	369	371	382	407	(R) 421	445	435
Used vehicle sales	219	230	246	257	291	319	329	336	335	350	(R) 356	367	350	356	(R) 358	(R) 355	341	339
Average Price (current $)[d]																		
New and used vehicle sales	8,672	8,823	9,759	10,078	10,543	10,818	11,221	11,385	11,545	12,098	(R) 12,469	12,321	12,034	12,253	(R) 12,868	(R) 12,695	13,827	13,451
New vehicle sales	16,350	16,880	18,655	19,200	19,335	19,819	19,727	20,214	20,276	20,534	21,850	21,507	22,005	22,894	24,082	(R) 27,496	26,854	26,950
Used vehicle sales	5,830	6,157	6,656	6,742	7,245	7,644	8,073	8,139	8,211	8,587	(R) 8,547	8,619	8,130	8,180	(R) 8,410	(R) 8,036	8,009	8,186

KEY: R = revised.

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

[b] Consumer leases only.

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

[d] Includes leased vehicles.

NOTE

Vehicle sales, value of sales, and average prices are from different sources and cannot be calculated from the data presented in this table.

SOURCES

New vehicle sales and leases:

U.S. Department of Commerce, Bureau of Economic Analysis, Underlying Detail for the National Income and Product Account Tables, Internet site http://www.bea.doc.gov/ as of Mar. 12, 2008, table 7.2.5S.

New vehicle sales:

Calculated by U.S. Department of Transportation, Bureau of Transportation Statistics.

New vehicle leases:

CNW Marketing / Research, personal communication, Mar. 18, 2007.

Used vehicle sales, value, and average price:

Manheim Consulting, Used Car Market Report, (Atlanta, GA: Annual issues), Internet site http://www.manheimconsulting.com/ as of Mar. 12, 2008

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

	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	(R) 2005	(R) 2006	2007
Total sales and leases of new cars	9,333	8,402	8,538	8,982	10,978	9,300	8,175	8,214	8,518	8,990	8,636	8,527	8,273	8,142	8,697	8,852	8,422	8,102	7,615	7,505	7,667	7,780	7,588
Consumer	7,103	6,252	5,907	6,100	7,092	5,677	4,424	4,566	4,656	4,600	4,326	4,079	3,907	3,980	4,389	4,680	4,632	4,524	4,341	4,251	4,308	4,298	4,088
Business	2,140	2,056	2,508	2,758	3,754	3,477	3,648	3,529	3,672	4,183	4,070	4,223	4,166	3,943	4,076	3,949	3,568	3,373	3,074	3,061	3,143	3,236	3,250
Government	90	94	123	124	132	146	103	119	190	207	241	225	199	218	232	224	223	205	200	193	216	246	251
Percentage of total sales and leases																							
Consumer	76.1	74.4	69.2	67.9	64.6	61.0	54.1	55.6	54.7	51.2	50.1	47.8	47.2	48.9	50.5	52.9	55.0	55.8	57.0	56.6	56.2	55.2	53.9
Business	22.9	24.5	29.4	30.7	34.2	37.4	44.6	43.0	43.1	46.5	47.1	49.5	50.4	48.4	46.9	44.6	42.4	41.6	40.4	40.8	41.0	41.6	42.8
Government	1.0	1.1	1.4	1.4	1.2	1.6	1.3	1.5	2.2	2.3	2.8	2.6	2.4	2.7	2.7	2.5	2.6	2.5	2.6	2.6	2.8	3.2	3.3

KEY: R = revised.

NOTES

This table includes imported cars, but not vans, trucks, or sport utility vehicles.
Numbers may not add to totals due to rounding.
Annual numbers are calculated by averaging seasonally adjusted monthly data.
Government sales are determined by subtracting the consumer and business sales from total sales.

SOURCES

1965: U.S. Department of Commerce, Bureau of Economic Analysis, National Income and Wealth Division, unpublished data.
1970-2007: Ibid., *Underlying Detail for the National Income and Product Account Tables*, table 7.2.5S, available at http://www.bea.gov/ as of November 2008.

Table 1-19: Period Sales, Market Shares, and Sales-Weighted Fuel Economies of New Domestic and Imported Automobiles (Thousands of vehicles)

	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	(R) 2004	(R) 2005	(R) 2006	2007
Sales																				
TOTAL units	9,443	10,791	8,810	8,524	8,108	8,456	8,415	9,396	7,890	8,335	7,972	8,379	9,128	8,408	(R) 8,304	(R) 7,951	7,538	8,025	8,109	7,580
Small Cars	4,825	5,519	4,999	5,032	4,440	4,537	4,720	5,190	4,197	4,443	3,839	3,919	4,266	4,065	(R) 3,801	(R) 3,698	3,275	3,183	3,243	2,562
Midsize Cars	2,987	2,777	2,342	2,114	2,120	2,330	2,057	2,515	2,359	2,399	2,968	3,141	2,894	2,480	2,807	2,483	2,522	2,886	2425	2748
Large Cars	963	1,512	1,092	1,012	1,240	1,103	1,277	1,306	1,066	1,195	913	1,059	1,665	1,416	1,252	1,261	1,185	1,234	1548	1390
Small Wagons	310	496	160	209	143	301	206	198	90	149	99	78	68	212	236	338	300	365	486	635
Midsize Wagons	257	341	184	122	137	166	138	176	169	149	153	181	234	236	208	171	158	238	308	153
Large Wagons	102	145	31	34	27	19	16	10	9	0	0	0	0	0	0	0	98	118	98	91
Market share, percent																				
Small Cars	51.1	51.1	56.7	59.0	54.8	53.7	56.1	55.2	53.2	53.3	48.2	46.8	46.7	48.3	45.8	(R) 46.5	43.4	39.7	40.0	33.8
Midsize Cars	31.6	25.7	26.6	24.8	26.1	27.6	24.4	26.8	29.9	28.8	37.2	37.5	31.7	29.5	33.8	31.2	33.5	36.0	29.9	36.3
Large Cars	10.2	14.0	12.4	11.9	15.3	13.0	15.2	13.9	13.5	14.3	11.5	12.6	18.2	16.8	15.1	15.9	15.7	15.4	19.1	18.3
Small Wagons	3.3	4.6	1.8	2.5	1.8	3.6	2.4	2.1	1.1	1.8	1.2	0.9	0.7	2.5	2.8	4.3	4.0	4.5	6.0	8.4
Midsize Wagons	2.7	3.2	2.1	1.4	1.7	2.0	1.6	1.9	2.1	1.8	1.9	2.2	2.6	2.8	2.5	2.2	2.1	3.0	3.8	2.0
Large Wagons	1.1	1.3	0.4	0.4	0.3	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	1.5	1.2	1.2
Fuel economy, mpg																				
Fleet	23.5	27	27.8	28.0	27.6	28.2	28.0	28.3	28.3	28.4	28.5	28.2	28.2	28.4	28.6	28.9	28.9	29.5	29.2	29.4
Small Cars	26.1	29.8	29.8	30.0	30.0	30.5	30.4	30.7	30.8	30.9	30.9	30.3	30.3	30.7	30.7	30.6	30.5	31.1	31	30.3
Midsize Cars	21.6	24.9	26.2	26.0	25.8	26.1	25.9	26.1	26.5	26.5	27.1	27.1	27.0	27.2	27.7	28.3	28.7	29.8	29.6	30.8
Large Cars	19.1	22.3	23.7	23.6	23.8	24.2	24.1	24.5	24.3	24.5	24.6	24.8	25.6	25.4	26.0	26.0	26.0	26.4	25.9	25.3
Small Wagons	28.6	32.5	29.6	30.6	30.2	32.5	32.9	33.3	31.6	32.2	32.1	31.5	29.2	27.3	26.1	30.2	31.4	32.5	31.4	33.2
Midsize Wagons	21.1	25.2	25.3	25.9	26.2	26.2	26.0	26.6	26.3	26.3	26.2	26.3	27.3	26.6	27.4	27.2	26.4	26.0	27.8	26.7
Large Wagons	19.1	20.9	(R) 22.7	(R) 22.9	(R) 22.7	(R) 22.5	(R) 22.9	(R) 22.8	(R) 23.2	NA	NA	NA	NA	NA	NA	NA	22.0	22.2	21.7	22.3

KEY: mpg = miles per gallon, NA = not applicable, R = revised.

NOTE

Numbers may not add to totals due to rounding.

SOURCE

U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, *Transportation Energy Data Book* , Edition 27, table 4.7 (Oak Ridge, TN), available at http://cta.ornl.gov/data/index.shtml as of November 2008.

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

	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	(R) 2004	(R) 2005	(R) 2006	2007
Sales[a]																				
TOTAL units	1,863	3,669	3,805	4,049	4,064	4,754	5,710	5,749	5,254	6,124	6,485	6,839	7,447	7,202	7,815	7,824	8,173	7,866	6,932	7,290
Small Pickups	452	497	289	309	252	263	358	298	221	131	260	213	101	81	197	194	161	8	8	0
Midsize Pickups	98	616	600	873	716	743	1040	700	698	690	829	761	766	545	466	527	378	216	284	281
Large Pickups	887	964	945	738	872	996	1271	1273	1036	1587	1326	1571	1746	1893	1717	1753	1,967	2,076	1,831	1753
Small Vans	16	93	30	15	40	12	11	6	2	0	0	0	0	0	0	0	0	0	0	0
Midsize Vans	130	600	1124	943	1088	1323	1295	1552	1298	1126	1357	1292	1522	938	1131	1121	893	1,429	1,092	927
Large Vans	96	162	107	76	93	106	112	104	109	139	132	171	170	294	112	111	60	55	57	29
Small SUV	60	115	189	136	129	144	188	189	120	489	316	314	400	390	354	264	256	215	119	175
Midsize SUV	100	563	447	904	799	1038	1265	1397	1528	1401	1623	1762	1863	1944	1802	2093	2,502	2,079	2,105	2199
Large SUV	23	57	72	54	75	129	169	230	241	560	642	754	879	1115	2034	1760	1,955	1,790	1,440	1926
Market share, percent																				
Small Pickups	24.3	13.5	7.6	7.6	6.2	5.5	6.3	5.2	4.2	2.1	4.0	3.1	1.4	1.1	2.5	2.5	2.0	0.1	0.1	0.0
Midsize Pickups	5.3	16.8	15.8	21.6	17.6	15.6	18.2	12.2	13.3	11.3	12.8	11.1	10.3	7.6	6.0	6.7	4.6	2.7	4.1	3.9
Large Pickups	47.6	26.3	24.8	18.2	21.5	21.0	22.3	22.1	19.7	25.9	20.4	23.0	23.4	26.3	22.0	22.4	24.1	26.4	26.4	24.0
Small Vans	0.9	2.5	0.8	0.4	1.0	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Midsize Vans	7.0	16.4	29.5	23.3	26.8	27.8	22.7	27.0	24.7	18.4	20.9	18.9	20.4	13.0	14.5	14.3	10.9	18.2	15.8	12.7
Large Vans	5.2	4.4	2.8	1.9	2.3	2.2	2.0	1.8	2.1	2.3	2.0	2.5	2.3	4.1	1.4	1.4	0.7	0.7	0.8	0.4
Small SUV	3.2	3.1	5.0	3.4	3.2	3.0	3.3	3.3	2.3	8.0	4.9	4.6	5.4	5.4	4.5	3.4	3.1	2.7	1.7	2.4
Midsize SUV	5.4	15.3	11.7	22.3	19.7	21.8	22.2	24.3	29.1	22.9	25.0	25.8	25.0	27.0	23.1	26.8	30.6	26.4	30.4	30.2
Large SUV	1.2	1.6	1.9	1.3	1.8	2.7	3.0	4.0	4.6	9.1	9.9	11.0	11.8	15.5	26.0	22.5	23.9	22.8	20.8	26.4
Fuel Economy, mpg																				
Fleet	18.6	20.6	20.7	21.3	20.8	21.0	20.8	20.5	20.8	20.6	20.9	20.5	20.8	20.6	20.6	20.9	20.8	21.4	21.9	22.1
Small Pickups	24.3	26.7	24.8	25.0	24.6	26.3	24.9	24.4	24.6	24.9	24.5	23.2	26.3	26.5	23.2	23.2	22.6	25.8	26.3	NA
Midsize Pickups	25.9	25.7	24.7	24.6	23.8	23.7	24.0	24.7	24.8	24.2	23.9	22.5	22.8	21.8	21.1	22.8	21.8	23.6	23.8	23.7
Large Pickups	17.2	17.7	18.0	18.2	18.3	18.7	18.4	18.0	18.2	18.9	18.6	18.5	19.3	18.9	18.7	18.9	19.0	19.4	19.7	19.7
Small Vans	19.0	25.5	23.9	24.0	27.0	28.2	27.0	26.5	26.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Midsize Vans	16.9	19.8	21.8	21.9	21.8	22.3	22.0	22.2	22.8	22.6	23.3	23.0	23.5	24.0	23.7	24.1	24.1	24.2	24.7	24.7
Large Vans	16.0	16.1	16.5	16.7	16.9	17.0	17.0	17.1	17.1	18.6	18.3	17.9	18.0	17.7	17.9	18.7	19.4	19.4	19.4	19.7
Small SUV	18.8	22.1	23.4	23.6	23.4	23.2	24.1	24.2	28.5	22.8	23.8	24.1	22.5	24.9	24.7	25.2	24.7	23.0	22.2	22.6
Midsize SUV	14.3	19.7	19.1	20.2	19.9	20.0	19.8	19.6	20.0	20.5	20.8	21.0	21.0	21.7	21.8	22.4	22.5	23.0	23.7	24.6
Large SUV	14.3	16.9	16.7	16.2	15.7	16.3	16.4	16.6	17.3	17.5	17.4	17.2	17.6	18.5	19.1	18.8	18.9	19.9	20.4	20.8

KEY: mpg = miles per gallon; SUV = sport utility vehicle, NA = not applicable.

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

NOTES

Numbers may not add to totals due to rounding. Total units are now taken directly from the source and may differ slightly from previous editions.

SOURCE

U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy,*Transportation Energy Data Book*, Edition 27, table 4.8 (Oak Ridge, TN), available at http://cta.ornl.gov/data/index.shtml as of November 2008.

Table 1-21: Number of Trucks by Weight

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

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

NOTES

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

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

SOURCES

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

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

Table 1-22: World Motor Vehicle Production, Selected Countries (Thousands of vehicles)

	Passenger cars[a]																
	1961	1971	1981	1991	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Total world	11,391	26,453	27,407	35,287	35,730	36,111	37,318	38,474	37,286	38,816	40,732	40,144	41,215	41,782	42,832	44,113	46,512
U.S. percent of world	48%	32%	23%	15%	19%	18%	16%	15%	15%	15%	14%	12%	12%	11%	10%	10%	9%
Argentina	78	193	139	114	338	227	269	366	353	225	239	170	111	110	171	183	263
Australia	182	393	352	269	323	314	303	320	350	294	324	286	307	366	341	320	298
Austria	8	1	7	14	45	59	97	98	91	124	116	131	131	119	227	231	248
Belgium	N	279	216	253	409	386	368	356	319	218	912	1,059	937	792	852	895	882
Brazil	98	342	406	705	1,248	1,297	1,459	1,680	1,244	1,102	1,348	1,482	1,521	1,505	1,756	2,009	2,092
Canada	328	1,083	803	1,060	1,214	1,337	1,279	1,374	1,122	1,626	1,551	1,275	1,369	1,340	1,336	1,356	1,390
China	N	N	N	81	250	321	382	482	507	570	620	704	1,091	2,019	2,316	3,118	3,869
Czech Republic[b]	59	149	181	173	174	208	263	321	368	348	428	457	441	436	443	599	850
France	988	2,694	2,612	3,188	3,175	3,051	3,148	2,259	2,603	2,676	2,883	3,182	3,284	3,220	2,913	3,113	2,728
Germany	1,802	3,829	3,758	4,677	4,094	4,360	4,540	4,678	5,348	5,310	4,803	5,301	4,799	5,145	5,192	5,350	5,399
India	22	42	42	179	237	330	396	410	384	519	514	548	706	907	940	999	1,186
Italy	694	1,701	1,257	1,633	1,341	1,422	1,318	1,563	1,402	1,410	1,422	1,272	1,126	1,026	834	726	893
Japan	250	3,718	6,974	9,753	7,802	7,611	7,864	8,491	8,056	8,100	8,363	8,118	8,619	8,478	8,720	9,017	9,757
South Korea	N	N	69	1,158	1,806	2,003	2,265	2,308	1,625	2,362	2,602	2,471	2,651	2,768	2,054	2,195	2,298
Malaysia	N	N	N	102	137	164	176	280	126	200	280	345	U	U	U	U	U
Mexico	N	154	355	720	857	699	798	855	953	994	1,130	1,001	960	774	782	846	1,098
Netherlands	13	78	78	85	92	100	145	197	243	262	215	189	182	163	188	115	87
Poland	14	86	248	168	349	347	353	295	460	651	533	367	287	285	516	527	609
Portugal	N	N	N	N	38	41	119	186	181	187	191	177	183	166	151	138	143
Romania	N	N	N	84	85	71	76	108	104	88	58	57	U	U	U	U	U
Russia	149	518	1,324	1,308	796	838	868	982	U	946	966	1,022	981	1,010	1,110	1,068	1,174
Spain	55	453	855	1,943	1,974	2,131	2,213	2,342	2,217	2,029	2,445	2,211	2,267	2,399	2,403	2,098	2,079
Sweden	110	287	258	269	353	388	368	376	368	385	260	248	238	280	290	289	289
Taiwan	N	N	N	266	291	282	265	268	293	255	265	195	245	265	300	324	211
Turkey	N	13	25	196	213	233	208	243	U	U	297	175	204	294	447	454	546
United Kingdom	1,004	1,742	955	1,237	1,467	1,532	1,686	1,698	1,748	1,787	1,629	1,492	1,628	1,658	1,647	1,596	1,442
United States	5,522	8,584	6,253	5,439	6,614	6,351	6,083	5,927	5,554	5,638	5,542	4,879	5,019	4,510	4,230	4,321	4,367
Yugoslavia, Federal Republic of[c]	15	114	240	213	8	8	9	11	U	U	U	U	U	U	U	U	U

Commercial vehicles[d]

	1961	1971	1981	1991	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Total world	3,809	6,948	9,729	11,996	13,952	13,926	14,147	14,988	14,811	16,132	16,796	16,181	17,757	18,549	21,131	21,638	22,049
U.S. percent of world	30%	30%	17%	28%	40%	40%	40%	41%	44%	46%	43%	40%	41%	41%	37%	35%	31%
Argentina	58	60	33	25	70	59	44	80	105	80	101	66	48	60	89	137	169
Australia	49	77	40	15	31	17	19	29	34	17	25	34	37	48	64	69	20
Austria	5	6	8	6	3	9	9	10	12	16	25	24	20	21	21	23	27
Belgium	1	17	41	84	70	82	69	74	87	74	121	129	119	113	43	31	36
Brazil	47	174	374	255	334	332	346	388	329	242	323	316	271	322	454	519	519
Canada	63	277	520	829	1,106	1,071	1,118	1,198	1,050	1,430	1,411	1,258	1,260	1,213	1,376	1,332	1,182
China	N	N	N	628	1,103	1,114	1,084	1,096	1,121	1,235	1,389	1,628	2,160	2,425	2,754	2,590	3,410
Czech Republic[b]	17	28	49	29	6	8	9	47	42	27	27	8	6	5	5	5	5
France	217	316	408	423	383	424	443	322	351	357	469	447	409	400	439	386	446
Germany	411	312	358	358	262	307	303	345	379	378	395	390	346	361	378	408	421
India	32	47	107	176	238	306	366	336	129	261	282	277	186	254	571	643	772
Italy	65	116	176	245	194	245	227	254	290	291	316	308	301	295	308	313	319
Japan	789	2,093	4,206	3,492	2,752	2,585	2,482	2,484	1,994	1,805	1,781	1,660	1,639	1,808	1,791	1,783	1,728
South Korea	N	N	65	340	506	523	548	510	329	471	513	475	496	410	1,416	1,505	1,542
Malaysia	N	N	N	0	0	0	0	0	7	5	15	14	U	U	U	U	U
Mexico	N	57	242	269	266	236	422	503	500	540	792	856	845	801	771	838	948
Netherlands	6	13	12	26	23	32	19	20	28	25	52	50	49	56	60	65	72
Poland	22	60	60	25	16	34	48	27	39	44	24	20	23	14	76	85	106
Portugal	N	N	N	26	87	16	13	81	90	65	56	62	68	74	76	82	84
Romania	N	N	N	10	5	22	23	21	23	19	14	12	U	U	U	U	U
Russia	406	612	874	744	206	156	136	192	U	226	237	228	239	269	275	285	328
Spain	20	79	132	139	168	203	199	220	609	644	587	639	588	630	610	654	699
Sweden	22	30	55	75	82	102	95	104	114	109	36	38	38	43	48	35	39
Taiwan	N	N	N	116	132	124	101	113	112	95	100	77	92	122	131	123	92
Turkey	N	12	22	46	31	49	69	102	U	U	133	95	142	240	376	426	442
United Kingdom	443	456	230	217	228	233	238	238	233	186	189	193	193	189	209	207	208
United States	1,131	2,088	1,690	3,372	5,649	5,635	5,716	6,192	6,452	7,387	7,228	6,546	7,261	7,577	7,731	7,656	6,893
Yugoslavia, Federal Republic of[c]	5	18	27	26	2	2	1	2	U	U	U	U	U	U	U	U	U

Total Passenger cars[a] and Commercial vehicles[d]

	1961	1971	1981	1991	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Total world	15,200	33,401	37,136	47,283	49,682	50,036	51,465	53,463	52,098	54,948	57,528	56,325	58,973	60,331	63,963	65,750	68,561
U.S. percent of world	44%	32%	21%	19%	25%	24%	23%	23%	23%	24%	22%	20%	21%	20%	19%	18%	16%
Argentina	136	253	172	139	409	286	313	446	458	305	340	236	159	170	260	320	432
Australia	231	470	392	284	354	331	322	349	384	311	348	319	344	413	405	389	318
Austria	13	7	15	20	48	68	106	108	103	139	141	155	151	140	249	253	275
Belgium	1	296	257	337	479	468	437	430	406	291	1,033	1,187	1,056	904	895	927	918
Brazil	145	516	780	960	1,582	1,629	1,805	2,067	1,573	1,344	1,671	1,798	1,793	1,827	2,210	2,528	2,611
Canada	391	1,360	1,323	1,889	2,321	2,408	2,397	2,571	2,173	3,057	2,962	2,532	2,629	2,553	2,712	2,688	2,571
China	N	N	N	709	1,353	1,435	1,466	1,578	1,628	1,805	2,009	2,332	3,251	4,444	5,071	5,708	7,280
Czech Republic[b]	76	177	230	202	180	216	272	369	411	376	455	465	447	442	448	605	855
France	1,205	3,010	3,020	3,611	3,558	3,475	3,591	2,581	2,954	3,033	3,352	3,628	3,693	3,620	3,352	3,499	3,174
Germany	2,213	4,141	4,116	5,035	4,356	4,667	4,843	5,023	5,727	5,688	5,198	5,692	5,145	5,507	5,570	5,758	5,820
India	54	89	149	355	475	636	762	746	513	780	796	825	892	1,161	1,511	1,642	1,958
Italy	759	1,817	1,433	1,878	1,534	1,667	1,545	1,817	1,693	1,701	1,738	1,580	1,427	1,322	1,142	1,038	1,212
Japan	1,039	5,811	11,180	13,245	10,554	10,196	10,346	10,975	10,050	9,905	10,145	9,777	10,258	10,286	10,512	10,800	11,484
South Korea	N	N	134	1,498	2,312	2,526	2,813	2,818	1,954	2,832	3,115	2,946	3,148	3,178	3,469	3,699	3,840
Malaysia	N	N	N	102	137	164	176	280	134	205	295	359	U	U	U	U	U
Mexico	N	211	597	989	1,123	935	1,220	1,358	1,453	1,534	1,923	1,857	1,805	1,575	1,553	1,684	2,046
Netherlands	19	91	90	111	115	132	164	218	271	287	267	239	231	219	248	181	159
Poland	36	146	308	193	365	381	401	322	499	695	556	387	310	300	592	612	715
Portugal	N	N	N	26	125	57	132	267	271	252	247	240	251	239	227	219	227
Romania	N	N	N	94	90	93	99	129	127	107	72	69	U	U	U	U	U
Russia	555	1,130	2,198	2,052	1,002	994	1,004	1,174	U	1,172	1,203	1,250	1,220	1,280	1,385	1,353	1,502
Spain	75	532	987	2,082	2,142	2,334	2,412	2,562	2,826	2,672	3,033	2,850	2,855	3,030	3,012	2,753	2,777
Sweden	132	317	313	344	435	490	463	480	483	494	296	286	276	323	339	324	327
Taiwan	N	N	N	382	423	406	366	381	405	350	365	272	337	387	431	446	303
Turkey	N	25	47	242	244	282	277	344	U	U	431	271	347	534	823	879	988
United Kingdom	1,447	2,198	1,185	1,454	1,695	1,765	1,924	1,936	1,981	1,973	1,817	1,685	1,821	1,846	1,856	1,803	1,650
United States	6,653	10,672	7,943	8,811	12,263	11,985	11,799	12,119	12,006	13,025	12,771	11,425	12,280	12,087	11,960	11,977	11,260
Yugoslavia, Federal Republic of[c]	20	132	267	239	9	10	10	14	U	U	U	U	U	U	U	U	U

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

[a] Does not include minivans, pickups, and sport utility vehicles.

[b] Formerly Czechoslovakia and Ward's does not report a number for Slovakia.

[c] Yugoslavia no longer exists and Ward's does not report numbers for countries that were previously a part of Yugoslovia

[d] Includes all trucks and buses. Light trucks, such as pickups, sport utility vehicles, and minivans are included under commercial vehicles.

NOTES

Prior to 2000, the country of manufacture was recognized as the producing country. To conform with current OICA (International Organization of Motor Vehicle Manufacturers) practices, starting in 2000, the country of final assembly was recognized as the producing country. This explains the sudden change in trends across some countries from 1999 to 2000.

Numbers may not add to totals due to rounding.

Beginning in 1998 some smaller countries not listed in this table are included in the world totals

SOURCE

Ward's, *Motor Vehicle Facts & Figures 2007* (Southfield, MI: 2007), p. 14 and similar pages in previous editions.

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

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
World fleet	**17,317**	**18,329**	**19,980**	**22,872**	**24,867**	**25,555**	**23,596**	**23,943**	**23,753**	**24,331**	**25,092**	**25,608**	**26,858**	**27,557**	**27,825**	**28,259**	**28,318**	**28,296**	**28,761**	**28,650**	**29,035**	**28,956**	**31,477**
U.S. fleet	**2,926**	**2,376**	**1,579**	**857**	**864**	**737**	**636**	**619**	**603**	**565**	**543**	**509**	**495**	**477**	**470**	**463**	**454**	**443**	**426**	**418**	**412**	**391**	**347**
U.S. share of the world fleet	**17%**	**13%**	**8%**	**4%**	**3%**	**3%**	**3%**	**3%**	**3%**	**2%**	**2%**	**2%**	**2%**	**2%**	**2%**	**2%**	**2%**	**2%**	**1%**	**1%**	**1%**	**1%**	**1%**
Freighters, Total	**2,138**	**1,747**	**1,076**	**511**	**471**	**417**	**367**	**359**	**349**	**322**	**308**	**295**	**292**	**288**	**289**	**284**	**286**	**283**	**276**	**209**	**205**	123	**96**
DWT (thousands)	**21,877**	**18,127**	**11,733**	**7,051**	**6,885**	**7,353**	**7,265**	**7,156**	**7,211**	**7,040**	**6,866**	**6,517**	**6,419**	**6,458**	**6,732**	**6,696**	**6,680**	**6,635**	**6,404**	**5,092**	**5,043**	**1,674**	**1,379**
General cargo[a]	N	N	N	356	259	209	166	165	182	169	152	142	146	142	140	137	136	132	126	123	121	123	96
DWT (thousands)	N	N	N	4,640	3,329	2,980	2,605	2,592	2,973	2,913	2,677	2,472	2,467	2,420	2,400	2,404	2,362	2,162	1,838	1,810	1,784	1,674	1,379
Containership	N	N	N	109	121	104	92	92	83	87	86	81	83	85	91	89	90	91	90	86	84	90	76
DWT (thousands)	N	N	N	1,773	2,289	2,651	2,856	2,856	2,722	2,812	2,802	2,600	2,639	2,743	3,096	3,056	3,058	3,200	3,292	3,282	3,259	3,660	3,102
Partial containerships	N	N	N	37	68	63	59	52	30	3	3	3	1	1	N	N	N	N	N	N	N	N	N
DWT (thousands)	N	N	N	510	940	904	836	741	456	57	57	57	17	17	N	N	N	N	N	N	N	N	N
RO/RO	N	N	N	9	23	41	50	50	54	63	67	69	62	60	58	58	60	60	60	65	65	42	49
DWT (thousands)	N	N	N	128	327	818	968	967	1,060	1,258	1,330	1,388	1,296	1,278	1,236	1,236	1,260	1,273	1,273	1,431	1,431	848	976
Tankers, Total	**422**	**341**	**294**	**267**	**308**	**258**	**233**	**226**	**220**	**210**	**200**	**181**	**173**	**161**	**154**	**154**	**142**	**130**	**120**	**109**	**104**	**100**	**89**
DWT (thousands)	**7,815**	**7,561**	**7,739**	**9,711**	**16,152**	**15,534**	**15,641**	**14,993**	**14,180**	**13,048**	**1,055**	**11,028**	**10,378**	**9,696**	**9,289**	**9,373**	**8,447**	**7,532**	**6,552**	**5,792**	**5,640**	**5,228**	**4,974**
Petroleum/chemical[b] ships	N	N	N	N	N	244	219	212	206	196	186	167	159	148	145	146	142	130	120	109	104	100	89
DWT (thousands)	N	N	N	N	N	14,574	14,681	14,033	13,279	12,143	11,040	10,123	9,473	8,857	8,737	8,845	8,447	7,532	6,552	5,792	5,640	5,228	4,974
Liquefied petroleum/ natural gas ships	N	N	N	N	N	14	14	14	14	14	14	14	14	13	9	8	N	N	N	N	N	N	N
DWT (thousands)	N	N	N	N	N	960	960	960	901	905	905	905	905	839	552	528	N	N	N	N	N	N	N
Combination/ passenger and cargo, Total	**309**	**227**	**171**	**60**	**65**	**37**	**10**	**10**	**11**	**12**	**13**	**13**	**15**	**14**	**12**	**11**	**11**	**13**	**12**	**15**	**18**	**15**	**19**
DWT (thousands)	**2,070**	**1,488**	**1,107**	**388**	**446**	**299**	**91**	**92**	**97**	**104**	**115**	**115**	**139**	**136**	**116**	**99**	**99**	**105**	**100**	**91**	**108**	**82**	**107**
Bulk carriers, Total	**57**	**61**	**38**	**19**	**20**	**25**	**26**	**24**	**23**	**21**	**22**	**20**	**15**	**14**	**15**	**14**	**15**	**17**	**18**	**20**	**20**	**21**	**18**
DWT (thousands)	**805**	**1,107**	**767**	**544**	**607**	**1,152**	**1,270**	**1,014**	**991**	**949**	**1,042**	**925**	**575**	**321**	**604**	**579**	**604**	**706**	**797**	**837**	**837**	**670**	**543**

KEY: DWT = deadweight tons; N = data do not exist; RO/RO = roll-on/roll-off vessels.

[a] Includes barge carriers.

[b] Includes integrated tug/barges.

NOTES

Excludes nonmerchant type and/or U.S. Navy-owned vessels currently in the National Defense Reserve Fleet. Excludes ships operating exclusively on the Great Lakes and inland waterways and special types such as: channel ships, icebreakers, cable ships, and merchant ships owned by military forces. All data are as of December 31 of year shown. 2004 data is as of July 1, 2004.

SOURCES

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

2001-2006: U.S. Department of Transportatin, Maritime Administration, personal communication, Dec 6, 2007

Section C
Condition

Table 1-24: U.S. Airport Runway Pavement Conditions

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

KEY: NPIAS = National Plan of Integrated Airport Systems.

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

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

NOTES

Data are as of January 1 of each year. Runway pavement condition is classified by the FAA as follows:

Good: All cracks and joints are sealed.

Fair: Mild surface cracking, unsealed joints, and slab edge spalling.

Poor: Large open cracks, surface and edge spalling, vegetation growing through cracks and joints.

SOURCES

Condition:

1986-90: U.S. Department of Transportation, Federal Aviation Administration, *National Plan of Integrated Airport Systems* (Washington DC: 1991).

1993: Ibid., *National Plan of Integrated Airport Systems* (Washington DC: 1995).

1997, 1999-2008: U.S. Department of Transportation, Federal Aviation Administration, Office of Airport Planning and Programming, National Planning Division, personal communication, Sep. 29, 2008.

Total number of airports:

Ibid., personal communication, Sep. 29, 2008.

Table 1-25: Median Age of Automobiles and Trucks in Operation in the United States

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

Mean age of household vehicles for several years[c]

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

KEY: N = data do not exist.

[a] Gross vehicle weight 1-3.

[b] Gross vehicle weight 1-8.

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

NOTE

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

SOURCES

Median age of automobiles:

The R.L. Polk Co., *R. L. Polk & Co. Reports Vehicle Age In U.S. On The Rise*, available at http://usa.polk.com/News/LatestNews/ as of August 2008.

Mean age of household vehicles:

U.S. Department of Transportation, Federal Highway Administration, *1995 Nationwide Personal Transportation Survey: Summary of Travel Trends* (Washington, DC: 1999); U.S. Department of Transportation, Federal Highway Administration, Bureau of Transportation Statistics, *2001 National Household Travel Survey (NHTS) Data* , available at http://nhts.ornl.gov/2001/index.shtml as of Aug. 21, 2003.

TABLE 1-26: Condition of U.S. Roadways by Functional System

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
RURAL																	
Interstates miles reported	33,547	33,677	33,027	29,089	31,502	31,254	31,312	31,431	30,498	32,820	32,888	32,951	32,907	31,956	31,341	30,802	30,512
Poor, percent	8.7	7.6	5.2	7.0	6.5	6.3	3.9	3.6	4.1	2.4	2.1	1.9	2.1	1.6	2.0	1.7	1.0
Mediocre, percent	[b]	[b]	14.1	27.7	26.5	20.7	19.1	19.1	16.5	14.0	12.2	11.7	10.2	9.8	10.4	9.5	9.0
Fair, percent	31.9	31.7	17.4	20.9	23.9	22.3	21.7	20.7	17.8	18.1	16.9	15.4	15.5	15.4	14.5	13.6	12.8
Good, percent	[b]	[b]	27.6	36.1	33.2	36.9	38.8	41.0	42.6	44.0	44.8	43.3	44.0	43.9	46.9	47.0	46.5
Very good, percent	59.5	60.7	35.6	8.3	9.9	13.9	16.6	15.7	19.0	21.5	23.9	27.7	28.2	29.3	26.2	28.2	30.7
Unpaved, percent	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Miles not reported[a]	N	N	N	3,563	955	1,326	1,508	1,382	2,313	153	162	109	84	87	103	92	71
Other principal arterials miles reported	83,802	85,729	94,798	78,296	89,506	89,265	92,103	92,170	93,333	97,247	97,297	97,947	97,854	96,656	95,390	94,216	94,500
Poor, percent	3.4	3.6	3.3	2.9	2.4	4.4	1.4	1.6	1.4	0.9	0.8	0.7	0.7	0.7	0.9	(R) 0.8	(R) 0.8
Mediocre, percent	[b]	[b]	5.9	9.2	8.2	7.6	5.8	4.9	4.6	3.7	3.2	3.0	2.7	2.8	3.3	(R) 2.8	(R) 2.5
Fair, percent	42.6	44.5	34.6	54.8	57.4	51.1	49.1	47.7	43.3	41.5	38.7	37.3	35.6	35.5	35.9	(R) 33.5	(R) 31.3
Good, percent	[b]	[b]	28.5	26.7	26.6	27.9	34.4	37.2	38.3	40.5	42.9	42.5	44.2	44.6	44.9	45.8	46.5
Very good, percent	53.8	51.9	27.6	6.4	5.4	9.0	9.3	8.6	12.3	13.5	14.4	16.5	16.7	16.4	14.9	17.1	18.9
Unpaved, percent	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Miles not reported[a]	N	N	N	17,905	7,489	8,683	6,028	6,083	5,524	1,587	1,619	1,247	1,009	386	552	946	430
Minor arterials miles reported	144,735	142,866	137,637	134,837	124,877	121,443	126,381	126,525	130,591	135,192	136,096	134,698	136,955	134,984	134,884	134,358	134,914
Poor, percent	4.6	4.3	3.9	3.9	3.5	3.7	2.3	2.3	1.9	1.7	1.7	1.7	1.3	1.3	1.4	(R) 1.4	(R) 1.7
Mediocre, percent	[b]	[b]	7.1	9.1	10.5	9.0	8.2	6.7	6.0	5.2	5.3	5.2	4.5	4.8	5.1	(R) 4.0	(R) 4.2
Fair, percent	48.2	47.3	36.4	53.5	57.9	54.7	50.7	50.4	47.2	47.3	46.2	44.9	43.6	43.0	44.3	(R) 42.0	(R) 40.7
Good, percent	[b]	[b]	25.3	25.0	23.6	23.9	31.0	33.6	34.3	34.4	35.6	36.9	39.1	41.2	39.5	41.6	41.5
Very good, percent	47.2	48.4	26.8	8.5	4.5	8.7	7.7	7.0	10.6	11.4	11.2	11.3	11.6	9.7	9.6	11.0	11.8
Unpaved, percent	–	–	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Miles not reported[a]	N	N	N	12,740	13,294	15,708	10,978	10,978	6,664	1,968	1,436	2,883	606	607	573	1049	455
Major collectors miles reported	436,365	436,737	434,175	432,223	431,111	431,712	432,117	386,122	171,134	389,134	388,488	389,573	389,125	383,414	379,061	378,722	378,753
Poor, percent	8.9	7.7	7.8	6.8	6.5	6.5	6.7	7.8	8.8	15.4	8.5	7.6	7.7	7.4	6.9	6.5	6.2
Mediocre, percent	[b]	[b]	11.0	12.4	11.3	11.4	10.3	12.3	13.0	15.8	12.7	12.8	11.8	11.7	11.9	12.0	11.7
Fair, percent	43.8	45.2	32.3	37.7	33.5	30.8	34.4	37.6	33.5	44.8	43.7	43.7	43.4	44.3	46.5	46.3	47.0
Good, percent	[b]	[b]	17.7	16.3	16.1	17.4	20.0	23.0	21.3	17.2	22.0	23.4	24.9	25.1	23.5	24.2	23.4
Very good, percent	36.2	36.1	20.4	15.9	21.9	23.7	18.4	19.3	23.4	6.7	13.2	12.5	12.2	11.4	11.1	11.0	11.7
Unpaved, percent	11.1	11.0	10.7	10.9	10.7	10.2	10.1	N	N	N	N	N	N	N	N	N	N
Miles not reported[a]	N	N	N	N	N	N	N	2,402	217,566	N	N	N	N	N	N	N	N
URBAN																	
Interstates miles reported	11,527	11,603	12,466	10,738	12,338	12,307	12,430	12,477	12,231	13,109	13,139	13,261	13,367	14,331	14,984	15,544	15,899
Poor, percent	8.6	7.7	7.1	10.6	13.0	10.4	8.6	9.0	9.4	7.3	6.5	7.4	7.7	7.7	7.2	6.0	2.4
Mediocre, percent	[b]	[b]	13.2	30.9	29.9	26.8	28.3	27.0	25.5	23.1	21.7	20.8	20.6	19.1	17.7	16.8	19.0
Fair, percent	32.2	32.3	17.0	23.6	24.2	23.8	24.7	24.4	21.8	22.5	21.4	20.9	20.3	18.8	19.5	18.6	18.4
Good, percent	[b]	[b]	28.0	28.3	26.7	27.5	30.7	32.9	32.0	34.9	37.1	35.9	36.0	36.6	38.2	42.0	41.4
Very good, percent	59.1	60.0	34.7	6.5	6.2	11.4	7.6	6.7	11.4	12.0	13.3	14.9	15.4	17.9	17.4	16.6	18.7
Unpaved, percent	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Miles not reported[a]	N	N	N	2,140	788	857	787	771	1,040	230	226	147	123	131	140	157	139
Other freeways and expressway miles reported	7,670	7,714	8,465	7,011	7,618	7,804	8,410	8,480	8,772	8,860	8,796	8,955	9,242	9,786	10,143	10,443	10,659
Poor, percent	2.2	2.3	2.6	3.8	5.3	4.8	3.4	3.3	3.2	2.6	2.8	3.1	2.7	2.4	2.1	(R) 1.9	(R) 1.5
Mediocre, percent	[b]	[b]	5.9	9.4	12.7	9.8	8.7	8.7	8.7	8.1	8.1	7.1	7.6	8.3	7.6	(R) 6.0	(R) 5.0
Fair, percent	43.9	44.2	32.4	60.6	58.1	54.7	54.7	58.5	54.3	53.6	50.7	50.6	48.6	45.7	45.5	(R) 44.7	(R) 43.0
Good, percent	[b]	[b]	28.1	22.7	20.9	20.4	26.3	25.2	27.1	29.0	31.6	31.5	33.3	35.0	37.4	39.6	40.1
Very good, percent	53.9	53.5	31.0	3.5	2.9	10.3	6.8	4.2	6.6	6.8	6.8	7.7	7.9	8.6	7.4	7.9	10.3
Unpaved, percent	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Miles not reported[a]	N	N	N	1,846	1,377	1,166	617	579	397	281	353	176	82	81	98	108	84
Other principal arterials miles reported	51,987	52,349	52,165	30,337	38,598	41,444	44,498	45,009	44,886	48,045	47,890	48,931	50,016	53,431	56,831	59,743	61,064
Poor, percent	5.9	6.6	6.8	9.2	12.5	12.4	11.8	12.1	12.9	12.5	13.2	12.9	13.3	12.7	12.2	(R) 11.8	(R) 11.1
Mediocre, percent	[b]	[b]	11.5	13.3	16.3	14.7	14.1	14.6	18.5	18.1	16.8	16.4	16.4	16.4	15.5	(R) 15.7	(R) 14.5
Fair, percent	49.0	49.1	34.8	55.0	50.8	47.2	48.9	49.5	45.3	45.2	45.1	45.7	46.1	46.7	46.8	(R) 47.2	(R) 44.9
Good, percent	[b]	[b]	21.4	19.3	16.6	15.9	17.5	17.8	17.6	18.8	19.4	19.5	19.4	19.5	(R) 20.0	20.1	21.4
Very good, percent	45.1	44.3	25.3	3.3	3.8	9.7	7.7	6.0	5.8	5.4	5.4	5.5	4.9	4.7	5.5	5.3	8.2
Unpaved, percent	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Miles not reported[a]	N	N	N	22,498	14,492	11,352	8,485	8,209	8,246	5,154	5,426	4,126	3,422	3,440	2,863	2,064	1,765
Minor arterials miles reported	74,656	74,979	80,368	86,819	87,852	88,510	89,020	88,484	45,275	88,663	88,338	88,260	89,559	92,527	96,170	100,290	101,637
Poor, percent	8.9	7.4	7.9	7.9	6.7	6.7	6.9	7.2	5.7	19.4	10.0	10.5	10.5	11.4	13.0	12.3	12.2
Mediocre, percent	[b]	[b]	14.3	13.8	12.3	13.6	13.0	13.0	12.2	17.4	16.0	15.9	16.1	16.5	15.8	15.2	14.6
Fair, percent	48.5	49.9	34.1	40.2	38.1	36.9	37.9	37.9	36.0	40.7	39.8	41.1	40.7	41.6	40.8	40.7	40.1
Good, percent	[b]	[b]	19.2	18.4	20.5	20.4	20.7	21.4	22.1	14.2	16.9	16.8	17.4	16.7	15.9	16.4	16.2
Very good, percent	42.1	42.1	24.0	19.4	22.1	22.1	21.1	20.6	24.0	8.3	17.3	15.7	15.3	13.8	14.5	15.4	16.9
Unpaved, percent	0.5	0.6	0.5	0.4	0.3	0.3	0.4	N	N	N	N	N	N	N	N	N	N
Miles not reported[a]	N	N	N	N	N	N	N	374	43,435	N	N	N	N	N	N	N	N
Collectors miles reported	78,248	77,097	82,657	84,856	86,098	87,331	87,790	86,666	53,806	86,821	86,030	86,267	87,754	94,939	99,675	103,979	106,843
Poor, percent	16.5	11.2	10.5	10.6	9.8	9.7	9.7	10.6	8.1	22.1	14.7	14.6	15.4	16.5	18.1	16.9	18.8
Mediocre, percent	[b]	[b]	16.9	16.8	16.2	16.8	16.6	16.0	12.8	17.5	17.4	17.3	17.4	17.5	16.7	16.6	16.1
Fair, percent	50.4	53.5	35.2	40.0	40.0	39.0	39.2	39.0	39.4	37.7	35.7	36.6	36.8	36.0	34.3	35.8	35.1
Good, percent	[b]	[b]	17.3	16.1	17.0	17.2	18.2	18.4	18.8	12.8	14.2	13.5	13.7	13.4	13.2	14.4	12.9
Very good, percent	31.7	34.2	19.1	15.5	16.0	16.6	15.4	15.9	20.9	9.9	18.0	18.1	16.7	16.6	17.7	16.3	17.1
Unpaved, percent	1.3	1.1	1.1	1.0	0.9	0.8	0.9	N	N	N	N	N	N	N	N	N	N
Miles not reported[a]	N	N	N	N	N	N	N	663	32,921	N	N	N	N	N	N	N	N

KEY: N = data do not exist; – = value too small to report.

[a] Historical differences in miles not reported result from the transition from the Present Serviceability Rating (PSR) to the International Roughness Indicator (IRI).

[b] Included in row below.

NOTES

Numbers may not add to totals due to rounding.

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

Data are for the 50 states and the District of Columbia. The terms poor and mediocre as used here are Federal Highway Administration (FHWA) pavement condition criteria term categories for quantitative International Roughness Index and Present Serviceability Ratings. For further information, see U.S. Department of Transportation, FHWA, Status of the Nation's Highways, Bridges, and Transit: 2002 Conditions and Performance Report, Exhibit 3-3, available at: http://www.fhwa.dot.gov/policy, as of November 2008.

Comparisons of data between pre-1993, and 1993 and later years are difficult because of the transition to a new pavement condition indicator beginning with data published in 1993. Thus, trend comparisons should be made with care. For additional information, refer to the accuracy profile for this table in the appendix. Total mileage in this table will not match that in table 1-5 due to a change in the method of preparing mileage data derived from the Highway Performance Monitoring System, beginning with the 1997 issue of FHWA's Highway Statistics.

SOURCES

1990-92: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics* (Washington, DC: Annual issues), table HM-63.

1993-2006: Ibid., table HM-63 for rural major collector, urban minor arterial, and urban collector, and table HM-64 for all other categories.

Table 1-27: Condition of U.S. Highway Bridges

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

KEY: R = revised.

NOTES:

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

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

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

Data for 1990, 1992, 1997-99, and 2001 are as of December of those years; data for 1991 and 1994-96 are as of June of those years; data for 1993 are as of September of that year; data for 2000 are as of August of that year; data for 2002-06 are as of July of those years.Data for 2007 is as of December.

SOURCES:

1990-2000: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics; based o data from Federal Highway Administration, Office of Bridge Technology, National Bridge Inventory Database, personal communication, Aug. 14, 2001 and Apr. 24, 2008.

2001-07: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics; based on data from Federal Highway Administration, Office of Bridge Technology, National Bridge Inventory Database, *Count of Bridges by Highway System,* Internet site http://www.fhwa.dot.gov/bridge/britab.htm as of Mar. 13, 2008.

Table 1-28a: Average Age of Urban Transit Vehicles (Years)

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

KEY: U = data are not available.

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

[b] Full-size buses have more than 35 seats; mid-size buses have 25-35 seats; small buses have fewer than 25 seats.

SOURCES

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

1985-2005: U.S. Department of Transportation, Federal Transit Administration, *National Transit Database 2006* (Washington, DC: 2007), table 25 and similar tables in earlier editions.

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

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

1992-2006: Ibid., *National Transit Summaries and Trends 2006* (Washington, DC: 2008), p. 66 and similar tables in earlier editions.

TABLE 1-28b: Condition of Urban Bus and Rail Transit Maintenance Facilities

	1995	1997	2000	2002	2004	2006
Bus, number of facilities[a]	484	503	497	1,219	1,207	1,200
Excellent	102	13	46	83	208	213
Good	257	86	41	68	62	69
Adequate	34	285	266	672	551	571
Substandard	29	93	121	387	379	334
Poor	63	26	23	10	6	13
Rail, number of facilities	123	125	150	152	152	200
Excellent	8	7	0	27	40	47
Good	56	53	32	18	26	25
Adequate	15	17	64	76	74	110
Substandard	15	17	36	27	10	16
Poor	5	6	18	3	2	2

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

NOTE

Numbers may not add to totals due to rounding.

SOURCE

U.S. Department of Transportation, Federal Transit Administration, Transit Economic Requirements Model as of Feb. 12, 2008.

TABLE 1-28c: Condition of Rail Transit Infrastructure (Percent)

	1995	1997	2000	2002	2004	2006
Stations						
Excellent	14	11	1	3	7	4
Good	47	46	33	22	28	29
Adequate	12	15	50	18	14	19
Substandard	12	13	16	26	51	48
Poor	15	15	0	30	0	0
Communication Systems						
Excellent	N	0	0	7	12	11
Good	N	61	62	69	63	43
Adequate	N	16	12	10	25	46
Substandard	N	12	14	6	0	0
Poor	N	10	12	8	0	0
Train Control Systems						
Excellent	N	9	7	6	0	1
Good	N	52	56	66	45	34
Adequate	N	16	17	11	29	40
Substandard	N	11	10	10	14	12
Poor	N	13	10	8	12	14
Traction Power Systems						
Excellent	N	25	21	37	8	9
Good	N	44	55	45	47	46
Adequate	N	10	11	11	45	44
Substandard	N	14	7	3	1	1
Poor	N	7	7	4	0	1
Revenue Collection Systems						
Excellent	N	27	30	34	26	26
Good	N	33	31	56	54	53
Adequate	N	18	18	2	10	10
Substandard	N	10	18	7	8	7
Poor	N	12	4	1	3	4
Elevated structures						
Excellent	1	0	2	5	3	3
Good	56	59	59	83	77	79
Adequate	16	12	16	3	4	1
Substandard	20	29	22	7	14	17
Poor	7	1	2	2	2	1
Underground tunnels						
Excellent	9	7	12	40	26	22
Good	59	47	46	34	48	54
Adequate	13	18	19	12	12	4
Substandard	11	19	11	9	6	14
Poor	7	9	12	6	7	5

KEY: N = data do not exist.

NOTE
Percents may not add to 100 due to rounding.

SOURCE
U.S. Department of Transportation, Federal Transit Administration, Transit Economic Requirements Model as of Feb. 12, 2008.

Table 1-29: Class I Railroad Locomotive Fleet by Year Built (Locomotive units)

Year built[a]	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Total	18,835	18,344	18,004	18,161	18,505	18,812	19,269	19,684	20,261	20,256	20,028	19,745	20,506	20,774	22,015	22,779	23,732
Before 1970	5,117	4,353	4,038	3,766	3,535	b	b	b	b	b	f	f	f	f	f	j	j
1970-74	3,852	3,617	3,384	3,248	3,184	[c]6,048	[c]5,783	[c]5,529	[c]5,565	[c]5196	f	f	f	f	f	j	j
1975-79	4,432	4,375	4,292	4,352	4,275	4,254	4,274	4,219	4,116	4,000	[g]8,541	[g]7,862	[g]7,133	[g]6,889	[g]7,056	j	j
1980-84	2,837	2,826	2,784	2,730	2,625	2,754	2,735	2,728	2,723	2,581	2,411	2,153	1,790	1,655	1,585	[k]8,705	[k]8237
1985-89	1,989	1,985	1,970	1,968	1,971	1,890	1,866	1,829	1,830	1,779	1,775	1,672	1,807	1,791	1,799	1,786	1,735
1990	608	605	604	604	599	[d]2,965	[d]2,959	[d]2,958	[d]2,736	[d]2,688	[d]2,648	[d]2,667	[d]2,702	[d]2,700	[d]2,715	[d]2,783	[d]2740
1991		583	595	595	594	e	e	e	e	e	e	e	e	e	e	e	e
1992			337	340	339	e	e	e	e	e	e	e	e	e	e	e	e
1993				558	602	e	e	e	e	e	e	e	e	e	e	e	e
1994					781	e	e	e	e	e	e	e	e	e	e	e	e
1995						901	945	983	953	951	973	[h]4,020	[h]4,582	[h]4,673	[h]4,672	[h]4,348	[h]4535
1996							707	696	708	706	697	i	i	i	i	i	i
1997								742	741	743	745	i	i	i	i	i	i
1998									889	890	890	i	i	i	i	i	i
1999										722	713	i	i	i	i	i	i
2000											635	691	987	863	863	[l]4,350	[l]4673
2001												680	810	891	891	m	m
2002													695	725	722	m	m
2003														587	591	m	m
2004															1,121	m	m
2005																807	881
2006																	931

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

SOURCE

Association of American Railroads, *Railroad Facts 2007* (Washington, DC: 2007), p. 50 and similar pages in earlier editions.

Table 1-30: Age and Availability of Amtrak Locomotive and Car Fleets

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

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

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

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

SOURCES
1972-80: Amtrak, *Amtrak Annual Report* (Washington, DC: Annual issues).
1985-2000: Ibid., *Amtrak Annual Report,* Statistical Appendix (Washington, DC: Annual issues).
2001-07: Amtrak, Personal Communication as of August 2008.

TABLE 1–31: U.S. Flag Vessels by Type and Age (Number of vessels)

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

	Vessel type							
Age[a]	Dry cargo	Tanker	Towboat	Passenger[c]	Offshore support / crewboats[d]	Dry barge	Tank / liquid barge[e]	Total[b]
6–10	50	4	143	118	106	3,051	329	3,802
11–15	113	8	142	178	58	1,565	48	2,112
16–20	136	34	929	124	454	5,846	602	8,125
21–25	105	30	954	90	332	5,365	712	7,588
>25	263	48	2,497	271	214	6,461	1,714	11,470
2001, total[b]	966	120	5,150	733	1,573	28,920	4,122	41,588
<6	114	12	369	84	305	6,830	623	8,337
6–10	76	3	167	81	111	2,815	388	3,641
11–15	132	5	125	138	68	2,043	85	2,596
16–20	139	32	692	110	372	4,241	329	5,916
21–25	154	28	972	77	452	6,126	805	8,614
>25	347	40	2,818	240	262	6,712	1,884	12,306
2002, total[b]	989	108	5,180	750	1,591	28,313	4,068	41,002
<6	113	13	369	70	322	6,117	595	7,599
6–10	86	3	185	92	96	3,416	419	4,298
11–15	130	2	142	136	89	2,499	172	3,170
16–20	114	22	381	117	228	1,669	134	2,665
21–25	175	35	1,091	75	547	7,702	843	10,468
>25	368	33	3,004	256	305	6,731	1,904	12,603
2003, total[b]	969	104	5,172	789	1,609	27,304	4,031	39,983
<6	114	9	362	69	314	4,909	604	6,381
6–10	93	7	217	89	126	4,155	396	5,085
11–15	110	3	148	122	93	2,976	260	3,712
16–20	127	15	198	133	111	1,054	71	1,709
21–25	168	32	1,135	84	584	7,135	774	9,912
>25	354	38	3,105	287	378	6,884	1,923	12,972
2004, total[b]	987	103	5,314	834	1,746	27,227	4,069	40,290
<6	126	11	367	72	279	4,556	676	6,087
6–10	112	10	272	97	198	4,840	453	5,983
11–15	95	3	166	119	109	3,057	296	3,846
16–20	132	8	157	144	64	1,169	35	1,709
21–25	130	31	1,083	92	580	6,240	639	8,795
>25	390	40	3,262	308	512	7,152	1,970	13,642
2005, total[b]	969	100	5,290	841	1,768	27,901	4,151	41,028
<6	115	11	336	62	244	4,140	743	5,651
6–10	106	13	321	96	262	5,611	512	6,921
11–15	74	4	157	114	107	3,120	333	3,911
16–20	137	3	155	150	59	1,507	43	2,054
21–25	116	30	907	98	464	5,174	535	7,324
>25	419	39	3,406	321	629	8,113	1,985	14,918
2006, total[b]	946	90	5,285	828	1,721	27,961	4,250	41,109
<6	123	14	362	53	237	3,955	833	5,577
6–10	103	10	336	88	277	6,006	496	7,316
11–15	75	2	172	101	103	2,913	386	3,752
16–20	127	3	132	148	55	1,949	84	2,498
21–25	96	21	690	110	359	3,629	293	5,198
>25	421	40	3,581	328	685	9,204	2,155	16,414

[a] Age is based on the year the vessel was built or rebuilt.

[b] Totals may be greater than sum of columns because of unclassified vessels and vessels of unknown age; figures include vessels available for operation.

[c] Includes passenger excursion/sightseeing, combination passenger and dry-cargo vessels, and ferries.

[d] In 1992, offshore supply boats were designated as crewboats.

[e] In 1992, tank barges were designated as liquid barges.

NOTE

Figures include vessels available for operation.

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.iwr.usace.army.mil as of September 2008.

Section D
Travel and Goods Movement

Table 1-32: U.S. Vehicle-Miles (Millions)

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Air																							
Air carrier, large certificated, domestic, all services	858	1,134	2,068	1,948	2,523	3,046	3,963	3,854	3,995	4,157	4,380	4,629	4,811	4,911	5,035	5,332	5,664	5,548	5,616	6,085	6,552	6,714	6,619
General aviation[a]	1,769	2,562	3,207	4,238	5,204	4,673	4,548	4,400	3,465	3,253	3,358	3,795	3,524	3,877	N	N	N	N	N	N	N	N	N
Highway[b], total	718,762	887,812	1,109,724	1,327,664	1,527,295	1,774,826	2,144,362	2,172,050	2,247,151	2,296,378	2,357,588	2,422,696	2,485,848	2,561,695	2,631,522	2,691,056	2,746,925	2,797,287	2,855,508	2,890,450	2,964,788	(R) 2,989,430	3,014,116
Passenger car[b,c]	587,012	722,696	916,700	1,033,950	1,111,596	1,246,798	1,408,266	1,358,185	1,371,569	1,374,709	1,406,089	1,438,294	1,469,854	1,502,556	1,549,577	1,569,100	1,600,287	1,628,332	1,658,474	1,672,079	1,699,890	(R) 1,708,421	1,682,671
Motorcycle[c]	h	h	2,979	5,629	10,214	9,086	9,557	9,178	9,557	9,906	10,240	9,797	9,920	10,081	10,283	10,584	10,469	9,639	9,552	9,577	10,122	(R) 10,454	12,401
Other 2-axle 4-tire vehicle[b]	h	h	123,286	200,700	290,935	390,961	574,571	649,394	706,863	745,750	764,634	790,029	816,540	850,739	868,275	901,022	923,059	943,207	966,034	984,094	1,027,164	(R) 1,041,051	1,089,013
Truck, single-unit 2-axle 6-tire or more	98,551	128,769	27,081	34,606	39,813	45,441	51,901	52,898	53,874	56,772	61,284	62,705	64,072	66,893	68,021	70,304	70,500	72,448	75,866	77,757	78,441	(R) 78,496	80,331
Truck, combination	28,854	31,665	35,134	46,724	68,678	78,063	94,341	96,645	99,510	103,116	108,932	115,451	118,899	124,584	128,359	132,384	135,020	136,584	138,737	140,160	142,370	(R) 144,028	142,706
Bus	4,346	4,681	4,544	6,055	6,059	4,478	5,726	5,750	5,778	6,125	6,409	6,420	6,563	6,842	7,007	7,662	7,590	7,077	6,845	6,783	6,801	(R) 6,980	6,994
Transit[d], total	2,143	2,008	1,883	2,176	2,287	2,791	3,242	3,306	3,355	3,435	3,467	3,551	3,651	(R) 3,747	(R) 3,794	(R) 3,973	(R) 4,082	4,196	(R) 4,281	(R) 4,367	(R) 4,462	(R) 4,611	4,684
Motor bus[e]	1,576	1,528	1,409	1,526	1,677	1,863	2,130	2,167	2,178	2,210	2,162	2,184	2,221	2,245	2,175	2,276	2,315	2,377	2,411	2,421	2,471	2,495	2,495
Light rail	75	42	34	24	18	17	24	28	29	28	34	35	38	41	44	49	53	54	61	64	67	69	74
Heavy rail	391	395	407	423	385	451	537	527	525	522	532	537	543	558	566	578	595	608	621	630	630	646	652
Trolley bus	101	43	33	15	13	16	14	14	14	13	14	14	14	14	14	14	15	13	14	14	13	13	12
Commuter rail	N	N	N	173	179	183	213	215	219	224	231	238	242	251	260	266	271	277	284	286	295	303	315
Demand responsive[e]	N	N	N	N	N	247	306	335	364	406	464	507	548	585	671	718	759	789	803	864	890	978	1,013
Ferry boat	N	N	N	N	i	i	2	2	2	3	2	3	2	3	3	3	3	3	3	4	4	4	4
Other	N	N	N	15	15	15	16	19	24	30	29	34	43	50	63	69	71	75	84	85	92	(R) 103	119
Rail																							
Class I freight, train-miles	404	421	427	403	428	347	380	375	390	405	441	458	469	475	475	490	504	500	500	516	535	548	563
Class I freight, car-miles	28,170	29,336	29,890	27,656	29,277	24,920	26,159	25,628	26,128	26,883	28,485	30,383	31,715	31,660	32,657	33,851	34,590	34,243	34,680	35,555	37,071	37,712	38,955
Intercity/Amtrak[f], train-miles	209	172	93	30	30	30	33	34	34	35	34	32	30	32	33	34	35	36	38	37	37	36	36
Intercity/Amtrak[f], car-miles	2,208	1,775	690	253	235	251	301	313	307	303	304	292	276	288	312	342	368	378	379	332	308	265	264
Total train-miles[g]	613	593	520	433	458	377	413	409	424	440	475	490	499	507	508	524	539	536	537	553	572	584	599

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

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

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

[c] U.S. Department of Transportation, Federal Highway Administration (FHWA), provides data separately for passenger car and motorcycle in its annual *Highway Statistics* series. However, the 1995 summary

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

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

[f] Amtrak began operations in 1971.

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

[h] 1960–65, motorcycle data are included in passenger car, and other 2-axle 4-tire vehicle data included in single-unit 2-axle 6-tire or more truck.

[i] Ferry boat included with other.

NOTE

Numbers may not add to totals due to rounding.

SOURCES

Air:

Air carrier:

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

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

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

1985-2006: U.S. Department of Transportation, Bureau of Transportation Statistics, Office of Airline Information, *Air Carrier Traffic Statistics* (Washington, DC: Annual December issues), p. 3, line 25 plus line 46.

General aviation:

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

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

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

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

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

Highway:

Passenger car and motorcycle:

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

1995-2006: Ibid., Highway Statistics (Washington, DC: Annual issues), table VM-1, and Internet site http://www.fhwa.dot.gov/policy/ohpi/index.htm.

Motorcycle:

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

1985-2005: Ibid., Highway Statistics (Washington, DC: Annual issues), table VM-1, and Internet site http://www.fhwa.dot.gov/policy/ohpi/index.htm.

Other 2-axle 4-tire vehicle:

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

1995-2006: Ibid., Highway Statistics (Washington, DC: Annual issues), table VM-1, and Internet site http://www.fhwa.dot.gov/policy/ohpi/index.htm.

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

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

1995-2006: Ibid., Highway Statistics (Washington, DC: Annual issues), table VM-1, and Internet site http://www.fhwa.dot.gov/policy/ohpi/index.htm.

Transit:

1960-2006: American Public Transit Association, *Public Transportation Fact Book* (Washington, DC: Annual issues), table 10, 54, and similar tables in earlier editions.

Rail:

Class I rail freight train- and car-miles:

1960-2006: Association of American Railroads, *Railroad Facts 2007* (Washington, DC: 2006), p. 33 (train-miles) and p. 34 (car-miles).

Intercity/Amtrak train-miles:

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

1975-2001: Amtrak, *Amtrak Annual Report,* Statistical Appendix (Washington, DC: Annual issues).

2002-06: Association of American Railroads, *Railroad Facts 2007* (Washington, DC: 2006), p. 77.

Intercity/Amtrak car-miles:

1960-75: Association of American Railroads*Yearbook of Railroad Facts* (Washington, DC: 1975), p. 40.
1980-2000: Amtrak, Amtrak Corporate Reporting, Route Profitability System, personal communication, 2001.
2001-06: Association of American Railroads*Railroad Facts 2007* (Washington, DC: 2006), p. 77.

TABLE 1-33: Roadway Vehicle-Miles Traveled (VMT) and VMT per Lane-Mile by Functional Class

	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Urban VMT, total (millions)	855,265	1,044,098	1,275,484	1,288,497	1,363,054	1,409,672	1,449,247	1,489,534	1,523,886	1,552,956	1,595,620	1,627,618	1,663,773	1,676,379	1,727,596	1,805,508	1,892,265	1,951,870	1,977,047
Interstate	161,242	216,188	278,901	285,325	303,265	317,399	330,577	341,528	351,579	361,433	374,622	383,259	393,465	399,890	408,618	432,633	454,385	469,070	477,283
Other arterials[a]	484,189	578,270	699,233	707,518	745,618	773,978	797,899	815,170	834,623	846,627	862,996	878,153	900,392	913,726	937,357	973,936	1,020,089	1,048,219	1,060,098
Collector	83,043	89,578	106,297	107,281	116,065	117,887	120,088	126,929	129,310	130,146	131,905	131,603	135,372	137,922	141,874	153,751	162,108	168,038	173,210
Local	126,791	160,062	191,053	188,373	198,106	200,408	200,683	205,907	208,374	214,750	226,097	234,603	234,544	224,841	239,747	245,188	255,683	266,543	266,456
Rural VMT, total (millions)	672,030	730,728	868,878	883,553	884,097	886,706	908,341	933,289	960,194	999,277	1,032,528	1,062,623	1,083,152	1,105,083	1,128,160	1,085,385	1,070,248	1,037,937	1,037,069
Interstate	135,084	154,357	200,173	205,011	205,557	208,308	215,568	223,382	232,565	240,255	251,520	260,166	268,180	274,024	279,962	269,945	266,996	258,790	257,913
Other arterials[a]	262,774	282,803	330,866	334,755	344,062	349,567	357,329	368,595	378,847	392,057	403,484	413,320	420,599	426,945	433,805	416,596	409,944	398,932	394,499
Collector[b]	189,468	206,669	240,460	245,630	234,910	226,296	230,529	236,148	241,030	254,100	257,868	264,453	267,231	270,962	275,007	263,662	260,931	251,587	251,375
Local	84,704	86,899	97,379	98,157	99,568	102,535	104,915	105,164	107,752	112,865	119,656	124,684	127,142	133,152	139,386	135,182	132,377	128,628	133,282
Urban VMT per lane-mile, total (thousands)	613	677	764	766	775	782	794	810	820	825	844	858	869	852	861	856	860	862	856
Interstate	3,327	3,773	4,483	4,542	4,508	4,588	4,667	4,784	4,897	5,002	5,131	5,229	5,323	5,370	5,440	5,436	5,479	5,455	5,427
Other arterials[a]	1,451	1,556	1,751	1,758	1,783	1,778	1,803	1,829	1,857	1,866	1,901	1,950	1,974	1,997	2,025	2,012	2,019	2,001	1,989
Collector	572	552	634	649	659	656	655	686	692	689	703	706	718	728	743	741	745	745	768
Local	146	168	184	179	181	179	178	181	181	184	192	198	196	181	188	183	184	187	183
Rural VMT per lane-mile, total (thousands)	103	113	136	138	139	140	144	148	152	157	165	169	172	176	179	175	174	170	170
Interstate	1,031	1,170	1,473	1,502	1,540	1,576	1,642	1,693	1,749	1,804	1,888	1,939	1,993	2,035	2,080	2,070	2,088	2,061	2,074
Other arterials[a]	518	555	640	646	653	665	674	695	711	730	750	766	778	787	797	780	771	753	744
Collector[b]	132	141	164	167	163	158	161	167	170	179	182	187	189	192	195	190	189	183	184
Local	19	20	23	23	23	24	25	25	25	26	29	30	30	32	33	33	32	32	33

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

[b] Collector is the sum of major and minor collectors (rural only).

NOTE

See table 1-6 for estimated highway lane-miles by functional class.

SOURCES

1980-94: U.S. Department of Transportation, Federal Highway Administration,*Highway Statistics Summary to 1995,* FHWA-PL-97-009 (Washington, DC: July 1997), table VM-202.

1995-2006: U.S. Department of Transportation, Federal Highway Administration,*Highway Statistics* (Washington, DC: Annual issues), table VM-2, Internet site www.fhwa.dot.gov/policy/ohpi as of Jan. 4, 2008.

Lane-miles:

1980-95: U.S. Department of Transportation, Federal Highway Administration, Office of Highway Information Management, unpublished data, 1997, table HM-260.

1996-2006: U.S. Department of Transportation, Federal Highway Administration,*Highway Statistics* (Washington, DC: Annual issues), table HM-60, Internet site www.fhwa.dot.gov/policy/ohpi as of Jan. 4, 2008.

Table 1-34: U.S. Air Carrier Aircraft Departures, Enplaned Revenue Passengers, and Enplaned Revenue Tons

	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	(R) 2000	(R) 2001	(R) 2002	(R) 2003	(R) 2004	2005	2006	(P) 2007
AIRCRAFT DEPARTURES																					
Total performed [a]	**4,555,516**	**5,156,848**	**5,505,659**	**6,641,681**	**6,545,000**	**6,606,609**	**7,193,841**	**7,513,232**	**8,030,530**	**8,204,674**	**8,095,888**	**8,248,269**	**8,605,486**	**8,929,559**	**8,548,932**	**8,052,756**	**8,585,736**	**9,444,234**	**9,859,941**	**9,512,017**	**9,628,397**
Total scheduled	**4,530,535**	**5,204,564**	**5,591,596**	**6,758,571**	**7,024,412**	**6,703,670**	**7,058,097**	**7,359,093**	**7,920,467**	**8,064,653**	**7,907,554**	**8,094,020**	**8,432,940**	**8,688,776**	**8,340,180**	**7,981,190**	**8,479,414**	**9,193,220**	**9,722,715**	**9,429,017**	**9,740,221**
Large hubs																					
Performed	2,437,958	2,887,239	3,439,446	4,167,868	4,114,950	4,078,211	4,480,575	4,756,589	5,162,534	5,257,541	5,266,560	5,416,158	5,645,179	5,851,801	5,177,758	4,918,940	5,336,246	5,591,234	5,842,793	5,660,186	5,688,872
Scheduled	2,409,874	2,905,923	3,487,660	4,237,466	4,312,032	4,144,325	4,443,937	4,713,178	5,147,875	5,243,646	5,219,161	5,405,728	5,570,419	5,720,435	5,092,030	4,867,648	5,326,856	5,486,529	5,806,009	5,654,357	5,818,488
Medium hubs																					
Performed	902,652	1,048,726	1,185,008	1,394,833	1,256,306	1,301,977	1,310,322	1,471,377	1,439,639	1,425,280	1,430,537	1,429,730	1,499,243	1,574,986	1,893,805	1,791,778	1,703,127	2,046,105	2,184,522	2,076,849	2,138,079
Scheduled	899,543	1,058,438	1,201,540	1,417,762	1,352,515	1,312,257	1,268,316	1,398,144	1,387,833	1,356,162	1,352,944	1,345,197	1,404,482	1,507,991	1,812,161	1,784,913	1,671,068	2,007,421	2,153,826	2,062,423	2,148,553
Small hubs																					
Performed	640,589	598,559	514,176	669,450	689,518	771,529	841,685	710,569	738,231	754,914	695,841	714,920	746,625	779,518	864,722	788,758	884,306	1,088,691	1,091,838	1,095,346	1,112,365
Scheduled	644,133	608,738	524,048	679,103	858,429	783,305	794,279	685,421	711,947	722,170	660,685	674,812	770,092	759,208	856,112	809,246	855,679	1,025,145	1,064,124	1,078,363	1,125,286
Nonhubs																					
Performed	574,317	622,324	367,029	409,530	484,226	454,892	561,259	574,697	690,126	766,939	702,950	687,461	714,439	723,254	612,647	553,280	662,057	718,204	740,788	679,636	689,081
Scheduled	576,985	631,465	378,348	424,240	501,436	463,783	551,565	562,350	672,812	742,675	674,764	668,283	687,947	701,142	579,877	519,383	625,811	674,125	698,756	633,874	647,894
ENPLANED REVENUE PASSENGERS [b]	**196,782,144**	**281,408,852**	**363,341,497**	**438,544,001**	**428,319,248**	**447,625,988**	**468,313,029**	**508,458,194**	**526,055,483**	**558,183,741**	**568,615,687**	**588,335,318**	**610,628,716**	**639,753,899**	**595,364,778**	**575,058,533**	**593,132,200**	**652,413,250**	**690,135,672**	**690,765,508**	**712,627,335**
Large hubs	133,975,900	197,679,376	264,507,144	317,595,099	313,375,097	319,582,090	340,048,661	372,731,005	392,601,890	417,339,694	426,246,423	442,402,443	458,665,099	479,570,342	413,634,333	401,696,877	424,621,015	447,500,697	473,367,070	475,207,801	488,298,537
Medium hubs	36,539,613	51,664,627	65,770,376	80,466,373	72,985,169	80,800,955	79,032,913	88,601,244	85,929,285	89,018,764	90,779,705	91,755,793	96,394,866	102,082,360	124,587,728	119,733,580	109,492,740	135,364,314	143,749,228	142,139,330	147,067,665
Small hubs	19,406,607	23,393,324	24,240,726	30,771,383	31,224,974	36,879,632	37,334,956	34,443,996	33,561,098	37,122,974	36,298,979	37,675,305	38,644,557	40,121,294	42,833,911	40,053,861	43,545,830	51,812,381	53,291,924	55,008,304	57,500,743
Nonhubs	6,860,024	8,671,525	8,823,251	9,711,146	10,734,008	10,363,311	11,896,499	12,681,949	13,963,210	14,702,309	15,290,580	16,501,777	16,924,194	17,979,903	14,308,806	13,574,215	15,472,615	17,735,858	19,727,450	18,410,073	19,760,390
ENPLANED REVENUE TONS [c]	**3,661,061**	**5,088,313**	**4,024,470**	**6,298,824**	**6,417,504**	**6,736,309**	**8,203,090**	**8,718,082**	**9,365,017**	**10,333,298**	**13,520,228**	**14,083,769**	**14,911,847**	**15,105,527**	**17,514,685**	**13,525,489**	**13,911,441**	**14,616,794**	**14,445,548**	**14,262,852**	**14,099,708**
Freight, total	**2,764,763**	**3,562,187**	**2,601,027**	**4,732,726**	**4,854,513**	**5,053,678**	**6,383,887**	**6,802,375**	**7,204,479**	**8,047,795**	**11,163,448**	**11,784,514**	**12,067,717**	**12,770,655**	**15,805,842**	**12,674,172**	**13,069,642**	**13,870,934**	**13,795,084**	**13,673,646**	**13,586,049**
Large hubs	2,265,665	3,008,311	2,047,988	3,001,217	2,960,604	3,067,778	3,678,851	4,025,517	4,402,327	4,653,189	5,691,363	6,208,629	5,993,061	6,728,534	6,338,289	4,999,651	5,524,253	5,424,975	5,184,194	5,019,609	4,969,475
Medium hubs	358,044	414,325	469,057	1,446,744	1,507,017	1,633,136	1,857,865	2,022,282	1,950,318	2,169,411	3,855,449	3,897,242	4,382,712	4,445,684	6,871,585	5,750,187	5,264,084	5,042,642	6,239,905	5,239,725	5,235,404
Small hubs	99,133	73,795	48,127	191,358	222,247	267,619	516,199	432,680	541,062	755,232	963,093	1,019,615	1,053,050	936,896	1,405,627	1,056,987	1,015,860	2,052,242	981,639	2,010,442	2,037,655
Nonhubs	41,922	65,756	35,855	93,407	164,645	85,145	330,973	321,896	310,772	469,962	653,542	659,028	638,894	659,541	1,190,341	867,347	1,265,445	1,351,075	1,389,346	1,403,870	1,343,515
Mail, total	**896,298**	**1,526,125**	**1,423,443**	**1,566,098**	**1,562,991**	**1,682,632**	**1,819,203**	**1,915,706**	**2,160,538**	**2,285,503**	**2,356,781**	**2,299,255**	**2,844,130**	**2,334,872**	**1,708,843**	**851,317**	**841,799**	**745,860**	**650,464**	**589,206**	**513,659**
Large hubs	677,179	1,091,059	1,082,567	1,146,589	1,095,019	1,201,545	1,320,176	1,406,910	1,546,568	1,630,445	1,699,154	1,662,643	2,183,127	1,674,892	1,127,090	642,709	663,406	572,837	492,408	429,955	369,073
Medium hubs	151,498	255,929	268,179	292,899	321,041	321,051	324,441	344,200	442,814	466,583	473,577	482,710	502,096	508,356	407,330	162,549	141,315	143,888	136,635	124,151	93,925
Small hubs	48,486	148,116	59,917	108,656	126,070	144,918	152,692	136,111	136,008	157,137	138,818	127,748	126,793	109,283	103,227	34,293	27,464	25,202	16,901	18,512	25,732
Nonhubs	19,134	31,021	12,781	17,954	20,861	15,117	21,894	28,485	35,149	31,338	45,232	26,154	32,114	42,341	71,196	11,766	9,614	3,933	4,520	16,588	24,929

KEY: P = preliminary; R = revised.

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

NOTES

Data are for all scheduled and nonscheduled service by large certificated U.S. air carriers at all airports served within the 50 states, the District of Columbia, and other U.S. areas designated by the Federal Aviation Administration. Not all scheduled service is actually performed. Moreover, for several years, total performed departures exceed total scheduled departures because nonscheduled departures are included in the totals. Prior to 1993, all scheduled and some nonscheduled enplanements for certificated air carriers were included; no enplanements were included for air carriers offering charter service only. Prior to 1990, freight includes both freight and express shipments, and mail includes priority and nonpriority U.S. mail and foreign mail; beginning in 1990, only aggregate numbers are reported.

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

Prior to 2000, 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 2000 and later, hub designation is based on passenger boardings at individual airports as designated by the FAA. Classifications are based on the percentage of total enplaned revenue passengers for each year according to the following: one percent or more = large, 0.25 to 0.9999 percent = medium, 0.05 to 0.249 percent = small, less than 0.05 = nonhub. The 2007 data uses 2006 hub size classifications, as the 2007 FAA hub classifications were not available at the time of publication.

SOURCE

1975-99: U.S. Department of Transportation, Bureau of Transportation Statistics, Office of Airline Information, *Airport Activity Statistics of Certified Route Air Carriers* (Washington, DC: Annual issues), tables 2, 3, 4, and 5.
2000-07: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, Office of Airline Information, Airport Activity Statistics Database (Form 41 Schedule T-3), special tabulation.

Table 1-35: Average Length of Haul, Domestic Freight and Passenger Modes (Miles)

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Freight																						
Air carrier	953	943	1,014	1,082	1,052	1,157	1,389	1,346	1,391	1,347	1,221	1,160	1,181	1,077	1,078	1,001	982	973	U	U	U	U
Truck[a]	272	259	263	286	363	366	391	398	410	407	392	416	426	435	442	458	473	485	U	U	U	U
Class I rail	461	503	515	541	616	665	726	751	763	794	817	843	842	851	835	835	843	859	853	862	902	U
Coastwise (water)	1,496	1,501	1,509	1,362	1,915	1,972	1,604	1,705	1,762	1,650	1,652	1,652	1,526	1,330	1,261	1,279	1,251	1,228	1,219	1,248	1,269	U
Lakewise (water)	522	494	506	530	536	524	553	535	519	514	508	514	508	507	505	501	506	509	529	530	538	U
Internal (water)	282	297	330	358	405	435	468	483	479	468	482	494	477	466	472	488	481	476	483	457	454	U
Intraport (water)	U	U	U	16	17	15	13	13	12	12	16	16	17	15	15	15	16	15	15	15	16	U
Crude (oil pipeline)	325	320	300	633	871	777	812	822	830	790	778	797	779	781	767	766	U	U	U	U	U	U
Petroleum products (oil pipeline)	269	335	357	516	414	391	387	379	379	406	414	402	413	413	420	418	U	U	U	U	U	U
Passenger																						
Air carrier, domestic, scheduled	583	614	678	698	736	758	803	806	806	799	787	791	802	817	812	824	833	842	850	(R) 858	857	874
Bus, intercity	79	94	106	113	125	121	141	143	136	138	138	140	143	144	144	143	143	U	U	U	U	U
Commuter rail	21	21	22	23	23	24	22	23	23	22	21	24	24	23	23	23	23	23	23	23	23	U
Amtrak[b]	N	N	N	236	216	231	273	285	286	280	279	268	256	256	251	248	244	237	234	231	219	U

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

[a] Total Class I and Class II motor carriers of freight (less-than-truckload, specialized carrier for truckload, and others).

[b] Amtrak began operations in 1971. Data are reported for fiscal years.

NOTES

Average length of haul for freight is calculated by dividing ton-miles in table 1-46 by estimates of tonnage from the various data sources. The calculation of average length of haul for passenger trips varies by mode: for air carrier it is calculated by dividing revenue passenger-miles by revenue passenger enplanements; for commuter rail, intercity bus, and Amtrak it is calculated by dividing passenger-miles by number of passengers.

SOURCES

Freight:

Air carrier, truck:

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

Class I rail:

Association of American Railroads, *Railroad Facts 2005* (Washington, DC: 2005), p. 36.

Water:

U.S. Army Corps of Engineers, *Waterborne Commerce of the United States, Part 5* (New Orleans, LA: Annual issues), section 1, table 1-4 .

Oil pipeline:

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

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

Passenger:

Air carrier:

U.S. Department of Transportation, Bureau of Transportation Statistics, Office of Airline Information, *Air Carrier Traffic Statistics* (Washington, DC: Annual issues).

Intercity bus:

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

Commuter Rail:

1960-2000: Eno Transportation Foundation, Inc., *Transportation in America, 2002* (Washington, DC: 2002), p. 64.

2001-04: U.S. Department of Transportation, Federal Transit Administration, *National Transit Database* (Washington, DC: Annual issues), table 19 and similar tables in earlier editions.

Amtrak:

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

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

2003-04: Association of American Railroads, *Railroad Facts 2005* (Washington, DC: 2004), p. 77 and similar pages in earlier editions.

Table 1-36: Worldwide Commercial Space Launches

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	TOTAL 1990-2007
TOTAL space launches	15	12	14	11	15	23	24	38	41	39	35	16	24	17	15	18	21	23	401
United States, total	9	6	6	5	5	12	11	17	22	15	7	3	5	5	6	1	2	3	140
Athena	0	0	0	0	0	1	0	1	1	3	0	0	0	0	0	0	0	0	6
Atlas	1	2	3	3	4	8	7	6	5	4	3	1	3	4	5	1	1	0	61
Conestoga	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Delta	5	4	3	1	1	1	3	7	11	5	2	1	2	0	0	0	1	3	50
Pegasus	0	0	0	1	0	1	1	3	4	2	2	0	0	1	0	0	0	0	15
Taurus	0	0	0	0	0	0	0	0	1	1	0	1	0	0	1	0	0	0	4
Titan	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Europe, total	5	6	6	6	8	8	9	11	9	8	12	8	10	4	1	5	5	6	127
Ariane 4	5	6	6	6	8	8	9	11	9	8	8	6	7	1	0	0	0	0	98
Ariane 5	0	0	0	0	0	0	0	0	0	0	4	2	3	3	1	5	5	6	29
Russia, total	0	0	0	0	0	0	2	7	5	13	13	3	8	5	5	8	9	12	90
Cosmos	0	0	0	0	0	0	0	0	0	1	2	0	0	1	0	1	0	0	5
Dnepr	0	0	0	0	0	0	0	0	0	1	1	0	1	0	1	0	1	3	8
Kosmos	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	3
Proton	0	0	0	0	0	0	2	6	4	5	6	2	5	1	4	4	4	4	47
Rockot	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	1	1	0	5
Shtil	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
Soyuz	0	0	0	0	0	0	0	0	0	6	3	0	0	2	0	1	0	0	12
Soyuz 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	4
Start	0	0	0	0	0	0	0	1	0	0	1	1	0	0	0	0	1	0	4
Volna	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
Ukraine, total	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
Zenit 2	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
China, total	1	0	2	0	2	3	2	3	4	1	0	0	0	0	0	0	0	0	18
Long March 2C	0	0	0	0	0	0	0	1	4	1	0	0	0	0	0	0	0	0	6
Long March 2E	0	0	2	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0	6
Long March 3	1	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	3
Long March 3B	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	3
India,Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
PSLV	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Sea Launch[a], total	0	0	0	0	0	0	0	0	0	2	3	2	1	3	3	4	5	1	24
Zenit 3SL	0	0	0	0	0	0	0	0	0	2	3	2	1	3	3	4	5	1	24

[a] Sea Launch is an international venture involving organizations in four countries and uses its own launch facility outside national borders. Their first commercial launch, in 1999, was licensed by the Federal Aviation Administration.

NOTE

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

SOURCES

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

2000-07: U.6. Department of Transportation, Federal Aviation Administration,*Commercial Space Transportation: 2006 Year in Review* (Washington, DC: January 2007), Internet site http://ast.faa.gov/ as of Mar. 12, 2008.

Table 1-37: U.S. Passenger-Miles (Millions)

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Air, total	33,399	57,626	117,542	147,400	219,068	290,136	358,873	350,185	365,564	372,130	398,199	414,688	446,652	463,112	476,362	502,457	531,329	502,406	482,310	505,158	557,893	583,689	590,633
Air carrier, certificated, domestic, all services	31,099	53,226	108,442	136,000	204,368	277,836	345,873	338,085	354,764	362,230	388,399	403,888	434,652	450,612	463,262	488,357	516,129	486,506	482,310	505,158	557,893	583,689	590,633
General aviation[a]	2,300	4,400	9,100	11,400	14,700	12,300	13,000	12,100	10,800	9,900	9,800	10,800	12,000	12,500	13,100	14,100	15,200	15,900	U	U	U	U	U
Highway, total[b]	1,272,078	1,555,237	2,042,002	2,404,954	2,653,510	3,012,953	3,561,209	3,600,322	3,697,719	3,768,066	3,837,512	3,868,070	3,968,386	4,089,366	4,200,635	4,304,270	4,390,076	4,643,794	4,667,038	4,721,869	4,844,452	(R) 4,887,945	4,933,689
Passenger car[b,c]	1,144,673	1,394,803	1,750,897	1,954,166	2,011,989	2,094,621	2,281,391	2,200,260	2,208,226	2,213,281	2,249,742	2,286,887	2,337,068	2,389,065	2,463,828	2,494,870	2,544,457	2,556,481	2,620,389	2,641,885	2,685,827	(R) 2,699,305	2,658,621
Motorcycle[b,c]	g	g	3,277	6,192	12,257	11,812	12,424	11,656	11,946	12,184	12,390	10,777	10,912	11,089	11,311	11,642	11,516	11,760	12,131	12,163	12,855	(R) 13,277	15,750
Other 2-axle 4-tire vehicle[c]	h	h	225,613	363,267	520,774	688,091	999,754	1,116,958	1,201,667	1,252,860	1,269,292	1,256,146	1,298,299	1,352,675	1,380,557	1,432,625	1,467,664	1,678,853	1,674,792	1,706,103	1,780,771	(R) 1,804,848	1,887,997
Truck, single-unit 2-axle 6-tire or more	98,551	128,769	27,081	34,606	39,813	45,441	51,901	52,898	53,874	56,772	61,284	62,705	64,072	66,893	68,021	70,304	70,500	85,489	75,866	77,757	78,441	(R) 78,496	80,331
Truck, combination	28,854	31,665	35,134	46,724	68,678	78,063	94,341	96,645	99,510	103,116	108,932	115,451	118,899	124,584	128,359	132,384	135,020	161,169	138,737	140,160	142,370	(R) 144,028	142,706
Bus[d]	N	N	N	N	N	94,925	121,398	121,906	122,496	129,852	135,871	136,104	139,136	145,060	148,558	162,445	160,919	150,042	145,124	143,801	144,188	(R) 147,992	148,285
Transit, total[e]	N	N	N	N	39,854	39,581	41,143	40,703	40,241	39,384	39,585	39,808	41,378	42,339	44,128	45,857	47,666	49,070	48,324	47,903	49,073	49,680	(P) 52,154
Motor bus[d]	N	N	N	N	21,790	21,161	20,981	21,090	20,336	20,247	18,832	18,818	19,096	19,604	20,360	21,205	21,241	22,022	21,841	21,262	21,377	21,825	(P) 22,821
Light rail	N	N	N	N	381	350	571	662	701	705	833	860	957	1,035	1,128	1,206	1,356	1,437	1,432	1,476	1,576	1,700	(P) 1,866
Heavy rail	N	N	N	N	10,558	10,427	11,475	10,528	10,737	10,231	10,668	10,559	11,530	12,056	12,284	12,902	13,844	14,178	13,663	13,606	14,354	14,418	(P) 14,721
Trolley bus	N	N	N	N	219	306	193	195	199	188	187	187	184	189	182	186	192	187	188	176	173	173	(P) 164
Commuter rail	4,197	4,128	4,592	4,513	6,516	6,534	7,082	7,344	7,320	6,940	7,996	8,244	8,351	8,038	8,704	8,766	9,402	9,548	9,504	9,559	9,719	9,473	(P) 10,361
Demand responsive[d]	N	N	N	N	N	364	431	454	495	562	577	607	656	754	735	813	839	855	853	930	962	1,058	(P) 1,078
Ferry boat	N	N	N	N	i	i	286	282	271	260	260	260	265	294	294	310	330	325	333	394	393	394	(P) 400
Other	N	N	N	N	390	439	124	148	182	251	232	273	339	369	441	469	462	518	510	500	519	639	(P) 743
Rail																							
Intercity / Amtrak[f]	17,064	13,260	6,179	3,931	4,503	4,825	6,057	6,273	6,091	6,199	5,921	5,545	5,050	5,166	5,304	5,330	5,498	5,559	5,468	5,680	5,511	5,381	5,410

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

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

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

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

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

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

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

[g] Included in passenger car.

[h] Included in other single-unit 2-axle 6-tire or more truck.

[i] Ferryboat included in other.

NOTES

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

Numbers may not add to totals due to rounding.

SOURCES

Air:

Air carrier, domestic, all services:

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

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

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

1985-2005: U.S. Department of Transportation, Bureau of Transportation Statistics, Office of Airline Information, *Air Carrier Traffic Statistics* (Washington, DC: Annual December issues), page 3, line1.

General aviation:

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

Highway:

Passenger car and motorcycle:

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

1995-2005: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1, and Internet site http://www.fhwa.dot.gov/policy/ohpi/hss/index.htm.

Motorcycle:

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

1985-2005: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1, and Internet site http://www.fhwa.dot.gov/policy/ohpi/hss/index.htm.

Other 2-axle 4-tire vehicle:

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

1995-2005: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1, and Internet site http://www.fhwa.dot.gov/policy/ohpi/hss/index.htm.

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

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

1995-2006: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1, and Internet site http://www.fhwa.dot.gov/policy/ohpi/hss/index.htm

Transit:

Ferryboat:

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

1996-99: American Public Transit Association, personal communication, Aug. 13, 2001.

2000-06: Ibid., *2005 Public Transportation Fact Book* (Washington, DC: Annual issues), table 54 and similar tables in earlier editions.

All other data:

1960-2006: American Public Transportation Association, *Public Transportation Fact Book* (Washington, DC: Annual issues), table 6 and similar tables in earlier editions.

Rail, Intercity / Amtrak:

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

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

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

2003-06: American Association of Railroads, *Railroad Facts 2006* (Washington, DC: 2007), p. 77.

Table 1-38: Principal Means of Transportation to Work (Thousands)

	1989		1993		1997		1999		2001		2003		2005		2006		2007	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
All workers	106,630	100.0	103,741	100.0	116,469	100.0	118,041	100.0	120,191	100.0	115,342	100.0	123,250	100.0	138,266	100.0	139,260	100.0
Automobile, total	93,943	88.1	91,301	88.0	101,908	87.5	103,467	87.7	105,586	87.8	101,664	88.1	109,005	88.4	119,898	86.7	120,442	86.5
Drives self	81,322	76.3	79,449	76.6	90,207	77.5	92,363	78.2	93,942	78.2	91,607	79.4	97,781	79.3	105,046	76.0	105,955	76.1
Carpool, total	12,621	11.8	11,852	11.4	11,701	10.0	11,104	9.4	11,644	9.7	10,057	8.7	11,224	9.1	14,852	10.7	14,488	10.4
2-person	9,708	9.1	9,105	8.8	9,294	8.0	8,705	7.4	9,036	7.5	7,866	6.8	8,669	7.0	11,408	8.3	11,139	8.0
3-person	1,748	1.6	1,684	1.6	1,526	1.3	1,454	1.2	1,635	1.4	1,351	1.2	1,501	1.2	1,992	1.4	1,963	1.4
4+ person	1,165	1.1	1,063	1.0	881	0.8	945	0.8	973	0.8	840	0.7	1,054	0.9	1,451	1.0	1,385	1.0
Public transportation[a]	4,880	4.6	4,740	4.6	5,337	4.6	5,779	4.9	5,627	4.7	5,081	4.4	5,424	4.4	5,933	4.3	6,801	4.9
Taxicab	152	0.1	117	0.1	139	0.1	144	0.1	133	0.1	128	0.1	131	0.1	178	0.1	179	0.1
Bicycle or motorcycle	795	0.7	744	0.7	738	0.6	749	0.6	847	0.7	691	0.6	705	0.6	895	0.6	949	0.7
Walks only	3,634	3.4	3,227	3.1	3,869	3.3	3,627	3.1	3,408	2.8	3,171	2.7	2,875	2.3	3,952	2.9	3,954	2.8
Other means[b]	491	0.5	474	0.5	867	0.7	987	0.8	1,049	0.9	1,072	0.9	962	0.8	1,999	1.4	1,258	0.9
Works at home	2,736	2.6	3,137	3.0	3,611	3.1	3,288	2.8	3,401	2.8	3,536	3.1	4,148	3.4	5,411	3.9	5,677	4.1

[a] Public transportation refers to bus, streetcar, subway, or elevated trains.

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

NOTES

Principal means of transportation refers to the mode used most often, when different means of transportation were used on different days of the week, or the mode used for the longest distance during the trip to work, when more than one mode is used to get to work each day.
Numbers may not add to totals due to rounding.

SOURCES

1989-2005:U.S. Department of Housing and Urban Development, *American Housing Survey for the United States: 2005* (Washington, DC: 2006), table 2-24 and similar tables in earlier editions, Available at http://www.census.gov/hhes/www/ahs.html as of Oct. 12, 2006.
2006-07: U.S. Census Bureau, *2007 American Community Survey*, available at http://factfinder.census.gov/ as of Oct. 14, 2008

Table 1-39: Long-Distance Travel in the United States by Selected Trip Characteristics: 2001 (Roundtrips to destinations at least 50 miles away)

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

Type of lodging at destination	**2,617,126**	**100.0**	**1,360,813**	**100.0**	**2,336,094**	**100.0**	**760,325**	**100.0**
Friend's or relative's home	480,887	18.4	370,166	27.2	416,652	17.8	204,705	26.9
Hotel, motel, or resort	369,065	14.1	469,505	34.5	252,951	10.8	149,185	19.6
Rented cabin, condo, or vacation home	48,041	1.8	41,529	3.1	42,016	1.8	25,037	3.3
Owned cabin, condo, or vacation home	67,816	2.6	36,725	2.7	63,248	2.7	23,988	3.2
Camper, trailer, recreational vehicle, tent	60,815	2.3	35,118	2.6	59,519	2.5	29,924	3.9
Other type of lodging	99,902	3.8	73,314	5.4	83,930	3.6	38,356	5.0
Did not stay overnight	1,489,330	56.9	333,896	24.5	1,417,045	60.7	288,922	38.0
Not reported	1,271	0.05	559	0.04	731	0.03	208	0.03
Nights at destination								
Mean nights at destination	1.5	NA	NA	NA	1.1	NA	NA	NA
Friend's or relative's home	3.3	NA	NA	NA	2.7	NA	NA	NA
Hotel, motel, or resort	2.8	NA	NA	NA	2.3	NA	NA	NA

KEY: NA = not applicable.

[a] Includes other leisure purposes not shown separately.

NOTE

Numbers may not add to totals due to rounding.

SOURCE

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

Table 1-40: Long-Distance Travel in the United States by Selected Traveler Characteristics: 2001
(Roundtrips to destinations at least 50 miles away)

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

KEY: NA = not applicable.

NOTE

Numbers may not add to totals due to rounding.

SOURCE

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

Table 1-41: Passengers Boarded at the Top 50 U.S. Airports[a]
(Ranked By Passenger Enplanements in 2006)

Airport	Code	1996 Rank	1996 Total Enplaned Passengers	2005 Rank	2005 Total Enplaned Passengers	2006 Rank	2006 Total Enplaned Passengers	Percent change 1996-2006	Percent change 2005-2006
Atlanta, GA (Hartsfield-Jackson Atlanta International)	ATL	2	30,407,111	1	41,659,180	1	40,561,055	33.4	-2.6
Chicago, IL (Chicago O'Hare International)	ORD	1	30,526,401	2	34,513,840	2	34,538,523	13.1	0.1
Dallas, TX (Dallas/Fort Worth International)	DFW	3	26,639,351	3	27,781,723	3	28,333,481	6.4	2.0
Los Angeles, CA (Los Angeles International)	LAX	4	22,799,083	4	22,966,374	4	23,120,782	1.4	0.7
Denver, CO (Denver International)	DEN	6	15,246,315	6	20,261,091	5	22,239,718	45.9	9.8
Las Vegas, NV (McCarran International)	LAS	9	14,116,485	5	20,690,104	6	21,147,480	49.8	2.2
Phoenix, AZ (Phoenix Sky Harbor International)	PHX	7	14,807,863	7	20,077,737	7	20,330,995	37.3	1.3
Houston, TX (George Bush Intercontinental)	IAH	14	11,621,912	8	18,249,888	8	19,613,422	68.8	7.5
Detroit, MI (Detroit Metropolitan Wayne County)	DTW	8	14,117,157	10	17,380,159	9	17,281,152	22.4	-0.6
Minneapolis, MN (Minneapolis-St. Paul International/Wold-Chamberlain)	MSP	12	12,616,095	9	17,886,902	10	17,134,607	35.8	-4.2
Newark, NJ (Newark Liberty International)	EWR	11	12,952,399	12	14,878,468	11	16,271,958	25.6	9.4
Orlando, FL (Orlando International)	MCO	16	10,846,685	11	15,535,919	12	15,378,208	41.8	-1.0
Philadelphia, PA (Philadelphia International)	JFK	19	9,703,787	13	14,456,484	13	14,965,019	54.2	3.5
New York, NY (John F. Kennedy International)	PHL	24	8,571,888	14	14,411,122	14	14,438,445	68.4	0.2
Seattle, WA (Seattle-Tacoma International)	SEA	15	11,486,892	15	13,964,482	15	14,291,086	24.4	2.3
Charlotte, NC (Charlotte Douglas International)	CLT	18	10,007,911	17	13,279,429	16	14,107,603	41.0	6.2
San Francisco, CA (San Francisco International)	SFO	5	16,308,203	16	13,829,903	17	13,906,724	-14.7	0.6
Miami, FL (Miami International)	MIA	13	11,907,895	18	12,192,270	18	12,780,840	7.3	4.8
Boston, MA (General Edward Lawrence Logan International)	BOS	17	10,653,824	20	11,707,169	19	12,093,139	13.5	3.3
New York, NY (LaGuardia)	LGA	20	9,593,965	19	12,119,157	20	12,071,453	25.8	-0.4
Salt Lake City, UT (Salt Lake City International)	SLC	21	9,462,849	23	10,589,843	21	10,277,654	8.6	-2.9
Baltimore, MD (Baltimore/Washington International Thurgood Marshall)	BWI	29	5,907,427	25	9,563,821	22	10,019,927	69.6	4.8
Washington, DC (Dulles International)	IAD	35	4,758,242	21	11,599,100	23	9,553,095	100.8	-17.6
Fort Lauderdale, FL (Fort Lauderdale-Hollywood International)	FLL	32	4,848,058	24	10,036,938	24	9,425,289	94.4	-6.1
Chicago, IL (Chicago Midway)	MDW	38	4,436,034	29	8,343,201	25	8,913,135	100.9	6.8
Tampa, FL (Tampa International)	TPA	30	5,720,761	26	8,996,109	26	8,846,722	54.6	-1.7
Washington, DC (Ronald Reagan Washington National)	DCA	26	6,771,891	28	8,507,707	27	8,838,646	30.5	3.9
San Diego, CA (San Diego International)	SAN	27	6,549,170	27	8,568,237	28	8,611,784	31.5	0.5
Honolulu, HI (Honolulu International)	HNL	23	9,035,709	30	8,107,456	29	8,304,573	-8.1	2.4
Cincinnati, OH (Cincinnati/Northern Kentucky International)	CVG	25	7,301,767	22	11,225,311	30	7,939,156	8.7	-29.3
Oakland, CA (Oakland International)	OAK	36	4,684,494	31	6,936,037	31	6,990,359	49.2	0.8
St. Louis, MO (Lambert-St Louis International)	STL	10	13,546,822	32	6,742,592	32	6,937,174	-48.8	2.9
Portland, OR (Portland International)	PDX	28	6,125,579	33	6,667,403	33	6,811,500	11.2	2.2
Memphis, TN (Memphis International)	MEM	41	3,944,376	34	5,627,970	34	5,508,105	39.6	-2.1
Kansas City, MO (Kansas City International)	MCI	34	4,820,290	39	5,023,692	35	5,417,680	12.4	7.8
Cleveland, OH (Cleveland-Hopkins International)	CLE	31	5,286,823	35	5,374,470	36	5,288,819	0.0	-1.6
San Jose, CA (Norman Y. Mineta San Jose International)	SJC	33	4,825,943	36	5,233,950	37	5,196,515	7.7	-0.7
Sacramento, CA (Sacramento International)	SMF	45	3,321,408	38	5,049,631	38	5,124,995	54.3	1.5
San Juan, PR (Luis Munoz Marin International)	SJU	37	4,549,722	37	5,157,226	39	5,069,747	11.4	-1.7
Santa Ana, CA (John Wayne-Orange County)	SNA	43	3,532,746	40	4,791,169	40	4,775,825	35.2	-0.3
Nashville, TN (Nashville International)	BNA	48	3,254,956	43	4,518,169	41	4,703,808	44.5	4.1
Raleigh, NC (Raleigh-Durham International)	RDU	52	2,879,935	42	4,662,943	42	4,597,105	59.6	-1.4
Pittsburgh, PA (Pittsburgh International)	PIT	22	9,348,286	41	4,749,997	43	4,568,569	-51.1	-3.8
Houston, TX (William P. Hobby)	HOU	40	4,026,140	45	3,959,941	44	4,113,486	2.2	3.9
Indianapolis, IN (Indianapolis International)	IND	44	3,328,005	44	4,144,250	45	3,966,788	19.2	-4.3
Austin, TX (Austin-Bergstrom International)	AUS	53	2,829,581	48	3,637,262	46	3,918,155	38.5	7.7
San Antonio, TX (San Antonio International)	SAT	46	3,319,535	50	3,524,520	47	3,822,380	15.1	8.5
Fort Myers, FL (Southwest Florida Regional.)	RSW	60	1,945,044	47	3,644,301	48	3,642,754	87.3	0.0
Dallas, TX (Love Field)	DAL	42	3,540,539	56	2,948,373	49	3,439,110	-2.9	16.6
Hartford, CT (Bradley International)	BDL	56	2549669	49	3,542,051	50	3,333,430	30.7	-5.9
Total top 50[b]	NA	NA	464,893,952	NA	570,252,224	NA	572,561,975	23.2	0.4
All airports	NA	NA	558,559,160	NA	690,256,949	NA	691,170,716	23.7	0.1

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

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

[b] The total for the top 50 airports will not sum from the individual airports because some top 50 airports in 2006 were not in the top 50 in the earlier years.

NOTE

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

SOURCE

U.S. Department of Transportation, Bureau of Transportation Statistics, Office of Airline Information, T-3 data, various years (Washington, DC: 2008).

Table 1-42: Air Passenger Travel Arrivals in the United States from Selected Foreign Countries by Flag of Carriers (Thousands of passengers)

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

KEY: N = data do not exist; U = data are not available

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

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

NOTES

Includes passengers on international commercial flights arriving at U.S. airports and travelers between U.S. airports in the 50 states, Puerto Rico, Guam, or the Virgin Islands, and other U.S. territories.

Data compiled from flight reports required by the U.S. Immigration and Naturalization Service, except for Canada.

SOURCES

Totals and all selected Countries, except for Canada:

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

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

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

Canada:

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

Table 1-43: Air Passenger Travel Departures from the United States to Selected Foreign Countries by Flag of Carriers (Thousands of passengers)

	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
TOTAL departing passengers (excludes Canada)	12,053	19,256	22,487	34,046	33,286	36,211	38,254	40,349	43,026	45,785	49,684	50,863	53,856	57,498	52,594	48,606	49,968	55,931	58,545	59,477
United States (excludes Canada)	5,912	9,369	10,696	17,628	17,530	18,858	20,232	21,355	22,231	22,901	24,302	24,513	25,457	27,431	25,483	23,610	24,070	27,249	29,668	35,686
Foreign (excludes Canada)	6,141	9,886	11,791	16,418	15,756	17,353	18,022	18,993	20,795	22,884	25,382	26,350	28,399	30,068	27,111	24,996	25,897	28,683	28,877	23,791
Selected countries of debarkation[a]																				
Australia	103	245	232	540	581	609	588	522	560	614	606	607	686	806	713	686	672	766	828	879
Bahama Islands	704	1,006	1,151	1,279	1,128	1,005	1,046	963	1,024	994	983	955	1,027	1,137	1,007	935	1,101	1,151	1,230	1,252
Barbados	74	126	204	230	199	185	207	208	217	210	200	196	202	214	204	189	206	222	237	246
Belgium	134	231	249	395	318	355	372	334	340	380	513	622	713	740	586	265	269	346	369	351
Bermuda	372	467	389	277	237	217	247	242	199	196	215	207	206	189	150	165	216	251	261	289
Brazil	206	291	322	560	592	659	696	826	1,024	1,135	1,292	1,297	1,134	1,194	1,081	936	928	989	1,094	1,147
Canada[b]	N	N	N	6,870	6,263	6,546	6,798	6,764	7,405	8,477	8,890	9,647	9,692	10,246	9,161	8,672	8,406	9,222	9,807	U
China/Taiwan	41	90	187	337	447	481	616	803	891	945	939	934	975	1,026	944	927	770	917	1,008	1,048
Colombia	171	299	294	277	294	324	353	415	461	467	567	588	585	622	649	587	615	640	696	790
Denmark	188	254	254	307	239	266	272	254	229	227	259	217	214	227	239	316	334	357	318	359
Dominican Republic	322	443	528	896	780	881	949	980	995	1,057	1,070	1,108	1,263	1,294	1,214	1,180	1,357	1,466	1,624	1,695
France	470	635	894	1,626	1,523	1,769	1,759	1,896	1,868	2,021	2,147	2,289	2,544	3,082	2,927	2,588	2,620	2,887	3,065	3,008
Germany	649	1,178	1,539	2,339	2,298	2,627	2,788	2,785	2,883	2,978	3,178	3,210	3,364	3,722	3,389	3,108	3,364	3,747	4,014	4,134
Grand Cayman	26	112	161	250	238	196	244	259	264	285	290	305	291	289	271	237	271	255	203	275
Greece	123	190	210	129	88	150	150	184	194	206	192	181	170	170	126	102	99	124	115	101
Haiti	81	124	169	201	178	139	180	118	292	288	284	295	315	296	300	315	332	286	273	285
Hong Kong	59	152	238	310	369	474	477	545	640	651	610	621	621	728	733	657	512	783	894	978
Ireland	163	212	233	311	263	316	324	380	409	449	488	554	743	809	797	631	779	837	908	993
Israel	105	186	255	259	249	294	317	367	426	492	499	488	515	480	374	338	363	465	484	475
Italy	409	495	660	731	694	873	878	918	955	1,006	1,055	1,041	1,101	1,366	1,182	955	962	1,172	1,246	1,310
Jamaica	416	382	607	888	821	796	887	909	987	988	1,018	1,018	1,086	1,095	1,084	1,067	1,126	1,164	1,193	1,335
Japan	1,183	1,602	2,255	4,471	4,431	4,795	4,757	4,954	5,452	6,187	6,796	6,487	6,709	6,985	5,993	5,665	5,072	5,819	5,949	5,708
Korea, Republic of	60	186	333	723	759	887	961	1,082	1,252	1,382	1,461	1,032	1,101	1,307	1,137	1,114	1,110	1,269	1,349	1,386
Mexico	1,525	2,886	2,671	4,136	4,230	4,307	4,371	4,632	4,568	5,133	5,613	5,771	6,217	6,510	6,025	5,643	6,075	6,931	7,488	7,615
Netherlands	304	409	562	777	881	965	1,150	1,319	1,444	1,636	1,920	1,933	2,009	2,107	1,854	1,722	1,674	1,827	1,931	1,877
Netherland Antilles	184	282	395	377	341	309	347	368	295	288	319	340	335	337	344	330	370	384	398	414
Panama Republic	100	142	209	183	189	186	194	211	214	221	240	272	299	344	355	343	386	403	422	463
Philippines	81	160	165	195	194	241	249	228	281	275	306	218	272	348	309	332	309	376	352	341
Spain	260	273	397	540	513	637	576	553	573	577	615	669	708	782	732	688	740	887	799	862
Switzerland	224	306	434	600	527	543	593	657	712	760	811	906	983	1,038	905	671	690	705	696	699
United Kingdom	1,446	2,840	3,322	4,903	4,594	5,245	5,682	5,918	6,372	6,693	7,475	8,143	8,717	9,154	8,180	7,659	7,962	8,709	8,497	8,156
Venezuela	198	518	245	444	488	565	641	686	778	644	698	782	793	694	728	533	405	534	567	552

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

[a] Country where passenger deboarded a direct flight from the United States.
[b] Canadian figures come from a separate source and represents the number of revenue passengers on scheduled commercial and charter flights. Does not include foreign (non-Canadian, non-U.S.) scheduled carriers.

NOTES

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

Numbers may not add to totals due to rounding.

SOURCES

Totals and all selected Countries, except for Canada:

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

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

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

Canada:

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

Table 1-44: U.S.-Canadian Border Land-Passenger Gateways: Entering the United States

All U.S.-Canadian land gateways	2002	2003	2004	2005	2006	2007
All personal vehicle passengers	70,007,912	61,502,402	64,848,466	62,501,376	62,986,037	58,247,817
All personal vehicles	32,538,817	30,220,184	30,660,487	30,351,683	30,038,327	29,763,178
All bus passengers	4,212,863	3,779,970	3,890,380	3,854,858	3,499,103	3,684,631
All pedestrians	1,081,682	937,493	826,017	605,339	533,739	441,066
All train passengers	255,134	234,796	223,477	235,758	244,683	233,070
All buses	160,961	156,589	155,702	153,454	129,433	136,420
Personal vehicle passengers – top 5 gateways						
Buffalo-Niagara Falls, NY	17,031,458	13,216,214	13,195,191	13,224,477	13,514,778	14,372,038
Detroit, MI	12,318,806	10,965,872	10,574,206	10,655,076	9,932,051	9,560,365
Blaine, WA	4,794,088	4,491,959	4,936,364	4,868,308	5,276,202	5,187,218
Port Huron, MI	4,188,972	3,821,908	3,909,238	4,001,589	4,106,919	3,523,429
Champlain-Rouses Point, NY	3,766,141	3,521,091	3,598,175	2,921,118	2,920,749	1,923,295
Personal vehicles – top 5 gateways						
Buffalo-Niagara Falls, NY	7,569,643	6,414,415	6,148,983	6,035,004	6,026,058	5,977,040
Detroit, MI	6,857,332	6,315,590	6,131,426	6,034,398	5,634,179	5,471,657
Blaine, WA	2,385,389	2,299,636	2,524,256	2,482,065	2,596,970	2,763,389
Port Huron, MI	2,187,210	1,965,011	1,995,988	1,953,413	1,975,745	1,704,479
Massena, NY	1,162,510	1,133,727	1,200,379	1,174,011	1,173,617	1,032,840
Bus passengers – top 5 gateways						
Buffalo-Niagara Falls, NY	1,556,924	1,321,778	1,222,775	1,367,283	911,799	1,142,765
Detroit, MI	915,551	904,425	930,725	931,100	885,061	870,982
Blaine, WA	336,696	283,863	329,297	296,390	452,521	337,322
Champlain-Rouses Point, NY	282,859	234,620	277,018	294,564	294,028	306,898
Port Huron, MI	147,309	192,760	223,800	134,204	144,819	165,136
Pedestrians – top 5 gateways						
Buffalo-Niagara Falls, NY	818,913	656,022	547,126	370,295	345,652	277,000
Sumas, WA	64,432	59,330	54,911	44,238	28,963	33,341
Portland, ME[a]	39,293	45,899	44,762	33,769	22,323	29,123
Calais, ME	35,154	38,129	28,180	24,497	20,440	14,762
International Falls, MN	24,175	27,623	21,599	22,440	14,935	14,238
Train passengers – top 5 gateways						
Blaine, WA	60,521	44,430	52,353	67,462	74,347	80,816
Buffalo-Niagara Falls, NY	47,315	43,515	41,705	35,951	37,880	39,640
Champlain-Rouses Point, NY	33,738	37,240	31,045	35,454	33,518	32,106
Skagway, AK	29,754	28,325	30,294	29,831	32,184	20,881
Port Huron, MI	26,815	25,485	18,297	19,032	16,070	9,323
Buses – top 5 gateways						
Buffalo-Niagara Falls, NY	50,582	43,358	39,920	45,289	36,457	37,529
Detroit, MI	36,603	36,177	37,229	37,244	30,295	33,615
Blaine, WA	15,748	15,760	17,453	12,720	12,776	14,405
Champlain-Rouses Point, NY	10,415	12,865	14,279	10,257	10,405	11,309
Sault Ste. Marie, MI	8,831	11,290	9,515	10,243	8,317	8,124

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

NOTE

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

SOURCE

U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *Border Crossing/Entry Data*, available at http://www.bts.gov/itt/ as of October 2008.

Table 1-45: U.S.-Mexican Border Land-Passenger Gateways: Entering the United States

All U.S.-Mexican land gateways	2002		2003		2004		2005
All personal vehicle passengers	199,020,692	All personal vehicle passengers	193,697,482	All personal vehicle passengers	190,936,607	All personal vehicle passengers	186,067,448
All personal vehicles	89,849,415	All personal vehicles	88,068,391	All personal vehicles	(R) 91,133,889	All personal vehicles	91,556,319
All pedestrians	50,278,281	All pedestrians	48,663,773	All pedestrians	48,084,235	All pedestrians	45,829,612
All bus passengers	3,926,154	All bus passengers	(R) 3,746,885	All bus passengers	3,388,517	All bus passengers	3,169,779
All buses	309,360	All buses	319,087	All buses	269,027	All buses	256,396
All train passengers	15,108	All train passengers	12,101	All train passengers	12,664	All train passengers	17,833
Personal vehicle passengers — top 5 gateways							
San Ysidro, CA	36,171,884	San Ysidro, CA	39,180,519	San Ysidro, CA	33,382,991	San Ysidro, CA	32,265,477
El Paso, TX	26,363,164	El Paso, TX	26,317,018	El Paso, TX	28,108,167	El Paso, TX	29,180,824
Hidalgo, TX	17,613,527	Brownsville, TX	15,673,205	Hidalgo, TX	15,514,648	Brownsville, TX	14,614,745
Laredo, TX	15,915,545	Hidalgo, TX	15,587,611	Brownsville, TX	15,374,317	Laredo, TX	14,017,324
Brownsville, TX	15,820,595	Laredo, TX	15,208,606	Laredo, TX	15,032,956	Hidalgo, TX	13,989,453
Personal vehicles — top 5 gateways							
San Ysidro, CA	(R) 16,441,766	San Ysidro, CA	17,408,481	San Ysidro, CA	17,621,030	San Ysidro, CA	17,208,106
El Paso, TX	(R) 13,095,153	El Paso, TX	13,699,206	El Paso, TX	14,817,206	El Paso, TX	15,971,739
Hidalgo, TX	(R) 8,136,100	Brownsville, TX	7,219,865	Brownsville, TX	7,211,401	Brownsville, TX	7,103,553
Brownsville, TX	(R) 7,896,809	Hidalgo, TX	7,169,629	Hidalgo, TX	7,183,674	Hidalgo, TX	6,969,846
Laredo, TX	(R) 6,921,709	Laredo, TX	6,777,423	Laredo, TX	6,725,119	Otay Mesa, CA	6,672,994
Pedestrians — top 5 gateways							
El Paso, TX	9,301,395	El Paso, TX	8,899,168	San Ysidro, CA	9,457,600	San Ysidro, CA	8,156,350
San Ysidro, CA	7,903,483	San Ysidro, CA	8,302,110	El Paso, TX	8,441,671	El Paso, TX	7,613,546
Calexico, CA	6,894,820	Calexico, CA	6,230,123	Nogales, AZ	6,131,407	Nogales, AZ	6,930,198
Nogales, AZ	5,911,866	Nogales, AZ	5,583,533	Calexico, CA	4,847,096	Calexico, CA	4,481,014
Laredo, TX	4,648,046	Laredo, TX	4,577,725	Laredo, TX	4,507,105	Laredo, TX	4,356,041
Bus passengers — top 5 gateways							
San Ysidro, CA	1,199,630	San Ysidro, CA	1,244,973	San Ysidro, CA	1,032,343	San Ysidro, CA	995,337
Laredo, TX	757,459	Laredo, TX	748,644	Laredo, TX	802,635	Laredo, TX	826,679
Hidalgo, TX	632,923	Hidalgo, TX	655,430	Hidalgo, TX	650,100	Hidalgo, TX	369,443
Otay Mesa, CA	546,493	El Paso, TX	392,718	El Paso, TX	265,096	El Paso, TX	276,381
El Paso, TX	351,335	Otay Mesa, CA	303,756	Otay Mesa, CA	251,461	Otay Mesa, CA	251,614
Buses — top 5 gateways							
San Ysidro, CA	97,042	San Ysidro, CA	110,820	San Ysidro, CA	109,946	San Ysidro, CA	105,930
Otay Mesa, CA	65,474	Otay Mesa, CA	72,749	Otay Mesa, CA	41,032	Otay Mesa, CA	39,203
Laredo, TX	38,852	Laredo, TX	35,406	Laredo, TX	37,902	Laredo, TX	35,841
El Paso, TX	32,270	Hidalgo, TX	32,805	Hidalgo, TX	32,701	Hidalgo, TX	27,964
Hidalgo, TX	31,952	El Paso, TX	30,031	El Paso, TX	17,551	El Paso, TX	15,993
Train passengers — top 5 gateways							
Eagle Pass, TX	6,872	Eagle Pass, TX	6,496	Eagle Pass, TX	6,612	El Paso, TX	7,637
Nogales, AZ	2,216	El Paso, TX	1,869	El Paso, TX	2,234	Eagle Pass, TX	7,248
Calexico East, CA	1,934	Nogales, AZ	1,664	Nogales, AZ	1,656	Calexico East, CA	1,239
El Paso, TX	1,866	Calexico East, CA	1,456	Calexico East, CA	1,618	Nogales, AZ	952
Tecate, CA	1,760	Otay Mesa/San Ysidro, CA	460	Otay Mesa/San Ysidro, CA	510	Otay Mesa/San Ysidro, CA	478

KEY: R = revised.

NOTE

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

SOURCE

U.S. Department of Transportation, Bureau of Transportation Statistics, special tabulation, October 2006. Based on the following primary data source: U.S. Department of Treasury, U.S. Customs Service, Office of Field Operations, Operations Management Database (Washington, DC: 2006).

Table 1-46a: U.S. Ton-Miles of Freight (Millions)

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
TOTAL U.S. ton-miles of freight (millions)	U	1,854,034	2,206,713	2,284,706	2,988,522	2,949,410	(R) 3,314,677	(R) 3,348,634	(R) 3,418,086	(R) 3,438,542	(R) 3,614,823	(R) 3,769,036	(R) 3,823,723	(R) 3,805,437	(R) 3,832,237	(R) 3,907,225	(R) 3,907,042	(R) 3,930,546	U	U	U	U	U	U
Air carrier, domestic, all services[a]	553	1,353	2,709	3,470	4,528	5,156	9,064	8,860	9,820	10,675	11,803	12,520	12,861	13,601	13,840	14,202	14,983	13,288	13,882	15,231	16,451	(R) 15,741	15,357	15,098
Intercity truck[b]	285,000	359,000	412,000	454,000	555,000	610,000	(R) 854,000	(R) 874,000	(R) 896,000	(R) 936,000	(R) 996,000	(R) 1,042,000	(R) 1,071,000	(R) 1,119,000	(R) 1,149,000	(R) 1,186,000	(R) 1,203,000	(R) 1,224,000	1,255,000	1,264,000	U	U	U	U
Class I rail	572,309	697,878	764,809	754,252	918,958	876,984	1,033,969	1,038,875	1,066,781	1,109,309	1,200,701	1,305,688	1,355,975	1,348,926	1,376,802	1,433,461	1,465,960	1,495,472	1,507,011	1,551,438	1,662,598	1,696,425	1,771,897	1,770,545
Domestic water transportation[c,d]	U	489,803	596,195	565,984	921,836	892,970	833,544	848,399	856,685	789,658	814,919	807,728	764,687	707,410	672,795	655,862	645,799	621,686	612,081	606,146	621,170	591,277	561,629	U
Coastwise	U	302,546	359,784	315,846	631,149	610,977	479,134	502,133	502,311	448,404	457,601	440,345	408,086	349,843	314,864	292,730	283,872	274,559	263,688	278,919	279,857	263,464	227,155	U
Lakewise	U	75,918	79,416	68,517	61,747	48,184	60,930	55,339	55,785	56,438	58,263	59,704	58,335	62,166	61,654	57,045	57,879	50,854	53,653	47,539	55,733	51,924	53,105	U
Internal	U	109,701	155,816	180,399	227,343	232,708	292,393	289,959	297,639	283,894	297,762	306,329	296,791	294,023	294,896	304,724	302,558	294,861	293,410	278,352	284,096	274,367	279,778	U
Intraport	U	1,638	1,179	1,222	1,596	1,102	1,087	968	950	922	1,293	1,350	1,475	1,378	1,381	1,362	1,490	1,413	1,329	1,336	1,484	1,521	1,591	U
Oil pipeline[d]	229,000	306,000	431,000	507,000	588,200	564,300	584,100	578,500	588,800	592,900	591,400	601,100	619,200	616,500	619,800	617,700	577,300	576,100	586,200	590,200	599,600	U	U	U

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

[a] Includes freight, express, and mail revenue ton-miles as reported on U.S. DOT Form 41.
[b] Methodology was changed in 1990 for intercity trucks. Therefore figures prior to 1990 are not comparable to those after 1990.
[c] Excludes intraterritorial traffic, for which ton-miles were not compiled.
[d] The large increase between1975 and 1980 was a result of a new Alaska pipeline and consequent water transportation of crude petroleum from Alaskan ports to mainland United States for refining.

NOTE
Numbers may not add to totals due to roundings.

SOURCES
Air carrier, domestic, all services:
1960-65: Civil Aeronautics Board,*Handbook of Airline Statistics, 1969*(Washington, DC: 1970).
1970-80: Ibid.,*Air Carrier Traffic Statistics* (Washington, DC: Annual issues), p. 2, line 3.
1985-2007: U.S. Department of Transportation, Bureau of Transportation Statistics, Office of Airline Information,*Air Carrier Traffic Statistics* (Washington, DC: Annual issues), p. 3, line 3.
Intercity truck:
Eno Transportation Foundation, Inc.,*Transportation in America, 2007*(Washington, DC: 2007), p. 40.
Class I rail:
Association of American Railroads,*Railroad Facts* (Washington, DC: Annual Issues), p. 27.
Domestic water transportation:
U.S. Army Corps of Engineers,*Waterborne Commerce of the U.S.* (New Orleans, LA: Annual issues), part 5, section 1, table 1-4, and similar tables in earlier editions available at http://www.iwr.usace.army.mil/ndc/wcsc/wcsc.htm as of December 2008.
Oil pipeline:
1960-70: Eno Transportation Foundation, Inc.,*Transportation in America, 1998*(Washington, DC: 1998), p. 44.
1975: Association of Oil Pipe Lines,*Shifts in Petroleum Transportation*(Washington, DC: Annual issues), table 4.
1980-2004: Ibid.,*Shifts in Petroleum Transportation*(Washington, DC: Annual issues), table 1.

Table 1-46b: U.S. Ton-Miles of Freight (BTS Special Tabulation) (Millions)

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
TOTAL U.S. ton-miles of freight	3,404,015	3,366,977	3,195,585	3,251,983	3,340,242	3,313,968	3,328,383	3,474,621	3,597,143	3,567,921	3,621,943	3,636,104
Air	4,840	5,090	5,140	5,870	6,500	6,710	7,340	8,670	9,330	10,210	10,420	9,960
Truck	629,675	630,899	646,693	674,021	706,896	716,808	735,213	774,923	800,858	828,508	848,779	867,938
Railroad	932,000	924,000	810,000	841,000	900,091	876,209	891,235	951,940	1,025,683	1,045,628	1,064,408	1,041,929
Domestic water transportation	921,835	929,413	886,469	919,566	887,719	892,971	873,401	895,415	890,029	815,550	833,544	848,399
Coastwise	631,149	634,765	632,707	649,750	593,923	610,977	580,889	586,818	561,595	483,889	479,134	502,133
Lakewise	61,747	62,148	35,623	43,088	49,784	48,184	43,198	50,077	58,160	58,308	60,930	55,339
Internal	227,343	231,184	217,027	225,628	242,855	232,708	248,117	257,336	269,036	272,157	292,393	289,959
Intraport	1,596	1,316	1,112	1,100	1,157	1,102	1,197	1,184	1,238	1,196	1,087	968
Pipeline	915,666	877,574	847,284	811,526	839,037	821,270	821,195	843,673	871,243	868,025	864,792	867,878
Oil and oil products	588,000	564,000	566,000	556,000	568,000	564,000	578,000	587,000	601,000	584,000	584,100	578,500
Natural Gas	327,666	313,574	281,284	255,526	271,037	257,270	243,195	256,673	270,243	284,025	280,692	289,378

KEY: R = revised.

NOTES

BTS is developing more comprehensive and reliable estimates of ton-miles for the air, truck, rail, water, and pipeline modes than are presented in table 1-46a. These improved estimates are not comparable to data in table 1-46a. Improved estimates for 1960-1989, which will allow more comprehensive and reliable data for the entire period from 1960 to present, are still under development and will be reported when they are completed.

Numbers may not add to totals due to rounding.

SOURCE

U.S. Department of Transportation, Bureau of Transportation Statistics, special tabulation.

1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
3,746,398	3,767,376	3,944,968	4,104,235	4,174,096	4,179,411	4,228,559	4,300,631	4,328,642	4,357,472	4,409,000	4,414,797	(R) 4,541,097	(R) 4,574,701	4,637,513
10,990	11,540	12,030	12,720	13,760	13,900	14,140	14,500	15,810	13,288	13,837	15,096	16,451	(R) 15,741	15,357
890,231	927,980	987,923	1,034,041	1,061,952	1,110,554	1,139,777	1,176,388	1,192,825	1,213,208	1,245,542	1,264,773	1,281,573	(R) 1,291,515	1,294,492
1,098,379	1,135,016	1,221,073	1,317,010	1,377,095	1,391,089	1,448,352	1,503,665	1,546,319	1,599,332	1,605,532	1,603,564	1,684,461	1,733,777	1,852,833
856,683	789,657	814,917	807,728	764,687	707,410	672,795	655,861	645,799	621,687	612,080	606,146	621,170	591,276	561,629
502,311	448,404	457,600	440,345	408,086	349,843	314,864	292,730	283,872	274,559	263,688	278,919	279,857	263,464	227,155
55,784	56,438	58,263	59,704	58,335	62,166	61,654	57,045	57,879	50,854	53,653	47,539	55,733	51,924	53,105
297,638	283,894	297,762	306,329	296,791	294,023	294,896	304,724	302,558	294,861	293,410	278,352	284,096	274,367	279,778
950	921	1,292	1,350	1,475	1,378	1,381	1,362	1,490	1,413	1,329	1,336	1,484	1,521	1,591
890,114	903,183	909,025	932,737	956,602	956,458	953,495	950,217	927,889	909,957	932,009	925,218	(R) 937,442	(R) 942,392	913,202
588,800	592,900	591,400	601,100	619,200	616,500	619,800	618,000	577,000	576,000	586,000	590,000	599,600	(R) 607,500	584,700
301,314	310,283	317,625	331,637	337,402	339,958	333,695	332,217	350,889	333,957	346,009	335,218	(R) 337,842	(R) 334,892	328,502

Table 1-47: Top U.S. Foreign Trade Freight Gateways by Value of Shipments (Current $ billions)

Gateway	Type[a]	2007				2006			
		Rank	Exports	Imports	Total	Rank	Exports	Imports	Total
Los Angeles, CA	Water	1	29.9	150.4	180.2	1	26.3	143.7	170.0
New York, NY and NJ	Water	2	40.6	124.6	165.2	2	33.2	116.1	149.3
John F. Kennedy International, NY	Air	3	77.0	84.2	161.2	3	68.4	79.4	147.8
Long Beach, CA	Water	4	26.7	120.4	147.1	5	21.4	113.3	134.7
Detroit, MI	Land	5	73.3	63.3	136.6	4	72.8	64.5	137.2
Houston, TX	Water	6	53.4	61.2	114.6	7	41.9	60.9	102.9
Laredo, TX	Land	7	47.4	63.0	110.4	6	45.8	58.2	104.0
Chicago, IL	Air	8	33.4	53.1	86.6	9	31.3	46.7	78.1
Los Angeles International, CA	Air	9	41.6	38.0	79.6	8	41.0	38.0	79.1
Buffalo-Niagara Falls, NY	Land	10	38.6	40.0	78.6	10	35.5	40.0	75.5
Port Huron, MI	Land	11	30.7	46.3	77.1	11	25.5	44.9	70.3
San Francisco International, CA	Air	12	29.7	31.9	61.6	12	29.5	34.3	63.8
Charleston, SC	Water	13	19.8	41.1	60.9	13	16.1	39.1	55.1
Savannah, GA	Water	14	18.3	31.3	49.6	18	13.6	26.1	39.7
Norfolk, VA	Water	15	20.7	28.8	49.5	16	17.4	27.1	44.5
El Paso, TX	Land	16	20.0	29.1	49.1	14	21.0	25.7	46.7
Anchorage, AK	Air	17	10.7	34.5	45.3	15	11.5	33.2	44.6
Baltimore, MD	Water	18	14.0	28.0	42.0	19	9.6	27.0	36.6
Dallas-Fort Worth, TX	Air	19	18.1	23.4	41.5	17	17.5	24.1	41.6
New Orleans, LA	Air	20	18.2	22.9	41.1	21	14.2	20.0	34.1
Seattle, WA	Water	21	9.2	28.4	37.6	20	8.6	26.0	34.6
Atlanta, GA	Air	22	12.5	22.9	35.4	23	12.4	20.9	33.2
Oakland, CA	Water	23	11.4	23.4	34.8	22	9.8	23.6	33.3
Miami International, FL	Air	24	24.0	10.4	34.5	25	20.7	9.6	30.3
Tacoma, WA	Water	25	6.0	27.8	33.8	24	4.9	27.7	32.6
New Orleans, LA	Water	26	15.9	17.1	33.0	27	11.5	14.5	26.0
Otay Mesa Station, CA	Land	27	9.9	20.8	30.7	26	9.9	18.7	28.6
Cleveland, OH	Air	28	15.9	11.4	27.3	28	16.1	9.7	25.8
Morgan City, LA	Water	29	0.1	26.4	26.5	29	0.1	25.4	25.6
Beaumont, TX	Water	30	2.1	21.3	23.3	30	1.9	20.2	22.0
Corpus Christie, TX	Water	31	4.2	18.7	22.8	36	3.3	15.7	19.0
Hidalgo, TX	Land	32	9.0	12.9	21.9	34	8.3	11.8	20.0
Champlain-Rouses Point, NY	Land	33	8.1	13.4	21.5	35	7.2	12.8	19.9
Jacksonville, FL	Water	34	9.0	12.0	21.0	31	8.7	12.5	21.2
Port Everglades, FL	Water	35	10.1	10.9	20.9	38	8.0	10.5	18.6
Miami, FL	Water	36	9.0	10.5	19.5	33	8.9	11.4	20.3
San Juan International Airport, PR	Air	37	10.3	8.5	18.8	46	7.6	5.0	12.6
Philadelphia, PA	Water	38	1.9	16.6	18.5	32	1.7	19.0	20.7
Nogales, AZ	Land	39	6.0	12.1	18.2	37	6.3	12.5	18.9
Blaine, WA	Land	40	9.9	7.9	17.9	39	8.8	8.4	17.1
Texas City, TX	Water	41	2.5	15.1	17.6	44	1.6	12.0	13.7
Pembina, ND	Land	42	9.4	7.8	17.2	40	8.5	6.9	15.4
Portland, OR	Water	43	3.6	12.3	15.9	43	2.6	11.5	14.1
Washgington, DC	Air	44	5.2	9.7	14.9	42	5.1	10.0	15.1
Boston Logan Airport, MA	Air	45	8.8	5.9	14.7	45	8.3	5.3	13.6
Gramercy, LA	Water	46	6.0	8.6	14.7	55	4.7	6.2	10.9
Newark, NJ	Air	47	3.7	10.4	14.1	41	3.1	12.1	15.2
Sweetgrass, MT	Land	48	6.8	6.9	13.7	48	6.3	6.0	12.2
Lake Charles, LA	Water	49	1.5	12.0	13.4	58	1.2	9.4	10.6
Portal, ND	Land	50	7.7	5.7	13.4	50	6.8	5.1	11.9
Total top 50 gateways[b]	NA	NA	901.9	1,543.0	2,444.9	NA	811.9	1,460.0	2,271.9

KEY: NA = not applicable.

[a] Water data are preliminary

[b] Data for 2006 is based on the top 50 freight gateways in 2006 and is not a summation of the numbers on the table.

NOTES

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

Numbers may not add to totals due to rounding.

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

SOURCES

Air: U.S. Department of Commerce, U.S. Census Bureau, Foreign Trade Division, special tabulation, December, 2008.

Water: U.S. Army Corps of Engineers, Navigation Data Center, special tabulation, December, 2008.

Land: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *Transborder Freight Data* , December 2008.

Table 1-48: U.S.-Canadian Border Land-Freight Gateways: Number of Truck or Rail Container Crossings

	2002	2003	2004	2005	2006	2007
Truck						
Total U.S.-Canadian border	(R) 6,915,973	Total U.S.-Canadian border 6,728,228	Total U.S.-Canadian border 6,903,882	Total U.S.-Canadian border 6,783,944	Total U.S.-Canadian border 6,649,249	Total U.S.-Canadian border 6,559,263
Total top 5 gateways	4,567,704	Total top 5 gateways 4,478,405	Total top 5 gateways 4,591,686	Total top 5 gateways 4,553,263	Total top 5 gateways 4,499,055	Total top 5 gateways 4,457,219
Detroit, MI	1,670,565	Detroit, MI 1,634,319	Detroit, MI 1,701,452	Detroit, MI 1,745,318	Detroit, MI 1,770,008	Detroit, MI 1,773,465
Buffalo-Niagara, NY	1,208,095	Buffalo-Niagara, NY 1,162,961	Buffalo-Niagara, NY 1,175,254	Buffalo-Niagara, NY 1,142,411	Buffalo-Niagara, NY 1,117,789	Buffalo-Niagara, NY 1,088,438
Port Huron, MI	907,729	Port Huron, MI 928,074	Port Huron, MI 945,962	Port Huron, MI 922,401	Port Huron, MI 835,927	Port Huron, MI 770,282
Blaine, WA	410,256	Champlain-Rouse Pt., NY 387,962	Champlain-Rouse Pt., NY 397,317	Champlain-Rouse Pt., NY 388,869	Champlain-Rouse Pt., NY 409,372	Blaine, WA 438,001
Champlain-Rouses Point, NY	371,059	Blaine, WA 365,089	Blaine, WA 371,701	Blaine, WA 354,264	Blaine, WA 365,959	Champlain-Rouse Pt., NY 387,033
Rail						
Total U.S.-Canadian border	1,824,976	Total U.S.-Canadian border 1,868,245	Total U.S.-Canadian border 1,950,909	Total U.S.-Canadian border 1,940,557	Total U.S.-Canadian border 1,923,787	Total U.S.-Canadian border 1,939,876
Total top 5 gateways	1,305,446	Total top 5 gateways 1,333,244	Total top 5 gateways 1,346,724	Total top 5 gateways 1,325,479	Total top 5 gateways 1,333,105	Total top 5 gateways 1,347,207
Port Huron, MI	424,635	Port Huron, MI 458,551	Port Huron, MI 474,175	Port Huron, MI 457,275	Port Huron, MI 445,269	Port Huron, MI 466,569
Detroit, MI	293,300	Detroit, MI 254,688	International Falls, MN 259,165	International Falls, MN 251,118	International Falls, MN 282,784	International Falls, MN 290,852
International Falls, MN	238,515	International Falls, MN 252,699	Detroit, MI 234,823	Portal, ND 231,832	Portal, ND 244,988	Portal, ND 242,220
Portal, ND	199,637	Portal, ND 217,390	Portal, ND 224,896	Detroit, MI 231,482	Detroit, MI 218,963	Detroit, MI 213,777
Buffalo-Niagara, NY	149,359	Buffalo-Niagara, NY 149,916	Buffalo-Niagara, NY 153,665	Buffalo-Niagara, NY 153,772	Buffalo-Niagara, NY 141,101	Buffalo-Niagara, NY 133,789

NOTES

Truck: Data represent the number of truck crossings, not the number of unique vehicles. Data are for both loaded and empty trucks.
Rail: Data includes both loaded and empty rail containers.

SOURCE

U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *Border Crossing/Entry Data*, available at http://www.bts.gov/itt/ as of December 2008.

Table 1-49: U.S.-Mexican Border Land-Freight Gateways: Number of Truck or Rail Container Crossings

	2002		2003		2004		2005		2006		2007
Truck											
Total U.S.-Mexican border	4,426,593	Total U.S.-Mexican border	4,238,045	Total U.S.-Mexican border	4,503,688	Total U.S.-Mexican border	4,675,897	Total U.S.-Mexican border	4,758,915	Total U.S.-Mexican border	4,882,500
Total top 5 gateways	3,544,815	Total top 5 gateways	3,378,199	Total top 5 gateways	3,604,137	Total top 5 gateways	3,737,803	Total top 5 gateways	3,778,528	Total top 5 gateways	3,895,641
Laredo, TX	1,441,653	Laredo, TX	1,354,229	Laredo, TX	1,391,850	Laredo, TX	1,455,607	Laredo, TX	1,518,989	Laredo, TX	1,563,836
Otay Mesa/San Ysidro, CA	731,291	Otay Mesa/San Ysidro, CA	697,152	Otay Mesa/San Ysidro, CA	726,164	El Paso, TX	740,654	Otay Mesa/San Ysidro, CA	749,472	El Paso, TX	782,936
El Paso, TX	705,199	El Paso, TX	659,614	El Paso, TX	719,545	Otay Mesa/San Ysidro, CA	730,253	El Paso, TX	744,951	Otay Mesa/San Ysidro, CA	738,765
Hidalgo, TX	390,282	Hidalgo, TX	406,064	Hidalgo, TX	454,351	Hidalgo, TX	491,077	Hidalgo, TX	457,825	Hidalgo, TX	486,756
Calexico East, CA	276,390	Calexico East, CA	261,140	Calexico East, CA	312,227	Calexico East, CA	320,212	Calexico East, CA	307,291	Calexico East, CA	323,348
Rail											
Total U.S.-Mexican border	602,322	Total U.S.-Mexican border	607,475	Total U.S.-Mexican border	675,305	Total U.S.-Mexican border	728,559	Total U.S.-Mexican border	803,291	Total U.S.-Mexican border	813,511
Total top 5 gateways	591,255	Total top 5 gateways	596,773	Total top 5 gateways	660,214	Total top 5 gateways	710,238	Total top 5 gateways	788,472	Total top 5 gateways	797,481
Laredo, TX	296,782	Laredo, TX	313,244	Laredo, TX	317,061	Laredo, TX	316,402	Laredo, TX	332,950	Laredo, TX	341,856
Eagle Pass, TX	98,236	Brownsville, TX	98,622	El Paso, TX	110,992	El Paso, TX	143,741	Brownsville, TX	97,572	El Paso, TX	179,076
Brownsville, TX	96,591	Eagle Pass, TX	88,329	Brownsville, TX	97,803	Brownsville, TX	105,175	El Paso, TX	185,614	Eagle Pass, TX	134,041
Nogales, AZ	52,236	El Paso, TX	50,893	Eagle Pass, TX	87,459	Eagle Pass, TX	98,089	Eagle Pass, TX	112,521	Brownsville, TX	90,139
El Paso, TX	47,410	Nogales, AZ	45,685	Nogales, AZ	46,899	Nogales, AZ	46,831	Nogales, AZ	59,815	Nogales, AZ	52,369

NOTES

Truck: Data represent the number of truck crossings, not the number of unique vehicles. Data are for both loaded and empty trucks.
Rail: Data includes both loaded and empty rail containers.

SOURCE

U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *Border Crossing/Entry Data*, available at http://www.bts.gov/itt/ as of December 2008.

Table 1-50: U.S. Waterborne Freight (Million short tons)

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
TOTAL freight	1,099.9	1,272.9	1,531.7	1,695.0	1,998.9	1,788.4	2,163.9	2,092.1	2,132.1	2,128.2	2,214.8	2,240.4	2,284.1	2,333.1	2,339.5	2,322.6	2,424.6	2,393.3	2,340.3	2,394.3	(R) 2,551.9	2,527.6
Foreign	339.3	443.7	581.0	748.7	921.4	774.3	1,041.6	1,013.6	1,037.5	1,060.0	1,115.7	1,147.4	1,183.4	1,220.6	1,245.4	1,260.8	1,354.8	1,350.8	1,319.3	1,378.1	(R) 1,504.9	1,498.7
Imports	211.3	269.8	339.3	476.6	517.5	412.7	600.0	555.4	586.7	648.8	719.5	672.7	732.6	788.3	840.7	860.8	939.7	951.8	934.9	1,004.8	(R) 1,089.1	1,096.9
Exports	128.0	173.9	241.6	272.1	403.9	361.6	441.6	458.2	450.8	411.3	396.2	474.7	450.8	432.3	404.7	400.0	415.0	399.0	384.3	373.3	(R) 415.8	401.8
Domestic	760.6	829.2	950.7	946.3	1,077.5	1,014.1	1,122.3	1,078.5	1,094.6	1,068.2	1,099.0	1,093.0	1,100.7	1,112.5	1,094.1	1,061.8	1,069.8	1,042.5	1,021.0	1,016.1	(R) 1,047.1	1,028.9
Inland	291.1	369.6	472.1	503.9	535.0	534.7	622.6	600.4	621.0	607.3	618.4	620.3	622.1	630.6	625.0	624.6	628.4	619.8	608.0	609.6	(R) 626.2	624.0
Coastal	209.2	201.5	238.4	231.9	329.6	309.8	298.6	294.5	285.1	271.7	277.0	266.6	267.4	263.1	249.6	228.8	226.9	223.6	216.4	223.5	(R) 220.6	213.7
Great Lakes	155.1	153.7	157.1	129.3	115.1	92.0	110.2	103.4	107.4	109.9	114.8	116.1	114.9	122.7	122.2	113.9	114.4	100.0	101.5	89.8	(R) 103.5	96.2
Intraport	104.2	102.9	81.5	78.3	94.2	74.3	86.4	75.6	76.8	74.4	82.9	83.1	89.0	89.8	90.1	88.6	94.6	93.2	90.0	86.9	(R) 91.3	90.2
Intraterritory	1.0	1.5	1.6	2.9	3.6	3.4	4.5	4.6	4.2	5.0	5.9	6.9	7.3	6.3	7.2	5.9	5.5	5.9	5.1	6.4	5.5	4.9

KEY: R = revised.

NOTES

Beginning in 1996, shipments of fish are excluded from domestic tonnage totals.

Numbers may not add to totals due to rounding.

SOURCES

1960-2003: U.S. Army Corps of Engineers, *Waterborne Commerce of the United States, Calendar Year 2004* (New Orleans, LA), part 5, tables 1-1, 1-3, and 1-6.

2004-2005: Ibid., *Preliminary Waterborne Commerce Statistics for Calendar Year 2005* (New Orleans, LA), Internet site http://www.iwr.usace.army.mil/ndc as of May 7, 2007.

Table 1-51: Tonnage of Top 50 U.S. Water Ports, Ranked by Total Tons[a]

Ports	2006 Rank	2006 Total tons (Millions)	2005 Rank	2005 Total tons (Millions)	1996 Rank	1996 Total tons (Millions)	Percent change 2005-2006	Percent change 1996-2006
South Louisiana, LA	1	225.5	1	212.2	1	189.8	6.2%	18.8%
Houston, TX	2	222.1	2	211.7	2	148.2	5.0%	49.9%
New York, NY and NJ	3	157.6	3	152.1	3	131.6	3.6%	19.8%
Long Beach, CA	4	84.4	5	79.9	9	58.4	5.7%	44.5%
Beaumont, TX	5	79.5	6	78.9	21	35.7	0.8%	122.6%
Corpus Christi, TX	6	77.6	7	77.6	6	80.5	-0.1%	-3.6%
Huntington - Tristate	7	77.2	4	83.9	26	27.5	-8.0%	180.8%
New Orleans, LA	8	76.9	8	65.9	4	83.7	16.7%	-8.2%
Los Angeles, CA	9	66.0	12	54.9	16	45.7	20.2%	44.4%
Mobile, AL	10	59.8	11	57.7	12	50.9	3.8%	17.6%
Lake Charles, LA	11	58.4	13	52.7	15	49.1	10.8%	19.0%
Baton Rouge, LA	12	56.3	9	59.3	5	81.0	-5.0%	-30.4%
Plaquemines, LA, Port of	13	55.9	15	47.9	8	66.9	16.7%	-16.5%
Texas City, TX	14	48.9	10	57.8	10	56.4	-15.5%	-13.3%
Duluth-Superior, MN and WI	15	47.0	16	44.7	19	41.4	5.0%	13.5%
Tampa, FL	16	46.2	14	49.2	13	49.3	-6.0%	-6.2%
Baltimore, MD	17	42.4	18	44.1	17	43.6	-3.8%	-2.6%
Pittsburgh, PA	18	42.0	19	43.6	11	50.9	-3.8%	-17.5%
Paulsboro, NJ	19	39.2	23	32.1	27	25.0	22.4%	56.7%
Philadelphia, PA	20	38.6	20	39.4	18	41.9	-1.9%	-7.8%
Pascagoula, MS	21	37.7	26	29.3	24	29.3	28.4%	28.3%
Valdez, AK	22	36.2	17	44.4	7	77.1	-18.7%	-53.1%
Norfolk Harbor, VA	23	34.2	21	35.3	14	49.3	-2.9%	-30.5%
Savannah, GA	24	34.0	25	30.1	36	17.6	12.8%	93.0%
Freeport, TX	25	32.1	22	33.6	29	24.6	-4.3%	30.8%
St. Louis, MO and IL	26	31.3	24	30.3	22	30.2	3.2%	3.8%
Portland, OR	27	28.5	29	28.1	23	29.7	1.2%	-4.2%
Port Arthur, TX	28	28.4	31	26.4	20	37.2	7.6%	-23.6%
Seattle, WA	29	28.0	30	28.1	30	23.5	-0.4%	18.8%
Charleston, SC	30	26.4	33	25.4	51	11.1	3.9%	138.4%
Tacoma, WA	31	26.0	28	28.3	32	21.5	-8.0%	21.1%
Chicago, IL	32	25.7	32	25.8	25	27.9	-0.4%	-7.8%
Richmond, CA	33	25.6	35	24.5	31	21.8	4.6%	17.5%
Portland, ME	34	25.2	27	29.3	42	15.2	-13.8%	65.6%
Port Everglades, FL	35	24.8	34	24.7	34	18.9	0.6%	31.4%
Jacksonville, FL	36	22.2	37	21.8	39	16.7	2.0%	32.7%
Boston, MA	37	21.9	36	22.4	33	20.1	-2.3%	8.7%
Marcus Hook, PA	38	20.1	39	20.3	47	12.4	-0.8%	62.5%
Memphis, TN	39	19.1	41	17.1	37	17.3	11.7%	10.4%
Detroit, MI	40	17.4	40	17.4	35	17.6	-0.5%	-1.5%
Oakland, CA	41	16.6	42	16.6	50	11.2	0.1%	48.2%
Honolulu, HI	42	16.2	38	20.4	48	12.0	-20.4%	35.1%
Indiana Harbor, IN	43	16.2	45	14.1	38	16.9	14.5%	-4.3%
Cleveland, OH	44	15.2	47	13.6	40	16.7	11.3%	-9.2%
Anacortes, WA	45	15.1	43	15.8	44	13.8	-4.0%	9.4%
Two Harbors, MN	46	13.4	51	11.0	52	10.7	22.5%	25.9%
Cincinnati, OH	47	13.3	44	14.6	46	12.8	-8.6%	4.1%
San Juan, PR	48	12.9	48	13.4	43	15.1	-3.1%	-14.3%
Newport News, VA	49	11.3	46	13.7	28	24.8	-17.2%	-54.3%
Toledo, OH	50	11.2	53	10.5	45	13.0	6.3%	-14.4%
Total top 50		2,287.9		2,231.9		2,023.5	2.5%	13.1%
All ports		2,588.4		2,527.6		2,284.1	2.4%	13.3%

[a] Tonnage totals include both domestic and foreign waterborne trade.

NOTE

Numbers may not add to totals due to rounding.

SOURCE

U.S. Army Corps of Engineers, *Waterborne Commerce of the United States, Part 5, National Summaries* (New Orleans, LA: Annual issues), tables 1-1 and 5-2.

Table 1-52: Freight Activity in the United States: 1993, 1997, and 2002

Mode of transportation	Value				Tons				Ton-miles[c]			
	1993 (billion $)	1997 (billion $)	(R) 2002 (billion $)	(R) Percent change (1993-2002)	1993 (millions)	1997 (millions)	(R) 2002 (millions)	(R) Percent change (1993-2002)	1993 (billions)	1997 (billions)	(R) 2002 (billions)	(R) Percent change (1993-2002)
TOTAL all modes	**5,846.3**	**6,944.0**	**8,397.2**	**43.6**	**9,688.5**	**11,089.7**	**11,667.9**	**20.4**	**2,420.9**	**2,661.4**	**3,137.9**	**29.6**
Single modes, total	**4,941.5**	**5,719.6**	**7,049.4**	**42.7**	**8,922.3**	**10,436.5**	**11,086.7**	**24.3**	**2,136.9**	**2,383.5**	**2,867.9**	**34.2**
Truck[a]	4,403.5	4,981.5	6,235.0	41.6	6,385.9	7,700.7	7,842.8	22.8	869.5	1,023.5	1,255.9	44.4
For-hire truck	2,625.1	2,901.3	3,757.1	43.1	2,808.3	3,402.6	3,657.3	30.2	629.0	741.1	959.6	52.6
Private truck	1,755.8	2,036.5	2,445.3	39.3	3,543.5	4,137.3	4,149.7	17.1	235.9	268.6	291.1	23.4
Rail	247.4	319.6	310.9	25.7	1,544.1	1,549.8	1,873.9	21.4	942.6	1,022.5	1,261.6	33.8
Water	61.6	75.8	89.3	45.0	505.4	563.4	681.2	34.8	272.0	261.7	282.6	3.9
Shallow draft	40.7	53.9	57.5	41.2	362.5	414.8	458.6	26.5	164.4	189.3	211.5	28.7
Great Lakes	S	1.5	0.8	S	33.0	38.4	38.0	15.1	12.4	13.4	13.8	11.4
Deep draft	19.7	20.4	31.0	57.1	109.9	110.2	184.6	67.9	95.2	59.0	57.4	-39.8
Air (includes truck and air)	139.1	229.1	265.0	90.5	3.1	4.5	3.8	19.8	4.0	6.2	5.8	45.5
Pipeline[b]	89.8	113.5	149.2	66.1	483.6	618.2	685.0	41.6	S	S	S	S
Multiple modes, total	**662.6**	**945.9**	**1,079.2**	**67.7**	**225.7**	**216.7**	**216.7**	**-4.0**	**191.5**	**204.5**	**225.7**	**17.9**
Parcel, U.S. Postal Service or courier	563.3	855.9	987.7	75.4	18.9	23.7	25.5	35.0	13.2	18.0	19.0	44.5
Truck and rail	83.1	75.7	69.9	-15.8	40.6	54.2	43	5.8	37.7	55.6	45.5	20.8
Truck and water	9.4	8.2	14.4	52.9	68.0	33.2	23.3	-65.7	40.6	34.8	32.4	-20.2
Rail and water	3.6	1.8	3.3	-8.4	79.2	79.3	105	32.7	70.2	77.6	115.0	63.8
Other multiple modes	3.2	4.3	3.8	18.8	18.9	26.2	19.8	4.4	S	18.6	13.8	S
Other / unknown modes, total	**242.3**	**278.6**	**268.6**	**10.9**	**540.5**	**436.5**	**364.6**	**-32.6**	**92.6**	**73.4**	**44.2**	**-52.2**

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

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

[b] Excludes most shipments of crude oil.

[c] Ton-miles estimates are based on estimated distances traveled along a modeled transportation network.

NOTE

Numbers may not add to totals due to rounding. Value-of-shipments estimates have not been adjusted for price changes. Coverage for the 2002 Commodity Flow Survey (CFS) differs from the previous surveys due to a change from the 1987 Standard Industrial Classification system to the 1997 North American Industry Classification System and other survey improvements. Therefore, data users are urged to use caution when comparing 2002 CFS estimates with estimates from prior years.

SOURCES

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

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

Table 1-53: Value, Tons, and Ton-Miles of Freight Shipments within the United States by Domestic Establishments, 2002 [R]

SCTG		Value ($billions)	Percent	Tons (millions)	Percent	Ton-miles[b] (billions)	Percent	Value per ton ($)	Average miles per shipment
01	Live animals and live fish	7.4	0.1	6.1	0.1	1.6	0.1	1,211	530
02	Cereal grains	53.8	0.6	561.1	4.8	264.2	8.4	96	138
03	Other agricultural products	129.5	1.5	259.2	2.2	109.4	3.5	500	481
04	Animal feed and products of animal origin (NEC)	52.1	0.6	228.0	2.0	51.2	1.6	229	167
05	Meat, fish, seafood, and their preparations	201.3	2.4	84.5	0.7	41.4	1.3	2,382	162
06	Milled grain products, preparations, and bakery products	113.4	1.4	109.3	0.9	49.0	1.6	1,037	189
07	Other prepared foodstuffs and fats and oils	355.6	4.2	448.9	3.8	161.6	5.1	792	179
08	Alcoholic beverages	109.0	1.3	89.4	0.8	25.7	0.8	1,219	55
09	Tobacco products	69.9	0.8	4.4	0.0	1.0	0.0	15,988	334
10	Monumental or building stone	3.0	0.0	22.5	0.2	1.6	0.1	135	170
11	Natural sands	3.6	0.0	473.0	4.1	30.0	1.0	8	45
12	Gravel and crushed stone	12.9	0.2	1,866.5	16.0	105.8	3.4	7	30
13	Nonmetallic minerals (NEC)	10.1	0.1	184.6	1.6	56.6	1.8	55	185
14	Metallic ores and concentrates	14.0	0.2	98.3	0.8	63.0	2.0	143	474
15	Coal	22.9	0.3	1,239.9	10.6	686.3	21.9	18	120
17	Gasoline and aviation turbine fuel	279.4	3.3	1,063.6	9.1	117.2	3.7	263	52
18	Fuel oils	116.1	1.4	549.0	4.7	55.5	1.8	212	32
19	Coal and petroleum products (NEC)	82.1	1.0	448.0	3.8	93.0	3.0	183	102
20	Basic chemicals	153.7	1.8	347.7	3.0	116.0	3.7	442	417
21	Pharmaceutical products	479.1	5.7	24.3	0.2	11.3	0.4	19,741	693
22	Fertilizers	34.0	0.4	264.3	2.3	87.6	2.8	129	157
23	Chemical products and preparations (NEC)	226.6	2.7	106.0	0.9	53.7	1.7	2,138	385
24	Plastics and rubber	325.7	3.9	140.0	1.2	80.8	2.6	2,327	424
25	Logs and other wood in the rough	5.8	0.1	S	S	7.8	0.2	S	S
26	Wood products	158.6	1.9	345.9	3.0	120.2	3.8	458	242
27	Pulp, newsprint, paper, and paperboard	102.5	1.2	137.1	1.2	78.2	2.5	748	206
28	Paper or paperboard articles	103.7	1.2	69.2	0.6	23.4	0.7	1,499	282
29	Printed products	134.5	1.6	34.0	0.3	17.0	0.5	3,953	816
30	Textiles, leather, and articles of textiles or leather	466.4	5.6	51.2	0.4	31.8	1.0	9,104	940
31	Nonmetallic mineral products	150.0	1.8	968.0	8.3	135.9	4.3	155	357
32	Base metal in primary or semifinished forms and in finished basic shapes	259.8	3.1	328.1	2.8	121.3	3.9	792	270
33	Articles of base metal	234.6	2.8	116.4	1.0	42.7	1.4	2,014	392
34	Machinery	484.2	5.8	63.4	0.5	34.5	1.1	7,638	377
35	Electronic and other electrical equipment and components and office equipment	890.8	10.6	49.6	0.4	30.3	1.0	17,963	713
36	Motorized and other vehicles (including parts)	748.6	8.9	133.1	1.1	59.0	1.9	5,624	395
37	Transportation equipment (NEC)	155.0	1.8	18.4	0.2	10.6	0.3	8,447	1,074
38	Precision instruments and apparatus	225.1	2.7	18.4	0.2	3.9	0.1	12,264	922
39	Furniture, mattresses and mattress supports, lamps, lighting fittings, and illuminated signs	139.7	1.7	32.5	0.3	13.7	0.4	4,293	515
40	Miscellaneous manufactured products	387.4	4.6	79.2	0.7	34.5	1.1	4,891	995
41	Waste and scrap	37.9	0.5	217.2	1.9	48.0	1.5	174	166
43	Mixed freight	840.3	10.0	299.9	2.6	52.8	1.7	2,802	329
	Commodity unknown	17.2	0.2	24.3	0.2	8.9	0.3	710	485
	All commodities [a]	**8,397.2**	**100.0**	**11,667.9**	**100.0**	**3,137.9**	**100.0**	**720**	**589**

KEY: NEC = not elsewhere classified; R = revised; SCTG = Standard Classification of Transportation Goods; S = data are not published due to high sampling variability or some other problem.

[a] Estimates exclude shipments of crude petroleum (SCTG 16).

[b] Ton-miles estimates are based on estimated distances traveled along a modeled transportation network.

NOTE

Coverage for the 2002 Commodity Flow Survey (CFS) differs from previous surveys due to a change from the 1987 Standard Industrial Classification system to the 1997 North American Industry Classification System and other survey improvements. Therefore, data users are urged to use caution when comparing 2002 CFS estimates with estimates from prior years.

SOURCE

U.S. Department of Transportation, Bureau of Transportation Statistics, U.S. Department of Commerce, Census Bureau, *2002 Commodity Flow Survey: United States* (Washington, DC: December 2004), table 5a.

Table 1-54: Value of U.S. Land Exports to and Imports from Canada and Mexico by Mode ($ millions)

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Exports to Canada, total	124,701.2	129,884.1	139,109.7	133,970.3	137,745.4	146,374.1	154,847.4	145,661.6	146,435.3	154,870.8	171,878.1	192,907.5	209,283.2	226,058.3
Truck	89,151.1	97,423.4	102,743.0	111,173.8	114,806.1	123,140.0	129,825.3	117,694.5	118,259.1	124,235.0	135,897.5	151,221.7	164,318.1	174,342.7
Rail	13,593.9	15,271.9	15,678.7	13,255.6	12,279.6	11,754.6	12,946.5	12,972.7	13,974.1	14,776.5	16,596.6	19,321.9	22,477.8	25,496.8
Pipeline	133.8	121.3	162.2	180.6	93.4	113.9	161.6	221.3	174.3	759.6	1,584.2	2,393.9	2,180.0	3,334.5
Other[a]	21,753.2	17,010.5	20,467.5	9,336.1	10,559.5	11,360.0	11,913.4	14,772.0	14,026.7	15,099.2	17,776.7	19,933.1	20,263.4	22,833.8
Mail[b]	69.3	57.0	58.3	24.1	6.8	5.6	0.6	1.1	1.2	0.4	23.1	36.9	43.8	50.5
Exports to Mexico, total	46,503.3	42,662.2	51,753.4	64,169.5	70,165.3	76,129.0	97,158.9	88,926.4	85,157.8	85,614.8	97,303.7	104,276.5	116,749.2	118,758.5
Truck	39,066.5	35,914.2	44,091.8	55,592.6	60,432.1	66,923.8	82,389.2	74,223.1	70,924.7	70,550.8	79,349.2	83,341.2	92,991.6	93,047.2
Rail	4,192.0	4,694.4	5,119.2	5,648.0	6,188.8	5,710.6	10,495.8	10,389.4	10,143.0	11,264.9	13,632.9	15,747.7	17,271.2	19,340.0
Pipeline	0.4	1.0	2.3	68.3	73.4	144.2	301.8	296.1	567.9	155.3	87.2	543.3	707.0	787.4
Other[a]	3,238.9	2,025.8	2,540.1	2,860.5	3,470.0	3,349.6	3,972.0	4,017.7	3,521.5	3,643.3	4,216.4	4,622.8	5,779.1	5,581.0
Mail[c]	5.5	26.8	–	0.1	1.0	0.7	–	0.1	0.6	0.4	18.1	21.6	0.3	2.9
Imports from Canada, total	123,504.9	143,669.5	156,206.6	155,682.6	162,105.7	183,723.5	210,270.5	200,853.4	194,820.7	207,448.4	236,734.9	265,402.1	278,889.2	284,773.1
Truck	79,456.4	88,964.9	98,400.8	99,814.8	108,856.7	118,901.4	127,816.3	117,129.9	117,985.3	116,714.1	132,762.1	143,695.6	149,884.0	150,404.1
Rail	30,322.8	39,996.9	39,811.0	38,293.0	37,374.1	46,255.4	49,699.2	47,197.9	46,966.8	49,980.9	57,947.2	60,606.3	63,258.4	65,962.2
Pipeline	9,728.6	10,606.6	12,796.2	13,879.5	11,120.1	12,055.5	23,117.1	25,908.5	21,832.3	31,451.3	36,828.3	48,766.5	53,865.2	55,015.6
Other[a]	3,991.6	3,888.2	4,968.4	3,572.5	4,575.1	6,386.9	9,571.0	10,523.8	7,992.7	9,236.6	8,994.4	12,184.4	11,736.0	12,957.4
Mail	5.5	5.2	6.9	0.4	1.7	13.1	4.1	7.2	0.4	0.3	0.2	0.1	0.2	0.4
FTZ[d]	U	207.6	223.4	122.4	177.9	111.2	62.8	86.1	43.3	65.3	202.6	149.3	145.5	433.5
Imports from Mexico, total	43,616.2	54,048.9	63,312.2	72,155.0	81,720.3	95,023.4	113,436.4	111,870.3	114,380.8	114,842.5	127,646.0	135,400.4	155,205.1	167,713.2
Truck	35,013.9	43,014.3	48,350.0	56,716.5	65,883.7	76,448.0	88,668.7	86,377.2	90,593.6	92,535.0	104,943.8	112,267.6	126,463.6	137,037.0
Rail	7,769.0	9,137.9	12,297.7	12,646.9	12,029.7	14,693.4	21,056.1	22,056.8	20,790.7	19,701.7	20,183.4	20,782.2	25,863.5	27,060.0
Pipeline	187.9	27.4	8.1	3.6	2.4	1.5	11.5	1.6	0.6	0.2	0.3	–	55.4	168.6
Other[a]	643.5	768.9	639.2	668.2	917.8	1,255.8	1,573.9	1,539.7	1,548.9	1,600.1	1,838.7	1,990.2	2,399.2	2,696.4
Mail	1.9	1.3	1.5	0.2	0.2	0.2	0.6	0.1	0.2	–	–	–	–	U
FTZ[d]	U	1,099.2	2,015.6	2,119.6	2,886.7	2,624.4	2,125.7	1,894.9	1,446.8	1,005.4	679.8	360.4	423.3	751.1

KEY: – = value too small to report; U = data are not available.

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

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

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

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

NOTES

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

SOURCE

U.S. Department of Transportation, Bureau of Transportation Statistics, Transborder Surface Freight Data, Internet site www.bts.gov/transborder as of Apr. 15, 2008.

Table 1-55: Crude Oil and Petroleum Products Transported in the United States by Mode (billions)

	1975		1980		1985		1990		1995		1996		1997		1998		1999		2000		2001		2002		2003	
	Ton-miles	Percent	Ton-miles	Percent	Ton-miles	Percent	Ton-miles	Percent	Ton-miles	Percent	Ton-miles	Percent	Ton-miles	Percent	Ton-miles	Percent	Ton-miles	Percent	Ton-miles	Percent	Ton-miles	Percent	Ton-miles	Percent	Ton-miles	Percent
Crude oil, total	**331.5**	**100.0**	**753.0**	**100.0**	**786.2**	**100.0**	**628.2**	**100.0**	**586.0**	**100.0**	**543.2**	**100.0**	**486.9**	**100.0**	**454.1**	**100.0**	**423.0**	**100.0**	**376.0**	**100.0**	**376.6**	**100.0**	**384.0**	**100.0**	**380.4**	**100.0**
Pipelines[a]	288.0	86.9	362.6	48.2	334.4	42.5	334.8	53.3	335.9	57.3	338.3	62.3	337.4	69.3	334.1	73.6	321.1	75.9	283.4	75.4	277.0	73.6	286.6	74.6	284.5	74.8
Water carriers	40.6	12.2	(c) 387.4	51.4	449.2	57.1	291.2	46.4	247.7	42.3	202.4	37.3	147.3	30.3	117.9	26.0	100.0	23.6	91.0	24.2	98.1	26.0	95.7	24.9	94.1	24.7
Motor carriers[b]	1.4	0.4	2.5	0.3	1.8	0.2	1.5	0.2	1.7	0.3	1.7	0.3	1.7	0.3	1.6	0.4	1.4	0.3	1.2	0.3	1.1	0.3	1.2	0.3	1.3	0.3
Railroads	1.5	0.5	0.5	0.1	0.8	0.1	0.7	0.1	0.8	0.1	0.8	0.1	0.5	0.1	0.5	0.1	0.5	0.1	0.4	0.1	0.4	0.1	0.5	0.1	0.5	0.1
Refined petroleum products, total	**515.2**	**100.0**	**492.3**	**100.0**	**409.3**	**100.0**	**448.6**	**100.0**	**458.9**	**100.0**	**479.0**	**100.0**	**469.6**	**100.0**	**475.7**	**100.0**	**489.9**	**100.0**	**497.3**	**100.0**	**493.2**	**100.0**	**480.6**	**100.0**	**502.9**	**100.0**
Pipelines[a]	219.0	42.5	225.6	45.8	229.9	56.2	249.3	55.6	265.2	57.8	280.9	58.6	279.1	59.4	285.7	60.1	296.6	60.5	293.9	59.1	299.1	60.6	299.6	62.3	305.7	60.8
Water carriers	257.4	50.0	230.4	46.8	141.2	34.5	157.8	35.2	153.2	33.4	154.1	32.2	148.3	31.6	147.1	30.9	147.5	30.1	153.4	30.8	145.9	29.6	131.9	27.4	146.0	29.0
Motor carriers[b]	26.2	5.1	24.3	5.0	26.9	6.6	28.2	6.3	24.6	5.4	28.0	5.8	26.0	5.5	26.7	5.6	27.6	5.6	30.1	6.1	29.7	6.0	29.4	6.1	31.9	6.3
Railroads	12.6	2.4	12.0	2.4	11.3	2.7	13.3	2.9	15.9	3.5	16.0	3.3	16.2	3.4	16.2	3.4	18.2	3.7	19.9	4.0	18.5	3.8	19.7	4.1	19.3	3.8
Combined crude and petroleum products, total	**846.7**	**100.0**	**1,245.3**	**100.0**	**1,195.5**	**100.0**	**1,076.8**	**100.0**	**1,044.9**	**100.0**	**1,022.2**	**100.0**	**956.5**	**100.0**	**929.8**	**100.0**	**912.9**	**100.0**	**873.3**	**100.0**	**869.8**	**100.0**	**864.6**	**100.0**	**883.3**	**100.0**
Pipelines[a]	507.0	59.9	588.2	47.2	564.3	47.2	584.1	54.2	601.1	57.5	619.2	60.6	616.5	64.5	619.8	66.7	617.7	67.7	577.3	66.1	576.1	66.2	586.2	67.8	590.2	66.8
Water carriers	298.0	35.2	(c) 617.8	49.6	590.4	49.4	449.0	41.7	400.9	38.4	356.5	34.9	295.6	30.9	265.0	28.5	247.5	27.1	244.4	28.0	244.0	28.1	227.6	26.3	240.1	27.2
Motor carriers[b]	27.6	3.3	26.8	2.2	28.7	2.4	29.7	2.8	26.3	2.5	29.7	2.9	27.7	2.9	28.3	3.0	29.0	3.2	31.3	3.6	30.8	3.5	30.6	3.5	33.2	3.8
Railroads	14.1	1.7	12.5	1.0	12.1	1.0	14.0	1.3	16.6	1.6	16.8	1.6	16.7	1.7	16.7	1.8	18.7	2.0	20.3	2.3	18.9	2.2	20.2	2.3	19.8	2.2

[a] The amount carried by pipeline is based on ton-miles of crude and petroleum products transported through federally regulated pipelines (84%), plus estimated ton-miles of crude and petroleum products transported through nonfederally regulated pipelines (16%).

[b] The amount carried by motor carriers is estimated.

[c] Reflects the entrance between 1975 and 1980 of the Alaska pipeline, moving crude petroleum for water transportation to U.S. refineries.

NOTE
Numbers may not add to totals due to rounding.

SOURCES
1975: Association of Oil Pipe Lines, *Shifts in Petroleum Transportation* (Washington, DC), table 6.
1980-2003: Ibid., (Annual issues), tables 1, 2, and 3.

Table 1-56: U.S. Hazardous Materials Shipments by Transportation Mode, 2002

Transportation mode	Value ($ billion)	Value Percent	Tons (millions)	Tons Percent	Ton-miles (billions)	Ton-miles Percent	Average miles per shipment
TOTAL all modes	**660.2**	**100.0**	**2,191.5**	**100.0**	**326.7**	**100.0**	**136**
Single modes, total	**644.5**	**97.6**	**2,158.5**	**98.5**	**311.9**	**95.5**	**105**
Truck[a]	419.6	63.6	1,159.5	52.9	110.2	33.7	86
For-hire	189.8	28.8	449.5	20.5	65.1	19.9	285
Private[b]	226.7	34.3	702.2	32.0	44.1	13.5	38
Rail	31.3	4.7	109.4	5.0	72.1	22.1	695
Water	46.9	7.1	228.2	10.4	70.6	21.6	S
Air	1.6	0.2	0.1	–	0.1	–	2,080
Pipeline[c]	145.0	22.0	661.4	30.2	S	S	S
Multiple modes, total	**9.6**	**1.5**	**18.7**	**0.9**	**12.5**	**3.8**	**849**
Parcel, U.S. Postal Service or Courier	4.3	0.6	0.2	–	0.1	–	837
Other	5.4	0.8	18.5	0.8	12.4	3.8	1,371
Unknown and other modes, total	**6.1**	**0.9**	**14.2**	**0.6**	**2.3**	**0.7**	**57**

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

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

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

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

NOTE

Numbers may not add to totals due to rounding.

SOURCE

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

Table 1-57: U.S. Hazardous Materials Shipments by Hazard Class, 2002

Hazard class and description	Value ($ billion)	Value Percent	Tons (millions)	Tons Percent	Ton-miles (billions)	Ton-miles Percent	Average miles per shipment
Class 1. Explosives	7.9	1.2	5.0	0.2	1.6	0.5	651
Class 2. Gases	73.9	11.2	213.4	9.7	37.3	11.4	95
Class 3. Flammable liquids	490.2	74.3	1,789.0	81.6	218.6	66.9	106
Class 4. Flammable solids	6.6	1.0	11.3	0.5	4.4	1.3	158
Class 5. Oxidizers and organic peroxides	5.5	0.8	12.7	0.6	4.2	1.3	407
Class 6. Toxics (poison)	8.3	1.3	8.5	0.4	4.3	1.3	626
Class 7. Radioactive materials	5.9	0.9	0.1	–	–	–	S
Class 8. Corrosive materials	38.3	5.8	90.7	4.1	36.3	11.1	301
Class 9. Miscellaneous dangerous goods	23.6	3.6	61.0	2.8	20.2	6.2	368
Total	**660.2**	**100.0**	**2,191.5**	**100.0**	**326.7**	**100.0**	**136**

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

NOTE
Numbers may not add to totals due to rounding.

SOURCE
U.S. Department of Transportation, Bureau of Transportation Statistics, U.S. Department of Commerce, Census Bureau, *2002 Economic Census* , *Transportation, 2002 Commodity Flow Survey, Hazardous Materials* (Washington, DC: December 2004), table 2a.

Section E
Physical Performance

Table 1-58: Passengers Boarded and Denied Boarding by the Largest U.S. Air Carriers[a] (Thousands of passengers)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	(R) 2006	2007
Boarded	420,696	429,190	445,271	449,184	457,286	460,277	480,555	502,960	514,170	523,081	543,344	477,970	467,205	485,797	522,308	516,553	552,445	571,661
Denied boarding,[b] total	628	646	764	683	824	842	957	1,071	1,136	1,070	1,120	900	837	769	747	597	674	686
Voluntary	561	599	718	632	771	794	899	1,018	1,091	1,024	1,062	861	803	727	702	552	619	622
Involuntary	67	47	46	51	53	49	58	54	45	46	57	39	34	42	45	45	55	64
Percent denied boarding	0.15%	0.15%	0.17%	0.15%	0.18%	0.18%	0.20%	0.21%	0.22%	0.20%	0.21%	0.19%	0.18%	0.16%	0.14%	0.12%	0.12%	0.12%

[a] Data include nonstop scheduled service between points within the United States (including territories) by U.S. air carriers with at least 1% of the total domestic scheduled service passenger revenues and operate aircraft with a passenger capacity of more than 60 seats. In 2007, the air carriers were Jetblue, Airtran, Hawaiin, Aloha, United, Alaska, American, Northwest, Frontier, Southwest, US Airways, American Eagle, Continental, Mesa, Skywest, Delta, Comair, Atlantic Southeast, Pinnacle. Before 1994, carriers included both majors and national airlines, i.e., airlines with over $100 million in revenue.

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

SOURCE

U.S. Department of Transportation, Office of the Secretary, *Air Travel Consumer Report* (Washington, DC: Annual February issues), p. 39, Internet website http://airconsumer.ost.dot.gov/reports/ as of Feb. 13, 2008.

Table 1-59: Mishandled-Baggage Reports Filed by Passengers with the Largest U.S. Air Carriers[a]

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Total mishandled-baggage reports (millions)	2.66	2.20	2.45	2.28	2.32	2.28	2.46	2.28	2.48	2.54	2.74	2.14	1.81	2.20	2.82	2.94	4.08	4.42
Enplaned passengers (domestic) (millions)	395.7	408.5	417.0	407.5	435.7	439.8	464.0	459.8	481.7	499.1	517.5	467.9	471.4	524.5	575.4	442.0	606.6	628.8
Reports per 1,000 passengers	6.73	5.38	5.87	5.60	5.33	5.18	5.30	4.96	5.16	5.08	5.29	4.58	3.84	4.19	4.91	6.64	6.73	7.03

[a] Data include nonstop scheduled service between points within the United States (including territories) by U.S. air carriers with at least 1% of the total domestic scheduled service passenger revenues and those carriers that report voluntarily. In 2007, the air carriers were Airtran, Alaska, Aloha, American, American Eagle, Atlantic Southeast, Comair, Continental, Delta, ExpressJet, Frontier, Hawaiian, JetBlue, Mesa, Northwest, Pinnace, Skywest, Southwest, United, and US Airways.

NOTES

Domestic system only.

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

SOURCE

U.S. Department of Transportation, Office of the Secretary, *Air Travel Consumer Report* (Washington, DC: Annual February issues), p. 30, Internet website http://airconsumer.ost.dot.gov/reports/ as of Mar. 18, 2008.

Table 1-60: Flight Operations Arriving On Time by the Largest U.S. Air Carriers[a]

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

[a] Data include nonstop scheduled service between points within the United States (including territories) by U.S. air carriers with at least 1% of the total domestic scheduled service passenger revenues and those carriers that report voluntarily. In 2007, the air carriers were Airtran, Alaska, Aloha, American, American Eagle, Atlantic Southeast, Comair, Continental, Delta, ExpressJet, Frontier, Hawaiian, JetBlue, Mesa, Northwest, Pinnace, Skywest, Southwest, United, and US Airways.

NOTE

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

SOURCE

U.S. Department of Transportation, Office of the Secretary, *Air Travel Consumer Report* (Washington, DC: Annual February issues), table 1a, Internet website http://airconsumer.ost.dot.gov/reports/ as of Mar. 18, 2008.

Table 1-61: FAA-Cited Causes of Departure and En Route Delays (After pushing back from the gate)

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

KEY: FAA = Federal Aviation Administration.

NOTE

Numbers may not add to totals due to rounding.

SOURCES

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

1998-99: U.S. Department of Transportation, Federal Aviation Administration, Internet site http://www.faa.gov/apa/Delays/atDelays.htm as of Aug. 8, 2002.

2000-07: Ibid., Operations Network (OPSNET) database query, Internet site http://www.apo.data.faa.gov/ as of Jun. 16, 2008.

Table 1-62: Major U.S. Air Carrier Delays, Cancellations, and Diversions

	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Total operations	5,202,096	5,041,200	5,270,893	5,076,925	5,092,157	5,070,501	5,180,048	5,327,435	5,351,983	5,411,843	5,384,721	5,527,884	5,683,047	5,967,780	5,271,359	6,488,540	7,129,270	7,140,596	7,141,922	7,453,215
Late departures[a]	730,712	883,167	753,182	621,509	617,148	661,056	729,960	827,934	973,948	846,870	870,395	937,273	1,131,663	953,808	717,368	834,390	1,187,594	1,279,404	1,424,777	1,572,335
Percent of total	14.0%	17.5%	14.3%	12.2%	12.1%	13.0%	14.1%	15.5%	18.2%	15.6%	16.2%	17.0%	19.9%	16.0%	13.6%	12.9%	16.7%	17.9%	19.9%	21.1%
Late arrivals[b]	1,042,452	1,208,470	1,087,774	890,068	902,567	931,437	960,254	1,039,250	1,220,045	1,083,834	1,070,071	1,152,725	1,356,040	1,104,439	868,225	1,057,804	1,421,391	1,466,065	1,615,537	1,803,320
Percent of total	20.0%	24.0%	20.6%	17.5%	17.7%	18.4%	18.5%	19.5%	22.8%	20.0%	19.9%	20.9%	23.9%	18.5%	16.5%	16.3%	19.9%	20.5%	22.6%	24.2%
Cancellations	50,163	74,165	52,458	43,505	52,836	59,845	66,740	91,905	128,536	97,763	144,509	154,311	187,490	231,198	65,143	101,469	127,757	133,730	121,934	160,748
Percent of total	1.0%	1.5%	1.0%	0.9%	1.0%	1.2%	1.3%	1.7%	2.4%	1.8%	2.7%	2.8%	3.3%	3.9%	1.2%	1.6%	1.8%	1.9%	1.7%	2.2%
Diversions	14,436	14,839	15,954	12,585	11,384	10,333	12,106	10,492	14,121	12,081	13,161	13,555	14,254	12,909	8,356	11,381	13,784	14,028	16,186	17,179
Percent of total	0.3%	0.3%	0.3%	0.2%	0.2%	0.2%	0.2%	0.2%	0.3%	0.2%	0.2%	0.2%	0.3%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%

[a] Prior to 1995, late departures comprises flights departing 15 minutes or more after the scheduled time and flights cancelled. Beginning in 1995, late departures is only flights departing 15 minutes or more after the scheduled departure time.

[b] Prior to 1995, late arrivals comprises flights arriving 15 minutes or more after the scheduled arrival time, flights cancelled, and flights diverted. Beginning in 1995, late arrivals is only flights arriving 15 minutes or more after the scheduled arrival time.

NOTES

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

SOURCES

1988-94: U.S. Department of Transportation, Bureau of Transportation Statistics, Office of Airline Information, Airline Service Quality Performance data.
1995-2007: Ibid., *Airline On-Time Tables, Table 1 - Summary of Airline On-Time Performance Year-to-date through December 2007* available at http://www.bts.gov/programs/airline_information/airline_ontime_tables/ as of December 2008.

Table 1-63: Annual Person-Hours of Highway Traffic Delay Per Person

Population group	Urban area	1982	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	Percent change[a] Short-term 1998-2003 Percent	Short-term 1998-2003 Rank	Long-term 1982-2003 Percent	Long-term 1982-2003 Rank
Medium	Akron, OH	1	1	3	3	4	(R) 4	5	4	6	8	9	9	8	(R) 7	6	6	-33	82	500	29
Medium	Albany-Schenectady-Troy, NY	(R) 1	1	4	3	4	4	4	4	4	4	5	6	6	6	6	7	40	12	600	20
Medium	Albuquerque, NM	2	4	8	8	10	11	14	18	20	23	25	(R) 24	(R) 18	(R) 17	15	16	-36	85	700	15
Medium	Allentown-Bethlehem, PA-NJ	3	4	6	6	6	7	7	7	(R) 8	8	8	(R) 8	(R) 8	(R) 9	(R) 9	9	13	48	200	70
Small	Anchorage, AK	2	3	3	3	2	2	2	2	2	2	2	2	2	2	3	3	50	10	50	83
Very large	Atlanta, GA	6	10	11	11	12	17	23	26	30	31	33	29	31	(R) 31	32	34	3	58	467	39
Medium	Austin, TX	4	8	9	11	9	11	14	17	20	24	20	24	25	26	26	27	35	19	575	24
Small	Bakersfield, CA	1	1	2	2	3	2	2	3	3	3	3	3	4	4	4	4	33	20	300	59
Large	Baltimore, MD	4	6	15	15	13	14	16	17	18	19	18	18	19	21	26	27	50	10	575	24
Small	Beaumont, TX	2	3	3	3	3	4	3	3	3	4	6	6	6	6	8	8	33	20	300	59
Medium	Birmingham, AL	3	4	5	5	5	6	8	9	10	11	13	13	13	13	14	14	8	55	367	52
Very large	Boston, MA-NH-RI	(R) 6	(R) 10	(R) 15	(R) 16	19	(R) 18	(R) 18	(R) 16	(R) 17	(R) 19	(R) 20	(R) 19	(R) 20	(R) 21	(R) 24	25	25	33	317	58
Small	Boulder, CO	1	2	2	2	2	3	3	3	3	4	4	4	5	5	5	5	25	33	400	44
Medium	Bridgeport-Stamford, CT-NY	2	4	(R) 6	6	8	8	9	10	10	11	13	16	16	16	(R) 18	17	31	26	750	13
Small	Brownsville, TX	1	1	1	1	1	1	2	2	2	2	2	3	3	3	3	2	0	60	100	78
Large	Buffalo, NY	1	1	2	2	2	2	2	2	2	3	3	4	5	5	5	6	100	1	500	29
Small	Cape Coral, FL	1	2	3	4	4	5	5	6	6	7	7	7	7	7	8	8	14	46	700	15
Small	Charleston-North Charleston, SC	5	6	10	10	11	10	9	9	9	10	11	12	12	11	12	14	27	31	180	72
Medium	Charlotte, NC-SC	4	7	11	12	14	13	12	12	14	17	18	19	21	21	24	23	28	30	475	38
Very large	Chicago, IL-IN	6	11	17	18	18	18	17	20	26	24	26	26	25	26	29	31	19	41	417	43
Large	Cincinnati, OH-KY-IN	2	3	7	7	8	9	12	(R) 11	(R) 13	(R) 16	(R) 15	(R) 15	(R) 16	(R) 16	(R) 17	17	13	47	750	13
Large	Cleveland, OH	1	1	3	3	4	5	6	9	10	12	9	10	8	7	6	6	-33	82	500	29
Small	Colorado Springs, CO	1	2	2	2	3	4	4	6	6	8	(R) 11	(R) 13	(R) 15	(R) 16	(R) 15	14	27	31	1,300	4
Small	Columbia, SC	1	2	3	3	3	3	3	3	3	3	3	4	(R) 4	4	4	5	67	8	400	44
Large	Columbus, OH	2	2	8	8	10	11	(R) 13	(R) 14	(R) 16	19	(R) 18	(R) 19	(R) 16	(R) 15	15	16	-11	79	700	15
Small	Corpus Christi, TX	2	2	2	3	3	2	2	2	2	2	2	3	3	4	3	4	100	1	100	78
Very large	Dallas-Fort Worth-Arlington, TX	6	12	17	18	21	23	22	24	23	24	27	(R) 33	(R) 33	(R) 34	(R) 35	35	30	29	483	36
Medium	Dayton, OH	1	2	3	4	4	5	(R) 5	(R) 8	(R) 9	(R) 10	(R) 9	(R) 10	(R) 9	(R) 8	(R) 7	6	-33	82	500	29
Large	Denver-Aurora, CO	7	8	12	13	15	18	19	23	26	29	32	32	34	35	(R) 31	31	-3	72	343	54
Very large	Detroit, MI	7	7	20	21	28	(R) 33	28	26	26	27	27	26	24	26	27	30	11	50	329	56
Medium	El Paso, TX-NM	1	1	2	3	4	4	5	5	4	5	5	8	9	11	10	10	100	1	900	6
Small	Eugene, OR	1	1	2	2	2	3	2	2	3	3	4	5	6	5	5	5	25	33	400	44
Medium	Fresno, CA	3	3	7	7	7	5	5	5	6	7	8	10	10	8	8	7	-13	80	133	77
Medium	Grand Rapids, MI	2	2	4	5	6	8	8	7	8	(R) 9	11	11	10	(R) 9	(R) 10	10	-9	75	400	44
Medium	Hartford, CT	(R) 2	2	3	4	6	5	5	5	(R) 5	(R) 7	8	8	8	9	9	8	0	60	300	59
Medium	Honolulu, HI	4	6	13	13	14	13	13	14	13	12	12	13	10	11	10	11	-8	74	175	74

Table 1-63: Annual Person-Hours of Highway Traffic Delay Per Person

Population group	Urban area	1982	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	Percent change[a] Short-term 1998-2003 Percent	Short-term 1998-2003 Rank	Long-term 1982-2003 Percent	Long-term 1982-2003 Rank
Very large	Houston, TX	19	33	23	17	17	(R) 20	(R) 23	25	(R) 27	(R) 31	29	35	31	(R) 34	(R) 37	36	24	38	89	82
Large	Indianapolis, IN	2	2	4	5	7	13	17	19	22	24	19	19	20	21	20	21	11	53	950	5
Medium	Jacksonville, FL	3	4	10	10	13	13	14	18	17	18	15	15	14	15	17	18	20	40	500	29
Large	Kansas City, MO-KS	1	2	3	3	4	6	8	6	8	9	9	11	9	9	8	9	0	60	800	10
Small	Laredo, TX	1	1	1	1	1	1	1	2	2	3	3	4	3	4	4	4	33	20	300	59
Large	Las Vegas, NV	3	5	12	13	11	10	13	13	14	16	16	17	17	15	(R) 16	16	0	60	433	42
Small	Little Rock, AR	1	1	2	2	2	3	3	3	3	(R) 3	5	(R) 5	5	6	5	5	0	60	400	44
Very large	Los Angeles-Long Beach-Santa Ana, CA	19	24	53	51	51	51	46	49	54	52	56	55	(R) 53	(R) 51	(R) 52	50	-11	78	163	75
Medium	Louisville, KY-IN	4	5	5	7	9	12	14	13	17	19	19	21	20	(R) 19	(R) 21	22	16	44	450	40
Medium	Memphis, TN-MS-AR	1	2	5	6	7	7	9	11	11	13	13	13	(R) 15	16	(R) 17	18	38	15	1,700	2
Very large	Miami, FL	5	6	13	14	18	18	19	19	21	22	22	24	26	27	29	29	32	25	480	37
Large	Milwaukee, WI	2	3	5	6	7	9	9	(R) 12	12	12	13	(R) 14	14	13	(R) 13	13	0	60	550	27
Large	Minneapolis-St. Paul, MN	1	4	8	9	11	14	15	17	17	23	23	26	(R) 22	(R) 24	(R) 23	23	0	60	2,200	1
Medium	Nashville-Davidson, TN	6	7	9	8	7	10	12	14	(R) 16	18	16	(R) 18	20	(R) 18	(R) 21	20	25	33	233	66
Medium	New Haven, CT	2	2	(R) 3	4	5	5	5	5	4	6	9	11	12	(R) 13	(R) 12	11	22	39	450	40
Large	New Orleans, LA	4	5	6	8	7	7	12	11	11	11	11	11	10	10	9	10	-9	75	150	76
Very large	New York-Newark, NY-NJ-CT	6	7	18	(R) 14	13	14	16	18	18	20	21	23	21	22	23	23	10	54	283	63
Large	Oklahoma City, OK	1	2	2	3	3	3	3	4	5	6	6	8	6	6	7	7	17	43	600	20
Medium	Omaha, NE-IA	2	3	5	5	6	6	8	8	9	9	10	11	(R) 11	12	12	13	30	27	550	27
Large	Orlando, FL	5	9	11	16	17	19	19	19	21	24	27	26	(R) 30	(R) 31	(R) 30	30	11	50	500	29
Medium	Oxnard-Ventura, CA	2	5	8	7	7	7	10	11	12	10	(R) 11	12	15	17	17	18	64	9	800	10
Small	Pensacola, FL-AL	1	2	6	7	7	8	8	8	8	9	9	10	11	10	10	10	11	50	900	6
Very large	Philadelphia, PA-NJ-DE-MD	5	6	9	12	13	11	12	(R) 15	(R) 15	15	(R) 20	21	18	21	22	21	5	56	320	57
Very large	Phoenix, AZ	7	8	15	17	19	19	19	16	21	23	20	25	24	(R) 26	(R) 25	26	30	27	271	64
Large	Pittsburgh, PA	4	5	7	7	7	6	6	7	7	8	8	9	7	7	7	8	0	60	100	78
Large	Portland, OR-WA	3	3	8	9	11	14	14	16	18	19	20	21	20	(R) 21	(R) 21	20	0	60	567	26
Large	Providence, RI-MA	2	3	6	6	7	8	8	9	10	(R) 9	10	(R) 12	(R) 12	12	17	18	80	5	800	10
Medium	Raleigh-Durham, NC	3	5	(R) 8	7	9	10	11	11	11	12	(R) 11	11	12	16	14	15	36	18	400	44
Medium	Richmond, VA	2	2	4	5	6	6	8	12	(R) 13	(R) 11	(R) 10	10	7	7	8	9	-10	77	350	53
Large	Riverside-San Bernardino, CA	4	7	20	23	25	24	20	22	24	25	29	28	(R) 28	(R) 28	(R) 29	30	3	57	650	19
Medium	Rochester, NY	0	1	2	1	2	2	2	3	3	3	3	4	3	3	3	4	33	20	NM	NM
Large	Sacramento, CA	5	7	14	14	13	13	16	14	17	15	(R) 16	(R) 17	(R) 18	(R) 20	(R) 21	22	38	17	340	55

Table 1-63: Annual Person-Hours of Highway Traffic Delay Per Person

Population group	Urban area	1982	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	Percent change[a] Short-term 1998-2003 Percent	Short-term 1998-2003 Rank	Long-term 1982-2003 Percent	Long-term 1982-2003 Rank
Small	Salem, OR	1	1	3	4	4	4	5	4	5	6	6	6	6	(R) 7	8	8	33	20	700	15
Medium	Salt Lake City, UT	1	2	4	5	6	7	9	9	8	7	8	9	10	14	(R) 16	16	100	1	1,500	3
Large	San Antonio, TX	3	7	6	6	7	6	5	10	10	10	13	19	21	19	19	18	38	15	500	29
Large	San Diego, CA	3	6	16	14	14	13	14	14	14	17	16	20	20	(R) 22	(R) 27	28	75	6	833	9
Very large	San Francisco-Oakland, CA	12	24	36	28	26	28	24	31	31	28	32	34	(R) 36	(R) 37	(R) 38	37	16	45	208	69
Large	San Jose, CA	10	21	43	35	26	25	24	26	25	23	26	31	(R) 32	32	29	29	12	49	190	71
Medium	Sarasota-Bradenton, FL	5	5	5	6	6	7	7	6	8	8	8	10	9	9	(R) 10	10	25	33	100	78
Large	Seattle, WA	5	9	22	24	(R) 25	25	25	(R) 27	29	(R) 30	(R) 30	(R) 30	(R) 26	25	(R) 26	25	-17	81	400	44
Small	Spokane, WA	1	2	2	3	3	5	6	4	4	5	5	6	5	5	5	5	0	60	400	44
Medium	Springfield, MA-CT	3	3	4	3	4	(R) 3	3	4	4	4	4	4	5	4	5	4	0	60	33	84
Large	St. Louis, MO-IL	6	8	9	9	11	15	16	18	18	20	(R) 20	(R) 21	(R) 22	(R) 19	(R) 21	19	-5	73	217	67
Large	Tampa-St. Petersburg, FL	8	9	14	17	18	20	23	23	22	21	21	22	20	23	23	25	19	42	213	68
Medium	Toledo, OH-MI	1	1	2	2	2	2	3	4	4	5	5	6	(R) 7	7	7	7	40	12	600	20
Medium	Tucson, AZ	2	2	5	6	6	7	8	8	8	11	(R) 11	(R) 11	11	13	(R) 16	19	73	7	850	8
Medium	Tulsa, OK	1	2	3	3	3	3	2	3	4	5	(R) 5	6	(R) 7	7	7	7	40	12	600	20
Large	Virginia Beach, VA	5	7	9	8	9	8	10	11	12	12	14	14	10	12	(R) 14	14	0	60	180	72
Very large	Washington, DC-VA-MD	10	14	21	22	24	(R) 25	26	28	(R) 30	(R) 29	(R) 33	(R) 34	(R) 31	(R) 32	33	34	3	58	240	65
NA	**85-Area Average**	**(R) 6**	**9**	**17**	**16**	**17**	**18**	**18**	**20**	**21**	**22**	**23**	**(R) 24**	**(R) 23**	**(R) 24**	**(R) 25**	**25**	**9**	**NA**	**317**	**NA**
NA	**Very Large Area Average**	**9**	**13**	**(R) 24**	**(R) 22**	**24**	**(R) 24**	**24**	**26**	**28**	**28**	**(R) 30**	**(R) 31**	**(R) 30**	**(R) 30**	**(R) 32**	**32**	**7**	**NA**	**256**	**NA**
NA	**Large Area Average**	**4**	**6**	**(R) 11**	**12**	**(R) 12**	**(R) 13**	**(R) 14**	**(R) 15**	**(R) 16**	**(R) 18**	**(R) 18**	**(R) 19**	**(R) 19**	**(R) 19**	**20**	**18**	**0**	**NA**	**350**	**NA**
NA	**Medium Area Average**	**2**	**3**	**(R) 5**	**6**	**7**	**7**	**8**	**9**	**10**	**11**	**11**	**12**	**(R) 12**	**(R) 12**	**(R) 13**	**13**	**18**	**NA**	**550**	**NA**
NA	**Small Area Average**	**2**	**2**	**(R) 3**	**4**	**4**	**4**	**4**	**(R) 4**	**(R) 4**	**5**	**6**	**6**	**(R) 7**	**(R) 7**	**7**	**7**	**17**	**NA**	**289**	**NA**

KEY: NA = not applicable; NM = not meaningful; R = revised.

Very large urban areas – over 3 million population.

Large urban areas – over 1 million and less than 3 million population.

Medium urban areas – over 500,000 and less than 1 million population.

Small urban areas – less than 500,000 population.

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

NOTE

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

SOURCE

Texas Transportation Institute, *The 2005 Annual Urban Mobility Report* (College Station, TX: 2005), Internet site http://mobility.tamu.edu as of June 7, 2005.

Table 1-64: Travel Time Index

Population group	Urban area	1982	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	Points change: Short-term 1998-2003 Points	Short-term 1998-2003 Rank[a]	Long-term 1982-2003 Points	Long-term 1982-2003 Rank[a]
Large	Minneapolis-St. Paul, MN	1.03	1.06	1.12	1.12	1.14	1.16	1.20	1.22	1.23	1.30	1.32	1.35	1.32	1.34	1.34	1.34	2	42	31	11
Medium	Nashville-Davidson, TN	1.07	1.08	1.09	1.08	1.08	1.09	1.12	1.13	1.14	1.16	1.15	(R) 1.17	1.18	(R) 1.17	1.19	1.18	3	32	11	52
Medium	New Haven, CT	1.03	(R) 1.03	(R) 1.05	(R) 1.05	1.07	1.08	1.09	1.09	1.07	1.09	1.12	1.13	1.14	(R) 1.15	1.14	1.13	1	54	10	54
Large	New Orleans, LA	1.10	1.14	1.16	1.19	1.18	1.16	1.20	1.20	1.20	1.19	1.19	1.20	1.18	1.17	1.18	1.19	0	63	9	56
Very large	New York-Newark, NY-NJ-CT	1.13	1.16	1.31	1.28	1.27	1.28	1.31	1.33	1.34	1.36	1.36	1.40	1.38	1.38	1.40	1.39	3	32	26	17
Large	Oklahoma City, OK	1.02	1.03	1.03	1.04	1.04	1.04	1.04	1.06	1.07	1.09	1.09	1.11	1.09	1.10	1.11	1.10	1	54	8	62
Medium	Omaha, NE-IA	1.04	1.06	1.09	1.10	1.11	1.10	1.12	1.12	1.14	1.13	1.14	1.15	1.15	1.16	1.17	1.18	4	25	14	39
Large	Orlando, FL	1.09	1.15	1.16	1.19	1.19	1.21	1.20	1.21	1.22	1.24	1.27	1.27	1.28	(R) 1.30	(R) 1.31	1.30	3	32	21	26
Medium	Oxnard-Ventura, CA	1.04	1.07	1.10	1.09	1.10	1.10	1.14	1.15	1.16	1.14	(R) 1.15	1.19	1.19	1.21	(R) 1.21	1.23	8	11	19	28
Small	Pensacola, FL-AL	1.03	1.04	1.08	1.09	1.09	1.11	1.10	1.11	1.10	1.12	1.12	1.12	1.14	1.12	1.12	1.12	0	63	9	56
Very large	Philadelphia, PA-NJ-DE-MD	1.13	1.14	1.19	1.20	1.22	1.20	1.21	(R) 1.24	(R) 1.27	(R) 1.27	1.33	(R) 1.33	(R) 1.31	1.35	1.35	1.32	-1	70	19	28
Very large	Phoenix, AZ	1.13	1.15	1.22	1.24	1.27	1.27	1.28	1.24	1.30	1.33	1.31	1.38	1.38	1.40	1.35	1.35	4	25	22	25
Large	Pittsburgh, PA	1.08	1.09	1.10	1.09	1.09	1.09	1.09	1.10	1.10	1.10	1.11	1.12	1.10	1.10	1.10	1.10	-1	70	2	82
Large	Portland, OR-WA	1.05	1.07	1.16	1.17	1.20	1.24	1.25	1.28	1.31	1.35	1.34	1.37	1.37	1.39	1.38	1.37	3	32	32	9
Large	Providence, RI-MA	1.05	1.06	1.10	1.10	1.10	1.11	1.11	1.12	1.14	(R) 1.12	1.13	1.14	1.15	(R) 1.15	(R) 1.18	1.19	6	16	14	39
Medium	Raleigh-Durham, NC	1.05	1.07	(R) 1.11	1.09	(R) 1.11	1.12	1.13	1.14	1.13	1.15	1.15	(R) 1.14	1.16	1.19	1.18	1.19	4	25	14	39
Medium	Richmond, VA	1.03	1.03	1.05	1.06	1.06	1.07	1.08	1.11	1.11	(R) 1.09	1.09	1.09	1.07	1.07	1.08	1.09	0	63	6	70
Large	Riverside-San Bernardino, CA	1.04	1.08	1.24	1.27	1.29	1.27	1.23	1.26	1.28	1.27	1.31	1.33	1.33	1.32	(R) 1.34	1.37	6	16	33	5
Medium	Rochester, NY	1.01	1.02	1.03	1.04	1.04	1.04	1.04	1.05	1.05	1.06	1.05	1.06	1.06	1.06	1.06	1.07	2	42	6	70
Large	Sacramento, CA	1.07	1.09	1.20	1.20	1.18	1.19	1.22	1.21	1.24	1.23	(R) 1.25	(R) 1.27	(R) 1.29	(R) 1.32	(R) 1.34	1.37	12	2	30	13
Small	Salem, OR	1.02	1.02	1.04	1.05	1.05	1.06	1.07	1.06	1.07	1.07	1.08	1.08	1.08	1.09	1.11	1.11	3	32	9	56
Medium	Salt Lake City, UT	1.03	1.05	1.08	1.10	1.13	1.13	1.15	1.17	1.17	1.15	1.16	1.17	1.18	(R) 1.23	(R) 1.26	1.28	12	2	25	19
Large	San Antonio, TX	1.05	1.08	1.07	1.07	1.08	1.07	1.08	1.12	1.12	1.13	1.16	1.22	1.24	1.22	1.23	1.22	6	16	17	33
Large	San Diego, CA	1.06	1.09	1.24	1.22	1.23	1.22	1.22	1.22	1.23	1.25	1.26	1.32	1.32	1.32	(R) 1.40	1.41	15	1	35	4
Very large	San Francisco-Oakland, CA	1.21	1.36	1.50	1.42	1.41	1.44	1.40	1.45	1.45	1.42	1.47	1.49	1.54	1.54	1.55	1.54	7	14	33	5
Large	San Jose, CA	1.18	1.30	1.44	1.41	1.34	1.34	1.33	1.34	1.33	1.30	1.34	1.39	1.42	1.43	1.39	1.37	3	32	19	28
Medium	Sarasota-Bradenton, FL	1.12	1.12	1.14	1.16	1.16	1.18	1.19	(R) 1.16	1.19	1.19	1.20	1.24	1.22	1.22	1.25	1.25	5	20	13	46
Large	Seattle, WA	1.07	1.13	1.29	1.33	(R) 1.35	1.35	1.34	1.36	1.36	1.40	1.39	(R) 1.40	1.35	1.35	(R) 1.36	1.38	-1	70	31	11
Small	Spokane, WA	1.02	1.03	1.04	1.04	1.05	1.08	1.08	1.06	1.06	1.07	1.08	1.08	1.08	1.07	1.07	1.08	0	63	6	70
Medium	Springfield, MA-CT	1.05	1.05	1.06	1.06	1.06	1.06	1.05	1.06	1.06	1.06	1.06	1.07	1.07	1.06	1.07	1.06	0	63	1	84
Large	St. Louis, MO-IL	1.09	1.12	1.12	1.12	1.14	1.18	1.19	1.21	1.21	1.24	(R) 1.24	(R) 1.25	1.25	(R) 1.23	1.24	1.22	-2	76	13	46
Large	Tampa-St. Petersburg, FL	1.19	1.21	1.26	1.29	1.29	1.30	1.32	1.32	1.31	1.29	1.28	1.29	1.27	1.31	1.31	1.33	5	20	14	39
Medium	Toledo, OH-MI	1.02	1.02	1.03	1.03	1.03	1.04	1.05	1.06	1.06	(R) 1.07	1.08	1.09	1.10	1.11	1.11	1.10	2	42	8	62
Medium	Tucson, AZ	1.06	1.06	1.11	1.13	1.13	1.14	1.15	1.15	1.15	1.19	(R) 1.20	(R) 1.20	1.19	(R) 1.22	(R) 1.28	1.31	11	6	25	19
Medium	Tulsa, OK	1.02	1.03	1.05	1.05	1.05	1.05	1.05	1.06	1.07	1.08	(R) 1.08	1.09	(R) 1.10	(R) 1.10	(R) 1.10	1.10	2	42	8	62
Large	Virginia Beach, VA	1.08	1.11	1.14	1.14	1.14	1.13	1.15	1.16	1.18	1.18	1.19	1.19	1.16	1.18	(R) 1.20	1.21	2	42	13	46
Very large	Washington, DC-VA-MD	1.18	1.23	1.33	1.35	1.37	1.38	1.37	1.40	1.44	1.43	1.46	1.47	1.44	1.46	1.50	1.51	5	20	33	5
NA	**85-Area Average**	**1.12**	**1.16**	**1.28**	**1.27**	**1.28**	**1.28**	**1.27**	**1.29**	**1.31**	**1.32**	**1.34**	**1.35**	**1.34**	**1.35**	**1.37**	**1.37**	**3**	**NA**	**25**	**NA**
NA	**Very Large Area Average**	**(R) 1.18**	**(R) 1.23**	**(R) 1.40**	**(R) 1.39**	**(R) 1.39**	**(R) 1.38**	**(R) 1.37**	**1.40**	**(R) 1.43**	**(R) 1.43**	**(R) 1.46**	**(R) 1.46**	**(R) 1.45**	**(R) 1.47**	**(R) 1.49**	**1.48**	**2**	**NA**	**30**	**NA**
NA	**Large Area Average**	**1.07**	**1.10**	**1.17**	**1.18**	**(R) 1.18**	**(R) 1.19**	**(R) 1.20**	**(R) 1.21**	**(R) 1.23**	**(R) 1.24**	**(R) 1.25**	**(R) 1.26**	**(R) 1.26**	**(R) 1.27**	**(R) 1.28**	**1.28**	**3**	**NA**	**21**	**NA**
NA	**Medium Area Average**	**1.05**	**1.06**	**1.09**	**(R) 1.09**	**1.10**	**1.11**	**1.12**	**1.13**	**1.14**	**1.15**	**1.15**	**1.16**	**1.16**	**1.17**	**1.18**	**1.18**	**3**	**NA**	**13**	**NA**
NA	**Small Area Average**	**(R) 1.03**	**1.04**	**(R) 1.05**	**1.06**	**(R) 1.06**	**(R) 1.06**	**(R) 1.06**	**1.07**	**(R) 1.07**	**1.08**	**(R) 1.08**	**(R) 1.09**	**1.10**	**1.10**	**1.10**	**1.10**	**2**	**NA**	**7**	**NA**

KEY: NA = not applicable; R = revised.

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

[a] Rank is based on the calculated point change with the highest number corresponding to a rank of 1.

Table 1-64: Travel Time Index

Population group	Urban area	1982	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	Points change: Short-term 1998-2003 Points	Points change: Short-term 1998-2003 Rank[a]	Points change: Long-term 1982-2003 Points	Points change: Long-term 1982-2003 Rank[a]

NOTE

The Travel Time Index (TTI) is the ratio of peak period travel time to free flow travel time. The TTI expresses the average amount of extra time it takes to travel in the peak relative to free-flow travel. A TTI of 1.3, for example, indicates a 20-minute free-flow trip will take 26 minutes during the peak travel time periods, a 6-minute (30 percent) travel time penalty.

SOURCE

Texas Transportation Institute,*The 2005 Annual Urban Mobility Report* (College Station, TX: 2005), Internet site http://mobility.tamu.edu as of June 10, 2005.

Table 1-65: Annual Roadway Congestion Index

Population group	Urban area	1982	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	Points change: Short-term 2000-2005 Points	Short-term 2000-2005 Rank[a]	Long-term 1982-2005 Points	Long-term 1982-2005 Rank[a]
Medium	Akron, OH	0.50	0.54	0.68	0.69	0.71	0.76	0.79	0.78	0.81	0.84	0.85	0.85	0.86	0.85	0.85	0.86	0.89	0.87	1	62	37	29
Medium	Albany-Schenectady, NY	0.42	0.45	0.57	0.58	0.62	0.63	0.64	0.64	0.67	0.69	0.70	0.71	0.73	0.75	0.76	0.78	0.81	0.81	8	15	39	22
Medium	Albuquerque, NM	0.65	0.71	0.85	0.86	0.89	0.93	0.96	0.99	1.04	1.06	1.08	1.05	1.02	1.00	0.97	0.95	0.97	0.99	-3	78	34	38
Medium	Allentown-Bethlehem, PA-NJ	0.64	0.68	0.76	0.78	0.83	0.87	0.90	0.92	0.96	0.98	0.98	0.98	0.97	0.95	0.93	0.92	0.95	0.95	-2	74	31	48
Small	Anchorage, AK	0.75	0.75	0.72	0.72	0.71	0.70	0.72	0.71	0.70	0.70	0.71	0.72	0.73	0.75	0.76	0.76	0.76	0.76	3	48	1	85
Very large	Atlanta, GA	0.83	0.93	1.02	1.04	1.06	1.11	1.18	1.21	1.25	1.29	1.31	1.35	1.36	1.35	1.35	1.36	1.36	1.34	-2	74	51	9
Medium	Austin, TX	0.74	0.81	0.90	0.90	0.88	0.88	0.90	0.93	0.98	1.00	1.03	1.06	1.11	1.15	1.14	1.14	1.14	1.16	5	38	42	18
Small	Bakersfield, CA	0.50	0.57	0.65	0.67	0.69	0.68	0.70	0.71	0.72	0.74	0.77	0.78	0.75	0.76	0.78	0.78	0.81	0.83	8	19	33	42
Large	Baltimore, MD	0.75	0.81	0.95	0.96	0.96	0.97	0.99	1.02	1.02	1.03	1.04	1.05	1.09	1.12	1.18	1.20	1.20	1.21	12	9	46	15
Small	Beaumont, TX	0.56	0.57	0.61	0.63	0.64	0.64	0.64	0.65	0.68	0.68	0.68	0.70	0.71	0.73	0.75	0.75	0.76	0.78	7	22	22	72
Medium	Birmingham, AL	0.59	0.65	0.74	0.75	0.75	0.77	0.80	0.82	0.85	0.88	0.91	0.93	0.94	0.94	0.95	0.97	0.98	1.00	6	26	41	19
Very large	Boston, MA-NH-RI	0.81	0.90	1.05	1.05	1.06	1.05	1.05	1.06	1.07	1.08	1.10	1.11	1.11	1.11	1.10	1.10	1.11	1.11	0	66	30	51
Small	Boulder, CO	0.73	0.75	0.79	0.82	0.84	0.85	0.87	0.88	0.88	0.90	0.88	0.90	0.91	0.90	0.92	0.91	0.91	0.90	-1	70	17	78
Medium	Bridgeport-Stamford, CT-NY	0.80	0.91	0.98	0.95	0.98	0.98	0.98	1.01	1.01	1.03	1.06	1.07	1.09	1.12	1.15	1.14	1.16	1.17	8	20	37	32
Small	Brownsville, TX	0.53	0.53	0.62	0.62	0.64	0.67	0.66	0.69	0.71	0.71	0.74	0.78	0.81	0.81	0.83	0.82	0.84	0.78	-3	78	25	65
Large	Buffalo, NY	0.48	0.50	0.56	0.57	0.59	0.60	0.62	0.62	0.62	0.65	0.67	0.69	0.71	0.71	0.71	0.73	0.73	0.73	2	53	25	65
Small	Cape Coral, FL	0.94	0.92	0.87	0.87	0.90	0.98	1.06	1.14	1.15	1.11	1.14	1.13	1.11	1.11	1.15	1.19	1.23	1.23	12	9	29	56
Small	Charleston-North Charleston, SC	0.85	0.89	0.94	0.95	0.98	0.99	1.02	1.01	1.00	1.01	1.04	1.04	1.05	1.03	1.05	1.08	1.08	1.08	3	48	23	70
Medium	Charlotte, NC-SC	0.78	0.89	0.91	0.91	0.90	0.87	0.86	0.86	0.93	1.00	0.99	1.03	1.07	1.08	1.10	1.09	1.10	1.11	4	39	33	40
Very large	Chicago, IL-IN	0.81	0.89	1.03	1.04	1.02	1.01	1.03	1.08	1.14	1.13	1.17	1.17	1.18	1.20	1.23	1.24	1.28	1.28	10	12	47	13
Large	Cincinnati, OH-KY-IN	0.66	0.74	0.88	0.87	0.87	0.92	0.97	0.97	1.00	1.06	1.07	1.06	1.07	1.04	1.06	1.06	1.04	1.06	-1	70	40	20
Large	Cleveland, OH	0.73	0.69	0.83	0.84	0.85	0.88	0.89	0.90	0.91	0.93	0.94	0.95	0.94	0.91	0.89	0.89	0.91	0.90	-4	81	17	78
Small	Colorado Springs, CO	0.50	0.56	0.61	0.60	0.62	0.64	0.66	0.70	0.72	0.77	0.80	0.83	0.86	0.88	0.87	0.85	0.81	0.88	2	53	38	26
Small	Columbia, SC	0.57	0.65	0.73	0.73	0.74	0.74	0.75	0.77	0.77	0.79	0.81	0.84	0.87	0.88	0.88	0.89	0.89	0.90	3	48	33	40
Large	Columbus, OH	0.60	0.68	0.86	0.87	0.89	0.93	0.95	0.98	1.02	1.04	1.04	1.03	1.02	1.07	1.07	1.08	1.10	1.09	7	22	49	10
Small	Corpus Christi, TX	0.55	0.63	0.68	0.67	0.66	0.64	0.65	0.65	0.67	0.71	0.71	0.71	0.70	0.71	0.71	0.72	0.75	0.75	5	32	20	75
Very large	Dallas -Fort Worth-Arlington, TX	0.71	0.82	0.95	0.96	0.96	0.96	0.96	0.96	0.97	1.02	1.04	1.07	1.11	1.13	1.13	1.18	1.20	1.26	15	3	55	6
Medium	Dayton, OH	0.80	0.79	0.85	0.85	0.84	0.88	0.82	0.89	0.90	0.91	0.91	0.90	0.89	0.89	0.89	0.90	0.95	0.93	4	39	13	81
Large	Denver-Aurora, CO	0.82	0.83	0.89	0.91	0.92	0.95	0.98	1.03	1.07	1.09	1.13	1.16	1.17	1.17	1.15	1.16	1.13	1.18	1	62	36	33
Very large	Detroit, MI	0.91	0.96	1.06	1.08	1.12	1.13	1.12	1.13	1.15	1.15	1.16	1.17	1.19	1.21	1.22	1.23	1.23	1.24	5	32	33	42
Medium	El Paso, TX-NM	0.60	0.66	0.71	0.76	0.80	0.81	0.83	0.83	0.83	0.84	0.87	0.91	0.94	0.97	0.99	1.01	1.05	1.07	13	6	47	12
Small	Eugene, OR	0.69	0.70	0.75	0.75	0.75	0.79	0.78	0.80	0.82	0.83	0.85	0.88	0.91	0.88	0.88	0.92	0.92	0.93	2	53	24	67
Medium	Fresno, CA	0.68	0.73	0.80	0.81	0.82	0.83	0.82	0.84	0.86	0.87	0.90	0.91	0.94	0.91	0.92	0.91	0.91	0.94	0	66	26	64
Medium	Grand Rapids, MI	0.56	0.61	0.71	0.74	0.80	0.86	0.85	0.84	0.84	0.86	0.88	0.87	0.86	0.86	0.85	0.84	0.84	0.85	-1	70	29	58

Table 1-65: Annual Roadway Congestion Index

Population group	Urban area	1982	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	Points change: Short-term 2000-2005 Points	Short-term 2000-2005 Rank[a]	Long-term 1982-2005 Points	Long-term 1982-2005 Rank[a]
Medium	Hartford, CT	0.58	0.63	0.70	0.73	0.87	0.78	0.79	0.81	0.82	0.84	0.86	0.89	0.92	0.92	0.93	0.93	0.94	0.95	3	52	37	29
Medium	Honolulu, HI	0.82	0.88	1.04	1.04	1.06	1.06	1.08	1.08	1.08	1.06	1.06	1.06	1.04	1.04	1.04	1.06	1.07	1.08	4	39	26	62
Very large	Houston, TX	0.99	1.05	1.00	0.96	0.95	0.97	0.99	1.02	1.04	1.07	1.10	1.14	1.13	1.21	1.28	1.29	1.25	1.27	14	4	28	59
Large	Indianapolis, IN	0.80	0.83	0.94	0.97	1.02	1.05	1.11	1.17	1.17	1.20	1.17	1.17	1.18	1.19	1.18	1.18	1.18	1.16	-2	74	36	35
Medium	Jacksonville, FL	0.79	0.83	0.94	0.94	0.95	0.95	0.97	0.98	1.01	1.00	1.00	1.00	1.02	1.01	1.03	1.06	1.09	1.10	8	15	31	46
Large	Kansas City, MO-KS	0.53	0.64	0.74	0.74	0.76	0.80	0.81	0.82	0.83	0.81	0.81	0.82	0.82	0.82	0.82	0.81	0.79	0.80	-2	73	27	61
Small	Laredo, TX	0.41	0.45	0.47	0.50	0.51	0.52	0.54	0.58	0.64	0.63	0.63	0.67	0.66	0.71	0.71	0.74	0.74	0.76	10	14	35	36
Large	Las Vegas, NV	0.69	0.66	0.94	0.97	1.02	1.09	1.09	1.10	1.11	1.08	1.09	1.14	1.18	1.16	1.20	1.24	1.28	1.31	13	6	62	3
Small	Little Rock, AR	0.54	0.60	0.70	0.73	0.71	0.72	0.75	0.77	0.79	0.79	0.82	0.85	0.83	0.86	0.82	0.83	0.87	0.88	5	32	34	38
Very large	Los Angeles-Long Beach-Santa Ana, CA	1.21	1.25	1.57	1.56	1.54	1.52	1.49	1.51	1.54	1.53	1.53	1.53	1.54	1.54	1.55	1.55	1.58	1.58	4	39	37	28
Medium	Louisville, KY-IN	0.83	0.82	0.83	0.89	0.94	0.98	1.01	1.02	1.04	1.07	1.09	1.10	1.10	1.09	1.12	1.14	1.16	1.14	4	47	31	48
Medium	Memphis, TN-MS-AR	0.74	0.69	0.82	0.81	0.83	0.85	0.88	0.90	0.91	0.90	0.91	0.92	0.93	0.95	0.96	0.97	0.97	0.95	2	61	21	73
Very Large	Miami, FL	0.76	0.82	0.99	1.00	1.04	1.06	1.09	1.13	1.14	1.17	1.21	1.26	1.33	1.34	1.36	1.38	1.38	1.39	6	31	63	2
Large	Milwaukee, WI	0.65	0.75	0.89	0.90	0.90	0.88	0.88	0.91	0.94	0.95	0.96	0.99	1.00	0.98	0.96	0.97	0.98	0.95	-5	82	30	54
Large	Minneapolis-St. Paul, MN	0.65	0.73	0.85	0.87	0.90	0.93	1.00	1.02	1.03	1.08	1.11	1.14	1.16	1.19	1.17	1.18	1.16	1.17	1	62	52	8
Medium	Nashville-Davidson, TN	0.82	0.80	0.85	0.84	0.85	0.84	0.90	0.92	0.91	0.93	0.92	0.93	0.95	0.97	0.98	1.01	1.02	1.01	6	26	19	76
Medium	New Haven, CT	0.63	0.68	0.80	0.79	0.83	0.83	0.81	0.81	0.81	0.85	0.88	0.92	0.94	0.97	1.00	0.99	0.98	1.00	6	26	37	29
Large	New Orleans, LA	0.86	0.91	0.89	0.89	0.89	0.88	0.93	0.94	0.91	0.92	0.96	0.96	0.94	0.93	0.94	0.94	0.95	0.96	2	53	10	83
Very large	New York-Newark, NY-NJ-CT	0.73	0.80	0.91	0.90	0.90	0.92	0.93	0.95	0.97	1.01	1.02	1.05	1.06	1.06	1.08	1.13	1.14	1.13	7	25	40	21
Large	Oklahoma City, OK	0.63	0.69	0.70	0.72	0.73	0.77	0.77	0.81	0.83	0.85	0.86	0.88	0.87	0.89	0.89	0.89	0.89	0.89	2	53	26	63
Medium	Omaha, NE-IA	0.61	0.66	0.75	0.75	0.80	0.80	0.80	0.81	0.84	0.83	0.85	0.87	0.89	0.91	0.94	0.94	0.93	0.93	4	39	32	44
Large	Orlando, FL	0.72	0.83	0.96	0.99	0.98	0.96	0.98	1.00	1.03	1.07	1.10	1.12	1.16	1.22	1.20	1.20	1.20	1.20	4	39	48	11
Medium	Oxnard-Ventura, CA	0.83	0.97	1.15	1.13	1.14	1.15	1.20	1.20	1.21	1.20	1.20	1.22	1.22	1.26	1.26	1.26	1.26	1.26	4	39	43	16
Small	Pensacola, FL-AL	0.71	0.74	0.86	0.83	0.88	0.91	0.92	0.97	0.99	1.03	0.99	1.00	1.01	0.99	1.02	1.05	1.07	1.09	8	15	38	25
Very large	Philadelphia, PA-NJ-DE-MD	0.83	0.85	0.95	0.92	0.94	0.92	0.94	0.95	0.95	0.99	1.01	1.03	1.04	1.07	1.09	1.09	1.10	1.12	8	15	29	55
Very large	Phoenix, AZ	1.03	1.02	1.01	1.00	1.03	1.04	1.03	1.07	1.11	1.10	1.14	1.19	1.25	1.26	1.23	1.25	1.30	1.32	7	22	29	56
Large	Pittsburgh, PA	0.67	0.69	0.76	0.75	0.74	0.73	0.73	0.75	0.75	0.75	0.76	0.77	0.77	0.78	0.79	0.80	0.80	0.79	2	53	12	82
Large	Portland, OR-WA	0.87	0.89	1.00	1.01	1.03	1.05	1.07	1.11	1.15	1.18	1.18	1.20	1.21	1.20	1.20	1.20	1.22	1.23	2	53	36	33
Large	Providence, RI-MA	0.55	0.54	0.70	0.70	0.70	0.72	0.73	0.75	0.77	0.78	0.85	0.87	0.88	0.91	0.91	0.93	0.94	0.94	6	30	39	23
Medium	Raleigh-Durham, NC	0.63	0.75	0.85	0.85	0.87	0.86	0.88	0.92	0.92	0.95	0.94	0.94	0.96	0.96	0.98	0.97	0.99	1.01	5	32	38	26
Medium	Richmond, VA	0.61	0.58	0.75	0.78	0.81	0.79	0.84	0.86	0.84	0.80	0.77	0.75	0.77	0.77	0.79	0.81	0.82	0.82	5	36	21	73
Large	Riverside-San Bernardino, CA	0.76	0.89	1.14	1.17	1.16	1.14	1.11	1.16	1.17	1.15	1.19	1.24	1.26	1.29	1.36	1.43	1.45	1.44	18	1	68	1
Medium	Rochester, NY	0.48	0.52	0.63	0.64	0.66	0.66	0.68	0.71	0.71	0.70	0.70	0.72	0.74	0.73	0.73	0.74	0.78	0.78	4	39	30	51
Large	Sacramento, CA	0.75	0.88	1.10	1.10	1.08	1.08	1.10	1.12	1.16	1.13	1.17	1.19	1.23	1.26	1.29	1.31	1.35	1.36	13	6	61	4
Small	Salem, OR	0.58	0.66	0.82	0.84	0.84	0.85	0.85	0.84	0.83	0.85	0.88	0.88	0.89	0.89	0.91	0.88	0.87	0.89	0	66	31	46
Medium	Salt Lake City, UT	0.72	0.77	0.88	0.92	0.95	0.99	1.05	1.07	1.07	1.03	1.01	1.00	1.05	1.06	1.07	1.07	1.07	1.06	1	62	34	37
Large	San Antonio, TX	0.68	0.78	0.75	0.75	0.77	0.78	0.82	0.86	0.89	0.92	0.96	1.01	1.04	1.03	1.05	1.06	1.10	1.10	6	26	42	17
Large	San Diego, CA	0.83	0.93	1.23	1.22	1.22	1.20	1.21	1.22	1.22	1.22	1.23	1.28	1.33	1.37	1.37	1.37	1.42	1.41	8	20	58	5

Table 1-65: Annual Roadway Congestion Index

Population group	Urban area	1982	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	Points change: Short-term 2000-2005 Points	Short-term 2000-2005 Rank[a]	Long-term 1982-2005 Points	Long-term 1982-2005 Rank[a]
Very large	San Francisco-Oakland, CA	1.01	1.13	1.31	1.30	1.29	1.30	1.29	1.31	1.32	1.33	1.34	1.36	1.38	1.35	1.39	1.40	1.39	1.40	2	53	39	23
Large	San Jose, CA	1.03	1.10	1.23	1.23	1.20	1.16	1.18	1.19	1.19	1.18	1.19	1.23	1.35	1.37	1.36	1.36	1.33	1.33	-2	74	30	51
Medium	Sarasota-Bradenton, FL	0.77	0.86	0.87	0.89	0.89	0.91	0.92	0.94	0.98	1.01	1.02	1.10	1.13	1.14	1.16	1.18	1.21	1.24	11	11	47	13
Large	Seattle, WA	0.84	0.94	1.14	1.15	1.17	1.19	1.19	1.17	1.17	1.17	1.17	1.18	1.18	1.18	1.18	1.18	1.16	1.15	-3	78	31	48
Small	Spokane, WA	0.53	0.59	0.64	0.67	0.71	0.75	0.75	0.75	0.75	0.76	0.77	0.77	0.76	0.76	0.75	0.76	0.73	0.70	-6	84	17	80
Medium	Springfield, MA-CT	0.60	0.63	0.69	0.70	0.72	0.73	0.73	0.74	0.74	0.75	0.77	0.79	0.79	0.78	0.81	0.81	0.83	0.84	5	36	24	68
Large	St. Louis, MO-IL	0.84	0.89	0.86	0.84	0.88	0.92	0.99	1.04	1.05	1.05	1.03	1.03	1.02	1.01	1.00	0.96	0.94	0.91	-11	85	7	84
Large	Tampa-St. Petersburg, FL	1.04	1.09	1.13	1.18	1.17	1.18	1.18	1.16	1.14	1.14	1.13	1.12	1.13	1.17	1.20	1.21	1.26	1.27	14	4	23	71
Medium	Toledo, OH-MI	0.54	0.61	0.65	0.64	0.68	0.72	0.78	0.81	0.86	0.88	0.89	0.89	0.91	0.91	0.90	0.87	0.88	0.86	-5	82	32	45
Medium	Tucson, AZ	0.89	0.91	0.93	0.93	0.94	0.93	0.91	0.91	0.93	0.98	0.99	1.00	1.01	1.04	1.06	1.10	1.12	1.17	16	2	28	60
Medium	Tulsa, OK	0.62	0.74	0.75	0.75	0.76	0.76	0.76	0.79	0.82	0.81	0.81	0.81	0.81	0.81	0.81	0.83	0.80	0.81	0	66	19	76
Large	Virginia Beach, VA	0.78	0.82	0.85	0.83	0.83	0.84	0.87	0.89	0.92	0.95	0.96	0.98	0.99	0.99	1.02	1.02	1.02	1.02	3	48	24	68
Very large	Washington, DC-VA-MD	0.83	1.01	1.05	1.06	1.12	1.15	1.21	1.22	1.24	1.24	1.25	1.24	1.25	1.28	1.31	1.34	1.34	1.35	10	12	52	7
NA	85-Area Average[b]	0.78	0.84	0.96	0.96	0.98	0.99	1.00	1.02	1.04	1.06	1.07	1.09	1.10	1.11	1.12	1.14	1.14	1.15	5	NA	37	NA

KEY: NA = not applicable.

Very large urban areas – over 3 million population.

Large urban areas – over 1 million and less than 3 million population.

Medium urban areas – over 500,000 and less than 1 million population.

Small urban areas – less than 500,000 population.

[a] Rank is based on the calculated point change with the highest number corresponding to a rank of 1.

[b] Average weighted by vehicle miles travled in city.

NOTE

The Roadway Congestion Index (RCI) is a measure of vehicle travel density on major roadways in an urban area. An RCI exceeding 1.0 indicates an undesirable congestion level, on an average, on the freeways and principal arterial street systems during the peak period. The urban areas included are those containing over 500,000 people and several smaller places mostly chosen by previous sponsors of the Texas Transportation Institute study on mobility.

Methodology and data sources have been changed in 2007 and applied retroactively to past years, these figures are not comparable to those in past editions of NTS.

SOURCE

Texas Transportation Institute, *The 2007 Annual Urban Mobility Report* (College Station, TX: 2007), Internet site http://mobility.tamu.edu as of Nov. 20, 2007.

Table 1-66: Annual Highway Congestion Cost

Population group	Urban area	Annual congestion cost per peak traveler (2005 dollars)																		Annual congestion cost (2005 Dollars millions)											
		1998 Value	1999 Value	2000 Value	2001 Value	2002 Value	2003 Value	2004 Value	2005 Value	1998 Rank	1999 Rank	2000 Rank	2001 Rank	2002 Rank	2003 Rank	2004 Rank	2005 Rank	1998 Value	1999 Value	2000 Value	2001 Value	2002 Value	2003 Value	2004 Value	2005 Value	1998 Rank	1999 Rank	2000 Rank	2001 Rank	2002 Rank	2003 Rank	2004 Rank	2005 Rank
Medium	Akron, OH	208	209	206	197	186	176	192	185	69	71	74	73	75	78	78	80	57	59	60	59	57	56	64	62	66	68	68	69	73	73	72	75
Medium	Albany-Schenectady, NY	152	161	183	197	210	241	290	300	76	77	75	73	71	71	68	68	39	42	49	53	58	67	83	86	72	73	72	72	71	70	69	68
Medium	Albuquerque, NM	536	567	495	484	446	476	551	640	26	27	35	41	44	44	40	36	153	164	144	144	134	147	171	200	47	48	49	51	53	53	51	50
Medium	Allentown-Bethlehem, PA-NJ	387	347	367	369	364	355	386	408	43	52	50	53	52	54	53	55	113	105	114	117	118	117	129	137	53	58	56	56	57	59	62	61
Small	Anchorage, AK	152	152	153	174	179	171	176	176	76	78	79	76	76	79	80	82	19	20	20	24	25	25	27	27	78	79	80	80	79	81	80	81
Very large	Atlanta, GA	1196	1175	1217	1215	1197	1138	1166	1177	1	1	1	1	1	2	2	2	1609	1682	1860	1978	2102	2181	2373	2581	4	4	4	5	5	5	5	6
Medium	Austin, TX	546	618	662	735	709	739	785	909	22	18	18	14	17	19	22	13	200	235	263	309	311	334	360	422	38	36	33	31	33	35	36	31
Small	Bakersfield, CA	131	134	130	136	165	181	226	259	79	81	82	83	80	77	74	72	25	27	27	29	37	43	56	66	77	77	77	77	75	75	76	73
Large	Baltimore, MD	506	521	562	622	733	780	821	881	30	31	28	21	14	12	16	19	549	576	637	727	905	983	1043	1126	20	20	20	19	16	16	16	17
Small	Beaumont, TX	107	126	135	147	177	168	188	202	82	82	81	82	77	80	79	78	12	14	15	17	21	21	23	25	83	82	82	82	82	83	82	82
Medium	Birmingham, AL	446	461	476	499	518	552	597	625	37	40	38	39	39	36	37	37	148	157	165	175	186	202	220	234	49	49	48	48	47	47	47	47
Very large	Boston, MA-NH-RI	544	563	601	638	698	729	836	895	23	28	21	20	21	20	15	17	1033	1071	1153	1242	1372	1443	1667	1820	13	13	12	12	12	12	13	12
Small	Boulder, CO	235	247	255	267	253	248	266	277	67	68	66	68	70	69	71	70	13	14	14	15	14	15	16	17	82	82	84	84	84	84	84	84
Medium	Bridgeport-Stamford, CT-NY	415	463	492	517	543	537	522	592	41	39	36	35	36	39	41	40	163	186	204	222	245	248	243	280	44	44	43	42	42	45	44	43
Small	Brownsville, TX	75	86	101	115	118	127	134	138	85	85	85	85	85	85	85	85	5	7	8	10	10	11	12	13	85	85	85	85	85	85	85	85
Large	Buffalo, NY	125	144	166	171	176	209	201	208	81	79	78	77	78	73	76	77	59	70	83	87	90	111	108	112	64	66	66	66	66	63	64	65
Small	Cape Coral, FL	359	361	335	375	383	403	417	438	46	47	55	52	51	49	49	51	51	54	53	64	70	80	88	98	69	69	70	68	67	67	67	67
Small	Charleston-North Charleston, SC	433	455	469	469	490	533	571	572	39	41	39	43	41	40	38	41	94	101	109	113	120	135	147	147	58	60	59	59	56	56	55	59
Medium	Charlotte, NC-SC	507	568	670	704	767	780	859	875	29	25	16	17	12	12	12	20	161	189	239	266	316	335	389	409	45	41	35	34	31	34	32	32
Very large	Chicago, IL-IN	581	585	584	602	704	745	818	906	17	22	24	23	18	18	18	15	2275	2341	2391	2522	3019	3221	3562	3968	3	3	3	3	3	3	3	3
Large	Cincinnati, OH-KY-IN	443	430	463	444	458	481	482	502	38	42	40	44	43	43	46	45	324	331	370	371	395	433	436	459	28	29	28	30	29	28	30	30
Large	Cleveland, OH	242	259	252	222	210	208	247	240	65	66	68	72	71	74	72	75	217	237	234	210	202	203	243	236	34	35	36	46	46	46	44	46
Small	Colorado Springs, CO	272	329	384	408	402	393	372	492	60	57	47	46	47	50	56	46	58	73	92	100	102	101	97	132	65	64	63	64	64	65	65	62
Small	Columbia, SC	182	209	239	251	260	280	294	304	71	71	70	70	69	65	67	67	37	43	51	55	59	65	69	73	73	72	71	70	69	71	71	71
Large	Columbus, OH	469	469	461	481	488	518	599	620	36	37	42	42	42	41	36	38	252	262	266	290	306	337	393	408	31	32	32	32	34	33	31	33
Small	Corpus Christi, TX	105	125	125	149	142	154	167	183	83	83	84	81	83	82	83	81	17	20	20	25	24	27	30	33	79	79	80	79	80	79	77	77
Very Large	Dallas-Fort Worth-Arlington, TX	548	632	668	678	701	754	874	1046	21	16	17	18	20	16	11	6	1149	1386	1500	1582	1711	1897	2281	2747	9	9	9	10	10	9	6	4
Medium	Dayton, OH	327	357	345	303	287	275	332	313	51	48	52	62	64	66	60	64	115	130	128	116	112	109	133	127	52	51	52	58	60	64	60	63
Large	Denver-Aurora, CO	647	702	747	750	711	728	791	909	10	11	10	12	16	21	20	13	643	726	812	886	863	915	1006	1176	17	17	17	17	18	17	17	16
Very large	Detroit, MI	790	821	832	891	936	976	995	1010	6	6	6	6	4	4	5	8	1512	1600	1654	1807	1933	2058	2121	2174	6	6	7	6	6	7	9	10
Medium	El Paso, TX-NM	168	216	263	301	306	317	387	433	73	70	65	63	61	61	52	53	54	72	89	103	108	114	141	159	68	65	64	63	63	61	58	55
Small	Eugene, OR	141	187	227	184	191	208	207	246	78	74	71	75	74	74	75	74	16	21	25	22	24	27	27	33	81	78	78	81	80	79	80	77
Medium	Fresno, CA	354	392	404	364	360	352	355	381	48	44	45	54	54	56	57	56	97	110	116	106	112	113	116	127	57	55	55	62	60	62	63	63
Medium	Grand Rapids, MI	360	374	373	376	364	375	414	427	45	46	48	51	52	52	50	54	93	100	104	110	111	117	132	138	59	62	60	60	62	59	61	60
Medium	Hartford, CT	252	277	296	286	290	290	327	344	64	63	62	64	63	64	61	61	108	122	132	131	134	136	155	166	54	52	51	53	53	55	53	53
Medium	Honolulu, HI	335	328	316	330	313	355	383	434	50	58	57	56	59	54	54	52	118	116	114	121	117	133	144	166	51	54	56	55	59	57	57	53
Very large	Houston, TX	607	675	685	782	830	841	890	1012	14	13	14	11	9	9	8	7	1122	1288	1351	1610	1759	1809	1935	2225	11	10	10	9	9	10	10	9
Large	Indianapolis, IN	778	756	781	793	818	830	857	836	7	9	8	9	10	10	13	22	398	395	415	431	455	469	487	478	23	25	25	26	26	26	28	28
Medium	Jacksonville, FL	527	522	519	513	588	646	714	699	28	30	33	36	29	28	27	34	224	227	232	239	282	320	373	376	33	38	39	39	36	36	35	36
Large	Kansas City, MO-KS	295	345	316	315	300	313	281	309	57	53	57	60	62	62	70	65	205	246	234	238	238	256	231	256	37	33	36	40	43	42	46	44
Small	Laredo, TX	128	141	151	169	159	199	195	213	80	80	80	78	81	76	77	76	11	13	15	17	16	22	22	24	84	84	82	82	83	82	83	83
Large	Las Vegas, NV	534	568	556	559	589	624	681	720	27	25	29	32	27	29	30	30	304	344	365	385	422	463	510	543	29	28	29	28	28	27	26	26
Small	Little Rock, AR	192	221	207	242	193	229	301	305	70	69	73	71	73	72	65	66	31	36	36	42	35	42	60	62	75	75	75	75	76	76	75	75
Very large	Los Angeles-Long Beach-Santa Ana, CA	1053	1122	1101	1176	1181	1171	1270	1374	2	2	2	2	2	1	1	1	6388	6928	6935	7521	7717	7831	8564	9324	1	1	1	1	1	1	1	1
Medium	Louisville, KY-IN	634	671	678	612	675	711	799	804	12	15	15	22	22	23	19	25	266	288	297	276	313	340	388	395	30	31	31	33	32	32	33	35
Medium	Memphis, TN-MS-AR	356	357	392	417	422	468	508	564	47	48	46	45	45	45	43	42	174	178	199	217	225	255	282	317	41	45	44	44	45	44	41	40
Very Large	Miami, FL	552	632	688	735	768	806	847	903	19	16	13	14	11	11	14	16	1283	1527	1785	1979	2121	2305	2517	2730	8	8	5	4	4	4	4	5
Large	Milwaukee, WI	307	334	340	324	319	327	344	354	55	55	53	57	58	59	59	59	207	232	244	241	246	256	271	282	36	37	34	38	41	42	42	42
Large	Minneapolis - St. Paul, MN	636	674	654	723	661	671	706	790	11	14	19	16	23	26	28	26	744	818	814	929	868	906	965	1100	16	16	16	16	17	18	18	18
Medium	Nashville-Davidson, TN	480	518	556	579	633	686	719	751	34	33	29	27	24	25	26	28	179	206	234	258	302	346	375	404	39	39	36	35	35	31	34	34
Medium	New Haven, CT	258	298	310	338	339	337	308	343	63	61	61	55	56	58	64	62	67	79	84	96	98	99	93	104	63	63	65	65	65	66	66	66
Large	New Orleans, LA	319	335	316	309	309	319	322	345	53	54	57	61	60	60	63	60	175	187	180	179	181	189	192	208	40	43	47	47	48	48	49	49
Very large	New York-Newark, NY-NJ-CT	541	607	563	567	589	660	784	888	24	20	27	30	27	27	23	18	3847	4424	4269	4399	4691	5397	6470	7383	2	2	2	2	2	2	2	2
Large	Oklahoma City, OK	306	356	329	384	402	370	380	371	56	50	56	47	47	53	55	57	120	144	136	163	175	165	171	171	50	50	50	49	49	50	51	52

Medium	Omaha, NE-IA	312	331	351	379	402	412	428	442	54	56	51	50	47	47	48	50	93	102	113	125	135	141	148	153	59	59	58	54	52	54	54	57
Large	Orlando, FL	917	940	976	1038	981	961	970	983	3	3	3	3	3	5	7	9	518	549	603	675	665	677	703	738	22	22	21	21	21	21	22	22

Medium	Oxnard-Ventura, CA	338	356	432	509	540	553	629	727	49	50	44	38	37	35	34	29	92	117	123	148	161	170	197	229	61	53	53	50	50	49	48	48
Small	Pensacola, FL-AL	286	302	315	316	344	382	409	445	58	60	60	58	55	51	51	49	42	46	49	52	59	68	76	83	71	71	72	73	69	69	70	69
Very large	Philadelphia, PA-NJ-DE-MD	474	492	482	547	582	616	653	711	35	36	37	33	31	30	32	31	1142	1230	1258	1485	1643	1776	1901	2077	10	11	11	11	11	11	11	11
Very large	Phoenix, AZ	633	700	706	787	743	774	821	981	13	12	12	10	13	14	16	10	770	917	983	1143	1116	1204	1342	1687	15	15	15	14	14	14	14	14
Large	Pittsburgh, PA	241	269	251	267	269	267	284	285	66	64	69	68	67	67	69	69	213	242	232	252	259	265	284	285	35	34	39	36	38	41	40	41
Large	Portland, OR-WA	551	594	597	602	576	605	647	704	20	21	22	23	32	32	33	33	381	428	447	472	466	514	562	625	24	23	23	24	25	25	25	25
Large	Providence, RI-MA	262	309	336	380	414	455	486	507	62	59	54	48	46	46	45	44	158	191	211	242	270	303	328	344	46	40	42	37	37	37	37	38
Medium	Raleigh-Durham, NC	431	465	510	534	585	578	628	671	40	38	34	34	30	33	35	35	150	169	197	222	254	270	308	347	48	47	45	42	40	40	38	37
Medium	Richmond, VA	279	282	255	269	279	305	346	362	59	62	66	67	66	63	58	58	104	109	104	117	129	150	172	181	55	56	60	56	55	51	50	51
Large	Riverside-San Bernardino, CA	537	580	566	583	622	694	886	961	25	24	26	26	25	24	9	12	379	428	438	475	542	636	837	955	25	23	24	23	23	22	20	20
Medium	Rochester, NY	104	123	127	126	125	146	170	176	84	84	83	84	84	84	82	82	33	40	43	44	44	52	61	64	74	74	74	74	74	74	74	74
Large	Sacramento, CA	505	532	548	584	576	616	704	755	31	29	31	25	32	30	29	27	346	379	407	454	483	557	653	729	27	27	26	25	24	24	23	23
Small	Salem, OR	180	203	221	273	285	246	244	257	72	73	72	66	65	70	73	73	17	20	23	30	33	29	30	31	79	79	79	76	77	77	77	79
Medium	Salt Lake City, UT	376	413	462	492	521	548	497	475	44	43	41	40	38	37	44	47	169	189	215	237	256	273	254	250	42	41	41	41	39	39	43	45
Large	San Antonio, TX	400	493	594	563	561	564	661	706	42	35	23	31	35	34	31	32	249	313	388	375	387	410	493	530	32	30	27	29	30	30	27	27
Large	San Diego, CA	599	707	727	825	899	864	1057	1065	15	10	11	8	6	8	3	5	803	978	1038	1213	1366	1354	1669	1708	14	14	14	13	13	13	12	13
Very large	San Francisco-Oakland, CA	792	829	849	847	876	915	994	1121	5	5	5	7	8	6	6	3	1523	1622	1688	1716	1838	1947	2126	2414	5	5	6	8	8	8	8	7
Large	San Jose, CA	718	836	856	910	884	912	883	973	9	4	4	4	7	7	10	11	597	715	747	806	796	834	812	899	18	18	18	18	19	20	21	21
Medium	Sarasota-Bradenton, FL	327	377	368	380	391	405	434	450	51	45	49	48	50	48	47	48	85	101	102	110	118	128	145	156	62	60	62	60	57	58	56	56
Large	Seattle, WA	807	812	766	738	724	755	776	866	4	8	9	13	15	15	24	21	1053	1089	1056	1055	1080	1181	1244	1413	12	12	13	15	15	15	15	15
Small	Spokane, WA	161	173	171	157	157	147	145	143	74	75	77	80	82	83	84	84	26	29	29	27	28	28	28	28	76	76	76	78	78	78	79	80
Medium	Springfield, MA-CT	157	168	174	163	169	165	174	198	75	76	76	79	79	81	81	79	48	52	55	54	58	58	62	71	70	70	69	71	71	72	73	72
Large	St. Louis, MO-IL	582	618	628	574	574	543	564	612	16	18	20	29	34	38	39	39	587	634	667	624	638	615	647	711	19	19	19	22	22	23	24	24
Large	Tampa-St Petersburg, FL	557	585	584	654	702	749	789	809	18	22	24	19	19	17	21	24	524	567	592	692	766	839	959	1004	21	21	22	20	20	19	19	19
Medium	Toledo, OH-MI	230	255	277	275	262	253	301	277	68	67	64	65	68	68	65	70	57	64	71	72	70	71	85	79	66	67	67	67	67	68	68	70
Medium	Tucson, AZ	497	508	537	579	613	722	742	830	32	34	32	27	26	22	25	23	166	174	189	213	231	280	292	338	43	46	46	45	44	38	39	39
Medium	Tulsa, OK	266	269	295	316	329	346	323	338	61	64	63	58	57	57	62	63	102	107	123	133	141	150	141	149	56	57	53	52	51	51	58	58
Large	Virginia Beach, VA	494	521	452	512	516	508	518	550	33	31	43	37	40	42	42	43	361	393	352	412	426	425	438	468	26	26	30	27	27	29	29	29
Very large	Washington, DC-VA-MD	761	819	823	892	930	1000	1042	1094	8	7	7	5	5	3	4	4	1440	1585	1596	1783	1927	2100	2210	2331	7	7	8	7	7	6	7	8
NA	437-Area Average	505	541	539	571	592	607	657	707	NA	NA	NA	NA	NA	NA	NA	NA	119	129	134	145	157	155	167	179	NA	NA	NA	NA	NA	NA	NA	NA
NA	85-Area Average	578	618	622	652	673	698	759	824	NA	NA	NA	NA	NA	NA	NA	NA	465	513	533	575	612	653	723	796	NA	NA	NA	NA	NA	NA	NA	NA
NA	Very Large Area Average	702	749	746	783	812	846	923	1014	NA	NA	NA	NA	NA	NA	NA	NA	1868	2049	2106	2273	2431	2596	2880	3205	NA	NA	NA	NA	NA	NA	NA	NA
NA	Large Area Average	493	532	542	568	576	592	642	683	NA	NA	NA	NA	NA	NA	NA	NA	375	417	439	475	498	528	582	628	NA	NA	NA	NA	NA	NA	NA	NA
NA	Medium Area Average	359	384	401	415	432	451	484	512	NA	NA	NA	NA	NA	NA	NA	NA	119	132	141	151	163	175	192	206	NA	NA	NA	NA	NA	NA	NA	NA
NA	Small Area Average	211	232	244	258	263	276	293	318	NA	NA	NA	NA	NA	NA	NA	NA	30	34	37	40	42	46	50	56	NA	NA	NA	NA	NA	NA	NA	NA

KEY: NA = not applicable; R = revised.

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

NOTES

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

The cost of congestion is estimated with a value for each hour of travel time and each gallon of fuel. For a more detailed explanation of the formulas used, see the source document.

Methodology and data sources have been changed in 2007 and applied retroactively to past years, these figures are not comparable to those in past editions of NTS.

SOURCE

Texas Transportation Institute, *The 2007 Annual Urban Mobility Report* (College Station, TX: 2007), Internet site http://mobility.tamu.edu as of Nov 26, 2007.

Table 1-67: Amtrak On-Time Performance Trends and Hours of Delay by Cause

	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
On-time performance, total percent (weighted)	69	81	76	77	77	72	72	76	71	74	79	79	78	75	76	74	71	70	68	69
Short distance (<400 miles), percent	71	82	82	82	82	79	78	81	76	79	81	80	82	79	80	77	(R) 75	(R) 74	(R) 73	72
Long distance (>=400 miles), percent	64	78	53	59	61	47	49	57	49	53	59	55	55	52	52	53	(R) 41	(R) 42	(R) 30	40
Hours of delay by cause, total[a]	N	N	12,126	21,084	22,847	32,991	34,729	25,248	25,056	25,825	27,289	29,252	70,396	83,837	85,932	88,413	95,162	95,259	101,522	101,655
Amtrak[b]	N	N	3,565	5,915	6,433	8,488	8,538	5,527	5,193	5,310	4,796	4,891	23,337	27,822	26,575	25,711	28,328	25,549	23,968	22,902
Host railroad[c]	N	N	4,244	7,743	8,229	12,827	14,319	11,224	11,438	12,904	14,202	16,158	43,881	52,273	55,090	57,346	61,256	64,097	71,387	72,565
Other[d]	N	N	4,316	7,426	8,185	11,675	11,871	8,497	8,425	7,611	8,291	8,203	3,176	3,741	4,266	5,355	5,577	5,613	6,166	6,187

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

[a] Amtrak changed its method for reporting delays in 2000. Therefore, the data for 2000 and following years are not comparable with prior years.

[b] Includes all delays that occur when operating on Amtrak owned tracks and all delays for equipment or engine failure, passenger handling, holding for connections, train servicing, and mail/baggage handling when on tracks of a host railroad.

[c] Includes all operating delays not attributable to Amtrak when operating on tracks of a host railroad, such as track and signal related delays, power failures, freight and commuter train interference, routing delays, etc.

[d] Includes delays not attributable to Amtrak or other host railroads, such as customs and immigrations, law enforcement action, weather, or waiting for scheduled departure time.

NOTES

Host railroad is a freight or commuter railroad over which Amtrak trains operate for all or part of their trip.
Numbers may not add to totals due to rounding.
All percentages are based on Amtrak's fiscal year (October 1–September 30).
Amtrak trips are considered delayed based on the following chart:

Trip length (miles)	Delayed departure time (minutes)
0-250	10
251-350	15
351-450	20
451-550	25
≥551	30

SOURCES:

1980: Amtrak, *National Railroad Passenger Corporation Annual Report* (Washington, DC: 1981).
1985–99: Ibid., *Amtrak Annual Report,* Statistical Appendix (Washington, DC: Annual issues).
2000–07: Amtrak, personal communication, as of September 2008.

Chapter 2

Transportation Safety

Section A
Multimodal

Table 2-1: Transportation Fatalities by Mode

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
TOTAL fatalities	U	U	U	U	U	U	47,350	44,321	42,058	42,827	43,587	44,568	44,848	44,474	43,910	44,084	44,384	44,941	(R) 45,297	(R) 45,101	(R) 44,985	(R) 45,565	(R) 44,974	43,032
Air, total	1,286	1,290	1,456	1,473	1,382	1,595	866	1,005	989	811	1,057	964	1,093	724	671	681	764	1,166	616	(R) 699	(R) 637	603	(R) 771	535
U.S. air carrier[a]	499	261	146	124	1	526	39	(n) 50	33	1	239	168	380	8	1	12	92	(o) 531	0	22	14	22	50	1
Commuter carrier[b]	N	N	N	28	37	37	6	(n) 77	21	24	25	9	14	46	0	12	5	13	0	2	0	0	2	0
On-demand air taxi[c]	N	N	N	69	105	76	51	78	68	42	63	52	63	39	45	38	71	60	35	42	64	18	16	43
General aviation[d]	787	1,029	1,310	1,252	1,239	956	770	800	867	744	730	735	636	631	625	619	596	562	581	(R) 633	(R) 559	563	(R) 703	491
Highway, total	36,399	47,089	52,627	44,525	51,091	43,825	44,599	41,508	39,250	40,150	40,716	41,817	42,065	42,013	41,501	41,717	41,945	42,196	43,005	42,884	42,836	43,510	42,708	41,059
Passenger car occupants	N	N	N	25,929	27,449	23,212	24,092	22,385	21,387	21,566	21,997	22,423	22,505	22,199	21,194	20,862	20,699	20,320	20,569	19,725	19,192	18,512	(R) 17,925	16,520
Motorcyclists	790	1,650	2,280	3,189	5,144	4,564	3,244	2,806	2,395	2,449	2,320	2,227	2,161	2,116	2,294	2,483	2,897	3,197	3,270	3,714	4,028	4,576	(R) 4,837	5,154
Truck occupants[e], light	N	N	N	4,856	7,486	6,689	8,601	8,391	8,098	8,511	8,904	9,568	9,932	10,249	10,705	11,265	11,526	11,723	12,274	12,546	12,674	13,037	(R) 12,761	12,413
Truck occupants[e], large	N	N	N	961	1,262	977	705	661	585	605	670	648	621	723	742	759	754	708	689	726	766	804	805	802
Bus occupants	N	N	N	53	46	57	32	31	28	18	18	33	21	18	38	59	22	34	45	41	42	58	27	37
Pedestrians	7,210	7,990	8,950	7,516	8,070	6,808	6,482	5,801	5,549	5,649	5,489	5,584	5,449	5,321	5,228	4,939	4,763	4,901	4,851	4,774	4,675	4,892	(R) 4,795	4,654
Pedalcyclists	490	690	760	1,003	965	890	859	843	723	816	802	833	765	814	760	754	693	732	665	629	727	786	(R) 772	698
Other[f]	27,909	36,759	40,637	1,018	669	628	584	590	485	536	516	501	611	573	540	596	591	581	642	729	732	845	(R) 786	781
Railroad, total[g]	2,345	2,533	2,225	1,492	1,417	1,036	1,297	1,194	1,170	1,279	1,226	1,146	1,039	1,063	1,008	932	937	971	951	(R) 865	(R) 891	(R) 883	(R) 902	845
Highway-rail grade crossing[h]	1,421	1,610	1,440	917	833	582	698	608	579	626	615	579	488	461	431	402	425	421	357	334	(R) 371	(R) 358	368	335
Railroad	924	923	785	575	584	454	599	586	591	653	611	567	551	602	577	530	512	550	594	(R) 531	(R) 520	(R) 525	(R) 534	510
Transit, total[i]	N	N	N	N	N	N	339	300	273	281	320	274	264	275	286	299	295	267	280	234	248	236	(R) 227	214
Highway-rail grade crossing[j]	N	N	N	N	N	N	N	N	N	N	N	17	7	12	26	21	20	13	24	21	29	23	(R) 21	27
Transit	N	N	N	N	N	N	N	N	N	N	N	257	257	263	260	278	275	254	256	213	219	213	206	187
Waterborne, total[k]	N	N	2,016	2,039	1,847	1,377	1,051	1,010	1,032	1,026	992	1,016	906	989	1,033	928	888	828	857	807	759	777	797	769
Vessel-related[l]	N	N	178	243	206	131	85	30	97	105	77	53	55	48	69	58	53	53	66	54	48	45	48	52
Not related to vessel casualties[l]	N	N	420	330	281	130	101	56	119	121	131	134	142	120	149	136	134	94	41	50	35	35	39	32
Recreational boating[m]	739	1,360	1,418	1,466	1,360	1,116	865	924	816	800	784	829	709	821	815	734	701	681	750	703	676	697	710	685
Pipeline, total	N	N	30	15	19	33	9	14	15	17	22	21	53	10	21	22	38	7	12	12	23	16	19	15
Hazardous liquid pipeline	N	N	4	7	4	5	3	0	5	0	1	3	5	0	2	4	1	0	1	0	5	2	0	4
Gas pipeline	N	N	26	8	15	28	6	14	10	17	21	18	48	10	19	18	37	7	11	12	18	14	19	11

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

[a] Carriers operating under 14 CFR 121, all scheduled and nonscheduled service. Since Mar. 20, 1997, 14 CFR 121 include aircraft with 10 or more seats that formerly operated under 14 CFR 135. This change makes it difficult to compare pre-1997 data for 14 CFR 121 and 14 CFR 135 with more recent data. In 2001, other than the persons aboard the aircrafts who were killed, fatalities resulting from the September 11 terrorist acts are excluded.

[b] All scheduled service operating under 14 CFR 135 (commuter air carriers). Before Mar. 20, 1997, 14 CFR 135 applied to aircraft with 30 or fewer seats. Since Mar. 20, 1997, 14 CFR 135 includes only aircraft with fewer than 10 seats. This change makes it difficult to compare pre-1997 data for 14 CFR 121 and 14 CFR 135 with more recent data.

[c] Nonscheduled service operating under 14 CFR 135 (on-demand air taxis).

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

[e] Large trucks are defined as trucks over 10,000 pounds gross vehicle weight rating, including single-unit trucks and truck tractors. Light trucks are defined as trucks of 10,000 pounds gross vehicle we rating or less, including pickups, vans, truck-based station wagons, and utility vehicles.

[f] Includes occupants of other vehicle types and other nonmotorists. For 1960-70, the U.S. Department of Transportation, National Highway Traffic Safety Administration did not break out fatality data to the same level of detail as in later years, so fatalities for those years also include occupants of passenger cars, trucks, and buses.

[g] Includes Amtrak. Fatalities include those resulting from train accidents, train incidents, and nontrain incidents. Railroad fatality data for 1970 and before is not comparable with post-1970 data due change in the reporting system.

[h] Fatalities occurring at highway-rail crossings resulting from freight and passenger rail operations including commuter rail. Highway-rail grade crossing fatalities, except train occupants, are also counted under highway.

[i] Fatalities include those resulting from all reportable incidents, not just from accidents.

[j] Includes motor bus, commuter rail, heavy rail, light rail, demand response, van pool, and automated guideway. Fatalities occurring at highway-rail crossings resulting from operations of public transit rail modes including commuter rail. Data for fatalities at light rail grade crossings are: 1995 (7); 1996 (3); 1997 (3); 1998 (10); 1999 (7); 2000 (12); 2001 (1); 2002 (1); 2003 (4); 2004 (9).

[k] Vessel-related casualties include those involving damage to vessels such as collisions or groundings. Fatalities not related to vessel casualties include deaths from falling overboard or from accidents involving onboard equipment.

[l] 1992-97 data come from the Marine Safety Management Information System. Between 1998 and 2001, the U.S. Coast Guard phased in a new computer system to track safety data, the Marine Information for Safety and Law Enforcement System. During that period, data come from combining entries in the Marine Safety Management Information System with entries in the Marine Information for Safety and Law Enforcement System. Data for 2002 and 2003 come from the Marine Information for Safety and Law Enforcement System. Data for prior years come from other sources and may not be directly comparable.

[m] Data are based on information provided by the States, the District of Columbia and the five U.S. Territories to the Coast Guard Boating Accident Report Database (BARD) system. Research on the level of underreporting of fatal accidents in the BARD, based on discrepancies between the BARD and the Coast Guard Search and Rescue Management Information System (SARMIS), found that approximately 6 percent of recreational boating fatalities are not captured by the BARD system. Adjusting the number of recreational boating fatalities included in the BARD in 2001 by 6 percent increases the total to 722.

[n] U.S. air carrier figure does not include 12 persons killed aboard a commuter aircraft when it and a US Air airliner collided; commuter air carrier figure does not include 22 persons killed aboard a US Air airliner when it and a commuter aircraft collided.

[o] Other than the persons aboard the aircraft who were killed, fatalities resulting from the September 11 terrorist acts are excluded.

NOTES

Numbers may not add to the total because some fatalities are counted in more than one mode. Total fatalities is derived from table 2-4 and earlier editions of this table. To avoid double counting, the following adjustments are made: most (not all) highway-rail grade-crossing fatalities have not been added because most (not all) such fatalities involve motor vehicles and, thus, are already included in highway fatalities; for transit, all commuter rail fatalities and motor-bus, trolley-bus, demand-responsive, and van-pool fatalities arising from accidents have been subtracted because they are counted as railroad, highway, or highway-rail grade-crossing fatalities. The reader cannot reproduce the total fatalities in this table by simply leaving out the number of highway-rail grade-crossing fatalities in the and subtracting the above transit submodes, because in so doing, grade-crossing fatalities not involving motor vehicles would be left out (see table 2-35 on rail). An example of such a fatality is a bicyclist hit by a train at a grade crossing.

Caution must be exercised in comparing fatalities across modes because significantly different definitions are used. In particular, rail and transit fatalities include incident-related (as distinct from accident-related) fatalities, such as fatalities from falls in transit stations or railroad employee fatalities from a fire in a workshed. Equivalent fatalities for the air and highway modes (fatalities at airports not caused by moving aircraft or fatalities from accidents in automobile repair shops) are not counted toward the totals for these modes. Thus, fatalities not necessarily directly related to in service transportation are counted for the transit and rail modes, potentially overstating the risk for these modes.

The Federal Railroad Administration defines a grade crossing as a location where a public highway, road, street, or private roadway, including associated sidewalks and pathways, crosses one or more railroad tracks at grade. The Federal Transit Administration defines two types of grade crossings: (1) At grade, mixed, and cross traffic crossings, meaning railway right-of-way over which other traffic moving in the same direction or other cross directions may pass. This includes city street right-of-way; (2) At grade with cross traffic crossings, meaning railway right-of-way over which no other traffic may pass, except to cross at grade-level crossings. This can include median strip rights-of-way with grade level crossings at intersecting streets.

Highway fatalities data prior to 1975 have been adjusted to reflect the Fatality Analysis Reporting System's definition of a fatal crash as one that involves a motor vehicle on a trafficway that results in the death of a vehicle occupant or a nonmotorist within 30 days of the crash.

SOURCES

Air:

U.S. Air Carrier:

1960: National Transportation Safety Board,*Annual Review of Aircraft Accident Data: U.S. Air Carrier Operations, Calendar Year 1967* (Washington, DC: December 1968).
1965-70: Ibid., *Annual Review of Aircraft Accident Data: U.S. Air Carrier Operations, Calendar Year 1975,* NTSB/ARC-77/1 (Washington, DC: January 1977).
1975: Ibid., *Annual Review of Aircraft Accident Data: U.S. Air Carrier Operations, Calendar Year 1983,* NTSB/ARC-87/01 (Washington, DC: February 1987), table 18.
1980: Ibid., *Annual Review of Aircraft Accident Data: U.S. Air Carrier Operations, Calendar Year 1981,* NTSB/ARC-85/01 (Washington, DC: February 1985), tables 2 and 16.
1985-2006: Ibid., available at www.ntsb.gov/aviation/aviation.htm, table 5 as of Sept. 9, 2008.

Commuter:

1975-80: National Transportation Safety Board,*Annual Review of Aircraft Accident Data: U.S. Air Carrier Operations, Calendar Year 1980,* NTSB/ARC-83/01 (Washington, DC: January 1983), tables 26 and 40.
1985-2006: Ibid., available at www.ntsb.gov/aviation/aviation.htm, table 8 as of Sept. 9, 2008.

On-demand air taxi:

1975-80: National Transportation Safety Board,*Annual Review of Aircraft Accident Data: U.S. Air Carrier Operations, Calendar Year 1981,* NTSB/ARC-85/01 (Washington, DC: February 1985), table 61.
1985-2006: Ibid., available at www.ntsb.gov/aviation/aviation.htm, table 9 as of Sept. 9, 2008.

General aviation:

1960-70: National Transportation Safety Board,*Annual Review of Aircraft Accident Data: U.S. General Aviation, Calendar Year 1970,* NTSB/ARG-74/1 (Washington, DC: April 1974), table 117.
1975-80: Ibid., *Annual Review of Aircraft Accident Data: General Aviation, Calendar Year 1985,* NTSB/ARG-87/03 (Washington, DC: October 1987), table 21.
1985-2006: Ibid., available at www.ntsb.gov/aviation/aviation.htm, table 10 as of Sept. 9, 2008.

Highway:

1960-65: U.S. Department of Transportation, National Highway Traffic Safety Administration from data supplied by U.S. Department of Health and Human Services, National Center for Health Statistics, and individual state accident reports (adjusted to 30-day deaths).
1970-2005: U.S. Department of Transportation, National Highway Traffic Safety Administration,*Traffic Safety Facts* (Annual Editions), available at http://www-nrd.nhtsa.dot.gov/cats/index.aspx as of December 2008.
2006-2007: ibid., FARS, *General Trends,* available at http://www-fars.nhtsa.dot.gov/Main/reportslinks.aspx as of Oct. 27 2008.

Rail:

Highway-rail grade crossing:

1960-70: National Safety Council,*Accident Facts, 1974* (Washington, DC: 1974).
1975-80: U.S. Department of Transportation, Federal Railroad Administration, Office of Policy and Program Development, personal communication.
1985-90: Ibid., *Rail-Highway Crossing Accident/Incident and Inventory Bulletin* (Washington, DC: Annual issues), table S.
1991-07: Ibid., *Railroad Safety Statistics*, available at http://safetydata.fra.dot.gov/officeofsafety/ as of Sep. 9, 2008.

Railroad:

1960-65: National Safety Council,*Accident Facts, 1974* (Washington, DC: 1974).
1970-90: U.S. Department of Transportation, Federal Railroad Administration,*Highway-Rail Crossing Accident/Incident and Inventory Bulletin* (Washington, DC: Annual issues), table 7.
1991-07: Ibid., *Railroad Safety Statistics*, available at http://safetydata.fra.dot.gov/officeofsafety/ as of Sep . 9, 2008.

Transit:

Highway-rail grade crossing:

U.S. Department of Transportation, Federal Transit Administration, Office of Program Management, personal communication, Aug. 28, 2007.

Transit:

1990-92: U.S. Department of Transportation, Federal Transit Administration,*Safety Management Information Statistics 1999* (Washington, DC: 2001), p. 41.
1993-2006: U.S. Department of Transportation, Federal Transit Administration,*Transit Safety and Security Statistics and Analysis Annual Report,* (Washington, DC: Annual issues), available at http://transit-safety.volpe.dot.gov/data/SAMIS.asp as of Sept. 10, 2007.
2007: Ibid., Personal Communication as of Oct. 30, 2008

Water:

Vessel- and nonvessel-related:

1970-91: U.S. Department of Transportation, U.S. Coast Guard, Office of Investigations and Analysis, Compliance Analysis Division, (G-MOA-2), personal communication, Apr. 13, 1999.
1992-2007: U.S. Department of Homeland Security, U.S. Coast Guard, Data Administration Division (G-MRI-1), personal communication, Oct. 16, 2008.

Recreational boating:

U.S. Department of Homeland Security, U.S. Coast Guard, Office of Boating Safety,*Boating Statistics* (Washington, DC: Annual issues), available at http://www.uscgboating.org as of Sept. 9 2008.

Hazardous liquid and gas pipeline:

U.S. Department of Transportation, Research and Special Programs Administration, Office of Pipeline Safety,*Accident and Incident Summary Statistics by Year*, available at http://ops.dot.gov/stats/stats.htm as of Sept. 19, 2008.

Table 2-2: Injured Persons by Transportation Mode

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001[n]	2002	2003	2004	2005	2006	2007
TOTAL injured persons	U	U	U	U	U	U	U	U	3,147,561	3,223,298	3,345,263	3,539,389	3,554,305	3,417,846	3,262,309	3,305,649	3,259,673	3,100,080	2,958,911	2,918,528	2,818,446	2,728,327	2,604,648	U
Air,[a] total																								
U.S. air carrier[b]	N	N	107	81	19	30	29	26	22	19	31	25	77	43	30	67	29	19	(R) 24	(R) 31	(R) 20	(R) 14	(R) 9	15
Commuter carrier[c]	N	N	N	N	14	14	11	31	7	2	6	17	2	1	2	2	7	4	0	1	0	0	1	0
On-demand air taxi[d]	N	N	N	N	43	44	36	26	19	24	32	14	22	23	10	15	12	24	16	12	17	(R) 23	16	20
General aviation[e]	N	N	715	769	681	501	409	432	408	385	415	396	366	350	327	322	309	321	297	323	266	(R) 267	(R) 264	260
Highway, total	N	N	N	N	N	N	3,230,666	3,096,870	3,069,603	3,149,164	3,265,928	3,465,279	3,483,319	3,347,614	3,192,035	3,236,238	3,188,750	3,032,672	2,925,758	2,888,601	2,788,378	2,699,000	2,575,000	U
Passenger car occupants	N	N	N	N	N	N	2,376,439	2,234,594	2,231,703	2,264,809	2,363,595	2,469,358	2,458,080	2,340,612	2,201,375	2,137,503	2,051,609	1,926,625	1,804,788	1,756,495	1,642,549	1,573,000	1,475,000	U
Motorcyclists	N	N	N	N	N	N	84,285	80,435	65,099	59,436	57,405	57,480	55,281	52,574	48,974	49,986	57,723	60,236	64,713	67,103	76,379	87,000	88,000	U
Truck occupants[f], light	N	N	N	N	N	N	505,144	562,601	544,657	600,874	631,411	722,496	761,478	754,820	762,506	846,865	886,566	860,527	879,338	889,048	900,171	872,000	857,000	U
Truck occupants[f], large	N	N	N	N	N	N	41,822	28,031	33,778	32,102	30,208	30,344	32,760	30,913	28,767	32,892	30,832	29,424	26,242	26,893	27,287	27,000	23,000	U
Bus occupants	N	N	N	N	N	N	32,691	20,959	20,144	17,056	15,767	19,214	20,291	16,887	15,559	21,958	17,769	15,427	18,819	18,174	16,410	11,000	10,000	U
Pedestrians	N	N	N	N	N	N	104,805	88,446	89,184	94,001	91,987	85,837	81,797	77,011	68,955	85,235	77,625	77,619	70,664	69,949	67,985	64,000	61,000	U
Pedalcyclists	N	N	N	N	N	N	74,903	67,088	62,691	67,916	62,489	66,572	58,158	57,802	53,379	51,290	51,160	45,277	48,011	46,378	41,086	45,000	44,000	U
Other[g]	N	N	N	N	N	N	10,578	14,716	22,348	12,969	13,065	13,977	15,473	16,995	12,519	10,509	15,466	17,536	13,182	14,561	16,511	18,000	18,000	U
Railroad, total[h]	19,480	25,655	21,206	53,998	62,246	34,304	25,143	23,468	21,383	19,121	16,812	14,440	12,558	11,767	11,459	11,700	11,643	10,985	11,103	(R) 9,254	(R) 9,187	(R) 9,495	(R) 8,690	9,343
Highway-rail grade crossing[i]	3,367	3,725	3,272	3,860	3,550	2,687	2,407	2,094	1,975	1,837	1,961	1,894	1,610	1,540	1,303	1,396	1,219	1,157	999	(R) 1,034	(R) 1,094	(R) 1,049	(R) 1,067	1,043
Railroad	16,113	21,930	17,934	50,138	58,696	31,617	22,736	21,374	19,408	17,284	14,851	12,546	10,948	10,227	10,156	10,304	10,424	9,828	10,104	(R) 8,220	(R) 8,093	(R) 8,446	(R) 7,623	8,300
Transit, total[j]	N	N	N	N	N	N	54,556	52,125	55,089	52,668	58,193	57,196	55,288	56,132	55,990	55,325	56,697	53,945	19,260	18,235	18,982	18,131	18,327	U
Highway-rail grade crossing[k]	N	N	N	N	N	N	N	N	N	N	N	195	184	126	58	159	123	74	108	117	153	194	172	U
Transit	N	N	N	N	N	N	N	N	N	N	N	57,001	55,104	56,006	55,932	55,166	56,574	53,871	19,152	18,118	18,829	17,937	18,155	U
Waterborne, total[l]	N	N	U	U	U	U	U	U	5,356	5,128	6,144	6,165	6,064	5,737	5,321	4,992	5,112	5,008	4,856	4,666	4,066	4,095	5,245	4,335
Vessel-related[m]	N	N	105	97	180	172	175	110	170	171	182	154	254	120	130	152	150	210	192	227	198	140	177	167
Not related to vessel casualties[m]	N	N	U	U	U	U	U	U	1,503	1,398	1,878	1,870	1,368	1,062	579	525	607	524	602	551	505	504	594	495
Recreational boating	929	927	780	2,136	2,650	2,757	3,822	3,967	3,683	3,559	4,084	4,141	4,442	4,555	4,612	4,315	4,355	4,274	4,062	3,888	3,363	3,451	4,474	3,673
Pipeline, total	N	N	254	231	192	126	76	98	118	111	1,971	64	127	77	81	108	81	61	49	71	60	(R) 48	32	43
Hazardous liquid pipeline	N	N	21	17	15	18	7	9	38	10	1,858	11	13	5	6	20	4	10	0	5	16	2	2	10
Gas pipeline	N	N	233	214	177	108	69	89	80	101	113	53	114	72	75	88	77	51	49	66	44	(R) 46	31	43

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

[a] Injuries classified as serious. See definitions of injuries in the glossary.

[b] All scheduled and nonscheduled service operating under 14 CFR 121. Since March 20, 1997, 14 CFR 121 includes only aircraft with 10 or more seats formerly operated under 14 CFR 135. This change makes it difficult to compare pre-1997 data for 14 CFR 121 and 14 CFR 135 with more recent years' data.

[c] All scheduled service operating under 14 CFR 135 (commuter air carriers). Before March 20, 1997, 14 CFR 135 applied to aircraft with 30 or fewer seats. Since March 20, 1997, 14 CFR 135 includes only aircraft with fewer than 10 seats. This change makes it difficult to compare pre-1997 data for 14 CFR 121 and 14 CFR 135 with more recent years' data.

[d] Nonscheduled service operating under 14 CFR 135 (on-demand air taxis

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

[f] Large trucks are defined as trucks over 10,000 pounds gross vehicle weight rating, including single-unit trucks and truck tractors. Light trucks are defined as trucks of 10,000 pounds gross vehicle weight rating or less, including pickups, vans, truck-based station wagons, and utility vehic

[g] Includes occupants of other unknown vehicle types and other nonmotorist

[h] Includes Amtrak. Figures include those injuries resulting from train accidents, train incidents, and nontrain incidents. Injury figures also include occupational illness. Railroad injury data for 1970 and before are not comparable with post-1970 data due to a change in the reporting systen

[i] Injuries occurring at highway-rail crossings resulting from freight and passenger rail operations including commuter rail. Highway-rail grade crossing injuries, except train occupants, are also counted under highway.

[j] Includes motor bus, commuter rail, heavy rail, light rail, demand response, van pool, and automated guideway. Transit injuries include those resulting from all reportable incidents, not just from accidents. Directly Operated (DO) modes only. The drop in the number of injuries in 2002 is due largely to a change in definitions by the Federal Transit Administration. Only injuries requiring immediate medical treatment away from the scene now qualify as reportable. Previously,

[k] Injuries occurring at highway-rail crossings resulting from operations of public transit rail modes including commuter rail. Data for injuries at light rail crossings are: 1995 (179); 1996 (171); 1997 (92); 1998 (42); 1999 (148); 2000 (111); 2001 (54); 2002 (76); 2003 (68); 2004 (76)

[l] Vessel-related injuries include those involving damage to vessels, such as collisions or groundings. Injuries not related to vessel casualties include those from falls overboard or from accidents involving onboard equipment

[m] 1992-97 data come from the Marine Safety Management Information System. Between 1998 and 2001 the U.S. Coast Guard phased in a new computer system to track safety data, the Marine Information for Safety and Law Enforcement System. During that period data come from combining entries in the Marine Safety Management Information System with entries in the Marine Information for Safety and Law Enforcement System. Data for 2002, 2003, and 2004 come from the Marine Information for Safety and Law Enforcement System. Data for prior years come from other sources and may not be directly comparable.

[n] Other than the persons aboard the aircraft who were killed, fatalities resulting from the September 11 terrorist acts are exclude

NOTES

The motor vehicle injury data in this table come from the U.S. Department of Transportation, National Highway Traffic Safety Administration's General Estimates System (GES). The data from GES, which began operation in 1988, are obtained from a nationally representative probability sample selected from all police-reported crashes. The GES sample includes only crashes where a police accident report was completed and the crash resulted in property damage, injury, or death. The resulting figures do not take into account crashes that were not reported to the police or did not result in property damage.

Numbers may not add to total because some injuries are counted in more than one mode. To avoid double counting, the following adjustments have been made Most (not all) highway-rail grade crossing injuries have not been added because most (not all) such injuries involve motor vehicles and are already included in highway injuries.

For transit, all commuter rail injuries and motor-bus, trolley-bus, demand-responsive, and van-pool injuries arising from accidents have been subtracted because they are counted as railroad, highway, or highway-rail grade crossing injuries.

The reader cannot reproduce the total injuries count in this table by simply leaving out the number of highway-rail grade crossing injuries in the sum and subtracting the above transit submodes, because in so doing, grade-crossing injuries not involving motor vehicles would be left out (see table 2-35 on rail). An example of such an injury is a bicyclist injured by a train at a grade crossing.

The Federal Railroad Administration defines a grade crossing as a location where a public highway, road, street, or private roadway, including associated sidewalks and pathways, crosses one or more railroad tracks at grade. The Federal Transit Administration defines two types of grade crossings: (1) At grade, mixed, and cross traffic crossings, meaning railway right-of-way over which other traffic moving in the same direction or other cross directions may pass. This includes city street right-of-way; (2) At grade with cross traffic crossings, meaning railway right-of-way over which no other traffic may pass, except to cross at grade-level crossings. This can include median strip rights-of-way with grade level crossings at intersecting streets.

SOURCES

Air:

1970-94: National Transportation Safety Board, *Annual Review of Aircraft Accident Data: General Aviation* (Washington, DC: Annual issues).

1995-2007: Ibid., Analysis and Data Division, personal communication, October 2008.

Highway:

1990-99: U.S. Department of Transportation, National Highway Traffic Safety Administration, National Center for Statistics and Analysis, *Traffic Safety Facts 1999,* DOT HS 809 100 (Washington, DC: December 2000), table 4.

2000-04: Ibid., General Estimates System Database and personal communication, Dec. 9, 2003, Oct. 12, 2004, Apr. 20, 2006.

2005-06: U.S. Department of Transportation, National Highway Traffic Safety Administration, National Center for Statistics and Analysis, *Traffic Safety Facts* (Washington, DC: Annual Issues), table 4.

Rail:

Highway-rail grade crossings:

1960-70: National Safety Council, *Accident Facts, 1974* (Washington, DC: 1974).

1975: U.S. Department of Transportation, Federal Railroad Administration, Office of Policy and Program Development, personal communication.

1980-91: Ibid., *Rail-Highway Crossing Accident/Incident and Inventory Bulletin* (Washington, DC: Annual issues), table S.

1991-99: Ibid., *Interim Railroad Safety Statistics Annual Report 2002* (Washington, DC: August 2003), table 1-1.

2000-06: Ibid., available at http://safetydata.fra.dot.gov/officeofSafety/Query/Default.asp as of Sept. 4, 2007.

Railroad:

1960-70: National Safety Council, *Accident Facts, 1974* (Washington, DC: 1974).

1970-91: U.S. Department of Transportation, Federal Railroad Administration, *Highway-Rail Crossing Accident/Incident and Inventory Bulletin* (Washington,

1991-99: Ibid., *Interim Railroad Safety Statistics Annual Report 2002* (Washington, DC: August 2003), table 1-1.

2000-07: Ibid., available at http://safetydata.fra.dot.gov/officeofSafety/Query/Default.asp as of November 2008.

Transit:

Highway-rail grade crossings:

U.S. Department of Transportation, Federal Transit Administration, Office of Program Management, personal communication as of June 8, 2006.

Transit:

1990-92: U.S. Department of Transportation, Federal Transit Administration, *Safety Management Information Statistics* (Washington, DC: Annual issues).

1993-2005: U.S. Department of Transportation, Federal Transit Administration, Transit Safety and Security Statistics and Analysis Annual Report (Washington, DC: Annual issues), available at http://transit-safety.volpe.dot.gov/data/SAMIS.asp as of Sept. 4, 2007.

2006: U.S. Department of Transportation, Research and Innovative Technology Administration, Volpe Center, Transit Safety and Security Statistics and Analysis Program, personal communication, Sept. 7, 2007.

Water:

Vessel- and nonvessel-related:

1970-91: U.S. Department of Transportation, U.S. Coast Guard, Office of Investigations and Analysis, Compliance Analysis Division, (G-MOA-2), personal communication, Apr. 13, 1999.

1992-2007: U.S. Department of Homeland Security, U.S. Coast Guard, Data Administration Division (G-MRI-1), personal communication, October 2008

Recreational boating:

U.S. Department of Homeland Security, U.S. Coast Guard, Office of Boating Safety, Boating Statistics (Washington, DC: Annual issues), available at available at http://www.uscgboating.org as of November 2008.

Hazardous liquid and gas pipeline:

1970-2007: U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration, Office of Pipeline Safety, *Accident and Incident Summary Statistics by Year*, available at http://ops.dot.gov as of November, 2008.

Table 2-3: Transportation Accidents by Mode

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Air	4,883	5,279	4,767	4,232	3,818	2,935	2,388	2,334	2,228	2,172	2,140	2,179	2,046	1,991	2,040	2,043	1,985	1,852	1,823	1,869	1,717	1,781	(R) 1,607	1,722
U.S. air carrier[a]	90	83	55	37	19	21	24	26	18	23	23	36	37	49	50	51	56	46	41	54	30	40	(R) 33	26
Commuter carrier[b]	N	N	N	48	38	18	15	23	23	16	10	12	11	16	8	13	12	7	7	2	4	6	3	3
On-demand air taxi[c]	N	N	N	152	171	157	107	88	76	69	85	75	90	82	77	74	80	72	60	(R) 73	66	(R) 65	(R) 53	62
General aviation[d]	4,793	5,196	4,712	3,995	3,590	2,739	2,242	2,197	2,111	2,064	2,022	2,056	1,908	1,844	1,905	1,905	1,837	1,727	1,715	(R) 1,740	1,617	(R) 1,670	(R) 1,518	1,631
Highway, total crashes[e]	N	N	N	N	N	N	6,471,000	6,117,000	6,000,000	6,106,000	6,496,000	6,699,000	6,770,000	6,624,000	6,335,000	6,279,000	6,394,000	6,323,000	6,316,000	6,328,000	6,181,000	6,159,000	5,973,000	U
Passenger car	N	N	N	N	N	N	5,560,592	5,178,450	5,042,203	5,040,116	5,401,164	5,593,685	5,598,699	5,423,286	5,146,124	4,915,734	4,926,243	4,831,842	4,802,056	4,746,620	4,557,453	4,498,869	4,341,688	U
Motorcycle	N	N	N	N	N	N	103,114	105,030	72,177	74,565	68,752	66,354	66,224	61,451	54,477	57,322	68,783	73,342	76,004	79,131	85,557	100,686	101,474	U
Truck[f], light	N	N	N	N	N	N	2,152,486	2,200,134	2,191,171	2,407,212	2,573,701	2,749,596	2,880,782	2,900,896	2,866,729	3,079,617	3,207,738	3,254,105	3,272,326	3,345,367	3,370,062	3,381,985	3,355,291	U
Truck[f], large	N	N	N	N	N	N	371,801	318,637	362,807	383,220	444,697	362,883	378,335	421,377	391,807	452,444	437,861	409,372	416,477	436,161	399,156	423,016	367,920	U
Bus	N	N	N	N	N	N	60,412	56,285	49,705	51,353	55,818	58,847	57,185	53,376	53,385	62,591	55,594	54,264	57,958	57,674	52,148	50,427	51,554	U
Railroad, total[g]	N	N	11,654	20,117	18,817	10,194	8,594	8,046	7,269	7,503	7,483	7,092	6,700	6,262	6,083	6,257	6,485	6,260	5,815	(R) 5,994	(R) 6,459	(R) 6,319	(R) 5,905	5,399
Highway-rail grade crossing[h]	3,195	3,820	3,559	12,076	10,612	6,919	5,715	5,388	4,910	4,892	4,979	4,633	4,257	3,865	3,508	3,489	3,502	3,237	3,077	2,977	(R) 3,079	(R) 3,058	(R) 2,937	2,752
Railroad[i]	N	N	8,095	8,041	8,205	3,275	2,879	2,658	2,359	2,611	2,504	2,459	2,443	2,397	2,575	2,768	2,983	3,023	2,738	(R) 3,017	(R) 3,380	(R) 3,261	(R) 2,968	2,647
Transit, total[j]	N	N	N	N	N	N	58,002	46,467	36,380	30,559	29,972	25,683	25,166	24,924	23,937	23,310	24,261	23,891	13,968	7,793	7,842	8,151	8,851	9,398
Highway-rail grade crossing[k]	N	N	N	N	N	N	N	N	N	N	N	127	134	119	106	140	148	101	190	125	178	148	141	174
Transit[l]	N	N	N	N	N	N	N	N	N	N	N	25,556	25,032	24,805	23,831	23,170	24,113	23,790	13,778	7,668	7,664	8,003	8,710	9,224
Waterborne, total	N	N	6,385	9,618	10,137	9,676	10,024	8,795	11,631	12,461	13,649	13,368	13,286	13,551	13,828	13,457	13,143	11,377	11,713	10,601	9,866	9,946	10,367	U
Vessel-related[m]	N	N	2,582	3,310	4,624	3,439	3,613	2,222	5,583	6,126	6,743	5,349	5,260	5,504	5,767	5,526	5,403	4,958	6,008	5,163	4,962	4,977	5,400	U
Recreational boating	2,738	3,752	3,803	6,308	5,513	6,237	6,411	6,573	6,048	6,335	6,906	8,019	8,026	8,047	8,061	7,931	7,740	6,419	5,705	5,438	4,904	4,969	4,967	5,191
Pipeline, total	N	N	1,428	1,592	1,770	517	378	449	389	445	467	349	381	346	389	339	380	341	331	370	443	(R) 490	(R) 407	402
Hazardous liquid pipeline	N	N	351	254	246	183	180	216	212	229	245	188	194	171	153	167	146	130	147	131	144	138	(R) 120	116
Gas pipeline	N	N	1,077	1,338	1,524	334	198	233	177	216	222	161	187	175	236	172	234	211	184	239	299	(R) 352	(R) 287	286

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

[a] Carriers operating under 14 CFR 121, all scheduled and nonscheduled service. Since Mar. 20, 1997, 14 CFR 121 includes only aircraft with 10 or more seats formerly operated under 14 CFR 135. This change makes it difficult to compare pre-1997 data for 14 CFR 121 and 14 CFR 135 with more recent years' data.

[b] All scheduled service operating under 14 CFR 135. Since Mar. 20, 1997, 14 CFR 121 includes only aircraft with 10 or more seats formerly operated under 14 CFR 135. This change makes it difficult to compare pre-1997 data for 14 CFR 121 and 14 CFR 135 with more recent years' data.

[c] Nonscheduled service operating under 14 CFR 135.

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

[e] The U.S. Department of Transportation, National Highway Traffic Safety Administration uses the term "crash" instead of accident in its highway safety data. Highway crashes often involve more than one motor vehicle, hence "total highway crashes" is smaller than the sum of the components. Estimates of highway crashes are rounded to the nearest thousand in the source document.

[f] Large trucks are defined as trucks over 10,000 pounds gross vehicle weight rating, including single-unit trucks and truck tractors. Light trucks are defined as trucks of 10,000 pounds gross vehicle weight rating or less, including pickups, vans, truck-based station wagons, and utility vehicles.

[g] Includes Amtrak. Accidents and incidents resulting from freight and passenger rail operations including commuter rail. Railroad accident data for 1970 and before are not compara with post-1970 data due to a change in the reporting system.

[h] Accidents and incidents occurring at highway-rail crossings resulting from freight and passenger rail operations including commuter rail. Data not comparable after 1970 due to change in reporting system. Most highway-rail grade crossing accidents are also counted under highway.

[i] Train accidents only.

[j] Accident figures include collisions with vehicles, objects, and people, derailments / vehicles going off the road. Accident figures do not include fires and personal casualties. The drop in the number of accidents in 2002 is due largely to a change in definitions by the Federal Transit Administration, particularly the definition of injuries. Only injuries requiring immediate medical treatment away from the scene now qualify as reportable. Previously, any injury was reportable. Directly Operated (DO) modes only.

[k] Accidents occurring at highway-rail grade crossings resulting from operations of public transit rail modes including commuter rail. Data for light rail crossings are: 1995 (98); 1996 (1997 (66); 1998 (66); 1999 (103); 2000 (106); 2001 (54); 2002 (112); 2003 (66); 2004 (107).

[l] Accidents occurring at highway-rail grade crossings resulting from operations of public transit rail modes excluding commuter rail.

[m] 1992-97 data come from the Marine Safety Management Information System. Between 1998 and 2001 the U.S. Coast Guard phased in a new computer system to track safety data, the Marine Information for Safety and Law Enforcement System. During that period data come from combining entries in the Marine Safety Management Information System with entries in the Marine Information for Safety and Law Enforcement System. Data for 2002 and 2003 come from the Marine Information for Safety and Law Enforcement System. Data for prior years come from other sources and may not be directly comparable.

NOTES

The motor vehicle crash data in this table come from the U.S. Department of Transportation, National Highway Traffic Safety Administrations' General Estimates System (GES), which began operation in 1988. GES data are obtained from a nationally representative probability sample selected from all police-reported crashes. The GES sample includes only crashes where a police accident report was completed and the crash resulted in property damage, injury, or death. The resulting figures do not take into account crashes that were not reported to the police or did not result in property damage.

The Federal Railroad Administration defines a grade crossing as a location where a public highway, road, street, or private roadway, including associated sidewalks and pathways, crosses one or more railroad tracks at grade. The Federal Transit Administration defines two types of grade crossings: (1) At grade, mixed, and cross traffic crossings, meaning railway right-of-way over which other traffic moving in the same direction or other cross directions may pass. This includes city street right-of-way; (2) At grade with cross traffic crossings, meaning railway right-of-way over which no other traffic may pass, except to cross at grade-level crossings. This can include median strip rights-of-way with grade level crossings at intersecting streets.

SOURCES

Air:

Air carrier:

1960: National Transportation Safety Board, *Annual Review of Aircraft Accident Data: U.S. Air Carrier Operations, Calendar Year 1967* (Washington, DC: December 1968).
1965-70: Ibid., *Annual Review of Aircraft Accident Data: U.S. Air Carrier Operations, Calendar Year 1975,* NTSB/ARC-77/1 (Washington, DC: January 1977).
1975: Ibid., *Annual Review of Aircraft Accident Data: U.S. Air Carrier Operations, Calendar Year 1983,* NTSB/ARC-87/01 (Washington, DC: February 1987), table 18.

1980: Ibid., *Annual Review of Aircraft Accident Data: U.S. Air Carrier Operations, Calendar Year 1981,* NTSB/ARC-85/01 (Washington, DC: February 1985), tables 2 and 16.
1985-2006: Ibid., personal communication, Sept. 4, 2007.
2007: National Transportation Safety Board, Aviation Accident Statistics, Table 5, available at http://www.ntsb.gov/aviation/Stats.htm, as of August 2008.

Commuter air carrier:

1975-80: National Transportation Safety Board, *Annual Review of Aircraft Accident Data: U.S. Air Carrier Operations, Calendar Year 1980,* NTSB/ARC-83/01 (Washington, DC: January 1983), tables 26 and 40.
1985-2006: Ibid., personal communication, Sept. 4, 2007.
2007: National Transportation Safety Board, Aviation Accident Statistics, Table 8, available at http://www.ntsb.gov/aviation/Stats.htm, as of August 2008.

On-demand air taxi:

1975-80: National Transportation Safety Board, *Annual Review of Aircraft Accident Data: U.S. Air Carrier Operations, Calendar Year 1981,* NTSB/ARC-85/01 (Washington, DC: February 1985), table 61.
1985-2006: Ibid., personal communication, Sept. 4, 2007.
2007: National Transportation Safety Board, Aviation Accident Statistics, Table 9, available at http://www.ntsb.gov/aviation/Stats.htm, as of August 2008.

General aviation:

1960-70: National Transportation Safety Board, *Annual Review of Aircraft Accident Data: General Aviation, Calendar Year 1970,* NTSB/ARG-74/1 (Washington, DC: April 1974), table 117.
1975-80: Ibid., *Annual Review of Aircraft Accident Data: General Aviation, Calendar Year 1985,* NTSB/ARG-87/03 (Washington, DC: October 1987), table 21.
1985-2006: Ibid., personal communication, Sept. 4, 2007.
2007: National Transportation Safety Board, Aviation Accident Statistics, Table 10, available at http://www.ntsb.gov/aviation/Stats.htm, as of August 2008.

Highway:

Total:

U.S. Department of Transportation, National Highway Traffic Safety Administration, National Center for Statistics and Analysis, *Traffic Safety Facts* (Washington, DC: Annual Issues), table 1, available at http://www-nrd.nhtsa.dot.gov/cats/index.aspx as of October 2008.

Passenger car, motorcycle, light truck, large truck, and bus:

U.S. Department of Transportation, National Highway Traffic Safety Administration, National Center for Statistics and Analysis, Fatality Analysis Reporting System Database and General Estimates System Database.

Rail:

Highway-rail grade crossings:

1960-70: U.S. Department of Transportation, Federal Railroad Administration, Office of Policy and Program Development, *Rail-Highway Grade-Crossing Accidents* (Washington, DC: Annual issues).
1975-80: Ibid., Office of Policy and Program Development, personal communication.
1985-90: Ibid., *Rail-Highway Crossing Accident/Incident and Inventory Bulletin* (Washington, DC: Annual issues), table S.
1991-99: Ibid., *Interim Railroad Safety Statistics Annual Report 2002* (Washington, DC: August 2003), table 1-1.
2000-07: Ibid., available at http://safetydata.fra.dot.gov/officeofsafety/Default.asp as of Dec. 2, 2005.

Railroad:

1970-90: U.S. Department of Transportation, Federal Railroad Administration, Office of Policy and Program Development, *Accident/Incident Bulletin* (Washington, DC: Annual issues), table 4.
1991-99: Ibid., *Interim Railroad Safety Statistics Annual Report 2002* (Washington, DC: August 2003), table 1-1.
2000-2007: Ibid., available at http://safetydata.fra.dot.gov/officeofsafety/Default.asp as of November 2008.

Transit:

Highway-rail grade crossings:

U.S. Department of Transportation, Federal Transit Administration, Office of Program Management, personal communication as of Sept. 4, 2007.

Transit:

1990-92: U.S. Department of Transportation, Federal Transit Administration, *Safety Management Information Statistics 2000* (Washington, DC: 2000), pp. 51-54 and personal communication, July 28, 2003.
1993-2005: U.S. Department of Transportation, Federal Transit Administration, *Transit Safety and Security Statistics and Analysis Annual Report* (Washington, DC: Annual issues) available at http://transit-safety.volpe.dot.gov/data/SAMIS.asp as of Sept. 4, 2007.
2006-2007: U.S. Department of Transportation, Research and Innovative Technology Administration, Volpe Center, Transit Safety and Security Statistics and Analysis Program, personal communication, Oct. 20, 2008.

Water:

Vessel-related:

1970-91: U.S. Department of Transportation, U.S. Coast Guard, Office of Investigations and Analysis, Compliance Analysis Division, personal communication, Apr. 13, 1999.
1992-2006: U.S Department of Homeland Security, U.S. Coast Guard, Data Administration Division (G-MRI-1), personal communication, June 8, 2005.

Recreational boating:

U.S. Department of Homeland Security, U.S. Coast Guard, Office of Boating Safety, *Boating Statistics* (Washington, DC: Annual issues), available at http://www.uscgboating.org/statistics/accident_stats.htm as of September 4, 2007.

Hazardous liquid and gas pipeline:

1970-2007: U.S. Department of Transportation, Research and Special Programs Administration, Office of Pipeline Safety, *Accident and Incident Summary Statistics by Year*, available at http://ops.dot.gov as of November 2008.

Table 2-4: Distribution of Transportation Fatalities by Mode

	1999		2000		2001		2002		2003		2004		2005		2006		2007	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
TOTAL of all modes[a]	44,084	100.0	44,384	100.0	44,941	100.0	(R) 45,297	100.0	(R) 45,101	100.0	(R) 44,985	100.0	(R) 45,565	100.0	(R) 44,974	100.0	43,032	100.0
Passenger car occupants	20,862	47.3	20,699	46.6	20,320	45.2	20,569	45.4	19,725	43.7	19,192	42.7	18,512	40.6	(R) 17,925	39.9	16,520	38.4
Light-truck occupants	11,265	25.6	11,526	26.0	11,723	26.1	12,274	27.1	12,546	27.8	12,674	28.2	13,037	28.6	(R) 12,761	28.4	12,413	28.8
Pedestrians struck by motor vehicles	4,939	11.2	4,763	10.7	4,901	10.9	4,851	10.7	4,774	10.6	4,675	10.4	4,892	10.7	(R) 4,795	10.7	4,654	10.8
Motorcyclists	2,483	5.6	2,897	6.5	3,197	7.1	3,270	7.2	3,714	8.2	4,028	9.0	4,576	10.0	(R) 4,837	10.8	5,154	12.0
Large-truck occupants	759	1.7	754	1.7	708	1.6	689	1.5	726	1.6	766	1.7	804	1.8	805	1.8	802	1.9
Pedalcyclists struck by motor vehicles	754	1.7	693	1.6	732	1.6	665	1.5	629	1.4	727	1.6	786	1.7	(R) 772	1.7	698	1.6
Recreational boating	734	1.7	701	1.6	681	1.5	750	1.7	703	1.6	676	1.5	697	1.5	710	1.6	685	1.6
Other and unknown motor vehicle occupants	447	1.0	450	1.0	458	1.0	528	1.2	589	1.3	602	1.3	659	1.4	(R) 601	1.3	629	1.5
General aviation	619	1.4	596	1.3	562	1.3	581	1.3	(R) 633	1.4	(R) 559	1.2	563	1.2	(P) 703	1.6	(P) 491	1.1
Railroad trespassers[b] (excluding grade crossings)	479	1.1	463	1.0	511	1.1	540	1.2	(R) 498	1.1	(R) 472	1.0	(R) 458	1.0	(R) 511	1.1	469	1.1
Other nonoccupants struck by motor vehicles[c]	149	0.34	141	0.32	123	0.27	114	0.25	140	0.31	128	0.28	186	0.41	(R) 185	0.41	152	0.35
Grade crossings, not involving motor vehicles[d]	57	0.13	64	0.14	76	0.17	47	0.10	53	0.12	82	0.18	(R) 75	0.16	64	0.14	73	0.17
Air taxi	38	0.09	71	0.16	60	0.13	35	0.08	42	0.09	64	0.14	18	0.04	16	0.04	(P) 43	0.10
Heavy rail transit (subway)	84	0.19	80	0.18	59	0.13	73	0.16	49	0.11	59	0.13	35	0.08	32	0.07	30	0.07
Waterborne transportation (nonvessel-related)	136	0.31	134	0.30	94	0.21	(R) 41	0.09	(R) 50	0.11	(R) 35	0.08	35	0.08	39	0.09	32	0.07
Bus occupants (school, intercity, and transit)	59	0.13	22	0.05	34	0.08	45	0.10	41	0.09	42	0.09	58	0.13	27	0.06	37	0.09
Waterborne transportation (vessel-related)	58	0.13	53	0.12	53	0.12	(R) 66	0.15	(R) 54	0.12	(R) 48	0.11	45	0.10	48	0.11	52	0.12
Private grade crossings, with motor vehicles	36	0.08	55	0.12	30	0.07	(R) 66	0.15	32	0.07	33	0.07	26	0.06	38	0.08	37	0.09
Railroad employees, contractors, and volunteers on duty (excluding grade crossings)	31	0.07	22	0.05	23	0.05	22	0.05	20	0.04	25	0.06	28	0.06	19	0.04	21	0.05
Light rail transit	17	0.04	30	0.07	21	0.05	13	0.03	17	0.04	22	0.05	19	0.04	13	0.03	20	0.05
Railroad-related, not otherwise specified (excluding grade crossings)	17	0.04	23	0.05	13	0.03	25	0.06	11	0.02	20	0.04	U	U	U	U	U	U
Gas distribution pipelines	16	0.04	22	0.05	5	0.01	10	0.02	11	0.02	18	0.04	14	0.03	16	0.04	9	0.02
Transit buses, fatalities not related to accidents[e]	12	0.03	8	0.02	6	0.01	14	0.03	14	0.03	16	0.04	U	U	U	U	U	U
Air carriers	12	0.03	92	0.21	(h) 531	1.18	0	0.00	22	0.05	14	0.03	22	0.05	50	0.11	1	0.00
Hazardous liquid pipelines	4	0.01	1	0.00	0	0.00	1	0.00	0	0.00	5	0.01	2	0.00	0	0.00	4	0.01
Passengers on railroad trains (excluding grade crossings)	3	0.01	4	0.01	3	0.01	7	0.02	2	0.00	3	0.01	16	0.04	2	0.00	4	0.01
Demand response transit, fatalities not related to accidents[e]	0	0.00	0	0.00	2	0.00	0	0.00	3	0.01	0	0.00	U	U	U	U	U	U
Commuter air	12	0.03	5	0.01	13	0.03	0	0.00	2	0.00	0	0.00	2	0.00	2	0.00	(P) 0	0.00
Gas transmission pipelines	2	0.00	15	0.03	2	0.00	1	0.00	1	0.00	0	0.00	0	0.00	3	0.01	2	0.00
Other counts, redundant with above[f]																		
Large-truck occupants and nonoccupants	5,380	NA	5,282	NA	5,111	NA	4,939	NA	5,036	NA	5,235	NA	5,212	NA	4,995	NA	U	NA
Public grade crossings, with motor vehicles	309	NA	306	NA	315	NA	271	NA	249	NA	257	NA	256	NA	266	NA	263	NA
Commuter rail	95	NA	87	NA	87	NA	116	NA	77	NA	86	NA	105	NA	U	NA	70	NA
Transit buses, accident-related fatalities	90	NA	82	NA	89	NA	64	NA	73	NA	61	NA	U	NA	U	NA	U	NA
Outside planes in crashes[g]	5	NA	14	NA	11	NA	6	NA	6	NA	1	NA	U	NA	U	NA	U	NA
Demand response transit, accident-related fatalities	1	NA	8	NA	3	NA	0	NA	1	NA	0	NA	U	NA	U	NA	U	NA

KEY: NA = not applicable; P = preliminary; R = revised.

[a] Includes fatalities outside the vehicle, unless otherwise specified.
[b] Includes fatalities outside trains, except at grade crossings.
[c] Includes all nonoccupant fatalities, except pedalcyclists and pedestrians.
[d] Public grade-crossing fatalities involving motor vehicles are included in counts for motor vehicles.
[e] Fatalities not related to transit bus and demand responsive transit accidents are not included under highway submodes.
[f] Fatalities at grade crossings with motor vehicles are included under relevant motor vehicle modes. Commuter rail fatalities are counted under railroad. For transit bus and demand responsive transit accidents, occupant fatalities are counted under "bus" and nonoccupant fatalities are counted under "pedestrians," "pedalcyclists," or other motor vehicle categories.
[g] Includes nonoccupant fatalities resulting from aviation accidents.
[h] Other than the persons aboard the aircraft who were killed, fatalities resulting from the September 11 terrorist acts are excluded.

SOURCES

Air:
National Transportation Safety Board, *Aviation Accident Statistics*, available at www.ntsb.gov/aviation/Stats.htm as of Sept. 9, 2008.

Highway:
1999-2005 U.S. Department of Transportation, National Highway Traffic Safety Administration, *Traffic Safety Facts* 2006, (Washington, DC: Annual Issues), tables 4 and 11, available at http://www-nrd.nhtsa.dot.gov/cats/index.aspx as of Feb. 14, 2007.
2006-2007: ibid., FARS, General Trends, available at http://www-fars.nhtsa.dot.gov/ as of Oct. 27 2008.

Railroad:
U.S. Department of Transportation, Federal Railroad Administration, Office of Safety and Analysis, *FRA Accident/Incident and Inspections Query*, available at http://safetydata.fra.dot.gov/officeofsafety/Query/Default.asp as of Sep 9, 2008.

Transit:
U.S. Department of Transportation, Federal Transit Administration, *Transit Safety and Security Statistics and Analysis* (Washington, DC: Annual issues) and personal communications, Apr. 22, 2005, Apr. 24, 2006,Sept. 5, 2007, and Oct 30 2008.

Waterborne transportation:
U.S. Department of Homeland Security, U.S. Coast Guard, Data Administration Division (G-MRI-1), personal communication, Oct. 16, 2008.

Recreational boating:
Ibid., Office of Boating Safety, *Boating Statistics* (Washington, DC: Annual issues).

Pipeline:
U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration, Office of Pipeline Safety, *Pipeline Incidents and Mileage Reports*, available at http://ops.dot.gov/stats/stats.htm as of Sept. 19, 2008.

Table 2-5: Highway-Rail Grade-Crossing Safety

	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	(R) 2006	2007
Fatalities	[a]1,440	917	833	582	698	608	579	626	615	579	488	461	431	402	425	421	357	334	372	358	369	339
Injured persons	3,272	3,860	3,890	2,687	2,407	2,094	1,975	1,837	1,961	1,894	1,610	1,540	1,303	1,396	1,219	1,157	999	1,035	(R) 1,094	(R) 1,046	1,054	1003
Accidents	[a]3,559	12,126	10,796	7,073	5,715	5,388	4,910	4,892	4,979	4,633	4,257	3,865	3,508	3,489	3,502	3,237	3,077	2,977	(R) 3,078	(R) 3,056	2,934	2,741

KEY: R = revised

[a] 1970 data are not comparable to later years due to a change in the reporting system.

NOTE

The Federal Railroad Administration recommended we no longer report property damage statistics, as we had done in previous editions of NTS, due to inconsistencies in the reporting of data.

SOURCES

1970: U.S. Department of Transportation, Federal Railroad Administration, Office of Policy and Program Development, *Rail-Highway Crossing Accident/Incident and Inventory Bulletin* (Washington, DC: Annual issues), tables S and 11.
1970-2006: Ibid. Internet site http://safetydata.fra.dot.gov/OfficeofSafety/ as of Apr. 15, 2008.

Table 2-6: Hazardous Materials Fatalities, Injuries, Accidents, and Property Damage Data

	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Total fatalities	27	19	8	8	10	16	15	11	7	120	12	13	9	16	12	10	15	16	34	6
Accident-related	21	14	7	7	10	15	14	11	6	7	10	8	7	11	8	9	9	15	29	6
Air fatalities	0	0	0	0	0	0	0	0	0	110	0	0	0	0	0	0	0	0	0	0
Accident-related	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Highway fatalities	27	17	8	8	10	16	15	11	7	8	12	13	9	16	9	9	15	13	24	6
Accident-related	21	12	7	7	10	15	14	11	6	5	10	8	7	11	8	8	9	12	19	6
Rail fatalities	0	2	0	0	0	0	0	0	0	2	0	0	0	0	3	1	0	3	10	0
Accident-related	0	2	0	0	0	0	0	0	0	2	0	0	0	0	0	1	0	3	10	0
Water[a] fatalities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Accident-related	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other[b] fatalities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Accident-related	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total injured persons	648	626	253	423	439	604	627	577	400	1,175	221	195	265	251	168	136	119	288	(R) 950	233
Accident-related	168	47	16	18	40	98	62	111	18	864	16	13	15	16	12	15	16	96	(R) 700	13
Air injured persons	5	8	4	39	31	23	50	57	33	33	24	20	12	5	13	4	1	11	78	2
Accident-related	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Highway injured persons	527	493	195	311	333	465	511	425	296	216	152	151	218	164	109	118	105	155	(R) 179	192
Accident-related	156	43	9	9	27	34	61	95	14	22	11	9	15	15	12	14	16	12	(R) 45	11
Rail injured persons	99	121	53	73	75	116	66	95	71	926	45	22	35	82	46	14	13	122	(R) 693	24
Accident-related	12	4	7	9	13	64	1	16	4	842	5	4	0	1	0	1	0	84	655	2
Water[a] injured persons	2	1	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	15
Accident-related	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other[b] injured persons	15	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Accident-related	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total incidents	10,951	15,719	6,019	8,879	9,110	9,393	12,838	16,105	14,853	14,077	14,065	15,495	17,616	17,557	17,792	15,114	15,156	14,846	(R) 15,929	(R) 20,338
Accident-related	440	486	364	297	303	283	266	296	303	338	320	332	398	394	413	362	342	329	382	(R) 356
Air incidents	147	223	114	297	299	414	622	931	817	925	1,029	1,387	1,582	1,419	1,083	732	750	993	1,654	(R) 2,411
Accident-related	0	0	0	0	0	1	0	0	0	0	1	3	2	3	2	2	0	0	9	7
Highway incidents	10,063	14,161	4,752	7,296	7,644	7,843	11,095	14,011	12,869	12,034	11,929	13,108	14,953	15,063	15,804	13,502	13,594	13,071	(R) 13,461	(R) 17,155
Accident-related	330	347	302	249	249	245	217	244	253	294	267	277	331	329	357	319	300	283	322	(R) 305
Rail incidents	694	1,271	842	1,279	1,155	1,128	1,113	1,157	1,155	1,112	1,102	989	1,073	1,058	899	870	802	765	745	704
Accident-related	109	134	61	48	54	36	49	52	50	44	52	52	65	62	54	41	42	46	51	44
Water[a] incidents	28	34	7	7	12	8	8	6	12	6	5	11	8	17	6	10	10	17	69	68
Accident-related	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other[b] incidents	19	30	304	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Accident-related	1	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total property damage (current $ thousands)[c]	8,090	10,829	22,993	32,353	38,351	36,229	22,817	44,196	30,900	46,849	33,533	46,312	65,369	78,132	69,442	58,177	53,597	63,282	(R) 55,908	(R) 70,475
Accident-related	6,051	6,236	20,268	24,792	30,184	28,708	13,179	25,552	23,602	37,775	25,318	37,049	51,710	62,636	56,546	41,113	40,824	44,895	(R) 44,077	(R) 56,303
Air property damage	8.9	12.3	12.3	142	77	99	88	178	100	87	336	267	286	272	309	109	100	188	198	671
Accident-related	0	0	0	0	0	0	0	0	0	0	0	0	0	42	50	61	0	0	0	0
Highway property damage	5,584	7,324	12,690	20,190	29,650	24,130	19,866	25,253	22,141	29,257	24,741	28,669	34,359	51,030	47,737	48,076	49,109	47,537	(R) 40,141	(R) 59,006
Accident-related	3,694	3,782	10,175	14,132	23,953	18,350	11,263	13,539	16,342	22,315	17,871	21,597	23,085	37,837	36,404	33,529	37,650	34,701	(R) 31,014	(R) 47,080
Rail property damage	2,488	2,952	10,274	11,952	8,469	11,857	2,649	18,673	8,485	17,385	8,418	16,362	30,663	26,547	21,248	9,745	4,126	13,901	15,455	10,740
Accident-related	2,357	2,357	10,094	10,660	6,231	10,233	1,916	12,014	7,260	15,460	7,446	15,452	28,625	24,756	20,092	7,524	3,175	10,195	13,063	9,222
Water[a] property damage	6.1	505	3.2	70	154	143	213	92	174	120	38	1,015	61	283	147	248	261	1,655	114	59
Accident-related	0	81	0	0	0	125	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other[b] property damage	3.5	35	14.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Accident-related	0.3	15.6	<0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

KEY: R = revised.

[a] Water category includes only nonbulk marine. Bulk marine hazardous materials incidents are reported to the U.S. Coast Guard and are not included.

[b] Other category includes freight forwarders and modes not otherwise specified.

[c] Property damage under $30,000 is reported to the nearest $100. Property damage $30,000 or greater is reported to the nearest $1,000, therefore the components may not add to the totals.

NOTES

Hazardous materials transportation incidents required to be reported are defined in the Code of Federal Regulations (CFR), 49 CFR 171.15, 171.16 (Form F 5800.1). Hazardous materials deaths and injuries are caused by the hazardous material in commerce.

SOURCES

1975-85: U.S. Department of Transportation, Research and Special Programs Administration, Office of Hazardous Materials Safety, *Hazardous Materials Information System Database*, 1999.

1990: Ibid., available at http://hazmat.dot.gov/pubs/inc/data/10yearfrm.htm as of May 2, 2000.

1991-1992: Ibid., available at http://hazmat.dot.gov/pubs/inc/data/10yearfrm.htm as of June 14, 2004.

1993-2007: Ibid., available at http://hazmat.dot.gov/pubs/inc/data/10yearfrm.htm as of November 2008.

Table 2-7: Transportation-Related Occupational Fatalities[a]

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001[h]	2002	2003	2004	2005	2006	2007
All occupational fatalities	6,217	6,331	6,632	6,275	6,202	6,238	6,055	6,054	5,920	5,915	5,534	5,575	5,764	5,734	(R) 5,840	5,488
Transportation-related fatalities, total[b]	2,484	2,499	2,762	2,587	2,601	2,605	2,645	2,618	2,573	2,524	2,385	2,364	2,490	2,493	(R) 2,459	2,234
Highway[c]	1,158	1,242	1,343	1,346	1,346	1,393	1,442	1,496	1,365	1,409	1,373	1,353	1,398	1,437	(R) 1,356	1,311
Nonhighway[d]	436	392	409	387	374	377	388	352	399	326	323	347	338	340	(R) 345	292
Aircraft	353	282	426	283	324	261	224	228	280	247	194	211	231	149	(R) 217	167
Pedestrian struck by vehicle[e]	346	365	391	388	353	367	413	377	370	383	356	337	378	391	(R) 379	342
Water vehicle[f]	109	119	94	87	119	109	112	102	84	90	71	69	91	88	(R) 96	69
Railway[g]	66	86	81	82	74	93	60	56	71	62	64	43	50	83	(R) 65	48
As a percent of all occupational fatalities																
Transportation-related fatalities, total[b]	40	39	42	41	42	42	44	43	43	43	43	42	43	43	42	41
Highway	19	20	20	21	22	22	24	25	23	24	25	24	24	25	(R) 23	24
Nonhighway	7	6	6	6	6	6	6	6	7	6	6	6	6	6	(R) 6	5
Aircraft	6	4	6	5	5	4	4	4	5	4	4	4	4	3	(R) 4	3
Pedestrian struck by vehicle	6	6	6	6	6	6	7	6	6	6	6	6	7	7	(R) 6	6
Water vehicle	2	2	1	1	2	2	2	2	1	2	1	1	2	2	(R) 2	1
Railway	1	1	1	1	1	1	1	1	1	1	1	1	1	1	(R) 1	1

KEY: R = revised.

[a] Based on the 1992 Bureau of Labor Statistics, *Occupational Injury and Illness Classification Manual.*

[b] Numbers may not add to totals because transportation categories may include subcategories not shown separately.

[c] Includes collisions between vehicles/mobile equipment moving in the same or opposite directions, such as in an intersection; between moving and standing vehicles/mobile equipment at the side of a roadway; or a vehicle striking a stationary object. Also includes noncollisions, e.g., jack-knifed or overturned vehicle/mobile equipment–no collision; ran off highway–no collision; struck by shifting load; sudden start or stop; not elsewhere classified.

[d] Refers to farms and industrial premises. Includes collisions between vehicles/mobile equipment; vehicles/mobile equipment striking a stationary object. Also includes noncollisions such as a fall from a moving vehicle/mobile equipment, fall from and struck by vehicle/mobile equipment, overturned vehicle/mobile equipment, and loss of control of vehicle/mobile equipment.

[e] Includes worker struck by vehicle/mobile equipment in roadway, on side of road, in a parking lot, or nonroad area.

[f] Includes collisions, explosions, fires, fall from or on ship/boat, and sinking/capsized water vehicles involved in transportation. Does not include fishing boats.

[g] Includes collisions between railway vehicles, railway vehicle and other vehicle, railway vehicle and other object, and derailment.

[h] Data do not include fatalities from the terrorist attacks of September 11 which totaled 2,886.

NOTES

Percentages may not add to totals due to rounding.

The above categories do not define the types of jobs people had, nor the industries in which they worked. The categories define the ways in which they died. For example, a representative traveling for business reasons who is killed in a rail accident would be listed under rail.

SOURCE

U.S. Department of Labor, Bureau of Labor Statistics, *Census of Fatal Occupational Injuries (CFOI),* available at http://www.bls.gov/news.release/cfoi.toc.htm as of Sep. 2008.

Table 2-8: Reporting Thresholds for Property Damage by U.S. Department of Transportation Modal Administrations

Modal administration	Reporting threshold
Federal Aviation Administration	More than $25,000 damage to property other than the aircraft.
Federal Highway Administration	None; each state defines its own threshold and FHWA collects state reports.
Federal Railroad Administration	More than $7,700 in damages to railroad on-track equipment, signals, track, track structures, and roadbed for accidents other than at grade-crossings. No threshold for grade-crossing accidents.
National Highway Traffic Safety Administration	None; property-damage-only crashes are recorded through the General Estimates System, a nationally representative sample of police-reported crashes of all
Federal Transit Administration	More than $7,500.
Pipeline and Hazardous Materials Safety Administration	More than $50,000 for gas pipelines. More than $50,000 for hazardous liquid pipelines.
U. S. Coast Guard	More than $25,000 for commercial vessels. More than $2,000 or complete loss of vessel for recreational boats.

SOURCES

Federal Aviation Administration: 49 CFR 830.5 (as of Nov. 23, 2007).

Federal Highway Administration: U.S. Department of Transportation, Federal Highway Administration, personal communication, Dec 2007.

Federal Railroad Administration: 49 CFR 225.19 (as of Nov.23, 2007).

National Highway Traffic Safety Administration: U.S. Department of Transportation, National Highway Traffic Safety Administration, *Traffic Safety Facts 2005* , DOT HS 809 775 (Washington, DC: 2005).

Federal Transit Administration: U.S. Department of Transportation, Federal Transit Administration, National Transit Database, *Safety and Security Reporting Manual* (Washington, DC: 2004), Internet site http://www.ntdprogram.com/ntdprogram/safety.htm as of dec. 6, 2007.

Pipeline and Hazardous Materials Safety Administration:

Gas pipeline: 49 CFR 191.3 (as of Nov. 23, 2007).

Hazardous liquid pipelines: 49 CFR 195.50 (as of Nov. 23, 2007).

U.S. Coast Guard:

Commercial shipping: 46 CFR 4.05-1 (as of Nov.23, 2007).

Recreational boating: 33 CFR 173.55 (as of Nov. 23, 2007).

Section B
Air

Table 2-9: U.S. Air Carrier[a] Safety Data

	1960	1965	1970	1975	1980	1985	1990	1991[b]	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001[c]	2002	2003	2004	2005	(R) 2006	2007
Total fatalities	499	261	146	124	1	526	39	50	33	1	239	168	380	8	1	12	92	531	0	22	14	22	50	1
Total seriously injured persons	N	N	107	81	19	30	29	26	22	19	31	25	77	43	30	67	29	19	(R) 24	(R) 31	(R) 20	(R) 14	9	15
Total accidents	90	83	55	37	19	21	24	26	18	23	23	36	37	49	50	51	56	46	41	54	30	40	33	26
Fatal accidents	17	9	8	3	1	7	6	4	4	1	4	3	5	4	1	2	3	6	0	2	2	3	2	1
Aircraft-miles (millions)	1,130	1,536	2,685	2,478	2,924	3,631	4,948	4,825	5,039	5,249	5,478	5,654	5,873	6,697	6,737	7,101	7,524	7,294	7,193	7,280	7,930	8,166	8,139	8,140
Rates per 100 million aircraft-miles																								
Fatalities	44.159	16.992	5.438	5.004	0.034	14.486	0.788	1.036	0.655	0.019	4.363	2.971	6.470	0.119	0.015	0.169	1.223	7.280	0.000	0.302	0.177	0.269	0.614	0.012
Seriously injured persons	N	N	3.985	3.269	0.650	0.826	0.586	0.539	0.437	0.362	0.566	0.442	1.311	0.642	0.445	0.943	0.385	0.260	(R) 0.334	(R) 0.426	(R) 0.252	(R) 0.171	0.111	0.184
Total accidents	7.965	5.404	2.048	1.493	0.650	0.578	0.485	0.539	0.357	0.438	0.420	0.637	0.630	0.732	0.742	0.718	0.744	0.631	0.570	0.742	0.378	0.490	0.405	0.319
Total accidents, fatal	1.504	0.586	0.298	0.121	0.034	0.193	0.121	0.083	0.079	0.019	0.073	0.053	0.085	0.060	0.015	0.028	0.040	0.082	0.000	0.027	0.025	0.037	0.025	0.012
Aircraft departures (thousands)	N	N	N	N	5,479	6,307	8,092	7,815	7,881	8,073	8,238	8,457	8,229	10,318	10,980	11,309	11,468	10,955	10,508	10,433	11,023	11,130	10,821	10,900
Rates per 100,000 aircraft departures																								
Fatalities	N	N	N	N	0.018	8.340	0.482	0.640	0.419	0.012	2.901	1.986	4.618	0.078	0.009	0.106	0.802	4.847	0.000	0.211	0.127	0.198	0.462	0.009
Seriously injured persons	N	N	N	N	0.347	0.476	0.358	0.333	0.279	0.235	0.376	0.296	0.936	0.417	0.273	0.592	0.253	0.173	(R) 0.228	(R) 0.297	(R) 0.181	(R) 0.126	0.083	0.138
Total accidents	N	N	N	N	0.347	0.333	0.297	0.333	0.228	0.285	0.279	0.426	0.450	0.475	0.455	0.451	0.488	0.420	0.390	0.518	0.272	0.359	0.305	0.239
Total accidents, fatal	N	N	N	N	0.018	0.111	0.074	0.051	0.051	0.012	0.049	0.035	0.061	0.039	0.009	0.018	0.026	0.055	0.000	0.019	0.018	0.027	0.025	0.012
Flight hours (thousands)	N	4,691	6,470	5,607	7,067	8,710	12,150	11,781	12,360	12,706	13,124	13,505	13,746	15,838	16,817	17,555	18,299	17,814	17,290	17,468	18,883	19,390	19,263	19,305
Rates per 100,000 flight hours																								
Fatalities	N	5.564	2.257	2.212	0.014	6.039	0.321	0.424	0.267	0.008	1.821	1.244	2.764	0.051	0.006	0.068	0.503	2.981	0.000	0.126	0.074	0.113	0.260	0.005
Seriously injured persons	N	N	1.654	1.445	0.269	0.344	0.239	0.221	0.178	0.150	0.236	0.185	0.560	0.271	0.178	0.382	0.158	0.107	(R) 0.139	(R) 0.177	(R) 0.106	(R) 0.072	0.047	0.078
Total accidents	N	1.769	0.850	0.660	0.269	0.241	0.198	0.221	0.146	0.181	0.175	0.267	0.269	0.309	0.297	0.291	0.306	0.258	0.237	0.309	0.159	0.206	0.171	0.135
Total accidents, fatal	N	0.192	0.124	0.054	0.014	0.080	0.049	0.034	0.032	0.007	0.030	0.022	0.036	0.025	0.006	0.011	0.016	0.034	0.000	0.011	0.011	0.015	0.010	0.005

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

[a] Air carriers operating under 14 CFR 121, scheduled and nonscheduled service. Includes all scheduled and nonscheduled service accidents involving all-cargo carriers and commercial operators of large aircraft when those accidents occurred during 14 CFR 121 operations. Since Mar. 20, 1997, 14 CFR 121 includes aircraft with 10 or more seats formerly operated under 14 CFR 135. This change makes it difficult to compare pre-1997 data for 14 CFR 121 and 14 CFR 135 with more recent data.

[b] Does not include the 12 persons killed aboard a SkyWest commuter aircraft when it and a U.S. Air aircraft collided.

[c] Other than the persons aboard the aircraft who were killed, fatalities resulting from the September 11 terrorist acts are excluded.

NOTES

Miles, departures, and flight hours are compiled by the U.S. Department of Transportation, Federal Aviation Administration. Rates are computed by dividing the number of fatalities, serious injuries, total accidents, and fatal accidents by the number of miles, departures, or flight hours. These figures are based on information provided by airlines to the U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, Office of Airline Information.

SOURCES

Fatalities, accidents, miles, departures, and flight hours:

1960: National Transportation Safety Board, *Annual Review of Aircraft Accident Data: U.S. Air Carrier Operations, Calendar Year 1967* (Washington, DC: December 1968).

1965-70: Ibid., *Calendar Year 1975,* NTSB/ARC-77/1 (Washington, DC: January 1977).

1975 (all categories except miles): Ibid. *Calendar Year 1983, NTSB/ARC-87/01* (Washington, DC: February 1987), table 18.

1975 (miles): Ibid., *Calendar Year 1975,* NTSB/ARC-77/1 (Washington, DC: January 1977).

1980: Ibid., *Calendar Year 1981, NTSB/ARC-85/01* (Washington, DC: February 1985), tables 2 and 16.

1985-2007: Ibid., National Transportation Safety Board, *Aviation Accident Statistics* , available at http://www.ntsb.gov/aviation/Stats.htm as of December 2008.

Serious injuries:

1970-85: Ibid., *Annual Review of Aircraft Accident Data: U.S. Air Carrier Operations* (Washington, DC: Annual issues).

1990-2007: Ibid., Analysis and Data Division, personal communication, as of November 2008.

Table 2-10: U.S. Commuter Air Carrier[a] Safety Data

	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Total fatalities[d]	37	37	6	77	21	24	25	9	14	46	0	12	5	13	0	2	0	0	2	**0**
Total seriously injured persons	14	14	11	31	7	2	6	17	2	1	2	2	7	4	0	1	0	0	1	**0**
Total accidents[e]	38	18	15	23	23	16	10	12	11	16	8	13	12	7	7	2	4	6	3	**3**
Total accidents, fatal	8	7	3	8	7	4	3	2	1	5	0	5	1	2	0	1	0	0	1	0
Aircraft-miles (millions)	192	301	450	434	508	555	594	550	591	246	51	52	45	43	42	47	47	46	(R) 47	47
Rates per 100 million aircraft-miles																				
Fatalities[b]	19.27	12.30	1.33	17.75	4.13	4.33	4.21	1.64	2.37	18.70	0.00	22.90	11.13	30.16	0.00	4.22	0.00	0.00	(R) 4.30	0.00
Seriously injured persons	7.29	4.65	2.44	7.14	1.38	0.36	1.01	3.09	0.34	0.41	3.94	3.82	15.58	9.28	0.00	2.11	0.00	0.00	(R) 2.15	0.00
Total accidents[b,c]	19.79	5.98	3.33	5.30	4.33	2.89	1.68	2.18	1.86	6.50	15.76	24.81	26.70	16.24	16.81	4.22	8.55	13.12	(R) 6.45	6.44
Total accidents[b,c], fatal	4.17	2.33	0.67	1.84	1.38	0.72	0.50	0.36	0.17	2.03	0.00	9.54	2.23	4.64	0.00	2.11	0.00	0.00	(R) 2.15	0.00
Aircraft departures (thousands)	1,777	2,561	3,160	2,820	3,115	3,602	3,581	3,220	3,515	1,394	707	672	604	558	513	572	538	527	(R) 568	570
Rates per 100 thousand aircraft departures																				
Fatalities[b]	2.08	1.44	0.19	2.73	0.67	0.67	0.70	0.28	0.40	3.30	0.00	1.78	0.83	2.33	0.00	0.35	0.00	0.00	(R) 0.35	0.00
Seriously injured persons	0.79	0.55	0.35	1.10	0.22	0.06	0.17	0.53	0.06	0.07	0.28	0.30	1.16	0.72	0.00	0.17	0.00	0.00	(R) 0.18	0.00
Total accidents[c]	2.14	0.70	0.47	0.82	0.71	0.44	0.28	0.37	0.31	1.15	1.13	1.93	1.99	1.25	1.36	0.35	0.74	1.14	(R) 0.53	0.53
Total accidents[c], fatal	0.45	0.27	0.09	0.28	0.22	0.11	0.08	0.06	0.03	0.36	0.00	0.74	0.17	0.36	0.00	0.17	0.00	0.00	(R) 0.18	0.00
Flight hours (thousands)	1,176	1,737	2,342	2,292	2,335	2,638	2,784	2,628	2,757	983	354	343	370	300	274	319	302	(R) 300	(R) 301	**302**
Rates per 100 thousand flight hours																				
Fatalities	3.15	2.13	0.26	3.36	0.90	0.91	0.90	0.34	0.51	4.68	0.00	3.50	1.35	4.33	0.00	0.63	0.00	(R) 0.00	(R) 0.66	0.00
Seriously injured persons	1.19	0.81	0.47	1.35	0.30	0.08	0.22	0.65	0.07	0.10	0.57	0.58	1.89	1.33	0.00	0.31	0.00	(R) 0.00	(R) 0.33	0.00
Total accidents[c]	3.23	1.04	0.64	1.00	0.94	0.61	0.36	0.46	0.40	1.63	2.26	3.79	3.25	2.33	2.56	0.63	1.32	(R) 2.00	(R) 1.00	0.99
Total accidents[c], fatal	0.68	0.40	0.13	0.35	0.30	0.15	0.11	0.08	0.04	0.51	0.00	1.46	0.27	0.67	0.00	0.31	0.00	(R) 0.00	(R) 0.33	0.00

KEY: R = revised.

2007 data are preliminary

[a] Air carriers operating under 14 CFR 135, scheduled service. Includes accidents involving all-cargo air carriers when those accidents occurred during scheduled 14 CFR 135 operations. Before Mar. 20, 1997, 14 CFR 135 applied to aircraft with 30 or fewer seats. Since Mar. 20, 1997, 14 CFR 135 includes only aircraft with fewer than 10 seats. This change makes it difficult to compare pre-1997 data with more recent years' data.

[b] Data updated by rounding to two significant digits instead of one.

[c] Rates are based on all accidents, including some that involve operators not reporting mileage or other traffic data to the U.S. Department of Transportation.

[d] Total fatalities for 1991 on U.S. air carriers oprating under 14 CFR 135, scheduled service do not include the 22 persons killed aboard a large-certificated aircraft when it colllided with a commuter aircraft.

[e] An attempted suicide case in 1992 is included in accidents but excluded in accident rates in this table.

NOTES

Miles, departures, and hours are compiled by the U.S. Department of Transportation, Federal Aviation Administration. Rates are computed by dividing the number of fatalities, serious injuries, total accidents, and fatal accidents by the number of miles, departures, or flight hours. These figures are based on information provided by airlines to the U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, Office of Airline Information.

SOURCES

Fatalities, accidents, aircraft-miles, aircraft departures, and flight hours:

1980: National Transportation Safety Board, *Annual Review of Aircraft Accident Data: U.S. Air Carrier Operations, Calendar Year 1980,* NTSB/ARC-83/01 (Washington, DC: January 1983), tables 26 and 40.

1985-2007: Ibid., Internet site www.ntsb.gov/aviation/Table 8.htm as of Apr. 23, 2008.

Serious injuries:

1980-85: Ibid., Annual Review of Aircraft Accident Data: U.S. Air Carrier Operations (Washington, DC: Annual issues).

1990-2007: Analysis and Data Division, personal communications, Nov. 15, 2002, June 9, 2003, Apr. 23, 2004, Apr. 4, 2005, Apr. 21, 2006, Apr. 18, 2007 and Apr. 24, 2008.

Table 2-11: U.S. Air Carrier[a] Fatal Accidents by First Phase of Operation[b]

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Total fatal accidents	6	4	4	1	4	3	5	4	1	2	3	6	0	2	2	3	2	1
Phase of operation																		
Approach / descent / landing	1	2	1	0	2	0	0	0	0	1	0	0	0	0	2	(R) 1	0	0
Taxi/takeoff / climb	3	1	2	0	1	0	3	2	0	0	2	2	0	1	0	(R) 1	(R) 1	0
Cruise (in-flight)	1	0	0	0	0	0	1	1	0	0	1	4[c]	0	0	0	0	0	0
Standing (static)	1	1	1	1	0	0	0	0	1	1	0	0	0	1	0	1	(R) 1	0
Maneuvering	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Other / not reported	0	0	0	0	0	3	1	1	0	0	0	0	0	0	0	(R) 0	(R) 0	1

KEY: R= revised.

2007 data are preliminary

[a] 14 CFR 121. Before Mar. 20, 1997, 14 CFR 121 applied only to aircraft with more than 30 seats or a maximum payload capacity of more than 7,500 pounds. Since Mar. 20, 1997, 14 CFR 121 includes aircraft with 10 or more seats that formerly operated under 14 CFR 135. This change makes it difficult to compare pre-1997 data with more recent data.

[b] First phase of operation is the phase of flight in which the first occurrence leading to the accident happened.

[c] Cruise (in-flight) numbers for 2001 are unusually high because of the incidents occurring on September 11.

SOURCE

National Transportation Safety Board, personal communications, Jul. 6, 2004, Apr. 5, 2005, Apr. 25, 2006, Apr. 18, 2007 and Apr. 23, 2008

Table 2-12: U.S. Commuter Air Carrier[a] Fatal Accidents by First Phase of Operation

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
TOTAL fatal accidents	3	8	7	4	3	2	1	5	0	5	1	2	0	1	0	0	1	0
Phase of operation																		
Approach / descent / landing	0	3	5	1	2	0	1	2	0	0	1	0	0	1	0	0	0	0
Taxi/takeoff / climb	0	0	1	1	0	1	0	1	0	2	0	2	0	0	0	0	0	0
Cruise (in-flight)	2	2	1	1	1	0	0	0	0	3	0	0	0	0	0	0	0	0
Standing (static)	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Maneuvering[b]	1	1	0	0	0	1	0	2	0	0	0	0	0	0	0	0	0	0
Other / not reported	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0

[a] 14 CFR 135, scheduled operations. Before Mar. 20, 1997, 14 CFR applied to aircraft with 30 or fewer seats. Since Mar. 20, 1997, 14 CFR 135 includes only aircraft with fewer than 10 seats. This change makes it difficult to compare pre-1997 data with more recent years' data.

[b] Includes instructional flights performing turns and agricultural flights for spraying and buzzing (repeated passes over a particular location).

NOTE

First Phase of Operation is the part of the flight where the problem leading to the accident first occurs.

SOURCE

National Transportation Safety Board, personal communications, Jul. 6, 2004, Apr. 5, 2005, Apr. 25, 2006, Apr. 18, 2007, and Apr. 25, 2008

Table 2-13: U.S. On-Demand Air Taxi[a] Safety Data

	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Total fatalities	69	105	76	51	78	68	42	63	52	63	39	45	38	71	60	35	42	64	18	16	43
Total seriously injured persons	N	43	44	36	26	19	24	32	14	22	23	10	15	12	24	16	12	17	23	16	20
Total accidents	152	171	157	107	88	76	69	85	75	90	82	77	74	80	72	60	73	66	66	(R) 53	62
Total accidents, fatal	24	46	35	29	28	24	19	26	24	29	15	17	12	22	18	18	18	23	11	10	14
Flight hours (thousands)	2,526	3,618	2,570	2,249	2,241	2,844	2,324	2,465	2,486	3,220	3,098	3,802	3,204	3,930	2,997	2,911	2,927	3,238	3,815	(R) 3,742	3,668
Rates per 100,000 flight hours[b]																					
Fatalities	2.73	2.90	2.96	2.27	3.48	2.39	1.81	2.56	2.09	1.96	1.26	1.18	1.19	1.81	2.00	1.20	1.43	1.98	0.47	(R) 0.43	1.17
Seriously injured persons	N	1.19	1.71	1.60	1.16	0.67	1.03	1.30	0.56	0.68	0.74	0.26	0.47	0.31	0.80	0.55	0.41	0.53	0.60	(R) 0.43	0.55
Total accidents	6.02	4.73	6.11	4.76	3.93	2.67	2.97	3.45	3.02	2.80	2.65	2.03	2.31	2.04	2.40	2.06	2.49	2.04	1.73	(R) 1.42	1.69
Total accidents, fatal	0.95	1.27	1.36	1.29	1.25	0.84	0.82	1.05	0.97	0.90	0.48	0.45	0.37	0.56	0.60	0.62	0.61	0.71	0.29	(R) 0.27	0.38

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

[a] Air carriers operating under 14 CFR 135, nonscheduled service. Accidents on foreign soil and in foreign waters are excluded.

[b] Rates are computed by dividing the number of fatalities, serious injuries, total accidents, and fatal accidents by the number of flight hours.

NOTE

Hours are estimated by the U.S. Department of Transportation, Federal Aviation Administration.

SOURCES

Fatalities and accidents:

1975-80: National Transportation Safety Board, *Annual Review of Aircraft Accident Data* : *U.S. Air Carrier Operations, Calendar Year 1981,* NTSB/ARC-85/01 (Washington, DC: February 1985), table 61.

1985-2006: Ibid.,Table 9 Internet site: http://www.ntsb.gov/aviation/Stats.htm as of Apr. 21, 2008.

Flight hours:

1975-80: National Transportation Safety Board, *Annual Review of Aircraft Accident Data* : *U.S. Air Carrier Operations, Calendar Year 1981,* NTSB/ARC-85/01 (Washington, DC: February 1985), table 61.

1985-2006: Ibid.,Table 9 Internet site: http://www.ntsb.gov/aviation/Stats.htm as of Apr. 21, 2008.

Serious injuries:

1980-85: Ibid., *Annual Review of Aircraft Accident Data: U.S. Air Carrier Operations* (Washington, DC: Annual issues).

1990-2006: Ibid., Analysis and Data Division, personal communications, Nov. 15, 2002, June 9, 2003, Apr. 23, 2004, Apr. 4, 2005, Apr. 24, 2006, and Apr. 23, 2008.

Table 2-14: U.S. General Aviation[a] Safety Data

	1960[d]	1965[d]	1970[d]	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Total fatalities	787	1,029	1,310	1,252	1,239	956	770	800	867	744	730	735	636	631	625	619	596	562	581	(R) 630	559	563	(R) 703	491
Total seriously injured persons	N	N	715	769	681	501	409	431	408	385	415	396	366	350	327	322	309	321	297	323	266	267	264	260
Total accidents[b]	4,793	5,196	4,712	3,995	3,590	2,739	2,242	2,197	2,111	2,064	2,021	2,056	1,908	1,844	1,905	1,905	1,837	1,727	1,715	(R) 1,715	(R) 1,617	(R) 1,670	(R) 1,518	1,631
Total accidents[b], fatal	429	538	641	633	618	498	444	439	451	401	404	413	361	350	365	340	345	325	345	352	314	321	(R) 306	284
Flight hours (thousands)	13,121	16,733	26,030	28,799	36,402	28,322	28,510	27,678	24,780	22,796	22,235	24,906	24,881	25,591	25,518	29,246	27,838	25,431	25,545	25,998	24,888	23,168	(R) 23,963	23,835
Rates per 100,000 flight hours[c]																								
Fatalities	6.00	6.15	5.03	4.35	3.40	3.38	2.70	2.89	3.50	3.26	3.28	2.95	2.56	2.47	2.45	2.12	2.14	2.21	2.27	(R) 2.42	2.25	2.43	(R) 2.93	2.06
Seriously injured persons	N	N	2.75	2.67	1.87	1.77	1.43	1.56	1.65	1.69	1.87	1.59	1.47	1.37	1.28	1.10	1.11	1.27	1.16	1.24	1.07	1.15	(R) 1.10	1.09
Total accidents[a]	36.53	31.05	18.10	13.87	9.86	(R) 9.63	(R) 7.85	(R) 7.91	(R) 8.51	(R) 9.03	(R) 9.08	(R) 8.21	(R) 7.65	(R) 7.19	(R) 7.44	(R) 6.50	(R) 6.57	(R) 6.78	(R) 6.69	(R) 6.68	(R) 6.49	(R) 7.20	(R) 6.33	6.84
Total accidents, fatal[a]	3.27	3.22	2.46	2.20	1.70	(R) 1.74	(R) 1.55	(R) 1.57	(R) 1.82	(R) 1.74	(R) 1.81	(R) 1.63	(R) 1.45	(R) 1.36	(R) 1.41	(R) 1.16	(R) 1.21	(R) 1.27	(R) 1.33	(R) 1.34	(R) 1.26	(R) 1.38	(R) 1.27	1.19

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

[a] U.S. registered civil aircraft not operated under 14 CFR 121 or 14 CFR 135. Accidents on foreign soil and in foreign waters are excluded. Suicide, sabotage, and stolen/unauthorized cases included in accidents and fatalities but excluded from accident rates in this table are: 1985 (11 accidents, 6 fatal accidents); 1990 (4,1); 1991 (8,5); 1992 (2,1); 1993 (5,4); 1994 (3,2); 1995 (10,6); 1996 (4,0); 1997 (5,2); 1998 (6,4); 1999 (3,1); 2000 (7,7); 2001 (3,1); 2002 (7,6); 2003 (4,3); 2004 (3,0); 2005 (2,1); 2006 (2,1); 2007 (0,0) .

[b] Since April 1995, the National Transportation Safety Board has been required by law to investigate all public-use accidents, increasing the number of NTSB reported general aviation accidents by approximately 1.75%.

[c] Rates are computed by dividing the number of fatalities, serious injuries, total accidents, and fatal accidents by the number of flight hours. Except for the exclusions mentioned in footnote a .

[d] Data for 1960, 1965, and 1970 include air taxi.

NOTE

Flight hours are estimated by the U.S. Department of Transportation, Federal Aviation Administration.

SOURCES

Fatalities and accidents:

1960-70: National Transportation Safety Board, *Annual Review of Aircraft Accident Data: U.S. General Aviation, Calendar Year 1970,* NTSB/ARG-74/1 (Washington, DC: April 1974), table 117.

1975-80: Ibid., *Annual Review of Aircraft Accident Data: General Aviation, Calendar Year 1985,* NTSB/ARG-87/03 (Washington, DC: October 1987), table 21.
1985-2007: Ibid.,Table 10 Internet site: http://www.ntsb.gov/aviation/Stats.htm as of Apr. 21, 2008.

Flight hours:

1960-70: National Transportation Safety Board, *Annual Review of Aircraft Accident Data: U.S. General Aviation, Calendar Year 1970,* NTSB/ARG-74/1 (Washington, DC: April 1974), table 117.

1975-80: Ibid., *Annual Review of Aircraft Accident Data: General Aviation, Calendar Year 1985,* NTSB/ARG-87/03 (Washington, DC: October 1987), table 21.
1985-2007: Ibid.,Table 10 Internet site: http://www.ntsb.gov/aviation/Stats.htm as of Apr. 21, 2008.

Serious injuries:

1970-85: National Transportation Safety Board, *Annual Review of Aircraft Accident Data: General Aviation* (Washington, DC: Annual issues).

1990-2006: Ibid., Analysis and Data Division, personal communications, Nov. 15, 2002, June 9, 2003, Apr. 23, 2004, Apr. 4, 2005, Apr. 24, 2006, Apr. 18, 2007, and Apr. 23, 2008.

Table 2-15: Number of Pilot-Reported Near Midair Collisions (NMAC) by Degree of Hazard

	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Total, all degrees of hazard	568	758	454	348	311	254	275	238	194	238	211	257	239	211	180	162	145	138	105	109
Critical[a]	118	180	74	52	46	35	47	32	26	31	22	28	30	37	26	15	16	14	5	11
Potential[b]	319	423	266	197	195	158	139	139	101	105	100	110	130	96	85	88	62	75	53	47
No hazard[c]	122	133	114	99	70	61	71	63	55	70	53	55	49	51	42	38	31	20	16	18
Unclassified[d]	9	22	0	0	0	0	18	4	12	32	36	64	30	27	27	21	36	29	31	33
NMAC involving aircraft operating under 14 CFR 121[e]	U	U	136	117	76	60	71	50	56	82	70	66	75	48	53	51	41	41	24	22

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

[a] A situation where collision avoidance was due to chance, rather than an act on the part of the pilot. Less than 100 feet of aircraft separation would be considered critical.

[b] An incident that would probably have resulted in a collision if no action had been taken by either pilot. Less than 500 feet would usually be required in this case.

[c] When direction and altitude would have made a midair collision improbable, regardless of evasive action taken.

[d] No determination could be made due to insufficient evidence or unusual circumstances, or because incident is still under investigation.

[e] Before Mar. 20, 1997, 14 CFR 121 applied only to aircraft with more than 30 seats or a maximum payload capacity of more than 7,500 pounds. Since Mar. 20, 1997, 14 CFR 121 includes aircraft with 10 or more seats that formerly operated under 14 CFR 125. This change makes it difficult to compare pre-1997 data with more recent years' data.

NOTE

NMACs are reported voluntarily to the FAA so these numbers may not be representative. Reporters consist of pilots of air carriers, general aviation and other aircraft involved in public-use operations. Incidents involving military aircraft may be included if they also involved a civilian aircraft.

SOURCES

All data except NMAC involving 121 aircraft:

1980-85: U.S. Department of Transportation, Federal Aviation Administration, *Aviation Safety Statistical Handbook Annual Report* (Washington, DC: Annual issues) and personal communication, Aug. 6, 2002.

1990-2002: Ibid., Office of System Safety, National Aviation Safety Data Analysis Center, *NMAC database,* database query, Internet site https://www.nasdac.faa.gov/ as of Mar. 30, 2005.

2003-04: Ibid., Office of System Safety, National Aviation Safety Data Analysis Center, *NMAC database* , database query, Internet site https://www.nasdac.faa.gov/ as of Nov. 28, 2005.

2005: Ibid., Office of System Safety, National Aviation Safety Data Analysis Center, *NMAC database* , database query, Internet site https://www.nasdac.faa.gov/ as of Nov. 2, 2006.

2006: Ibid., Office of System Safety, National Aviation Safety Data Analysis Center, *NMAC database* , database query, Internet site https://www.nasdac.faa.gov/ as of Apr.16, 2008.

NMAC involving 121 aircraft:

1980-85: U.S. Department of Transportation, Federal Aviation Administration, Air Traffic Resource Management, personal communication, Aug. 6, 2002.

1990-2002: Ibid., Office of System Safety, National Aviation Safety Data Analysis Center, *NMAC database,* database query, Internet site https://www.nasdac.faa.gov/ as of Mar. 30, 2005.

2003-04: Ibid., Office of System Safety, National Aviation Safety Data Analysis Center, *NMAC database* , database query, Internet site https://www.nasdac.faa.gov/ as of Nov. 28, 2005.

2005: Ibid., Office of System Safety, National Aviation Safety Data Analysis Center, *NMAC database* , database query, Internet site https://www.nasdac.faa.gov/ as of Nov. 2, 2006.

2006: Ibid., Office of System Safety, National Aviation Safety Data Analysis Center, *NMAC database* , database query, Internet site https://www.nasdac.faa.gov/ as of Apr. 16, 2008.

Table 2-16a: Airline[a] Passenger Screening Results by Type of Weapons Detected, Persons Arrested, and Bomb Threats Received

	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Persons screened (millions)	**585**	**993**	**1,145**	**1,015**	**1,111**	**1,150**	**1,261**	**1,263**	**1,497**	**1,660**	**1,667**	**1,767**	**1,812**	**U**
TOTAL firearms detected	**1,914**	**2,913**	**2,549**	**1,644**	**2,608**	**2,798**	**2,994**	**2,390**	**2,155**	**2,067**	**1,515**	**1,552**	**1,937**	**U**
Firearms, handguns	1,878	2,823	2,490	1,597	2,503	2,707	2,860	2,230	1,999	1,905	1,401	1,421	1,643	U
Firearms, long guns	36	90	59	47	105	91	134	160	156	162	114	131	294	U
Other / other dangerous articles[b]	108	74	304	275	N	N	N	N	N	N	N	N	N	N
Explosive / incendiary devices	8	12	15	94	167	251	N	N	N	N	N	N	N	N
Persons arrested														
Carrying firearms / explosives	1,031	1,310	1,336	893	1,282	1,354	1,433	1,194	999	924	660	633	600	U
Giving false information	32	42	18	28	13	31	35	68	131	72	86	58	61	U
Bomb threats received														
Against airports	1,179	477	448	498	188	304	250	346	N	N	N	N	N	N
Against aircraft	268	153	338	388	215	248	218	327	N	N	N	N	N	N

KEY: N = data do not exist; U = unavailable.

[a] Includes operators with a U.S. Department of Transportation, Federal Aviation Administration operating certificate engaged in scheduled passenger or public charter passenger operations and airports at which these operations are conducted.

[b] In 1980 and 1985, the "other" category was included with firearms; in 1990, "other" became "other dangerous articles."

NOTES

Beginning in 1996, the Office of Civil Aviation Security Policy and Planning stopped keeping records of bomb threats received due to inconsistent reporting. The reporting of other / other dangerous articles was discontinued in 1992 and reporting of explosive / incendiary devices was discontinued in 1994 for the same reasons.

SOURCES

Persons screened, type of weapon detected, and persons arrested:

1980-85: U.S. Department of Transportation, Federal Aviation Administration, *Semiannual Report to Congress on the Effectiveness of the Civil Aviation Security Program, July 1-December 31, 1985* (Washington, DC: May 1986).

1990-2000: Ibid. Office of Civil Aviation Security Policy and Planning, *Annual Report to Congress on Civil Aviation Security* (Washington, DC: Annual issues), and personal communications, May 27, 1999, Mar. 29, 2000, and Aug. 7, 2001.

Bomb threats received:

U.S. Department of Transportation, Federal Aviation Administration, *Criminal Acts Against Civil Aviation* (Washington, DC: Annual issues).

Table 2-16b: Prohibited Items Intercepted at Airport Screening Checkpoints

	2002[a]	2003	2004	(R) 2005	2006	2007
Enplanements	(R) 554,046,622	(R) 587,535,022	(R) 634,426,165	659,600,540	655,144,131	673,248,973
Total prohibited items	**3,775,345**	**6,114,612**	**7,089,599**	**15,887,596**	**13,711,759**	**6,516,022**
Firearms	927	683	650	2,217	2,075	1,416
Knives	1,036,697	1,961,849	2,058,652	1,822,752	1,607,125	1,056,687
Box cutters	32,788	20,991	22,350	21,315	15,999	11,908
Other cutting instruments	1,846,207	2,973,413	3,567,731	3,276,691	163,419	101,387
Clubs	11,131	25,139	28,813	20,531	12,296	9,443
Incendiaries	79,341	494,123	693,649	398,830	113,700	89,623
Other	768,254	638,414	717,754	10,345,260	11,797,145	5,245,558

KEY: R = revised.

[a] All data, except enplanements, for April though December.

SOURCES

All data, except enplanements:

U.S. Department of Homeland Security, Transportation Security Administration, personal communication as of October 2008.

Enplanements:

U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, Office of Airline Information, *T-100 Domestic Market Data* .

Section C
Highway

Table 2-17: Motor Vehicle Safety Data

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Fatalities	36,399	47,089	52,627	44,525	51,091	43,825	44,599	41,508	39,250	40,150	40,716	41,817	42,065	42,013	41,501	41,717	41,945	42,196	43,005	42,884	42,836	(R) 43,510	42,642
Injured persons[E]	N	N	N	N	N	N	3,230,666	3,096,870	3,069,603	3,149,164	3,265,928	3,465,279	3,483,319	3,347,614	3,192,035	3,236,238	3,188,750	3,032,672	2,926,000	2,889,000	2,788,000	2,699,000	2,575,000
Crashes[E]	N	N	N	N	N	N	6,471,202	6,117,359	6,000,310	6,105,915	6,495,988	6,699,415	6,769,583	6,624,149	6,334,573	6,279,036	6,393,624	6,322,896	6,316,000	6,328,000	6,181,000	6,159,000	5,973,000
Vehicle-miles (millions)	718,763	887,811	1,109,724	1,327,664	1,527,295	1,774,827	2,144,362	2,172,050	2,247,151	2,296,378	2,357,588	2,422,696	2,485,848	2,561,695	2,631,522	2,691,056	2,746,925	2,797,287	2,855,508	2,890,450	2,964,788	(R) 2,989,430	3,014,116
Rates per 100 million vehicle-miles																							
Fatalities	5.1	5.3	4.7	3.4	3.3	2.5	2.1	1.9	1.7	1.7	1.7	1.7	1.7	1.6	1.6	1.6	1.5	1.5	1.5	1.5	1.4	(R) 1.5	1.4
Injured persons[E]	N	N	N	N	N	N	151	143	137	137	139	143	140	131	121	120	116	108	102	100	94	(R) 90	85
Crashes[E]	N	N	N	N	N	N	302	282	267	266	276	277	272	259	241	233	233	226	221	219	208	(R) 206	198

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

SOURCES

Fatalities:

1960-70: Estimated by U.S. Department of Transportation, National Highway Traffic Safety Administration from data supplied by U.S. Department of Health and Human Services, National Center for Health Statistics, and individual state accident reports (adjusted to 30-day deaths). Fatalities data prior to 1975 have been adjusted to reflect the Fatality Analysis Reporting System's definition of a fatal crash as one that involves a motor vehicle on a trafficway, which results in the death of a vehicle occupant or a nonmotorist within 30 days of the crash.

1975-2006: U.S. Department of Transportation, National Highway Traffic Safety Administration, National Center for Statistics and Analysis, *Traffic Safety Facts 2006,* DOT HS 809 919 (Washington, DC: December 2006), table 2.

Injured persons:

1990-2001: Ibid., *Traffic Safety Facts 2002,* DOT HS 809 620 (Washington, DC: January 2004), table 2.

2002-06: Ibid., *Traffic Safety Facts 2006,* DOT HS 809 919 (Washington, DC: December 2006), table 2.

Crashes:

1990-2006: Ibid., *Traffic Safety Facts 2006,* DOT HS 809 919 (Washington, DC: December 2006), table 1.

1960-65: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1995*, FHWA-PL-97-009 (Washington, DC: July 1997), table VM-201A.

Vehicle-miles:

1970-2006: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics 2006* (Washington, DC: 2006), table VM1, and similar tables in earlier editions.

Fatality, injury, and crash rates:

Calculated by U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics.

Table 2-18: Motor Vehicle Fatalities, Vehicle-Miles, and Associated Rates by Highway Functional System

	1980	1985	1990	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Fatalities															
Rural, total	29,545	24,492	25,786	23,978	24,510	24,889	24,751	25,185	23,640	23,396	25,693	25,203	24,740	23,549	23,099
Interstate	2,263	2,141	2,707	2,675	2,905	3,033	3,105	3,244	3,199	3,105	3,297	3,241	3,246	3,216	2,870
Other arterials[a]	12,268	9,940	9,893	9,947	9,458	9,821	9,594	9,573	8,913	8,692	9,358	9,823	10,061	8,968	8,768
Collector[b]	10,004	8,209	8,852	7,401	7,481	7,578	7,593	7,595	7,147	7,305	7,974	7,726	7,353	7,154	7,242
Local	5,010	4,202	4,334	3,955	4,666	4,457	4,459	4,773	4,381	4,294	5,064	4,413	4,080	4,211	4,219
Urban, total	21,546	19,333	18,813	17,839	17,555	17,078	16,143	15,970	15,695	15,219	16,759	16,825	17,161	17,752	18,309
Interstate	2,184	2,025	2,252	2,154	2,323	2,281	2,283	2,353	2,388	2,371	2,452	2,374	2,516	2,658	2,619
Other arterials[a]	12,752	12,521	11,742	10,916	10,756	10,243	9,902	9,628	9,442	8,838	9,702	9,827	10,003	10,413	10,672
Collector	2,226	1,696	1,427	1,441	1,290	1,399	1,037	1,031	987	1,007	1,136	1,197	1,339	1,361	1,478
Local	4,384	3,091	3,392	3,328	3,186	3,155	2,921	2,958	2,878	3,003	3,469	3,427	3,303	3,320	3,540
Vehicle-miles of travel (VMT) (millions)															
Rural, total	672,030	730,728	868,878	933,289	960,194	999,277	1,032,528	1,062,623	1,084,961	1,105,083	1,128,160	1,085,385	1,070,248	1,037,937	1,037,069
Interstate	135,084	154,357	200,173	223,382	232,565	240,255	251,520	260,166	268,960	274,024	279,962	269,945	266,996	258,790	257,913
Other arterials[a]	262,774	282,803	330,866	368,595	378,847	392,057	403,484	413,320	420,569	426,945	433,805	416,596	409,944	398,932	394,499
Collector[b]	189,468	206,669	240,460	236,148	241,030	254,100	257,868	264,453	267,521	270,962	275,007	263,662	260,931	251,587	251,375
Local	84,704	86,899	97,379	105,164	107,752	112,865	119,656	124,684	127,911	133,152	139,386	135,182	132,377	128,628	133,282
Urban, total	855,265	1,044,098	1,275,484	1,489,534	1,523,886	1,552,956	1,595,620	1,627,618	1,664,842	1,676,379	1,727,596	1,805,508	1,892,265	1,951,870	1,977,047
Interstate	161,242	216,188	278,901	341,528	351,579	361,433	374,622	383,259	393,580	399,890	408,618	432,633	454,385	469,070	477,283
Other arterials[a]	484,189	578,270	699,233	815,170	834,623	846,627	862,996	878,153	900,161	913,726	937,357	973,936	1,020,089	1,048,219	1,060,098
Collector	83,043	89,578	106,297	126,929	129,310	130,146	131,905	131,603	135,371	137,922	141,874	153,751	162,108	168,038	173,210
Local	126,791	160,062	191,053	205,907	208,374	214,750	226,097	234,603	235,730	224,841	239,747	245,188	255,683	266,543	266,456
Fatality rates per 100 million vehicle miles															
Rural, total	4.40	3.35	2.97	2.57	2.55	2.49	2.40	2.37	2.18	2.12	2.28	2.32	2.31	2.27	2.23
Interstate	1.68	1.39	1.35	1.20	1.25	1.26	1.23	1.25	1.19	1.13	1.18	1.20	1.22	1.24	1.11
Other arterials[a]	4.67	3.51	2.99	2.70	2.50	2.50	2.38	2.32	2.12	2.04	2.16	2.36	2.45	2.25	2.22
Collector[b]	5.28	3.97	3.68	3.13	3.10	2.98	2.94	2.87	2.67	2.70	2.90	2.93	2.82	2.84	2.88
Local	5.91	4.84	4.45	3.76	4.33	3.95	3.73	3.83	3.43	3.22	3.63	3.26	3.08	3.27	3.17
Urban, total	2.52	1.85	1.47	1.20	1.15	1.10	1.01	0.98	0.94	0.91	0.97	0.93	0.91	0.91	0.93
Interstate	1.35	0.94	0.81	0.63	0.66	0.63	0.61	0.61	0.61	0.59	0.60	0.55	0.55	0.57	0.55
Other arterials[a]	2.63	2.17	1.68	1.34	1.29	1.21	1.15	1.10	1.05	0.97	1.04	1.01	0.98	0.99	1.01
Collector	2.68	1.89	1.34	1.14	1.00	1.07	0.79	0.78	0.73	0.73	0.80	0.78	0.83	0.81	0.85
Local	3.46	1.93	1.78	1.62	1.53	1.47	1.29	1.26	1.22	1.34	1.45	1.40	1.29	1.25	1.33

[a] For urban: the sum of other freeways and expressways, other principal arterials, and minor arterials.
For rural: the sum of other principal arterials and minor arterials.
[b] Collector is the sum of major and minor collectors (rural only).

NOTES:

Includes the 50 states and the District of Columbia.

Fatality figures reflect original figures received by FHWA from NHTSA, and, when totaled, differ slightly from the revised NHTSA figures that appear in other tables in this volume.

SOURCES:

Fatalities:

1980-95: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1995* (Washington, DC: July 1997), table FI-220, Internet site http://www.fhwa.dot.gov/ohim/ohimstat.htm as of Oct. 25, 2000.

1996-97: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table FI-1, Internet site http://www.fhwa.dot.gov/ohim/ohimstat.htm as of January 2003.

1998-2005: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table FI-20, Internet site http://www.fhwa.dot.gov/policy/ohpi/index.htm as of Mar. 11, 2008.

Vehicle miles:

1980-95: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1995* (Washington, DC: July 1997), table VM-202, Internet site http://www.fhwa.dot.gov/ohim/ohimstat.htm as of Oct. 25, 2000.

1996-2005: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-2, Internet site http://www.fhwa.dot.gov/policy/ohpi/index.htm as of Mar. 11, 2008.

Fatality rates:

Calculated by the U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics.

Table 2-19: Occupant Fatalities by Vehicle Type and Nonoccupant Fatalities

	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Total traffic fatalities	44,525	51,091	43,825	44,599	41,508	39,250	40,150	40,716	41,817	(f) 42,065	42,013	41,501	41,717	41,945	42,196	43,005	42,884	42,836	(R) 43,510	42,642
Occupant fatalities (by vehicle type)	35,925	41,927	36,043	37,134	34,740	32,880	33,574	34,318	35,291	35,695	35,725	35,382	35,875	36,348	36,440	37,375	37,341	(R) 37,203	(R) 37,574	36,902
Passenger car, total	25,929	27,449	23,212	24,092	22,385	21,387	21,566	21,997	22,423	22,505	22,199	21,194	20,862	20,699	20,320	20,569	19,725	(R) 19,091	(R) 18,440	17,800
Subcompact[a]	3,834	7,299	7,993	8,309	7,694	7,028	6,968	7,060	6,791	6,618	6,838	6,012	5,504	5,291	4,886	4,674	4,073	3,681	(R) 2,979	2,630
Compact[b]	614	927	2,635	5,310	5,338	5,354	5,707	6,322	6,899	7,288	7,992	7,589	7,432	7,525	7,211	7,348	7,013	6,807	(R) 6,245	6,044
Intermediate[c]	1,869	3,878	4,391	4,849	4,681	4,418	4,483	4,407	4,666	4,670	3,308	3,273	3,556	4,115	4,426	4,709	4,857	4,900	(R) 5,548	5,420
Full[d]	10,800	11,580	6,586	4,635	4,040	3,796	3,675	3,560	3,413	3,417	3,924	4,303	4,365	3,744	3,765	3,775	3,682	3,603	(R) 3,276	3,277
Unknown	8,812	3,765	1,607	989	632	791	733	648	654	512	137	17	5	24	32	63	100	100	(R) 392	429
Truck[e], total	5,817	8,748	7,666	9,306	9,052	8,683	9,116	9,574	10,216	10,553	10,972	11,447	12,024	12,280	12,431	12,963	13,272	13,440	(R) 13,841	13,526
Light	4,856	7,486	6,689	8,601	8,391	8,098	8,511	8,904	9,568	9,932	10,249	10,705	11,265	11,526	11,723	12,274	12,546	12,674	(R) 13,037	12,721
Large	961	1,262	977	705	661	585	605	670	648	621	723	742	759	754	708	689	726	766	(R) 804	805
Other vehicles, total	4,179	5,730	5,165	3,736	3,303	2,810	2,892	2,747	2,652	2,637	2,554	2,741	2,989	3,369	3,689	3,843	4,344	4,672	(R) 5,293	5,576
Motorcycle	3,189	5,144	4,564	3,244	2,806	2,395	2,449	2,320	2,227	2,161	2,116	2,294	2,483	2,897	3,197	3,270	3,714	4,028	(R) 4,576	4,810
Bus	53	46	57	32	31	28	18	18	33	21	18	38	59	22	34	45	41	42	58	27
Other / unknown vehicle type	937	540	544	460	466	387	425	409	392	455	420	409	447	450	458	528	589	602	(R) 659	739
Nonoccupant fatalities, total	8,600	9,164	7,782	7,465	6,768	6,370	6,576	6,398	6,526	6,368	6,288	6,119	5,842	5,597	5,756	5,630	5,543	5,532	(R) 5,864	5,740
Pedestrian	7,516	8,070	6,808	6,482	5,801	5,549	5,649	5,489	5,584	5,449	5,321	5,228	4,939	4,763	4,901	4,851	4,774	4,675	(R) 4,892	4,784
Pedalcyclist	1,003	965	890	859	843	723	816	802	833	765	814	760	754	693	732	665	629	727	(R) 786	773
Other	81	129	84	124	124	98	111	107	109	154	153	131	149	141	123	114	140	130	(R) 186	183

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

[a] Includes minicompact cars (wheelbase under 95 inches) and subcompact cars (wheelbase between 95 and 99 inches).
[b] Includes cars with a wheelbase of between 100 and 104 inches.
[c] Includes cars with a wheelbase of between 105 and 109 inches.
[d] Includes cars with a wheelbase of 110 inches or greater.
[e] Large trucks - trucks over 10,000 pounds gross vehicle weight rating, including single-unit trucks and truck tractors. Light trucks - trucks of 10,000 pounds gross vehicle weight rating or less, including pickups, vans, truck-based station wagons, and utility vehicles.
[f] Includes two fatalities that could not be assigned to a category below.

SOURCES

1975-2006: U.S. Department of Transportation, National Highway Traffic Safety Administration, National Center for Statistics and Analysis*Traffic Safety Facts 2006*, DOT HS 809 919 (Washington, DC: 2006), table 4.

Breakout of passenger car types:

1975-96: Ibid., personal communications, Dec. 18, 2003, Nov. 17, 2004, and Mar. 15, 2005.

1997-2004: Ibid., *Traffic Safety Facts, Research Note: Passenger Vehicle Occupant Fatality Rates by Type and Size of Vehicle,* DOT HS 809 979 (Washington, DC: 2006), table 4, Internet site http://www-nrd.nhtsa.dot.gov/pdf/nrd-30/NCSA/RNotes/2006/809979.pdf as of Mar. 25, 2008.
2005 - 2006:Ibid, Traffic Safety Facts, A Compilation of Motor Vehicle Crash Data from the Fatality Analysis Reporting System and the General Estimates System DOT HS 810 631and DOT HS 810 818, Table 75, Internet site http://www-nrd.nhtsa.dot.gov/Pubs/TSF2005.PDF and http://www-nrd.nhtsa.dot.gov/Pubs/TSF2006.PDF as of April 21, 2008

Table 2-20: Occupant and Nonmotorist Fatalities in Crashes by Number of Vehicles and Alcohol Involvement (AI)

	1985		1990		1991		1992		1993		1994		1995		1996		1997		1998		1999		2000		2001		2002		2003		2004		2005		2006	
	Fatal	AI	Fatal	AI	Fatal	AI	Fatal	AI	Fatal	AI	Fatal	AI	Fatal	AI	Fatal	AI	Fatal	AI	Fatal	AI	Fatal	AI	Fatal	AI	Fatal	AI	Fatal	AI	Fatal	AI	Fatal	AI	Fatal	AI
TOTAL fatalities	43,825	23,167	44,599	22,587	41,508	20,159	39,250	18,290	40,150	17,908	40,716	17,308	41,817	17,732	42,065	17,749	42,013	16,711	41,501	16,673	41,717	16,572	41,945	17,380	42,196	17,400	43,005	17,524	42,884	17,013	42,836	16,694	43,510	17,590	42,642	17,602
AI as a percent of total fatalities		53%		51%		49%		47%		45%		43%		42%		42%		40%		40%		40%		41%		41%		41%		40%		39%		40%		41%
Motorist fatalities, TOTAL	36,043	19,271	37,134	18,953	34,740	16,917	32,880	15,301	33,574	14,857	34,318	14,437	35,291	14,796	35,695	14,830	35,725	14,051	35,382	13,896	35,875	13,958	36,348	14,834	36,440	14,708	37,375	14,954	37,132	14,476	37,142	14,195	37,594	14,370	U	U
Single-vehicle crashes	17,130	10,882	18,159	11,162	17,280	10,208	15,958	9,045	15,932	8,761	15,997	8,330	16,732	8,868	16,723	8,781	16,529	8,244	16,666	8,417	17,075	8,516	17,471	8,964	17,753	8,973	18,600	9,238	18,175	8,939	18,288	8,808	18,806	9,016	U	U
Two-vehicle crashes	16,467	7,296	16,262	6,676	15,025	5,821	14,449	5,341	15,161	5,205	15,664	5,219	15,744	5,017	15,935	5,084	16,218	4,904	15,742	4,638	15,726	4,562	15,758	4,854	15,618	4,739	15,628	4,744	15,795	4,606	15,737	4,492	15,649	4,449	U	U
More than two-vehicle crashes	2,446	1,093	2,713	1,115	2,435	888	2,473	916	2,481	891	2,657	888	2,815	911	3,037	965	2,978	904	2,974	841	3,074	880	3,119	1,016	3,069	996	3,147	972	3,162	931	3,117	896	3,139	905	U	U
Nonmotorist fatalities, TOTAL	7,782	3,897	7,465	3,636	6,768	3,241	6,370	2,989	6,576	3,051	6,398	2,871	6,526	2,936	6,368	2,919	6,288	2,660	6,119	2,777	5,842	2,613	5,597	2,546	5,756	2,693	5,630	2,571	5,511	2,538	5,494	2,499	5,849	2,516	U	U
Pedestrians fatalities, total	6,808	3,575	6,482	3,264	5,801	2,891	5,549	2,721	5,649	2,735	5,489	2,578	5,584	2,607	5,449	2,593	5,321	2,350	5,228	2,463	4,939	2,314	4,763	2,254	4,901	2,371	4,851	2,292	4,749	2,253	4,641	2,211	4,881	2,180	U	U
Pedestrians, single-vehicle crashes	6,342	3,278	5,990	2,966	5,302	2,588	5,099	2,454	5,180	2,464	5,027	2,308	5,110	2,364	5,024	2,358	4,876	2,112	4,801	2,228	4,516	2,074	4,340	2,015	4,480	2,123	4,445	2,069	4,292	2,014	4,207	1,976	4,443	1,946	U	U
Pedestrians, multiple-vehicle crashes	466	297	492	298	499	303	450	267	469	271	462	270	474	243	425	235	445	239	427	235	423	240	423	239	421	248	406	223	457	239	434	234	438	234	U	U
Pedalcyclists fatalities, total	890	284	859	315	843	305	723	228	816	279	802	262	833	290	765	265	814	252	760	268	754	270	693	246	732	283	665	243	622	239	725	249	784	282	U	U
Pedalcyclists, single-vehicle crashes	864	271	832	301	815	296	690	211	792	264	781	252	807	279	739	253	788	244	736	259	718	253	668	236	709	271	628	229	589	220	697	237	755	268	U	U
Pedalcyclists, multiple-vehicle crashes	26	13	27	14	28	9	33	17	24	15	21	10	26	11	26	12	26	8	24	9	36	17	25	10	23	12	37	14	33	19	28	11	29	14	U	U
Others / unknown	84	38	124	57	124	45	98	39	111	37	107	31	109	39	154	61	153	58	131	47	149	29	141	46	123	39	114	36	140	46	128	39	184	54	U	U

KEY: AI = Alcohol involvement; Fatal = fatalities; U = data are not available.

NOTES

Alcohol involvement pertains to any driver, pedestrian, or pedalcyclist involved in the accident. Alcohol results are determined from positive blood alcohol concentration tests and police-reported alcohol involvement and are adjusted by the U.S. Department of Transportation, National Highway Traffic Safety Administration.

In 2001, NHTSA adopted a new method to estimate missing blood alcohol concentration (BAC) test result data. This new method, multiple imputation, is being used by NHTSA's National Center for Statistics and Analysis (NCSA) to improve the scope of alcohol involvement statistics by the Fatality Analysis Reporting System (FARS). As a result of the methodology change, alcohol involvement fatalities have undergone a complete revision.

Total fatalities may not equal the sum of the categories in each column because NCSA generates a separate estimate for each category of fatalities, including total fatalities.

SOURCE

U.S. Department of Transportation, National Highway Traffic Safety Administration, National Center for Statistics and Analysis, Fatality Analysis Reporting System (FARS) Database, personal communication, Aug. 13, 2007.

Table 2-21: Passenger Car Occupant Safety Data

	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Fatalities	25,929	27,449	23,212	24,092	22,385	21,387	21,566	21,997	22,423	22,505	22,199	21,194	20,862	20,699	20,320	20,569	19,725	(R) 19,192	18,440
Injured persons[E]	N	N	N	2,376,439	2,234,594	2,231,703	2,264,809	2,363,595	2,469,358	2,458,080	2,340,612	2,201,375	2,137,503	2,051,609	1,926,625	1,804,788	1,756,495	1,642,549	1,573,000
Crashes[E]	N	N	N	5,560,592	5,178,450	5,042,203	5,040,116	5,401,164	5,593,685	5,598,699	5,423,286	5,146,124	4,915,734	4,926,243	4,831,842	4,802,056	4,746,620	4,557,316	6,087,000
Vehicle-miles (millions)	1,030,376	1,107,056	1,248,981	1,427,178	1,411,655	1,436,035	1,445,106	1,459,208	1,478,352	1,499,139	1,528,399	1,555,901	1,566,808	1,580,735	1,595,443	1,611,860	1,612,237	(R) 1,628,225	1,614,807
Rates per 100 million vehicle-miles																			
Fatalities	2.5	2.5	1.9	1.7	1.6	1.5	1.5	1.5	1.5	1.5	1.5	1.4	1.3	1.3	1.3	1.3	1.2	(R) 1.2	1.1
Injured persons[E]	N	N	N	167	158	155	157	162	167	164	153	141	136	130	121	112	109	(R) 101	97
Crashes[E]	N	N	N	390	367	351	349	370	378	373	355	331	314	312	303	298	294	(R) 280	377

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

NOTE

Vehicle-miles in this table and in table 2-23 are taken from NHTSA revised data and are not based exclusively on USDOT, Federal Highway Administration (FHWA) data. The change was made to reflect the different vehicle classification schemes used by FHWA and NHTSA. Thus, vehicle-miles for passenger cars, and light and large trucks in this table and table 2-23 should not be compared with vehicle-miles in chapter 1, which are taken directly from FHWA.

SOURCES

Fatalities, injuries, fatality and injury rates:

1975-2005: U.S. Department of Transportation, National Highway Traffic Safety Administration, National Center for Statistics and Analysis,*Traffic Safety Facts 2005*, *Final Edition*, DOT HS 810 631 (Washington, DC), table 7, http://www-nrd.nhtsa.dot.gov/pdf/nrd-30/NCSA/TSFAnn/TSF2005.pdf as of Feb. 2, 2007 and personal communication, May 25, 2006.

Vehicle miles:

1975-2005: U.S. Department of Transportation, National Highway Traffic Safety Administration, National Center for Statistics and Analysis,*Traffic Safety Facts 2006*, *Final Edition*, DOT HS 810 631 (Washington, DC), table 7, Internet site http://www-nrd.nhtsa.dot.gov/pdf/nrd-30/NCSA/TSFAnn/TSF2005.pdf as of Feb. 2, 2007.

Crashes:

1975-2004: U.S. Department of Transportation, National Highway Traffic Safety Administration, National Center for Statistics and Analysis, Fatality Analysis Reporting System Database and General Estimates System Database, personal communication, May 25, 2006.**2005**: U.S. Department of Transportation, National Highway Traffic Safety Administration, National Center for Statistics and Analysis, Traffic Safety Facts 2005, Final Edition, DOT HS 810 631 (Washington, DC), table 35, http://www-nrd.nhtsa.dot.gov/pdf/nrd-30/NCSA/TSFAnn/TSF2005.pdf as of June 19, 2007.

Crash rates:

Calculated by U.S. Department of Transportation, Bureau of Transportation Statistics by dividing the number of crashes by the vehicle-miles traveled.

Table 2-22: Motorcycle Rider Safety Data

	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Fatalities	3,189	5,144	4,564	3,244	2,806	2,395	2,449	2,320	2,227	2,161	2,116	2,294	2,483	2,897	3,197	3,270	3,714	(R) 4,028	4,553
Injured persons[E]	N	N	N	84,285	80,435	65,099	59,436	57,405	57,480	55,281	52,574	48,974	49,986	57,723	60,236	64,713	67,103	76,379	87,000
Crashes[E]	N	N	N	103,114	105,030	72,177	74,565	68,752	66,354	66,224	61,451	54,477	57,322	68,783	73,342	76,004	79,131	85,538	103,000
Vehicle-miles (millions)	5,629	10,214	9,086	9,557	9,178	9,557	9,906	10,240	9,797	9,920	10,081	10,283	10,584	10,469	9,639	9,552	9,577	10,122	10,770
Rates per 100 million vehicle-miles[a]																			
Fatalities	57	50	50	34	31	25	25	23	23	22	21	22	23	28	33	34	39	(R) 40	42
Injured persons[E]	N	N	N	882	876	681	600	561	587	557	522	476	472	551	625	677	701	(R) 755	808
Crashes[E]	N	N	N	1,079	1,144	755	753	671	677	668	610	530	542	657	761	796	826	(R) 845	956

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

NOTE

The injury and crash data in this table are from NHTSA's General Estimates System (GES). The data from the GES, which began operation in 1988, are obtained from a nationally representative probability sample selected from all police-reported crashes. The GES sample includes only crashes where a police accident report was completed and the crash resulted in property damage, injury, or death. The resulting figures do not take into account crashes that were not reported to the police or that did not result in property damage.

SOURCES

Fatalities and injuries:

1975-2005: U.S. Department of Transportation, National Highway Traffic Safety Administration, National Center for Statistics and Analysis, *Traffic Safety Facts 2005* , *Final Edition*, DOT HS 810 631 (Washington, DC), table 10, Internet site http://www-nrd.nhtsa.dot.gov/pdf/nrd-30/NCSA/TSFAnn/TSF2005.pdf as of Feb. 2, 2007.

Vehicle-miles:

1975-2005: U.S. Department of Transportation, National Highway Traffic Safety Administration, National Center for Statistics and Analysis, *Traffic Safety Facts 2005,* DOT HS 810 631 (Washington, DC), table 10, Internet site http://www-nrd.nhtsa.dot.gov/pdf/nrd-30/NCSA/TSFAnn/TSF2005.pdf as of Feb. 2, 2007.

Crashes:

1975-2004: U.S. Department of Transportation, National Highway Traffic Safety Administration, National Center for Statistics and Analysis, Fatality Analysis Reporting System Database and General Estimates System Database, personal communication, May 25, 2006.

2005: U.S. Department of Transportation, National Highway Traffic Safety Administration, National Center for Statistics and Analysis, *Traffic Safety Facts 2005* , *Final Edition*, DOT HS 810 631 (Washington, DC), table 35, Internet site http://www-nrd.nhtsa.dot.gov/pdf/nrd-30/NCSA/TSFAnn/TSF2005.pdf as of June 19, 2007.

Table 2-23: Truck Occupant Safety Data

	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Fatalities, total	5,817	8,748	7,666	9,306	9,052	8,683	9,116	9,574	10,216	10,553	10,972	11,447	12,024	12,280	12,431	12,963	(R) 13,272	(R) 13,440	13,778
Light	4,856	7,486	6,689	8,601	8,391	8,098	8,511	8,904	9,568	9,932	10,249	10,705	11,265	11,526	11,723	12,274	(R) 12,546	(R) 12,674	12,975
Large	961	1,262	977	705	661	585	605	670	648	621	723	742	759	754	708	689	(R) 726	(R) 766	803
Injured persons[E], total	N	N	N	546,966	590,632	578,435	632,976	661,619	752,840	794,238	785,733	791,273	879,757	917,398	889,951	905,580	915,941	927,458	899,000
Light	N	N	N	505,144	562,601	544,657	600,874	631,411	722,496	761,478	754,820	762,506	846,865	886,566	860,527	879,338	889,048	900,171	872,000
Large	N	N	N	41,822	28,031	33,778	32,102	30,208	30,344	32,760	30,913	28,767	32,892	30,832	29,424	26,242	26,893	27,287	27,000
Crashes[E], total[a]	N	N	N	2,459,908	2,460,561	2,488,936	2,722,506	2,937,998	3,039,159	3,175,497	3,225,320	3,167,967	3,425,409	3,545,611	3,566,858	3,592,127	3,781,495	3,769,034	4,593,000
Light	N	N	N	2,152,486	2,200,134	2,191,171	2,407,212	2,573,701	2,749,596	2,880,782	2,900,896	2,866,729	3,079,617	3,207,738	3,254,105	3,272,326	3,345,367	3,369,938	4,151,000
Large	N	N	N	371,801	318,637	362,807	383,220	444,697	362,883	378,335	421,377	391,807	452,444	437,861	409,355	416,437	436,128	399,096	442,000
Vehicle-miles (millions)																			
Light	204,274	295,475	388,778	555,659	595,924	642,397	675,353	711,515	749,971	787,255	824,896	861,951	903,314	942,611	976,096	1,012,648	1,043,936	(R) 1,098,799	1,134,748
Large	81,330	108,491	123,504	146,242	149,543	153,384	159,888	170,216	178,156	182,971	191,477	196,380	202,688	205,520	209,032	214,603	217,917	220,811	222,836
Rates per 100 million vehicle-miles																			
Fatalities																			
Light	2.4	2.5	1.7	1.5	1.4	1.3	1.3	1.3	1.3	1.3	1.2	1.2	1.2	1.2	1.2	1.2	1.2	(R) 1.2	1.1
Large	1.2	1.2	0.8	0.5	0.4	0.4	0.4	0.4	0.4	0.3	0.4	0.4	0.4	0.4	0.3	0.3	0.3	(R) 0.3	0.4
Injured persons[E]																			
Light	N	N	N	91	94	85	89	89	96	97	92	88	94	94	88	87	85	(R) 82	77
Large	N	N	N	29	19	22	20	18	17	18	16	15	16	15	14	12	12	12	12
Crashes[E]																			
Light	N	N	N	387	369	341	356	362	367	366	352	333	341	340	333	323	320	(R) 307	366
Large	N	N	N	254	213	237	240	261	204	207	220	200	223	213	196	194	200	(R) 181	198

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

[a] Crashes often involve more than one type of truck (light or large), hence "total truck crashes" is smaller than the sum of the components.

NOTES

Large trucks - trucks over 10,000 pounds gross vehicle weight rating, including single-unit trucks and truck tractors. Light trucks - trucks of 10,000 pounds gross vehicle weight rating or less, including pickups, vans, truck-based station wagons, and utility vehicles. The injury and crash data in this table are from the U.S. Department of Transportation (USDOT), National Highway Traffic Safety Administration's (NHTSA) General Estimates System (GES). The data from GES, which began operation in 1988, are obtained from a nationally representative probability sample selected from all police-reported crashes. The GES sample includes only crashes where a police accident report was completed and the crash resulted in property damage, injury, or death. The resulting figures do not take into account crashes that were not reported to the police or that did not result in property damage. Vehicle-miles in this table and in table 2-19 are taken from NHTSA revised data and are not based exclusively on USDOT, Federal Highway Administration (FHWA) data, as they have been in earlier reports. The change was made to reflect the different vehicle classification schemes used by FHWA and NHTSA. Thus, vehicle-miles for passenger cars and light and large trucks in table 2-19 and this table should not be compared with vehicle-miles in Chapter 1, which are taken directly from FHWA.

SOURCES

Fatalities, injuries, fatality and injury rates:

1975-2005: U.S. Department of Transportation, National Highway Traffic Safety Administration, National Center for Statistics and Analysis,*Traffic Safety Facts 2005, Final Edition* , DOT HS 810 631 (Washington, DC), tables 8, 9, Internet site http://www-nrd.nhtsa.dot.gov/pdf/nrd-30/NCSA/TSFAnn/TSF2005.pdf as of Feb. 2, 2007.

Vehicle-miles:

1975-2005: U.S. Department of Transportation, National Highway Traffic Safety Administration, National Center for Statistics and Analysis, Traffic Safety Facts 2005, Final Edition, DOT HS 810 631 (Washington, DC), tables 8, 9, Internet site http://www-nrd.nhtsa.dot.gov/pdf/nrd-30/NCSA/TSFAnn/TSF2005.pdf as of Feb. 2, 2007.

Crashes:

1975-2004: Ibid., National Center for Statistics and Analysis, Fatality Analysis Reporting System Database and General Estimates System Database, personal communication, May 25, 2006.

2005: U.S. Department of Transportation, National Highway Traffic Safety Administration, National Center for Statistics and Analysis,*Traffic Safety Facts 2005, Final Edition* , DOT HS 810 631 (Washington, DC), table 35, Internet site http://www-nrd.nhtsa.dot.gov/pdf/nrd-30/NCSA/TSFAnn/TSF2005.pdf as of June 19, 2007.

Crash rates:

Calculated by the U.S. Department of Transportation, Bureau of Transportation Statistics.

Table 2-24: Bus Occupant Safety Data[a]

	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Fatalities	53	46	57	32	31	28	18	18	33	21	18	38	59	22	34	45	41	(R) 42	58
Injured persons[E]	N	N	N	32,691	20,959	20,144	17,056	15,767	19,214	20,291	16,887	15,559	21,958	17,769	15,427	18,819	18,174	16,410	11,000
Crashes[E]	N	N	N	60,412	56,285	49,705	51,353	55,818	58,847	57,185	53,376	53,385	62,591	55,594	54,264	57,958	57,674	52,144	51,000
Vehicle-miles (millions)	6,055	6,059	4,478	5,726	5,750	5,778	6,125	6,409	6,420	6,563	6,842	7,007	7,662	7,590	7,077	6,845	6,783	(R) 6,801	6,646
Rates per 100 million vehicle-miles																			
Fatalities	0.9	0.8	1.3	0.6	0.5	0.5	0.3	0.3	0.5	0.3	0.3	0.5	0.8	0.3	0.5	0.7	0.6	(R) 0.6	0.9
Injured persons[E]	N	N	N	571	365	349	278	246	299	309	247	222	287	234	218	275	268	(R) 241	166
Crashes[E]	N	N	N	1,055	979	860	838	871	917	871	780	762	817	732	767	847	850	(R) 767	767

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

[a] Bus includes school, transit, and intercity buses.

NOTE

The injury and crash data in this table are from the U.S. Department of Transportation (USDOT), National Highway Traffic Safety Administration's (NHTSA) General Estimates System (GES). The data from GES, which began operation in 1988, are obtained from a nationally representative probability sample selected from all police-reported crashes. The GES sample includes only crashes where a police accident report was completed and the crash resulted in property damage, injury, or death. The resulting figures do not take into account crashes that were not reported to the police or that did not result in property damage.

SOURCES

Fatalities and injuries:

1975-2005: U.S. Department of Transportation, National Highway Traffic Safety Administration, National Center for Statistics and Analysis, *Traffic Safety Facts 2005* , Final Edition, DOT HS 810 631 (Washington, DC), table 4, Internet site http://www-nrd.nhtsa.dot.gov/pdf/nrd-30/NCSA/TSFAnn/TSF2005.pdf as of Feb. 2, 2007.

Vehicle-miles:

1975-94: U.S. Department of Transportation, Federal Highway Administration,*Highway Statistics Summary to 1995* (Washington, DC: July 1997), table VM-201A.

1995-2005: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1.

Crashes:

1990-2004: Ibid., General Estimates System Database, personal communication, May 25, 2006.

2005: U.S. Department of Transportation, National Highway Traffic Safety Administration, National Center for Statistics and Analysis, *Traffic Safety Facts 2005* , Final Edition, DOT HS 810 631 (Washington, DC), table 35, Internet site http://www-nrd.nhtsa.dot.gov/pdf/nrd-30/NCSA/TSFAnn/TSF2005.pdf as of June 19, 2007.

Table 2-25: Fatalities by Highest Blood Alcohol Concentration (BAC) in Highway Crashes

	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Total fatalities	43,825	44,599	41,508	39,250	40,150	40,716	41,817	42,065	42,013	41,501	41,717	41,945	42,196	43,005	42,884	(R) 42,836	(R) 43,510	42,642
Fatalities in alcohol-related crashes	23,167	22,587	20,159	18,290	17,908	17,308	17,732	17,749	16,711	16,673	16,572	17,380	17,400	17,524	17,105	(R) 16,919	(R) 17,590	17,602
Percent	52.9	50.6	48.6	46.6	44.6	42.5	42.4	42.2	39.8	40.2	39.7	41.4	41.2	40.7	39.9	(R) 39	(R) 40	41.3
BAC = 0.00																		
Number	20,659	22,012	21,349	20,960	22,242	23,409	24,085	24,316	25,302	24,828	25,145	24,565	24,796	25,481	25,779	(R) 25,917	(R) 25,920	25,040
Percent	47.1	49.4	51.4	53.4	55.4	57.5	57.6	57.8	60.2	59.8	60.3	58.6	58.8	59.3	60.1	(R) 61	(R) 60	58.7
BAC = 0.01 - 0.07																		
Number	3,081	2,980	2,560	2,443	2,361	2,322	2,490	2,486	2,290	2,465	2,321	2,511	2,542	2,432	2,427	(R) 2,326	(R) 2,488	2,481
Percent	7.0	6.7	6.2	6.2	5.9	5.7	6.0	5.9	5.5	5.9	5.6	6.0	6.0	5.7	5.7	(R) 5	(R) 6	5.8
BAC = 0.08+																		
Number	20,086	19,607	17,599	15,847	15,547	14,985	15,242	15,263	14,421	14,207	14,250	14,870	14,858	15,093	14,678	(R) 14,593	(R) 15,102	15,121
Percent	45.8	44.0	42.4	40.4	38.7	36.8	36.4	36.3	34.3	34.2	34.2	35.5	35.2	35.1	34.2	(R) 34	(R) 35	35.5

KEY: BAC = blood alcohol concentration; R= revised.

NOTES

BAC values have been assigned by U.S. Department of Transportation, National Highway Traffic Safety Administration (NHTSA) when alcohol test results are unknown. Alcohol-related crashes pertain to the BAC of the driver and nonoccupants struck by motor vehicles. For some years, numbers may not add to totals due to rounding.

In 2001 the NHTSA adopted a new method to estimate missing blood alcohol concentration (BAC) test result data. This new method, multiple imputation, is being used by NHTSA's National Center for Statistics and Analysis (NCSA) to improve the scope of alcohol involvement statistics by the Fatality Analysis Reporting System. As a result of the methodology change, BAC 0.08 breakouts, which coincide with many state laws, can now be determined. Thus, NHTSA's general reporting categories have been modified to reflect this and are now BAC 0.00, BAC 0.01-0.07, and BAC 0.08+.

SOURCE

1985-2005: U.S. Department of Transportation, National Highway Traffic Safety Administration, *Traffic Safety Facts - Alcohol* (Washington DC: 2006), Internet site http://www-nrd.nhtsa.dot.gov/pdf/nrd-30/NCSA/TSF2004/809905.pdf as of Oct. 24, 2006.

2006: U.S. Department of Transportation, National Highway Traffic Safety Administration, FARS database, personal communication, Oct. 4, 2007.

Table 2-26: Number of States with Different Types of Anti-DUI / DWI Legislation in Effect as of January 1 of the Listed Year

	1986	1990	1992	1994	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
BAC = 0.08 per se laws[a]	2	4	5	10	13	13	15	16	(c) 18	(c) 20	(d, R) 29	(d) 33	(d) 47	(d) 52	(d) 52
BAC level 0.02 or less for persons younger than 21 years	0	0	3	12	(c) 28	(c) 38	(c) 51	(c) 51	(c) 51	(c) 51	(c) 51	(c) 51	(c) 51	(c) 51	(c) 51
Administrative license revocation (ALR) for DUI / DWI offenders[b]	(c) 21	(c) 27	(c) 30	(c) 33	(c) 38	(c) 40	(c) 41	(c) 41	(c) 41	(c) 41	(c) 41	(c) 41	(c) 42	(c) 42	(c) 42

KEY: BAC = blood alcohol concentration; DUI = driving under the influence; DWI = driving while intoxicated; R = revised.

[a] Per se law makes it illegal in and of itself to drive with an alcohol concentration measured at or above a certain level.

[b] States that impose additional thresholds for ALR beyond those imposed for DUI/DWI are not included in these figures.

[c] Includes the District of Columbia.

[d] Includes the District of Columbia and Puerto Rico.

NOTE

National Uniform Minimum Drinking Age Act, which standardized the minimum drinking age at 21, was enacted in 1984.

SOURCES

0.02 BAC and Administrative license revocation:

1986-98: U.S. Department of Transportation, National Highway Traffic Safety Administration, Traffic Safety Programs, Research and Evaluation Division, personal communications, Apr. 9, 1999 and Oct. 4, 1999.

1999-2000, 2002-03: Ibid., Impaired Driving Division, personal communications, May 22, 2000, Feb. 5, 2004, and Oct. 15, 2004.

2001: Ibid., *Setting Limits, Saving Lives* (Washington, DC: April 2001), DOT HS 809-241.

0.08 BAC:

1986-2000: Ibid., *Presidential Initiative for Making 0.08 BAC the National Legal Limit, A Progress Report* , Internet site http://www.nhtsa.dot.gov/people/injury/alcohol/limit.08/08progressreport/index.html as of Aug. 13, 2001.

2001: Ibid., *Setting Limits, Saving Lives* (Washington, DC: April 2001), DOT HS 809-241.

2002: Ibid., Impaired Driving Division, personal communication, Feb. 5, 2004.

2003-06: Ibid., "0.08 BAC Laws" (Washington, DC: 2004), Internet site http://www.nhtsa.dot.gov/people/injury/alcohol/blood.htm as Oct. 19, 2004 and personal communication, Aug. 21, 2004, and Aug. 17, 2007.

Table 2-27: Motor Vehicle Fatal Crashes by Day of Week, Time of Day, and Weather and Light Conditions (percent)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	(R) 2005	(R) 2006	2007
TOTAL fatal crashes	39,836	36,937	34,942	35,780	36,254	37,241	37,494	37,324	37,107	37,140	37,526	37,862	38,491	38,477	38,444	39,252	38,648	37,248
Day of week																		
Sunday	16.1	16.2	15.9	15.8	15.9	15.7	15.2	15.8	15.5	15.7	16.1	16.0	15.9	16.0	16.2	15.9	16.8	16.6
Monday	11.7	11.5	11.6	12.1	12.4	12.4	12.7	12.1	12.4	12.6	12.3	12.6	12.2	12.3	12.4	12.6	12.2	12.8
Tuesday	11.5	11.5	11.5	11.8	11.7	11.8	12.4	11.9	12.4	11.9	12.0	12.1	12.4	12.2	11.6	11.8	12.2	11.6
Wednesday	11.5	11.9	12.3	12.0	12.3	11.9	12.2	13.0	12.4	12.5	12.2	12.2	12.6	12.6	12.4	12.4	12.2	12.5
Thursday	12.6	12.5	13.3	13.0	12.7	13.0	13.3	13.0	13.5	12.9	13.0	12.7	12.8	12.8	13.3	12.9	12.8	12.4
Friday	16.7	16.5	16.1	16.3	16.3	16.6	16.1	16.1	15.8	15.9	16.0	16.2	15.8	15.7	16.0	15.7	15.5	15.5
Saturday	20.0	19.9	19.3	19.0	18.6	18.5	18.2	18.0	18.0	18.5	18.5	18.2	18.2	18.4	18.0	18.6	18.3	18.5
Unknown	0.02	0.03	0.01	0.02	0.04	0.03	0.04	0.05	0.04	0.01	0.01	0.04	0.02	0.05	0.05	0.03	0.00	0.00
Time of day																		
Midnight to 3 a.m.	15.7	15.3	14.3	13.8	13.1	12.8	12.6	12.2	12.3	12.2	12.5	12.5	13.1	12.5	12.4	12.8	13.0	13.3
3 a.m. to 6 a.m.	7.7	7.9	7.4	7.4	7.3	7.5	7.4	7.2	7.3	7.6	8.0	7.6	8.1	7.8	7.9	8.1	8.3	8.5
6 a.m. to 9 a.m.	8.6	8.6	8.5	8.9	9.3	9.2	9.5	9.9	9.7	10.1	9.9	9.8	9.7	9.7	9.7	9.9	10.0	9.6
9 a.m. to noon	8.5	8.6	8.8	9.7	9.6	9.4	9.7	9.9	10.2	10.1	9.9	10.0	9.7	9.9	9.9	9.5	9.5	9.4
Noon to 3 p.m.	11.6	11.7	12.4	12.5	13.1	12.9	12.7	13.3	13.4	13.2	13.1	13.2	13.1	13.1	13.3	12.9	12.9	12.8
3 p.m. to 6 p.m.	15.7	15.7	16.0	16.0	16.6	16.8	16.9	16.6	16.8	16.8	16.7	16.6	16.0	16.6	16.3	16.5	15.6	16.0
6 p.m. to 9 p.m.	15.6	15.6	16.5	16.2	15.7	15.9	15.7	15.9	15.6	15.4	15.3	15.4	15.4	15.3	15.7	15.7	15.6	15.6
9 p.m. to midnight	15.9	15.8	15.3	14.7	14.3	14.6	14.6	14.1	13.8	13.8	13.7	14.1	14.1	14.0	13.8	13.8	14.3	14.1
Unknown	0.8	0.8	0.8	0.8	0.8	0.9	0.9	0.9	0.9	0.8	0.9	0.8	0.9	1.0	0.9	0.8	0.8	0.9
Atmospheric condition																		
Normal	86.7	86.7	85.7	87.0	87.3	86.7	86.3	86.4	87.2	89.0	88.0	88.4	88.0	87.3	87.0	88.2	89.5	89.3
Rain	9.3	9.0	10.0	8.7	8.3	8.6	8.4	8.8	8.8	7.3	7.1	7.5	7.8	7.8	8.3	7.4	7.3	6.4
Snow/sleet	1.6	1.9	2.0	2.2	1.8	2.4	2.7	2.5	1.7	1.6	2.3	1.8	1.9	2.2	2.0	2.0	1.2	2.2
Other/unknown	2.3	2.4	2.3	2.1	2.5	2.3	2.6	2.3	2.3	2.0	2.6	2.3	2.2	2.7	2.7	2.4	2.1	2.1
Light condition																		
Daylight	45.0	45.4	46.0	47.7	49.5	48.7	49.3	50.3	50.5	50.7	50.5	50.8	49.2	50.2	50.0	49.5	48.4	48.5
Dark, but lighted	17.7	17.4	17.4	16.4	15.6	16.0	15.9	15.6	14.9	15.0	15.9	15.7	16.1	15.7	15.8	15.9	16.5	16.8
Dark	32.7	33.0	32.4	31.5	30.3	30.7	30.3	29.5	30.0	29.7	29.2	29.0	30.2	29.7	29.6	30.0	30.3	30.3
Dawn or dusk	4.2	3.9	3.9	4.2	4.2	4.2	4.2	4.2	4.3	4.3	4.1	4.1	4.0	3.9	4.1	4.1	4.2	3.9
Unknown	0.3	0.3	0.3	0.2	0.3	0.4	0.3	0.4	0.3	0.3	0.4	0.4	0.5	0.5	0.4	0.5	0.5	0.5

KEY: R = revised.

SOURCE

U.S. Department of Transportation, National Highway Traffic Safety Administration, National Center for Statistics and Analysis, Fatality Analysis Reporting System (FARS),*Web-based encyclopedia*, available at http://www-fars.nhtsa.dot.gov/ as of December 2008.

Table 2-28: Motor Vehicle Fatal Crashes by Posted Speed Limit

	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	(R) 2006	2007
TOTAL fatal crashes	39,161	45,284	39,196	39,836	36,937	34,942	35,780	36,254	37,241	37,494	37,324	37,107	37,140	37,526	37,862	38,491	38,477	38,444	39,252	38,648	37,248
Under 55 mph, total	15,233	20,079	19,278	19,136	17,507	16,827	16,985	16,948	17,439	17,345	17,258	17,018	16,963	17,054	17,582	17,651	17,422	(R) 17,758	(R) 18,461	18,327	17,609
5,10,15, 20, 25 mph[a]	2,617	2,865	2,504	2,234	2,097	1,911	1,895	1,890	1,893	1,896	1,955	1,873	1,863	1,827	1,919	1,897	1,883	(R) 1,904	(R) 1,947	1,972	2,030
30, 35 mph	6,099	8,527	7,890	7,756	6,908	6,696	6,759	6,565	6,681	6,445	6,383	6,025	5,946	6,079	6,260	6,090	5,995	6,064	6,337	6,347	5,882
40, 45 mph	4,276	6,256	6,812	7,092	6,608	6,345	6,454	6,632	6,938	7,096	7,132	7,349	7,245	7,315	7,576	7,784	7,717	7,964	8,359	8,172	7,937
50 mph	2,241	2,431	2,072	2,054	1,894	1,875	1,877	1,861	1,927	1,908	1,788	1,771	1,909	1,833	1,827	1,880	1,827	1,826	1,818	1,836	1,760
55 mph and above, total	16,095	20,352	18,871	19,749	18,630	17,450	18,144	18,698	19,140	19,460	19,251	19,333	19,373	19,735	19,416	19,898	19,995	19,780	19,857	19,252	18,599
55 mph	16,094	20,352	18,863	17,556	16,543	15,444	15,980	16,512	16,753	14,097	12,897	12,522	12,184	12,143	11,847	12,268	12,155	11,893	11,760	11,337	10,962
60 mph	0	0	2	18	9	4	9	13	16	523	935	1,073	1,069	1,163	1,221	1,270	1,364	1,296	1,347	1,359	1,318
65 mph	1	0	2	2,175	2,078	2,002	2,155	2,173	2,323	3,214	3,311	3,421	3,537	3,686	3,721	3,742	3,848	3,856	3,966	3,960	3,792
70 mph	0	0	3	0	0	0	0	0	38	1,282	1,633	1,835	2,079	2,230	2,116	2,027	2,039	2,127	2,198	2,077	2,070
Over 70 mph	0	0	1	0	0	0	0	0	10	344	475	482	504	513	511	591	589	608	586	519	457
Unknown[b]	7,833	4,853	1,047	951	800	665	651	608	(R) 662	(R) 689	815	756	804	(R) 737	864	942	1,060	906	934	1,069	1,040

KEY: mph = miles per hour; R = revised.

[a] The "No Statutory Limit" speed limit designation is included in this category.

[b] The "blank" designation is included in this category

NOTES

In 1974, Congress enacted a national maximum speed limit of 55 miles per hour (mph). Amendments in 1987 and 1991 allowed states to increase speed limits to 65 mph on rural Interstates and similar highways.

The National Maximum Speed Limit was repealed in late 1995; speed limits are again set by the states, some of which have raised their maximum speed limits to 70 mph or above.

SOURCES

1975-93: U.S. Department of Transportation, National Highway Traffic Safety Administration, National Center for Statistics and Analysis,*Traffic Safety Facts 2000* , DOT HS 809 337 (Washington, DC: December 2001), table 30, and the Fatality Analysis Reporting System (FARS) *Web-based Encyclopedia* , available at http://www-fars.nthsa.dot.gov as of November, 2003.

1994-2007: U.S. Department of Transportation, National Highway Traffic Safety Administration, National Center for Statistics and Analysis, Fatality Analysis Reporting System (FARS), *Web-based encyclopedia* , available at http://www-fars.nhtsa.dot.gov/ as of November 2008.

Table 2-29: Safety Belt and Motorcycle Helmet Use (percent)[a]

	1994	1996	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
OVERALL Safety Belt Use	58	61	69	67	71	73	75	79	80	82	81	82
Drivers	59	62	70	67	72	74	76	80	81	83	82	83
Passengers	55	59	65	64	68	72	73	77	76	78	78	81
Passenger cars[b]	63	64	71	70	74	76	77	81	81	83	82	84
Drivers	64	65	72	71	75	77	78	U	U	U	U	U
Passengers	59	62	68	66	70	74	74	U	U	U	U	U
Light trucks[b,c]	50	56	66	62	68	69	73	U	U	U	U	U
Drivers	51	58	67	62	69	70	73	U	U	U	U	U
Passengers	49	53	61	60	65	69	72	U	U	U	U	U
Vans and sport utility vehicles[c]	U	U	U	U	U	U	U	83	83	85	84	86
Pickup trucks[c]	U	U	U	U	U	U	U	69	70	73	74	72
Motorcycle Helmet Use[d]	63	64	67	N	71	N	58	U	58	48	51	58
Operators	67	66	64	N	72	N	59	U	63	56	57	59
Riders	54	58	84	N	62	N	48	U	41	29	33	56

KEY: N = data do not exist; U = data unavailable

[a]Seat belt use is as of the Fall each year except in 1999 (December), 2001 (June), 2002 (June), 2003 (June), 2004 (June), 2005 (June). Motorcycle helmet use is as of the Fall each year except in 1996 (January), 2002 (June), 2004 (June), and 2005 (June).

[b] Beginning in 2003, the National Highway Traffic Safety Administration (NHTSA) no longer computes an overall light truck belt use estimate. Instead, belt use is computed separately for motorists in: (1) vans and sport utility vehicles, and (2) pickup trucks. Additionally, NHTSA no longe reports seperate statistics for passengers and drivers, except at the overall level.

c Includes pickup trucks, vans, minivans, and sport utility vehicles.

[d] In 1994, operators and riders were counted as helmeted if wearing any type of helmet. Since then, only those operators and riders wearing safety helmets that met U.S. Department of Transportation (DOT) standards were counted. Those safety helmets that do not meet DOT standards were treated as if the operator/rider were not wearing a helmet.

NOTE

Occupants of commercial and emergency vehicles are excluded.

SOURCES

Safety belt use:

1994-2002: U.S. Department of Transportation, National Highway Traffic Safety Administration,*Safety Belt and Helmet Use in 2002 -- Overall Results*, DOT HS 809 500 (Washington, DC: 2002), table 1, Internet site http://www-nrd.nhtsa.dot.gov/pdf/nrd-30/NCSA/Rpts/2002/809-500.pdf as of January 2003.

2003-04: Ibid., *Safety Belt Use in 2004: Overall Results*, Traffic Safety Facts, Research Note DOT HS 809 783 (Washington, DC: 2004), Internet site http://www-nrd.nhtsa.dot.gov/pdf/nrd-30/NCSA/RNotes/2004/809783.pdf as of Oct.15,2004.

2005-06: Ibid., *Safety Belt Use in 2006: Overall Results*, Traffic Safety Facts, Research Note DOT HS 810 677 (Washington, DC: 2006), Internet site http://www-nrd.nhtsa.dot.gov/pdf/nrd-30/NCSA/RNotes/2005/809-932/images/809932.pdf as of June 8, 2007.

2007: Ibid., *Safety Belt Use in 2007: Overall Results*, Traffic Safety Facts, Research Note DOT HS 810 841 (Washington, DC: 2007), Internet site http://www-nrd.nhtsa.dot.gov/Pubs/810841.PDF as of May 12, 2008.

Motorcycle helmet use:

1994-98: Ibid., *Research Note, Observed Safety Belt Use in 1998* (Washington, DC: September 1999), table 3, Internet site http://www-nrd.nhtsa.dot.gov/pdf/nrd-30/NCSA/RNotes/1999/98obbelt.html as of January 2003.

2000, 2002: Ibid., *Safety Belt and Helmet Use in 2002 -- Overall Results*, DOT HS 809 500 (Washington, DC: 2002), table 6, Internet site http://www-nrd.nhtsa.dot.gov/pdf/nrd-30/NCSA/Rpts/2002/809-500.pdf as of January 2003.

2004 : Ibid., *Motorcycle Helmet Use in 2005 -- Overall Results,* DOT HS 809 937 (Washington, DC: 2005), http://www-nrd.nhtsa.dot.gov/pdf/nrd-30/NCSA/RNotes/2005/809-937/images/809937.pdf as of Oct. 16, 2006.

2005-06: Ibid., *Motorcycle Helmet Use in 2006 -- Overall Results,* DOT HS 810 678 (Washington, DC: 2006), http://www-nrd.nhtsa.dot.gov/pdf/nrd-30/NCSA/RNotes/2005/809-937/images/809937.pdf as of June 8, 2007.

2007: Ibid., *Motorcycle Helmet Use in 2007: Overall Results,* DOT HS 810840 (Washington, DC: 2007), Internet site: http://www-nrd.nhtsa.dot.gov/Pubs/810840.PDF as of May 12, 2008.

Table 2-30: Estimated Number of Lives Saved by Occupant Protection, Motorcycle Helmets, and Drinking Age Law

	1975-1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	(R) 2005	2006	Total 1975-2006
Safety belts[a,b]	68,940	9,882	10,710	11,259	11,680	11,941	12,882	13,295	14,264	15,095	15,548	15,688	15,383	226,567
Air bags[c]	730	536	783	973	1,208	1,491	1,716	1,978	2,324	2,519	2,660	2,752	2,796	22,466
Motorcycle helmets	15,076	624	617	627	660	745	872	947	992	1,173	1,324	1,554	1,658	26,869
Age 21 minimum legal drinking age	14,816	851	846	846	861	901	922	927	922	918	927	882	890	25,509
Child restraints	3,107	408	480	444	438	447	479	388	383	447	455	424	425	8,325

KEY: R = revised.

[a] Represents all adults and children age 5 and older. Data are for passenger vehicles, which include cars, light trucks, vans, pickups, and utility vehicles. Excludes medium and heavy trucks.

[b] In 2002, the National Highway Traffic Safety Administration (NHTSA) revised its method for estimating lives saved by safety belts. The previous method included survey data from states with and without belt use laws. The current method relies on police-reported restraint use information for each individual occupant fatality. Also, the estimate now includes lives saved in passenger vehicles at all seating positions, where previously it had been front outboard positions only.

[c] In 2002, the National Highway Traffic Safety Administration revised the method for calculating lives saved by air bags.

SOURCE

U.S. Department of Transportation, National Highway Traffic Safety Administration, *Traffic Safety Facts 2006* (Washington DC: 2007), http://www-nrd.nhtsa.dot.gov/Pubs/TSF2006FE.PDF as of Mar. 26, 2008.

Section D
Transit

Table 2-31: Transit Safety and Property Damage Data

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002[e]	2003	2004	2005
Fatalities[a]	339	300	273	281	320	274	264	275	286	299	295	267	280	234	248	236
Injuries[a]	54,556	52,125	55,089	52,668	58,193	57,196	55,288	56,132	55,990	55,325	56,697	53,945	19,260	18,235	18,982	18,131
Accidents[b]	58,002	46,467	36,380	30,559	29,972	25,683	25,166	24,924	23,937	23,310	24,261	23,891	13,968	7,793	(R) 7,842	8,151
Incidents[a,b] (includes accidents)	90,163	83,139	73,531	64,986	70,693	62,471	59,392	61,561	60,094	58,703	59,898	58,149	30,331	19,797	20,939	21,016
Vehicle-miles (millions)	2,490	2,478	2,510	2,535	2,581	2,620	2,605	2,702	2,833	2,927	3,002	3,090	3,084	3,071	3,139	3,098
Rates per 100 million vehicle-miles[c]																
Fatalities (all reportable incidents)	13.6	12.1	10.9	11.1	12.4	10.5	10.1	10.2	10.1	10.2	9.8	8.6	9.1	7.6	7.9	7.6
Injuries (all reportable incidents)	2,191	2,103	2,195	2,077	2,254	2,183	2,122	2,078	1,976	1,890	1,889	1,746	624	594	605	585
Accidents	2,329	1,875	1,450	1,205	1,161	980	966	922	845	796	808	773	453	254	250	263
Property damage[d] (current $ millions)	38.0	37.5	37.5	44.9	38.4	46.3	57.6	55.5	61.5	55.3	58.9	73.1	32.2	59.2	43.4	71.7

KEY: R = revised.

[a] Totals do not include data for cable car, inclined plane, jitney, and ferry boat. These data appear in the footnotes for table 2-33.

[b] Accidents include collisions with other vehicles, objects, and people (except suicides), and derailments/buses going off the road. Incidents include accidents plus personal casualties (inside vehicles, inside stations, and boarding and alighting vehicle) and fires.

[c] Fatality and injury rates are based on total incidents including accidents and were calculated by dividing the number of fatalities, injuries, and incidents in this table by the number of vehicle miles.

[d] Total does not include property damage for cable car, inclined plane, jitney, and ferry boat, which were: 1990–$335,000; 1991–$410,000; 1992–$288,000; 1993–$221,000; 1994–$322,000; 1995–$3,263,000; 1996–$157,000; 1997–$67,000; 1998–$24,000; 1999–$104,000; 2000–$77,000; 2001–$1,605,000; 2002–$254,000; 2003–$15,348,000; 2004–$604,000. The large increase in excluded property damage reported in 2003 is a result of the Staten Island Ferry incident on Oct. 16, 2003 which resulted in $15,000,000 of property damage.

[e] The drop in the number of incidents, accidents, injuries, and property damage is due largely to a change in definitions by the Federal Transit Administration, particularly the definition of injuries. Only injuries requiring immediate medical treatment away from the scene now qualify as reportable. Previously, any injury was reportable. Commuter rail data are now derived from the Federal Railroad Administration's Rail Accident Incident Reporting System (RAIRS). In addition, in 2002 the threshold for reporting property damage was changed from $1,000 in transit property damage to $7,500 in total property damage.

NOTES

Data are provided only for transit systems that furnished safety data for inclusion in the U.S. Department of Transportation, Federal Transit Administration, *Transit Safety and Security Statistics and Analysis,* annual reports.

Transit vehicle-miles in this table differ from those reported in Chapter 1. The American Public Transit Association, which is the source for the vehicle-miles table in Chapter 1, includes all transit systems, while *Transit Safety and Security Statistics and Analysis Annual Report* covers only directly operated urban transit systems.

Prior to the 2000 edition, *Transit Safety and Security Statistics and Analysis Report* was entitled *Safety Management Information Statistics* (SAMIS) annual report.

Analysts for the FTA believe the change in reporting requirements in 2002 may have resulted in unreliable data in that year, particularly for injuries, accidents, and incidents. The reliability of reporting is believed to be much better in 2003 and is expected to improve in the future.

SOURCE

1990 - 2005: U.S. Department of Transportation, Federal Transit Administration, *Transit Safety and Security Statistics and Analysis Report* (Cambridge, MA: 2006), Internet site http://transit-safety.volpe.dot.gov/Data/Samis.asp as of March 7, 2006 and personal communications, Sep. 9, 2004, Apr. 22, 2005, Apr. 24, 2006, and June 8, 2007.

Table 2-32: Transit Safety Data by Mode[a] for All Reported Accidents[b]

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Fatalities, total	212	215	173	191	225	179	152	185	192	190	183	197	109	120	111	106	121
Motor bus[c]	92	80	91	79	90	69	82	100	90	91	82	89	64	73	61	49	76
Light rail	5	11	6	14	10	10	5	3	14	13	22	15	8	13	14	15	11
Heavy rail	51	59	33	37	41	43	32	28	18	21	19	26	30	17	15	7	12
Commuter rail	63	63	43	59	82	56	30	52	67	64	56	64	7	16	18	28	14
Demand responsive	0	2	0	2	2	1	3	2	2	1	4	3	0	1	0	7	7
Van pool	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	1
Automated guideway	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
Injured persons, total[e]	20,023	20,594	21,653	22,081	20,939	22,159	22,950	21,452	21,341	21,727	22,140	21,260	7,771	10,271	7,829	8,102	8,062
Motor bus[c]	18,876	19,016	20,556	20,862	19,663	20,879	21,222	20,145	20,136	20,291	20,329	19,532	7,211	8,905	7,164	7,187	7,186
Light rail	465	474	468	361	327	355	680	320	332	427	415	305	177	192	245	268	255
Heavy rail	296	308	273	365	309	348	431	336	261	286	425	598	90	218	158	86	94
Commuter rail	84	560	110	210	216	159	213	99	66	54	53	108	50	102	51	263	100
Demand responsive	286	200	233	224	399	395	379	499	492	632	869	679	200	836	174	280	373
Van pool	16	36	13	58	24	23	25	52	53	37	49	38	43	18	37	18	47
Automated guideway	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	7
Accidents, total[e]	58,002	46,468	36,380	30,559	29,972	25,683	25,166	24,924	23,937	23,310	24,261	23,891	13,968	7,793	7,838	(R) 8,152	8,970
Motor bus[c]	55,289	44,467	34,282	28,596	27,754	23,819	23,425	22,995	22,277	21,407	22,127	21,799	12,821	6,720	6,837	(R) 6,983	7,738
Light rail	699	671	600	449	512	309	341	363	328	300	357	344	558	556	490	625	634
Heavy rail	144	188	613	662	744	637	346	325	293	396	364	328	183	152	171	117	131
Commuter rail	175	248	181	208	266	216	201	192	193	215	258	237	89	89	93	68	77
Demand responsive	1,613	814	668	524	659	647	774	886	664	862	997	976	283	267	219	249	356
Van pool	81	79	35	119	36	54	78	160	179	130	157	207	34	9	28	110	32
Automated guideway	1	1	1	1	1	1	1	3	3	0	1	0	0	0	0	0	2
Vehicle-miles (millions), total	2,490	2,478	2,510	2,535	2,581	2,620	2,605	2,702	2,833	2,927	3,002	3,090	3,084	3,071	3,139	3,099	3,128
Motor bus[c]	1,668	1,661	1,688	1,690	1,702	1,702	1,687	1,719	1,779	1,835	1,868	1,911	1,919	1,876	1,891	1,853	1,849
Light rail	24	27	28	27	34	34	37	41	43	48	52	53	60	64	63	67	72
Heavy rail	529	522	520	518	522	537	543	558	566	578	595	608	621	630	643	645	649
Commuter rail	187	188	188	206	210	217	203	216	242	249	253	257	255	256	279	271	283
Demand responsive	74	71	72	77	94	109	108	134	157	167	179	205	172	189	203	196	196
Van pool	8	8	13	16	18	19	25	33	44	49	52	54	56	55	58	65	77
Automated guideway	0.6	0.5	1.0	1.0	1.2	1.1	1.4	1.4	1.4	1.4	1.6	1.8	1.8	1.5	1.5	2	2
Rates per 100 million vehicle-miles[d]																	
Fatalities, all modes	8.5	8.7	6.9	7.5	8.7	6.8	5.8	6.8	6.8	6.5	6.1	6.4	3.5	3.9	3.5	3.4	3.9
Motor bus[c]	5.5	4.8	5.4	4.7	5.3	4.1	4.9	5.8	5.1	5.0	4.4	4.7	3.3	3.9	3.2	2.6	4.1
Light rail	20.8	40.3	21.2	51.1	29.6	29.0	13.3	7.4	32.3	27.1	42.3	28.5	13.3	20.4	22.1	22.4	15.3
Heavy rail	9.6	11.3	6.3	7.1	7.9	8.0	5.9	5.0	3.2	3.6	3.2	4.3	4.8	2.7	2.3	1.1	1.8
Commuter rail	33.6	33.4	22.9	28.6	39.0	25.8	14.8	24.1	27.6	25.7	22.1	24.9	2.7	6.2	6.5	10.3	4.9
Demand responsive	0.0	2.8	0.0	2.6	2.1	0.9	2.8	1.5	1.3	0.6	2.2	1.5	0.0	0.5	0.0	3.6	3.6
Van pool	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.2	0.0	1.3
Automated guideway	162.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	69.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Injured persons, all modes[e]	804	831	863	871	811	846	881	794	753	742	738	688	252	334	249	261	258
Motor bus[c]	1,132	1,145	1,218	1,234	1,155	1,227	1,258	1,172	1,132	1,106	1,088	1,022	376	475	379	388	389
Light rail	1,933	1,735	1,654	1,318	968	1,030	1,815	785	767	889	798	580	293	302	386	400	354
Heavy rail	56	59	52	71	59	65	79	60	46	50	71	98	14	35	25	13	14
Commuter rail	45	297	59	102	103	73	105	46	27	22	21	42	20	40	18	97	35
Demand responsive	386	282	324	292	425	361	349	372	313	379	485	331	117	443	86	143	190
Van pool	208	430	103	363	132	123	101	158	121	75	94	70	77	33	64	28	61
Automated guideway	0	0	0	104	85	0	0	70	69	0	0	0	0	0	0	0	389
Accidents, all modes[e]	2,329	1,875	1,450	1,205	1,161	980	966	922	845	796	808	773	453	254	250	263	287
Motor bus[c]	3,315	2,678	2,031	1,692	1,631	1,400	1,389	1,338	1,252	1,166	1,184	1,141	668	358	362	377	418
Light rail	2,906	2,456	2,121	1,639	1,516	897	910	891	758	624	687	654	925	874	773	933	881
Heavy rail	27	36	118	128	142	119	64	58	52	69	61	54	29	24	27	18	20
Commuter rail	93	132	96	101	127	100	99	89	80	86	102	92	35	35	33	25	27
Demand response	2,177	1,147	928	682	702	591	714	661	423	516	557	476	165	141	108	127	182
Van pool	1,052	944	278	744	198	289	314	485	408	263	301	380	61	16	48	169	42
Automated guideway	162	204	102	104	85	87	69	209	207	0	62	0	0	0	0	0	111

[a] Accident statistics for cable car, inclined plane, jitney, and ferry boat are not available. The number of incidents, fatalities, and injuries for these modes appear in the footnotes for table 2-33a.

[b] Accidents include collisions with vehicles, objects, people (except suicides), and derailments/vehicles going off road

[c] Motor bus also includes trolley bus.

[d] Rates are based on total incidents including accidents and were calculated by dividing the number of fatalities, injuries, and incidents in this table by the number of vehicle-miles.

[e] In 2002 the drop in the number of accidents and injuries is due largely to a change in definitions by the Federal Transit Administration, particularly the definition of injuries. Only injuries requiring immediate medical treatment away from the scene now qualify as reportable. Previously, any injury was reportable. Commuter rail data are now derived from the Federal Railroad Administration's Rail Accident Incident Reporting System (RAIRS).

NOTES

Data are provided only for transit systems that furnished safety data for inclusion in the U.S. Department of Transportation, Federal Transit Administration *Transit Safety and Security Statistics and Analysis* annual reports. Data covers only directly operated urban transit systems. Vehicle-miles for all transit systems including nonurban and purchased can be found in the vehicle-miles table in chapter 1.

Prior to the 2000 edition, *Transit Safety and Security Statistics and Analysis Report* was entitled *Safety Management Information Statistics* (SAMIS) annual report.

Analysts for the FTA believe the change in reporting requirements in 2002 may have resulted in unreliable data in that year, particularly for injuries and accidents. The reliability of reporting is believed to be much better in 2003 and is expected to improve in the future.

Numbers may not add to totals due to rounding.

SOURCE

U.S. Department of Transportation, Federal Transit Administration, *2002 Safety and Security Statistics* , personal communications, Oct. 8, 2004, Apr. 22, 2005, Apr. 24, 2006, and June 14, 2007 June, 18 2008.

Table 2-33a: Transit Safety Data by Mode[a] for All Reported Incidents[b]

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Fatalities, total	339	300	273	281	320	274	264	275	286	299	295	267	280	234	248	236	227
Motor bus[c]	110	88	99	83	108	82	101	109	109	102	90	95	78	87	77	66	94
Light rail	7	13	9	15	13	15	6	3	23	17	30	21	13	17	22	19	17
Heavy rail	117	103	91	83	85	79	74	77	54	84	80	59	73	49	59	35	23
Commuter rail	104	93	74	98	112	92	72	79	94	95	87	87	116	77	86	105	85
Demand responsive	0	3	0	2	2	6	11	7	4	1	8	5	0	4	0	8	7
Van pool	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	1
Automated guideway	1	0	0	0	0	0	0	0	2	0	0	0	0	0	1	3	0
Injured persons, total[f]	54,556	52,125	55,089	52,668	58,193	57,196	55,288	56,132	55,990	55,325	56,697	53,945	19,260	18,235	18,982	18,131	19,238
Motor bus[c]	40,006	38,619	40,090	38,873	42,195	41,297	39,709	39,181	41,035	41,221	40,925	38,840	11,995	11,493	11,898	11,560	11,812
Light rail	1,244	1,251	1,268	982	1,181	1,319	1,604	1,087	1,076	1,271	1,338	1,201	557	539	633	618	659
Heavy rail	10,036	9,285	10,446	10,532	11,673	11,238	11,093	12,285	11,059	9,665	10,848	10,641	4,806	4,158	4,738	3,814	4,721
Commuter rail	2,438	2,308	2,546	1,560	2,374	2,374	1,953	2,388	1,677	1,761	1,783	1,813	1,483	1,597	1,364	1,672	1,426
Demand responsive	807	622	713	652	731	935	882	1,121	1,064	1,345	1,736	1,374	347	401	296	447	553
Van pool	21	40	19	59	29	25	27	54	67	41	52	40	44	18	38	18	48
Automated guideway	4	0	7	10	10	8	20	16	12	21	15	36	28	29	15	2	19
All incidents, total[f]	90,163	83,139	73,531	64,986	70,693	62,471	59,392	61,561	60,094	58,703	59,898	58,149	30,331	19,797	20,939	21,016	22,593
Motor bus[c]	70,437	63,453	52,182	45,580	49,185	42,780	40,456	40,524	41,616	41,094	41,677	40,321	19,892	11,053	11,787	11,940	13,112
Light rail	1,465	1,543	1,492	1,136	1,413	1,276	1,350	1,173	1,121	1,182	1,319	1,299	1,105	983	931	1,130	1,138
Heavy rail	12,178	14,102	15,512	15,082	15,869	14,327	13,748	15,151	13,516	12,196	12,782	12,406	7,078	5,554	6,222	5,741	6,176
Commuter rail	3,031	2,716	3,160	2,111	3,115	2,847	2,449	3,078	2,410	2,499	2,072	2,159	1,720	1,749	1,598	1,663	1,575
Demand responsive	2,965	1,241	1,137	946	1,062	1,173	1,284	1,454	1,221	1,577	1,871	1,719	478	414	353	426	547
Van pool	84	83	40	121	39	58	80	162	194	135	160	209	35	11	29	110	33
Automated guideway	3	1	8	10	10	10	25	19	16	20	17	36	23	33	19	6	12
Unlinked passenger trips (millions)[d], total	7,646	7,380	7,318	7,059	7,335	7,172	7,211	7,615	7,774	8,149	8,337	8,554	8,519	8,230	8,246	(R) 8,427	8,589
Motor bus[c]	4,912	4,780	4,728	4,585	4,567	4,539	4,464	4,554	4,712	4,926	4,959	5,065	5,078	4,810	4,732	4,815	4,822
Light rail	174	184	187	187	274	249	259	259	273	289	316	327	333	334	345	372	396
Heavy rail	2,252	2,123	2,119	1,960	2,149	2,034	2,157	2,429	2,393	2,521	2,632	2,728	2,688	2,667	2,748	2,806	2,920
Commuter rail	286	274	262	303	318	322	302	311	360	374	388	390	380	375	377	383	399
Demand responsive	14	13	13	15	17	18	17	48	22	23	24	27	23	25	25	26	26
Van pool	2	2	3	4	5	5	6	8	9	10	10	10	10	11	10	12	15
Automated guideway	6	4	5	5	6	6	6	6	6	5	6	8	8	8	9	(R) 12	11
Rates per 100 million unlinked passenger trips (millions)[e]																	
Fatalities, all modes	4.4	4.1	3.7	4.0	4.4	3.8	3.7	3.6	3.7	3.7	3.5	3.1	3.3	2.8	3.0	(R) 2.8	2.6
Motor bus[c]	2.2	1.8	2.1	1.8	2.4	1.8	2.3	2.4	2.3	2.1	1.8	1.9	1.5	1.8	1.6	1.4	1.9
Light rail	4.0	7.1	4.8	8.0	4.7	6.0	2.3	1.2	8.4	5.9	9.5	6.4	3.9	5.1	6.4	5.1	4.3
Heavy rail	5.2	4.9	4.3	4.2	4.0	3.9	3.4	3.2	2.3	3.3	3.0	2.2	2.7	1.8	2.1	1.2	0.8
Commuter rail	36.4	33.9	28.3	32.4	35.2	28.6	23.8	25.4	26.1	25.4	22.4	22.3	30.6	20.5	22.8	27.4	21.3
Demand responsive	0.0	22.6	0.0	13.5	12.0	33.9	65.5	14.6	18.1	4.3	32.8	18.6	0.0	15.9	0.0	(R) 30.5	27.1
Van pool	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28.7	0.0	6.7
Automated guideway	17.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	32.5	0.0	0.0	0.0	0.0	0.0	10.7	(R) 26.0	0.0
Injured persons, all modes[f]	714	706	753	746	793	798	767	737	720	679	680	631	226	222	230	215	224
Motor bus[c]	815	808	848	848	924	910	890	860	871	837	825	767	236	239	251	240	245
Light rail	715	682	677	524	432	529	620	419	394	440	423	368	167	162	183	166	166
Heavy rail	446	437	493	537	543	553	514	506	462	383	412	390	179	156	172	136	162
Commuter rail	853	843	972	516	747	738	646	769	466	471	459	465	391	425	362	437	357
Demand responsive	5,835	4,678	5,393	4,401	4,390	5,286	5,251	2,336	4,821	5,846	7,113	5,117	1,524	1,593	1,189	(R) 1,707	2,140
Van pool	1,037	1,721	584	1,398	638	537	461	701	773	411	524	405	453	167	364	(R) 144	322
Automated guideway	68	0	127	194	160	123	317	272	195	389	239	464	364	353	160	(R) 17	170
All incidents, all modes[f]	1,179	1,126	1,005	921	964	871	824	808	773	720	718	680	356	241	254	249	263
Motor bus[c]	1,434	1,327	1,104	994	1,077	943	906	890	883	834	840	796	392	230	249	248	272
Light rail	842	841	796	606	516	512	522	452	411	410	417	398	331	295	270	304	287
Heavy rail	541	664	732	769	738	705	637	624	565	484	486	455	263	208	226	205	212
Commuter rail	1,060	991	1,207	698	980	885	810	991	670	668	533	554	453	466	424	(R) 435	394
Demand responsive	21,440	9,333	8,600	6,385	6,378	6,632	7,644	3,030	5,532	6,854	7,666	6,402	2,099	1,645	1,418	(R) 1,626	2,117
Van pool	4,147	3,570	1,229	2,867	858	1,245	1,366	2,104	2,238	1,353	1,611	2,116	360	102	277	(R) 881	221
Automated guideway	51	28	145	194	160	154	396	323	260	371	271	464	299	401	203	(R) 52	107

[a] The figures for cable car, inclined plane, jitney, and ferry boat are lumped together and appear in this footnote. Note that the 2003 data include 11 fatalities and 70 injuries that resulted from the Oct. 16, 2003 Staten Island Ferry incident.

Other Modes	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Fatalities:	**2**	**1**	**0**	**1**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**2**	**12**	**0**	**0**	**1**
Injuries:	**378**	**327**	**399**	**383**	**616**	**598**	**354**	**357**	**379**	**1,091**	**762**	**897**	**35**	**133**	**58**	**18**	**40**
Incidents:	**186**	**411**	**400**	**411**	**650**	**536**	**301**	**353**	**253**	**1,078**	**745**	**891**	**69**	**90**	**59**	**25**	**42**

[b] Incidents include accidents (collisions with vehicles, objects, people (except suicides), derailments/vehicles going off road), plus personal casualties, fires, and property damage associated with transit agency revenue vehicles and all transit facilities.

[c] Motor bus also includes trolley bus.

[d] The number of unlinked passenger trips is equivalent to the number of passengers who board public transit vehicles. Passengers are counted each time they board a vehicle regardless of how many vehicles are necessary for a passenger to get to their destination

[e] Rates are based on total incidents including accidents and were calculated by dividing the number of fatalities, injuries, and incidents in this table by the number of unlinked passenger trips.

[f] In 2002 the drop in the number of incidents and injuries is due largely to a change in definitions by the Federal Transit Administration, particularly the definition of injuries. Only injuries requiring immediate medical treatment away from the scene now qualify as reportable. Previously, any injury was reportable. Commuter rail data are now derived from the Federal Railroad Administration's Rail Accident Incident Reporting System (RAIRS).

NOTES

Data are provided only for transit systems that furnished safety data for inclusion in the U.S. Department of Transportation, Federal Transit Administration *Transit Safety and Security Statistics and Analysis* annual reports. Data covers only directly operated urban transit systems. Vehicle-miles for all transit systems including nonurban and purchased can be found in the vehicle-miles table in chapter 1.

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Analysts for the FTA believe the change in reporting requirements in 2002 may have resulted in unreliable data in that year, particularly for injuries and incidents. The reliability of reporting is believed to be much better in 2003 and is expected to improve in the future.

SOURCE

U.S. Department of Transportation, Federal Transit Administration, *2004 Transit Safety and Security Statistics and Analysis Report* (Cambridge, MA: 2005) and personal communications, Oct. 13, 2004, Apr. 22, 2005, Apr. 24, 2006, June 14, 2007 and June 18, 2008.

Table 2-33b: Transit and Grade-Crossing Fatalities by Rail Transit Mode

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
All transit rail, total	186	152	159	171	196	197	167	202	143	167	159	125
Transit only	169	145	147	145	175	177	154	178	122	138	101	92
Grade crossing	17	7	12	26	21	20	13	24	21	29	58	33
Light rail, total	15	6	3	23	17	30	21	13	17	22	19	17
Transit only	N	N	N	N	N	18	20	12	13	12	9	9
Grade crossing	N	N	N	N	N	12	1	1	4	10	10	8
Heavy rail, total	79	74	77	54	84	80	59	73	49	59	35	23
Transit only	N	N	N	N	N	80	58	73	48	58	35	22
Grade crossing	N	N	N	N	N	0	1	0	1	1	0	1
Commuter rail, total	92	72	79	94	95	87	87	116	77	86	105	85
Transit only	N	N	N	N	N	79	76	93	61	68	57	61
Grade crossing	N	N	N	N	N	8	11	23	16	18	48	24

KEY: N = data do not exist

NOTES

Light rail and heavy rail grade crossings are regulated by the Federal Transit Administration. The Federal Transit Adminstration defines two types of grade crossings: (1) At grade, mixed, and cross traffic crossings, meaning railway right-of-way over which other traffic moving in the same direction or other cross directions may pass. This includes city street right-of-way; (2) At grade with cross traffic crossings, meaning railway right-of-way over which no other traffic may pass, except to cross at grade-level crossings. This can include median strip rights-of-way with grade level crossings at intersecting streets.

Commuter rail grade crossings are regulated by the Federal Railroad Administration. The Federal Railroad Administration defines a grade crossing as a location where a public highway, road, street, or private roadway, including associated sidewalks and pathways, crosses one or more railroad tracks at grade.

SOURCE

1995-2006: U.S. Department of Transportation, Federal Transit Administration, *Transit Safety and Security Statistics and Analysis Annual Report* , (Washington, DC: Annual issues), Internet site http://transit-safety.volpe.dot.gov/ as of Apr. 5, 2006, and personal communications June 8, 2005, Apr. 5, 2006, June 14, 2007, June 18, 2008 .

Table 2-33c: Transit and Grade-Crossing Injuries by Rail Transit Mode

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
All transit rail, total	14,931	14,650	15,760	13,812	12,697	13,969	13,655	6,846	6,294	6,735	6,104	6,806
Transit only	14,736	14,466	15,634	13,754	12,538	13,846	13,581	6,738	6,177	6,582	5,910	6,598
Grade crossing	195	184	126	58	159	123	74	108	117	153	194	208
Light rail, total	1,319	1,604	1,087	1,076	1,271	1,338	1,201	557	539	633	618	659
Transit only	N	N	N	N	N	1,227	1,147	481	471	519	458	505
Grade crossing	N	N	N	N	N	111	54	76	68	114	160	154
Heavy rail, total	11,238	11,093	12,285	11,059	9,665	10,848	10,641	4,806	4,158	4,738	3,814	4,721
Transit only	N	N	N	N	N	10,847	10,634	4,801	4,158	4,738	3,813	4,721
Grade crossing	N	N	N	N	N	1	7	5	0	0	1	0
Commuter rail, total	2,374	1,953	2,388	1,677	1,761	1,783	1,813	1,483	1,597	1,364	1,672	1,426
Transit only	N	N	N	N	N	1,772	1,800	1,456	1,548	1,325	1,639	1,372
Grade crossing	N	N	N	N	N	11	13	27	49	39	33	54

KEY: N = data do not exist

NOTES

Light rail and heavy rail grade crossings are regulated by the Federal Transit Administration. The Federal Transit Adminstration defines two types of grade crossings: (1) At grade, mixed, and cross traffic crossings, meaning railway right-of-way over which other traffic moving in the same direction or other cross directions may pass. This includes city street right-of-way; (2) At grade with cross traffic crossings, meaning railway right-of-way over which no other traffic may pass, except to cross at grade-level crossings. This can include median strip rights-of-way with grade level crossings at intersecting streets.

Commuter rail grade crossings are regulated by the Federal Railroad Administration. The Federal Railroad Administration defines a grade crossing as a location where a public highway, road, street, or private roadway, including associated sidewalks and pathways, crosses one or more railroad tracks at grade.

Data thresholds changed for certain elements beginning with 2002. The extreme drop in the incidents, injuries, collisions, and not otherwise classifieds (personal casualties) for 2002 is due to the change of the incident thresholds, specifically the definition of injuries, in the NTD. The injury definition was changed for the 2002 revision of the NTD to coincide with other USDOT modes. Only incidents involving immediate medical treatment away from the scene now qualify as reportable injuries. Previously, any reported incident/injury was reported to NTD. It was felt that this resulted in the collection of claims-based as opposed to safety-based data.

SOURCE

1995-2005: U.S. Department of Transportation, Federal Transit Administration, *Transit Safety and Security Statistics and Analysis Annual Report*, (Washington, DC: Annual issues), Internet site http://transit-safety.volpe.dot.gov/ as of Apr. 5, 2006, and personal communications June 8, 2005, Apr. 5, 2006, June 14, 2007, June 18, 2008.

Table 2-33d: Transit and Grade-Crossing Incidents by Rail Transit Mode

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
All transit rail, total	18,450	17,547	19,402	17,047	15,877	16,173	15,864	9,903	8,286	8,751	8,534	8,889
Transit only	18,323	17,413	19,283	16,941	15,737	16,025	15,763	9,505	8,010	8,440	7,999	8,713
Grade crossing	127	134	119	106	140	148	101	398	276	311	535	176
Light rail, total	1,276	1,350	1,173	1,121	1,182	1,319	1,299	1,105	983	931	1,130	1,138
Transit only	1,178	1,253	1,107	1,055	1,079	1,213	1,245	785	766	693	689	1,041
Grade crossing	98	97	66	66	103	106	54	320	217	238	441	97
Heavy rail, total	14,327	13,748	15,151	13,516	12,196	12,782	12,406	7,078	5,554	6,222	5,741	6,176
Transit only	14,325	13,746	15,146	13,513	12,195	12,781	12,398	7,076	5,553	6,221	5,740	6,173
Grade crossing	2	2	5	3	1	1	8	2	1	1	1	3
Commuter rail, total	2,847	2,449	3,078	2,410	2,499	2,072	2,159	1,720	1,749	1,598	1,663	1,575
Transit only	2,820	2,414	3,030	2,373	2,463	2,031	2,120	1,644	1,691	1,526	1,570	1,499
Grade crossing	27	35	48	37	36	41	39	76	58	72	93	76

NOTES

Light rail and heavy rail grade crossings are regulated by the Federal Transit Administration. The Federal Transit Adminstration defines two types of grade crossings: (1) At grade, mixed, and cross traffic crossings, meaning railway right-of-way over which other traffic moving in the same direction or other cross directions may pass. This includes city street right-of-way; (2) At grade with cross traffic crossings, meaning railway right-of-way over which no other traffic may pass, except to cross at grade-level crossings. This can include median strip rights-of-way with grade level crossings at intersecting streets.

Commuter rail grade crossings are regulated by the Federal Railroad Administration. The Federal Railroad Administration defines a grade crossing as a location where a public highway, road, street, or private roadway, including associated sidewalks and pathways, crosses one or more railroad tracks at grade.

Data thresholds changed for certain elements beginning with 2002. The extreme drop in the incidents, injuries, collisions, and not otherwise classifieds (personal casualties) for 2002 is due to the change of the incident thresholds, specifically the definition of injuries, in the NTD. The injury definition was changed for the 2002 revision of the NTD to coincide with other USDOT modes. Only incidents involving immediate medical treatment away from the scene now qualify as reportable injuries. Previously, any reported incident/injury was reported to NTD. It was felt that this resulted in the collection of claims-based as opposed to safety-based data.

SOURCE

1995-2005: U.S. Department of Transportation, Federal Transit Administration, *Transit Safety and Security Statistics and Analysis Annual Report*, (Washington, DC: Annual issues), Internet site http://transit-safety.volpe.dot.gov/ as of Apr. 5, 2006, and personal communications June 8, 2005, Apr. 5, 2006, June 14, 2007, June 18, 2008.

Table 2-34: Reports of Violent Crime, Property Crime, and Arrests by Transit Mode

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Reported Offenses, Violent Crime												
Homicide[a]	19	20	19	51	21	12	16	0	4	1	1	2
Motor bus	8	9	6	40	7	7	8	0	2	0	1	0
Commuter rail	1	1	4	1	3	1	2	0	1	0	0	2
Demand responsive	0	0	0	0	0	0	0	0	0	0	0	0
Heavy rail	8	9	8	6	11	4	4	0	1	1	0	0
Light rail	2	1	1	4	0	0	2	0	0	0	0	0
Other[b]	0	0	0	0	0	0	0	0	0	0	0	0
Forcible rape[c]	29	38	31	47	27	37	37	65	25	24	23	5
Motor bus	11	13	10	16	14	10	7	40	2	7	11	1
Commuter rail	5	4	7	1	3	3	5	1	3	0	2	0
Demand responsive	0	0	2	4	1	0	1	0	0	1	0	0
Heavy rail	13	19	8	24	8	20	9	20	15	12	4	3
Light rail	0	2	4	2	0	4	2	4	5	4	6	1
Other[b]	0	0	0	0	1	0	13	0	0	0	0	0
Robbery[d]	2,811	4,563	4,760	3,684	3,789	3,480	3,308	1,641	1,408	1,561	1,656	2,222
Motor bus	909	871	870	605	764	916	953	386	369	476	535	730
Commuter rail	181	242	187	133	183	144	144	89	29	44	107	126
Demand responsive	1	3	0	1	3	4	4	7	1	0	2	14
Heavy rail	1,490	3,164	3,394	2,686	2,588	2,174	1,966	864	762	676	630	861
Light rail	181	238	222	220	200	213	217	287	236	353	377	463
Other[b]	49	45	87	39	51	29	24	8	11	12	5	28
Aggravated assault[e]	2,701	3,084	3,105	2,314	2,448	2,217	2,286	2,560	1,638	1,330	1,332	1,768
Motor bus	1,941	1,677	1,294	1,186	1,268	1,070	1,146	1,383	957	774	760	1007
Commuter rail	133	69	92	80	97	58	109	102	33	78	115	172
Demand responsive	6	13	13	13	14	16	8	24	4	3	6	19
Heavy rail	437	1,074	1,051	837	903	839	786	815	395	279	249	334
Light rail	157	199	143	170	135	208	187	227	220	184	177	217
Other[b]	27	52	512	28	31	26	50	9	29	12	25	19
Reported Offenses, Property Crime												
Theft[f]	10,596	13,238	14,486	11,830	12,896	13,393	13,636	12,843	8,146	7,847	6,007	6,409
Motor bus	2,738	3,408	2,920	2,327	2,487	2,548	2,826	2,631	1,846	1,787	1,593	1,520
Commuter rail	2,238	2,262	2,345	2,021	1,872	2,139	2,001	1,912	563	730	1,224	1,449
Demand responsive	2	8	40	15	4	19	5	42	8	4	2	13
Heavy rail	4,625	6,794	8,321	6,807	7,789	7,856	7,807	7,158	4,802	4,396	2,204	2,527
Light rail	451	609	479	496	530	724	706	1,055	877	915	856	847
Other[b]	542	157	381	164	214	107	291	45	50	15	128	53
Vehicle theft[g]	2,182	2,261	2,276	2,225	1,876	2,112	1,909	2,117	1,800	1,584	1,361	1,051
Motor bus	263	306	198	208	198	169	213	222	149	169	382	229
Commuter rail	253	125	262	470	272	367	308	152	67	63	54	126
Demand responsive	0	1	3	9	28	6	6	5	3	1	0	8
Heavy rail	1,536	1,694	1,630	1,234	1,203	1,285	1,143	1,426	1,267	966	490	388
Light rail	128	135	179	273	156	279	226	310	306	385	434	298
Other[b]	2	0	4	31	19	6	13	2	8	0	1	2
Burglary[h]	1,759	1,650	1,757	491	415	563	625	467	429	601	393	681
Motor bus	156	104	94	75	86	142	120	95	79	160	142	100
Commuter rail	178	177	260	217	170	191	188	78	83	96	112	154
Demand responsive	2	0	4	3	1	6	2	2	2	1	1	1
Heavy rail	1,367	1,278	1,343	110	91	82	119	95	53	40	25	54
Light rail	43	78	48	70	42	131	180	197	212	303	105	367
Other[b]	13	13	8	16	25	11	16	0	0	1	8	5
Arson[i]	63	96	75	60	53	50	44	23	23	42	27	26
Motor bus	29	67	33	21	15	24	12	8	9	23	11	13
Commuter rail	14	1	21	10	12	6	9	8	3	2	2	1
Demand responsive	0	0	0	0	0	0	0	0	0	0	0	0
Heavy rail	14	22	16	27	20	16	15	4	10	7	2	5
Light rail	6	6	5	2	6	4	8	0	1	10	12	6
Other[b]	0	0	0	0	0	0	0	3	0	0	0	1
Reported Offenses, Arrests												
Other assaults[j]	2,991	3,088	2,697	2,787	2,641	2,799	2,441	1,589	1,752	1,546	1,530	2,141
Motor bus	1,896	1,571	1,439	1,400	1,217	1,159	1,024	715	800	710	703	1023
Commuter rail	144	106	140	122	164	142	156	72	37	136	181	196
Demand responsive	4	0	16	3	4	3	6	12	2	3	3	29
Heavy rail	645	932	881	898	888	1,085	999	662	750	572	462	630
Light rail	181	330	195	282	269	354	204	101	153	107	164	214
Other[b]	121	149	26	82	99	56	52	27	10	18	17	49

Vandalism[k]	17,228	8,627	9,539	6,571	6,895	7,312	2,971	1,130	953	994	1,298	1,748
Motor bus	13,343	6,167	5,262	3,656	4,178	4,579	1,410	523	456	429	568	589
Commuter rail	1,071	309	659	778	507	264	293	145	9	122	276	507
Demand responsive	12	17	8	10	16	7	9	7	2	0	5	5
Heavy rail	1,157	1,339	1,128	1,067	1,222	1,200	984	190	220	201	209	213
Light rail	1,505	609	2,084	947	892	1,215	246	256	246	235	233	408
Other[b]	140	186	398	113	80	47	29	9	20	7	7	26
Sex offenses[l]	664	803	1,047	962	1,009	844	798	N	N	N	N	N
Motor bus	242	260	363	258	321	220	178	N	N	N	N	N
Commuter rail	100	41	82	91	85	84	80	N	N	N	N	N
Demand responsive	5	0	6	2	5	1	3	N	N	N	N	N
Heavy rail	249	430	517	541	515	477	474	N	N	N	N	N
Light rail	59	71	79	68	80	58	60	N	N	N	N	N
Other[b]	9	1	0	2	3	4	3	N	N	N	N	N
Drug abuse violations[m]	2,578	3,944	4,355	3,792	4,131	4,083	4,339	N	N	N	N	N
Motor bus	1,037	2,122	1,970	1,414	1,705	1,443	1,179	N	N	N	N	N
Commuter rail	303	393	477	495	303	196	389	N	N	N	N	N
Demand responsive	1	0	15	21	8	1	2	N	N	N	N	N
Heavy rail	1,078	1,130	1,530	1,550	1,606	1,915	2,015	N	N	N	N	N
Light rail	151	298	336	271	501	520	739	N	N	N	N	N
Other[b]	8	1	27	41	8	8	15	N	N	N	N	N
Driving under the influence[n]	466	129	205	176	204	194	284	N	N	N	N	N
Motor bus	91	82	101	101	132	67	156	N	N	N	N	N
Commuter rail	26	21	22	21	12	44	26	N	N	N	N	N
Demand responsive	0	0	1	4	0	0	1	N	N	N	N	N
Heavy rail	52	8	22	21	42	39	57	N	N	N	N	N
Light rail	292	16	31	21	15	33	22	N	N	N	N	N
Other[b]	5	2	28	8	3	11	22	N	N	N	N	N
Drunkenness[o]	10,479	6,921	8,632	12,643	11,487	6,087	8,033	N	N	N	N	N
Motor bus	6,457	3,936	5,346	3,046	3,609	3,337	4,693	N	N	N	N	N
Commuter rail	71	23	226	156	112	170	108	N	N	N	N	N
Demand responsive	2	2	46	34	2	1	4	N	N	N	N	N
Heavy rail	1,511	1,617	1,601	7,340	5,831	1,240	1,308	N	N	N	N	N
Light rail	2,255	1,305	1,258	1,844	1,913	1,316	1,598	N	N	N	N	N
Other[b]	183	38	155	223	20	23	322	N	N	N	N	N
Disorderly conduct[p]	22,206	26,178	25,325	15,897	15,971	27,314	32,569	N	N	N	N	N
Motor bus	4,681	5,025	6,978	4,521	5,471	3,745	3,253	N	N	N	N	N
Commuter rail	810	1,085	1,399	1,525	797	706	607	N	N	N	N	N
Demand responsive	5	8	47	5	5	6	2	N	N	N	N	N
Heavy rail	15,258	19,183	15,309	8,227	7,856	21,087	27,626	N	N	N	N	N
Light rail	1,164	800	1,177	1,408	1,767	1,737	1,046	N	N	N	N	N
Other[b]	288	77	415	211	75	33	35	N	N	N	N	N
Trespassing[q]	3,362	3,497	7,444	6,049	3,670	4,303	4,597	2,278	4,126	3,162	3,220	4,503
Motor bus	928	604	1,225	1,283	1,065	1,329	1,040	937	1,262	1,115	1138	1392
Commuter rail	845	674	4,150	2,850	1,080	709	1,034	475	270	664	730	1033
Demand responsive	0	0	2	2	0	0	0	13	2	1	12	36
Heavy rail	1,155	1,208	1,398	1,254	1,044	1,267	1,228	483	616	663	634	853
Light rail	400	653	463	443	436	985	1,278	349	1,951	699	677	1151
Other[b]	34	358	206	217	45	13	17	21	25	20	29	38
Fare evasion[r]	33,903	47,873	53,406	58,856	55,194	53,863	47,258	74,385	69,950	103,156	129,590	126,092
Motor bus	3,172	2,372	1,819	1,694	2,388	591	847	3,089	7,427	10,270	21787	4372
Commuter rail	140	334	310	204	167	179	566	3,849	3,873	73	194	11768
Demand responsive	1	1	2	5	1	3	5	201	1	43	2	448
Heavy rail	8,247	39,957	46,106	40,350	35,033	28,933	24,852	20,469	16,459	25,775	15901	12611
Light rail	22,212	1,185	912	12,798	17,320	24,124	20,945	46,766	42,187	66,991	91701	96868
Other[b]	131	4,024	4,257	3,805	285	33	43	11	3	4	5	25
Curfew and loitering laws[s]	1,878	872	1,960	1,161	3,022	3,630	3,391	N	N	N	N	N
Motor bus	1,201	241	1,112	291	495	469	403	N	N	N	N	N
Commuter rail	19	27	223	72	172	329	330	N	N	N	N	N
Demand responsive	0	1	5	0	0	0	0	N	N	N	N	N
Heavy rail	462	493	530	680	1,789	2,324	2,396	N	N	N	N	N
Light rail	161	95	80	106	509	498	251	N	N	N	N	N
Other[b]	35	15	10	12	57	10	11	N	N	N	N	N

KEY: N = data do not exist.

[a] The killing of one or more human beings by another. This includes murder, non-negligent manslaughter, and manslaughter by negligence.

[b] Other transit mode includes automated guideway, cable car, ferryboat, trolleybus, vanpool, monorail, inclined plane, and starting in 2001 the Alaska Railroad.

[c] The carnal knowledge of a female forcibly and against her will. This includes assault to rape or attempt to rape. Beginning in 2006 a higher threshold was required for an incident to be recorded, this lead to a significant decrease compared to previous years.

[d] The taking or attempting to take anything of value from the care, custody, or control of a person or persons by force or threat of force or violence and/or by putting the victim in fear. The use or threat of force includes firearms, knives or cutting instruments, other dangerous weapons (clubs, acid, explosives), and strong-arm techniques (hands, fists, feet).

[e] An unlawful attack by one person upon another for the purpose of inflicting severe or aggravated bodily injury. This type of assault usually is accompanied by the use of a weapon or by means likely to produce death or great bodily harm.

[f] The unlawful taking, carrying, leading, or riding away of property from the possession or constructive possession of another. This includes pocket-picking, purse-snatching, shoplifting, thefts from motor vehicles, thefts of motor vehicle parts and accessories, theft of bicycles, theft from buildings, theft from coin-operated devices or machines, and all other theft not specifically classified.

[g] The theft or attempted theft of a motor vehicle. A motor vehicle is a self-propelled vehicle that runs on the surface of land and not on rails. Examples of motor vehicles are automobiles, trucks, buses, motor cycles, and motor scooters.

[h] The unlawful entry of a structure to commit a felony or a theft. This includes offenses known locally as burglary (any degree), unlawful entry with intent to commit a larceny or felony, breaking and entering with intent to commit a larceny, housebreaking, safe-cracking, and all attempts at these offenses.

[i] To unlawfully and intentionally damage, or attempt to damage, any real or personal property by fire or incendiary device.

[j] An unlawful attack or attempt by one person upon another where no weapon was used or which did not result in serious or aggravated injury to the victim. This includes simple assault, minor assault, assault and battery, injury by culpable negligence, intimidation, coercion, hazing, and all attempts to commit these offenses.

[k] The willful or malicious destruction, injury, disfigurement, or defacement of any public or private property, real or personal, without consent of the owner or person having custody or control by cutting, tearing, breaking, marking, painting, drawing, covering with filth, or any other such means as may be specified by local law.

[l] Any sexual acts except forcible rape, prostitution, and commercialized vice. This includes offenses against chastity, common decency, morals, and the like, such as: adultery and fornication, buggery, incest, indecent exposure, indecent liberties, seduction, sodomy or crime against nature, statutory rape (no force), and all attempts to commit any of the above.

[m] Arrests requested based on the narcotics used. This includes all arrests for violations of state and local laws, specifically those relating to the unlawful possession, sale, use, growing, manufacturing, and making of narcotic drugs.

[n] The driving or operating of any vehicle or common carrier while drunk or under the influence of liquor or narcotics.

[o] Arrests for all offenses of drunkenness, which is the consumption of alcoholic beverages to the extent that one's mental faculties and physical coordination are substantially impaired. This includes drunkenness, drunk and disorderly, common or habitual drunkard, and intoxication.

[p] All charges of committing a breach of the peace. This includes, affray; unlawful assembly; disturbing the peace; disturbing meetings; disorderly conduct in state institutions, at court, at fairs, on trains or public conveyances, etc.; blasphemy, profanity, and obscene language; desecrating the flag; refusing to assist an officer; and all attempts to commit any of the above.

[q] To unlawfully enter land, a dwelling, or other real property.

[r] The unlawful use of transit facilities by riding without paying the applicable fare.

[s] All arrests for violations of local curfew or loitering ordinances where such laws exist.

NOTES

Data are from transit agencies in urbanized areas over 200,000 population and include patrons, employees, and others.

The figures for violent and property crime follow the FBI Uniform Crime Reporting Handbook, (Washington, DC: 1984) and are based on records of calls for service, complaints, and/or investigations. These figures are for reported offenses and do not reflect the findings of a court, coroner, jury, or decision of a prosecutor.

Security data was first reported to the Federal Transit Administration in 1995 and were not compiled for earlier years.

Beginning in 2002, data are no longer collected for the following offenses: sex offenses, drug abuse violations, driving under the influence, drunkeness, disorderly conduct, and curfew and loitering laws.

Analysts for the FTA believe the change in reporting requirements in 2002 may have resulted in unreliable data in that year. The reliability of reporting is believed to be much better in 2003 and is expected to improve in the future.

SOURCES

1995-2001: U.S. Department of Transportation, Federal Transit Administration, *National Transit Database,* Internet site http://www.ntdprogram.com, as of May 6, 2003, tables 25-27 and similar tables in earlier editions.

2002-05: Ibid., personal communications June 14, 2007.

2006-07:: Personal communication, Federal Transit Administrarion, Office of Safety and Security as of Apr. 30, 2008.

Section E
Railroad

Table 2-35: Railroad and Grade-Crossing Fatalities by Victim Class

	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Passengers on trains	4	3	3	8	3	58	5	0	12	6	4	14	4	3	7	3	3	16	2	4
Railroad only	4	3	3	8	3	58	5	0	12	6	2	3	4	3	7	2	3	16	2	4
Grade crossing	0	0	0	0	0	0	0	0	0	0	2	11	0	0	0	1	0	0	0	0
Employees on duty	97	46	40	35	34	47	31	34	33	37	27	31	24	22	20	19	25	25	16	17
Railroad only	97	44	35	34	32	44	30	32	32	37	23	29	22	21	19	18	23	23	12	16
Grade crossing	0	2	5	1	2	3	1	2	1	0	4	2	2	1	1	1	2	2	4	1
Employees not on duty	4	2	0	1	1	4	0	2	0	0	2	0	1	0	1	1	0	0	0	0
Railroad only	3	2	0	1	1	4	0	2	0	0	2	0	1	0	1	1	0	0	0	0
Grade crossing	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Contractor employees	7	4	3	3	11	6	3	7	9	11	5	12	3	4	10	5	4	5	7	5
Railroad only	7	4	3	3	10	6	3	7	9	11	5	11	3	4	9	4	4	5	7	5
Grade crossing	0	0	0	0	1	0	0	0	0	0	0	1	0	0	1	1	0	0	0	0
Nontrespassers[a]	739	507	551	484	475	489	505	443	365	363	326	305	335	269	267	205	242	(R) 249	(R) 237	200
Railroad only	16	10	15	16	12	18	44	32	27	15	9	8	19	11	18	8	18	(R) 23	2	15
Grade crossing	723	497	536	468	463	471	461	411	338	348	317	297	316	258	249	197	224	(R) 226	(R) 235	185
Trespassers	566	474	700	663	646	675	682	660	620	646	644	570	570	673	646	635	621	(R) 593	(R) 648	630
Railroad only	457	391	543	524	533	523	529	494	471	533	536	479	463	511	540	501	475	(R) 463	(R) 518	477
Grade crossing	109	83	157	139	113	152	153	166	149	113	108	91	107	162	106	134	146	(R) 130	(R) 130	153
Volunteer employees	N	N	N	N	N	N	N	N	N	0	0	0	0	0	0	0	0	0	0	0
Railroad only	N	N	N	N	N	N	N	N	N	0	0	0	0	0	0	0	0	0	0	0
Grade crossing	N	N	N	N	N	N	N	N	N	0	0	0	0	0	0	0	0	0	0	0
Railroad only and grade crossing, total	1,417	1,036	1,297	1,194	1,170	1,279	1,226	1,146	1,039	1,063	1,008	932	937	971	951	868	895	(R) 888	(R) 910	856
Railroad only	584	454	599	586	591	653	611	567	551	602	577	530	512	550	594	534	523	(R) 530	(R) 541	517
Grade crossing	833	582	698	608	579	626	615	579	488	461	431	402	425	421	357	334	372	358	(R) 369	339
Motor vehicles	748	521	614	535	506	554	542	508	415	419	369	345	361	345	310	281	290	(R) 283	304	263
Nonmotor vehicles	85	61	84	73	73	72	73	71	73	42	62	57	64	76	47	53	82	(R) 75	(R) 65	76

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

[a] Beginning in 1997, nontrespassers off railroad property are also included.

NOTE

"Railroad only" includes fatalities from train accidents, train incidents, and nontrain incidents (excludes highway-rail grade crossings). This table includes information for both freight and passenger railroad operations.

SOURCES

1980-94: U.S. Department of Transportation, Federal Railroad Administration,*Highway-Rail Crossing Accident/Incident and Inventory Bulletin* (Washington, DC: Annual issues), and the Accident/Incident Bulletin (Washington DC: Annual issues).

1995-2007: Ibid. Table 4.08 and personal communication, Internet site http://safetydata.fra.dot.gov/OfficeofSafety as of May 14, 2008.

Table 2-36: Railroad and Grade-Crossing Injured Persons by Victim Class

	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	(R) 2003	(R) 2004	(R) 2005	(R) 2006	2007
Passengers on trains	593	657	473	382	411	559	497	573	513	601	535	481	658	746	877	726	697	935	757	814
Railroad only	569	646	462	360	329	515	413	543	489	558	516	438	648	726	851	652	670	902	670	762
Grade crossing	24	11	11	22	82	44	84	30	24	43	19	43	10	20	26	74	27	33	87	52
Employees on duty	56,331	29,822	20,970	19,626	17,755	15,363	13,080	10,777	9,199	8,595	8,398	8,622	8,423	7,815	6,644	6,248	6,018	5,804	5,212	5,173
Railroad only	56,186	29,667	20,801	19,479	17,598	15,220	12,955	10,654	9,120	8,484	8,276	8,482	8,323	7,718	6,534	6,173	5,902	5,694	5,119	5,074
Grade crossing	145	155	169	147	157	143	125	123	79	111	122	140	100	97	110	75	116	110	93	99
Employees not on duty	671	419	326	362	310	348	306	252	228	263	219	216	286	209	213	0	200	172	169	176
Railroad only	669	418	324	362	309	347	305	248	226	260	216	215	283	208	213	0	196	169	167	175
Grade crossing	2	1	2	0	1	1	1	4	2	3	3	1	3	1	0	0	4	3	2	1
Contractor employees	74	110	242	219	226	262	252	269	208	334	380	384	368	383	375	372	360	414	404	434
Railroad only	74	109	240	216	224	261	251	268	208	333	379	384	367	380	374	370	359	412	404	405
Grade crossing	0	1	2	3	2	1	1	1	0	1	1	0	1	3	1	2	1	2	0	29
Nontrespassers[a]	3,849	2,562	2,339	2,110	1,909	1,856	1,913	1,869	1,660	1,540	1,236	1,342	1,294	1,201	2,380	1,056	1,242	1,450	1,181	1,090
Railroad only	384	285	349	423	408	432	475	372	431	370	243	335	381	388	1,732	391	548	822	539	529
Grade crossing	3,465	2,277	1,990	1,687	1,501	1,424	1,438	1,497	1,229	1,170	993	1,007	913	813	648	665	694	628	642	561
Trespassers	728	734	793	769	772	733	764	700	750	728	677	650	606	627	609	616	656	685	702	651
Railroad only	474	492	560	534	540	509	452	461	474	516	513	445	414	404	395	398	404	417	474	393
Grade crossing	254	242	233	235	232	224	312	239	276	212	164	205	192	223	214	218	252	268	228	258
Volunteer employees	N	N	N	N	N	N	N	N	N	6	14	5	8	4	5	7	5	1	7	7
Railroad only	N	N	N	N	N	N	N	N	N	6	13	5	8	4	5	7	5	1	7	7
Grade crossing	N	N	N	N	N	N	N	N	N	0	1	0	0	0	0	0	0	0	0	0
Railroad only and grade crossing, total	62,246	34,304	25,143	23,468	21,383	19,121	16,812	14,440	12,558	12,067	11,459	11,700	11,643	10,985	11,103	9,025	9,178	9,461	8,432	8,345
Railroad only	58,356	31,617	22,736	21,374	19,408	17,284	14,851	12,546	10,948	10,527	10,156	10,304	10,424	9,828	10,104	7,991	8,084	8,417	7,380	7,345
Grade crossing	3,890	2,687	2,407	2,094	1,975	1,837	1,961	1,894	1,610	1,540	1,302	1,396	1,219	1,157	999	1,034	1,094	1,044	1,052	1,000
Motor vehicles[b]	3,739	2,561	2,332	2,029	1,891	1,760	1,885	1,825	1,545	1,494	1,257	1,338	1,169	1,110	939	1,000	1,058	1,002	1,020	962
Non_motorvehicles[b]	151	126	75	65	84	77	76	69	65	46	46	58	50	47	60	35	36	44	34	41

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

[a] Beginning in 1997, nontrespassers off railroad property are also included.
[b] The breakout of grade crossing injures was collected at a different point in time then total grade crossing injuries and may not sum to the total of grade crossing injures.

NOTES

Railroad only includes fatalities from train accidents, train incidents, and nontrain incidents (excludes highway-rail grade crossings). This table includes information for both freight and passenger railroad operations.

SOURCES

1980-94: U.S. Department of Transportation, Federal Railroad Administration,*Highway-Rail Crossing Accident/Incident and Inventory Bulletin* (Washington, DC: Annual issues), and *Accident/Incident Bulletin* (Washington, DC: Annual issues).
1995-2007: Ibid., Table 4.08 and personal communication Internet site http://safetydata.fra.dot.gov/OfficeofSafety/ as of Apr. 10, 2008.

Table 2-37: Train Fatalities, Injuries, and Accidents by Type of Accident[a]

	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	(R) 2004	(R) 2005	(R) 2006	2007
Fatalities, total	29	8	10	19	6	67	12	14	25	18	4	9	10	6	15	4	13	33	6	8
Derailments	8	2	2	10	2	53	2	2	6	2	1	1	2	1	7	1	2	2	3	4
Collisions	20	6	8	5	1	14	8	7	16	10	1	7	1	4	4	0	8	6	0	0
Other	1	0	0	4	3	0	2	5	3	6	2	1	7	1	4	3	3	25	3	4
Injuries, total	665	476	451	326	171	308	262	294	281	185	129	129	275	310	1,884	232	346	778	208	220
Derailments[b]	286	197	272	174	71	179	120	90	98	111	61	41	121	113	1691	121	160	233	84	66
Collisions	341	223	139	103	59	87	118	151	146	55	32	62	89	145	151	56	142	92	85	108
Other	38	56	40	49	41	42	24	53	37	19	36	26	65	52	42	55	44	453	39	46
Accidents, total	8,205	3,275	2,879	2,658	2,359	2,611	2,504	2,459	2,443	2,397	2,575	2,768	2,983	3,023	2,738	(R) 3,016	3,380	3,259	2,951	2,580
Derailments	6,442	2,495	2,146	1,936	1,734	1,930	1,825	1,742	1,816	1,741	1,757	1,961	2,112	2,234	1,989	(R) 2,130	2,431	2,301	2,171	1,869
Collisions	1,201	366	315	261	207	205	240	235	205	202	168	205	238	220	192	198	237	251	198	200
Other	562	414	418	461	418	476	439	482	422	454	650	602	633	569	557	(R) 688	712	707	582	511

KEY: R = revised.

[a] Excludes highway-rail grade crossing accidents.

[b] In 2002, 1441 injures were due to a single derailment in North Dakota involving hazardous materials.

NOTES

Train accidents only. This table includes information for both freight and passenger railroad operations.

SOURCES

1980-94: U.S. Department of Transportation, Federal Railroad Administration, *Highway-Rail Crossing Accident/Incident and Inventory Bulletin* (Washington, DC: Annual issues), tables 1-1, 1-3.
1995-2007: Ibid., http://safetydata.fra.dot.gov/OfficeofSafety/ Table 3.09 as of Apr. 8, 2008.

Table 2-38: Railroad Passenger Safety Data

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Passenger fatalities[a]	3	8	3	58	5	0	12	6	4	14	4	3	7	3	3	16	2	4
Injured persons	473	382	411	559	497	573	513	601	535	481	658	746	877	(R) 726	679	(R) 935	761	938
Train-miles, passenger trains (millions)	72	74	74	75	75	76	77	78	78	82	84	88	90	89	89	90	92	95
Fatalities per 100 million passenger train-miles	4	11	4	77	7	0	16	8	5	17	5	3	8	3	3	18	2	4
Injuries per 100 million passenger train-miles	(R) 657	(R) 516	(R) 555	(R) 745	(R) 663	(R) 754	(R) 666	770	683	584	781	850	979	(R) 812	760	(R) 1,040	828	990

KEY: R = revised.

[a] In 1993 a barge struck a rail bridge in Alabama causing an Amtrak train to derail into the waterway below leading to 42 passenger deaths.

NOTE

A train-mile is the movement of a train (which can consist of many cars) the distance of 1 mile. A train-mile differs from a vehicle-mile, which is the movement of 1 car (vehicle) the distance of 1 mile. A 10-car (vehicle) train traveling 1 mile would be measured as 1 train-mile and 10 vehicle-miles. Caution should be used when comparing train-miles to vehicle miles.

SOURCES

Fatalities and injuries:

1990-2001: U.S. Department of Transportation, Federal Railroad Administration, Office of Safety,*Railroad Safety Statistics Annual Report 2001* (Washington, DC: August 2002), table 1-2.
2002-07: U.S. Department of Transportation, Federal Railroad Administration, Office of Safety,*Railroad Safety Statistics Annual Report* (Washington, DC: Annual Issues), table 1-2.

Train-miles, passenger trains:

1990-96: U.S. Department of Transportation, Bureau of Transportation Statistics calculations (sum of all commuter rail train-miles reported to USDOT, Federal Transit Administration, plus Amtrak train-miles).
1997-2001: U.S. Department of Transportation, Federal Railroad Administration, Office of Safety,*Railroad Safety Statistics Annual Report 2001* (Washington, DC: August 2002), table 2-4.
2002: U.S. Department of Transportation, Federal Railroad Administration, Office of Safety,*Railroad Safety Statistics Annual Report 2002* (Washington, DC: March 2004), table 2-4.
2003-04: U.S. Department of Transportation, Federal Railroad Administration, Office of Safety,*Railroad Safety Statistics Annual Report 2003* (Washington, DC: October 2005), table 2-4.
2005-07: U.S. Department of Transportation, Federal Railroad Administration, Office of Safety,*Railroad Safety Statistics Annual Report* (Washington, DC: Annual Issues), table 2-4.

Table 2-39: Railroad System Safety and Property Damage Data (Excludes highway-rail grade-crossing accidents)

	1970	1975	1980	1985	1990	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Fatalities	785	575	584	454	599	567	551	602	577	530	512	550	594	534	(R) 523	(R) 530	(R) 541	517
Injured persons [a]	17,934	50,138	58,696	31,617	22,736	12,546	10,948	10,227	10,156	10,304	10,424	9,828	10,104	(R) 8,217	(R) 8,084	(R) 8,423	(R) 7,389	7,575
Accidents [b]	8,095	8,041	8,205	3,275	2,879	2,459	2,443	2,397	2,575	2,768	2,983	3,023	2,738	(R) 3,017	(R) 3,380	(R) 3,260	(R) 2,957	2,593
Train-miles (millions) [c,d]	839	755	718	571	609	670	671	677	683	712	723	712	729	744	770	790	(R) 809	792
Rate per 100 million train-miles																		
Fatalities	94	76	81	80	98	85	82	89	84	74	71	77	82	72	(R) 68	(R) 67	(R) 67	65
Injuries	N	6,641	8,179	5,538	3,735	1,873	1,632	1,511	1,487	1,446	1,442	1,381	1,387	(R) 1,105	(R) 1,050	(R) 1,066	(R) 913	957
Accidents	965	1,065	1,143	574	473	367	364	354	377	389	413	425	376	(R) 406	(R) 439	(R) 412	(R) 365	328
Property damage (current $ millions)	121.6	177.4	267.4	179.3	198.7	189.2	212.3	210.7	233.9	245.1	263.2	314.5	266.5	298.0	325.1	337.4	305.3	305.3

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

[a] 1970 injuries are not comparable to later years due to a change in reporting system.

[b] Train accidents only; excludes highway-rail grade-crossing accidents.

[c] Train-miles in this table differ from train-miles in the vehicle-miles table in Chapter 1. Train-miles reported in Chapter 1 include only Class I rail (see glossary for definition), while this table includes Class I rail, Group II rail, and other rail. In 2005, Group II rail accounted for 78 million train-miles, and other rail for 29 million train-miles. Moreover, the vehicle-miles table in Chapter 1 includes only train-miles between terminals and/or stations, thus excluding yard and switching miles. In 2005, Class I yard/switching train-miles totaled 67 million train-miles. Note that commuter rail safety data are reported in the rail mode and the transit mode. Commuter rail train-miles are included in Class I rail and Group II rail in this table.

[d] A train-mile is the movement of a train (which can consist of many cars) the distance of 1 mile. A train-mile differs from a vehicle-mile, which is the movement of 1 car (vehicle) the distance of 1 mile. A 10-car (vehicle) train traveling 1 mile would be measured as 1 train-mile and 10 vehicle-miles. Caution should be used when comparing train-miles to vehicle-miles.

NOTE

This table includes information for both freight and passenger railroad operations.

SOURCES

Fatalities, injuries, accidents, and property damage:

1970-90: U.S. Department of Transportation, Federal Railroad Administration, Office of Policy and Program Development, *Accident/Incident Bulletin* (Washington, DC: annual issues), tables 14 and 15.

1995-2000: Ibid., *Railroad Safety Statistics Annual Report 2000* (Washington, DC: July 2001), tables 1-1 and 3-1.

2001-07: Ibid., Internet site http://safetydata.fra.dot.gov/OfficeofSafety/Query/Default.asp as of May 15, 2008.

Train-miles:

1970-90: U.S. Department of Transportation, Federal Transit Administration, *National Transit Database* (Washington, DC: annual issues), form 406.

1995-99: U.S. Department of Transportation, Federal Railroad Administration, Internet site http://safetydata.fra.dot.gov/OfficeofSafety/Forms/Default.asp as of Aug. 22, 2002.

2000-07: Ibid., Internet site http://safetydata.fra.dot.gov/OfficeofSafety/Query/Default.asp as of May. 15, 2008.

Table 2-40: Fatalities and Injuries of On-Duty Railroad Employees

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Employee fatalities, total	40	35	34	47	31	34	33	37	27	31	24	22	20	19	25	25	16	17
Grade-crossing accidents and incidents	5	1	2	3	1	2	1	0	4	2	2	1	1	1	2	2	4	1
Train accidents and incidents only (grade-crossing excluded)	35	34	32	44	30	32	32	37	23	29	22	21	19	18	23	23	12	16
Employee injuries, total	20,970	19,626	17,755	15,363	13,080	10,777	9,199	8,295	8,398	8,622	8,423	7,815	6,644	(R) 6,248	(R) 6,018	(R) 5,809	(R) 5,219	5,233
Grade-crossing accidents and incidents	169	147	157	143	126	123	79	111	122	140	100	97	110	76	116	(R) 110	(R) 95	102
Train accidents and incidents only (grade-crossing excluded)	20,801	19,479	17,598	15,220	12,954	10,654	9,120	8,184	8,276	8,482	8,323	7,718	6,534	(R) 6,172	(R) 5,902	(R) 5,699	(R) 5,124	5,131
Employee hours (millions)	553.6	530.7	517.0	519.7	518.6	510.3	504.6	503.9	514.9	510.0	490.9	475.1	454.1	451.1	458.4	478.4	(R) 485.7	482.8
Fatality rates per million employee hours																		
All accidents / incidents	0.07	0.07	0.07	0.09	0.06	0.07	0.07	0.07	0.05	0.06	0.05	0.05	0.04	(R) 0.04	(R) 0.05	0.05	0.03	0.04
Grade-crossing accidents and incidents	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Train accidents and incidents only (grade-crossing excluded)	0.06	0.06	0.06	0.08	0.06	0.06	0.06	0.07	0.04	0.06	0.04	0.04	0.04	(R) 0.04	(R) 0.05	0.05	0.02	0.03
Injury rates per million employee hours																		
All accidents / incidents	37.9	37.0	34.3	29.6	25.2	21.1	18.2	16.5	16.3	16.9	17.2	16.4	14.6	(R) 13.8	(R) 13.1	(R) 12.1	10.74571	10.8
Grade-crossing accidents and incidents	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.3	(R) 0.2	0.2	0.2
Train accidents and incidents only (grade-crossing excluded)	37.6	36.7	34.0	29.3	25.0	20.9	18.1	16.2	16.1	16.6	17.0	16.2	14.4	13.7	(R) 12.9	(R) 11.9	10.6	10.6
Train-miles (millions)[a,b]	609	577	594	614	655	670	671	677	683	712	723	712	729	744	770	790	809	792
Fatality rates per million train-miles																		
All accidents / incidents	0.07	0.06	0.06	0.08	0.05	0.05	0.05	0.05	0.04	0.04	0.03	0.03	0.03	0.025554	0.032457	0.031626	0.019776	0.02
Grade-crossing accidents and incidents	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Train accidents and incidents only (grade-crossing excluded)	0.06	0.06	0.05	0.07	0.05	0.05	0.05	0.05	0.03	0.04	0.03	0.03	0.03	0.02	0.03	0.03	0.01	0.02
Injury rates per million train-miles																		
All accidents/incidents	34.4	34.0	29.9	25.0	20.0	16.1	13.7	12.3	12.3	12.1	11.7	11.0	9.1	(R) 8.4	(R) 7.8	(R) 7.3	(R) 6.5	6.6
Grade-crossing accidents and incidents	0.3	0.3	0.3	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.1	0.1	0.2	0.1	(R) 0.2	(R) 0.1	(R) 0.1	0.1
Train accidents and incidents only (grade-crossing excluded)	34.2	33.8	29.6	24.8	19.8	15.9	13.6	12.1	12.1	11.9	11.5	10.8	9.0	(R) 8.3	(R) 7.7	(R) 7.2	(R) 6.3	6.5

KEY: R = revised.

[a] Train-miles in this table differ from train-miles in the vehicle-miles table in Chapter 1. Train-miles reported in Chapter 1 include only Class I rail (see glossary for definition), while this table includes Class I rail, Group II rail, and other rail. In 2005, Group II rail accounted for 78 million train-miles, and other rail for 29 million train-miles. Moreover, the vehicle-miles table in Chapter 1 includes only train-miles between terminals and/or stations, thus excluding yard and switching miles. In 2005, Class I yard/switching train miles totaled 67 million train-miles. Note that commuter rail safety data are reported in the rail mode and in the transit mode. Commuter rail train-miles are included in Class I rail and Group II rail in this table.

[b] A train-mile is the movement of a train (which can consist of many cars) the distance of 1 mile. A train-mile differs from a vehicle-mile, which is the movement of 1 car (vehicle) the distance of 1 mile. A 10-car (vehicle) train traveling 1 mile would be measured as 1 train-mile and 10 vehicle-miles. Caution should be used when comparing train-miles to vehicle-miles.

NOTE

This table includes information for both freight and passenger railroad operations.

SOURCES

1990-95: U.S. Department of Transportation, Federal Railroad Administration, *Highway-Rail Crossing Accident/Incident and Inventory Bulletin* (Washington, DC: annual issues).

1996-99: Ibid., *Railroad Safety Statistics Annual Report* (Washington, DC: annual issues), tables 1-3, 2-4, and 3-1.

2000-07: Ibid., Internet site http://safetydata.fra.dot.gov/OfficeofSafety/Query/Default.asp as of Mar. 9, 2008.

Section F
Water

Table 2-41: Waterborne Transportation Safety and Property Damage Data Related to Vessel Casualties

	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Fatalities[a]	178	243	206	131	85	30	97	105	77	53	55	48	69	58	53	53	(R) 65	(R) 62	(R) 50	61
Injuries	105	97	180	172	175	110	170	171	182	154	254	120	130	152	150	210	(R) 183	(R) 251	(R) 216	155
Accidents[b]	2,582	3,310	4,624	3,439	3,613	2,222	5,583	6,126	6,743	5,349	5,260	5,504	5,767	5,526	5,403	4,958	(R) 5,719	(R) 5,018	(R) 4,907	4,901
Vessels[c]	4,063	5,685	7,694	5,694	5,494	3,514	7,190	7,913	9,030	7,802	7,695	7,802	7,824	7,265	7,103	6,439	(R) 6,915	(R) 5,773	(R) 5,975	6,193
Property damage (current $ millions)	U	U	U	U	U	U	201.7	181.5	264.4	159.0	200.8	158.2	234.9	177.1	180.5	100.9	(R) 502.3	(R) 196.5	(R) 215.4	811.0

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

[a] Fatalities include the number of people who died or were declared missing subsequent to a marine accident.

[b] Accidents in this table include the number of "marine casualty cases" reported to the U.S. Coast Guard in accordance with 46 U.S.C. 4.05.

[c] More than one vessel may be involved in a marine accident. Data from 1992 to 2003 has been revised to include vessels involved in pollution incidents, which the United States Coast Guard considers to be a vessel casualty. Data includes all vessel mishaps involving marine pollution discharges.

NOTES

All deaths and injuries cited result from vessel casualties, such as groundings, collisions, fires, or explosions. The data are for all commercial vessels under U.S. jurisdiction, including U.S. flag vessels anywhere in the world and foreign flag vessels within the jurisdiction of the United States (within 12 miles, or having an interaction with a U.S. entity, such as a platform within 200 miles, or a collision with a U.S. ship). Includes commercial fishing vessels.

Guard phased in a new computer system to track safety data, the Marine Information for Safety and Law Enforcement System. During that period data come from combining entries in the Marine Safety Management Information System with entries in the Marine Information for Safety and Law Enforcement System. Data for 2002 to 2004 come from the Marine Information for Safety and Law Enforcement System. Data for prior years come from other sources and may not be directly comparable.

SOURCE

U.S. Department of Homeland Security (formerly U.S. Department of Transportation), U.S. Coast Guard, Data Administration Division (G-MRI-1), personal communications, Nov. 17, 2006.

Table 2-42: Waterborne Transportation Safety Data not Related to Vessel Casualties

	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Fatalities[a]	420	330	281	130	101	56	(R) 89	(R) 79	(R) 89	(R) 92	(R) 86	(R) 84	(R) 95	(R) 74	(R) 69	(R) 49	(R) 41	(R) 50	(R) 35	34
Injuries	U	U	U	U	U	U	(R) 936	(R) 919	(R) 1,081	(R) 1,170	(R) 951	(R) 779	(R) 520	(R) 429	(R) 509	(R) 412	(R) 475	(R) 472	(R) 425	425
Vessels[b]	U	321	274	128	98	51	(R) 1,427	(R) 1,378	(R) 1,592	(R) 1,726	(R) 1,283	(R) 968	(R) 526	(R) 445	(R) 514	(R) 440	(R) 594	(R) 562	(R) 471	504

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

[a] Fatalities include people who were declared missing.

[b] Figures represent the number of vessels involved in nonvessel casualties. These vessels were not part of the accident, but the accident may have occurred on the vessel (e.g., crewmembers swept overboard by a wave).

NOTES

Figures reflect the number of deaths and injuries to people on commercial vessels not resulting from a casualty to the vessel. These injuries and fatalities result from such incidents as slips, falls, or electrocutions. Deaths and injuries from disease, homocides, suicides, fights, and diving accidents have been excluded. The data reflect deaths and injuries to people on both U.S. and foreign flag vessels within the jurisdiction of the United States (within 12 miles of U.S. coast) and on U.S. flag vessels anywhere in the world.

1992-97 data come from the Marine Safety Management Information System. Between 1998 and 2001 the U.S. Coast Guard phased in a new computer system to track safety data, the Marine Information for Safety and Law Enforcement System. During that period data come from combining entries in the Marine Safety Management Information System with entries in the Marine Information for Safety and Law Enforcement System. Data for 2002 to 2004 come from the Marine Information for Safety and Law Enforcement System. Data for prior years come from other sources and may not be directly comparable.

There is a significant difference in the figures provided in 2005 from previous years due to changes in the way marine safety related personnel casualties are now measured. Also, many of the figures for incident investigations in the years 2002 and later are derived from predecisional material and these numbers are subject to change.

SOURCE

U.S. Department of Homeland Security (formerly U.S. Department of Transportation), U.S. Coast Guard, Data Administration Division (G-MRI-1), personal communications, June 29, 2004, June 8, 2005, and June 22, 2007.

Table 2-43: Recreational Boating Safety, Alcohol Involvement, and Property Damage Data

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Fatalities	739	1,360	1,418	1,466	1,360	1,116	865	924	816	800	784	829	709	821	815	734	(c) 701	681	750	703	676	697	710
Injuries	929	927	780	2,136	2,650	2,757	3,822	3,967	3,683	3,559	4,084	4,141	4,442	4,555	4,612	4,315	4,355	4,274	4,062	3,888	3,363	3,451	3,474
Accidents	2,738	3,752	3,803	6,308	5,513	6,237	6,411	6,573	6,048	6,335	6,906	8,019	8,026	8,047	8,061	7,931	7,740	6,419	5,705	5,438	4,904	4,969	4,967
Vessels involved	(a) 3,562	(a) 4,778	4,762	8,002	6,954	8,305	8,591	8,821	8,206	8,688	9,722	11,534	11,306	11,396	11,368	11,190	10,984	8,974	7,907	7,363	6,725	6,628	6,753
Numbered boats (thousands)	(E) 2,500	4,138	5,128	7,303	8,577	9,589	10,996	11,068	11,132	11,283	11,430	11,735	11,878	12,313	12,566	12,738	12,782	12,876	12,854	12,795	12,781	12,942	12,746
Rates per 100,000 numbered boats																							
Fatalities	32.8	32.9	27.7	20.1	15.9	11.6	7.9	8.3	7.3	7.1	6.9	7.1	6.0	6.7	6.5	5.8	5.5	5.3	5.8	5.5	5.3	(R) 5.4	5.6
Injuries	37.1	22.4	15.2	29.2	30.9	28.8	34.8	35.8	33.1	31.5	35.7	35.3	37.4	37.0	36.7	33.9	34.1	33.2	31.6	30.4	26.3	26.7	27.3
Accidents	109.5	90.7	74.2	86.4	64.3	65.0	58.3	59.4	54.3	56.2	60.4	68.3	67.6	65.4	64.2	62.3	60.6	49.9	44.4	42.5	38.4	38.4	39.0
Accident reports citing alcohol involvement[d]	N	N	N	N	N	279	568	513	504	381	389	472	601	698	704	633	696	(R) 375[d]	(R) 357	(R) 362	(R) 331	(R) 402	403.0
Property damage (current $ millions)	3.2	4.7	8.2	10.4	16.4	20.0	23.8	24.8	(b) 34.8	20.2	(a) 25.9	(a) 21.5	23.2	29.0	31.0	28.9	34.7	31.3	39.2	40.4	35.0	38.7	43.7

KEY: E = estimate; N = data do not exist; R = revised

[a] U.S. Department of Transportation, U.S. Coast Guard (CG), Office of Boating Safety, personal communication, May 15, 2002.

[b] Includes $11 million damage due to a boat fire.

[c] The numbers for recreational boating safety fatalities are raw numbers--CG reports a 6% addition as instructed by the DOT Inspector General because it found a discrepancy in a review of the Search and Rescue Management Information System (SARMIS) and BARD data. (See the discussion found in the DOT FY2003 Performance Plan/Report on pg. 135 under data details of recreational boating fatalities).

[d] Starting in 2001 only cases where alcohol is determined to be a direct or inderect cause of an accident are reported. Previous years include cases where alcohol was present but played no role in the accident.

NOTE

Only a small fraction of property damages and nonfatal accidents are reported to the U.S. Coast Guard.

SOURCE

U.S. Department of Homeland Security (formerly U.S. Department of Transportation), U.S. Coast Guard, Office of Boating Safety, *Boating Statistics* (Washington, DC: Annual issues), Internet site http://www.uscgboating.org/statistics/accident_stats.htm as of Mar. 31, 2008.

Table 2-44: Personal Watercraft Safety Data

	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Fatalities	5	20	20	28	26	34	35	56	68	57	84	78	66	68	50	71	57	56	65	68
Injured persons	156	254	402	532	708	730	915	1,338	1,617	1,837	1,812	1,743	1,614	1,580	1,424	1,362	1,228	952	1,007	919
Accidents[a]	376	650	844	1,162	1,513	1,650	2,236	3,002	3,986	4,099	4,070	3,607	3,374	3,268	2,562	2,225	1,994	1,664	1,692	1,631
Sales	29,000	48,000	64,000	72,000	68,000	79,000	107,000	142,000	200,000	191,000	176,000	130,000	106,000	92,000	80,900	79,300	80,600	79,500	80,200	82,200
Number in use	92,756	126,881	178,510	241,376	305,915	372,283	454,545	600,000	760,000	900,000	1,000,000	(R) 1,180,000	(R) 1,200,000	(R) 1,230,000	(R) 1,220,000	(R) 1,220,000	(R) 1,170,000	(R) 1,250,000	(R) 1,230,000	1,220,000

KEY: R = revised.

[a] Total vessels involved.

NOTES

Personal watercraft are less than 13 feet in length and are designed to be operated by a person or persons sitting, standing, or kneeling on the craft rather than within the confines of the hull.

Data on personal watercraft sales and number in use are estimates.

SOURCES

Fatalities, injuries, and accidents:

U.S. Department of Homeland Security (formerly U.S. Department of Transportation), United States Coast Guard, Office of Boating Safety, *Boating Statistics* (Washington, DC: Annual issues), Internet site http://www.uscgboating.org/statistics/accident_stats.htm as of Nov. 8, 2007.

Sales:

1987-90: Personal Watercraft Industry Association, Internet site http://www.pwia.org/Abo_PWC.htm as of June 19, 2000.

1991-2006: Ibid., Internet site http://www.nmma.org/facts/boatingstats/2006/files/Abstract.pdf as of Nov. 8, 2007.

Use:

1987-96: National Marine Manufacturers Association, data compiled by the United States Coast Guard, personal communications.

1997-98: Ibid., Internet site http://www.nmma.org/facts/boatingstats/statistic98.html as of June 19, 2000.

1999-2006: Ibid., Internet site http://www.nmma.org/facts/boatingstats/2006/files/Abstract.pdf as of Nov. 8, 2007.

Table 2-45: U.S. Coast Guard Search and Rescue Statistics, Fiscal Year

	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Cases	60,775	53,097	52,782	53,294	53,026	53,899	49,704	43,553	41,096	37,218	39,844	40,214	39,457	36,763	(R) 31,622	(R) 32,540	29,799	(R) 28,320	27,092
Responses[a]	70,237	64,971	66,409	69,856	69,784	70,337	63,679	55,710	52,141	46,602	50,622	48,226	49,502	46,643	U	U	U	U	U
Sorties[a]	88,449	84,033	84,872	88,388	88,147	108,758	110,267	98,423	91,722	83,307	89,635	57,697	59,015	54,609	33,426	(R) 33,107	(R) 29,860	(R) 29,826	25,411
Search and Rescue resource hours[b]	U	108,282	109,351	108,639	107,441	102,749	93,984	85,150	80,507	80,116	84,635	80,533	85,008	75,841	65,182	(R) 65,876	77,888	60,248	55,312
Lives saved	6,497	4,407	5,465	[f]17,543	5,826	[f]23,211	4,453	5,047	3,897	3,194	3,743	3,400	4,010	3,661	5,196	(R) 5,565	5,650	(R) 29,826	5,216
Lives lost, total	1,335	1,085	1,116	939	1,215	931	772	978	744	606	533	1,018	710	635	673	(R) 783	(R) 846	787	795
Lives lost before notification[c]	259	622	748	540	800	593	468	611	454	418	353	[g]779	413	399	412	502	(R) 523	479	492
Lives lost after notification[d]	1,076	463	368	399	415	338	304	367	290	188	180	239	297	236	261	(R) 281	323	308	303
Persons otherwise assisted	138,791	117,327	113,704	121,826	119,069	116,912	101,357	85,869	75,357	66,138	70,255	54,866	59,910	46,503	(R) 38,579	(R) 42,008	(R) 41,551	(R) 44,757	35,797
Value of property lost ($ million)[e]	424.3	368.5	213.6	314.5	316.2	435.5	222.6	273.8	414.8	84.3	262.3	415.2	441.0	76.0	19.6	(R) 53.5	97.0	(R) 32.8	121.7
Value of property assisted ($ million)	2,376.8	2,044.9	2,282.4	1,951.4	2,491.8	2,891.2	4,467.2	3,494.2	1,762.1	1,288.2	1,235.0	778.8	1,501.0	1,589.0	(R) 478.8	(R) 778.4	1,661.8	(R) 778.4	995.6
Property loss prevented ($ million)	905.4	1,673.4	1,799.3	1,550.1	2,144.7	2,628.4	3,882.8	3,087.3	1,353.5	996.8	1,019.0	84.3	73.0	68.0	106.7	238.7	146.4	111.0	113.1

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

[a] Responses are the number of U.S. Coast Guard units involved. Sorties are the number of trips made by boat, aircraft, or cutter.

[b] Search and Rescue resource hours represent the time that Coast Guard assets (i.e., aircraft, boats, and cutters) perform search and rescue operations.

[c] Those persons whose lives were lost before the U.S. Coast Guard was notified of an incident.

[d] Those persons whose lives were lost in an incident to which the U.S. Coast Guard was responding, but who were alive at the time the U.S. Coast Guard was notified of the incident.

[e] Includes several out of the normal high cost incidents.

[f] The Search and Rescue Management Information System's reporting policy has been revised and now requires complete reporting on all lives saved. This policy also includes reporting on "lives saved" in connection with Coast Guard Law Enforcement Activity (i.e., Alien Migrant Interdiction Operations (AMIO)). AMIO lives saved in fiscal year 1992 was determined to be approximately 12,000. AMIO lives saved in fiscal year 1994 was determined to be 15,179.

[g] The Egypt Air (217 fatalities) and Alaska Air (88 fatalities) crashes account for the increase.

SOURCES

All data except Search and Rescue resource hours:

1985-1993: U.S. Department of Transportation, U.S. Coast Guard, Search and Rescue Management Information Systems (SARMIS II) Database, Internet site www.uscg.mil/hq/g-o/g-opr/92-01summary.htm as of Aug. 8, 2002.

1994-2002: U.S. Department of Transportation, U.S. Coast Guard, *ON SCENE The Journal of U.S. Coast Guard Search Rescue,* Internet site www.uscg.mil/hq/g-o/g-opr/On%20Scene/onscene.htm as of July 28, 2004.

2003-07: U.S. Department of Homeland Security, U.S. Coast Guard, Office of Search and Rescue, personal communications, April 1, 2008.

Search and Rescue resource hours:

1990-2002: U.S. Department of Transportation, U.S. Coast Guard, Office of Command and Control Architecture, personal communications, Sept. 30, 2003 and July 28, 2004.

2003-07: U.S. Department of Homeland Security, U.S. Coast Guard, Office of Search and Rescue, personal communications, April 1, 2008.

Section G
Pipeline

Table 2-46: Hazardous Liquid and Natural Gas Pipeline Safety and Property Damage Data

	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Fatalities																						
Total hazardous liquid[a]	4	7	4	5	3	0	5	0	1	3	5	0	2	4	1	0	1	0	5	2	0	4
Total gas	26	8	15	28	6	14	10	17	21	18	48	10	19	18	37	7	11	12	18	14	19	10
Gas transmission	U	U	1	6	0	0	3	1	0	2	1	1	1	2	15	2	1	1	0	0	3	2
Gas distribution	U	U	14	22	6	14	7	16	21	16	47	9	18	16	22	5	10	11	18	14	16	8
Injured persons																						
Total hazardous liquid	21	17	15	18	7	9	38	10	(a) 1,858	11	13	5	6	20	4	10	0	5	16	2	2	10
Total gas	233	214	177	108	69	89	80	101	113	53	114	72	75	88	77	51	49	66	44	(R) 46	(R) 31	42
Gas transmission	U	U	13	12	17	12	15	17	22	10	5	5	11	8	18	5	5	8	3	7	(R) 5	7
Gas distribution	U	U	164	96	52	77	65	84	91	43	109	67	64	80	59	46	44	58	41	(R) 39	(R) 26	35
Incidents																						
Total hazardous liquid	351	254	246	183	180	216	212	229	245	188	194	171	153	167	146	130	147	131	144	(R) 139	(R) 115	113
Total gas	1,077	1,338	1,524	334	198	233	177	216	222	161	187	175	236	172	234	211	184	(R) 239	(R) 298	(R) 353	(R) 281	278
Gas transmission	U	U	389	129	89	71	74	95	81	64	77	73	99	54	80	87	82	97	123	(R) 181	(R) 143	131
Gas distribution	U	U	1,135	205	109	162	103	121	141	97	110	102	137	118	154	124	102	(R) 142	(R) 175	(R) 172	(R) 138	147
Property damage (current $ millions)																						
Total hazardous liquid	1.2	2.2	5.7	5.1	15.7	37.8	39.1	28.9	62.2	32.5	85.1	55.2	63.3	86.4	180.2	25.3	47.4	(R) 50.0	(R) 146.3	(R) 149.8	(R) 59.2	44.4
Total gas	3.3	5.0	10.0	22.9	18.9	19.7	31.4	38.4	98.4	20.9	29.3	24.6	63.5	43.6	41.3	37.7	50.5	(R) 71.0	(R) 106.5	(R) 866.0	(R) 72.9	83.2
Gas transmission	U	U	8.8	13.4	11.3	11.9	24.6	23.0	45.2	10.0	13.1	12.1	44.5	17.7	17.9	23.7	26.7	(R) 49.9	(R) 68.2	(R) 367.7	(R) 50.1	59.5
Gas distribution	U	U	1.2	9.5	7.6	7.8	6.8	15.3	53.3	11.0	16.3	12.5	19.1	25.9	23.4	14.1	23.8	(R) 21.1	(R) 38.3	(R) 498.3	(R) 22.8	23.7

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

[a] Includes 1,851 injuries requiring medical treatment reported for accidents caused by severe flooding near Houston, TX, in October 1994.

NOTES

Beginning with 1985 data, pipeline incidents are credited to the year in which they occurred, not the year in which the report was received. Gas numbers represent sum of transmission and gathering and distribution operators.

Property damage includes, but is not limited to, damage to the operator's facilities and to the property of others; gas lost; restoration of service and relighting; facility repair and replacement; leak locating; right-of-way cleanup; and environmental cleanup and damage.

Numbers may not add to totals due to rounding.

SOURCES

1970-85: U.S. Department of Transportation, Research and Special Programs Administration, Office of Pipeline Safety, personal communication.

1986-2007: U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration, Office of Pipeline Safety, Internet site http://ops.dot.gov/stats/stats.htm as of Mar. 25, 2008.

Chapter 3

Transportation and the Economy

Section A
Transportation and the Total Economy

Table 3-1a: U.S. Gross Domestic Product (GDP) Attributed to For-Hire Transportation Services (Current $ billions)

	1980	1985	1990	1995	1996	1997	1998	1999	2000	2001	2002	2003	(R) 2004	(R) 2005	2006
TOTAL U.S. GDP	2,789.5	4,220.3	5,803.1	7,397.6	7,816.9	8,304.3	8,747.0	9,268.4	9,817.0	10,128.0	10,469.6	10,960.8	11,685.9	12,433.9	13,194.7
For-hire transportation services GDP, total	102.3	136.3	169.4	226.3	235.2	253.7	273.7	287.4	301.6	296.9	304.6	316.6	344.6	358.5	385.4
Air transportation	12.8	19.0	26.8	41.0	44.4	49.5	52.5	54.9	57.7	50.0	48.3	51.7	49.1	45.5	50.0
Rail transportation	22.4	23.1	20.6	25.0	24.5	23.0	24.5	24.7	25.5	25.6	26.2	28.1	29.8	33.3	37.5
Water transportation	3.3	3.7	4.6	5.8	6.1	6.5	6.5	6.4	7.2	7.4	7.0	8.7	9.5	9.2	9.9
Truck transportation	28.1	39	52.6	70.1	72.0	78.4	86.2	89.8	92.8	93.3	95.7	98.4	111.4	118.6	124.7
Transit and ground passenger transportation	5.3	7.0	8.4	10.3	11.1	13.0	13.8	14.4	14.5	15.1	15.7	16.1	17.6	17.4	18.1
Pipeline transportation	6.1	8.7	7.2	8.1	8.7	8.8	9.2	9.2	8.7	9.2	11.5	9.9	10.7	9.1	11.3
Other transportation and support activities	18.8	27.3	37.3	49.2	50.9	55.0	59.9	64.8	70.2	71.4	73.4	75.4	85.3	90.6	96.9
Warehousing and storage	5.6	8.4	11.8	16.8	17.5	19.5	21.1	23.2	25.0	25.1	26.8	28.3	31.2	34.8	37.1
Percent of U.S. GDP															
For-hire transportation services	3.7%	3.2%	2.9%	3.1%	3.0%	3.1%	3.1%	3.1%	3.1%	2.9%	2.9%	2.9%	2.9%	2.9%	2.9%
Air transportation	0.5%	0.5%	0.5%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.5%	0.5%	0.5%	0.4%	0.4%	0.4%
Rail transportation	0.8%	0.5%	0.4%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%
Water transportation	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
Truck transportation	1.0%	0.9%	0.9%	0.9%	0.9%	0.9%	1.0%	1.0%	0.9%	0.9%	0.9%	0.9%	1.0%	1.0%	0.9%
Transit and ground passenger transportation	0.2%	0.2%	0.1%	0.1%	0.1%	0.2%	0.2%	0.2%	0.1%	0.1%	0.1%	0.1%	0.2%	0.1%	0.1%
Pipeline transportation	0.2%	0.2%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
Other transportation and support activities	0.7%	0.6%	0.6%	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%
Warehousing and storage	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.3%	0.3%	0.2%	0.3%	0.3%	0.3%	0.3%	0.3%
Percent of for-hire transportation services GDP															
Air transportation	12.5%	13.9%	15.8%	18.1%	18.9%	19.5%	19.2%	19.1%	19.1%	16.8%	15.9%	16.3%	14.2%	12.7%	13.0%
Rail transportation	21.9%	16.9%	12.2%	11.0%	10.4%	9.1%	9.0%	8.6%	8.5%	8.6%	8.6%	8.9%	8.6%	9.3%	9.7%
Water transportation	3.2%	2.7%	2.7%	2.6%	2.6%	2.6%	2.4%	2.2%	2.4%	2.5%	2.3%	2.7%	2.8%	2.6%	2.6%
Truck transportation	27.5%	28.6%	31.1%	31.0%	30.6%	33.5%	31.5%	31.2%	30.8%	31.4%	31.4%	31.1%	32.3%	33.1%	32.4%
Transit and ground passenger transportation	5.2%	5.1%	5.0%	4.6%	4.7%	5.1%	5.0%	5.0%	4.8%	5.1%	5.2%	5.1%	5.1%	4.9%	4.7%
Pipeline transportation	6.0%	6.4%	4.3%	3.6%	3.7%	3.5%	3.4%	3.2%	2.9%	3.1%	3.8%	3.1%	3.1%	2.5%	2.9%
Other transportation and support activities	18.4%	20.0%	22.0%	21.7%	21.6%	21.7%	21.9%	22.5%	23.3%	24.0%	24.1%	23.8%	24.8%	25.3%	25.1%
Warehousing and storage	5.5%	6.2%	7.0%	7.4%	7.4%	7.7%	7.7%	8.1%	8.3%	8.5%	8.8%	8.9%	9.1%	9.7%	9.6%

KEY: R = revised.

NOTES

Numbers may not add to totals due to rounding.

SOURCE

U.S. Department of Commerce, Bureau of Economic Analysis, Industry Economic Accounts, Internet site http://www.bea.gov/industry/index.htm as of Feb. 29, 2008.

Table 3-1b: U.S. Gross Domestic Product (GDP) Attributed to For-Hire Transportation Services (Chained 2000 $ billions)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	(R) 2004	(R) 2005	2006
TOTAL U.S. GDP	7,113	7,101	7,337	7,533	7,836	8,032	8,329	8,704	9,066.9	9,470.3	9,817.0	9,890.7	10,048.8	10,301.0	**10,675.8**	**11,003.5**	**11,319.4**
For-hire transportation services GDP, total	187.9	196.2	207.4	217.1	234.7	242.7	255.1	266.6	275.8	287.4	301.6	293.6	300.2	306.2	334.1	348.0	366.2
Air transportation	26.6	24.8	28.5	30.1	35.1	38.1	45.1	47.5	48.7	52.9	57.7	57.0	62.8	67.2	75.5	80.2	82.5
Rail transportation	19.8	22.9	22.8	23.2	24.6	25.3	25.2	23.6	24.4	24.8	25.5	24.8	24.4	25.7	26.1	25.8	32.9
Water transportation	4.4	4.9	5.2	5.6	6.1	6.0	6.7	7.3	7.0	6.4	7.2	6.8	5.6	5.4	6.1	6.1	6.5
Truck transportation	59.8	63.8	68.1	72.3	79.1	80.8	83.8	87.7	91.0	91.9	92.8	87.9	87.5	88.9	97.3	101.4	103.5
Transit and ground passenger transportation	11.9	10.2	10.3	11.0	11.4	12.0	12.0	13.9	14.3	14.7	14.5	14.5	14.6	14.3	15.4	14.9	15.1
Pipeline transportation	7.6	7.4	7.4	6.9	6.4	7.4	7.4	6.9	6.9	7.7	8.7	8.3	9.6	9.3	10.6	11.3	11.4
Other transportation and support activities	46.8	50.5	52.0	54.2	56.6	55.8	56.4	59.7	62.6	66.2	70.2	69.4	70.6	70.3	77.4	80.4	83.8
Warehousing and storage	12.5	13.3	14.6	15.5	16.9	18.0	18.8	20.8	22.0	23.4	25.0	24.4	25.6	26.9	28.3	31.7	33.2
Percent of U.S. GDP																	
For-hire transportation services	2.6%	2.8%	2.8%	2.9%	3.0%	3.0%	3.1%	3.1%	3.0%	3.0%	3.1%	3.0%	3.0%	3.0%	3.1%	3.2%	3.2%
Air transportation	0.4%	0.3%	0.4%	0.4%	0.4%	0.5%	0.5%	0.5%	0.5%	0.6%	0.6%	0.6%	0.6%	0.7%	0.7%	0.7%	0.7%
Rail transportation	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.2%	0.2%	0.2%	0.2%	0.3%
Water transportation	0.1%	0.1%	0.1%	0.1%	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
Truck transportation	0.8%	0.9%	0.9%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%
Transit and ground passenger transportation	0.2%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.2%	0.2%	0.2%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
Pipeline transportation	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
Other transportation and support activities	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%
Warehousing and storage	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.3%	0.2%	0.3%	0.3%	0.3%	0.3%	0.3%
Percent of for-hire transportation services GDP																	
Air transportation	14.2%	12.6%	13.7%	13.9%	15.0%	15.7%	17.7%	17.8%	17.7%	18.4%	19.1%	19.4%	20.9%	21.9%	22.6%	23.0%	22.5%
Rail transportation	10.5%	11.7%	11.0%	10.7%	10.5%	10.4%	9.9%	8.9%	8.8%	8.6%	8.5%	8.4%	8.1%	8.4%	7.8%	7.4%	9.0%
Water transportation	2.3%	2.5%	2.5%	2.6%	2.6%	2.5%	2.6%	2.7%	2.5%	2.2%	2.4%	2.3%	1.9%	1.8%	1.8%	1.8%	1.8%
Truck transportation	31.8%	32.5%	32.8%	33.3%	33.7%	33.3%	32.8%	32.9%	33.0%	32.0%	30.8%	29.9%	29.1%	29.0%	29.1%	29.1%	28.3%
Transit and ground passenger transportation	6.3%	5.2%	5.0%	5.1%	4.9%	4.9%	4.7%	5.2%	5.2%	5.1%	4.8%	4.9%	4.9%	4.7%	4.6%	4.3%	4.1%
Pipeline transportation	4.0%	3.8%	3.6%	3.2%	2.7%	3.0%	2.9%	2.6%	2.5%	2.7%	2.9%	2.8%	3.2%	3.0%	3.2%	3.2%	3.1%
Other transportation and support activities	24.9%	25.7%	25.1%	25.0%	24.1%	23.0%	22.1%	22.4%	22.7%	23.0%	23.3%	23.6%	23.5%	23.0%	23.2%	23.1%	22.9%
Warehousing and storage	6.7%	6.8%	7.0%	7.1%	7.2%	7.4%	7.4%	7.8%	8.0%	8.1%	8.3%	8.3%	8.5%	8.8%	8.5%	9.1%	9.1%

KEY: R = revised.

NOTES

For-hire transportation numbers may not equal total due to the nature of the chained dollar calculations.
Numbers may not add to totals due to rounding.

SOURCE

U.S. Department of Commerce, Bureau of Economic Analysis, Industry Economic Accounts, Internet site http://www.bea.gov/industry/index.htm as of Feb 29, 2008.

Table 3-2a: U.S. Gross Domestic Product (GDP) Attributed to Transportation-Related Final Demand (Current $ billions)

	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Gross Domestic Product	2,789.5	4,220.3	5,803.1	5,995.9	6,337.7	6,657.4	7,072.2	7,397.7	7,816.9	8,304.3	8,747.0	9,268.4	9,817.0	10,128.0	10,649.6	10,960.8	(R) 11,685.9	(R) 12,433.9	(R) 13,194.7	13,843.8
Total transportation-related final demand[a]	U	U	U	U	U	U	U	U	U	933.1	973.6	1,041.3	1,089.5	1,103.9	1,106.4	(R) 1,138.0	(R) 1,212.5	(R) 1,322.6	(R) 1,401.6	U
Total transportation in GDP (percent)	U	U	U	U	U	U	U	U	U	11.2	11.1	11.2	11.1	10.9	10.4	(R) 10.4	(R) 10.4	(R) 10.6	(R) 10.6	U
Personal consumption of transportation, total	238.9	377.6	471.7	447.3	483.1	520.8	567.3	594.6	641.8	685.2	718.0	785.1	853.5	872.3	882.2	921.7	(R) 976.4	(R) 1,049.8	(R) 1,093.4	1,138.9
Motor vehicles and parts	87.0	175.9	212.8	193.5	213.0	234.0	260.5	266.7	284.9	305.1	336.1	370.8	386.5	407.9	429.3	431.7	(R) 436.8	(R) 444.9	(R) 434.2	441.2
Gasoline and oil	86.7	97.2	111.2	108.5	112.4	114.1	116.2	120.2	130.4	134.4	122.4	137.9	175.7	171.6	164.5	192.7	(R) 231.4	(R) 280.7	(R) 318.6	339.4
Transportion services	65.2	104.5	147.7	145.3	157.7	172.7	190.6	207.7	226.5	245.7	259.5	276.4	291.3	292.8	288.4	297.3	(R) 308.2	(R) 324.2	(R) 340.6	358.3
Gross private domestic investment, total	U	U	U	U	U	U	U	U	U	141.6	151.1	173.9	167.4	148.6	132.8	124.4	(R) 149.6	(R) 166.5	(R) 179.7	U
Transportation structures	U	U	U	U	U	U	U	U	U	6.1	7.1	6.3	6.6	6.9	6.5	6.1	(R) 6.7	(R) 7.0	(R) 7.8	U
Transportation equipment	48.4	69.0	70.0	71.5	74.7	89.4	107.7	116.1	123.2	135.5	144.0	167.6	160.8	141.7	126.3	118.3	(R) 142.9	(R) 159.5	(R) 171.9	U
Exports (+), total	45.7	57.5	105.6	114.8	122.5	122.6	129.6	132.4	141.5	162.6	171.6	174.9	179.0	174.3	175.5	174.5	(R) 195.1	(R) 221.7	(R) 250.9	284.9
Civilian aircraft, engines, and parts	14.1	13.5	32.2	36.6	37.7	32.8	31.5	26.1	30.8	41.4	53.5	52.9	48.1	52.6	50.4	46.7	50.0	60.8	(R) 75.2	88.1
Automotive vehicles, engines, and parts	17.4	24.9	36.1	39.7	46.7	51.3	57.3	61.3	64.2	73.3	72.4	75.3	80.4	75.4	78.9	80.6	89.2	98.6	(R) 107.2	121
Passenger fares	2.6	4.4	15.3	15.9	16.6	16.5	17.0	18.9	20.4	20.9	20.1	19.8	20.7	17.9	17.0	15.7	18.9	(R) 21.0	(R) 22.2	25.1
Other transportation	11.6	14.7	22.0	22.6	21.5	22.0	23.8	26.1	26.1	27.0	25.6	26.9	29.8	28.4	29.2	31.5	(R) 37.0	(R) 41.3	(R) 46.3	50.7
Imports (-), total	46.8	92.2	134.4	132.4	138.7	149.6	168.5	176.0	184.6	203.2	220.9	258.2	288.0	282.5	287.6	299.9	(R) 331.4	(R) 353.3	(R) 377.9	388.4
Civilian aircraft, engines, and parts	3.1	5.3	10.5	11.7	12.6	11.3	11.3	10.7	12.7	16.6	21.8	23.8	26.4	31.4	25.5	24.1	24.3	25.8	(R) 28.4	34.4
Automotive vehicles, engines, and parts	28.3	64.9	88.4	85.7	91.7	102.4	118.1	123.6	128.7	139.5	148.7	179.0	195.9	189.8	203.7	210.1	228.2	239.5	(R) 256.7	258.9
Passenger fares	3.6	6.4	10.5	10.0	10.6	11.4	13.1	14.7	15.8	18.1	20.0	21.3	24.3	22.6	20.0	21.0	(R) 24.7	26.1	(R) 27.5	29.3
Other transportation	11.8	15.6	25.0	25.0	23.8	24.5	26.0	27.0	27.4	29.0	30.4	34.1	41.4	38.7	38.4	44.7	54.2	(R) 61.9	(R) 65.3	65.8
Net exports of transportation-related goods and services[b]	-1.1	-34.7	-28.8	-17.6	-16.2	-27.0	-38.9	-43.6	-43.1	-40.6	-49.3	-83.3	-109.0	-108.2	-112.1	(R) -125.4	(R) -136.3	(R) -131.6	(R) -127.0	-103.5
Government transportation-related purchases, total	59.8	83.4	111.3	122.9	121.7	124.8	131.6	133.8	139.2	146.9	153.8	165.6	177.6	191.2	203.5	(R) 217.3	(R) 222.8	(R) 237.9	255.5	U
Federal purchases[c]	7.0	10.0	12.9	14.5	15.3	15.4	17.1	16.1	16.9	17.6	18.5	18.7	19.2	21.1	26.4	29.6	(R) 29.1	(R) 30.3	31.8	U
State and local purchases[c]	48.6	67.2	89.6	92.7	95.0	100.1	106.1	109.3	113.7	121.1	126.8	137.9	149.4	160.3	166.6	171.5	(R) 177.0	(R) 191.3	208.9	U
Defense-related purchases[d]	4.2	6.2	8.8	15.7	11.4	9.3	8.4	8.4	8.6	8.2	8.5	9.0	9.0	9.8	10.5	16.2	16.7	(R) 16.3	14.8	16.2

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

[a] Sum of total personal consumption of transportation, total gross private domestic investment, net exports of transportation-related goods and services, and total government transportation-related purchases.

[b] Sum of exports and imports.

[c] Federal purchases and state and local purchases are the sum of consumption expenditures and gross investment.

[d] Defense-related purchases are the sum of transportation of material and travel.

SOURCE

U.S. Department of Commerce, Bureau of Economic Analysis, National Income and Product Accounts Tables: 1.1.5, 2.3.5, 3.11.5, 3.15.5, 4.2.5, 5.4.5B, and 5.5.5, Internet site http://www.bea.doc.gov/ as of Mar. 11, 2008.

Table 3-2b: U.S. Gross Domestic Product (GDP) Attributed to Transportation-Related Final Demand (Chained 2000 $ billions)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Gross Domestic Product	7,112.5	7,100.5	7,336.6	7,532.7	7,835.5	8,031.7	8,328.9	8,703.5	9,066.9	9,470.3	9,817.0	9,890.7	10,048.8	10,301.0	10,675.8	(R) 10,989.5	(R) 11,294.8	11,523.9
Total transportation-related final demand[a]	U	U	U	U	U	U	U	991.1	1,048.3	1,095.9	1,089.5	1,098.7	1,100.7	1,098.8	1,120.2	(R) 1,138.3	(R) 1,136.2	(R) 1,148.4
Total transportation in GDP (percent)	U	U	U	U	U	U	U	11.4	11.6	11.6	11.1	11.1	11.0	10.7	10.5	(R) 10.4	(R) 10.1	(R) 10.0
Personal consumption of transportation, total	593.6	553.2	585.1	611.4	646.3	658.6	690.8	730.7	781.3	832.1	853.5	872.1	891.1	905.9	922.1	(R) 925.2	(R) 915.8	930.4
Motor vehicles and parts	256.1	226.6	244.9	259.2	276.2	272.3	285.4	304.7	339.0	372.4	386.5	405.8	429.0	442.1	450.8	(R) 449.9	(R) 437.9	446.7
Gasoline and oil	141.8	140.3	146.0	149.7	151.7	154.5	157.9	162.8	170.3	176.3	175.7	178.3	181.9	183.2	186.7	(R) 187.4	(R) 184.2	184.5
Transportion services	195.7	186.3	194.2	202.5	218.4	231.8	247.5	263.2	272.0	283.4	291.3	288.0	280.2	280.6	284.6	(R) 287.9	(R) 293.7	299.2
Gross private domestic investment, total	U	U	U	U	U	U	U	142.5	152.9	174.2	167.4	149.4	132.1	119.4	136.5	(R) 155.5	(R) 166.6	146.9
Transportation structures[b]	3.4	3.1	3.8	3.7	3.9	4.0	4.8	6.6	7.5	6.5	6.6	6.6	6.1	5.6	5.9	(R) 6.0	(R) 7.1	7.5
Transportation equipment	81.0	78.8	80.2	95.1	111.4	120.6	125.4	135.9	145.4	167.7	160.8	142.8	126.0	113.8	130.6	(R) 149.5	(R) 159.5	139.4
Exports (+), total	131.5	135.6	141.2	137.9	143.1	142.1	149.4	170.7	181.2	181.0	179.0	171.6	170.7	164.6	178.8	(R) 193.5	(R) 212.5	235.0
Civilian aircraft, engines, and parts	45.7	47.9	47.9	40.5	37.7	30.3	34.3	44.6	57.0	55.1	48.1	49.9	46.5	41.5	43	50.1	(R) 59.6	66.3
Automotive vehicles, engines, and parts	40.3	43.2	49.8	54.3	60.1	63.4	65.8	74.4	73.4	75.9	80.4	75.2	78.3	79.4	87.2	(R) 95.1	(R) 102.1	114.2
Passenger fares	19.8	18.6	19.0	18.5	18.6	19.6	21.2	22.7	22.3	20.3	20.7	17.8	16.5	13.6	14.8	15.2	(R) 15.9	17.1
Other transportation	25.7	25.9	24.5	24.6	26.7	28.8	28.1	29.0	28.5	29.7	29.8	28.7	29.4	30.1	33.8	33.1	(R) 34.9	37.4
Imports (-), total	165.2	155.6	160.4	170.4	186.8	189.0	195.5	214.0	232.5	264.5	288.0	280.1	285.2	290.7	312.3	324.4	(R) 343.8	348.9
Civilian aircraft, engines, and parts	15.0	15.1	15.8	13.8	13.4	12.4	14.0	17.7	22.9	24.5	26.4	30.2	24.2	22.8	22.3	22.9	24.3	28.0
Automotive vehicles, engines, and parts	103.3	96.3	101.3	111.4	124.5	126.6	130.9	141.6	150.8	180.2	195.9	189.9	203.3	208.5	222.6	231.2	(R) 246.8	246.5
Passenger fares	14.9	12.7	13.1	14.3	16.2	17.3	18.4	19.9	21.7	22.5	24.3	20.7	17.4	17.9	21.4	21.8	21.7	21.1
Other transportation	32.0	31.5	30.2	30.9	32.7	32.7	32.2	34.8	37.1	37.3	41.4	39.3	40.3	41.5	46.0	48.5	(R) 51.0	53.3
Net exports of transportation-related goods and services[c]	-33.7	-20.0	-19.2	-32.5	-43.7	-46.9	-46.1	-43.3	-51.3	-83.5	-109.0	-108.5	-114.5	-126.1	-133.5	-130.9	(R) -131.3	-113.9
Government transportation-related purchases, total	147.9	157.9	155.4	156.1	160.1	156.5	157.6	161.2	165.4	173.1	177.6	185.7	192.0	199.6	195.1	(R) 188.5	(R) 185.1	(R) 185.0
Federal purchases	17.1	18.4	19.1	18.4	19.8	18.0	18.5	18.8	19.6	19.4	19.2	20.6	25.0	27.1	25.4	(R) 25.3	(R) 25.9	24.9
State and local purchases	119.6	120.7	122.4	126.6	130.5	128.8	129.4	133.7	137.0	144.3	149.4	155.8	157.3	158.5	155.7	(R) 150.4	(R) 147.6	144.9
Defense-related purchases[d]	11.2	18.8	13.9	11.1	9.8	9.7	9.7	8.7	8.8	9.4	9.0	9.3	9.7	14.0	14.0	(R) 12.8	(R) 11.6	15.2

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

[a] Sum of total personal consumption of transportation, total gross private domestic investment, net exports of transportation-related goods and services and total government transportation-related purchases.

[b] Before 1997 transportation structures only includes railroads.

[c] Equal to exports minus imports.

[d] Defense-related purchases are the sum of transportation of material and travel.

NOTES

Chained 2000 $ value = (Quantity index for year n x 2000 current $ value)/100.

At the time of this publication the Bureau of Economic Analysis (BEA) had only published chained 2000 dollar estimates from 1990 onward. Current dollar estimates for earlier years can be found in Table 3-2a.

SOURCE

U.S. Department of Commerce, Bureau of Economic Analysis, *National Income and Product Accounts Tables* , tables 1.1.6, 2.3.6, 3.11.6, 3.15.6, 4.2.6, 5.4.6A ,5.4.6B, and 5.5.6, available at http://www.bea.doc.gov/bea/ as of Sep. 19, 2008.

Table 3-3a: U.S. Gross Domestic Demand (GDD) Attributed to Transportation-Related Final Demand (Current $ billions)

	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	(R) 2,006
Gross Domestic Demand	2,802.6	4,335.5	5,881.1	6,023.4	6,371.0	6,722.4	7,165.8	7,489.0	7,913.1	8,405.9	8,906.9	9,528.9	10,196.4	10,495.0	10,894.0	11,460.2	12,301.3	(R) 13,135.5	13,935.7
Total domestic transportation-related final demand	(R) 350.0	(R) 534.0	(R) 655.6	(R) 644.1	(R) 682.4	(R) 738.1	(R) 809.9	(R) 848.0	(R) 908.6	973.7	1,022.9	1,124.6	1,198.5	1,212.1	1,218.5	1,263.4	1,348.8	(R) 1,456.7	1,521.7
Total transportation in GDD (percent)	(R) 12.5	(R) 12.3	(R) 11.1	(R) 10.7	(R) 10.7	(R) 11.0	(R) 11.3	(R) 11.3	(R) 11.5	11.6	11.5	11.8	11.8	11.5	11.2	11.0	11.0	(R) 11.1	10.9
Personal consumption of transportation, total	238.9	377.6	471.7	447.3	483.1	520.8	567.3	594.6	641.8	685.2	718.0	785.1	853.5	872.3	882.2	921.7	976.4	(R) 1,051.0	1,089.0
Motor vehicles and parts	87.0	175.9	212.8	193.5	213.0	234.0	260.5	266.7	284.9	305.1	336.1	370.8	386.5	407.9	429.3	431.7	436.8	(R) 443.1	434.0
Gasoline and oil	86.7	97.2	111.2	108.5	112.4	114.1	116.2	120.2	130.4	134.4	122.4	137.9	175.7	171.6	164.5	192.7	231.4	(R) 283.6	313.8
Transportation services	65.2	104.5	147.7	145.3	157.7	172.7	190.6	207.7	226.5	245.7	259.5	276.4	291.3	292.8	288.4	297.3	308.2	(R) 324.3	341.2
Gross private domestic investment, total	(R) 51.3	(R) 73.0	(R) 72.6	(R) 73.9	(R) 77.6	(R) 92.5	(R) 111.0	(R) 119.6	(R) 127.6	141.6	151.1	173.9	167.4	148.6	132.8	124.4	149.6	(R) 171.4	185.5
Transportation structures	(R) 2.9	(R) 4.0	(R) 2.6	(R) 2.4	(R) 2.9	(R) 3.1	(R) 3.3	(R) 3.5	(R) 4.4	6.1	7.1	6.3	6.6	6.9	6.5	6.1	6.7	7.0	8.5
Transportation equipment	48.4	69.0	70.0	71.5	74.7	89.4	107.7	116.1	123.2	135.5	144.0	167.6	160.8	141.7	126.3	118.3	142.9	(R) 164.4	177.0
Government transportation-related purchases, total	59.8	83.4	111.3	122.9	121.7	124.8	131.6	133.8	139.2	146.9	153.8	165.6	177.6	191.2	203.5	217.3	222.8	(R) 234.3	247.2
Federal purchases[a]	7.0	10.0	12.9	14.5	15.3	15.4	17.1	16.1	16.9	17.6	18.5	18.7	19.2	21.1	26.4	29.6	29.1	(R) 30.2	32.1
State and local purchases[a]	48.6	67.2	89.6	92.7	95.0	100.1	106.1	109.3	113.7	121.1	126.8	137.9	149.4	160.3	166.6	171.5	177.0	(R) 188.2	200.2
Defense-related purchases[b]	4.2	6.2	8.8	15.7	11.4	9.3	8.4	8.4	8.6	8.2	8.5	9.0	9.0	9.8	10.5	16.2	16.7	(R) 15.9	14.9

KEY: R = revised.

[a] Federal purchases and state and local purchases are the sum of consumption expenditures and gross investment.
[b] Defense-related purchases are the sum of the transportation of material and travel.

NOTE
Transportation structures before 1997 includes only railroads.

SOURCE
U.S. Department of Commerce, Bureau of Economic Analysis, *National Income and Product Accounts Tables*, tables 1.4.5, 2.3.5, 5.3.5, 5.4.5AU, 5.4.5BU, 3.11.5 and 3.15.5, available at http://www.bea.gov/ as of November 2008.

Table 3-3b: U.S. Gross Domestic Demand (GDD) Attributed to Transportation-Related Final Demand (Chained 2000 $ billions)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Gross Domestic Demand	7,161.6	7,101.2	7,338.9	7,577.2	7,911.3	8,098.4	8,405.7	8,807.6	9,272.5	9,767.7	10,196.4	10,290.1	10,517.7	10,815.5	11,261.4	(R) 11,597.8	(R) 11,904.1
Total domestic transportation-related final demand	(R) 825.9	(R) 793.0	(R) 824.5	(R) 866.3	(R) 921.7	(R) 939.7	(R) 978.6	1,034.4	1,099.6	1,179.4	1,198.5	1,207.2	1,215.2	1,224.9	(R) 1,253.7	(R) 1,269.2	(R) 1,267.5
Total transportation in GDD (percent)	(R) 11.5	(R) 11.2	(R) 11.2	(R) 11.4	(R) 11.7	(R) 11.6	(R) 11.6	11.7	11.9	12.1	11.8	11.7	11.6	11.3	(R) 11.1	(R) 10.9	(R) 10.6
Personal consumption of transportation, total	593.6	553.2	585.1	611.4	646.3	658.6	690.8	730.7	781.3	832.1	853.5	872.1	891.1	905.9	(R) 922.1	(R) 925.2	(R) 915.8
Motor vehicles and parts	256.1	226.6	244.9	259.2	276.2	272.3	285.4	304.7	339.0	372.4	386.5	405.8	429.0	442.1	450.8	(R) 449.9	(R) 437.9
Gasoline and oil	141.8	140.3	146.0	149.7	151.7	154.5	157.9	162.8	170.3	176.3	175.7	178.3	181.9	183.2	(R) 186.7	(R) 187.4	(R) 184.2
Transportation services	195.7	186.3	194.2	202.5	218.4	231.8	247.5	263.2	272.0	283.4	291.3	288.0	280.2	280.6	284.6	(R) 287.9	(R) 293.7
Gross private domestic investment, total	(R) 84.4	(R) 81.9	(R) 84.0	(R) 98.8	(R) 115.3	(R) 124.6	(R) 130.2	142.5	152.9	174.2	167.4	149.4	132.1	119.4	136.5	(R) 155.5	(R) 166.6
Transportation structures	(R) 3.4	(R) 3.1	(R) 3.8	(R) 3.7	(R) 3.9	(R) 4.0	(R) 4.8	6.6	7.5	6.5	6.6	6.6	6.1	5.6	5.9	6.0	(R) 7.1
Transportation equipment	81.0	78.8	80.2	95.1	111.4	120.6	125.4	135.9	145.4	167.7	160.8	142.8	126.0	113.8	130.6	(R) 149.5	(R) 159.5
Government transportation-related purchases, total	147.9	157.9	155.4	156.1	160.1	156.5	157.6	161.2	165.4	173.1	177.6	185.7	192.0	199.6	195.1	(R) 188.5	(R) 185.1
Federal purchases[a]	17.1	18.4	19.1	18.4	19.8	18.0	18.5	18.8	19.6	19.4	19.2	20.6	25.0	27.1	25.4	(R) 25.3	(R) 25.9
State and local purchases[a]	119.6	120.7	122.4	126.6	130.5	128.8	129.4	133.7	137.0	144.3	149.4	155.8	157.3	158.5	155.7	(R) 150.4	(R) 147.6
Defense-related purchases[b]	11.2	18.8	13.9	11.1	9.8	9.7	9.7	8.7	8.8	9.4	9.0	9.3	9.7	14.0	14.0	(R) 12.8	11.6

KEY: R = revised.

[a] Federal purchases and state and local purchases are the sum of consumption expenditures and gross investments.

[b] Defense-related purchases are the sum of the transportation of material and travel.

NOTES

Chained 2000 $ value = (Quantity index for year n x 2000 current $ value)/100.

At the time of this publication, the Bureau of Economic Analysis (BEA) had only published chained 2000 dollar estimates from 1990 onward. Current dollar estimates for earlier years can be found in Table 3-3a.

Transportation structures for 1990 to 1996 include only railroads and consists of air and land after 1996.

SOURCE

U.S. Department of Commerce, Bureau of Economic Analysis,*National Income and Product Accounts Tables*, tables 1.4.6, 2.3.6, 3.11.6, 3.15.6, 5.3.6, 5.4.6AU and 5.4.6BU, available at http://www.bea.gov/ as of December 2008.

Table 3-4a: Contributions to Gross Domestic Product (GDP): Selected Industries (Current $ billions)

	1998	1999	2000	2001	2002	2003	(R) 2004	(R) 2005	(R) 2006	2007
GDP by industry, total	8,747	9,268	9,817	10,128	10,470	(R) 10,961	11,686	12,422	13,178	13,808
Agriculture, forestry, fishing, and hunting	102	94	98	98	95	114	142	133	122	168
Mining	75	85	121	119	107	143	171	224	262	275
Utilities	181	185	189	202	207	220	240	240	273	281
Construction	374	407	436	470	482	496	539	605	646	611
Manufacturing, durable goods	807	820	865	779	775	772	808	845	899	922
Manufacturing, nondurable goods	537	553	561	563	578	588	620	636	678	695
Wholesale trade	543	578	592	607	615	637	687	722	773	805
Retail trade	599	636	662	692	720	752	777	825	867	893
Transportation and warehousing	274	287	302	297	305	317	345	365	387	407
Information	382	439	458	477	483	489	531	558	560	586
Finance, insurance, real estate, rental, and leasing	1,685	1,798	1,931	2,059	2,142	2,245	2,379	2,528	2,686	2,811
Professional and business services	976	1,065	1,141	1,166	1,189	1,249	1,338	1,464	1,566	1,694
Educational services, health care, and social assistance	602	635	678	739	800	857	916	970	1,026	1,087
Arts, entertainment, recreation, accomodation, and food services	306	328	350	362	382	399	428	452	485	513
Other services, except government	211	218	229	242	253	265	274	288	300	316
Government, total	1,095	1,141	1,203	1,258	1,338	1,418	1,492	1,569	1,649	1,743
Government, federal	353	362	379	386	417	449	479	502	528	554
Government, state and local	742	779	824	873	921	970	1,012	1,067	1,122	1,189
Percent of GDP										
Agriculture, forestry, fishing, and hunting	1.17	1.01	1.00	0.97	0.91	1.04	1.22	1.07	0.92	1.22
Mining	0.86	0.92	1.24	1.17	1.02	1.31	1.47	1.80	1.99	1.99
Utilities	2.07	2.00	1.93	2.00	1.98	2.01	2.06	1.93	2.07	2.04
Construction	4.28	4.39	4.44	4.64	4.61	4.53	4.61	4.87	4.90	4.42
Manufacturing, durable goods	9.22	8.85	8.81	7.69	7.40	7.04	6.91	6.80	6.82	6.68
Manufacturing, nondurable goods	6.14	5.96	5.71	5.55	5.52	5.36	5.31	5.12	5.14	5.03
Wholesale trade	6.21	6.23	6.03	5.99	5.88	5.81	5.88	5.82	5.87	5.83
Retail trade	6.84	6.86	6.75	6.83	6.87	6.86	6.65	6.64	6.58	6.46
Transportation and warehousing	3.13	3.10	3.07	2.93	2.91	2.89	2.95	2.94	2.94	2.95
Information	4.36	4.74	4.67	4.71	4.61	4.46	4.54	4.49	4.25	4.25
Finance, insurance, real estate, rental, and leasing	19.26	19.40	19.67	20.33	20.46	20.48	20.36	20.35	20.38	20.36
Professional and business services	11.16	11.49	11.62	11.51	11.36	11.39	11.45	11.78	11.89	12.27
Educational services, health care, and social assistance	6.88	6.85	6.91	7.30	7.64	7.82	7.84	7.81	7.78	7.87
Arts, entertainment, recreation, accomodation, and food services	3.50	3.54	3.57	3.57	3.64	3.64	3.66	3.64	3.68	3.72
Other services, except government	2.41	2.35	2.33	2.38	2.41	2.42	2.34	2.31	2.27	2.29
Government, total	12.51	12.31	12.25	12.42	12.78	12.94	12.76	12.63	12.51	12.62
Government, federal	4.03	3.90	3.86	3.81	3.99	4.09	4.10	4.04	4.00	4.01
Government, state and local	8.48	8.41	8.39	8.62	8.80	8.85	8.66	8.59	8.51	8.61

KEY: R = revised.

NOTE

Numbers may not add to totals due to rounding.

SOURCE

U.S. Department of Commerce, Bureau of Economic Analysis, *Industry Economic Accounts* , available at http://www.bea.gov/industry/gpotables/ as of December 2008.

Table 3-4b: Contributions to Gross Domestic Product (GDP): Selected Industries (Chained 2000 $ billions)

	1998	1999	2000	2001	2002	2003	(R) 2004	(R) 2005	(R) 2006	2007
GDP by industry	9,067	9,470	9,817	9,891	10,049	10,301	10,676	10,990	11,295	11,524
Agriculture, forestry, fishing, and hunting	85	87	98	92	97	104	111	121	114	122
Mining	123	127	121	115	108	107	108	104	111	111
Utilities	171	179	189	180	188	201	212	200	202	204
Construction	423	433	436	437	428	419	420	419	401	356
Manufacturing, durable goods	730	776	865	814	828	849	899	949	1,026	1,075
Manufacturing, nondurable goods	560	568	561	533	556	551	580	551	563	566
Wholesale trade	565	594	592	633	639	653	666	688	692	698
Retail trade	599	634	662	709	724	752	772	841	888	928
Transportation and warehousing	276	287	302	294	300	306	334	348	355	364
Information	377	438	458	477	487	502	560	609	626	676
Finance, insurance, real estate, rental, and leasing	1,742	1,834	1,931	2,005	2,024	2,072	2,132	2,222	2,312	2,359
Professional and business services	1,049	1,106	1,141	1,133	1,132	1,181	1,229	1,297	1,341	1,399
Educational services, health care, and social assistance	649	660	678	700	730	762	787	809	835	852
Arts, entertainment, recreation, accomodation, and food services	327	339	350	348	354	365	379	386	400	407
Other services, except government	233	230	229	225	226	231	231	236	235	235
Government, total	1,166	1,179	1,203	1,212	1,232	1,248	1,254	1,262	1,269	1,286
Government, federal	376	373	379	373	380	389	393	394	393	396
Government, state and local	790	806	824	840	852	859	861	869	876	890
Percent of GDP										
Agriculture, forestry, fishing, and hunting	0.93	0.92	1.00	0.93	0.96	1.01	1.04	1.10	1.01	1.06
Mining	1.36	1.34	1.24	1.16	1.07	1.04	1.01	0.94	0.99	0.97
Utilities	1.89	1.89	1.93	1.82	1.87	1.95	1.99	1.82	1.79	1.77
Construction	4.67	4.58	4.44	4.41	4.26	4.07	3.94	3.81	3.55	3.09
Manufacturing, durable goods	8.05	8.19	8.81	8.23	8.24	8.25	8.42	8.63	9.08	9.32
Manufacturing, nondurable goods	6.17	6.00	5.71	5.39	5.53	5.35	5.44	5.02	4.99	4.91
Wholesale trade	6.23	6.27	6.03	6.40	6.36	6.34	6.24	6.26	6.13	6.06
Retail trade	6.60	6.69	6.75	7.16	7.20	7.30	7.23	7.65	7.86	8.05
Transportation and warehousing	3.04	3.03	3.07	2.97	2.99	2.97	3.13	3.16	3.14	3.16
Information	4.16	4.62	4.67	4.82	4.85	4.87	5.25	5.54	5.54	5.87
Finance, insurance, real estate, rental, and leasing	19.21	19.37	19.67	20.28	20.14	20.11	19.97	20.22	20.47	20.47
Professional and business services	11.57	11.67	11.62	11.46	11.26	11.47	11.51	11.80	11.88	12.14
Educational services, health care, and social assistance	7.15	6.97	6.91	7.08	7.26	7.39	7.37	7.36	7.39	7.40
Arts, entertainment, recreation, accomodation, and food services	3.61	3.58	3.57	3.51	3.52	3.54	3.55	3.52	3.54	3.53
Other services, except government	2.57	2.43	2.33	2.28	2.25	2.24	2.16	2.14	2.08	2.04
Government, total	12.86	12.45	12.25	12.26	12.26	12.12	11.74	11.49	11.23	11.16
Government, federal	4.14	3.94	3.86	3.77	3.78	3.78	3.68	3.58	3.48	3.43
Government, state and local	8.71	8.51	8.39	8.49	8.48	8.34	8.06	7.90	7.75	7.73

KEY: R = revised.

NOTES

Numbers may not add to totals due to rounding.

Chained (2000) dollar series are calculated as the product of the chain-type quantity index and the 2000 current-dollar value of the corresponding series, divided by 100.

The formula for the chain-type quantity indexes uses weights of more than one period. Therefore, the corresponding chained-dollar estimates are usually not additive.

SOURCE

U.S. Department of Commerce, Bureau of Economic Analysis, *Industry Economic Accounts* , available at http://www.bea.gov/industry/gpotables/ as of December 2008.

Table 3-5: Gross Domestic Product (GDP) by Major Social Function (Current $ billions)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	(R) 2002	(R) 2003	2004	2005	2006
Total GDP	5,996	6,338	6,657	7,072	7,398	7,817	8,304	8,747	9,269	9,817	10,128	10,470	10,961	11,686	12,434	13,195
Housing	1,416	1,501	1,600	1,723	1,803	1,917	2,023	2,152	2,298	2,436	2,535	2,610	2,755	2,977	3,222	3,363
Percent of total	23.6	23.7	24.0	24.4	24.4	24.5	24.4	24.6	24.8	24.8	25.0	24.9	25.1	25.5	25.9	25.5
Healthcare	843	920	980	1,036	1,099	1,154	1,226	1,305	1,384	1,491	1,596	1,714	1,847	1,981	2,128	2,276
Percent of total	14.1	14.5	14.7	14.7	14.9	14.8	14.8	14.9	14.9	15.2	15.8	16.4	16.9	17.0	17.1	17.3
Food	796	826	844	894	906	965	992	1,030	1,092	1,163	1,203	1,229	1,274	1,351	1,424	1,512
Percent of total	13.3	13.0	12.7	12.6	12.3	12.3	11.9	11.8	11.8	11.8	11.9	11.7	11.6	11.6	11.4	11.5
Transportation[a]	623	668	715	778	810	868	938	976	1,054	1,102	1,095	1,125	1,150	1,220	1,321	1,398
Percent of total	10.4	10.5	10.7	11.0	11.0	11.1	11.3	11.2	11.4	11.2	10.8	10.7	10.5	10.4	10.6	10.6
Education	413	432	453	478	512	542	577	613	654	710	758	793	839	880	927	979
Percent of total	6.9	6.8	6.8	6.8	6.9	6.9	6.9	7.0	7.1	7.2	7.5	7.6	7.7	7.5	7.5	7.4
Other	1,906	1,991	2,066	2,162	2,267	2,369	2,548	2,672	2,787	2,915	2,940	2,999	3,096	3,277	3,414	3,667
Percent of total	31.8	31.4	31.0	30.6	30.6	30.3	30.7	30.6	30.1	29.7	29.0	28.6	28.2	28.0	27.5	27.8

KEY: R = revised.

[a] Transportation-related final demand.

NOTES

Numbers may not add to totals due to roundings.

SOURCE

U.S. Department of Transportation, Bureau of Transportation Statistics, calculated from data in the U.S. Department of Commerce, Bureau of Economic Analysis, Survey of Current Business (Washington, DC: Various issues from 1991 to 2008). Available at http://www.bea.gov/national/nipaweb/SelectTable.asp?Selected=N as of Mar. 31, 2008.

Table 3-6: National Transportation and Economic Trends

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Passenger-miles (billions)	1,327	1,630	2,170	2,561	2,895	3,326	3,946	3,976	4,089	4,166	4,262	4,309	4,442	4,580	4,706	4,837	4,953	5,179	5,248	(R) 5,259	5,436	U
Index (1980 = 100)	46	56	75	88	100	115	136	137	141	144	147	149	153	158	163	167	171	179	181	(R) 182	188	U
Ton-miles (billions)	U	1,854	2,207	2,285	2,989	2,949	3,196	3,233	3,337	3,364	3,527	3,648	3,725	3,682	3,710	3,780	3,778	3,758	U	U	U	U
Index (1980 = 100)	U	62	74	76	100	99	107	108	112	113	118	122	125	123	124	126	126	126	U	U	U	U
Population[a] (millions)	181	194	205	216	228	238	250	253	257	260	263	267	268	273	276	279	(R) 282	(R) 285	(R) 288	(R) 291	293	296
Index (1980 = 100)	79	85	90	95	100	105	110	111	113	114	116	117	118	120	121	123	124	125	126	128	129	130
Industrial Production Index[b] (2002=100)	(R) 26	(R) 35	(R) 42	(R) 46	(R) 56	(R) 61	(R) 69	(R) 68	(R) 70	(R) 73	(R) 77	(R) 80	(R) 84	(R) 90	(R) 95	(R) 99	(R) 104	(R) 100	(R) 100	(R) 101	105	(P) 108
Gross Domestic Product																						
Current $ (billions)	526	719	1,039	1,638	2,790	4,220	5,803	5,996	6,338	6,657	7,072	7,398	7,817	8,304	8,747	9,268	9,817	(R) 10,128	(R) 10,470	(R) 10,961	11,713	12,456
Index (1980 = 100)	19	26	37	59	100	151	208	215	227	239	254	265	280	298	314	332	352	(R) 363	(R) 375	(R) 393	420	447
Chained (2000) $ (billions)	2,502	3,191	3,772	4,311	5,162	6,054	7,113	7,101	7,337	7,533	7,836	8,032	8,329	8,704	9,067	9,470	9,817	(R) 9,891	(R) 10,049	(R) 10,301	10,704	11,049

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

[a] Annual estimates as of July 1. Includes Armed Forces abroad

[b] Industrial Production Index covers manufacturing, mining, and utilities

SOURCES

Passenger-miles:
1960-2004: Summation of all modes from the passenger-miles table in chapter 1, less transit motor bu

Ton-miles:
1960-2001: Summation of all modes from the ton-miles table in chapter 1

Population:
1960-99: U.S. Department of Commerce, Census Bureau, *Statistical Abstract of the United States, 2000* (Washington, DC: 2001), table 2
2000-05: Ibid., *Monthly National Population Estimates,* available at Internet site http://www.census.gov as of Feb. 5, 2007

Industrial Production Index
1960-2005: Council of Economic Advisors, *Economic Report of the President,* available at www.gpoaccess.gov/eop/tables04.html as of Feb. 5, 2007, table B-51.

Gross Domestic Product:
1960-97: U.S. Department of Commerce, Bureau of Economic Analysis, *Survey of Current Business* (Washington, DC: August 1998), table 1, pp. 147-148 and table 2A, pp. 151-152.
1998-2005: Ibid., http://www.bea.gov/bea/dn/gdplev.xls as of Feb. 5, 2007

Section B
Transportation and Consumer Expenditures

Table 3-7: Passenger and Freight Transportation Expenditures (Current $ millions)

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997
TOTAL passenger and freight transportation expenditures	**107,461**	**146,523**	**195,871**	**299,221**	**569,879**	**780,232**	**967,746**	**946,924**	**1,001,871**	**1,061,218**	**1,138,107**	**R1,190,009**	**1,267,010**	**1,341,7**
PASSENGER transportation expenditures, total	**59,694**	**81,592**	**111,893**	**183,382**	**356,143**	**506,620**	**616,796**	**591,715**	**626,791**	**664,883**	**717,787**	**R747,412**	**799,807**	**846,7**
Highway, total	**55,099**	**74,967**	**100,577**	**163,025**	**314,722**	**451,825**	**537,840**	**513,069**	**546,971**	**583,977**	**635,195**	**R657,410**	**709,738**	**745,7**
Highway, auto purchases and ownership[a]	51,610	71,064	94,978	152,238	297,128	426,796	507,308	481,929	514,970	551,558	601,206	R619,433	672,416	706,0
Local, bus and transit[b]	1,337	1,454	1,841	4,697	9,297	13,548	16,721	17,356	18,012	18,794	20,082	21,647	21,318	21,9
Local, taxi	1,107	1,113	1,740	2,900	2,755	3,770	4,030	4,030	4,030	4,340	4,650	4,960	5,425	5,7
Local, school bus	486	707	1,219	2,174	3,833	5,722	8,031	7,879	8,060	7,618	7,847	9,889	9,082	10,3
Intercity, bus	**559**	**629**	**799**	**1,016**	**1,709**	**1,989**	**1,750**	**1,875**	**1,899**	**1,667**	**1,410**	**1,481**	**1,497**	**1,6**
Air total[c]	**3,555**	**5,682**	**10,565**	**18,851**	**38,135**	**50,319**	**73,045**	**72,841**	**73,780**	**74,123**	**76,146**	**81,155**	**82,331**	**93,2**
Rail total[d]	**759**	**598**	**464**	**1,212**	**2,976**	**3,875**	**4,521**	**4,414**	**4,571**	**5,278**	**4,882**	**6,693**	**5,895**	**5,7**
Water total (includes international)	**281**	**345**	**287**	**294**	**310**	**601**	**1,391**	**1,391**	**1,469**	**1,505**	**1,564**	**R2,155**	**1,843**	**1,9**
FREIGHT transportation expenditures, total	**47,767**	**64,931**	**83,978**	**115,839**	**213,736**	**273,612**	**350,950**	**355,209**	**375,080**	**396,335**	**420,320**	**R442,597**	**467,203**	**495,0**
Highway, total	**32,289**	**47,477**	**62,494**	**84,843**	**155,331**	**205,645**	**270,776**	**274,381**	**292,930**	**311,878**	**330,716**	**348,109**	**368,545**	**396,6**
Local, truck	14,289	23,779	28,819	37,287	60,545	82,200	108,350	109,650	116,000	122,050	125,712	128,352	132,973	138,7
Intercity bus	42	70	122	156	235	245	126	131	130	128	128	130	132	1
Intercity truck	17,958	23,628	33,553	47,400	94,551	123,200	162,300	164,600	176,800	189,700	204,876	219,627	235,440	257,8
Air (domestic and international) total	**354**	**708**	**1,171**	**1,838**	**4,013**	**6,817**	**13,706**	**14,353**	**14,950**	**15,805**	**17,249**	**18,755**	**20,448**	**22,8**
Rail total	**9,028**	**9,923**	**11,869**	**16,509**	**27,858**	**29,150**	**30,067**	**30,003**	**30,473**	**30,775**	**33,121**	**R34,605**	**35,059**	**35,3**
Water total	**3,487**	**3,903**	**5,257**	**8,221**	**15,498**	**18,448**	**20,121**	**20,306**	**19,895**	**20,768**	**21,150**	**22,709**	**24,564**	**21,0**
Oil pipeline total	**895**	**1,051**	**1,396**	**2,220**	**7,548**	**8,910**	**8,506**	**8,095**	**8,548**	**8,470**	**8,676**	**9,077**	**8,637**	**8,6**
Other total[e]	**1,714**	**1,869**	**1,791**	**2,208**	**3,488**	**4,642**	**7,774**	**8,071**	**8,284**	**8,639**	**9,408**	**R9,342**	**9,950**	**10,5**

KEY: R = revised.

[a] Includes business expenditures for passenger cars.

[b] Includes federal / state operating subsidies, and federal capital grants. Beginning in 1994, includes taxes levied directly by transit agencies and local subsidies such as bridge and tunnel tolls, and nontransit parking lot funds.

[c] Air includes aircraft and operating costs, plus domestic and international air passenger federal excise taxes.

[d] Data from 1980 include federal / state / local operating subsidies and capital grants.

Figures also include federal operating subsidies and capital grants for Amtrak and the Northeast Corridor.

[e] Domestic freight forwarder's revenues after payment to live-haul carriers plus other shipper costs such as loading and unloading freight cars.

NOTE

Previously published data are revised only for the selected years included in the most recent source publication.

SOURCE

Passenger and freight:

1960-2001: Eno Transportation Foundation, Inc., *Transportation in America, 2002* (Washington, DC: 2002), pp. 38-41, and similar tables in earlier editions.

Table 3-8: Sales Price of Transportation Fuel to End-Users (Current ¢ / gallon)

	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Aviation fuel (excluding taxes)																				
Aviation gasoline[a]	108.4	120.1	112.0	104.7	102.7	99.0	95.7	100.5	111.6	112.8	97.5	105.9	130.6	132.3	128.8	149.3	181.9	223.1	268.2	284.9
Jet fuel kerosene[a]	86.8	79.6	76.6	65.2	61.0	58.0	53.4	54.0	65.1	61.3	45.2	54.3	89.9	77.5	72.1	87.2	120.7	173.5	199.8	216.9
Highway fuel (including taxes)																				
Gasoline, premium[b]	N	134.0	134.9	132.1	131.6	130.2	130.5	133.6	141.3	141.6	125.0	135.7	169.3	165.7	155.6	177.7	206.8	249.1	280.5	303.5
Gasoline, regular[b]	124.5	120.2	116.4	114.0	112.7	110.8	111.2	114.7	123.1	123.4	105.9	116.5	151.0	146.1	135.8	159.1	188.0	229.5	258.9	280.1
Gasoline, all types	122.1	119.6	121.7	119.6	119.0	117.3	117.4	120.5	128.8	129.1	111.5	122.1	156.3	153.1	144.1	163.8	192.3	233.8	263.5	284.9
Diesel no. 2 (excluding taxes)[a]	81.8	78.9	72.5	64.8	61.9	60.2	55.4	56.0	68.1	64.2	49.4	58.4	93.5	84.2	76.2	94.4	124.3	178.6	(R) 209.6	227.3
Railroad fuel																				
Diesel	82.6	77.8	69.2	67.2	63.3	63.1	59.9	60.0	67.7	67.8	57.0	55.5	87.5	85.5	73.3	89.3	107.0	151.4	192.1	U

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

[a] Sales to end-users (those sales made directly to the ultimate consumer, including bulk customers in agriculture, industry, and utility).

[b] Average retail price.

NOTE

For a comparison with other consumer goods prices see table 3-9.

SOURCES

All data except railroad fuel:

U.S. Department of Energy, Energy Information Administration, *Monthly Energy Review* (Washington, DC: May 2007), tables 9.4 and 9.7, Internet site http://www.eia.doe.gov/emeu/mer/prices.html as of March, 26, 2008.

Railroad fuel:

Association of American Railroads, *Railroad Facts* (Washington, DC: Annual issues), p. 61.

Table 3-9: Price Trends of Gasoline v. Other Consumer Goods and Services

	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Retail price of motor gasoline, all types (constant 2006 dollars per gallon)																					
Total service station price	1.85	2.12	2.99	2.24	1.88	1.77	1.71	1.64	1.60	1.59	1.65	1.62	1.38	1.48	1.83	1.74	1.61	1.76	2.02	2.39	2.62
Service station price excluding taxes	1.28	1.66	2.65	1.83	1.46	1.28	1.23	1.14	1.06	1.06	1.13	1.11	0.87	0.98	1.34	1.26	1.14	1.29	1.55	1.91	2.16
Average motor fuel taxes[a]	0.58	0.46	0.34	0.41	0.41	0.49	0.48	0.49	0.53	0.53	0.52	0.51	0.51	0.50	0.49	0.48	0.47	0.47	0.47	0.47	0.46
Retail price of motor gasoline, all types (current dollars per gallon)																					
Total service station price	0.36	0.57	1.22	1.20	1.22	1.20	1.19	1.17	1.17	1.21	1.29	1.29	1.12	1.22	1.56	1.53	1.44	1.64	1.92	2.34	2.64
Consumer price indices (1982-84 = 100)																					
All items	39	54	82	108	131	136	140	145	148	152	157	161	163	167	172	177	180	184	189	195	202
Food	39	60	87	106	132	136	138	141	144	148	153	157	161	164	168	173	176	180	186	191	195
Shelter	36	49	81	110	140	146	151	156	161	166	171	176	182	187	193	201	208	213	219	224	232
Apparel	59	73	91	105	124	129	132	134	133	132	132	133	133	131	130	127	124	121	120	120	120
Motor fuel	28	45	97	99	101	99	99	98	99	100	106	106	92	101	129	125	117	136	160	196	U
Medical care	34	48	75	114	163	177	190	201	211	221	228	235	242	251	261	273	286	297	310	323	336

KEY: U = data are not available.

[a] State and federal taxes are weighted averages computed by the American Petroleum Institute, based on gasoline sold in the 50 states. Local taxes are excluded, but additional state sales taxes levied on motor fuel are included.

SOURCES

Retail price (constant 2006 dollar):

American Petroleum Institute, Policy Analysis and Statistics, personal communication, Sept. 24, 2007.

Retail price (current dollar):

1970-75: U.S. Department of Energy, Energy Information Agency, *Annual Energy Review 2003* (Washington, DC: 2004), table 5.24, Internet site http://www.eia.doe.gov as of Sep. 7, 2004.

1980-2006: Ibid., *Monthly Energy Review* (Washington, DC: March 2007), table 9.4, Internet site http://www.eia.doe.gov as of Sept. 1, 2007.

Consumer price indices:

Council of Economic Advisors, *Economic Report of the President 2007* (Washington, DC: Annual Issues), tables B-60 and B-61, Internet site http://www.gpoaccess.gov/eop/download.html as of Sept. 1, 2007.

Table 3-10a: Producer Price Indices for Transportation Services (Base date = 100)

	Base date	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Railroads, line-haul operating (SIC 4011)	12/84	107.5	109.3	109.9	110.9	111.8	111.7	111.5	112.1	113.4	113.0	114.5	116.6	118.9	121.4
Motor freight transportation and warehousing (SIC 42)	06/93	U	U	U	99.9	101.9	104.5	106.3	108.9	111.6	114.8	119.4	123.1	124.5	127.9
Water transportation (SIC 44)	12/92	U	U	100.0	99.7	100.0	103.0	103.7	104.2	105.6	113.0	122.6	129.8	134.6	147.1
Air transportation (SIC 45)	12/92	U	U	100.0	105.6	108.5	113.7	121.1	125.3	124.5	130.8	147.7	157.2	157.8	162.1
Pipelines, except natural gas (SIC 46)	12/86	95.8	96.1	96.4	96.6	102.6	110.8	104.6	98.8	99.2	98.3	102.3	110.3	111.9	111.7
Travel agencies (SIC 4724)	12/89	107.3	113.6	113.4	115.3	115.3	111.3	109.9	114.5	112.1	112.0	121.8	123.3	114.0	112.5
Freight transportation arrangement (SIC 4731)	12/94	U	U	U	U	100.0	99.8	101.5	101.4	99.7	99.2	100.3	100.3	99.5	99.9

KEY: SIC = Standard Industrial Classification; U = data are not available.

NOTE

Data are reported monthly from January to December. The monthly indices, however, are available for fewer than 12 months for some years. In both cases, a simple average of the available monthly indices is reported for each year. Data are not seasonally adjusted.

In 2004 the North American Industry Classification System (NAICS) replaced the SIC as the Bureau of Labor Statistics' measure of economic activity.

SOURCE

U.S. Department of Labor, Bureau of Labor Statistics, Producer Price Index Industry Data, Internet site www.bls.gov/data/sa.htm as of Sept. 19, 2007.

Table 3-10b: Producer Price Indices for Selected Transportation and Warehousing Services (North American Industry Classification System [NAICS] basis) (Base date = 100)

	Base date	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	**2006**
Air Transportation (NAICS 481)	12/92	U	U	100	105.6	108.5	113.7	121.1	125.3	124.5	130.8	147.7	157.2	157.8	162.1	162.3	171.0	180.4
Scheduled Air Transportation (NAICS 4811)	12/89	110.2	121.2	114.2	125.4	129.1	135.9	145.5	150.8	149.3	157.3	180.1	193.0	193.3	198.5	198.6	209.3	220.5
Scheduled Air Transportation (NAICS 48111)	12/89	110.2	121.2	114.2	125.4	129.1	135.9	145.5	150.8	149.3	157.3	180.1	193.0	193.3	198.5	198.6	209.3	220.5
Scheduled Passenger Air Transportation (NAICS 481111)	12/89	110.6	122.4	114.8	126.8	130.6	137.8	148.1	153.9	152.6	161.2	186.5	200.6	200.4	205.7	205.8	217.1	229.6
Scheduled Freight Air Transportation (NAICS 481112)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	100.2	104.9	108.4
Nonscheduled Air Transportation (NAICS 4812)	12/96	U	U	U	U	U	U	100.0	97.8	99.2	102.2	107.3	112.7	114.7	117.8	119.9	126.7	136.8
Nonscheduled Air Transportation (NAICS 48121)	12/96	U	U	U	U	U	U	100.0	97.8	99.2	102.2	107.3	112.7	114.7	117.8	119.9	126.7	136.8
Rail Transportation (NAICS 482)	12/96	U	U	U	U	U	U	100.0	100.5	101.7	101.3	102.6	104.5	106.6	108.8	113.4	125.2	135.9
Rail Transportation (NAICS 4821)	12/96	U	U	U	U	U	U	100.0	100.5	101.7	101.3	102.6	104.5	106.6	108.8	113.4	125.2	135.9
Rail Transportation (NAICS 48211)	12/96	U	U	U	U	U	U	100.0	100.5	101.7	101.3	102.6	104.5	106.6	108.8	113.4	125.2	135.9
Line -Haul Railroads (NAICS 482111)	12/84	107.5	109.3	109.9	110.9	111.8	111.7	111.5	112.1	113.4	113.0	114.5	116.6	118.9	121.4	126.5	139.6	151.2
Water Transportation (NAICS 483)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	101.3	106.4	111.1
Deep Sea, Coastal, and Great Lakes Water Transportation (NAICS 4831)	NA	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Deep Sea, Coastal, and Great Lakes Water Transportation (NAICS 48311)	NA	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Deep Sea Freight Transportation (NAICS 483111)	06/88	113.1	119.5	116.4	115.9	114.4	113.3	114.1	113.1	116.7	134.0	155.8	172.2	185.8	219.9	225.9	231.9	233.3
Coastal and Great Lakes Freight Transportation (NAICS 483113)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	101.7	109.9	119.9
Inland Water Transportation (NAICS 4832)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	103.2	119.3	144.1
Inland Water Transportation (NAICS 48321)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	103.2	119.3	144.1
Inland Water Freight Transportation (NAICS 483211)	12/90	100.0	99.2	97.7	95.8	98.5	114.6	109.9	105.9	106.8	111.2	117.9	123.4	120.6	124.7	131.0	151.4	182.9
Truck Transportation (NAICS 484)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	103.1	109.0	113.2
General Freight Trucking (NAICS 4841)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	103.5	110.0	114.1
General Freight Trucking, Local (NAICS 48411)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	105.2	111.5	115.3
General Freight Trucking, Local (NAICS 484110)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	105.2	111.5	115.3
General Freight Trucking, Long Distance (NAICS 48412)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	103.2	109.7	113.8
General Freight Trucking, Long Distance, Truckload (NAICS 484121)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	102.7	108.6	112.0
General Freight Trucking, Long Distance, Less Than Truckload (NAICS 484122)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	104.2	111.8	117.7
Specialized Freight Trucking (NAICS 4842)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	102.3	107.0	111.4
Used Household and Office Goods Moving (NAICS 48421)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	102.6	106.0	107.8
Used Household and Office Goods Moving (NAICS 484210)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	102.6	106.0	107.8
Specialized Freight (except Used Goods) Trucking, Local (NAICS 48422)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	102.7	107.1	112.3
Specialized Freight (except Used Goods) Trucking, Local (NAICS 484220)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	102.7	107.1	112.3
Specialized Freight (except Used Goods) Trucking, Long Distance (NAICS 48423)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	101.7	107.5	112.8
Specialized Freight (except Used Goods) Trucking, Long Distance (NAICS 484230)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	101.7	107.5	112.8
Pipeline Transportation (NAICS 486)	NA	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Pipeline Transportation of Crude Oil (NAICS 4861)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	103.9	113.3	112.0
Pipeline Transportation of Crude Oil (NAICS 48611)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	103.9	113.3	112.0
Pipeline Transportation of Crude Oil (NAICS 486110)	06/86	94.2	94.4	94.8	95.0	102.5	113.4	104.7	96.0	96.8	95.5	101.0	111.1	112.3	111.1	115.2	125.5	135.3
Other Pipeline Transportation (NAICS 4869)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	101.4	105.2	108.2
Pipeline Transportation of Refined Petroleum Products (NAICS 48691)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	101.4	105.2	108.2
Pipeline Transportation of Refined Petroleum Products (NAICS 486910)	06/86	100.8	101.1	101.2	101.3	103.4	104.6	104.3	105.3	104.8	104.9	105.3	108.5	111.0	112.7	116.0	120.3	123.8

Table 3-10b: Producer Price Indices for Selected Transportation and Warehousing Services (North American Industry Classification System [NAICS] basis) (Base date = 100)

	Base date	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	**2006**
Support Activities for Transportation (NAICS 488)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	101.1	104.1	106.5
Support Activities for Air Transportation (NAICS 4881)	12/96	U	U	U	U	U	U	100.0	102.5	105.2	108.6	114.2	117.5	121.4	125.1	128.1	134.2	138.6
Airport Operations (NAICS 48811)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	101.1	104.8	108.6
Air Traffic Control (NAICS 488111)	NA	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Other Airport Operations (NAICS 488119)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	101.1	104.8	108.6
Other Support Activities for Air Transportation (NAICS 48819)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	102.0	107.5	110.8
Other Support Activities for Air Transportation (NAICS 488190)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	101.9	107.4	110.8
Support Activities for Water Transportation (NAICS 4883)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	101.0	103.5	107.7
Port and Harbor Operations (NAICS 48831)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	102.4	105.9	108.8
Port and Harbor Operations (NAICS 488310)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	102.4	105.9	108.8
Marine Cargo Handling (NAICS 48832)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	100.5	102.2	105.1
Marine Cargo Handling (NAICS 488320)	12/91	U	100.0	101.2	102.6	102.9	102.1	101.6	103.7	104.9	106.7	109.1	111.4	110.9	111.5	113.2	115.1	118.4
Navigational Services to Shipping (NAICS 48833)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	101.5	105.7	113.9
Navigational Services to Shipping (NAICS 488330)	12/92	U	U	100.0	99.8	101.5	107.2	110.9	113.3	115.6	119.7	124.2	125.4	127.4	129.3	133.1	138.6	149.5
Freight Transportation Arrangement (NAICS 4885)	12/96	U	U	U	U	U	U	100.0	99.4	97.7	97.3	98.3	98.2	97.5	97.9	98.9	99.1	98.8
Freight Transportation Arrangement (NAICS 48851)	12/96	U	U	U	U	U	U	100.0	99.4	97.7	97.3	98.3	98.2	97.5	97.9	98.9	99.1	98.8
Freight Transportation Arrangement (NAICS 488510)	12/94	U	U	U	U	100.0	99.8	101.5	101.4	99.7	99.2	100.3	100.3	99.5	99.9	100.9	101.1	100.4
Postal Service (NAICS 491)	06/89	100.0	117.9	119.8	119.8	119.8	132.2	132.3	132.3	132.3	135.3	135.2	143.4	150.2	155.0	155.0	155.0	164.7
Postal Service (NAICS 4911)	06/89	100.0	117.9	119.8	119.8	119.8	132.2	132.3	132.3	132.3	135.3	135.2	143.4	150.2	155.0	155.0	155.0	164.7
Couriers and Messengers (NAICS 492)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	106.1	113.8	121.5
Couriers (NAICS 4921)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	106.6	115.0	123.2
Local Messengers and Local Delivery (NAICS 4922)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	101.1	102.7	104.4
Warehousing and Storage (NAICS 493)	NA	U	U	U	U	82.7	84.1	84.6	85.4	86.5	89.0	90.8	93.2	94.5	95.8	U	U	U
Warehousing and Storage (NAICS 4931)	NA	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
General Warehousing and Storage (NAICS 49311)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	100.3	101.5	103.8
General Warehousing and Storage (NAICS 493110)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	100.4	101.6	103.8
Refrigerated Wareshousing and Storage (NAICS 49312)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	100.5	101.0	102.4
Refrigerated Wareshousing and Storage (NAICS 493120)	12/91	U	100.0	101.0	101.8	102.7	104.2	104.6	105.1	105.4	106.4	108.1	109.8	109.8	109.8	110.5	111.0	112.5
Farm Product Warehousing and Storage (NAICS 49313)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	100.2	101.5	103.8
Farm Product Warehousing and Storage (NAICS 493130)	12/92	U	U	100.0	100.1	100.9	104.0	102.4	102.9	104.1	107.1	110.6	114.2	115.6	116.1	116.5	118.1	120.6

KEY: NA = not applicable; NAICS = North American Industry Classification System; U = data are not available.

NOTE

Data are reported monthly from January to December. The monthly indices, however, are available for fewer than 12 months for some years. In both cases, a simple average of the available monthly indices is reported for each year. Data are not seasonally adjusted.

SOURCE

U.S. Department of Labor, Bureau of Labor Statistics, Producer Price Index Industry Data, Internet site www.bls.gov/data/sa.htm as of September 2007.

Table 3-11a: Producer Price Indices for Transportation Equipment (Base date = 100)

	Base date	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Transportation equipment (SIC 37)	12/84	115.6	119.8	123.0	126.3	130.1	132.2	134.2	134.1	133.6	134.5	136.8	137.9
Motor vehicles and motor vehicle equipment (SIC 371)	12/84	113.0	117.4	120.5	123.8	127.5	129.1	130.4	129.0	127.7	128.3	129.2	128.5
Motor vehicles and passenger car bodies (SIC 3711)	06/82	119.9	125.3	129.1	133.2	138.0	139.1	140.4	138.7	136.8	137.6	138.7	137.6
Truck and bus bodies (SIC 3713)	12/82	125.4	128.1	131.1	132.8	136.8	145.5	149.9	153.5	155.3	157.0	160.3	163.3
Motor vehicle parts and accessories (SIC 3714)	12/82	108.9	110.3	111.0	111.7	112.0	113.5	114.0	113.1	112.6	112.0	111.6	111.5
Truck trailers (SIC 3715)	12/79	125.6	128.1	131.2	134.2	138.6	148.6	147.8	147.7	152.2	153.6	156.6	156.1
Motor homes built on purchased chassis (SIC 3716)	06/84	125.8	128.7	131.8	133.9	134.5	137.8	141.6	143.1	145.0	147.6	149.4	151.8
Aircraft (SIC 3721)	12/85	116.0	120.4	124.3	128.6	132.9	137.3	140.5	142.3	142.7	144.1	150.5	155.7
Aircraft engines and engine parts (SIC 3724)	12/85	112.6	117.9	123.6	125.7	129.0	130.9	133.4	134.8	135.8	136.8	139.7	144.0
Aircraft parts and auxiliary equipment, NEC (SIC 3728)	06/85	116.3	120.3	124.9	128.0	130.7	131.7	136.3	139.0	140.8	142.2	143.3	146.6
Shipbuilding and repairing (SIC 3731)	12/85	114.0	116.2	118.3	123.3	126.8	127.6	130.1	133.3	134.8	135.4	137.6	140.1
Boatbuilding and repairing (SIC 3732)	12/81	136.0	140.1	144.9	147.7	150.2	154.6	159.6	165.0	168.6	172.7	179.4	186.3
Railroad equipment (SIC 3743)	06/84	114.2	117.3	118.7	119.8	122.6	127.6	129.6	127.4	127.5	128.1	128.6	128.2
Motorcycles, bicycles, and parts (SIC 3751)	12/84	109.9	111.8	114.4	116.9	119.0	122.2	123.3	123.3	124.2	125.5	127.7	127.9
Travel trailers and campers (SIC 3792)	06/84	118.1	120.1	122.2	123.2	124.7	127.2	129.0	129.6	130.3	132.0	133.2	134.2
Transportation equipment, NEC (SIC 3799)	06/85	112.5	114.9	116.1	117.2	119.1	123.3	126.6	128.7	131.3	132.2	135.5	138.1

KEY: NEC = not elsewhere classified; SIC = Standard Industrial Classification.

NOTE

Bureau of Labor Statistics data are reported monthly from January to December. The monthly indices, however, are available for fewer than 12 months for some years. In both cases, a simple average of the available monthly indices is reported for each year. Data are not seasonally adjusted.

SOURCE

U.S. Department of Labor, Bureau of Labor Statistics, Producer Price Index Revision-Current Series, Internet site www.bls.gov/data/sa.htm as of June 22, 2004.

Table 3-11b: Producer Price Indices for Transportation Equipment, NAICS Basis (Base date = 100)

	Base date	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Transportation Equipment Manufacturing (NAICS 336)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	100.9	102.5	103.2
Motor Vehicle Manufacturing (NAICS 3361)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	99.4	98.7	96.1
Automobile and Light Duty Motor Vehicle Manufacturing (NAICS 33611)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	99.2	98.2	95.1
Automobile and Light Duty Motor Vehicle Manufacturing (NAICS 336110)	06/82	119.9	125.3	129.1	133.2	138.0	139.1	140.4	138.7	136.8	137.6	138.7	137.6	134.9	135.1	136.5	135.1	130.8
Automobile Manufacturing ((NAICS 336111)	NA	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Light Truck and Utility Vehicle Manufacturing (NAICS 336112)	NA	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Heavy Duty Truck Manufacturing (NAICS 33612)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	U	U	U
Heavy Duty Truck Manufacturing (NAICS 336120)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	102.2	106.4	110.4
Motor Vehicle Body and Trailer Manufacturing (NAICS 3362)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	104.0	109.7	113.7
Motor Vehicle Body and Trailer Manufacturing (NAICS 33621)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	U	109.7	113.7
Motor Vehicle Body Manufacturing (NAICS 336211)	12/82	125.4	128.1	131.1	132.8	136.8	145.5	149.9	153.5	155.3	157.0	160.3	163.3	165.6	167.5	176.7	190.3	200
Truck Trailer Manufacturing (NAICS 336212)	12/79	125.6	128.1	131.2	134.2	138.6	148.6	147.8	147.7	152.2	153.6	156.6	156.1	155.6	157.0	166.2	176.2	184.5
Motor Home Manufacturing (NAICS 336213)	06/84	125.8	128.7	131.8	133.9	134.5	137.8	141.6	143.1	145.0	147.6	149.4	151.8	154.8	157.8	163.8	169.3	166.6
Travel Trailer and Camper Manufacturing (NAICS 336214)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	101.6	104.7	109.7
Motor Vehicle Parts Manufacturing (NAICS 3363)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	101.4	102.7	104.8
Motor Vehicle Gasoline Engine and Engine Parts Manufacturing (NAICS 33631)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	U	102.1	110.6
Carburetor, Piston, Piston Ring, and Valve Manufacturing (NAICS 336311)	12/82	118.6	119.7	120.7	121.9	122.7	124.8	126.4	127.1	127.0	126.5	127.8	128.5	129.1	128.7	129.8	131.7	137.4
Gasoline Engine and Engine Parts Manufacturing (NAICS 336312)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	101.4	102.5	111.5
Motor Vehicle Electrical and Electronic Equipment Manufacturing (NAICS 33632)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	U	101.5	102.3
Vehicular Lighting Equipment Manufacturing (NAICS 336321)	12/83	112.8	121.8	122.7	123.2	123.2	124.1	124.3	123.7	124.7	124.7	122.7	122.5	122.7	122.1	123.0	123.9	124.6
Other Motor Vehicle Electrical and Electronic Equipment Manufacturing (NAICS 336322)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	99.8	101.7	102.5
Motor Vehicle Steering and Suspension Components (except Spring) Manufacturing (NAICS 33633)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	101.8	105.1	106.3
Motor Vehicle Steering and Suspension Components (except Spring) Manufacturing (NAICS 336330)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	101.7	104.9	106.1
Motor Vehicle Brake System Manufacturing (NAICS 33634)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	U	100.3	101.2
Motor Vehicle Brake System Manufacturing (NAICS 336340)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	99.6	100.3	101.2
Motor Vehicle Transmission and Power Train Parts Manufacturing (NAICS 33635)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	102.8	102.5	104.5
Motor Vehicle Transmission and Power Train Parts Manufacturing (NAICS 336350)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	100.9	101.2	103.2
Motor Vehicle Seating and Interior Trim Manufacturing (NAICS 33636)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	U	99.5	99.8
Motor Vehicle Seating and Interior Trim Manufacturing (NAICS 336360)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	99.1	99.5	99.8
Motor Vehicle Metal Stamping (NAICS 33637)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	U	109.9	110.4
Motor Vehicle Metal Stamping (NAICS 336370)	12/82	112.6	111.7	111.5	111.4	111.9	111.7	112.5	112.8	111.9	110.4	110.6	110.1	110.3	113.0	118.5	120.4	120.9
Other Motor Vehicle Parts Manufacturing (NAICS 33639)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	U	101.6	102.1
Motor Vehicle Air-Conditioning Manufacturing (NAICS 336391)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	100.3	99.8	99.7
All Other Motor Vehicle Parts Manufacturing (NAICS 336399)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	100.6	101.9	102.5
Aerospace Product and Parts Manufacturing (NAICS 3364)	06/85	117.7	122.3	126.6	130.1	134.0	137.3	140.8	142.7	143.4	144.8	149.9	154.7	157.3	162.2	168.0	176.0	182.6
Aerospace Product and Parts Manufacturing (NAICS 33641)	06/85	117.7	122.3	126.6	130.1	134.0	137.3	140.8	142.7	143.4	144.8	149.9	154.7	157.3	162.2	U	176.0	182.6
Aircraft Manufacturing (NAICS 336411)	12/85	116.0	120.4	124.3	128.6	132.9	137.3	140.5	142.3	142.7	144.1	150.5	155.7	158.8	164.2	170.8	180.9	188.8
Aircraft Engine and Engine Parts Manufacturing (NAICS 336412)	12/85	112.6	117.9	123.6	125.7	129.0	130.9	133.4	134.8	135.8	136.8	139.7	144.0	145.7	152.9	160.4	163.5	169.7
Other Aircraft Parts and Auxiliary Equipment Manufacturing (NAICS 336413)	06/85	116.3	120.3	124.9	128.0	130.7	131.7	136.3	139.0	140.8	142.2	143.3	146.6	148.1	147.6	148.0	151.8	153.9
Guided Missile and Space Vehicle Manufacturing (NAICS 336414)	NA	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Guided Missile and Space Vehicle Propulsion Unit and Propulsion Unit Parts Manufacturing (NAICS 336415)	NA	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Other Guided Missile and Space Vehicle Parts and Auxiliary Equipment Manufacturing (NAICS 336419)	NA	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Railroad Rolling Stock Manufacturing (NAICS 3365)	06/84	114.2	117.3	118.7	119.8	122.6	127.6	129.7	127.4	127.6	128.2	128.6	128.3	127.7	129.0	135.8	150.5	158.4
Railroad Rolling Stock Manufacturing (NAICS 336510)	06/84	114.2	117.3	118.7	119.8	122.6	127.6	129.6	127.4	127.5	128.1	128.6	128.2	127.7	128.9	135.7	150.3	158.2
Ship and Boat Building (NAICS 3366)	12/84	120.1	122.7	125.7	129.9	133.0	135.0	138.2	142.0	144.1	145.6	149.0	152.6	156.8	163.0	169.6	175.0	181.4
Ship and Boat Building (NAICS 33661)	12/84	120.1	122.7	125.7	129.9	133.0	135.0	138.2	142.0	144.1	145.6	149.0	152.6	156.8	163.0	U	175.0	181.4
Ship Building and Repairing (NAICS 336611)	12/85	114.0	116.2	118.3	123.3	126.8	127.6	130.1	133.3	134.8	135.4	137.6	140.1	144.1	151.7	159.8	163.9	169.9
Boat Building (NAICS 336612)	12/81	136.0	140.1	144.9	147.7	150.2	154.6	159.6	165.0	168.6	172.7	179.4	186.3	190.5	194.2	198.0	206.7	214.1
Other Transportation Equipment Manufacturing (NAICS 3369)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	101.1	103.6	104.8
Other Transportation Equipment Manufacturing (NAICS 33699)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	U	103.6	104.8
Motorcycle, Bicycle, and Parts Manufacturing (NAICS 336991)	12/84	109.9	111.8	114.4	116.9	119.0	122.2	123.3	123.3	124.2	125.5	127.7	127.9	128.6	128.6	130.0	132.2	132.3
Military Armored Vehicle, Tank, and Tank Component Manufacturing (NAICS 336992)	NA	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
All Other Transportation Equipment Manufacturing (NAICS 336999)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	101.1	104.2	106.1

KEY: NA = not applicable; NAICS = North American Industry Classification System; U = data are not available.

NOTE

Bureau of Labor Statistics data are reported monthly from January to December. The monthly indices, however, are available for fewer than 12 months for some years. In both cases, a simple average of the available monthly indices is reported for each year. Data are not seasonally adjusted.

SOURCE

U.S. Department of Labor, Bureau of Labor Statistics, Producer Price Index Revision-Current Series, Internet site www.bls.gov/data/sa.htm as of September 2007.

Table 3-12: Personal Expenditures by Category (Current $ millions)

	(R) 1960	(R) 1965	(R) 1970	(R) 1975	(R) 1980	(R) 1985	(R) 1990	(R) 1991	(R) 1992	(R) 1993	(R) 1994	(R) 1995	(R) 1996	(R) 1997	(R) 1998	(R) 1999	(R) 2000	(R) 2001	(R) 2002	(R) 2003	(R) 2004	(R) 2005	(R) 2006	2007
Total expenditures	331,725	443,779	648,465	1,034,394	1,757,133	2,720,305	3,839,937	3,986,066	4,235,265	4,477,887	4,743,286	4,975,787	5,256,832	5,547,400	5,879,483	6,282,474	6,739,378	7,055,038	7,350,721	7,703,630	8,195,862	8,707,820	9,224,507	9,734,187
Transportation	42,843	59,375	81,462	132,364	238,939	377,667	471,680	447,265	483,158	520,812	567,305	594,576	641,805	685,203	717,973	785,045	853,428	872,366	882,220	921,716	976,481	1,049,863	1,093,370	1,138,730
expenditures	12.9	13.4	12.6	12.8	13.6	13.9	12.3	11.2	11.4	11.6	12.0	11.9	12.2	12.4	12.2	12.5	12.7	12.4	12.0	12.0	11.9	12.1	11.9	11.7
Food and tobacco	89,200	108,802	154,566	238,278	376,837	498,389	677,767	699,912	717,333	740,551	767,914	790,057	820,099	850,049	888,719	944,768	1,003,707	1,051,956	1,091,058	1,134,005	1,200,612	1,273,517	1,351,641	1,431,718
Clothing, accessories, and jewelry	32,742	41,384	57,640	85,619	132,272	188,265	261,481	263,532	280,903	293,369	306,289	314,492	327,199	337,431	356,260	379,584	396,953	397,137	406,988	418,784	441,470	464,115	491,122	511,349
Personal care	5,568	8,103	11,512	16,067	25,482	38,762	56,948	58,494	61,968	64,437	68,098	72,781	77,005	82,869	86,178	89,451	93,372	94,524	96,731	100,404	106,683	111,909	115,680	121,793
Housing	48,151	65,426	94,075	147,710	256,171	412,710	597,939	631,114	658,466	683,886	726,142	764,386	800,092	842,613	894,612	948,412	1,006,456	1,073,711	1,123,113	1,161,807	1,226,784	1,298,688	1,381,341	1,465,948
Household operation	46,708	62,056	84,846	135,671	233,326	343,603	433,288	444,277	466,032	497,475	529,581	553,478	586,609	616,249	641,849	675,208	719,278	740,318	747,402	781,120	822,363	878,064	923,409	968,244
Medical care	22,209	34,710	61,293	109,892	209,618	376,388	635,133	692,866	761,108	808,997	853,318	904,963	950,741	1,002,794	1,069,376	1,130,846	1,218,341	1,327,310	1,441,209	1,556,533	1,670,169	1,782,147	1,899,848	2,016,265
Personal business	14,118	20,101	31,785	54,909	95,229	177,525	250,859	279,658	306,656	329,982	336,123	349,561	376,036	412,925	446,055	491,581	539,098	536,516	546,991	559,661	610,938	651,475	691,909	744,252
Recreation	18,492	26,856	43,104	70,541	117,481	189,717	290,166	301,980	321,319	351,014	383,372	418,151	448,367	474,475	505,798	546,067	585,712	604,024	629,877	659,897	707,805	746,928	791,120	829,646
Education and research	4,376	7,006	12,695	20,610	33,481	53,880	83,700	89,269	96,036	101,480	107,281	114,346	122,650	129,682	140,028	150,488	163,771	178,077	190,180	203,095	212,789	225,877	239,639	256,901
Religious and welfare activities	5,198	7,102	10,973	18,287	34,757	55,657	88,651	92,918	102,283	106,467	115,250	120,356	130,464	134,234	145,962	154,478	172,284	186,470	200,090	207,142	218,955	225,111	241,333	253,571
Foreign travel and other, net	2,121	2,858	4,514	4,445	3,540	7,742	-7,673	-15,219	-19,998	-20,582	-17,386	-21,361	-24,233	-21,125	-13,327	-13,453	-13,022	-7,373	-5,137	-536	811	127	4,097	-4,231
Disposable Personal Income (DPI)	365,400	498,100	735,700	1,187,400	2,009,000	3,109,300	4,285,800	4,464,300	4,751,400	4,911,900	5,151,800	5,408,200	5,688,500	5,988,800	6,395,900	6,695,000	7,194,000	7,486,800	7,830,100	8,162,500	8,680,900	9,092,000	9,629,100	10,177,000
Transportation as a percent of DPI	11.7	11.9	11.1	11.1	11.9	12.1	11.0	10.0	10.2	10.6	11.0	11.0	11.3	11.4	11.2	11.7	11.9	11.7	11.3	11.3	11.2	11.5	11.4	11.2

KEY: R = revised.

SOURCES

DPI: U.S. Department of Commerce, Bureau of Economic Analysis, *National Income and Product Accounts Tables* , table 2.1, Internet site http://www.bea.gov/bea/dn/nipaweb/index.asp as of May. 13, 2008.
All except DPI: Ibid., *National Income and Product Accounts Tables* , table 2.3.5u, Internet site http://www.bea.gov/national/nipaweb/nipa_underlying/SelectTable.asp as of June 9, 2008.

Table 3-13: Personal Consumption Expenditures on Transportation by Subcategory (Current $ millions)

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
TOTAL transportation	42,800	59,400	81,500	132,400	238,900	377,700	471,700	447,300	483,200	520,800	567,300	594,600	641,800	685,200	718,000	785,000	853,400	872,400	882,200	921,700	(R) 976,500	(R) 1,049,900	1,093,400
User-operated transportation, total	39,500	55,300	74,500	121,100	218,800	349,800	434,700	410,800	445,900	481,100	525,400	550,500	594,800	634,600	664,400	729,300	793,800	818,300	830,900	866,000	(R) 917,500	(R) 988,300	1,028,200
New cars and net purchases of used cars	16,600	25,200	26,700	36,700	57,200	110,700	119,000	103,700	112,400	120,400	133,200	132,600	136,000	139,400	147,300	158,400	164,300	162,900	162,100	152,000	(R) 152,000	(R) 161,600	165,100
New and used trucks and RVs	600	1,300	2,700	7,700	11,800	41,000	63,900	60,300	70,100	80,800	91,200	96,200	108,600	123,800	144,900	165,400	173,200	195,900	216,900	227,600	(R) 230,500	(R) 225,400	209,300
Tires, tubes, accessories, and parts	2,500	3,500	6,100	10,300	17,900	24,300	29,900	29,500	30,500	32,800	36,000	37,800	40,300	41,900	43,900	47,000	49,000	49,100	50,300	52,000	54,400	(R) 57,900	59,800
Repair and rental [a]	5,500	7,600	12,300	19,800	34,000	60,500	84,900	81,900	90,300	99,500	112,500	125,500	138,700	152,900	161,100	172,600	183,500	189,100	186,000	186,800	189,500	(R) 198,400	208,400
Gasoline and oil	12,000	14,800	21,900	39,700	86,700	97,200	111,200	108,500	112,400	114,100	116,200	120,200	130,400	134,400	122,400	137,900	175,700	171,600	164,500	192,700	(R) 231,400	(R) 280,700	318,600
Tolls	300	500	700	800	1,100	1,500	2,300	2,500	2,800	3,100	3,400	3,700	4,000	4,400	4,400	4,800	5,100	5,100	5,300	5,500	(R) 6,000	(R) 6,500	6,900
Insurance premiums, less claims paid	2,000	2,600	4,100	5,900	10,000	14,700	23,500	24,400	27,300	30,400	32,800	34,500	36,700	37,800	40,400	43,200	43,000	44,600	45,800	49,200	53,700	(R) 57,800	60,100
Purchased intercity transportation, total	1,300	2,000	4,000	7,300	15,400	21,000	28,600	27,700	28,200	30,300	32,100	33,900	36,200	39,500	41,800	43,900	47,400	41,600	39,000	42,700	(R) 45,200	(R) 46,900	49,500
Railroad	300	300	200	300	300	400	600	600	500	500	400	400	400	400	400	500	500	600	600	600	600	(R) 600	600
Intercity bus	300	400	500	700	1,400	1,300	1,300	1,600	1,600	1,700	1,700	1,800	1,900	2,200	2,200	2,200	2,400	2,400	2,400	2,300	2,300	(R) 2,200	2,200
Airline	700	1,300	3,100	5,900	12,800	17,600	22,700	21,400	21,300	22,900	24,000	25,300	26,900	29,800	31,800	33,300	36,700	31,400	28,300	31,200	(R) 33,300	(R) 34,400	35,600
Other	0	100	200	400	900	1,700	4,000	4,200	4,800	5,300	5,900	6,400	7,000	7,000	7,300	7,800	7,800	7,300	7,800	8,600	9,100	(R) 9,800	11,000
Purchased local transportation, total	2,000	2,100	3,000	4,000	4,800	6,800	8,400	8,800	9,000	9,400	9,900	10,100	10,900	11,100	11,800	11,900	12,200	12,500	12,300	13,000	13,800	(R) 14,600	15,700
Mass transit system	1,400	1,400	1,800	2,100	2,900	4,200	5,800	6,100	6,500	6,700	7,100	7,100	7,700	7,800	8,300	8,600	9,100	9,200	9,000	9,500	10,200	(R) 10,700	11,500
Taxi	600	600	1,200	2,000	1,900	2,600	2,600	2,600	2,600	2,700	2,800	3,000	3,200	3,300	3,500	3,300	3,100	3,200	3,300	3,500	3,600	3,900	4,200

KEY: R = revised; RVs = recreational vehicles.

[a] Also includes greasing, washing, parking, storage, and leasing.

NOTE
Numbers may not add to totals due to rounding.

SOURCE
U.S. Department of Commerce, Bureau of Economic Analysis, *National Income and Product Accounts Tables*, table 2.5.5, Internet site http://www.bea.gov/bea/dn/nipaweb/index.asp as of Nov. 20, 2007.

Table 3-14: Average Cost of Owning and Operating an Automobile[a] (Assuming 15,000 Vehicle-Miles per Year)

	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Average total cost per mile (current ¢)	14.4	21.2	23.2	33.0	37.3	38.8	38.7	39.4	41.2	42.6	44.8	46.1	47.0	49.1	51.0	50.2	51.7	56.2	52.2	52.2	54.1
Gas[b]	4.8	5.9	5.6	5.4	6.6	5.9	5.9	5.6	5.8	5.6	6.6	6.2	5.6	6.9	7.9	5.9	7.2	6.5	9.5	8.9	11.7
Gas as a percent of total cost [b]	33.4	27.9	24.0	16.4	17.7	15.2	15.2	14.2	14.1	13.1	14.7	13.4	11.9	14.1	15.5	11.7	13.9	11.6	18.2	17.1	21.6
Maintenance [c]	1.0	1.1	1.2	2.1	2.2	2.2	2.4	2.5	2.6	2.8	2.8	3.1	3.3	3.6	3.9	4.1	4.1	5.4	4.9	4.9	4.6
Tires	0.7	0.6	0.7	0.9	0.9	0.9	0.9	1.0	1.2	1.2	1.4	1.4	1.7	1.7	1.8	1.8	1.8	0.7	0.7	0.7	0.7
Average total cost per 15,000 miles (current $)	2,154	3,176	3,484	4,954	5,601	5,824	5,804	5,916	6,185	6,389	6,723	6,908	7,050	7,363	7,654	7,533	7,754	8,431	7,834	7,823	8,121
Variable cost	968	1,143	1,113	1,260	1,455	1,350	1,380	1,365	1,440	1,440	1,620	1,605	1,590	1,829	2,040	1,770	1,965	1,890	2,265	2,175	2,545
Fixed cost [d]	1,186	2,033	2,371	3,694	4,146	4,474	4,424	4,551	4,745	4,949	5,103	5,303	5,460	5,534	5,614	5,764	5,789	6,541	5,569	5,648	5,576

[a] All figures reflect the average cost of operating a vehicle 15,000 miles per year in stop and go conditions.
[b] Prior to 2004, data include oil cost.
[c] Beginning in 2004, data include oil cost.
[d] Fixed costs (ownership costs) include insurance, license, registration, taxes, depreciation, and finance charges.

NOTES

Methodological changes in 1985 and 2004 make it difficult to compare costs before and after those years.

In 2004, the American Automobile Association adopted a new method for calculating vehicle operating costs that the Association believes more closely represents the real-world personal use of a vehicle over a five-year and 75,000-mile ownership period.

Prior to 1985, the cost figures are for a mid-sized, current model, American car equipped with a variety of standard and optional accessories. After 1985, the cost figures represent a composite of three current model American cars. The 2004 fuel costs are based on average late-2003 U.S. prices from AAA's Fuel Gauge Report: www.fuelgaugereport.com. Insurance figures are based on a full-coverage policy for a married 47-year-old male with a good driving record living in a small city and commuting three to ten miles daily to work. The policy includes $100,000/$300,000 level coverage with a $500 deductible for collision coverage and a $100 deductible for comprehensive coverage. Depreciation costs are based on the difference between new-vehicle purchase price and its estimated trade-in-value at the end of five years. American Automobile Association analysis covers vehicles equipped with standard and optional accessories including automatic transmission, air conditioning, power steering, power disc brakes, AM/FM stereo, driver- and passenger-side air bags, anti-lock brakes, cruise control, tilt steering wheel, tinted glass, emissions equipment, and rear-window defogger.

SOURCE

American Automobile Association, *Your Driving Costs* (Heathrow, FL: Annual issues) as of June 2008.

Table 3-15a: Average Passenger Fares (Current $)

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Air carrier, domestic, scheduled service	33.01	34.13	40.65	53.64	84.60	92.53	107.86	106.78	103.60	109.80	103.21	106.66	110.37	114.10	114.34	114.98	121.27	111.60	101.94	103.75	103.59	106.27	113.25
Class I bus, intercity[a]	2.46	2.73	3.81	5.46	10.57	11.98	20.22	21.86	21.15	21.32	19.77	20.10	22.85	20.83	23.14	26.16	29.46	30.27	30.11	U	U	U	U
Transit, all modes[b] (unlinked)	0.14	0.16	0.22	0.27	0.30	0.53	0.67	0.70	0.72	0.77	0.85	0.88	0.93	0.90	0.91	0.90	0.93	0.92	(R) 0.90	0.97	1.02	(R) 1.05	1.12
Commuter rail	0.64	0.71	0.84	1.04	1.41	2.85	2.90	3.01	3.09	3.09	3.19	3.13	3.25	3.30	3.29	3.30	(R) 3.33	3.43	(R) 3.50	3.79	3.90	4.08	4.22
Intercity rail / Amtrak[c]	4.22	3.92	3.19	12.96	17.72	26.15	39.59	41.19	40.78	40.11	39.10	39.92	43.31	45.26	44.75	46.85	49.61	51.58	55.15	50.68	50.71	51.17	56.45

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

[a] Regular route intercity service.
[b] Prior to 1984, excludes commuter railroad, automated guideway, urban ferryboat, demand responsive, and most rural and smaller systems.
[c] Amtrak began operations in 1971.

SOURCES

Air carrier, domestic, scheduled service:

1960: Civil Aeronautics Board, *Handbook of Airline Statistics, 1969* (Washington, DC: February 1970), part III, table 2 (enplanements); part IV, table 2 (passenger revenue).

1965-70: Ibid. *Handbook of Airline Statistics, 1973* (Washington, DC: March 1974), part III, table 2 (enplanements); part IV, table 2 (passenger revenue).

1975-80: Ibid. *Air Carrier Financial Statistics* (Washington, DC: Annual December issues), p. 1, line 3; and *Air Carrier Traffic Statistics (*Washington, DC: Annual December issues), p. 2, line 16 (passenger revenue / revenue passenger enplanements).

1985-2006: U.S. Department of Transportation, Bureau of Transportation Statistics, Office of Airline Information,*Air Carrier Financial Statistics* (Washington, DC: Annual December issues); and *Air Carrier Traffic Statistics* (Washington, DC: Annual December issues) (passenger revenue / revenue passenger enplanements).

Class I bus, intercity:

1960-93: Interstate Commerce Commission, *Transport Statistics in the United States, Motor Carriers* (Washington, DC: Annual issues), part 2.

1994-2002: U.S. Department of Transportation, Bureau of Transportation Statistics,*Selected Earnings Data, Class I Motor Carriers of Passengers* (Washington, DC: Annual issues) (operating revenue / revenue passengers).

Transit and commuter rail:

1960-2006: American Public Transportation Association,*Public Transportation Fact Book*(Washington, DC: Annual issues),table 49, and similar tables in earlier editions (passenger fares / passenger trips).

Intercity rail / Amtrak:

1960-70: Association of American Railroads,*Railroad Facts* (Washington, DC: Annual issues).

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

1985: Amtrak, Amtrak Annual Report, Statistical Appendix (Washington, DC: Annual issues) (transportation revenues / Amtrak system passenger trips).

1990-2002: Amtrak, *Amtrak Annual Report,* Statistical Appendix (Washington, DC: Annual issues) (ticket revenue per passenger mile x average trip length of passengers).

2003-06: Association of American Railroads,*Railroad Facts* (Washington, DC: Annual issues).

Table 3-15b: Average Passenger Fares (Chained 2000 $)

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Air carrier, domestic, scheduled service	138.96	138.27	138.65	135.45	123.18	112.42	117.94	119.18	114.14	113.74	112.60	114.73	124.53	121.38	119.86	120.39	121.27	121.07	(R) 123.02	122.32	(R) 124.41	(R) 125.21	126.20
Class I bus, intercity[a]	17.71	18.57	20.46	18.70	22.63	16.36	23.31	24.08	22.93	23.87	22.16	23.22	25.91	23.51	24.79	27.36	29.46	29.31	28.26	U	U	U	U
Transit, all modes[b] (unlinked)	1.02	1.01	0.92	0.97	0.75	0.84	0.86	0.87	0.85	0.88	0.96	0.97	0.94	0.89	0.91	0.91	0.93	0.89	0.85	0.86	0.85	0.08	U
Commuter rail	4.60	5.02	5.04	4.84	3.97	5.11	3.81	3.85	3.89	3.83	3.92	3.65	3.56	3.62	3.52	3.40	3.32	3.28	3.21	3.52	3.96	4.12	U
Intercity rail / Amtrak[c]	30.30	27.73	19.15	60.29	49.86	46.85	51.99	52.65	51.39	49.78	48.04	46.56	47.39	49.59	47.87	48.32	49.61	49.18	50.72	(R) 47.10	(R) 51.51	51.57	52.36

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

[a] Regular route intercity service.
[b] Prior to 1984, excludes commuter railroad, automated guideway, urban ferryboat, demand responsive, and most rural and smaller systems.
[c] Amtrak began operations in 1971.

SOURCES

Air carrier, domestic, scheduled service:
1960: Civil Aeronautics Board, *Handbook of Airline Statistics, 1969* (Washington, DC: February 1970), part III, table 2 (enplanements); part IV, table 2 (passenger revenue).
1965-70: Ibid., *Handbook of Airline Statistics, 1973* (Washington, DC: March 1974), part III, table 2 (enplanements); part IV, table 2 (passenger revenue).
1975-80: Ibid., *Air Carrier Financial Statistics* (Washington, DC: Annual December issues), p. 1, line 3; and *Air Carrier Traffic Statistics* (Washington, DC: Annual December issues), p. 2, line 16 (passenger revenue / revenue passenger enplanements).
1985-2006: U.S. Department of Transportation, Bureau of Transportation Statistics, Office of Airline Information, Air Carrier Financial Statistics (Washington, DC: Annual December issues); and Air Carrier Traffic Statistics (Washington, DC: Annual December issues) (passenger revenue / revenue passenger enplanements).

Class I bus, intercity:
1960-93: Interstate Commerce Commission, *Transport Statistics in the United States, Motor Carriers* (Washington, DC: Annual issues), part 2.
1994-2002: U.S. Department of Transportation, Bureau of Transportation Statistics, Selected Earnings Data, Class I Motor Carriers of Passengers (Washington, DC: Annual issues) (operating revenue / revenue passengers).

Transit and commuter rail:
1960-2005: American Public Transportation Association, Public Transportation Fact Book 2006 (Washington, DC: 2006), table 7 and table 51, and similar tables in earlier editions (passenger fares / passenger trips).

Intercity rail / Amtrak:
1960-70: Association of American Railroads, *Railroad Facts* (Washington, DC: Annual issues).
1975-80: Amtrak, State and Local Affairs Department and Public Affairs Department, personal communication.
1985: Amtrak, *Amtrak Annual Report*, Statistical Appendix (Washington, DC: Annual issues) (transportation revenues / Amtrak system passenger trips).
1990-2002: Amtrak, *Amtrak Annual Report*, Statistical Appendix (Washington, DC: Annual issues) (ticket revenue per passenger mile x average trip length of passengers).
2003-06: Association of American Railroads, *Railroad Facts* (Washington, DC: Annual issues).

Section C
Transportation Revenues, Employment, and Productivity

Table 3-16: Average Passenger Revenue per Passenger-Mile (Current ¢)

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Air carrier, domestic, scheduled service	6.1	6.1	6.0	7.7	11.5	12.2	13.4	13.2	12.9	13.7	13.1	13.5	13.8	14.0	14.1	14.0	14.6	13.2	12.0	12.3	12.0	(R) 12.3	13.0
Index (1990 = 100)	46	46	45	57	86	91	100	99	96	102	98	101	103	104	105	104	109	99	90	92	90	(R) 92	97
Class I bus, intercity[a]	2.7	2.9	3.6	4.9	7.3	9.9	11.6	12.0	11.8	12.0	11.6	12.2	12.3	12.6	12.8	12.8	12.8	12.9	U	U	U	U	U
Index (1990 = 100)	23	25	31	42	63	86	100	104	102	104	101	106	106	109	110	110	111	112	U	U	U	U	U
Commuter rail	2.9	3.3	3.8	4.6	6.7	12.1	13.4	13.0	13.3	14.3	13.5	13.1	13.7	14.7	14.4	14.9	14.6	15.1	15.2	16.2	16.6	18.2	U
Index (1990 = 100)	22	25	28	34	50	90	100	97	99	107	101	97	102	109	107	111	109	112	113	121	124	136	U
Intercity / Amtrak[b]	3.0	3.1	4.0	5.7	8.2	11.3	14.1	14.1	14.1	14.0	13.7	14.6	16.6	17.3	17.5	18.4	23.2	24.9	26.8	25.0	26.0	27.2	29.7
Index (1990 = 100)	21	22	28	40	58	80	100	100	100	99	97	103	118	123	124	130	165	176	190	177	185	194	217
Consumer Price Index (1982-84 = 100)	30	32	39	54	82	108	131	136	140	145	148	152	157	161	[c]163	[d]167	172	177	180	184	189	195	202

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

[a] Regular route intercity service.
[b] Amtrak began operations in 1971.
[c] Beginning in 1998, data reflect changes in series composition and renaming.
[d] Beginning in 1999, data reflect changes in the formula used for calculating the basic components of the Consumer Price Index.

SOURCES

Air carrier, domestic, scheduled service:

1960: Civil Aeronautics Board, *Handbook of Airline Statistics, 1969* (Washington, DC: February 1970), part III, table 2 (passenger-miles); part IV, table 2 (passenger revenues).

1965-70: Ibid., *Handbook of Airline Statistics, 1973* (Washington, DC: March 1974), part III, table 2 (passenger-miles); part IV, table 2 (passenger revenues).

1975-80: Ibid., *Air Carrier Financial Statistics* (Washington, DC: Annual December issues), p. 2, line 3.
Ibid., *Air Carrier Traffic Statistics* (Washington, DC: Annual December issues), p. 4, line 9.

1985-2006: U.S. Department of Transportation, Bureau of Transportation Statistics, Office of Airline Information, *Air Carrier Financial Statistics* (Washington, DC: Annual December issues), p. 4, line 9 and similar pages in previous editions; and *Air Carrier Traffic Statistics* (Washington, DC: Annual December issues), p. 4 and similar pages in previous editions (total passenger operating revenues / total revenue passenger-miles).

Intercity class I bus:

1960-2001: Eno Transportation Foundation, Inc., *Transportation in America, 2002* (Washington, DC: 2002), p. 48.

Commuter rail:

1960-1985: Eno Transportation Foundation, Inc., *Transportation in America, 2002* (Washington, DC: 2002), p. 48.

1990-2005: American Public Transportation Association, *Public Transportation Fact Book 2006* (Washington, DC: 2006), tables 10 and 51 (passenger fares / passenger miles).

Intercity / Amtrak:

1960-70: Association of American Railroads, *Railroad Facts* (Washington, DC: Annual issues).

1975-80: Eno Transportation Foundation, Inc., *Transportation in America, 1994* (Lansdowne, VA: 1994), p. 50.

1985-2002: Amtrak, *Amtrak Annual Report, Statistical Appendix* (Washington, DC: Annual issues) (transportation revenues / passenger-miles).

2003-06: Association of American Railroads, *Railroad Facts 2007* (Washington, DC: 2007), p. 77 and similar pages in previous editions (passenger revenue/revenue passenger miles).

Consumer Price Index:

1960-2006: Council of Economic Advisors, *Economic Report of the President, 2006* (Washington, DC: 2006), table B-60.

Table 3-17: Average Freight Revenue Per Ton-mile (Current ¢)

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Air carrier, domestic, scheduled service	22.8	20.5	21.9	28.2	46.3	48.8	64.6	64.8	64.1	71.4	72.2	76.5	81.5	79.8	82.7	80.9	78.0	80.4	60.8	53.2	59.4	76.2	82.2
Index (1990 = 100)	35	32	34	44	72	75	100	100	99	110	112	118	126	123	128	125	121	124	94	82	92	118	127
Truck[a]	6.3	6.5	8.5	11.6	18.0	22.9	24.4	24.8	23.1	25.0	25.0	25.1	26.0	26.1	26.2	26.2	27.0	26.6	U	U	U	U	U
Index (1990 = 100)	26	26	35	48	74	94	100	102	95	102	103	103	107	107	107	107	111	109	U	U	U	U	U
Class I rail	1.40	1.27	1.43	2.04	2.87	3.04	2.66	2.59	2.58	2.52	2.49	2.40	2.35	2.40	2.34	2.28	2.26	2.24	2.26	2.28	2.35	2.62	2.84
Index (1990 = 100)	53	48	54	77	108	114	100	97	97	95	94	90	88	90	88	86	85	84	85	86	88	99	107
Barge	N	0.35	0.30	0.52	0.77	0.80	0.76	0.78	0.76	0.76	0.74	0.73	0.73	0.74	0.74	0.74	0.73	0.72	U	U	U	U	U
Index (1990 = 100)	N	46	40	68	102	106	100	103	100	100	97	97	96	97	98	98	97	95	U	U	U	U	U
Oil pipeline	0.32	0.28	0.27	0.37	[c]1.33	1.57	1.46	1.40	1.45	1.43	1.47	1.51	1.40	1.40	1.38	1.46	1.45	1.47	U	U	U	U	U
Index (1990 = 100)	22	19	19	25	91	107	100	96	100	98	101	104	96	96	95	100	100	101	U	U	U	U	U
Producer Price Index (1982 = 100)[b]	33	34	39	58	88	105	119	122	123	125	126	128	131	132	131	133	138	141	139	143	149	156	160

KEY: U = data are not available.

[a] General freight common carriers, most of which are LTL (less-than-truckload) carriers.

[b] Total finished goods.

[c] Reflects entrance of Alaska pipeline moving crude petroleum to U.S. refineries between 1975 and 1980.

SOURCES

Air carrier, domestic, scheduled service:

1960: Civil Aeronautics Board, *Handbook of Airline Statistics, 1969* (Washington, DC: 1970), part III, tables 2 and 13.

1965-70: Ibid., *Handbook of Airline Statistics, 1973* (Washington, DC: 1974), part III, tables 2 and 13.

1975-80: Ibid., *Air Carrier Traffic Statistics* (Washington, DC: 1976, 1981), pp. 4 and 14 (December 1976) and pp. 2 and 3 (December 1981).

1985-2006: U.S. Department of Transportation, Bureau of Transportation Statistics, Office of Airline Information, *Air Carrier Financial Statistics* (Washington, DC: Annual December issues) (freight operating revenues).

Ibid., *Air Carrier Traffic Statistics* (Washington, DC: Annual December issues) (freight revenue ton-miles).

Truck, barge, and oil pipeline:

1960-2001: Eno Transportation Foundation, Inc., *Transportation in America, 2002* (Washington, DC: 2002), p. 47.

Class I rail:

1960-2005: Association of American Railroads, *Railroad Facts 2006* (Washington, DC: 2006), p. 30.

Producer Price Index:

1960-2006: Council of Economic Advisors, *Economic Report of the President, 2007* (Washington, DC: 2007), table B-65.

Table 3-18: Total Operating Revenues (Current $ millions)

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Air carrier, domestic, all services	2,178	3,691	7,180	12,020	26,440	37,629	57,961	56,165	57,654	63,233	65,949	70,885	76,891	82,250	86,494	90,931	98,896	86,511	79,220	88,830	99,229	(R) 111,730	119,967
Trucking[a]	N	N	N	N	N	N	127,314	126,772	135,437	142,547	155,713	161,806	174,743	183,153	197,314	207,751	223,197	221,355	222,383	228,311	248,191	272,911	U
Class I bus, intercity	463	607	722	955	1,397	1,233	943	981	938	928	870	917	912	996	999	1,014	1,088	1,076	1,070	U	U	U	U
Transit[b]	1,407	1,444	1,707	3,451	6,510	12,195	16,053	16,533	16,915	17,276	17,968	18,241	19,151	19,515	21,062	22,220	24,243	25,288	26,632	28,021	29,718	U	U
Class I rail	9,514	10,208	11,992	16,402	28,258	27,586	28,370	27,845	28,349	28,825	30,809	32,279	32,693	33,118	33,151	33,521	34,102	34,576	35,327	36,639	40,517	46,118	52,152
Intercity / Amtrak[c]	N	N	N	253	454	832	1,308	1,347	1,320	1,400	1,409	1,490	1,550	1,669	2,244	2,011	2,111	2,109	2,228	2,074	1,865	1,886	2,042
Water transportation (domestic)[d]	1,722	1,822	2,070	3,293	7,219	7,704	7,940	7,964	7,935	8,028	7,745	7,712	7,283	6,940	6,824	6,795	6,930	6,235	U	U	U	U	U
Oil pipeline[e]	895	1,051	1,396	2,220	7,548	8,910	8,506	8,095	8,548	8,470	8,676	9,077	8,637	8,632	8,579	9,067	8,958	9,066	U	U	U	U	U
Gas pipeline (investor-owned)[f]	8,700	11,500	16,400	30,551	85,918	103,945	66,027	63,922	66,405	69,965	63,430	58,435	72,025	U	57,548	59,142	72,075	79,276	68,594	75,567	80,331	102,062	U
Transmission companies	3,190	4,088	5,928	11,898	41,604	45,738	21,756	19,818	20,193	19,873	13,841	12,092	12,050	10,339	9,450	9,555	10,404	10,257	10,096	10,892	11,313	16,547	U
Distribution companies	N	N	N	5,938	14,013	21,510	18,750	17,812	19,854	20,307	20,911	19,421	30,407	30,864	28,182	28,135	34,696	39,179	31,210	38,199	40,410	48,957	U
Integrated companies	N	N	N	6,962	17,300	17,396	10,117	11,047	10,279	12,506	11,827	10,899	11,941	12,125	2,974	3,086	3,755	4,184	3,150	3,753	2,424	2,803	U
Combination companies	N	N	N	5,753	13,001	19,301	15,404	15,245	16,079	17,279	16,851	16,023	17,627	U	16,942	18,366	23,220	25,656	24,138	22,723	26,184	33,755	U

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

[a] Data from 1990 through 1997 include local trucking (4212), trucking, except local (4213), local trucking, without storage (4214), and courier services, except air (4215) based on SIC (Standard Industrial Classification). For 1998 and later, data includes truck transportation (484) and couriers and messengers (492) based on NAICS (North American Industry Classification System). Therefore, data from 1998 onward are not directly comparable with data prior to 1998.

[b] Excludes commuter rail, automated guideway, urban boat, demand responsive, and most rural and smaller systems prior to 1984. Includes operating assistance.

[c] Amtrak began operations in 1971.

[d] Includes foreign traffic moving on domestic inland waterways.

[e] Oil pipeline revenues are much smaller than gas pipeline revenues because oil pipeline companies are common carriers that include transportation costs only.

[f] Data are not directly comparable from year to year due to acquisition and mergers. Prior to 1975, pipeline companies are not categorized by distribution, integrated, or combination. Total numbers for these companies are 1960 = 5,505; 1965 = 7,437; 1970 = 10,542. In 1997, the American Gas Association revised the database that identifies companies by type (distribution, integrated, or transmission). This reclassification of companies has resulted in numerous additions to the distribution company sample, in particular from the integrated company sample.

SOURCES

Air carrier, domestic, all services:

1960-70: Civil Aeronautics Board, *Handbook of Airline Statistics, 1973* (Washington, DC: March 1974).

1975-80: Ibid., *Air Carrier Financial Statistics* (Washington, DC: Annual issues), p. 1.

1985-2006: U.S. Department of Transportation, Bureau of Transportation Statistics, Office of Airline Information, *Air Carrier Financial Statistics* (Washington, DC: Annual December issues).

Trucking:

1990-97: U.S. Department of Commerce, Bureau of the Census, *Transportation Annual Survey, 1998* (Washington, DC: January 2000), table 1.

1998-2005: Ibid., *Service Annual Survey , 2004* (Washington, DC: February 2006), table 2.1.

Intercity Class I bus:

1960-93: Interstate Commerce Commission, *Annual Report of the Interstate Commerce Commission* (Washington, DC: Annual issues).

1994-2001: U.S. Department of Transportation, Bureau of Transportation Statistics, *Selected Earnings Data, Class 1 Motor Carriers of Passengers* (Washington, DC: Annual issues).

2002: Ibid., personal communication, Oct. 6, 2004.

Transit:

1960-2004: American Public Transportation Association, *Public Transportation Fact Book, 2007* (Washington, DC: 2007), table 50 and similar tables in earlier editions.

Class I rail:

1960-2006: Association of American Railroads, *Railroad Facts* (Washington, DC: 2007), p. 12 and similar tables in earlier editions.

Intercity/Amtrak:

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

1985-2001: Ibid., *Amtrak Annual Report,* Statistical Appendix (Washington, DC: Annual issues).

2002: Ibid., Consolidated Financial Statements, Internet site http://www.amtrak.com/pdf/03financial.pdf as of July 21, 2004.

2003: Ibid., Consolidated Financial Statements, Internet site http://www.amtrak.com/pdf/04financial.pdf as of Feb. 2, 2006.

2004-06: Ibid., Consolidated Financial Statements, Internet site http://www.amtrak.com/pdf/07financial.pdf as of Jan. 4, 2008.

Water transportation:

1960-2001: Eno Transportation Foundation, Inc., *Transportation in America* (Washington, DC: 2002), p. 38-40.

Oil pipeline:

1960-2001: Eno Transportation Foundation, Inc., *Transportation in America* (Washington, DC: 2002), p. 38-40.

Gas pipeline:

1960-2005: American Gas Association, *Gas Facts,* (Washington, DC: Annual issues), tables 11-1, 11-2, 11-3, and 11-4, and similar tables in earlier editions.

Table 3-19a: Employment in For-Hire Transportation and Selected Transportation-Related Industries[a] (Standard Industrial Classification [SIC] basis) (Thousands)

SIC	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
TOTAL U.S. labor force[b]	54,189	60,763	70,880	76,945	90,406	97,387	109,403	108,249	108,601	110,713	114,163	117,191	119,608	122,690	125,865	128,916	131,720	131,922	130,791
Transportation-related labor force, total	**5,160**	**5,737**	**6,128**	**7,834**	**8,488**	**9,211**	**10,093**	**9,836**	**9,713**	**9,858**	**10,189**	**10,501**	**10,215**	**11,002**	**11,262**	**11,523**	**11,664**	**11,585**	**11,343**
For-hire transportation industry, total	**2,395**	**2,683**	**2,855**	**2,796**	**3,128**	**3,172**	**3,675**	**3,661**	**3,659**	**3,759**	**3,920**	**4,057**	**4,166**	**4,264**	**4,410**	**4,545**	**4,645**	**4,622**	**4,438**
45 Air	191	229	352	363	453	522	968	962	964	988	1,023	1,068	1,107	1,134	1,181	1,227	1,280	1,266	1,161
42 Trucking and warehousing	856	964	1,083	1,108	1,280	1,361	1,395	1,378	1,385	1,444	1,526	1,587	1,637	1,677	1,744	1,810	1,847	1,848	1,826
41 Local and interurban passenger transit	284	269	281	270	265	277	338	354	361	379	404	419	437	452	469	478	476	479	472
413 Intercity and rural bus	41	42	43	40	38	35	26	24	23	22	24	24	24	22	24	24	25	25	23
411 Local and suburban	U	U	U	69	79	92	141	155	162	176	194	203	218	229	236	238	233	236	235
415 School bus[c]	N	N	N	65	80	91	111	115	118	122	126	131	132	137	141	146	147	148	149
412 Taxi	121	110	106	85	53	38	32	32	30	30	31	31	31	31	31	32	32	32	31
Other local and interurban[d]	123	118	131	11	16	22	28	28	28	29	30	31	33	34	36	38	40	38	35
40 Railroad	885	735	634	548	532	359	279	262	254	248	241	238	231	227	231	235	237	234	229
44 Water	N	228	212	194	211	185	177	184	173	168	172	175	174	179	181	186	194	192	190
46 Liquid pipeline	23	20	18	18	21	19	19	19	19	18	17	15	15	14	14	13	14	15	15
492 Gas production and distribution	155	154	161	162	168	175	165	166	163	161	159	154	147	141	137	134	128	126	121
47 Transportation services[e]	N	85	115	134	198	275	336	336	338	352	378	401	418	441	454	463	470	463	423
Equipment manufacturing (SIC 37 and SIC 301), total	**1,773**	**1,955**	**1,949**	**1,824**	**1,995**	**2,054**	**2,073**	**1,971**	**1,911**	**1,838**	**1,840**	**1,870**	**1,864**	**1,923**	**1,973**	**1,967**	**1,931**	**1,835**	**1,739**
372 Aircraft and parts	605	601	644	499	633	616	712	669	612	542	482	451	458	501	525	496	464	461	410
371 Motor vehicles and equipment	724	843	799	792	789	883	812	789	813	837	909	971	967	986	995	1,018	1,017	947	912
374 Railroad equipment	43	56	51	57	71	33	33	30	29	31	35	38	36	34	37	38	36	30	27
373 Ship and boat building and repairing	141	160	172	194	221	187	188	177	170	159	158	160	159	158	167	167	168	161	158
301 Tires and inner tubes	105	102	116	124	115	94	84	81	81	82	79	80	80	78	80	79	79	75	72
Other[f]	155	193	167	157	167	241	244	225	207	188	177	172	165	167	168	168	168	161	161
Related industries, total	**461**	**522**	**613**	**2,498**	**2,694**	**3,336**	**3,672**	**3,532**	**3,508**	**3,612**	**3,782**	**3,930**	**4,086**	**4,186**	**4,251**	**4,368**	**4,442**	**4,473**	**4,479**
553 Automotive and home supply stores	U	U	U	212	261	304	337	332	332	340	357	369	380	392	397	404	408	410	406
75 Automotive repair, services, and parking	U	U	U	439	571	730	914	882	881	925	968	1,020	1,080	1,120	1,145	1,196	1,234	1,257	1,263
554 Gasoline service stations	461	522	613	622	561	588	647	626	616	617	634	649	669	676	680	660	652	648	641
161 Highway and street construction	U	U	U	U	U	264	239	218	215	222	226	228	236	243	257	280	281	289	286
501 Motor vehicles, parts, and supplies	U	U	U	382	434	454	456	448	446	451	471	492	503	513	517	524	517	502	498
551 New and used car dealers	U	U	U	731	745	856	924	879	875	908	963	996	1,031	1,046	1,047	1,080	1,112	1,121	1,130
Other automotive retail[g]	N	N	N	112	122	140	155	146	143	148	163	176	187	197	208	223	239	246	256
Government employment, total[h]	**532**	**577**	**711**	**716**	**671**	**649**	**673**	**672**	**635**	**650**	**647**	**644**	**99**	**629**	**629**	**643**	**646**	**654**	**686**
U.S. DOT[i]	N	N	104	112	112	100	104	108	110	109	103	101	99	98	99	100	100	102	141
State and local highway[j]	532	577	607	604	559	549	569	564	525	541	544	543	(k) N	531	530	543	546	552	545

KEY: N = data do not exist; SIC = Standard Industrial Classification; U = data are not available.

[a] Annual averages.
[b] Excludes farm employment.
[c] Does not include drivers employed by school districts.
[d] Difference between the total of SIC 41 and the sum of 411, 412, 413, and 415.
[e] Transportation services are defined as services incidental to transportation, such as forwarding and packing; motor vehicle inspections; and freight broker, tour operator, and travel agency services, etc.
[f] The difference between the total of SIC 37 and the sum of 371, 372, 373, and 374.
[g] The difference between the total of SIC 55 and the sum of 551, 553, and 554.
[h] Not all government agencies are included (e.g., the National Transportation Safety Board).
[i] U.S. Department of Transportation was created in 1966. Data are for fiscal year and include permanent civilians as well as temporary employees and military.
[j] Full-time equivalent employment. Data prior to 1986 are not directly comparable to data from later years due to a change in the way full-time equivalent was calculated. Full-time equivalent was not calculated for 1985.
[k] Due to a change in the reference period, from October to March, the October 1996 Annual Survey of Government Employment and Payroll was not conducted.

NOTE

The employment totals in tables 3-19 and 3-20 differ. Table 3-19 shows employment in transportation and selected transportation-related industries. Table 3-20 shows employment by transportation occupation. Some employees of transportation industries have nontransportation jobs (e.g., a bookkeeper in a trucking firm), and some people with transportation occupations do not work in the transportation industry (e.g., a truck driver for a construction firm). Beginning in January 1999, data are not strictly comparable with data for 1998 and earlier years because of revisions in the population controls used in the household survey.

SOURCES

All data, except as noted:

1960-85: U.S. Department of Labor, Bureau of Labor Statistics, *Employment, Hours and Earnings, United States, 1909-1994* (Washington, DC: September 1994).

1990-2002: Ibid., Internet site www.bls.gov, database query for individual series as of June 11, 2003.

Government employment:

USDOT:

1970-75: U.S. Department of Commerce, Bureau of the Census, *Statistical Abstract of the United States, 1976 (*Washington, DC: 1976), table 409, and U.S. Department of Transportation, U.S. Coast Guard, G-WPM, Office of Military Personnel, personal communication.

1980-85: U.S. Department of Transportation, Office of the Secretary of Transportation, *DOT Employment Facts, A Report to Management* (Washington, DC: Annual issues).

1990-2003: Ibid., *DOT Workforce Demographics* (Washington, DC : Annual issues).

State and local highway:

1960-91: U.S. Department of Commerce, Bureau of the Census, *Statistical Abstract of the United States, 1993* (Washington, DC: 1993), table 500 and similar tables in earlier editions.

1992-2003: Ibid., Internet site http://www.census.gov/pub/govs/www/apesstl.html as of July 24, 2002 and July 6, 2004.

Table 3-19b: Employment in For-Hire Transportation and Selected Transportation-Related Industries[a] (North American Industry Classification System (NAICS] basis) (Thousands)

NAICS Code		1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
	TOTAL U.S. labor force[b]	54,296	60,874	71,006	77,069	90,528	97,511	109,487	108,374	108,726	110,844	114,291	117,298	119,708	122,776	125,930	128,993	131,785	131,826	130,341	129,999	131,435	133,703	136,086	137,623
	Transportation related labor force	2,115	2,059	2,228	2,925	2,879	3,346	12,087	11,778	11,618	11,739	12,096	12,450	12,192	12,998	13,269	13,547	13,638	13,473	13,117	12,934	12,971	(R) 13,108	13,205	13,197
48-49	Transportation and warehousing	U	U	U	2,620	2,961	3,012	3,476	3,463	3,462	3,554	3,701	3,838	3,935	4,027	4,168	4,300	4,410	4,372	4,224	4,185	4,249	(R) 4,361	4,470	4,536
481	Air transportation	U	U	U	U	U	U	529	525	520	517	511	511	526	542	563	586	614	615	564	528	515	501	487	493
4811	Scheduled air transportation	U	U	U	U	U	U	503	498	491	486	477	473	486	501	520	543	570	570	520	485	472	456	(R) 442	447
4812	Nonscheduled air transportation	U	U	U	U	U	U	27	27	29	31	34	38	40	41	43	44	45	45	44	43	43	44	45	46
482	Rail transportation	862	716	617	534	518	350	272	256	248	242	235	233	225	221	225	229	232	227	218	218	226	228	(R) 228	234
483	Water transportation	U	U	U	U	U	U	57	57	57	53	52	51	51	51	51	52	56	54	53	55	56	61	(R) 63	64
4831	Sea, coastal, and Great Lakes water transportation	U	U	U	U	U	U	35	36	35	33	33	32	32	32	32	33	36	34	32	34	35	37	39	40
4832	Inland water transportation	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
484	Truck transportation	U	U	U	U	U	U	1,122	1,105	1,107	1,155	1,206	1,249	1,282	1,308	1,354	1,392	1,406	1,387	1,339	1,326	1,352	1,398	(R) 1,436	1,441
4841	General freight trucking	U	U	U	U	U	U	807	795	797	831	867	901	924	942	976	1,002	1,013	992	952	935	950	981	(R) 1,005	1,006
4842	Specialized freight trucking	U	U	U	U	U	U	315	310	311	324	339	348	359	367	379	390	393	395	388	390	402	417	(R) 431	435
485	Transit and ground passenger transportation	U	U	U	U	U	U	274	284	288	(R) 300	317	328	339	350	363	371	372	375	381	382	385	389	(R) 399	410
4851	Urban transit systems	U	U	U	U	U	U	21	23	25	27	29	31	33	35	36	36	35	36	38	38	39	40	(R) 40	40
4852	Interurban and rural bus transportation	38	39	41	38	36	33	25	23	22	21	22	23	23	21	23	23	23	24	23	22	21	20	20	19
4853	Taxi and limousine service	U	U	U	U	U	U	57	59	58	61	64	66	68	70	72	73	72	71	68	67	66	66	(R) 69	72
4854	School and employee bus transportation	U	U	U	66	81	93	114	118	121	125	130	136	137	142	146	151	152	153	161	165	167	169	(R) 172	177
4855	Charter bus industry	U	U	U	11	15	21	26	27	27	28	28	29	31	32	34	36	38	37	36	33	32	31	(R) 31	32
4859	Other transit and ground passenger transportation	U	U	U	U	U	U	31	34	36	39	43	45	48	51	52	53	51	54	56	58	59	63	(R) 67	70
486	Pipeline transportation	U	U	U	U	U	U	60	61	60	59	57	54	51	50	48	47	46	45	42	40	38	38	(R) 39	40
4861	Pipeline transportation of crude oil	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
4862	Pipeline transportation of natural gas	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
4869	Other pipeline transportation	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
487	Scenic and sightseeing transportation	U	U	U	U	U	U	16	17	18	19	21	22	23	25	25	26	28	29	26	27	27	(R) 29	(R) 28	29
4871	Scenic and sightseeing transportation, land	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
4872	Scenic and sightseeing transportation, water	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
4879	Scenic and sightseeing transportation, other	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
488	Support activities for transportation	U	U	U	U	U	U	364	377	370	382	405	430	446	473	497	518	537	539	525	520	535	(R) 552	(R) 571	583
4881	Support activities for air transportation	U	U	U	U	U	U	96	96	96	99	101	104	109	115	124	133	141	140	139	136	142	148	(R) 157	164
4883	Support activities for water transportation	U	U	U	U	U	U	91	96	89	86	89	92	90	92	94	96	97	95	95	94	92	94	(R) 99	100
4884	Support activities for road transportation	U	U	U	U	U	U	35	36	38	41	45	49	53	57	60	63	66	69	70	72	76	79	(R) 81	83
4885	Freight transportation arrangement	U	U	U	U	U	U	111	115	114	120	130	143	149	161	166	172	178	179	168	167	171	177	(R) 180	183
4889	Support activities for other transportation, including rail	U	U	U	U	U	U	32	33	34	37	40	43	45	48	53	54	56	57	52	52	55	55	(R) 53	53
491	Postal service	591	619	741	699	673	750	825	813	800	793	821	850	867	866	881	890	880	873	842	809	(R) 782	774	(R) 770	762
492	Couriers and messengers	U	U	U	U	U	U	375	379	389	414	466	517	540	546	568	586	605	587	561	562	557	(R) 571	(R) 582	583
4921	Couriers and express delivery services	U	U	U	U	U	U	340	344	354	378	423	469	489	494	513	528	546	530	507	510	507	(R) 522	(R) 533	533
4922	Local messengers and local delivery	U	U	U	U	U	U	35	35	35	36	43	48	51	52	55	58	59	57	54	51	50	50	(R) 50	49
493	Warehousing and storage	U	U	U	U	U	U	407	403	406	413	431	444	452	462	474	494	514	514	517	528	558	(R) 595	(R) 638	659
	Transportation related manufacturing																								
324	Petroleum and coal products manufacturing	U	U	U	U	U	U	153	155	152	146	144	140	137	136	135	128	123	121	118	114	112	(R) 112	(R) 113	113
32621	Tire manufacturing[c]	U	U	U	U	U	U	90	86	87	87	85	87	86	84	87	87	87	82	76	72	70	67	(R) 60	59
32622	Rubber and plastic hoses and belting manufacturing	U	U	U	29	31	26	25	23	23	24	26	27	27	28	29	30	30	29	28	28	28	29	(R) 28	27
334511	Search, detection, navigation, guidance, aeronautical, and nautical system and instrument manufacturing	U	U	U	U	U	354	280	256	226	201	175	158	158	159	163	161	149	150	148	145	151	157	(R) 158	159
336	Transportation equipment manufacturing	U	U	U	U	U	U	2,133	2,028	1,977	1,914	1,936	1,977	1,974	2,026	(R) 2,078	(R) 2,089	(R) 2,057	(R) 1,939	(R) 1,830	(R) 1,775	(R) 1,767	(R) 1,772	(R) 1,769	1,711
3361	Motor vehicle manufacturing	U	U	U	U	U	U	271	258	260	264	282	295	285	287	284	291	291	279	265	265	256	248	(R) 237	223
3362	Motor vehicle body and trailer manufacturing	U	U	U	U	U	U	130	120	126	136	151	160	155	158	170	184	183	159	152	153	165	171	(R) 179	165
3363	Motor vehicle parts manufacturing	U	U	U	U	U	U	653	639	661	678	736	787	800	809	818	837	840	775	734	708	692	678	(R) 655	609
3364	Aerospace product and parts manufacturing	U	U	U	U	U	U	841	784	711	624	552	514	514	555	579	547	517	511	470	442	442	455	(R) 474	487
3365	Railroad rolling stock manufacturing	U	U	U	U	U	U	31	28	27	29	33	35	33	32	35	35	33	28	23	23	25	27	(R) 28	27
3366	Ship and boat building	(R) 130	(R) 148	(R) 158	(R) 179	(R) 203	(R) 172	(R) 174	(R) 165	(R) 158	(R) 148	(R) 147	(R) 148	(R) 147	(R) 146	(R) 154	(R) 154	(R) 154	(R) 148	(R) 147	(R) 147	(R) 149	(R) 154	(R) 157	161
3369	Other transportation equipment manufacturing	U	U	U	U	U	U	35	35	36	37	38	40	41	41	40	40	40	39	39	38	38	39	(R) 40	40
	Other transportation related industries																								
2373	Highway, street, and bridge construction	U	U	U	U	U	U	289	267	264	271	274	278	288	294	308	336	340	346	346	340	347	(R) 351	(R) 348	345
4231	Motor vehicle and motor vehicle parts and supplies merchant wholesalers	U	U	U	U	U	U	309	304	302	306	320	335	343	350	354	360	356	347	346	342	341	344	(R) 348	350

42386	Transportation equipment and supplies merchant wholesalers[d]	U	U	U	U	U	U	35	34	33	31	31	32	33	35	37	40	39	36	34	32	32	(R) 33	(R) 33	34
4247	Petroleum and petroleum products merchant wholesalers	U	U	U	U	U	U	155	147	137	129	128	126	124	123	122	123	119	114	111	106	101	(R) 100	(R) 100	100
441	Motor vehicle parts dealers	U	U	U	U	U	U	1,494	1,435	1,428	1,475	1,565	1,627	1,686	1,723	1,741	1,797	1,847	1,855	1,879	1,883	1902	1,919	(R) 1,910	1,913
4411	Automobile dealers	U	U	U	769	783	904	983	938	935	970	1,032	1,072	1,113	1,135	1,142	1,180	1,217	1,225	1,253	1,254	1,257	1,261	1,247	1,245
4412	Other motor vehicle dealers	U	U	U	U	U	U	93	84	81	83	91	97	101	105	110	121	132	136	142	149	159	166	(R) 169	170
4413	Automotive parts, accessories, and tire stores	U	U	U	U	U	U	418	413	413	422	443	459	471	484	489	496	499	493	485	480	487	491	(R) 494	497
447	Gasoline stations	U	U	U	U	U	U	910	889	876	881	902	922	946	956	961	944	936	925	896	882	876	871	(R) 864	861
5321	Automotive equipment rental and leasing	U	U	U	U	U	142	163	152	151	156	163	171	180	184	189	199	208	208	195	193	197	199	(R) 199	195
532411	Commercial air, rail, water transportation equipment rental and leasing	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
5615	Travel arrangement and reservation services	U	U	U	U	U	U	250	240	245	256	271	281	294	302	304	297	299	285	252	235	226	224	(R) 226	227
6219	Other ambulatory health care services	U	U	U	U	U	U	99	107	114	125	135	143	154	164	171	173	173	180	187	195	200	(R) 206	(R) 217	229
8111	Automotive repair and maintenance	U	U	U	U	U	U	659	636	636	670	701	738	781	811	828	864	888	904	900	894	891	(R) 886	(R) 887	888
81293	Parking lots and garages	U	U	U	U	U	U	68	69	68	70	71	75	78	82	85	89	93	96	96	100	102	(R) 103	(R) 108	110
92612	Regulation and administration of transportation programs	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
	Government employment, total[e]	532	577	711	716	671	649	673	672	635	650	647	644	99	647	629	642	604	611	610	605	600	602	599	577
	U.S. DOT[f]	N	N	104	112	112	100	104	108	110	109	103	101	99	98	99	100	58	60	65	59	57	56	54	54
	State and Local Highway[g,h]	532	577	607	604	559	549	569	564	525	541	544	543	N	548	530	543	546	552	545	546	543	546	(R) 545	523

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

[a] Annual averages.

[b] Excludes farm employment.

[c] Includes tire manufacturing and tire retreading.

[d] Does not include motor vehicle wholesalers.

[e] Not all government agencies are included (e.g., the National Transportation Safety Board).

[f] The U.S. Department of Transportation was created in 1966. Data are for fiscal year and include permanent civilians as well as temporary employees and military. The United States Coast Guard (USCG) and the Transportation Security Administration (TSA) were transferred to the Department of Homeland Security in 2003.

[g] Full-time equivalent employment. Data prior to 1986 are not directly comparable to data from later years due to a change in the way full-time equivalent was calculated. Full-time equivalent was not calculated for 1985.

[h] Due to a change in the reference period, from October to March, the October 1996 Annual Survey of Government Employment and Payroll was not conducted.

SOURCES

All data, except as noted:

U.S. Department of Labor, Bureau of Labor Statistics Data, *National Employment Hours and Earnings,* available at http://www.bls.gov/data/sa.htm as of November 2008.

Government employment:

USDOT:

1970-75: U.S. Department of Commerce, Bureau of the Census, *Statistical Abstract of the United States, 1976 (*Washington, DC: 1976), table 409, and U.S. Department of Transportation, U.S. Coast Guard, G-WPM, Office of Military Personnel, personal communication.

1980-85: U.S. Department of Transportation, Office of the Secretary of Transportation,*DOT Employment Facts, A Report to Management* (Washington, DC: Annual issues).

1990-2003: Ibid., *DOT Workforce Demographics* (Washington, DC : Annual issues).

2004-07: Ibid., *DOT Workforce Demographics, Demographics by Year* , available at http://dothr.ost.dot.gov/workforceinfo/demographics.htm as of November 2007.

State and local highway:

1960-91: U.S. Department of Commerce, Bureau of the Census, *Statistical Abstract of the United States, 1993* (Washington, DC: 1993), table 500 and similar tables in earlier editions.

1992-2007: Ibid., available at http://www.census.gov/pub/govs/www/apesstl.html as of November 2008.

Table 3-20a: Employment in Transportation Occupations (Thousands)

	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	200
Total workers, 16 years and over	107,150	118,793	117,718	118,492	120,259	123,060	124,900	126,708	129,558	131,463	133,488	135,208	135,0
Total workers in transportation occupatio	**3,681**	**4,039**	**4,101**	**4,098**	**4,250**	**4,287**	**4,308**	**4,451**	**4,534**	**4,499**	**4,643**	**4,684**	**4,8**
Transportation occupation as percent of total workers, 16 years and over	3.4%	3.4%	3.5%	3.5%	3.5%	3.5%	3.4%	3.5%	3.5%	3.4%	3.5%	3.5%	3.6
Motor vehicle operators, total	**3,298**	**3,618**	**3,704**	**3,726**	**3,850**	**3,879**	**3,900**	**4,024**	**4,090**	**4,069**	**4,202**	**4,222**	**4,3**
Supervisors	51	76	80	87	84	94	87	85	95	88	86	77	
Truck drivers	2,412	2,627	2,684	2,712	2,804	2,815	2,860	3,018	3,075	3,012	3,116	3,088	3,1
Drivers-sales workers	214	201	215	184	178	164	158	156	150	159	160	167	1
Bus drivers	394	443	469	477	506	511	526	512	472	471	490	539	5
Taxicab drivers and chauffeurs	180	213	197	217	230	238	211	203	248	273	271	280	3
Parking lot attendants	45	53	53	44	41	49	50	46	46	62	68	60	
Motor transportation occupations, NEC	2	5	6	5	7	8	8	4	4	3	11	11	
Rail transportation, total	**148**	**118**	**115**	**108**	**108**	**108**	**104**	**116**	**121**	**104**	**106**	**127**	**1**
Railroad conductors and yardmasters	36	36	38	39	38	38	33	45	48	50	45	48	
Locomotive operating occupations	59	46	44	44	45	47	51	49	53	41	45	63	
Railroad brake, signal, and switch operators	46	28	27	20	21	19	17	15	14	7	9	11	
Rail vehicle operators, NEC	7	8	6	5	4	4	3	7	6	6	7	5	
Water transportation, total	**59**	**53**	**61**	**54**	**61**	**68**	**66**	**70**	**52**	**63**	**57**	**56**	
Ship captains and mates, except fishing boa	32	27	32	26	26	30	33	32	24	22	31	38	
Sailors and deckhands	18	18	18	16	24	27	26	25	21	30	16	14	
Marine engineers	1	2	4	5	3	6	3	8	2	3	5	2	
Bridge, lock, and lighthouse tenders	8	6	7	7	8	5	4	5	5	8	5	3	
Air transportation, total	**111**	**150**	**134**	**119**	**126**	**128**	**144**	**146**	**156**	**139**	**167**	**152**	**1**
Airplane pilots and navigators	77	114	100	96	101	104	114	114	120	113	143	129	1
Air traffic controllers	34	36	34	23	25	24	30	32	36	26	24	23	
Public transportation attendants	**65**	**100**	**86**	**91**	**105**	**104**	**94**	**95**	**115**	**124**	**111**	**127**	**1**

KEY: NEC = not elsewhere classified.

NOTES

Beginning in January 2000, data are not comparable with data for earlier years due to new composite estimation procedures and revised controls used in the household survey for population. See source for additional information.

The employment totals in tables 3-19 and 3-20 differ. Table 3-19 shows employment in transportation and related industries; table 3-20 shows employment by transportation occupation. Some employees of transportation industries have nontransportation jobs (e.g., a bookkeeper in a trucking firm), and some people in transportation occupations do not work in the transportation industry (e.g., a truck driver for a construction firm).

SOURCES

All data except total workers, 16 years and over:

1985, 1990-99: U.S. Department of Labor, Bureau of Labor Statistics, *Employment and Earnings* (Washington, DC: Annual January issues), table 11 of the Household Data Annual Averages Tables, Internet site http://stats.bls.gov/pdf/cpsaatab.htm as of May 31, 2000.

2000: Ibid., personal communication, Aug. 6, 2001.

2001: Ibid., personal communication, Aug. 23, 2002.

Total workers, 16 years and over:

1985, 1990-2000: U.S. Department of Labor, Bureau of Labor Statistics, *Employment and Earnings* (Washington, DC: January 2001), revised totals, table 1, Internet site http://stats.bls.gov/pdf/cpsaat1.pdf as of Aug. 3, 2001.

2001: Ibid., personal communication, Aug. 23, 2002.

Table 3-20b: Employment in Transportation and Transportation-Related Occupations

SOC code	Occupation	1999	2000	2001	2002	2003	2004	2005	2006	2007
Vehicle operators, pipeline operators, and primary support										
53-2011	Airline pilots, copilots, and flight engineers	88,040	94,820	88,800	78,810	76,940	78,490	76,240	75,810	78,250
53-2012	Commercial pilots	18,780	18,040	18,380	19,570	19,940	21,370	24,860	27,120	29,180
53-2021	Air traffic controllers	22,620	23,350	22,990	23,410	22,610	22,260	21,590	23,240	24,180
53-2022	Airfield operations specialists	4,510	4,580	5,390	5,910	4,670	4,810	4,510	4,760	6,210
53-3011	Ambulance drivers and attendants, except emergency medical technicians	13,520	15,700	17,620	17,280	18,420	17,410	18,320	21,100	21,520
53-3021	Bus drivers, transit and intercity	160,210	175,470	190,530	197,090	187,900	183,710	183,450	191,120	189,050
53-3022	Bus drivers, school	463,860	457,050	469,100	468,790	471,130	475,430	465,880	456,570	461,590
53-3031	Driver/sales workers	385,210	373,660	378,220	368,730	397,630	406,910	400,530	396,680	382,360
53-3032	Truck drivers, heavy and tractor-trailer	1,558,400	1,577,070	1,548,480	1,520,880	1,520,740	1,553,370	1,624,740	1,673,950	1,693,590
53-3033	Truck drivers, light or delivery services	1,085,050	1,033,220	996,000	977,920	951,400	938,730	938,280	941,590	922,900
53-3041	Taxi drivers and chauffeurs	119,630	130,200	125,860	125,720	131,880	132,650	144,280	154,490	165,590
53-4011	Locomotive engineers	19,940	29,390	30,730	28,250	30,070	31,180	37,390	36,870	41,760
53-4012	Locomotive firers	890	1,040	730	710	630	620	540	560	580
53-4013	Rail yard engineers, dinkey operators, and hostlers	5,070	4,020	4,840	4,600	6,020	6,170	6,970	5,820	4,950
53-4021	Railroad brake, signal, and switch operators	14,500	16,830	17,070	15,030	15,310	16,410	20,700	22,810	23,120
53-4031	Railroad conductors and yardmasters	36,680	40,380	40,910	38,070	35,120	35,720	38,330	37,110	37,540
53-4041	Subway and street car operators	U	3,190	U	7,250	8,720	8,900	7,430	6,740	6,600
53-5011	Sailors and marine oilers	27,200	30,090	28,650	25,360	27,170	27,570	31,090	31,690	32,520
53-5021	Captains, mates, and pilots of water vessels	20,660	21,080	22,180	22,530	24,050	25,200	28,570	29,170	30,540
53-5022	Motorboat operators	4,000	3,540	3,410	3,600	3,130	2,830	2,700	2,450	3,250
53-5031	Ship engineers	6,800	7,370	7,470	8,020	10,230	10,330	13,240	14,190	13,710
53-6011	Bridge and lock tenders	6,970	4,790	4,500	3,900	3,490	3,500	3,620	3,700	4,750
53-7071	Gas compressor and gas pumping station operators	6,940	6,510	6,070	6,920	5,250	4,680	3,950	3,900	4,230
53-7072	Pump operators, except wellhead pumpers	13,480	13,730	12,920	12,360	10,540	9,810	9,970	10,030	10,400
Transportation equipment manufacturing and maintenance occupations										
17-2011	Aerospace engineers	71,790	71,550	74,380	74,210	71,750	73,650	81,100	86,720	85,510
17-2121	Marine engineers and naval architects	4,450	4,680	4,860	4,810	6,060	6,620	6,550	7,810	6,620
17-3021	Aerospace engineering and operations technicians	17,270	19,850	15,570	14,700	10,650	9,260	9,950	8,280	7,870
49-2091	Avionics technicians	15,560	15,360	16,340	21,710	21,020	22,310	22,490	15,360	16,300
49-2093	Electrical and electronics installers and repairers, transportation equipment	14,700	15,930	16,650	17,320	17,130	17,390	20,560	20,480	18,160
49-2096	Electronic equipment installers and repairers, motor vehicles	14,250	12,480	13,210	15,200	15,070	15,490	17,650	19,510	19,310
49-3011	Aircraft mechanics and service technicians	125,970	135,730	135,250	125,850	113,470	112,830	115,120	118,210	118,780
49-3021	Automotive body and related repairers	179,960	168,170	168,630	175,370	168,630	162,820	158,160	155,500	152,790
49-3022	Automotive glass installers and repairers	20,520	21,240	21,550	19,710	18,040	18,150	17,760	18,650	18,340
49-3023	Automotive service technicians and mechanics	587,320	692,570	701,150	687,380	689,630	668,540	654,800	642,360	650,780
49-3031	Bus and truck mechanics and diesel engine specialists	273,320	258,800	254,420	254,470	249,230	251,430	248,280	254,850	250,370
49-3043	Rail car repairers	7,230	10,620	11,860	13,520	16,790	18,140	24,270	23,810	23,190
49-3051	Motorboat mechanics	18,450	19,040	18,370	18,550	17,990	17,680	18,190	18,550	19,610
49-3052	Motorcycle mechanics	11,390	11,720	13,290	13,030	15,000	15,920	16,140	16,700	16,800
49-3091	Bicycle repairers	8,080	7,940	7,730	7,000	7,560	7,750	7,980	8,350	9,130
49-3092	Recreational vehicle service technicians	13,100	12,200	11,830	12,490	12,520	12,340	13,540	13,560	14,030
49-3093	Tire repairers and changers	99,880	88,530	86,200	81,560	85,030	87,110	100,860	103,120	100,510
51-2011	Aircraft structure, surfaces, rigging, and systems assemblers	18,070	32,680	33,620	25,690	19,830	18,710	22,820	27,680	34,410
51-9122	Painters, transportation equipment	45,920	43,270	44,090	45,670	47,390	49,810	52,650	52,170	51,260
51-9197	Tire builders	16,680	15,790	13,410	13,020	16,400	17,960	19,860	23,210	20,530

Table 3-20b: Employment in Transportation and Transportation-Related Occupations

SOC code	Occupation	1999	2000	2001	2002	2003	2004	2005	2006	2007
53-6031	Service station attendants	109,050	106,010	107,650	102,550	96,450	90,640	96,340	94,780	93,140
53-7061	Cleaners of vehicles and equipment	302,380	301,330	304,500	311,070	321,630	330,520	333,350	334,560	336,210
Transportation Infrastructure construction and maintenance occupations										
47-2071	Paving, surfacing, and tamping equipment operators	58,410	56,330	57,880	58,760	60,210	61,860	63,220	63,090	63,850
47-4051	Highway maintenance workers	139,540	145,790	148,390	146,290	139,810	136,550	140,600	138,670	137,140
47-4061	Rail-track laying and maintenance equipment operators	8,620	9,940	11,680	10,450	12,120	10,430	13,510	13,680	14,050
49-9097	Signal and track switch repairers	3,720	5,540	8,550	7,990	7,600	7,780	6,100	5,980	6,090
53-7031	Dredge operators	1,910	3,100	2,920	2,850	2,190	1,730	1,720	1,780	1,910
Secondary Support Service Occupations										
13-1032	Insurance appraisers, auto damage	19,310	12,320	12,110	13,270	11,260	12,520	12,900	12,630	12,150
33-3041	Parking enforcement workers	7,660	8,040	9,160	10,180	9,690	9,990	10,140	10,090	9,910
33-3052	Transit and railroad police	4,590	5,760	6,750	6,010	4,790	4,610	5,090	5,320	5,530
33-9091	Crossing guards	68,310	72,830	69,990	73,020	68,910	70,180	69,390	67,750	67,570
39-6022	Travel guides	4,180	5,200	5,480	4,960	5,240	4,140	3,120	3,220	3,520
39-6031	Flight attendants	123,310	126,380	115,750	104,360	99,910	101,980	99,590	96,760	97,010
39-6032	Transportation attendants, except flight attendants and baggage porters	22,780	23,550	25,910	26,580	28,440	27,730	24,810	20,790	20,690
41-3041	Travel agents	111,130	124,030	111,310	104,550	98,410	90,500	88,590	87,600	85,580
43-4181	Reservation and transportation ticket agents and travel clerks	222,340	199,700	183,280	174,170	156,140	159,910	160,120	157,650	167,390
43-5021	Couriers and messengers	134,370	130,210	121,670	120,900	117,460	111,700	106,520	105,070	100,820
43-5032	Dispatchers, except police, fire, and ambulance	171,560	167,180	170,050	168,380	161,570	165,910	172,550	185,410	190,190
43-5052	Postal service mail carriers	352,550	354,980	355,120	347,420	344,090	344,050	347,180	346,990	348,070
43-5071	Shipping, receiving, and traffic clerks	886,230	864,530	802,600	792,470	757,750	747,270	759,910	763,350	755,790
53-6021	Parking lot attendants	109,340	116,930	109,930	108,460	109,890	120,080	124,250	131,870	131,860
53-6041	Traffic technicians	5,000	4,590	5,090	5,370	5,980	6,240	6,990	6,560	6,550
53-6051	Transportation inspectors	22,440	26,520	27,670	28,340	23,860	24,140	25,570	23,790	24,130
53-7081	Refuse and recyclable material collectors	135,320	118,910	125,600	132,290	137,510	139,920	133,930	125,770	126,270
53-7121	Tank car, truck, and ship loaders	20,830	17,480	19,430	16,960	15,910	16,530	15,950	15,360	14,870
Other										
11-3071	Transportation, storage, and distribution managers	123,450	116,680	108,590	107,400	90,940	88,100	84,870	89,010	92,790
53-1011	Aircraft cargo handling supervisors	8,090	9,960	9,070	8,920	8,580	7,460	6,210	5,620	4,690
53-1021	First-line supervisors/managers of helpers, laborers, and material movers, hand	138,210	146,790	147,490	147,180	159,780	169,860	176,030	178,820	184,400
53-1031	First-line supervisors/managers of transportation and material-moving machine and vehicle operators	175,260	186,710	197,430	207,280	211,960	222,590	221,520	220,570	223,710

KEY: SOC = Standard Occupational Classification.

NOTES

Occupational Employment Statistics (OES) uses a mail survey to measure employment levels and wage rates for all full- and part-time wage and salary workers in nonfarm establishments. The survey does not include self-employed owners and partners in unincorporated firms, household workers, or unpaid family workers. In 1999, OES began using the Standard Occupational Classification (SOC) system to organize occupational data. Consequently, estimates from 1999 and subsequent years are not directly comparable to previous occupational estimates. The SOC is being adopted by all federal agencies and consists of 821 detailed occupations, grouped into 449 board occupations, 96 minor groups, and 23 major groups.

A broad definition of transportation and transportation-related occupations is used in this table based on Sen, B. and M. Rossetti, "A Complete Count of the U.S. Transportation Workforce," *Transportation Research Record 1719* : 2000, pp 259-266. Some occupational categories may include workers not engaged in transportation or transportation-related activities. For example, the category "first-line supervisors/managers" (53-1021 and 53-1031) may include workers in material moving occupations along with transportation occupations. Moreover, some workers engaged in transportation and transportation-related activities may be excluded. For example, "baggage porters and bellhops" is not included in this table because it is believed that a large share of workers in this category work in hotels or similar establishments.

SOURCE

U.S. Department of Labor, Bureau of Labor Statistics, Occupational Employment Statistics, *Occupational Employment and Wages,* May 2007 (Washington, DC: May 2007), available at http://www.bls.gov/oes/current/oes_nat.htm as of December 2008.

Table 3-21a: Average Wage[a] and Salary Accruals per Full-Time Equivalent Employee by Transportation Industry (Standard Industrial Classification [SIC] basis)[b] (Current $)

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
All industries	4,822	5,808	7,744	10,810	15,793	21,297	26,262	27,326	28,672	29,444	30,177	31,034	32,087	33,490	35,201	36,754	38,846
Transportation, total	**5,835**	**6,989**	**9,396**	**13,550**	**20,818**	**25,246**	**29,000**	**30,018**	**31,575**	**31,392**	**31,946**	**32,283**	**33,074**	**34,407**	**35,907**	**37,178**	**38,484**
Air	6,929	8,495	12,027	17,035	25,649	32,131	32,867	34,487	36,058	35,852	36,257	36,419	36,989	38,691	40,441	42,523	43,820
Trucking and warehousing	5,396	6,623	8,672	12,765	19,204	22,383	26,297	26,921	28,336	28,293	29,112	29,605	30,342	31,754	32,949	34,007	35,024
Local and interurban passenger transit	4,877	5,553	6,996	9,462	13,530	14,878	17,554	18,064	18,950	18,955	19,504	19,980	20,648	21,219	22,008	22,792	23,745
Railroad	6,241	7,460	10,110	14,987	25,049	36,608	43,602	45,893	50,267	50,440	51,719	50,465	55,299	57,235	60,632	60,623	62,673
Water	6,212	7,402	10,302	14,136	22,746	28,531	33,855	34,703	36,311	36,833	37,357	37,769	38,857	40,329	42,317	43,436	44,980
Pipelines, except natural gas	6,957	8,053	10,765	16,765	26,227	37,316	46,167	47,000	51,526	50,421	54,647	58,186	54,782	58,881	64,991	65,379	66,540
Transportation services[c]	5,380	6,239	8,232	11,430	16,005	20,530	26,057	27,169	28,534	28,792	29,588	30,801	31,511	32,794	34,603	36,204	38,602

[a] Wages do not include supplements to wages and salaries such as pension, profit-sharing, and other retirement
[b] The data in this table have been revised as a result of the Bureau of Economic Analysis' comprehensive revision of
[c] Establishments furnishing services incidental to transportation, such as forwarding and packing services and the

NOTES

Use care in comparing the data in this table with those in table 3-22. This table includes weighted part-time employees' salaries. Table 3-22 covers only full-time employees. 1960-85 data are based on the 1972 SIC codes; 1990-2000 data are based on the 1987 SIC codes.

The Bureau of Economic Analysis provides these data on a SIC basis ending in 2000 and on a North American Industry Classification System (NAICS) basis beginning in 1998 (see table 3-21b for data based on NAICS).

Wage and salary accruals consist of the monetary remuneration of employees, including compensation of corporate officers; commissions, tips and bonuses; voluntary employee contributions to certain deferred compensation plans, such as 401(k) plans; and receipts in kind that represent income. In other words, accruals are wage and salary earned, not wage and salary paid. For example, wage and salary earned in 1999 but not paid until 2000 are included in accruals for 1999. However, the difference between wage and salary earned and wage and salary paid is usually very small.

SOURCE

1960-2000: U.S. Department of Commerce, Bureau of Economic Analysis, National Income and Products Accounts, tables 6.6b and 6.6c, Internet site http://www.bea.doc.gov/bea/dn1.htm available as of Feb. 17, 2004.

Table 3-21b: Average Wage[a] and Salary Accruals per Full-Time Equivalent Employee by Transportation Industry (North American Industry Classification System [NAICS] basis) (Current $)

	1998	1999	2000	2001	2002	2003	2004	(R) 2005	(R) 2006	2007
All industries	35,201	36,754	38,846	39,667	40,394	41,783	43,450	44,999	46,982	49,053
Transportation and warehousing	36,297	37,612	39,463	39,426	40,116	40,854	42,526	43,097	44,641	46,559
Air	46,790	48,466	50,969	55,336	57,370	56,771	58,134	56,073	58,539	64,124
Rail	60,530	60,538	62,728	63,517	64,404	67,174	71,007	71,950	74,105	75,586
Water	47,422	51,803	51,361	54,850	56,386	57,398	60,869	62,334	65,861	72,097
Truck	34,533	35,341	36,736	36,204	36,954	37,793	39,531	40,918	42,440	43,545
Transit and ground passenger transportation	21,988	22,880	23,795	23,121	23,512	24,129	24,868	25,713	26,828	27,882
Pipeline	71,496	77,984	96,703	99,717	81,404	83,188	88,573	88,452	97,236	105,186
Other transportation and support activities[b]	33,444	35,299	36,806	35,846	37,226	38,545	40,794	41,707	43,394	45,058
Warehousing and storage	30,120	31,663	34,269	33,842	34,763	36,115	(R) 37,467	37,897	38,701	40,308

KEY: R = revised.

[a] Wages do not include supplements to wages and salaries such as pension, profit-sharing, and other retirement plans, and health, life, and unemployment insurance compensation.

[b] Comprises business establishments involved in scenic and sightseeing transportation, support activities for transportation, postal service, and couriers and messengers.

NOTES

Data in this table are based on the 1997 NAICS codes. The Bureau of Economic Analysis provides these data on a Standard Industrial Classification (SIC) basis ending in 2000 and on a NAICS basis beginning in 1998 (see table 3-21a for data based on SIC).

Use care in comparing the data in this table with those in table 3-22. This table includes weighted part-time employees' salaries. Table 3-22 covers only full-time employees.

Wage and salary accruals consist of the monetary remuneration of employees, including compensation of corporate officers; commissions, tips and bonuses; voluntary employee contributions to certain deferred compensation plans, such as 401(k) plans; and receipts in kind that represent income. In other words, accruals are wage and salary earned, not wage and salary paid. For example, wage and salary earned in 1999 but not paid until 2000 are included in accruals for 1999. However, the difference between wage and salary earned and wage and salary paid is usually very small.

SOURCE

U.S. Department of Commerce, Bureau of Economic Analysis, *National Income and Product Accounts* , table 6.6d, available at http://www.bea.gov/ as of December 2008.

Table 3-22a: Median Weekly Earnings of Full-Time Wage and Salary Workers in Transportation by Detailed Occupation (Current $)

	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
All occupations[a]	**343**	**412**	**426**	**440**	**459**	**467**	**479**	**490**	**503**	**523**	**549**	**576**	**597**	**609**
Airplane pilots and navigators	738	910	931	884	1076	1013	956	1138	1079	1383	1048	1283	1150	1245
Public transportation attendants	N	635	N	N	733	452	450	417	521	524	604	568	552	611
Motor vehicle operators	343	400	405	415	434	452	475	473	496	503	514	543	575	582
Supervisors, motor vehicle operators	N	520	500	494	583	512	549	583	589	595	585	688	609	688
Truck drivers	N	N	N	417	442	467	481	481	506	516	527	564	593	600
Drivers-sales workers	399	439	458	484	478	461	517	506	524	526	534	558	630	600
Bus drivers	344	355	378	400	403	392	419	396	405	428	428	460	457	493
Taxicab drivers and chauffeurs	262	307	342	312	312	374	352	374	405	379	427	468	487	476
Nonmotor vehicle operators	559	687	716	700	714	631	711	691	761	834	761	816	911	884
Rail transportation operators	599	717	774	717	722	701	741	740	814	849	816	863	947	866
Water transportation	463	547	576	610	667	582	624	586	641	812	604	778	794	934

[a] Earnings for all full-time workers, 16 years and older workers, not just transportation related.

NOTES

Use care in comparing the figures in this table with those in table 3-21. This table does not include part-time employees.

Table 3-21 includes weighted part-time employees' salaries.

SOURCES

Water transportation:

1985–2000: U.S. Department of Labor, Bureau of Labor Statistics, unpublished data, Mar. 1, 1999, Mar. 11, 1999, and Apr. 25, 2000.

2001-02: Ibid., personal communication, Aug. 23, 2002 and Nov. 20, 2003.

Other Data:

1985-2002: U.S. Department of Labor, Bureau of Labor Statistics, Employment and Earnings (Washington, DC: Annual January issues), table 39 of the Household Data Annual Averages Tables, available at http://www.bls.gov/

2001: Ibid., personal communication, Aug. 23, 2002.

Table 3-22b: Median Weekly Earnings of Full-Time Wage and Salary Workers in Transportation by Detailed Occupation (1998 Standard Occupational Classification [SOC] basis) (Current $)

	2000	2001	2002	2003	2004	2005	2006
TOTAL, all occupations[a]	576	596	608	620	638	651	671
Transportation and material moving occupations	481	504	514	520	520	543	556
Supervisors, transportation and material moving workers	671	648	709	705	655	734	767
Aircraft pilots and flight engineers	1,193	1,040	1,233	1,350	1,418	1,366	1,407
Air traffic controllers and airfield operations specialists	1,090	1,123	1,041	1,583	1,239	1,444	1,259
Ambulance drivers and attendants, except emergency medical technician	580	521	456	322	399	939	452
Bus drivers	462	467	499	501	500	517	519
Driver/sales workers and truck drivers	551	585	599	603	610	624	642
Taxi drivers and chauffeurs	451	484	488	481	486	483	538
Motor vehicle operators, all other	509	508	409	353	380	394	417
Locomotive engineers and operators	870	953	963	925	1,056	998	1,129
Railroad brake, signal, and switch operators	689	753	792	880	820	698	999
Railroad conductors and yardmasters	817	927	818	884	881	1,017	904
Subway, streetcar, and other rail transportation workers	754	727	579	515	686	497	696
Sailors and marine oilers	508	697	701	616	424	628	812
Ship and boat captains and operators	779	848	899	944	848	798	829
Ship engineers	712	1,190	1,181	1,154	980	1,288	452
Bridge and lock tenders	935	560	667	726	599	637	627
Parking lot attendants	316	329	341	350	378	360	397
Service station attendants	314	335	362	369	319	323	364
Transportation inspectors	731	696	747	847	810	893	771
Other transportation workers	483	491	645	652	606	735	749
Conveyor operators and tenders	465	488	350	363	521	501	847
Crane and tower operators	675	688	694	589	732	727	790
Dredge, excavating, and loading machine operators	572	617	602	653	607	616	623
Hoist and winch operators	733	610	604	789	709	516	625
Industrial truck and tractor operators	448	477	499	488	486	499	513
Cleaners of vehicles and equipment	361	363	354	373	384	385	379
Laborers and freight, stock, and material movers, hand	401	426	420	464	443	456	474
Machine feeders and offbearers	412	403	433	437	422	449	451
Packers and packagers, hand	313	332	338	348	349	372	391
Pumping station operators	730	622	786	801	747	910	888
Refuse and recyclable material collectors	435	505	430	456	508	491	393
Shuttle car operators	992	696	1,030	741	736	772	436
Tank car, truck, and ship loaders	420	703	506	589	504	462	407
Material moving workers, all other	491	463	516	515	591	598	553

[a] Earnings for all full-time workers, not just transportation related.

NOTES

The 1998 Standard Occupational Classification (SOC) System was developed by the Federal Government in response to a growing need for a universal occupational classification system. The SOC is being adopted by all Federal agencies and consists of 821 detailed occupations, grouped into 449 broad occupations, 96 minor groups, and 23 major groups.

Use care in comparing the figures in this table with those in table 3-21. This table does not include part-time employees.

Table 3-21 includes weighted part-time employees' salaries.

SOURCE

U.S. Department of Commerce, Bureau of the Census, Current Population Survey, table A-26, personal communications, Oct. 4, 2004, Nov. 20, 2005, Oct. 27, 2006, and Dec. 20, 2007.

Table 3-23a: Total Wage[a] and Salary Accruals by Transportation Industry (Standard Industrial Classification [SIC] basis)[b] (Current $ millions)

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
All industries	272,855	363,757	551,560	814,838	1,377,641	1,995,472	2,754,015	2,822,984	2,964,529	3,089,159	3,249,764	3,435,670	3,623,205	3,874,685	4,182,719	4,471,400	4,829,240
Transportation, total	**14,629**	**17,276**	**24,505**	**34,512**	**59,247**	**72,556**	**95,323**	**97,978**	**102,840**	**106,514**	**113,248**	**118,964**	**125,351**	**133,638**	**144,919**	**154,811**	**163,555**
Air	1,268	1,852	4,029	5,894	11,029	15,744	29,515	30,659	31,983	33,020	34,553	36,237	38,616	41,090	45,132	49,284	52,890
Trucking and warehousing	4,592	6,265	9,123	13,786	23,755	29,725	34,475	34,890	36,780	38,790	42,155	44,556	46,787	50,362	54,365	58,323	61,326
Local and interurban passenger transit	1,307	1,427	1,868	2,375	3,423	4,047	5,635	5,943	6,329	6,748	7,373	7,892	8,569	9,188	9,903	10,575	10,899
Railroad	5,498	5,446	6,268	8,108	12,850	11,861	10,726	10,877	11,511	11,147	11,171	11,203	11,502	11,733	12,611	12,610	12,409
Water	1,379	1,584	2,112	2,601	4,572	5,050	5,620	5,969	5,955	6,004	6,239	6,345	6,450	6,896	7,321	7,601	8,141
Pipeline, except natural gas	160	153	183	285	577	709	831	893	979	958	929	873	822	824	845	850	865
Transportation services[c]	425	549	922	1,463	3,041	5,420	8,521	8,748	9,302	9,847	10,829	11,858	12,604	13,544	14,741	15,568	17,024

[a] Wages do not include supplements to wages and salaries such as pension, profit-sharing, and other retirement plans, and health, life, and unemployment insurance compensation.

[b] The data in this table have been revised as a result of the Bureau of Economic Analysis' comprehensive revision of the National Income and Product Accounts (NIPA).

[c] Establishments furnishing services incidental to transportation, such as forwarding and packing services and the arrangement of passenger and freight transportation.

NOTE

The Bureau of Economic Analysis provides these data on a SIC basis *ending* in 2000 and on a North American Industry Classification System (NAICS) basis *beginning* in 1998 (see table 3-23b for data based on NAICS).

SOURCE

1960-2000: U.S. Department of Commerce, Bureau of Economic Analysis, National Income and Products Accounts, tables 6.3b and 6.3c, Internet site http://www.bea.doc.gov/bea/dn1.htm as of Feb. 17, 2004.

Table 3-23b: Total Wage[a] and Salary Accruals by Transportation Industry (North American Industry Classification System [NAICS
(Current $ millions)

	1998	1999	2000	2001	2002	2003	2004	(R) 2005	(R) 2006
All industries	4,182,719	4,471,400	4,829,240	4,942,776	4,980,897	5,127,686	5,379,508	5,676,657	6,028,499
Transportation and warehousing, total	142,175	151,999	162,753	165,113	162,152	163,580	172,527	180,103	190,097
Air	25,512	27,447	30,046	32,311	30,551	28,385	28,258	26,669	26,774
Rail	12,611	12,610	12,409	12,104	11,841	12,099	12,762	13,545	14,199
Water	2,396	2,652	2,710	2,789	2,888	2,984	3,248	3,617	3,934
Truck	43,059	45,818	48,594	48,541	47,879	48,497	51,779	55,348	58,669
Transit and ground passenger transportation	7,672	8,249	8,497	8,806	8,987	9,244	9,666	10,209	10,824
Pipeline	3,178	3,473	4,282	4,238	3,272	3,188	3,171	3,169	3,573
Other transportation and support activities[b]	34,105	37,040	39,974	39,881	39,750	40,940	43,739	45,951	48,873
Warehousing and storage	13,641	14,709	16,240	16,442	16,984	18,244	19,903	21,594	23,252

KEY: R = revised.

[a] Wages do not include supplements to wages and salaries such as pension, profit-sharing, and other retirement plans, and health, life, and unemployment insurance compensation.

[b] Comprises business establishments involved in scenic and sightseeing transportation, support activities for transportation, postal service, and couriers and messengers.

SOURCE

U.S. Department of Commerce, Bureau of Economic Analysis, *National Income and Product Accounts* , table 6.3d, available at http://www.bea.gov/ as of December 2008.

Table 3-24a: Labor Productivity Indices for Selected Transportation Industries (SIC)

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Output per hour [a] worked																	
Air[b]	N	N	N	N	N	N	93	93	97	100	106	109	111	112	108	109	111
Bus, Class I [c]	106	128	118	107	111	96	96	104	105	109	99	110	106	125	105	135	112
Railroad	22	32	36	43	55	82	119	128	140	145	150	156	167	170	173	183	196
Trucking, except local[b]	N	N	N	N	N	N	111	117	123	127	130	125	131	132	130	132	131
Petroleum pipelines[c]	31	49	76	91	89	100	103	99	100	104	108	116	131	134	137	145	141
Output per employee[d]																	
Air	22	35	45	56	71	92	93	93	97	100	106	109	111	112	108	109	111
Bus, Class I [c]	108	129	119	103	99	93	96	102	103	107	96	105	103	121	104	133	110
Railroad	25	36	42	46	55	79	120	125	134	142	153	162	172	177	176	182	195
Trucking, except local	48	56	60	64	78	94	111	117	123	127	130	125	131	132	130	132	131
Petroleum pipelines[c]	30	48	75	89	89	98	102	98	99	104	112	121	139	141	146	150	141

KEY: N = data do not exist.

[a] Based on the number of paid hours.

[b] The average weekly hours were assumed to be constant for these industries; therefore, the output per hour worked and the output per employee measures are identical in the years for which data are given for both measures.

[c] Data did not meet the publication standards for the Bureau of Labor Statistics and are considered less reliable than the published series.

[d] Full-time and part-time employees are counted equally. Hence, these data do not reflect output per full-time equivalent employee.

NOTE

Index, 1987 = 100.

SOURCES

U.S. Department of Labor, Bureau of Labor Statistics, Industry Productivity, Internet site http://www.bls.gov/lpc/iprdata1.htm as of Aug. 12, 2002.
Ibid., personal communication, Aug. 19, 2002 (unpublished data).

Table 3-24b: Labor Productivity Indices for Selected Transportation Industries (North American Industry Classification System [NAICS] basis) (Index 1997 = 100)

	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Output per hour [a] worked																			
Air transportation[b]	81	82	79	78	78	81	85	91	95	99	100	98	98	98	92	102	(R) 113	(R) 127	(R) 136
Line-haul railroads	59	64	68	70	75	82	86	89	92	98	100	102	105	114	122	132	142	(R) 146	(R) 138
General freight trucking, long-distance	86	86	85	89	93	98	96	98	96	95	100	99	99	102	103	107	111	111	(R) 113
Postal Service	91	90	90	94	94	95	98	98	98	97	100	102	103	105	106	106	108	110	111
Output per employee[c]																			
Air transportation[b]	81	82	79	78	78	81	85	91	95	99	100	98	98	98	92	102	(R) 113	(R) 127	(R) 136
Line-haul railroads	57	62	64	68	70	76	80	86	91	97	100	99	102	110	113	119	(R) 128	(R) 133	(R) 131
General freight trucking, long-distance	83	84	83	86	89	95	95	98	95	96	100	99	100	103	103	108	112	115	(R) 117
Postal Service	87	87	87	91	92	95	98	98	96	96	100	101	102	106	105	105	107	111	(R) 114

KEY: R = revised.

[a] Based on the number of paid hours.

[b] The average weekly hours were assumed to be constant for air transportation industries; therefore, the output per hour worked and the output per employee measures are identical.

[c] Full-time and part-time employees are counted equally. Hence, these data do not reflect output per full-time equivalent employee.

NOTES

BLS developed labor productivity indexes for all manufacturing and retail trade of the North American Industry Classification System (NAICS) industries as well as selected mining, transportation, communications and services industries. Indexes for petroleum pipelines and bus (class I) systems were created under the Standard Industrial Classification (SIC) system but have not yet been developed under NAICS. Productivity measures for NAICS start in 1987.

SOURCE

U.S. Department of Labor, Bureau of Labor Statistics, *Industry Productivity* , available at http://www.bls.gov/lpc as of September 2008.

Section D
Government Finance

Table 3-25a: Federal, State, and Local Government Transportation-Related Revenues and Expenditures, Fiscal Year (Current $ millions)

	(R) 1995	(R) 1996	(R) 1997	(R) 1998	(R) 1999	(R) 2000	(R) 2001	(R) 2002	(R) 2003	2004	2005	2006
Total government revenues	94,548	97,591	101,257	112,733	129,743	128,073	125,480	131,412	132,774	136,328	146,856	150,492
Federal	30,478	31,188	31,960	39,442	52,567	47,147	43,197	45,914	46,434	46,284	51,284	52,244
State and local	64,070	66,403	69,297	73,291	77,176	80,926	82,284	85,497	86,340	90,044	95,572	98,248
Total government expenditures	143,256	149,133	155,954	163,544	182,318	186,374	211,180	223,808	238,092	237,636	243,086	199,397
State and local expenditures including federal grants	123,369	129,158	135,988	142,364	161,352	165,290	180,864	188,012	195,423	198,377	208,045	163,562
Federal grants	24,793	24,760	25,913	25,014	27,824	35,277	38,668	42,593	42,547	42,779	50,032	45,334
Federal expenditures, less grants	19,886	19,976	19,965	21,180	20,966	21,084	30,316	35,796	42,669	39,260	35,041	35,836

KEY: R = revised.

NOTES

Numbers may not add to totals due to rounding.

Total government expenditure is the sum of state and local expenditure including federal grants and federal expenditures, less grants.

Local government receipts from motor fuel, motor vehicle, and toll highway charges are not included in 2006.

Government transportation revenues consist of money collected by governments from transportation user charges and taxes to finance transportation programs. The following types of receipts are excluded: 1) revenues collected from users of the transportation system that are directed to the general fund and used for nontransportation purposes, 2) nontransportation general fund revenues that are used to finance transportation programs and 3) proceeds from borrowing.

SOURCE

U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics,*Government Transportation Financial Statistics 2008*.

Table 3-25b: Federal, State, and Local Government Transportation-Related Revenues and Expenditures, Fiscal Year (Chained 2000 $ millions)

	1980	1985	1990	1991	1992	1993	1994	(R) 1995	(R) 1996	(R) 1997	(R) 1998	(R) 1999	(R) 2000	(R) 2001	(R) 2002	2003
Total government revenues	66,341	80,106	90,941	97,367	99,153	102,114	102,194	114,185	114,085	111,788	122,063	136,465	128,597	122,609	127,553	123,950
Federal	19,952	27,996	28,414	32,839	32,169	32,693	31,497	35,667	35,339	35,145	42,527	54,938	47,146	41,940	43,172	42,631
State and local	46,389	52,110	62,527	64,528	66,985	69,421	70,697	78,518	78,746	76,643	79,535	81,527	81,451	80,669	84,381	81,319
Total government expenditures	95,431	118,603	131,270	136,269	141,489	139,654	146,867	173,577	173,908	177,008	180,158	194,479	195,398	214,290	221,107	227,529
State and local expenditures less federal grants[a]	47,715	75,555	90,180	94,531	97,551	95,061	100,866	121,311	123,215	126,575	130,351	143,494	139,101	147,322	147,154	149,175
Federal grants[b]	28,286	27,648	26,172	25,906	26,552	27,516	26,956	23,081	23,157	22,962	23,136	25,124	26,191	28,512	30,524	31,139
Federal expenditures, less grants	19,429	15,400	14,919	15,832	17,386	17,078	19,044	29,185	27,536	27,471	26,671	25,861	30,106	38,456	43,430	47,214

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

[a] Figures for state and local expenditures less federal grants were determined by subtracting federal grants from state and local expenditures including grants. State and local expenditures including grants were obtained from the U.S. Department of Commerce, Census Bureau, which uses different definitions and accounting methods than those used by some modal administrations of the U.S. Department of Transportation. For example, highway expenditures in this table do not include traffic control activities by police or public safety activities; while the highway expenditure statistics published by the U.S. Department of Transportation, Federal Highway Administration do include these items.

[b] Federal grants to state and local governments for research and special programs, and emergency preparedness are included starting from 1985.

NOTE

Beginning in 1995 a new methodology is used, numbers from years prior to 1995 are not comparable, see the Government Transportation Financial Statistics report for details.

All numbers were converted to chained dollars using the Government consumption expenditures and gross investment price index.

SOURCES

1980: U.S. Department of Transportation, Bureau of Transportation Statistics, unpublished data.

1985–1994: U.S. Department of Transportation, Bureau of Transportation Statistics,*Government Transportation Financial Statistics: 2003* (Washington, DC: forthcoming), 3-b, 13-b, and 14-b.

1995-2003 U.S. Department of Transportation, Bureau of Transportation Statistics, Government Transportation Financial Statistics 2007

Constant dollar deflator: U.S. Department of Commerce, Bureau of Economic Analysis, *National Income and Product Accounts,* Washington, DC, table 3.9.4.

Table 3-26: Summary of Transportation Revenues and Expenditures from Own Funds and User Coverage, Fiscal Year (Current and chained 2000 $ millions)

	(R) 1995	(R) 1996	(R) 1997	(R) 1998	(R) 1999	(R) 2000	(R) 2001	(R) 2002	(R) 2003	2004	2005	2006
Federal revenues												
Current	30,478	31,188	31,960	39,442	52,567	47,147	43,197	45,914	46,434	46,284	51,284	52,244
Chained	34,494	34,465	34,686	42,198	54,712	47,147	42,125	43,518	42,270	40,334	42,219	41,060
Federal expenditures												
Current	44,679	44,736	45,878	46,193	48,790	56,361	68,984	78,390	85,216	82,038	85,072	81,170
Chained	50,566	49,437	49,793	49,421	50,781	56,361	67,273	74,298	77,576	71,491	70,036	63,793
Federal user coverage (percent)	68	70	70	85	108	84	63	59	54	56	60	64
State and local revenues												
Current	64,070	66,403	69,297	73,291	77,176	80,926	82,284	85,497	86,340	90,044	95,572	98,248
Chained	72,512	73,381	75,210	78,412	80,326	80,926	80,242	81,035	78,599	78,467	78,679	77,215
State and local expenditures												
Current	103,663	108,735	115,095	120,890	137,298	139,101	150,706	152,839	158,841	161,292	168,699	123,235
Chained	117,321	120,161	124,914	129,337	142,901	139,101	146,968	144,862	144,600	140,554	138,881	96,853
State and local user coverage (percent)	62	61	60	61	56	58	55	56	54	56	57	80

KEY: R = Revised.

NOTES

Sate and local expenditure includes outlays from all sources of funds including federal grants

Federal expenditure includes direct federal spending and grants to state and local governments.

Local government receipts from highway are not included in 2006.

Government transportation revenues consist of money collected by governments from transportation user charges and taxes to finance transportation programs. The following types of receipts are excluded: 1) revenues collected from users of the transportation system that are directed to the general fund and used for nontransportation purposes, 2) nontransportation general fund revenues that are used to finance transportation programs and 3) proceeds from borrowing.

The big jump of federal user coverage (percent) in 1999 is due to the fact that taxpayer Relief Act of 1997 allowed taxpayers to delay depositing highway motor fuel tax receipts that would have been required to be made in August and September of 1998 until October 5, 1998. October 5, 1998 is in fiscal year 1999.

SOURCE

U. S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, Government Transportation Financial Statistics 2008.

Table 3-27a: Transportation Revenues by Mode and Level of Government, Fiscal Year (Current $ millions)

	(R) 1995	(R) 1996	(R) 1997	(R) 1998	(R) 1999	(R) 2000	(R) 2001	(R) 2002	(R) 2003	2004	2005	2006
TOTAL, all modes	94,548	97,591	101,257	112,733	129,743	128,073	125,480	131,412	132,774	136,328	146,856	150,492
Federal	30,478	31,188	31,960	39,442	52,567	47,147	43,197	45,914	46,434	46,284	51,284	52,244
State and local	64,070	66,403	69,297	73,291	77,176	80,926	82,284	85,497	86,340	90,044	95,572	98,248
Highway, total	67,544	72,729	74,116	79,921	92,577	90,980	86,994	91,412	92,310	96,189	103,564	102,688
Federal	22,200	25,981	25,316	28,638	39,308	34,985	31,486	33,297	34,421	35,107	38,747	39,191
State and local	45,344	46,748	48,801	51,283	53,269	55,995	55,509	58,114	57,889	61,082	64,817	63,497
Air, total	14,518	11,899	13,879	19,034	22,054	22,298	23,248	24,532	24,212	23,130	25,645	27,072
Federal	6,291	3,128	4,488	8,682	11,089	10,544	10,103	11,282	10,597	9,652	10,797	11,137
State and local	8,227	8,771	9,391	10,352	10,965	11,754	13,145	13,250	13,615	13,478	14,848	15,935
Railroads, Total	36	2	0	0	0	1	0	0	0	0	0	0
Federal	36	2	0	0	0	1	0	0	0	0	0	0
Transit, total	8,575	8,753	9,006	9,417	10,587	10,670	10,922	11,448	11,906	12,377	12,512	15,117
State and local	8,575	8,753	9,006	9,417	10,587	10,670	10,922	11,448	11,906	12,377	12,512	15,117
Water, total	3,832	4,168	4,216	4,323	4,486	4,058	4,250	3,937	4,279	4,569	5,070	5,536
Federal	1,909	2,037	2,117	2,084	2,131	1,551	1,543	1,252	1,349	1,462	1,676	1,837
State and local	1,923	2,131	2,099	2,239	2,355	2,507	2,707	2,685	2,930	3,107	3,394	3,699
Pipeline, total	35	31	30	29	30	40	44	57	57	55	56	58
Federal: Pipeline Safety Fund	35	31	30	29	30	40	44	57	57	55	56	58
General support, total	7	9	9	9	9	26	21	26	10	8	8	21
Federal: Emergency Preparedness Fund	7	9	9	9	9	26	21	26	10	8	8	21

KEY: R = Revised.

NOTES

Numbers may not add to totals due to rounding.

Local government receipts from highway are not included in 2006.

Government transportation revenues consist of money collected by governments from transportation user charges and taxes to finance transportation programs. The following types of receipts are excluded: 1) revenues collected from users of the transportation system that are directed to the general fund and used for non-transportation purposes, 2) non-transportation general fund revenues that are used to finance transportation programs and 3) proceeds from borrowing.

SOURCE

U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *Government Transportation Financial Statistics 2008* .

Table 3-27b: Transportation Revenues by Mode and Level of Government, Fiscal Year (Chained 2000 $ millions)

	(R) 1995	(R) 1996	(R) 1997	(R) 1998	(R) 1999	(R) 2000	(R) 2001	(R) 2002	(R) 2003	2004	2005	2006
TOTAL, all modes	107,005	107,846	109,896	120,610	135,038	128,073	122,367	124,552	120,870	118,800	120,899	118,275
Federal	34,494	34,465	34,686	42,198	54,712	47,147	42,125	43,518	42,270	40,334	42,219	41,060
State and Local	72,512	73,381	75,210	78,412	80,326	80,926	80,242	81,035	78,599	78,467	78,679	77,215
Highway, total	76,444	80,371	80,440	85,506	96,355	90,980	84,836	86,640	84,034	83,822	85,259	80,705
Federal	25,125	28,711	27,476	30,639	40,912	34,985	30,705	31,559	31,335	30,594	31,898	30,801
State and Local	51,319	51,660	52,964	54,866	55,443	55,995	54,132	55,081	52,699	53,229	53,361	49,904
Air, total	16,431	13,150	15,063	20,364	22,954	22,298	22,671	23,252	22,041	20,156	21,112	21,277
Federal	7,120	3,457	4,871	9,289	11,542	10,544	9,852	10,693	9,647	8,411	8,889	8,753
State and Local	9,312	9,693	10,192	11,075	11,413	11,754	12,819	12,558	12,394	11,745	12,224	12,524
Railroads, total	41	2	0	0	0	1	0	0	0	0	0	0
Federal	41	2	0	0	0	1	0	0	0	0	0	0
Transit, total	9,705	9,673	9,775	10,075	11,019	10,670	10,651	10,850	10,839	10,786	10,301	11,880
State and Local	9,705	9,673	9,775	10,075	11,019	10,670	10,651	10,850	10,839	10,786	10,301	11,880
Water, total	4,337	4,606	4,576	4,625	4,669	4,058	4,145	3,732	3,895	3,981	4,174	4,351
Federal	2,161	2,251	2,298	2,230	2,218	1,551	1,505	1,187	1,228	1,274	1,380	1,444
State and Local	2,177	2,355	2,278	2,396	2,451	2,507	2,640	2,545	2,667	2,707	2,794	2,907
Pipeline, total	40	34	33	31	31	40	43	54	52	48	46	46
Federal	40	34	33	31	31	40	43	54	52	48	46	46
General support, total	8	10	10	10	9	26	20	25	9	7	7	17
Federal	8	10	10	10	9	26	20	25	9	7	7	17

KEY: R = Revised.

NOTES

Numbers may not add to totals due to rounding.

Local government receipts from highway are not included in 2006.

Government transportation revenues consist of money collected by governments from transportation user charges and taxes to finance transportation programs. The following types of receipts are excluded: 1) revenues collected from users of the transportation system that are directed to the general fund and used for non-transportation purposes, 2) non-transportation general fund revenues that are used to finance transportation programs and 3) proceeds from borrowing.

SOURCE

U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *Government Transportation Financial Statistics 2008*.

Table 3-28: Cash Balances of the Transportation-Related Federal Trust Funds, Fiscal Year ($ millions)

	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
TOTAL, all funds																			
Current $	16,441	20,483	31,795	35,697	37,475	36,499	31,916	32,345	31,139	31,306	30,637	44,323	48,175	45,550	(R) 44,250	(R) 38,385	(R) 28,885	(R) 26,852	28,876
Chained[a] 2000 $	30,847	29,272	41,216	44,492	45,368	43,047	36,659	36,138	33,853	33,471	32,416	45,749	48,175	44,698	(R) 41,891	(R) 34,866	(R) 25,063	(R) 22,242	22,986
Airport / Airway Trust Fund																			
Current $	5,442	7,426	14,355	15,263	15,204	12,850	12,386	11,365	7,692	6,358	9,411	12,446	13,934	14,485	12,642	12,397	11,669	11,290	10,336
Chained[a] 2000 $	10,210	10,613	18,609	19,024	18,406	15,155	14,227	12,698	8,363	6,798	9,958	12,846	13,934	14,214	11,968	11,260	10,125	9,352	8,228
Highway Trust Fund, highway account																			
Current $	10,999	10,361	9,629	10,246	11,300	11,523	7,927	9,421	11,658	12,575	8,519	19,206	22,553	20,372	(R) 16,136	(R) 12,991	(R) 10,791	(R) 10,594	8,865
Chained[a] 2000 $	20,636	14,807	12,482	12,770	13,680	13,590	9,105	10,526	12,674	13,444	9,014	19,824	22,553	19,991	(R) 15,276	(R) 11,800	(R) 9,363	(R) 8,775	7,057
Highway Trust Fund, transit account																			
Current $	N	2,524	7,155	9,250	9,798	10,617	9,945	9,579	9,525	9,857	10,051	9,753	8,547	7,368	6,096	4,823	3,776	1,950	6,204
Chained[a] 2000 $	N	3,607	9,275	11,529	11,862	12,522	11,423	10,702	10,355	10,539	10,635	10,067	8,547	7,230	5,771	4,381	3,276	1,615	4,939
Harbor Maintenance Trust Fund																			
Current $	N	N	30	74	121	305	451	621	865	1,106	1,246	1,556	1,621	1,777	1,850	2,001	2,299	2,695	3,234
Chained[a] 2000 $	N	N	39	92	146	360	518	694	940	1,182	1,318	1,606	1,621	1,744	1,751	1,818	1,995	2,232	2,574
Inland Waterway Trust Fund																			
Current $	N	172	281	217	186	180	214	238	275	300	327	345	364	404	392	383	350	323	237
Chained[a] 2000 $	N	246	364	270	225	212	246	266	299	321	346	356	364	396	371	348	304	268	189
Oil Spill Liability Trust Fund																			
Current $	N	N	345	647	866	1,024	993	1,121	1,124	1,110	1,083	1,017	1,156	1,144	1,037	966	856	759	620
Chained[a] 2000 $	N	N	447	806	1,048	1,208	1,141	1,252	1,222	1,187	1,146	1,050	1,156	1,123	982	877	743	629	494

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

Note

[a] **Chained dollars calculated using a federal government price index see source for more information**

Previous editions of NTS reported balance of total highway trust fund instead of the highway acount of the highway trust fund from 2002-2005

Reported figures are cash balance at the end of the year for all trust funds.

SOURCES

1980-94: U.S. Department of Transportation, Bureau of Transportation Statistics, *Transportation Receipts and Outlays in the Federal Budget*, Fiscal Years 1977-94 (Washington, DC: April 1997), table 1-3.

1995-2004: U.S. Executive Office of the President, Office of Management and Budget, *Budget of the United States Government, Appendix* (Washington, DC: Annual issues).

2007: U.S. Executive Office of the President, Office of Management and Budget, *Budget of the United States Government, Appendix* (Washington, DC: Annual issues).

Chained dollar deflator

2007: U.S. Department of Commerce, Bureau of Economic Analysis, *Interactive Access to National Income and Product Accounts Tables*, table 3.9.4, "Price Indexes for Government Consumption Expenditures and Gross Investment," Internet site http://www.bea.gov/national/nipaweb as of Dec. 5, 2007.

Table 3-29a: Transportation Expenditures by Mode and Level of Government from Own Funds, Fiscal Year (Current $ millions)

	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
TOTAL, all modes[a]	56,217	77,213	100,685	108,338	114,640	116,517	125,946	143,254	149,146	155,920	163,525	182,296	186,311	211,080	223,675	238,061
Federal	24,661	28,300	30,924	33,015	35,331	37,337	39,733	19,869	19,976	19,946	21,178	20,960	21,020	30,215	35,662	42,637
State and local[a]	31,556	48,914	69,760	75,323	79,309	79,180	86,213	123,385	129,171	135,974	142,347	161,337	165,291	180,865	188,013	195,423
Highways, total	34,553	46,613	62,629	66,588	69,018	70,054	74,591	90,075	94,746	98,398	103,988	112,259	119,847	127,003	133,538	138,500
Federal	11,706	15,039	15,517	15,921	16,837	18,144	20,113	1,685	1,978	1,581	1,654	1,576	2,126	2,393	2,620	3,166
State and local	22,847	31,574	47,112	50,667	52,182	51,910	54,478	88,391	92,768	96,817	102,334	110,683	117,720	124,610	130,918	135,334
Air, total	5,673	7,903	12,568	13,978	15,920	17,412	17,945	19,250	19,770	20,694	21,732	22,066	22,525	32,839	37,025	34,185
Federal	3,762	4,947	7,305	8,285	9,317	10,053	10,150	10,807	10,921	10,499	11,193	9,389	9,285	17,220	20,675	17,019
State and local	1,911	2,955	5,263	5,692	6,604	7,359	7,795	8,443	8,849	10,195	10,539	12,677	13,240	15,619	16,350	17,166
Transit, total[a]	8,915	16,308	19,251	20,848	22,313	21,272	25,087	25,460	26,113	27,858	28,990	39,170	34,828	38,989	41,604	41,555
Federal	3,307	3,427	3,832	3,917	3,675	3,517	3,770	1,277	1,194	1,750	2,341	4,309	3,677	4,409	4,508	4,560
State and local[a]	5,608	12,881	15,420	16,930	18,639	17,755	21,317	24,183	24,919	26,108	26,649	34,861	31,150	34,580	37,095	36,995
Water, total	4,475	5,124	5,480	5,847	6,167	6,593	7,046	6,623	6,727	7,108	7,098	7,701	7,634	10,620	8,038	11,775
Federal	3,308	3,642	3,537	3,833	4,304	4,462	4,457	4,314	4,149	4,299	4,313	4,630	4,493	4,626	4,467	5,900
State and local	1,167	1,481	1,943	2,014	1,863	2,131	2,589	2,309	2,578	2,809	2,785	3,070	3,141	5,995	3,571	5,875
Rail, total	2,419	1,072	540	781	903	816	844	1,065	1,041	1,150	1,083	438	779	754	1,325	1,242
Federal	2,395	1,057	534	779	900	811	833	1,023	1,001	1,125	1,064	414	765	722	1,281	1,220
State and local	23	15	6	1	3	5	12	42	40	25	19	24	14	32	44	22
Pipeline, total[b]	RZ	8	26	28	32	34	38	24	34	33	36	38	46	37	48	65
Federal	RZ	RZ	9	9	12	14	16	12	23	20	22	22	28	18	27	45
State and local	RZ	8	17	19	20	20	22	12	11	13	14	16	18	19	22	20
General support, total[c]	183	187	191	270	286	337	394	757	716	678	598	625	653	838	2,097	10,740
Federal / general support	183	187	191	270	286	337	394	751	710	672	592	619	645	828	2,085	10,728
State and local	RZ	RZ	RZ	RZ	RZ	RZ	RZ	6	6	6	6	6	8	10	12	12

KEY: R = revised; RZ = no activity or a value of zero; U = data are not available.

[a] Data for 1980, 1985 and 1990-2001 have been revised due to the Office of Management and Budget (OMB)'s revision to the

[b] Includes gas and liquid pipeline.

[c] General support represents administrative and operating expenditures of the U.S. Department of Transportation, the Interstate

NOTE

Numbers may not add to totals due to rounding.

Numbers for state and local expenditures from own funds were calculated by deducting federal grants from state and local

Beginning in 1995 a new methodology is used, numbers from years prior to 1995 are not comparable, see the Government Transportation Financial Statistics report for details.

SOURCES

1980: U.S. Department of Transportation, Bureau of Transportation Statistics, unpublished data.

1985–2003: U.S. Department of Transportation, Bureau of Transportation Statistics, *Government Transportation Financial Statistics: 2007*.

Table 3-29b: Transportation Expenditures by Mode and Level of Government from Own Funds, Fiscal Year (Chained 2000 $ millions)

	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
TOTAL, all modes[a]	112,303	118,603	131,270	136,269	141,489	139,654	146,867	167,643	169,008	171,473	176,322	190,523	186,311	205,209	211,379	219,656
Federal	47,715	43,048	41,090	41,738	43,938	44,593	46,000	23,252	22,636	21,935	22,836	21,905	21,020	29,375	33,702	39,341
State and local[a]	64,587	75,555	90,180	94,531	97,551	95,061	100,866	144,391	146,372	149,537	153,487	168,618	165,291	175,834	177,677	180,315
Highways, total	69,411	71,647	81,520	83,715	85,122	83,992	87,023	105,411	107,363	108,213	112,126	117,325	119,847	123,470	126,197	127,792
Federal	22,649	22,876	20,618	20,128	20,938	21,671	23,286	1,972	2,241	1,738	1,783	1,647	2,126	2,326	2,476	2,921
State and local	46,762	48,771	60,902	63,587	64,184	62,321	63,737	103,439	105,122	106,475	110,343	115,678	117,720	121,144	123,721	124,871
Air, total	11,190	12,091	16,510	17,618	19,709	20,842	20,871	22,528	22,402	22,758	23,433	23,062	22,525	31,925	34,990	31,542
Federal	7,279	7,526	9,706	10,474	11,587	12,007	11,751	12,647	12,375	11,546	12,069	9,813	9,285	16,741	19,538	15,703
State and local	3,911	4,565	6,804	7,144	8,122	8,835	9,120	9,881	10,027	11,212	11,364	13,249	13,240	15,184	15,452	15,838
Transit, total[a]	17,876	25,109	25,024	26,200	27,496	25,516	29,305	29,794	29,591	30,637	31,259	40,937	34,828	37,905	39,317	38,342
Federal	6,398	5,213	5,091	4,952	4,570	4,200	4,364	1,494	1,354	1,925	2,524	4,503	3,677	4,286	4,260	4,207
State and local[a]	11,479	19,897	19,933	21,248	22,926	21,316	24,941	28,300	28,237	28,713	28,735	36,434	31,150	33,618	35,056	34,135
Water, total	8,789	7,829	7,211	7,373	7,644	7,887	8,189	7,751	7,623	7,817	7,653	8,048	7,634	10,325	7,596	10,864
Federal	6,401	5,540	4,700	4,846	5,353	5,329	5,160	5,048	4,702	4,728	4,650	4,839	4,493	4,497	4,221	5,444
State and local	2,388	2,288	2,511	2,527	2,291	2,558	3,029	2,703	2,921	3,090	3,003	3,209	3,141	5,828	3,375	5,420
Rail, total	4,683	1,631	717	987	1,123	975	978	1,246	1,180	1,265	1,168	458	779	733	1,252	1,146
Federal	4,635	1,608	710	985	1,120	969	964	1,197	1,134	1,237	1,147	433	765	702	1,211	1,126
State and local	48	23	8	1	3	6	14	49	45	28	21	25	14	31	42	20
Pipeline, total[b]	RZ	12	34	35	40	40	45	28	39	36	39	40	46	36	45	60
Federal	RZ	RZ	12	12	15	16	19	15	26	22	24	23	28	17	25	41
State and local	RZ	12	21	24	25	24	26	14	13	14	15	17	18	19	20	19
General support, total[c]	354	284	253	341	356	402	456	886	811	746	645	653	653	814	1,981	9,909
Federal / general support	354	284	253	341	356	402	456	879	804	739	638	647	645	805	1,970	9,898
State and local	RZ	RZ	RZ	RZ	RZ	RZ	RZ	7	7	7	6	6	8	10	11	11

KEY: R = revised; RZ = no activity or a value of zero; U = data are not available.

[a] Data for 1980, 1985 and 1990-2001 have been revised due to the Office of Management and Budget (OMB)'s revision to the source data on federal expenditure and federal grants.

[b] Includes gas and liquid pipeline.

[c] General support represents administrative and operating expenditures of the U.S. Department of Transportation, the Interstate Commerce Commission (terminated at the end 1995), and the National Transportation Safety Board.

NOTE

Numbers may not add to totals due to rounding.

Numbers for state and local expenditures from own funds were calculated by deducting federal grants from state and local expenditures that included federal grants.

Beginning in 1995 a new methodology is used, numbers from years prior to 1995 are not comparable, see the Government Transportation Financial Statistics report for details.

SOURCES

1980: U.S. Department of Transportation, Bureau of Transportation Statistics, unpublished data.

1985–2003: U.S. Department of Transportation, Bureau of Transportation Statistics, *Government Transportation Financial Statistics: 2007*

Constant dollar deflator: U.S. Department of Commerce, Bureau of Economic Analysis, *National Income and Product Accounts,* Washington, DC, table 3.9.4, "Chain-Type Price Index."

Table 3-30a: Federal Transportation Grants to State and Local Governments by Mode, Fiscal Year (Current $ millions)

	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Total, all modes	14,617	18,176	19,697	20,492	21,351	23,038	23,283	24,793	24,760	25,913	25,014	27,824	35,277	38,668	42,593	42,282
Highway	10,807	14,007	14,695	15,083	16,044	17,158	18,319	18,457	18,712	19,819	19,073	21,952	25,710	27,630	29,890	29,608
Air	590	789	1,220	1,541	1,672	1,931	1,620	1,826	1,655	1,489	1,511	1,565	1,578	2,020	2,860	2,681
Transit	3,163	3,329	3,738	3,826	3,586	3,893	3,268	4,410	4,298	4,518	4,342	4,226	7,942	8,957	9,767	9,938
Water[a]	RZ	12	26	35	36	37	39	62	55	31	32	21	9	1	RZ	RZ
Rail	54	35	14	3	7	12	27	21	23	37	35	38	13	31	43	22
Pipeline	RZ	RZ	4	5	6	7	5	12	11	13	14	16	18	19	22	20
General Support[b]	3	4	RZ	RZ	RZ	0	5	6	6	6	6	6	8	10	12	12

KEY: R = revised; RZ = no activity or a value of zero; "0" = value too small to report.

[a] Includes only federal grants for Boat Safety Program.

[b] General support is a new addition to the table. It includes federal grants to state and local governments for research

NOTE

Numbers may not add to totals due to rounding.

Beginning in 1995 a new methodology is used, numbers from years prior to 1995 are not comparable, see the Government Transportation Financial Statistics report for details.

SOURCES

1980: U.S. Department of Transportation, Bureau of Transportation Statistics, unpublished data.

1985-2003: U.S. Department of Transportation, Bureau of Transportation Statistics, *Government Transportation Financial Statistics: 2007*

Table 3-30b: Federal Transportation Grants to State and Local Governments by Mode, Fiscal Year (Chained 2000 $ millions)

	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Total, all modes	28,278	27,642	26,172	25,906	26,552	27,516	26,956	29,014	28,057	28,498	26,971	29,080	35,277	37,593	40,252	39,013
Highway	20,910	21,307	19,525	19,069	19,953	20,492	21,209	21,599	21,204	21,796	20,566	22,943	25,710	26,861	28,247	27,319
Air	1,142	1,200	1,621	1,948	2,079	2,307	1,875	2,137	1,875	1,638	1,629	1,636	1,578	1,964	2,703	2,474
Transit	6,120	5,064	4,967	4,836	4,459	4,650	3,783	5,161	4,870	4,969	4,682	4,417	7,942	8,708	9,230	9,170
Water[a]	RZ	18	34	44	45	44	46	73	62	34	35	22	9	1	RZ	RZ
Rail	105	53	19	3	8	14	32	25	26	41	38	40	13	30	41	20
Pipeline	RZ	RZ	6	6	7	8	6	14	13	14	15	17	18	19	20	19
General support[b]	5	6	RZ	RZ	RZ	0	6	7	7	7	6	6	8	10	11	11

KEY: R = revised; RZ = no activity or a value of zero; "0" = value too small to report

[a] Includes only federal grants for Boat Safety Program.

[b] General support is a new addition to the table. It includes federal grants to state and local governments for

NOTE

Numbers may not add to totals due to rounding.

Beginning in 1995 a new methodology is used, numbers from years prior to 1995 are not comparable, see the Government Transportation Financial Statistics report for details.

SOURCES

1980: U.S. Department of Transportation, Bureau of Transportation Statistics, unpublished data.

1985–2003: U.S. Department of Transportation, Bureau of Transportation Statistics, *Government Transportation Financial Statistics: 2007*

Constant dollar deflator: U.S. Department of Commerce, Bureau of Economic Analysis, *National Income and Product Accounts,* Washington, DC, table 3.9.4, "Chain-Type Price Index."

Chapter 4

Transportation, Energy, and the Environment

Section A
U.S. and Transportation Sector Energy Consumption

Table 4-1: Overview of U.S. Petroleum Production, Imports, Exports, and Consumption (Million barrels per day)

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Domestic production, total[a]	7.96	9.01	11.30	10.01	10.17	10.58	8.91	9.08	8.87	8.58	8.39	8.32	8.29	8.27	8.01	7.73	7.73	7.67	7.63	7.40	7.23	6.90	6.87
Crude oil[b]	7.04	7.80	9.64	8.37	8.60	8.97	7.36	7.42	7.17	6.85	6.66	6.56	6.46	6.45	6.25	5.88	5.82	5.80	5.75	5.68	5.42	5.18	5.14
Natural gas plant liquids	0.93	1.21	1.66	1.63	1.57	1.61	1.56	1.66	1.70	1.74	1.73	1.76	1.83	1.82	1.76	1.85	1.91	1.87	1.88	1.72	1.81	1.72	1.74
Gross imports, total	1.81	2.47	3.42	6.06	6.91	5.07	8.02	7.63	7.89	8.62	9.00	8.83	9.48	10.16	10.71	10.85	11.46	11.87	11.53	12.26	13.15	13.71	13.61
Crude oil[b,c]	1.02	1.24	1.32	4.10	5.26	3.20	5.89	5.78	6.08	6.79	7.06	7.23	7.51	8.23	8.71	8.73	9.07	9.33	9.14	9.66	10.09	10.13	10.10
Petroleum products[d]	0.80	1.23	2.10	1.95	1.65	1.87	2.12	1.84	1.80	1.83	1.93	1.61	1.97	1.94	2.00	2.12	2.39	2.54	2.39	2.60	3.06	3.59	3.52
Exports	0.20	0.19	0.26	0.21	0.54	0.78	0.86	1.00	0.95	1.00	0.94	0.95	0.98	1.00	0.94	0.94	1.04	0.97	0.98	1.01	1.05	1.16	1.33
U.S. net imports[e]	1.61	2.28	3.16	5.85	6.36	4.29	7.16	6.63	6.94	7.62	8.05	7.89	8.50	9.16	9.76	9.91	10.42	10.90	10.55	11.24	12.10	12.55	12.28
U.S. petroleum consumption	9.80	11.51	14.70	16.32	17.06	15.73	16.99	16.71	17.03	17.24	17.72	17.72	18.31	18.62	18.92	19.52	19.70	19.65	19.76	20.03	20.73	20.80	20.58
By the transportation sector	5.14	6.04	7.78	8.95	9.55	9.84	10.89	10.76	10.88	11.12	11.42	11.67	11.92	12.10	12.42	12.76	13.01	12.94	13.21	(R) 13.32	(R) 13.72	(R) 13.94	13.99
Transportation petroleum use a percent of domestic petroleum production	64.5	67.0	68.8	89.4	93.9	93.0	122.1	118.6	122.7	129.6	136.1	140.2	143.7	146.3	155.0	165.1	168.3	168.7	173.2	(R) 180.00	(R) 189.82	(R) 202.16	203.59
Transportation petroleum use a percent of domestic petroleum consumption	52.4	52.4	52.9	54.8	56.0	62.6	64.1	64.4	63.9	64.5	64.4	65.8	65.1	65.0	65.7	65.4	66.0	65.8	66.8	(R) 66.49	(R) 66.18	(R) 67.01	67.98
World petroleum consumption	21.34	31.14	46.81	56.20	63.11	60.09	66.54	67.12	67.35	67.44	68.75	69.90	71.50	73.31	74.03	75.79	76.88	77.66	78.08	79.74	82.45	84.02	U
U.S. petroleum consumption as percent of world petroleum consumption	45.9	37.0	31.4	29.0	27.0	26.2	25.5	24.9	25.3	25.6	25.8	25.4	25.6	25.4	25.6	25.8	25.6	25.3	25.3	25.1	25.1	24.8	U

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

[a] Includes crude oil and natural gas plant liquids. This data series has been revised from 1975 forward to exclude the field production of other liquids including: finished motor gasoline, motor gasoline blending components, and other hydrocarbons and oxygenates.

[b] Includes lease condensate.

[c] Includes imports for the Strategic Petroleum Reserve, which began in 1977.

[d] Beginning in 1985, motor gasoline blending components and aviation gasoline blending components are included.

[e] Net imports is equal to imports minus exports.

NOTE

Numbers may not add to totals due to rounding.

SOURCES

Domestic production, imports, exports, and U.S. petroleum consumption:

1960-70,2006: U.S. Department of Energy, Energy Information Administration, *Annual Energy Review* , DOE/EIA-0384(2000) (Washington, DC: August 2001), table 5.1.

1975-2006: Ibid., *Monthly Energy Review* (Washington, DC: December 2006), tables 3.1a, 3.1b, and 1.7, Internet site http://www.eia.doe.gov as of Mar. 30, 2007.

U.S. petroleum consumption by transportation sector:

1960-2006: Ibid., *Annual Energy Review 2006* , DOE/EIA-0384(2005) (Washington, DC: July 2007), table 5.13c, Internet site http://www.eia.doe.gov as of Dec. 19, 2007.

World petroleum consumption:

1960-65: Ibid., *Annual Energy Review 2000,* DOE/EIA-0384(2000) (Washington, DC: August 2001), table 11.9.

1970-2005: Ibid., *International Petroleum Monthly* (Washington, DC: December 2006), table 4.6, Internet site http://www.eia.doe.gov/ipm/demand.html as of Jan. 10, 2007.

Table 4-2: U.S. Consumption of Energy from Primary Sources by Sector (Quadrillion Btu)

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Energy consumption, total	(R) 45.09	(R) 54.02	(R) 67.84	72.00	(R) 78.12	(R) 76.49	(R) 84.65	(R) 84.61	(R) 85.96	(R) 87.60	(R) 89.26	(R) 91.17	(R) 94.18	(R) 94.77	(R) 95.18	(R) 96.82	(R) 98.98	(R) 96.33	(R) 97.86	(R) 98.21	(R) 100.35	(R) 100.70	99.92
Transportation	10.56	12.40	16.06	18.21	19.66	20.04	22.37	22.07	22.36	22.72	23.31	23.79	24.38	24.70	25.20	25.89	26.49	26.22	26.79	26.93	27.82	(R) 28.25	28.42
Transportation as percent of total energy consumption	23.4	23.0	23.7	25.3	25.2	26.2	26.4	26.1	26.0	25.9	26.1	26.1	25.9	26.1	26.5	26.7	26.8	27.2	27.4	27.4	27.7	(R) 28.1	28.4
Industrial	(R) 16.98	(R) 20.12	(R) 22.98	21.45	(R) 22.61	(R) 19.47	(R) 21.21	(R) 20.85	(R) 21.79	(R) 21.78	(R) 22.42	(R) 22.75	(R) 23.44	(R) 23.72	(R) 23.21	(R) 22.99	(R) 22.87	(R) 21.84	(R) 21.86	(R) 21.58	(R) 22.46	(R) 21.65	21.63
Industrial as percent of total energy consumption	(R) 37.7	(R) 37.3	(R) 33.9	29.8	(R) 28.9	(R) 25.4	(R) 25.1	(R) 24.6	(R) 25.3	(R) 24.9	(R) 25.1	(R) 24.9	(R) 24.9	(R) 25.0	(R) 24.4	(R) 23.7	(R) 23.1	(R) 22.7	(R) 22.3	(R) 22.0	(R) 22.4	(R) 21.5	21.6
Residential and commercial	(R) 9.39	(R) 10.48	(R) 12.55	12.03	(R) 11.53	(R) 10.86	(R) 10.43	(R) 10.71	(R) 10.96	(R) 11.14	(R) 11.01	(R) 11.01	(R) 11.71	(R) 11.30	(R) 10.39	(R) 10.79	(R) 11.40	(R) 10.92	(R) 11.04	(R) 11.49	(R) 11.20	(R) 11.00	10.22
Residential and commercial as percent of total energy consumption	(R) 20.8	(R) 19.4	(R) 18.5	16.7	(R) 14.8	(R) 14.2	(R) 12.3	(R) 12.7	(R) 12.8	(R) 12.7	(R) 12.3	(R) 12.1	(R) 12.4	(R) 11.9	(R) 10.9	(R) 11.1	(R) 11.5	(R) 11.3	(R) 11.3	(R) 11.7	(R) 11.2	(R) 10.9	10.2
Energy input at electric utilities	(R) 8.16	11.01	(R) 16.10	20.31	(R) 24.33	(R) 26.13	(R) 30.66	(R) 31.03	(R) 30.89	(R) 32.03	(R) 32.56	(R) 33.62	(R) 34.64	(R) 35.05	(R) 36.39	(R) 37.14	(R) 38.21	(R) 37.37	(R) 38.17	(R) 38.22	(R) 38.88	(R) 39.80	39.66
Energy input at electric utilities as percent of total energy consumption	(R) 18.1	20.4	(R) 23.7	28.2	(R) 31.1	(R) 34.2	(R) 36.2	(R) 36.7	(R) 35.9	(R) 36.6	(R) 36.5	(R) 36.9	(R) 36.8	(R) 37.0	(R) 38.2	(R) 38.4	(R) 38.6	(R) 38.8	(R) 39.0	(R) 38.9	(R) 38.7	(R) 39.5	39.7
Percentage of primary demand met by petroleum																							
Transportation	96.0	95.7	95.3	96.7	96.7	97.2	96.7	96.9	96.9	(R) 96.7	(R) 96.5	(R) 96.5	(R) 96.6	(R) 96.4	(R) 96.9	(R) 96.9	(R) 96.9	(R) 96.9	(R) 96.7	(R) 96.8	(R) 96.8	(R) 98.5	96.2
Industrial	35.4	35.3	35.5	38.0	(R) 42.1	(R) 39.8	39.0	38.3	39.4	38.6	(R) 39.2	37.9	38.6	39.2	39.3	(R) 40.9	(R) 39.9	(R) 42.2	(R) 42.1	(R) 42.8	(R) 43.9	(R) 44.8	45.3
Residential and commercial	39.8	38.6	35.4	(R) 31.6	(R) 26.3	(R) 24.2	(R) 22.6	(R) 21.1	(R) 21.9	(R) 20.8	(R) 20.1	(R) 19.2	19.1	(R) 18.9	(R) 19.0	(R) 19.8	20.3	(R) 20.9	(R) 19.4	(R) 20.1	(R) 20.5	(R) 19.8	21.3
Electric utilities	6.7	6.7	13.0	15.6	10.8	4.2	4.2	3.9	3.2	3.5	3.3	2.2	2.4	2.6	3.6	3.3	3.0	3.4	2.5	(R) 3.2	3.1	3.1	1.6

KEY: Btu = British thermal unit; R = revised.

NOTES

The data for residential, commercial, and industrial sectors include only fossil fuels consumed directly. Most renewable fuels are not included. The data for the transportation sector includes only fossil and renewable fuels consumed directly. The data for electric utilities includes all fuels (fossil, nuclear, geothermal, hydro, and other renewables) used by electric utilities. Due to a lack of consistent monthly historical data, some renewable energy resources are not included in this table. The totals in table 4-4 are the best numbers for total U.S. energy consumption from all sources.
Numbers may not add to totals due to rounding.

SOURCES

1960-70: U.S. Department of Energy, Energy Information Administration, *Annual Energy Review 1990,* DOE/EIA-0394(90) (Washington, DC: May 1991), table 4.
1975-2006: Ibid., *Monthly Energy Review* , DOE/EIA-0035(2007/06) (Washington, DC: September 2007), tables 2.1, 2.2, 2.3, 2.4, 2.5, and 2.6, Internet site http://www.eia.doe.gov/emeu/mer/contents.html as of Nov. 15, 2007.

Table 4-3: Domestic Demand for Refined Petroleum Products by Sector (Quadrillion Btu)

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	(R) 2005	(R) 2006	2007
Total petroleum demand	19.92	23.26	29.53	32.73	34.20	30.92	33.55	32.85	33.53	33.84	34.67	34.55	35.76	36.27	36.93	37.96	38.40	38.33	38.40	39.05	40.59	40.39	39.96	39.82
Transportation	10.13	11.87	15.31	17.61	19.01	19.47	21.62	21.37	21.67	22.07	22.60	23.07	23.65	23.92	24.54	25.22	25.82	25.56	26.08	26.30	27.21	27.31	27.56	27.58
Industrial	5.75	6.79	7.79	8.15	9.52	7.74	8.28	7.99	8.58	8.42	8.80	8.61	9.05	9.29	9.12	9.40	9.12	9.22	9.21	9.24	9.87	9.67	9.82	9.67
Residential and commercial	3.49	3.87	4.31	3.80	3.04	2.62	2.36	2.29	2.28	2.23	2.21	2.12	2.24	2.13	1.97	2.13	2.32	2.28	2.14	2.31	2.30	2.18	1.93	1.91
Electric utilities	0.55	0.73	2.12	3.17	2.63	1.09	1.29	1.20	0.99	1.12	1.06	0.75	0.82	0.93	1.31	1.21	1.14	1.28	0.96	1.20	1.21	1.24	0.65	0.66
Transportation as percent of total petroleum demand	50.9	51.0	51.8	53.8	55.6	63.0	64.5	65.1	64.6	65.2	65.2	66.8	66.1	65.9	66.4	66.4	67.2	66.7	67.9	67.3	67.0	67.6	69.0	69.3

KEY: Btu = British thermal unit; R = revised.

NOTE

Transportation's share of U.S. petroleum demand in this table differs slightly from table 4-1 because this table takes into account differences within sectors in the use of various grades of petroleum-based fuel that have different Btu content per unit volume.

SOURCES

1960-70: U.S. Department of Energy, Energy Information Administration, *Annual Energy Review 1997,* DOE/EIA-0384(97) (Washington, DC: July 1998), tables 2.1, 5.12b, and A3.

1975-2007: Ibid., *Monthly Energy Review*, DOE/EIA-0035(2006/05) (Washington, DC: March 2008), tables 1.3, 2.2, 2.3, 2.4, 2.5, 2.6, and similar tables in earlier editions, Internet site http://www.eia.doe.gov as of Apr. 16, 2008.

Section B
Transportation Energy Consumption by Mode

Table 4-4: U.S. Energy Consumption by the Transportation Sector (Quadrillion Btu)

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Energy consumption (all sectors)	(R)45.09	54.02	(R)67.84	72.00	(R)78.12	(R)76.49	(R)84.65	(R)84.61	(R)85.96	(R)87.60	(R)89.26	(R)91.17	(R)94.17	(R)94.77	(R)95.18	(R)96.82	98.98	(R)96.33	(R)97.86	(R)98.21	(R)100.35	(R)100.51	(R)99.86	101.60
Total transportation consumption[a]	(R)10.60	(R)12.43	(R)16.10	18.24	19.70	(R)20.09	(R)22.42	(R)22.12	(R)22.42	22.77	23.37	23.85	24.44	24.75	25.26	25.95	26.55	(R)26.28	(R) 26.85	(R) 27.00	(R) 27.90	(R) 28.36	(R)28.86	29.10
Transportation as percent of total energy consumption	(R)23.50	(R)23.02	(R)23.73	25.34	25.21	(R)26.26	(R)26.48	(R)26.14	(R)26.08	(R)25.99	(R)26.18	(R)26.16	(R)25.95	(R)26.12	(R)26.54	(R)26.80	26.83	(R)27.28	(R)27.44	(R)27.49	(R)27.80	(R)28.22	(R)28.90	28.64
Total primary consumption[b]	10.56	12.40	(R)16.06	18.21	19.66	(R)20.04	(R)22.37	(R)22.07	(R)22.36	22.72	23.31	23.79	24.38	24.70	25.20	25.89	26.49	(R)26.22	(R)26.79	(R)26.93	(R)27.82	(R)28.28	(R)28.78	(R)29.01
Coal	(R)0.075	(R)0.016	0.007	0.001	[f]	[f]	[f]	[f]	[f]	[f]	[f]	[f]	[f]	[f]	[f]	[f]	[f]	[f]	[f]	[f]	[f]	[f]	[f]	[f]
in million short tons	(R)3.046	(R)0.655	0.298	0.024	[f]	[f]	[f]	[f]	[f]	[f]	[f]	[f]	[f]	[f]	[f]	[f]	[f]	[f]	[f]	[f]	[f]	[f]	[f]	[f]
Natural gas[c]	0.36	0.52	(R)0.745	0.59	0.65	0.52	0.68	0.62	0.61	0.64	0.71	0.72	0.74	0.78	0.67	0.68	0.67	0.66	0.70	0.63	0.60	0.62	(R)0.63	0.67
in trillion cubic feet	0.35	0.50	0.72	0.58	0.63	0.50	0.66	0.60	0.59	0.63	0.69	0.70	0.72	0.76	0.64	0.66	0.65	0.64	0.68	0.61	0.59	0.61	(R)0.61	0.65
Petroleum products[d]	10.13	11.87	15.31	17.61	19.01	19.47	21.62	21.37	21.67	(R)21.98	(R)22.50	(R)22.95	(R)23.56	(R)23.81	(R)24.42	(R)25.10	(R)25.68	(R)25.41	(R)25.91	(R)26.06	(R)26.92	(R)27.31	(R)27.67	27.72
in million barrels	1,880	2,203	2,839	3,267	3,494	3,591	3,974	3,929	3,982	4,060	4,167	4,259	4,363	4,416	4,533	4,659	4,762	4,722	(R)4,821	(R)4,862	(R)5,021	(R)5,094	(R)5,179	5,207
Electricity	0.010	0.010	0.011	0.010	0.011	0.014	0.016	0.016	0.016	0.016	0.017	0.017	0.017	0.017	0.017	0.017	0.018	0.020	0.019	0.023	0.025	0.026	0.025	0.026
Electrical system energy losses[e]	0.026	0.024	0.026	0.024	0.027	0.032	0.037	0.037	0.037	0.037	0.038	0.039	0.038	0.038	0.038	0.040	0.042	0.043	0.042	0.051	0.055	0.056	(R)0.054	0.057

KEY: Btu = British thermal unit; E = estimated; R = revised.

[a] Sum of primary consumption, electricity, and electrical system energy losses categories.

[b] Sum of coal, natural gas, and petroleum categories.

[c] Consumed in the operation of pipelines, primarily in compressors, and small amounts consumed as vehicle fuel.

[d] 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.

[e] Incurred in the generation, transmission, and distribution of electricity plus plant use and unaccounted for electrical system energy losses.

[f] Beginning from 1980, small amounts of coal consumed for transportation are included in industrial sector consumption.

NOTES

Energy consumption (all sectors) differs from totals in table 4-2 for 1990 and subsequent years.

SOURCES

Energy consumption (all sectors), total transportation consumption and total primary consumption:
U.S. Department of Energy, Energy Information Administration, *Annual Energy Review* (Washington DC: Annual issues), table 2.1a, available at http://www.eia.doe.gov as of September 2008.

Coal:

Btu:
U.S. Department of Energy, Energy Information Administration, *Annual Energy Review* (Washington DC: Annual issues), table 2.1e, available at http://www.eia.doe.gov as of September 2008.

Short tons:
U.S. Department of Energy, Energy Information Administration, *Annual Energy Review* (Washington DC: Annual issues), table 7.3, available at http://www.eia.doe.gov as of September 2008.

Natural gas:

Btu:
U.S. Department of Energy, Energy Information Administration, *Annual Energy Review* (Washington DC: Annual issues), table 2.1e, available at http://www.eia.doe.gov as of September 2008.

Cubic feet:
1960-70: Ibid., *Annual Energy Review 2000,* DOE/EIA-0384 (2000) (Washington DC: August 2001) table 6.5.
1975-2007: Ibid., *Monthly Energy Review* (Washington DC: September 2008), table 4.3, available at http://www.eia.doe.gov as of September 2008.

Petroleum products:

Btu:
U.S. Department of Energy, Energy Information Administration, *Annual Energy Review* (Washington DC: Annual issues), table 2.1e, available at http://www.eia.doe.gov as of September 2008.

Barrels:
U.S. Department of Energy, Energy Information Administration, *Annual Energy Review* (Washington DC: Annual issues), table 5.13c, available at http://www.eia.doe.gov as of September 2008.

Electricity and electrical system energy losses:
U.S. Department of Energy, Energy Information Administration, *Annual Energy Review* (Washington DC: Annual issues), table 2.1e, available at http://www.eia.doe.gov as of September 2008.

Table 4-5: Fuel Consumption by Mode of Transportation in Physical Units

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Air																							
Certificated carriers[a]																							
Jet fuel (million gallons)	1,954	3,889	7,857	7,558	8,519	10,115	12,323	11,506	11,763	11,959	12,384	12,672	13,217	13,563	13,335	14,402	14,845	14,017	12,848	12,959	13,623	13,789	13,458
General aviation[b]																							
Aviation gasoline (million gallons)	242	292	551	412	520	421	353	354	314	268	266	287	289	292	311	345	(R) 333	(R) 279	(R) 277	(R) 272	(R) 273	255	262
Jet fuel (million gallons)	N	56	208	453	766	691	663	577	494	454	464	560	608	642	815	967	972	(R) 918	(R) 938	(R) 932	(R) 1,231	1,255	1,289
Highway																							
Gasoline, diesel and other fuels (million gallons)																							
Passenger car and motorcycle	41,171	49,723	67,879	74,253	70,186	71,700	69,759	64,501	65,627	67,246	68,079	68,268	69,419	70,094	71,901	73,495	73,275	73,752	75,662	75,646	(R) 75,604	74,085	U
Other 2-axle 4-tire vehicle	N	e	12,313	19,081	23,796	27,363	35,611	38,217	40,929	42,851	44,112	45,605	47,354	49,388	50,462	52,859	52,939	53,522	55,220	60,758	(R) 63,417	65,419	U
Single-unit 2-axle 6-tire or more truck	N	13,848	3,968	5,420	6,923	7,399	8,357	8,172	8,237	8,488	9,032	9,216	9,409	9,576	6,817	9,372	9,563	9,667	10,321	8,880	(R) 8,959	9,042	U
Combination truck	N	6,658	7,348	9,177	13,037	14,005	16,133	16,809	17,216	17,748	18,653	19,777	20,193	20,302	25,158	24,537	25,666	25,512	26,480	23,815	(R) 24,191	24,411	U
Bus	827	875	820	1,053	1,018	834	895	864	878	929	964	968	990	1,027	1,040	1,148	1,112	1,026	1,000	969	(R) 1,360	1,329	U
Transit[c]																							
Electricity (million kWh)	2,908	2,584	2,561	2,646	2,446	4,216	4,837	4,853	4,716	4,865	5,081	5,068	5,007	4,988	5,073	5,237	5,510	5,610	5,649	5,643	5,825	5,954	U
Motor fuel (million gallons)																							
Diesel	208	248	271	365	431	609	651	665	685	679	678	678	693	717	740	763	786	745	725	713	731	730	U
Gasoline and other nondiesel fuels[d]	192	124	68	8	11	46	34	34	37	46	60	61	61	59	53	49	48	46	57	46	53	58	U
Compressed natural gas	N	N	N	N	N	N	N	N	1	2	5	11	15	24	37	44	55	66	81	100	112	123	U
Rail, Class I (in freight service)																							
Distillate / diesel fuel (million gallons)	3,463	3,592	3,545	3,657	3,904	3,110	3,115	2,906	3,005	3,088	3,334	3,480	3,579	3,575	3,583	3,715	3,700	3,710	3,730	3,826	4,059	4,098	U
Amtrak																							
Electricity (million kWh)	N	N	N	180	254	295	330	303	300	301	309	304	293	282	275	283	350	377	U	U	U	U	U
Distillate / diesel fuel (million gallons)	N	N	N	63	64	65	82	82	82	83	75	66	71	75	75	74	76	75	U	U	U	U	U
Water																							
Residual fuel oil (million gallons)	3,952	3,093	3,774	4,060	8,952	4,590	6,326	6,773	6,563	5,282	5,386	5,886	5,701	5,010	5,620	5,838	6,410	5,409	4,848	3,874	4,690	5,179	U
Distillate / diesel fuel oil (million gallons)	787	652	819	1,098	1,478	1,699	2,065	2,046	2,219	2,155	2,189	2,339	2,491	2,574	2,595	2,419	2,261	2,044	2,079	2,217	2,140	2,006	U
Gasoline (million gallons)	N	N	598	730	1,052	1,053	1,300	1,710	1,316	874	876	1,060	994	987	956	1,098	1,124	994	1,081	1,107	1,005	1,261	U
Pipeline																							
Natural gas (million cubic feet)	347,075	500,524	722,166	582,963	634,622	503,766	659,816	601,305	587,710	624,308	685,362	700,335	711,446	751,470	635,477	645,319	642,210	624,964	666,920	591,492	(R) 566,187	584,779	U

KEY: kWh = kilowatt-hour; N = data do not exist; R = revised; U = data are not available.

[a] Domestic operations only.

[b] Includes fuel used in air taxi operations, but not commuter operations. Data for 1996 are estimated using new information on nonrespondents and are therefore not comparable to earlier years. See the accuracy statement in the appendix for more detailed information.

[c] Prior to 1984, excludes commuter rail, automated guideway, ferryboat, demand responsive vehicles, and most rural and small systems.

[d] Gasoline and all other nondiesel fuels such as liquefied natural gas, methanol, and propane, except compressed natural gas.

[e] Included in single-unit 2-axle 6-tire or more truck category.

SOURCES

Air:

Certificated air carriers:

1960-2006: U.S. Department of Transportation, Bureau of Transportation Statistics, Office of Airline Information,*Fuel Cost and Consumption,* Internet site http://www.bts.gov/programs/airline_information as of Sept. 4, 2007.

General aviation:

1960-70: U.S. Department of Transportation, Federal Aviation Administration,*FAA Statistical Handbook of Aviation - 1972 edition* (Washington, DC: 1973), table 9.12.

1975-93: Ibid., *General Aviation and Air Taxi Activity Survey* (Washington, DC: Annual issues), table 5.1, and similar tables in earlier editions.

1994-2006: Ibid., *FAA Aerospace Forecasts Fiscal Years 2007-2020* (Washington, DC: Dec. 2007), table 34 and similar tables in earlier editions.

Highway:

1960-94: U.S. Department of Transportation, Federal Highway Administration,*Highway Statistics, Summary to 1995,* FHWA-PL-97-009 (Washington, DC: July 1997), table VM-201A. (Revised data obtained from Internet site http://www.fhwa.dot.gov/ohim/ohimstat.htm as of August 2001).

1995-2005: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1.

Transit:

Electricity / motor fuel / compressed natural gas:

1960-2005: American Public Transportation Association,*2007 Public Transportation Fact Book* (Washington, DC: April 2007), tables 26, 27, 28 and similar tables in earlier editions.

Rail:

1960-2005: Association of American Railroads,*Railroad Facts* (Washington, DC: 2005), p. 40.

Amtrak:

1975-2001: Amtrak, Energy Management Department, personal communication.

Water:

Residual and distillate / diesel fuel oil:

1960-80: American Petroleum Institute,*Basic Petroleum Data Book* (Washington, DC: Annual issues), tables 10, 10a, 12, and 12a.

1985-2004: U.S. Department of Energy, Energy Information Administration,*Fuel Oil and Kerosene Sales* (Washington, DC: Annual issues), tables 2, 4, and similar tables in earlier editions.

Gasoline:

1970-2005: U.S. Department of Transportation, Federal Highway Administration,*Highway Statistics* (Washington, DC: Annual issues), table MF-24 and similar tables in earlier editions.

Pipeline:

1960-2005: U.S. Department of Energy,*Natural Gas Annual 2005,* DOE/EIA-0131(04) (Washington, DC: Nov. 2006), table 15 and similar tables in earlier editions.

Table 4-6: Energy Consumption by Mode of Transportation (Trillion Btu)

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Air																					
Certificated carriers[a]																					
Jet fuel	264	525	1,061	1,020	1,150	1,366	1,664	1,553	1,588	1,614	1,672	1,711	1,784	1,831	1,800	1,944	(R) 2,007	(R) 1,872	(R) 1,744	(R) 1,766	(R) 1,902
General aviation[b]																					
Aviation gasoline	29	35	66	50	63	51	42	43	38	32	32	35	35	35	37	42	40	(R)34	33	(R)33	(R)33
Jet fuel	N	8	28	61	103	93	90	78	67	61	63	76	82	87	110	131	131	(R)124	(R)127	(R)126	(R)166
Highway																					
Gasoline, diesel and other fuels																					
Passenger car and motorcycle	5,146	6,215	8,485	9,282	8,773	8,963	8,720	8,063	8,203	8,406	8,510	8,534	8,677	8,762	8,988	9,187	9,159	9,219	9,458	9,456	(R)9,451
Other 2-axle 4-tire vehicle	N	e	1,539	2,385	2,975	3,420	4,451	4,777	5,116	5,356	5,514	5,701	5,919	6,173	6,308	6,607	6,617	6,690	6,903	7,595	(R)7,927
Single-unit 2-axle 6-tire or more truck	N	1,921	550	752	960	1,026	1,159	1,133	1,142	1,177	1,253	1,278	1,305	1,328	946	1,300	1,326	1,341	1,290	1,110	(R)1,120
Combination truck	N	923	1,019	1,273	1,808	1,942	2,238	2,331	2,388	2,462	2,587	2,743	2,801	2,816	3,489	3,403	3,560	3,538	3,673	3,303	(R)3,355
Bus	115	121	114	146	141	116	124	120	122	129	134	134	137	142	144	159	154	142	139	134	(R)189
Transit[c]																					
Electricity	10	9	9	9	8	14	17	17	16	17	17	17	17	17	17	18	19	19	19	19	20
Motor fuel																					
Diesel	29	34	38	51	60	84	90	92	95	94	94	94	96	99	103	106	109	103	100	99	101
Gasoline and other nondiesel fuels[d]	24	16	9	1	1	6	4	4	5	6	8	8	8	7	7	6	6	6	6	6	7
Compressed natural gas	N	N	N	N	N	N	N	N	<1	<1	1	1	2	3	5	6	8	9	11	14	16
Rail, Class I (in freight service)																					
Distillate / diesel fuel	480	498	492	507	541	431	432	403	417	428	462	483	496	496	497	515	513	515	517	531	563
Amtrak																					
Electricity	N	N	N	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	U	U	U
Distillate / diesel fuel	N	N	N	9	9	9	11	11	11	12	10	9	10	10	10	10	11	10	U	U	U
Water																					
Residual fuel oil	592	463	565	608	1,340	687	947	1,014	983	791	806	881	853	750	841	874	960	810	726	580	702
Distillate / diesel fuel oil	109	90	114	152	205	236	286	284	308	299	304	324	345	357	360	336	314	284	288	307	297
Gasoline	N	N	75	91	132	132	163	214	165	109	109	133	124	123	120	137	141	124	135	138	126
Pipeline																					
Natural gas	358	516	745	601	654	519	680	620	606	644	707	722	734	775	655	665	662	644	688	610	(R)584

KEY: Btu = British thermal unit, N = data do not exist, R = revised, U = data are unavailable.

[a] Domestic operations only.

[b] Includes fuel used in air taxi operations, but not commuter operations.

[c] Prior to 1984, excludes commuter rail, automated guideway, ferryboat, demand responsive vehicles, and most rural and smaller systems.

[d] Gasoline and all other nondiesel fuels such as liquefied natural gas, methanol, and propane, except compressed natural gas.

[e] Included in other single-unit 2-axle 6-tire or more truck category.

NOTES

The following conversion rates were used:

Jet fuel = 135,000 Btu/gallon
Compressed natural gas = 138,700 Btu/gallon
Aviation gasoline = 120,200 Btu/gallon
Distillate fuel = 138,700 Btu/gallon
Automotive gasoline = 125,000 Btu/gallon
Residual fuel = 149,700 Btu/gallon
Diesel motor fuel = 138,700 Btu/gallon
Natural gas = 1,031 Btu/ft^3
Electricity 1kWh = 3,412 Btu, negating electrical system losses. To include approximate electrical system losses, multiply this conversion factor by 3.

SOURCES

Air:

Certificated air carriers:

U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, Office of Airline Information, *Fuel Cost and Consumption* , available at http://www.bts.gov/programs/airline_information as of August

General aviation:

1960-70: U.S. Department of Transportation, Federal Aviation Administration, *FAA Statistical Handbook of Aviation - 1972 edition* (Washington, DC: 1973), table 9.12.
1975-93: Ibid., *General Aviation and Air Taxi Activity Survey* (Washington, DC: Annual issues), table 5.1, and similar tables in earlier editions.
1994-2006: Ibid., *FAA Aerospace Forecasts Fiscal Years 2007-2018* (Washington, DC: Dec. 2005), table 34 and similar tables in earlier editions.

Highway:

1960-94: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics, Summary to 1995,* FHWA-PL-97-009 (Washington, DC: July 1997), table VM-201A. (Revised data obtained from Internet site http://www.fhwa.dot.gov/ohim/ohimstat.ht
1995-2006: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1.

Transit:

Electricity / motor fuel / compressed natural gas:

American Public Transportation Association, *Public Transportation Fact Book* (Washington, DC: Annual issues), tables 27, 28, 29 and similar tables in earlier editions.

Rail:

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

Amtrak:

1975-2001: Amtrak, Energy Management Department, personal communication.

Water:

Residual and distillate / diesel fuel oil:

1960-80: American Petroleum Institute, *Basic Petroleum Data Book* (Washington, DC: Annual issues), tables 10, 10a, 12, and 12a.
1985-2006: U.S. Department of Energy, Energy Information Administration, *Fuel Oil and Kerosene Sales* (Washington, DC: Annual issues), tables 2, 4, and similar tables in earlier editions.

Gasoline:

1970-2006: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics* (Washington, DC: Annual issues), table MF-24 and similar tables in earlier editions.

Pipeline:

U.S. Department of Energy, *Natural Gas Annual,* DOE/EIA-0131(04) (Washington, DC: Annual issues), table 15 and similar tables in earlier editions.

Table 4-7: Domestic Demand for Gasoline (Million gallons) by Mode

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
TOTAL demand	60,761	71,187	89,601	102,996	104,838	107,550	113,606	112,222	114,883	116,579	118,717	120,253	122,595	124,235	127,978	131,781	131,891	133,740	137,260	138,608	141,182	139,989	139,783
Highway	55,429	66,979	85,598	99,354	101,183	103,545	109,529	107,913	110,974	113,668	115,682	117,061	119,515	120,938	124,694	128,743	128,884	129,682	132,955	134,091	136,455	135,176	134,836
Nonhighway, total	5,332	4,208	4,003	3,642	3,655	4,005	4,076	4,309	3,908	2,911	3,035	3,192	3,081	3,297	3,284	3,038	3,007	4,058	4,305	4,517	4,727	4,813	4,947
Agriculture	2,292	1,963	1,932	1,565	1,059	1,081	681	779	806	846	912	927	918	984	907	703	652	802	832	853	1,094	1,078	1,229
Aviation[a]	1,324	501	393	410	413	382	361	339	344	340	364	367	344	335	351	322	296	356	342	305	310	334	346
Marine	61	96	598	730	1,052	1,053	1,300	1,710	1,319	874	897	1,060	994	987	956	1,098	1,124	994	1,081	1,107	1,005	1,261	1,237
Other[b]	1,656	1,647	1,080	938	1,131	1,490	1,733	1,482	1,439	850	862	838	825	990	1,070	915	934	1,907	2,051	2,252	2,317	2,140	2,033

[a] Does not include aviation jet fuel.

[b] Includes state, county, and municipal use, industrial and commercial use, construction use, and miscellaneous.

NOTES

All nonhighway uses of gasoline were estimated by the U.S. Department of Transportation, Federal Highway Administration.
These estimates may not be comparable to data for prior years due to revised estimation procedures.
Numbers may not add to totals due to rounding.

SOURCES

Highway:

1960-95: U.S. Department of Transportation, Federal Highway Administration,*Highway Statistics* , *Summary to 1995* (Washington, DC: 1996), table MF-221.
1996-2006: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table MF-21, Internet site www.fhwa.dot.gov/policy/ohpi as of Jan. 30, 2008.

Nonhighway:

1960-2006: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table MF-24, Internet site www.fhwa.dot.gov/policy/ohpi as of Jan 30, 2008 and unpublished revisions.

Table 4-8: Certificated Air Carrier Fuel Consumption and Travel[a]

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Number of aircraft	2,135	2,125	2,679	2,495	3,808	4,678	6,083	6,054	7,320	7,297	7,370	7,411	7,478	7,616	8,111	8,228	8,055	8,497	8,194	8,176	8,186	8,225	U	U
Average miles flown per aircraft (thousands)	487	667	949	932	768	740	776	770	669	701	727	759	783	791	768	797	862	802	835	899	969	1,003	U	U
Aircraft-miles (millions)																								
Domestic operations	858	1,134	2,068	1,948	2,523	3,046	3,963	3,854	3,995	4,157	4,380	4,629	4,811	4,911	5,035	5,332	5,664	5,548	5,616	6,085	6,552	6,714	(R) 6,625	6,726
International operations	182	284	475	377	401	415	760	807	904	961	980	998	1,043	1,114	1,192	1,225	1,282	1,266	1,225	1,262	1,384	1,536	(R) 1,589	1,681
Fuel consumption (million gallons)																								
Domestic operations	1,954	3,889	7,857	7,558	8,519	10,115	12,323	11,506	11,763	11,959	12,384	12,672	13,217	13,563	13,335	14,402	(R) 14,865	(R) 13,868	(R) 12,926	(R) 13,082	(R) 14,091	(R) 13,962	(R) 13,582	13,556
International operations	566	1,280	2,243	1,949	1,747	2,488	3,909	3,940	4,120	4,113	4,279	4,443	4,618	4,915	4,923	5,250	(R) 5,508	(R) 5,336	(R) 5,075	(R) 5,219	(R) 5,592	(R) 5,974	(R) 6,018	6,204
Aircraft-miles flown per gallon																								
Domestic operations	0.44	0.29	0.26	0.26	0.30	0.30	0.32	0.33	0.34	0.35	0.35	0.37	0.36	0.36	0.38	0.37	(R) 0.38	(R) 0.40	(R) 0.43	(R) 0.47	(R) 0.46	(R) 0.48	(R) 0.49	0.50
International operations	0.32	0.22	0.21	0.19	0.23	0.17	0.19	0.20	0.22	0.23	0.23	0.22	0.23	0.23	0.24	0.23	(R) 0.23	(R) 0.24	(R) 0.24	(R) 0.24	(R) 0.25	(R) 0.26	(R) 0.26	0.27

KEY: R = revised; U = data are unavailable

[a] Aircraft operating under 14 CFR 121 and 14 CFR 135.

SOURCES

Number of aircraft:

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

1970-75: Ibid., *FAA Statistical Handbook of Aviation, Calendar Year 1979* (Washington, DC: 1979), table 5.1.

1980-85: Ibid., *FAA Statistical Handbook of Aviation, Calendar Year 1986* (Washington, DC: 1986), table 5.1.

1990-97: Ibid., *FAA Statistical Handbook of Aviation, Calendar Year 1997* (Washington, DC: unpublished), personal communication, Mar. 19, 1999.

1998-2005: Aerospace Industries Association, *Aerospace Facts and Figures* (Washington DC: Annual Issues), "Active U.S. Air Carrier Fleet", p. 90 and similar pages in earlier editions.

Aircraft-miles flown:

1960: Civil Aeronautics Board, *Handbook of Airline Statistics 1969* (Washington, DC: 1970), part III, tables 2 and 13.

1965-70: Ibid., *Handbook of Airline Statistics 1973* (Washington, DC: 1974), part III, tables 2 and 13.

1975-80: Ibid., *Air Carrier Traffic Statistics* (Washington, DC: December 1976), pp. 4 and 14; and (December 1981), pp. 2 and 3.

1985-2001: U.S. Department of Transportation, Bureau of Transportation Statistics, Office of Airline Information, *Air Carrier Traffic Statistics* (Washington, DC: Annual issues, December), pp. 2 and 3, line 27 plus line 50.

2002-07: U.S. Department of Transportation, Bureau of Transportation Statistics, Office of Airline Information, *Air Carrier Traffic Statistics* (Washington, DC: Annual issues, January), pp. 3 and 4, line 25 plus line 46.

Fuel consumption:

1960-70: U.S. Department of Transportation, Bureau of Transportation Statistics, Office of Airline Information, Internet site http://www.bts.gov/programs/oai/fuel/fuelyearly.html as of June 25, 2004.

1980-2007: Ibid., Internet site http://www.bts.gov/xml/fuel/report/src/index.xml as of Jun. 26, 2008.

Table 4-9: Motor Vehicle Fuel Consumption and Travel

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Vehicles registered (thousands)[a]	73,858	90,358	111,242	137,913	161,490	177,133	193,057	192,314	194,427	198,041	201,802	205,427	210,441	211,580	215,496	220,461	225,821	235,331	234,624	236,760	237,243	(R) 247,421	250,852
Vehicle-miles traveled (millions)	718,762	887,812	1,109,724	1,327,664	1,527,295	1,774,826	2,144,362	2,172,050	2,247,151	2,296,378	2,357,588	2,422,696	2,485,848	2,561,695	2,631,522	2,691,056	2,746,925	2,797,287	2,855,508	2,890,450	2,964,788	(R) 2,989,430	3,014,116
Fuel consumed (million gallons)	57,880	71,104	92,329	108,984	114,960	121,301	130,755	128,563	132,888	137,262	140,839	143,834	147,365	150,386	155,379	161,411	162,554	163,478	168,682	170,069	178,536	(R) 174,787	174,930
Average miles traveled per vehicle (thousands)	9.7	9.8	10.0	9.6	9.5	10.0	11.1	11.3	11.6	11.6	11.7	11.8	11.8	12.1	12.2	12.2	12.2	11.9	12.2	12.2	12.5	(R) 12.1	12.0
Average miles traveled per gallon	12.4	12.5	12.0	12.2	13.3	14.6	16.4	16.9	16.9	16.7	16.7	16.8	16.9	17.0	16.9	16.7	16.9	17.1	16.9	17.0	16.6	(R) 17.1	17.2
Average fuel consumed per vehicle (gallons)	784	787	830	790	712	685	677	669	683	693	698	700	700	711	721	732	720	695	719	718	753	(R) 706	697

KEY: R = revised.

[a] Includes personal passenger vehicles, buses, and trucks.

NOTE
See tables 4-11, 4-12, 4-13, 4-14, and 4-15 for individual highway vehicles.

SOURCES
1960-94: U.S. Department of Transportation, Federal Highway Administration,*Highway Statistics Summary to 1995*, FHWA-PL-97-009 (Washington, DC: July 1997), table VM-201A.
1995-2006: Ibid., *Highway Statistics* (Washington, DC: Annual issues), tables MF-21, MV-1, and VM-1.

Table 4-10: Estimated Consumption of Alternative and Replacement Fuels for Highway Vehicles (Thousand gasoline-equivalent gallons)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
TOTAL fuel consumption[a]	134,230,631	135,912,964	140,718,522	144,774,683	148,180,046	151,597,859	156,838,150	161,210,087	163,032,407	165,201,691	169,983,219	(R) 177,697,941	(R) 180,698,532	(R) 182,185,778	184,810,803
Alternative fuels, total	229,631	293,334	281,152	276,643	295,616	312,589	323,790	302,287	322,037	348,421	378,589	(R) 402,941	(R) 428,532	(R) 420,778	417,803
Liquefied petroleum gases	208,142	264,655	248,467	232,701	239,158	238,356	241,386	209,817	212,576	215,876	223,143	224,697	211,883	188,171	173,130
Compressed natural gas	16,823	21,603	24,160	35,162	46,923	65,192	72,412	79,620	86,475	104,496	120,670	133,222	158,903	166,878	172,011
Liquefied natural gas	585	1,901	2,345	2,759	3,247	3,714	5,343	5,828	7,259	8,921	9,382	13,503	20,888	22,409	23,474
Methanol, 85%[b]	1,069	1,593	2,340	2,023	1,775	1,554	1,212	1,073	585	439	337	N	N	N	N
Methanol, neat	2,547	3,166	3,190	2,150	347	347	449	447	0	0	0	0	0	N	N
Ethanol, 85%[b]	21	48	80	190	694	1,280	1,727	3,916	12,071	14,623	17,783	26,376	31,581	38,074	44,041
Ethanol, 95%[b]	85	80	140	995	2,699	1,136	59	62	13	0	0	0	0	0	N
Electricity[c]	359	288	430	663	773	1,010	1,202	1,524	3,058	4,066	7,274	5,141	5,269	5,219	5,104
Hydrogen	N	N	N	N	N	N	N	N	N	N	N	2	8	25	41
Other Fuels	N	N	N	N	N	N	N	N	N	N	N	0	0	2	2
Biodiesel	N	N	N	N	N	N	N	N	6,816	7,076	16,917	(R) 18,220	(R) 28,244	(R) 91,649	260,606
Oxygenates															
Methyl-tertiary-butyl-ether[d]	1,175,000	2,069,200	2,018,800	2,691,200	2,749,700	3,104,200	2,903,400	3,402,600	3,296,100	3,352,200	2,383,000	2,368,400	1,877,300	1,654,500	435,000
Ethanol in gasohol	701,000	760,000	845,900	910,700	660,200	830,700	889,500	950,300	1,085,800	1,143,300	1,413,600	1,919,572	2,414,167	2,756,663	3,729,168
Traditional fuels, total	134,001,000	135,619,630	140,437,370	144,498,040	147,884,430	151,285,270	156,514,360	160,907,800	162,710,370	164,853,270	169,604,630	177,295,000	180,270,000	181,765,000	184,393,000
Gasoline[e]	110,135,000	111,323,000	113,144,000	115,943,000	117,783,000	119,336,000	122,849,000	125,111,000	125,720,000	127,768,000	131,299,000	135,330,000	138,283,000	138,723,000	140,146,000
Diesel[f]	23,866,000	24,296,630	27,293,370	28,555,040	30,101,430	31,949,270	33,665,360	35,796,800	36,990,370	37,085,270	38,305,630	41,965,000	41,987,000	43,042,000	44,247,000

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

[a] Total fuel consumption is the sum of alternative fuels, gasoline, and diesel. Oxygenate consumption is included in gasoline consumption.

[b] The remaining portion of 85% methanol, 85% ethanol, and 95% ethanol fuels is gasoline. Consumption data include the gasoline portion of the fuel.

[c] Excludes gasoline-electric hybrids.

[d] Includes a very small amount of other ethers, primarily tertiary-amyl-methyl-ether and ethyl-tertiary-butyl-ether.

[e] Gasoline consumption includes ethanol in gasohol and methyl-tertiary-butyl-ether.

[f] Diesel includes biodiesel

NOTES

Numbers may not add to totals due to rounding.

Beginning with 2003 data, the methodology used to develop the estimates of alternative fueled vehicles (AFVs) in use and alternate transportation fuel consumption were changed. The data reflect this new methodology.

SOURCE

U.S. Department of Energy, Energy Information Administration, *Alternatives to Traditional Transportation Fuels 2006* , available at http://www.eia.doe.gov/cneaf/alternate/page/atftables/afvtransfuel_II.html, table C-1 as of December 2008.

Table 4-11: Passenger Car and Motorcycle Fuel Consumption and Travel

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Vehicles registered (thousands)																							
Passenger cars	61,671	75,258	89,244	106,706	121,601	127,885	133,700	128,300	126,581	127,327	127,883	128,387	129,728	129,749	131,839	132,432	133,621	137,633	135,921	135,670	136,431	136,568	135,400
Motorcycles	574	1,382	2,824	4,964	5,694	5,444	4,259	4,177	4,065	3,978	3,757	3,897	3,872	3,826	3,879	4,152	4,346	4,903	5,004	5,370	5,768	6,227	6,686
Vehicle-miles traveled (millions)																							
Passenger cars	587,000	723,000	917,000	1,034,000	1,112,000	1,247,000	1,408,000	1,358,000	1,372,000	1,375,000	1,406,000	1,438,000	1,469,854	1,502,556	1,549,577	1,569,100	1,600,287	1,628,332	1,658,474	1,672,079	1,699,890	(R) 1,708,421	1,682,671
Motorcycles	[a]	[a]	3,000	5,600	10,200	9,100	9,600	9,200	9,600	9,900	10,200	9,800	9,920	10,081	10,283	10,584	10,469	9,639	9,552	9,577	10,122	(R) 10,454	12,401
Fuel consumed (million gallons)																							
Passenger cars	41,171	49,723	67,819	74,140	69,982	71,518	69,568	64,317	65,436	67,048	67,874	68,072	69,221	69,892	71,695	73,283	73,065	73,559	75,471	75,455	75,402	(R) 77,418	74,983
Motorcycles	[a]	[a]	60	113	204	182	191	184	191	198	205	196	198	202	206	212	209	193	191	192	202	(R) 189	221
Average miles traveled per vehicle (thousands)																							
Passenger cars	9.5	9.6	10.3	9.7	9.1	9.8	10.5	10.6	10.8	10.8	11.0	11.2	11.3	11.6	11.8	11.8	12.0	12	12.2	12.3	12.5	(R) 12.5	12.4
Motorcycles	[a]	[a]	1.1	1.1	1.8	1.7	2.3	2.2	2.4	2.5	2.7	2.5	2.6	2.6	2.7	2.5	2.4	2	1.9	1.8	1.8	(R) 1.7	1.9
Average miles traveled per gallon																							
Passenger cars	14.3	14.5	13.5	13.9	15.9	17.4	20.2	21.1	21.0	20.5	20.7	21.1	21.2	21.5	21.6	21.4	21.9	22.1	22.0	22.2	23	(R) 22.1	22.4
Motorcycles	[a]	[a]	50.0	49.6	50.0	50.0	50.3	50.0	50.3	50.0	49.8	50.0	50.0	50.0	50.0	50.0	50.0	49.9	50.0	50.0	50	(R) 55.2	56.1
Average fuel consumed per vehicle (gallons)																							
Passenger cars	668	661	760	695	576	559	520	501	517	527	531	530	534	539	544	553	547	534	555	556	553	(R) 567	554
Motorcycles	[a]	[a]	21	23	36	33	45	44	47	50	55	50	51	53	53	51	48	39	38	36	35	(R) 30	33

KEY: R = revised.

[a] Included in passenger car.

NOTES

See table 4-12 for other 2-axle 4-tire vehicles.

Average miles traveled per vehicle, average miles traveled per gallon, average fuel consumed per vehicle are derived by calculation.

SOURCES

Passenger car:

Number registered:

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

1995-2005: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1.

All other categories:

1960-94: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1995,* FHWA-PL-97-009 (Washington, DC: July 1997), table VM-201A. For 1970-94, the unrevised motorcycle vehicle-miles and fuel consumed are subtracted from the combined passenger car and motorcycle vehicle-miles and fuel consumed from VM-201A.

1995-2006: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1.

Motorcycle:

Number registered:

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

1995-2005: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1.

All other categories:

1970-85: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1985,* table VM-201A.

1990-2006: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1.

Table 4-12: Other 2-Axle 4-Tire Vehicle Fuel Consumption and Travel

	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2,004	2005	2006
Number registered (thousands)	14,211	20,418	27,876	37,214	48,275	53,033	57,091	59,994	62,904	65,738	69,134	70,224	71,330	75,356	79,085	84,188	85,011	87,187	91,845	95,337	99,125
Vehicle-miles traveled (millions)	123,000	201,000	291,000	391,000	575,000	649,000	707,000	746,000	765,000	790,000	816,540	850,739	868,275	901,022	923,059	943,207	966,034	984,094	1,027,164	(R) 1,041,051	1,089,013
Fuel consumed (million gallons)	12,313	19,081	23,796	27,363	35,611	38,217	40,929	42,851	44,112	45,605	47,354	49,388	50,462	52,859	52,939	53,522	55,220	60,758	63,417	(R) 58,869	60,662
Average miles traveled per vehicle (thousands)	8.7	9.8	10.4	10.5	11.9	12.2	12.4	12.4	12.2	12.0	11.8	12.1	12.2	12.0	11.7	11.2	11.4	11.3	11.2	(R) 10.9	11.0
Average miles traveled per gallon	10.0	10.5	12.2	14.3	16.1	17.0	17.3	17.4	17.3	17.3	17.2	17.2	17.2	17.0	17.4	17.6	17.5	16.2	16.2	(R) 17.7	18.0
Average fuel consumed per vehicle (gallons)	866	935	854	735	738	721	717	714	701	694	685	703	707	701	669	636	650	697	690	(R) 617	612

KEY: R = revised.

NOTE

Nearly all vehicles in this category are light trucks, which include vans, pickup trucks, and sport utility vehicles. In 1995, the U.S. Department of Transportation, Federal Highway Administration revised its vehicle categories beginning with 1993 data. They are passenger car, other 2-axle 4-tire vehicle, single-unit 2-axle 6-tire or more truck, and combination truck. Prior to 1993, some minivans and sport utility vehicles were included under the passenger car category.

SOURCES

1970-94: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1995,* FHWA-PL-97-009 (Washington, DC: July 1997), table VM-201A.
1995-2006: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1.

Table 4-13: Single-Unit 2-Axle 6-Tire or More Truck Fuel Consumption and Travel[a]

	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Number registered (thousands)	3,681	4,232	4,374	4,593	4,487	4,481	4,370	4,408	4,906	5,024	5,266	5,293	5,735	5,763	5,926	5,704	5,651	5,849	6,161	6,395	6,649
Vehicle-miles (millions)	27,100	34,600	39,800	45,400	51,900	52,900	53,900	56,800	61,300	62,705	64,072	66,893	68,021	70,304	70,500	72,448	75,866	77,757	78,441	(R) 78,496	80,331
Fuel consumed (million gallons)	3,968	5,420	6,923	7,399	8,357	8,172	8,237	8,488	9,032	9,216	9,409	9,576	6,817	9,372	9,563	9,667	10,321	8,880	8,959	(R) 9,501	9,843
Average miles traveled per vehicle (thousands)	7.4	8.2	9.1	9.9	11.6	11.8	12.3	12.9	12.5	12.5	12.2	12.6	11.9	12.2	11.9	12.7	13.4	13.3	12.7	(R) 12.3	12.1
Average miles traveled per gallon	6.8	6.4	5.7	6.1	6.2	6.5	6.5	6.7	6.8	6.8	6.8	7.0	10.0	7.5	7.4	7.5	7.4	8.8	8.8	(R) 8.3	8.2
Average fuel consumed per vehicle (gallons)	1,078	1,281	1,583	1,611	1,862	1,824	1,885	1,926	1,841	1,835	1,787	1,809	1,189	1,626	1,614	1,695	1,826	1,518	1,454	(R) 1,486	1,480

KEY: R = revised.

[a] Beginning in 1998, the Federal Highway Administration (FHWA) used the Census Bureau's *1997 Vehicle Inventory and Use Survey* (VIUS) for its baseline estimate of single-unit 2-axle 6-tire or more trucks. Prior to 1998, the FHWA used the Census Bureau's *1992 Transportation Inventory and Use Survey* (TIUS) for its baseline estimates. Therefore, post-1997 data may not be comparable to 1997 and earlier years.

NOTES

In 1995, the U.S. Department of Transportation, Federal Highway Administration revised its vehicle categories beginning with 1993 data to include passenger cars, other 2-axle 4-tire vehicles, single-unit 2-axle 6-tire or more trucks, and combination trucks. Single-unit 2-axle 6-tire or more trucks are on a single frame with at least 2 axles and 6 tires. Pre-1993 data have been reassigned to the most appropriate category.

SOURCES

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

1995-2006: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1.

Table 4-14: Combination Truck Fuel Consumption and Travel[a]

	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Number registered (thousands)	787	905	1,131	1,417	1,403	1,709	1,691	1,675	1,680	1,682	1,696	1,747	1,790	1,997	2,029	2,097	2,154	2,277	1,908	2,010	2,087	2,170
Vehicle-miles traveled (millions)	31,700	35,100	46,700	68,700	78,100	94,300	96,600	99,500	103,100	108,900	115,500	118,899	124,584	128,359	132,384	135,020	136,584	138,737	140,160	142,370	(R) 144,028	142,706
Fuel consumed (million gallons)	6,658	7,348	9,177	13,037	14,005	16,133	16,809	17,216	17,748	18,653	19,777	20,193	20,302	25,158	24,537	25,666	25,512	26,480	23,815	24,191	(R) 27,689	28,075
Average miles traveled per vehicle (thousands)	40.3	38.8	41.3	48.5	55.7	55.2	57.1	59.4	61.4	64.8	68.1	68.1	69.6	64.3	65.3	64.4	63.4	60.9	73.4	70.8	(R) 69.0	65.8
Average miles traveled per gallon	4.8	4.8	5.1	5.3	5.6	5.8	5.7	5.8	5.8	5.8	5.8	5.9	6.1	5.1	5.4	5.3	5.4	5.2	5.9	5.9	(R) 5.2	5.1
Average fuel consumed per vehicle (gallons)	8,465	8,119	8,116	9,201	9,980	9,441	9,938	10,276	10,562	11,093	11,663	11,561	11,342	12,596	12,096	12,241	11,843	11,631	12,479	12,033.3	(R) 13,269	12,940

KEY: R = revised.

[a] Beginning in 1998, the Federal Highway Administration (FHWA) used the Census Bureau's *1997 Vehicle Inventory and Use Survey* (VIUS) for its baseline estimate of combination trucks. Prior to 1998, the FHWA used the Census Bureau's *1992 Transportation Inventory and Use Survey* (TIUS) for its baseline estimates. Therefore, post-1997 data may not be comparable to 1997 and earlier years.

SOURCES

1965-94: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1995,* FHWA-PL-97-009 (Washington, DC: July 1997), table VM-201A.

1995-2006: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1.

Table 4-15: Bus Fuel Consumption and Travel

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Number registered (thousands)	272	314	378	462	529	593	627	631	645	654	670	686	695	698	716	729	746	750	761	777	795	807	822
Vehicle-miles traveled (millions)	4,300	4,700	4,500	6,100	6,100	4,500	5,700	5,800	5,800	6,100	6,400	6,400	6,563	6,842	7,007	7,662	7,590	7,077	6,845	6,783	6,801	(R) 6,980	6,994
Fuel consumed (million gallons)	827	875	820	1,053	1,018	834	895	864	878	929	964	968	990	1,027	1,040	1,148	1,112	1,026	1,000	969	1,360	(R) 1,120	1,147
Average miles traveled per vehicle (thousands)	15.8	15.0	11.9	13.2	11.5	7.6	9.1	9.2	9.0	9.3	9.5	9.3	9.4	9.8	9.8	10.5	10.2	9.4	9.0	8.7	8.6	(R) 8.6	8.5
Average miles traveled per gallon	5.2	5.4	5.5	5.8	6.0	5.4	6.4	6.7	6.6	6.6	6.6	6.6	6.6	6.7	6.7	6.7	6.8	6.9	6.8	7.0	5.0	(R) 6.2	6.1
Average fuel consumed per vehicle (gallons)	3,039	2,784	2,172	2,278	1,925	1,405	1,427	1,369	1,362	1,420	1,438	1,412	1,425	1,472	1,454	1,576	1,490	1,369	1,314	1,248	1,710	(R) 1,388	1,396

KEY: R = revised.

NOTE

Includes both publicly and privately owned school, transit, and other commercial buses.

SOURCES

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

1995-2006: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1.

Table 4-16: Transit Industry Electric Power and Primary Energy Consumption[a] and Travel

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Number of vehicles (thousands)	65	62	61	62	75	94	93	97	103	108	116	116	123	126	124	129	131	135	135	138	144	(R) 151	(P) 155
Vehicle-miles traveled (millions)	2,143	2,008	1,883	2,176	2,287	2,791	3,242	3,306	3,355	3,435	3,468	3,550	3,650	3,746	3,794	3,972	4,081	4,196	4,277	4,363	4,471	4,601	4,684
Electric power consumed (million kWh)	2,908	2,584	2,561	2,646	2,446	4,216	4,837	4,853	4,716	4,865	5,081	5,068	5,007	4,988	5,073	5,237	5,510	5,610	5,649	5,643	5,825	5,954	5,952
Primary energy consumed (thousand gallons)																							
Diesel	208,100	248,400	270,600	365,060	431,400	608,738	651,030	665,158	684,944	678,511	678,226	678,286	692,714	716,952	739,621	763,369	786,025	744,663	724,535	712,747	730,706	729,918	735,100
Gasoline and other nondiesel fuels[b]	191,900	124,200	68,200	7,576	11,400	45,704	33,906	34,467	37,179	45,672	60,003	60,730	61,213	59,463	52,615	48,694	48,284	45,873	51,150	46,294	52,907	58,120	75,000
Compressed natural gas	N	N	N	N	N	N	N	N	1,009	1,579	4,835	10,740	15,092	23,906	37,268	44,398	54,794	66,215	81,051	100,071	111,810	123,053	146,600

KEY: kWh = kilowatt hour; N = data do not exist; R = revised; P = preliminary.

[a] Prior to 1984, the data in this table include the energy consumption of bus, heavy rail, light rail and trolley bus. Commuter rail, automated guideway, urban ferryboat, demand responsive vehicles, and most rural and smaller systems are excluded from the data during this period.

[b] Other nondiesel fuels includes consumption of propane (liquid petroleum gas) for years prior to 1984. For 1984 and after, other nondiesel fuels includes propane (liquid petroleum gas), liquefied natural gas, and other (bio/soy fuel, biodiesel, hydrogen, methanol, ethanol and various blends). Therefore, the data prior to 1984 are not comparable to the data for 1984 and after.

SOURCE

American Public Transportation Association, *2008 Public Transportation Fact Book* (Washington, DC: Annual issues), tables 10, 15, 27, 28, 29 and similar tables in earlier editions, available at http://www.apta.com/ as of December 2008.

Table 4-17: Class I Rail Freight Fuel Consumption and Travel

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Number in use																							
Locomotives[a]	29,031	27,780	27,077	27,846	28,094	22,548	18,835	18,344	18,004	18,161	18,505	18,812	19,269	19,684	20,261	20,256	20,028	19,745	20,506	20,774	22,015	22,779	23,732
Cars[b]	1,965,486	1,800,662	1,784,181	1,723,605	1,710,827	1,421,686	1,212,261	1,189,660	1,173,136	1,173,132	1,192,412	1,218,927	1,240,573	1,270,419	1,315,667	1,368,836	1,380,796	1,314,136	1,299,670	1,278,980	1,287,920	1,312,245	1,346,507
Miles traveled (millions)																							
Freight train-miles[c]	404	421	427	403	428	347	380	375	390	405	441	458	469	475	475	490	504	500	500	516	535	548	563
Locomotive unit-miles	N	N	N	1,479	1,531	1,228	1,280	1,238	1,278	1,320	1,405	1,445	1,465	1,423	1,440	1,504	1,503	1,478	1,444	(R) 1,484	1,538	(R) 1,588	1,660
Car-miles	28,170	29,336	29,890	27,656	29,277	24,920	26,159	25,628	26,128	26,883	28,485	30,383	31,715	31,660	32,657	33,851	34,590	34,243	34,680	35,555	37,071	37,712	38,955
Average miles traveled per vehicle (thousands)																							
Locomotives	N	N	N	53.1	54.5	54.5	68.0	67.5	71.0	72.7	75.9	76.8	76.0	72.3	71.1	74.2	75.0	74.8	70.4	71.4	69.9	(R) 69.7	69.9
Cars	14.3	16.3	16.8	16.0	17.1	17.5	21.6	21.5	22.3	22.9	23.9	24.9	25.6	24.9	24.8	24.7	25.1	26.1	26.7	27.8	28.8	28.7	28.9
Average miles traveled per gallon																							
Trains	0.12	0.12	0.12	0.11	0.11	0.11	0.12	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.14	0.13	0.13	0.13	0.13	0.13	0.13
Cars	8.13	8.17	8.43	7.56	7.50	8.01	8.40	8.82	8.69	8.71	8.54	8.73	8.86	8.86	9.11	9.11	9.35	9.23	9.30	9.29	9.13	9.20	9.29
Fuel consumed (million gallons)	3,463	3,592	3,545	3,657	3,904	3,110	3,115	2,906	3,005	3,088	3,334	3,480	3,579	3,575	3,583	3,715	3,700	3,710	3,730	3,826	4,059	4,098	4,192
Average fuel consumed per locomotive[a] (thousand gallons)	119.3	129.3	130.9	131.3	139.0	137.9	165.4	158.4	166.9	170.0	180.2	185.0	185.7	181.6	176.8	183.4	184.7	187.9	181.9	184.2	184.4	179.9	176.6

KEY: N = data do not exist.

[a] For 1960-80, the total includes a small number of steam and electric units, which are not included in the per locomotive fuel consumption figure.
[b] Includes cars owned by Class I railroads, other railroads, car companies, and shippers.
[c] Based on the distance run between terminals and / or stations; does not include yard or passenger train-miles.

SOURCES
All data except for locomotive unit-miles:
Association of American Railroads, *Railroad Facts 2007* (Washington, DC: 2007), pp. 33, 34, 40, 49, and 51, and similar tables in earlier editions.
Locomotive unit-miles:
1975-92, 2002: Ibid., *Railroad Ten-Year Trends* (Washington, DC: Annual issues).
1993-2001, 2003-04: Ibid., *Analysis of Class I Railroads* (Washington, DC: Annual issues).
2005: Association of American Railroads, personal communication, June 13, 2007.
2006: Association of American Railroads, personal communication, Apr. 24, 2008.

Table 4-18: Amtrak Fuel Consumption and Travel

	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Number in use																			
Locomotives	355	419	291	318	316	336	360	338	313	299	332	345	329	378	401	372	442	276	258
Cars	1,913	2,128	1,854	1,863	1,786	1,796	1,853	1,852	1,722	1,730	1,728	1,962	1,992	1,894	2,084	2,896	1,623	1,211	1186
Miles traveled (millions)																			
Train-miles	30	30	30	33	34	34	35	34	32	30	32	33	34	35	36	38	37	37	36
Car-miles	253	235	251	301	313	307	303	304	292	276	288	312	342	368	378	379	332	308	265
Locomotive fuel consumed																			
Electric (million of kWh hours)	180	254	295	330	303	300	301	309	304	293	282	275	283	350	U	U	U	U	U
Diesel (million gallons)	63	64	65	82	82	82	83	75	66	71	75	75	74	76	U	U	U	U	U
Average miles traveled per car	132,000	110,000	135,000	162,000	175,000	171,000	164,000	164,000	170,000	160,000	167,000	159,000	172,000	194,000	181,000	131,000	204,000	255,000	223,000

KEY: kWh = kilowatt hour; U = data are not available.

SOURCES

Number of locomotives and cars:

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

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

2001–05: Association of American Railroads, *Railroad Facts 2006* (Washington, DC: 2006), p. 77 and similar pages in earlier editions.

Miles traveled:

Train-miles:

1975–2002: Amtrak, *Amtrak Annual Report,* Statistical Appendix (Washington, DC: Annual issues).

2003–05: Association of American Railroads, *Railroad Facts 2006* (Washington, DC: 2006), p. 77 and similar pages in earlier editions.

Car-miles:

1975: Association of American Railroads, *Yearbook of Railroad Facts 1975* (Washington, DC: 1976), p. 40.

1980–85: Amtrak, State and Local Affairs Department and Public Affairs Department, personal communication.

1990–2000: Ibid., Amtrak Corporate Reporting, Route Profitability System, personal communication, Aug. 22, 2001.

2001–05: Association of American Railroads, *Railroad Facts 2006* (Washington, DC: 2006), p. 77 and similar pages in earlier editions.

Locomotive fuel consumed:

1975–2000: Amtrak, State and Local Affairs Department, personal communication.

Table 4-19: U.S. Government Energy Consumption by Agency and Source (Trillion Btu)

	Petroleum								
	Motor gasoline	Fuel oil	Jet fuel and aviation gas	Other[c]	Total	Electricity	Natural gas	Coal and other[d]	Total
FY 1997, total	26.7	162.4	513.2	21.6	724.0	182.9	157.1	42.2	1,106.1
Agriculture	4.3	0.4	0.1	0.2	5.0	2.0	1.5	0.3	8.9
Defense	3.3	148.9	504.8	0.3	670.4	101.3	97.9	30.0	899.6
Energy	1.0	1.7	0.3	13.3	3.4	17.5	16.6	6.9	44.4
GSA	0.1	0.2	0.0	0.0	0.3	9.2	3.4	1.5	14.3
Health and Human Services	0.0	1.6	0.1	0.1	1.7	2.5	2.4	0.0	6.6
Interior	0.8	0.7	0.0	0.6	1.7	1.4	1.3	0.1	5.0
Justice	2.7	0.5	1.3	0.0	4.0	3.5	4.3	0.3	12.1
NASA	0.1	0.5	1.0	0.0	1.6	6.8	3.0	0.2	11.8
Postal Service	12.3	2.8	0.0	0.0	16.0	15.2	7.4	0.5	38.2
Transportation	0.5	1.0	4.8	6.9	13.2	5.0	1.4	0.1	19.7
Veterans Affairs	0.6	1.3	0.0	0.0	1.9	9.1	14.2	1.5	26.8
Other[a]	1.1	2.9	0.9	0.1	5.0	9.4	3.6	0.7	18.7
FY 2006, total	(R) 47.8	207.8	(R) 443.2	4.7	(R) 703.5	(R) 194.9	(R) 132.0	(R) 41.2	(R) 1,071.5
Agriculture	2.2	0.4	0.0	0.2	2.9	2.0	1.7	(R) 0.3	6.8
Defense	17.3	191.3	(R) 436.4	2.2	647.2	101.7	68.6	(R) 26.2	843.7
Energy	0.8	(R) 1.5	0.1	0.2	(R) 2.6	(R) 16.7	(R) 6.0	(R) 7.6	(R) 32.9
GSA	0.0	0.1	0.0	0.0	0.2	9.9	6.4	(R) 1.7	(R) 18.2
Health and Human Services	0.3	0.4	0.0	0.1	0.8	2.9	5.1	(R) 0.4	9.3
Interior	2.1	1.2	0.1	1.0	4.4	2.3	1.3	(R) 0.1	8.1
Justice	4.7	1.0	0.2	0.1	5.9	6.1	10.7	(R) 0.8	23.5
NASA	(R) 0.1	0.4	(R) 0.7	0.1	(R) 1.3	(R) 5.4	(R) 2.9	(R) 0.6	(R) 10.2
Postal Service	13.4	(R) 2.8	0.0	0.2	(R) 16.5	(R) 25.0	(R) 9.8	(R) 0.5	(R) 51.8
Transportation	0.4	0.2	0.5	0.0	1.2	2.7	0.7	(R) 0.1	4.6
Veterans Affairs	0.8	1.2	0.0	0.0	2.0	10.4	15.1	(R) 1.8	29.3
Other[b]	5.6	7.2	(R) 5.2	0.5	18.5	(R) 9.9	3.8	(R) 1.0	(R) 33.2
FY 2007[P], total	47.4	223.2	461.5	6.6	738.8	193.8	130.8	37.0	1,100.4
Agriculture	2.1	0.5	0.1	0.3	3.0	1.9	1.6	0.2	6.8
Defense	17.8	194.1	455.7	3.1	670.6	101.2	69.5	23.3	864.6
Energy	0.7	1.6	0.0	0.4	2.7	17.3	6.2	6.2	32.3
GSA	0.0	0.1	0.0	0.0	0.2	10.0	7.2	1.7	19.1
Health and Human Services	0.9	0.6	0.0	0.1	1.7	3.3	5.1	0.4	10.6
Interior	2.0	1.1	0.0	0.9	4.1	2.1	1.2	0.1	7.5
Justice	3.7	12.1	0.1	1.0	16.9	6.0	10.5	0.8	34.2
NASA	0.1	0.4	1.0	0.1	1.6	5.5	2.7	0.8	10.6
Postal Service	12.9	3.1	0.0	0.4	16.5	22.5	6.5	0.4	45.8
Transportation	0.4	0.6	0.5	0.0	1.5	3.2	0.8	0.0	5.6
Veterans Affairs	0.8	1.2	0.0	0.0	2.0	10.7	15.5	1.9	30.1
Other[b]	5.9	7.9	4.1	0.2	18.1	10.1	4.0	1.0	33.2

KEY: Btu = British thermal unit; FY = fiscal year; GSA = General Services Administration; NASA = National Aeronautics and Space Administration; R = Revised; P = preliminary.

[a] Includes U.S. Department of Commerce, Panama Canal Commission, Tennessee Valley Authority, U.S. Department of Labor, National Science Foundation, U.S. Department of Housing and Urban Development, Federal Communications Commission, Office of Personnel Management, U.S. Department of State, U.S. Department of the Treasury, Small Business Administration, and Environmental Protection Agency.

[b] Includes National Archives and Records Administration, U.S. Department of Commerce, Tennessee Valley Authority,U.S. Department of Labor, National Science Foundation, Federal Trade Commission, Federal Communications Commission, Environmental Protection Agency, U.S. Department of Homeland Security, U.S. Department of Housing and Urban Development, Railroad Retirement Board, Equal Employment Opportunity Commission, Nuclear Regulatory Commission, U.S. Department of State, U.S. Department of the Treasury, Office of Personnel Management, Consumer Product Safety Commission, Central Intelligence Agency, Social Security Administration, and U.S. information Agency (International Broadcasting Bureau).

[c] Includes liquefied petroleum gases.

[d] Includes purchased steam, chilled water from district heating and cooling systems, and any other energy type, such as renewable energy.

NOTES

Numbers may not add to totals due to rounding.

These data include energy consumed at foreign installations and in foreign operations, including aviation and ocean bunkering, primarily by the U.S. Department of Defense. U.S. government energy use for electricity generation and uranium enrichment is excluded. Other energy used by U.S. agencies that produce electricity or enriched uranium is included. The U.S. government's fiscal year runs from October 1 through September 30.

Data in this table are prepared using the following conversion factors - electricity: 3,412 Btu/kilowatt-hour; purchased steam: 1,000 Btu/pound; coal: 24.580 million Btu/short ton; natural gas: 1,031 Btu/cubic foot; aviation gasoline: 5.250 million Btu/barrel; fuel oil: 5.8254 million Btu/barrel; Jet fuel: 5.460 million Btu/barrel; liquefied petroleum gas: 4.011 million Btu/barrel, and motor gasoline: 5.250 million Btu/barrel.

SOURCE

U.S. Department of Energy, Energy Information Administration, *Annual Energy Review 1997 and 2007,* table 1.13, available at http://www.eia.doe.gov/emeu/aer/ as of December 2008.

Section C
Transportation Energy Intensity and Fuel Efficiency

Table 4-20: Energy Intensity of Passenger Modes (Btu per passenger-mile)

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Air, certificated carrier																							
Domestic operations	8,633	10,118	10,185	7,746	5,742	5,047	4,932	4,671	4,564	4,558	4,444	4,382	4,183	4,166	4,123	4,049	3,883	3,890	3,596	(R) 3,496	(R) 3,410	(R) 3,222	3,098
International operations	9,199	10,292	10,986	8,465	4,339	5,103	4,546	4,609	4,258	4,099	4,145	4,173	4,108	4,168	4,278	4,123	3,833	3,965	3,920	(R) 4,178	(R) 3,888	(R) 3,813	3,691
Highway[a]																							
Passenger car	4,495	4,455	4,841	4,743	4,348	4,269	3,811	3,654	3,703	3,785	3,771	3,721	3,688	3,657	3,637	3,672	3,589	3,597	3,600	3,570	3,509	(R) 3,585	3,525
Other 2-axle 4-tire vehicle	N	N	6,810	6,571	5,709	4,971	4,539	4,277	4,256	4,275	4,345	4,538	4,541	4,564	4,569	4,612	4,509	3,985	4,121	4,452	4,452	(R) 4,077	4,016
Motorcycle	b	b	2,500	2,354	2,125	1,896	2,227	1,917	1,990	2,063	2,135	2,274	2,271	2,273	2,273	2,273	2,273	2,049	1,969	1,969	1,969	(R) 1,784	1,754
Transit motor bus	N	N	N	N	2,742	3,389	3,723	3,767	4,038	3,944	4,162	4,155	4,196	4,228	4,133	4,044	4,147	3,698	3,550	3,514	3,572	3,393	3,262
Amtrak	N	N	N	2,383	2,148	2,089	2,066	1,978	2,035	2,023	1,935	1,838	2,153	2,200	2,138	2,107	2,134	2,100	U	U	U	U	U

KEY: Btu = British thermal unit; N = data do not exist; R = revised; U = data are not available.

[a] For 1995 and subsequent years, highway passenger-miles were taken directly from *Highway Statistics* rather than derived from vehicle-miles and average occupancy, as is the case for 1960-1994.

[b] Included in passenger car.

NOTE

To calculate total Btu, multiply fuel consumed (see tables 4-21, 4-22, 4-24, 4-25) by 135,000 Btu/gallon for air carrier; 125,000 Btu/gallon for passenger car, other 2-axle 4-tire vehicle, and motorcycle; 138,700 Btu/gallon for transit motor bus and Amtrak diesel consumption; and 3,412 Btu/KwH for Amtrak electric consumption.

SOURCES

Air:

Certificated air carriers:

Passenger-miles:

1960-80: Air Transport Association, Internet site http://www.airlines.org as of Aug. 30, 2004.

1985-2006: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, Office of Airline Information, *Air Carrier Traffic Statistics* (Washington DC: Annual December issues).

Fuel consumed:

U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, Office of Airline Information, available at http://www.bts.gov/oai/fuel/fuelyearly.html as of Mar. 27, 2008.

Highway:

Passenger car:

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

1995-2006: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1.

Other 2-axle 4-tire vehicle:

1970-94: Ibid., *Highway Statistics Summary to 1995,* FHWA-PL-97-009 (Washington, DC: July 1997), table VM-201A.

1995-2006: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1.

Motorcycle:

1970-85: Ibid., *Highway Statistics Summary to 1985,* FHWA-PL-97-009 (Washington, DC: July 1997), table VM-201A.

1990-2006: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1.

Transit motor bus:

American Public Transportation Association, *2008 Public Transportation Fact Book*, Historical Tables (Washington, DC: Annual issues), tables 2 and 28, and similar tables in earlier editions.

Amtrak:

Amtrak, State and Local Affairs Department, personal communication, Apr. 21, 2008

Table 4-21: Energy Intensity of Certificated Air Carriers, All Services[a]

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Aircraft-miles (millions)																							
Domestic operations	858	1,134	2,068	1,948	2,523	3,046	3,963	3,854	3,995	4,157	4,380	4,629	4,811	4,911	5,035	5,332	5,664	5,548	5,616	6,085	6,591	(R) 6,556	6,511
International operations	182	284	475	377	401	415	760	807	904	961	980	998	1,043	1,114	1,192	1,225	1,282	1,266	1,225	1,262	1,403	(R) 1,326	1,428
Available seat-miles (millions)																							
Domestic operations	52,220	94,787	213,160	241,282	346,028	445,826	563,065	543,638	557,989	571,489	585,438	603,917	626,389	651,918	662,313	699,330	727,033	695,200	676,949	689,065	741,674	(R) 752,125	742,461
International operations	13,347	29,533	51,960	61,724	86,507	101,963	170,310	171,561	194,784	200,151	198,893	203,160	208,682	228,689	237,538	242,981	254,048	235,311	215,606	204,755	229,788	(R) 251,580	266,725
Passenger-miles (millions)																							
Domestic operations	30,557	51,887	104,147	131,728	200,289	270,584	340,231	332,566	347,931	354,177	378,990	394,708	425,596	450,612	463,262	488,357	516,129	486,506	482,310	505,158	557,893	(R) 584,996	591,834
International operations	8,306	16,789	27,563	31,082	54,363	65,819	117,695	115,389	130,622	135,508	140,391	145,948	153,067	169,356	172,255	180,269	192,798	178,343	171,860	168,605	194,173	(R) 211,529	220,138
Fuel consumed (million gallons)																							
Domestic operations	1,954	3,889	7,857	7,558	8,519	10,115	12,323	11,506	11,763	11,959	12,384	12,672	13,217	13,563	13,335	14,402	14,845	14,017	12,848	12,959	(R) 13,623	13,789	13,458
International operations	566	1,280	2,243	1,949	1,747	2,488	3,909	3,940	4,120	4,113	4,279	4,443	4,618	4,915	4,923	5,250	5,475	5,237	4,991	4,836	(R) 4,932	(R) 5,521	5,827
Seats per aircraft																							
Domestic operations	60.9	83.6	103.1	123.9	137.1	146.4	142.1	141.1	139.7	137.5	133.7	130.5	130.2	132.7	131.5	131.2	128.4	125.3	120.5	113.2	112.5	(R) 114.7	114.0
International operations	73.3	104.0	109.4	163.7	215.7	245.7	224.1	212.6	215.5	208.3	203.0	203.6	200.1	205.3	199.3	198.4	198.2	185.9	176.1	162.3	163.7	(R) 189.7	186.8
Seat-miles per gallon																							
Domestic operations	27	24	27	32	41	44	46	47	47	48	47	48	47	48	50	49	49	50	53	53	(R) 54	(R) 55	55
International operations	24	23	23	32	50	41	44	44	47	49	46	46	45	47	48	46	46	45	43	42	(R) 47	(R) 46	46
Energy intensity (Btu/passenger-mile)																							
Domestic operations	8,633	10,118	10,185	7,746	5,742	5,047	4,890	4,671	4,564	4,558	4,411	4,334	4,193	4,063	3,886	3,981	3,883	3,890	3,596	3,463	(R) 3,296	(R) 3,182	3,070
International operations	9,199	10,292	10,986	8,465	4,339	5,103	4,484	4,609	4,258	4,098	4,114	4,109	4,073	3,918	3,858	3,932	3,833	3,965	3,920	3,872	(R) 3,429	(R) 3,523	3,574
Load factor (percent)																							
Domestic operations	58.5	54.7	48.9	54.6	58.0	60.7	60.4	61.2	62.4	62.0	64.7	65.4	67.9	69.1	69.9	69.8	71.0	69.1	70.3	72.6	74.4	(R) 77.3	79.0
International operations	62.2	56.8	53.0	50.4	62.8	64.6	69.1	67.3	67.1	67.6	70.6	71.8	73.3	74.1	72.5	74.2	75.9	72.8	76.6	76.5	79.1	(R) 79.4	79.9

KEY: Btu = British thermal unit; R = revised.

[a] U.S. owned carriers only. Operation of foreign-owned carriers in or out of the United States not included.

NOTES

Aircraft-miles includes all four air-carrier groups (majors, nationals, large regionals, and medium regionals), scheduled and charter, passenger, and all-cargo. Fuel consumed includes majors, nationals, and large regionals, scheduled and charter, passenger, and all-

Passenger-miles includes all four air-carrier groups, scheduled and charter, passenger service only.

International operations include operations outside the United States, including those between the United States and foreign countries and the United States and its territories or possessions.

Heat equivalent factor used for Btu conversion is 135,000 Btu/gallon.

SOURCES

Aircraft-miles, available seat-miles, passenger-miles, and load factor:

1960-80: Air Transport Association, Internet site http://www.air-transport.org/public/industry, as of July 31, 2002.

1985-2006: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, Office of Airline Information, *Air Carrier Traffic Statistics* (Washington DC: Annual December issues).

Fuel consumed:

1960-75: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, Office of Airline Information, Internet site http://www.bts.gov/oai/fuel/fuelyearly.html as of July 21, 2004.

1980-2006: Ibid., Internet site http://www.bts.gov/xml/fuel/report/src/index.xml as of Apr. 25, 2007.

Seats per aircraft, seat-miles per gallon, and energy intensiveness:

Derived by calculation.

Table 4-22: Energy Intensity of Passenger Cars, Other 2-Axle 4-Tire Vehicles, and Motorcycles

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	(R) 2005	2006
Vehicle-miles (millions)																							
Passenger car	587,000	723,000	917,000	1,034,000	1,112,000	1,247,000	1,408,000	1,358,000	1,372,000	1,375,000	1,406,000	1,438,000	1,470,000	1,503,000	1,550,000	1,569,000	1,600,287	1,628,332	1,658,474	1,672,079	1,699,890	1,708,421	1,682,671
Other 2-axle 4-tire vehicle	N	N	123,000	201,000	291,000	391,000	575,000	649,000	707,000	746,000	765,000	790,000	817,000	851,000	868,000	901,000	923,059	943,207	966,034	984,094	1,027,164	1,041,051	1,089,013
Motorcycle	[b]	[b]	3,000	5,600	10,200	9,100	9,600	9,200	9,600	9,900	10,200	9,800	9,900	10,100	10,300	10,600	10,469	9,639	9,552	9,577	10,122	10,454	12,401
Passenger-miles (millions)[a]																							
Passenger car	1,145,000	1,395,000	1,751,000	1,954,000	2,012,000	2,094,000	2,282,000	2,200,000	2,208,000	2,213,000	2,250,000	2,287,000	2,337,000	2,389,000	2,464,000	2,495,000	2,544,457	2,556,481	2,620,389	2,641,885	2,685,827	2,699,305	2,658,621
Other 2-axle 4-tire vehicle	N	N	226,000	363,000	521,000	688,000	1,000,000	1,117,000	1,202,000	1,253,000	1,269,000	1,256,000	1,298,000	1,353,000	1,381,000	1,433,000	1,467,664	1,678,853	1,674,792	1,706,103	1,780,771	1,804,848	1,887,997
Motorcycle	[b]	[b]	3,000	6,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	11,000	11,000	11,000	11,000	12,000	11,516	11,760	12,131	12,163	12,855	13,277	15,750
Average occupancy rate																							
Passenger car	1.95	1.93	1.91	1.89	1.81	1.68	1.62	1.62	1.61	1.61	1.60	1.59	1.59	1.59	1.59	1.59	1.59	1.57	1.58	1.58	1.58	1.58	1.58
Other 2-axle 4-tire vehicle	N	N	1.84	1.81	1.79	1.76	1.74	1.72	1.70	1.68	1.66	1.59	1.59	1.59	1.59	1.59	1.59	1.78	1.73	1.73	1.73	1.73	1.73
Motorcycle	[b]	[b]	1.00	1.07	1.18	1.32	1.25	1.30	1.25	1.21	1.18	1.12	1.11	1.09	1.07	1.13	1.10	1.22	1.27	1.27	1.27	1.27	1.27
Fuel consumed (million gallons)																							
Passenger car	41,171	49,723	67,819	74,140	69,982	71,518	69,568	64,317	65,436	67,048	67,874	68,072	69,221	69,892	71,695	73,283	73,065	73,559	75,471	75,455	75,402	77,419	74,983
Other 2-axle 4-tire vehicle	N	N	12,313	19,081	23,796	27,363	35,611	38,217	40,929	42,851	44,112	45,605	47,354	49,388	50,462	52,859	52,939	53,522	55,220	60,758	63,417	58,869	60,662
Motorcycle	[b]	[b]	60	113	204	182	191	184	191	198	205	196	198	202	206	212	209	193	191	192	202	189	220
Energy intensity (Btu/passenger-mile)[c]																							
Passenger car	4,495	4,455	4,841	4,743	4,348	4,269	3,811	3,654	3,704	3,787	3,771	3,721	3,702	3,657	3,637	3,671	3,589	3,597	3,600	3,570	3,509	3,585	3,525
Other 2-axle 4-tire vehicle	N	N	6,810	6,571	5,709	4,971	4,451	4,277	4,256	4,275	4,345	4,539	4,560	4,563	4,568	4,611	4,509	3,985	4,121	4,452	4,452	4,077	4,016
Motorcycle	[b]	[b]	2,500	2,354	2,125	1,896	1,990	1,917	1,990	2,063	2,135	2,227	2,250	2,295	2,341	2,205	2,273	2,049	1,969	1,969	1,969	1,779	1,746

KEY: Btu = British thermal unit; N = data do not exist; R = revised.

[b] Included in passenger car.
[c] Energy Intensity (Btu/passenger-mile) is calculated by converting the fuel consumption in gallons to the energy equivalent Btu units and dividing by the passenger-miles. heat equivalent factor used for Btu conversion is 125,000 Btus/gallon.

NOTES:

In 1995, the U.S. Department of Transportation, Federal Highway Administration revised its vehicle type categories for 1993 and later data.

These new categories include passenger car, other 2-axle 4-tire vehicle, single-unit 2-axle 6-tire or more truck, and combination truck.

Other 2-axle 4-tire vehicle includes vans, pickup trucks, and sport utility vehicles. In previous years, some minivans and sport utility vehicles were included in the passenger car category. Single-unit 2-axle 6-tire or more trucks are on a single frame with at least 2 axles and 6 tires. Pre-1993 data have been reassigned to the closest available category.

Vehicle-miles and passenger-miles data for 1960 through 1999 have been rounded to the nearest billion miles.

SOURCES:

Vehicle-miles:

Passenger car:

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

1995-2005: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1.

Other 2-axle 4-tire vehicle:

1970-94: Ibid., *Highway Statistics, Summary to 1985* (Washington, DC: 1986), table VM-201A.

Motorcycle:

1970-94: Ibid., *Highway Statistics, Summary to 1985* (Washington, DC: 1986), table VM-201A.

For 1970-94, the unrevised motorcycle vehicle-miles are subtracted from the combined passenger car and motorcycle vehicle-miles from VM-201A.

1995-2006: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1.

Passenger-miles:

1960-97: Vehicle-miles multiplied by vehicle occupancy rates.

1998-2006: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1.

Fuel consumed:

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

For 1970-94, the unrevised motorcycle fuel consumed is subtracted from the combined passenger car and motorcycle fuel consumed from VM-201A.

1995-2006: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1.

Table 4-23: Average Fuel Efficiency of U.S. Passenger Cars and Light Trucks

	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Average U.S. passenger car fuel efficiency (mpg) (calendar year)																					
Passenger car[a]	16.0	17.5	20.3	21.2	21.0	20.6	20.8	21.1	21.2	21.5	21.6	21.4	21.9	22.1	22.0	22.2	22.5	(R) 22.1	22.4	U	U
Other 2-axle 4-tire vehicle	12.2	14.3	16.1	17.0	17.3	17.4	17.3	17.3	17.2	17.2	17.2	17.0	17.4	17.6	17.5	16.2	16.2	(R) 17.7	18.0	U	U
New vehicle fuel efficiency (mpg)[b] (model year)																					
Light-duty vehicle																					
Passenger car	24.3	27.6	28.0	28.4	27.9	28.4	28.3	28.6	28.5	28.7	28.8	28.3	28.5	28.8	29.0	29.5	29.5	30.3	(R) 30.1	31.2	31.2
Domestic	22.6	26.3	26.9	27.3	27.0	27.8	27.5	27.7	28.1	27.8	28.6	28.0	28.7	28.7	29.1	29.1	29.9	30.5	(R) 30.3	(R) 30.6	31.0
Imported	29.6	31.5	29.9	30.1	29.2	29.6	29.7	30.3	29.6	30.1	29.2	29.0	28.3	29.0	28.8	29.9	28.7	29.9	29.7	32.1	31.4
Light truck (<8,500 lbs GVWR)[c]	18.5	20.7	20.8	21.3	20.8	21.0	20.8	20.5	20.8	20.6	21.0	20.9	21.3	20.9	21.4	21.8	21.5	22.1	22.5	23.1	23.4
CAFE standards (mpg)[b] (model year)																					
Passenger car	20.0	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5
Light truck	[f]16.0/14.0	19.5	20.0	20.2	20.2	20.4	20.5	20.6	20.7	20.7	20.7	20.7	20.7	20.7	20.7	20.7	20.7	21.0	21.6	22.2	22.5

KEY: CAFE = Corporate Average Fuel Economy; GVWR = gross vehicle weight rating; mpg = miles per gallon; R = revised; U = data are not available.

[a] From 1980 to 1994, passenger car fuel efficiency includes motorcycles.

[b] Assumes 55% city and 45% highway-miles. The source calculated average miles per gallon for light-duty vehicles by taking the reciprocal of the sales-weighted average of gallons per mile. This is called the harmonic average.

[c] Beginning with FY 1999, the total light truck fleet ceased to be categorized by either domestic or import fleets.

[d] 2 Wheel Drive/4 Wheel Drive. No combined figure available for this year.

NOTE

The fuel efficiency figures for light duty vehicles represent the sales-weighted harmonic average of the combined passenger car and light truck fuel economies.

SOURCES

Average U.S. passenger car fuel efficiency:

1980-94: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1995,* FHWA-PL-97-009 (Washington, DC: July 1997), table VM-201A (Revised data obtained from http://www.fhwa.dot.gov/ohim/ohimstat.htm as of Aug. 2, 2001).

1995-2006: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1.

New vehicle fuel efficiency (based on model year production) and CAFE standards:

U.S. Department of Transportation, National Highway Traffic Safety Administration, *Summary of Fuel Economy Performance* (Washington, DC: Annual Issues), available at http://www.nhtsa.dot.gov/portal/site/nhtsa/menuitem.43ac99aefa80569eea57529cdba046a0/ as of Sep. 17, 2008.

Table 4-24: Energy Intensity of Transit Motor Buses

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Vehicle-miles (millions)	1,576	1,528	1,409	1,526	1,677	1,863	2,130	2,167	2,178	2,210	2,162	2,184	2,221	2,245	2,175	2,276	2,315	2,377	2,411	2,421	2,471	(R) 2,485	2,495
Passenger-miles (millions)	N	N	N	N	21,800	21,200	20,981	21,090	20,336	20,247	18,832	18,818	19,096	19,604	20,360	21,205	21,241	22,022	21,841	21,262	21,377	21,825	(P) 22,821
Fuel consumed (million gallons diesel)	208	248	271	365	431	518	563	573	592	576	565	564	578	598	607	618	635	587	559	539	550	534	537
Energy intensity (Btu / passenger-mile)	N	N	N	N	2,742	3,389	3,723	3,767	4,038	3,944	4,162	4,155	4,196	4,228	4,133	4,044	4,147	3,698	3,550	3,514	3,572	(R) 3,392	3,262

KEY: Btu = British thermal unit; N = data do not exist; P= Preliminary; R = Revised.

NOTE

Heat equivalent factor used for Btu is 138,700 Btu/gallon.

SOURCE

American Public Transportation Association, *2008 Public Transportation Fact Book* (Washington, DC: 2007), tables 6, 10, 28, and similar tables in earlier editions, available at http://www.apta.com/ as of December 2008.

Table 4-25: Energy Intensity of Class I Railroad[a] Freight Service

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Revenue freight ton-miles (millions)	572,309	697,878	764,809	754,252	918,958	876,984	1,033,969	1,038,875	1,066,781	1,109,309	1,200,701	1,305,688	1,355,975	1,348,926	1,376,802	1,433,461	1,465,960	1,495,472	1,507,011	1,551,438	1,662,598	1,696,425	1,771,897
Car-miles (millions)	28,170	29,336	29,890	27,656	29,277	24,920	26,159	25,628	26,128	26,883	28,485	30,383	31,715	31,660	32,657	33,851	34,590	34,243	34,680	35,555	37,071	37,712	38,955
Tons per car load	44.4	48.9	54.9	60.8	67.1	67.7	66.6	66.2	66.0	64.4	63.4	65.3	66.6	63.4	64.1	63.4	62.6	64.0	63.3	62.3	61.3	61.0	60.9
Fuel consumed (million gallons)	3,463	3,592	3,545	3,657	3,904	3,110	3,115	2,906	3,005	3,088	3,334	3,480	3,579	3,575	3,583	3,715	3,700	3,710	3,730	3,826	4,059	4,098	4,192
Energy intensity (Btu/revenue freight ton-mile)	839	714	643	672	589	492	418	388	391	386	385	370	366	368	361	359	350	344	343	342	339	335	328
Energy intensity (Btu/car-mile)	17,051	16,983	16,450	18,341	18,495	17,310	16,516	15,727	15,952	15,932	16,234	15,886	15,652	15,662	15,218	15,222	14,836	15,027	14,918	14,925	15,187	15,072	14,926

KEY: Btu = British thermal unit.

[a] Class I railroads are those that have operating revenues of $289.4 million or more in 2004.

NOTE
The heat equivalent factor used for Btu conversion is 138,700 Btu/gallon.

SOURCE
Association of American Railroads, *Railroad Facts 2007* (Washington, DC: 2007), pp. 34, 37, and 40, and similar tables in earlier editions.

Table 4-26: Energy Intensity of Amtrak Services

	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Revenue passenger-miles (millions)	3,931	4,503	4,785	6,057	6,273	6,091	6,199	5,921	5,545	5,050	5,166	5,304	5,330	5,498	5,559	5,468	5,680	5,511	5,381
Locomotive fuel consumed																			
Total fuel consumed (billion Btu)[a]	9,367	9,673	9,995	12,512	12,406	12,328	12,511	11,457	10,191	10,875	11,365	11,341	11,229	11,735	11,674	13,952	13,091	11,920	11,138
Electric (millions of kWh)[a]	180	254	295	330	303	300	301	309	304	293	282	275	283	350	377	593	666	648	500
Diesel (million gallons)	63	64	65	82	82	82	83	75	66	71	75	75	74	76	75	86	78	70	68
Energy intensity (Btu/revenue passenger-mile)[a]	2,383	2,148	2,089	2,066	1,978	2,024	2,018	1,935	1,838	2,153	2,200	2,138	2,107	2,134	2,100	2,551	2,305	2,163	2,070

KEY: Btu = British thermal unit; kWh = kilowatt hour; U = data are not available.

[a] Does not include electric power generation and distribution losses, which, if included, would triple the electric conversion factor given below and increase the numbers in this row by about 20 percent.

NOTE

The heat equivalent factors used in Btu conversion are: diesel = 138,700 Btu/gallon; electric = 3,412 Btu/kWh.

SOURCES

Revenue passenger-miles:

1975-2002: Amtrak, *Amtrak Annual Report,* Statistical Appendix (Washington, DC: Annual issues).

2003-2005: Association of American Railroads, *Railroad Facts 2006* (Washington, DC: 2006), p. 77 and similar pages in earlier editions.

Locomotive fuel consumed:

1975-2001: Ibid., State and Local Affairs Department, personal communication.

2001-05: Amtrak personal communication as of Dec. 19, 2007.

Table 4-27: Annual Wasted Fuel Due to Congestion

Population group	Urban area	Gallons wasted (millions)																		Percent change[a] Short-term 1998-2003		Long term 1982-2003	
		1982	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	Percent	Rank	Percent	Rank
Medium	Akron, OH	0.3	0.4	0.9	1.0	1.2	1.5	1.9	1.6	2.0	2.4	2.6	2.6	2.5	2.4	2.3	2.2	2.5	2.3	-7	79	783	26
Medium	Albany-Schenectady, NY	0.4	0.5	0.9	0.9	1.0	1.0	1.1	1.2	1.2	1.3	1.5	1.6	1.8	1.9	2.2	2.4	2.8	2.8	61	5	691	33
Medium	Albuquerque, NM	1.2	1.7	3.0	3.2	3.8	4.1	4.4	5.0	5.6	6.0	6.2	6.5	5.7	5.5	5.1	5.3	5.9	6.6	17	56	471	53
Medium	Allentown-Bethlehem, PA-NJ	1.0	1.1	1.7	1.8	2.2	2.6	3.0	3.4	4.0	4.4	4.7	4.2	4.5	4.4	4.4	4.3	4.6	4.7	4	72	382	58
Small	Anchorage, AK	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.7	0.7	0.8	0.9	0.9	0.9	0.8	13	63	66	85
Very large	Atlanta, GA	10.0	15.1	24.8	28.4	33.4	39.8	47.6	52.9	57.7	64.8	72.1	75.3	79.9	82.3	88.0	90.3	92.7	96.1	20	48	856	25
Medium	Austin, TX	1.4	2.4	3.7	4.2	4.1	4.6	5.6	6.7	8.0	9.2	9.2	10.4	11.1	12.9	12.9	13.5	14.0	15.5	40	28	1,022	18
Small	Bakersfield, CA	0.1	0.2	0.4	0.4	0.5	0.6	0.6	0.7	0.8	0.9	1.0	1.0	1.0	1.1	1.4	1.5	1.9	2.1	105	1	1,804	3
Large	Baltimore, MD	4.9	8.4	18.4	18.6	18.6	19.9	20.7	22.7	23.1	24.0	23.9	25.0	26.4	29.7	36.6	39.0	40.0	40.8	54	9	741	30
Small	Beaumont, TX	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.5	0.6	0.6	0.6	0.7	0.7	0.8	0.8	45	24	339	63
Medium	Birmingham, AL	1.2	1.7	2.1	2.3	2.6	3.1	3.8	4.1	4.6	5.1	6.2	6.5	6.5	6.6	7.0	7.6	8.1	8.2	27	39	610	42
Very large	Boston, MA-NH-RI	10.9	16.3	28.9	29.7	33.0	33.8	34.9	35.3	36.8	40.3	44.4	45.0	46.0	48.2	53.6	53.6	60.1	62.5	36	30	474	51
Small	Boulder, CO	0.1	0.2	0.2	0.3	0.3	0.4	0.4	0.5	0.5	0.6	0.5	0.6	0.6	0.6	0.5	0.6	0.6	0.6	2	74	330	66
Medium	Bridgeport-Stamford, CT-NY	1.9	3.0	4.4	4.4	5.1	5.1	5.7	6.4	6.3	7.4	8.4	9.3	9.7	10.1	11.3	11.1	10.6	11.5	18	51	493	48
Small	Brownsville, TX	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.4	0.4	0.4	0.4	33	36	935	20
Large	Buffalo, NY	0.8	0.9	1.4	1.4	1.5	1.6	1.7	1.8	1.8	2.0	2.4	2.8	3.1	3.2	3.3	3.9	3.7	3.7	18	53	391	57
Small	Cape Coral, FL	0.4	0.5	0.8	0.9	1.0	1.3	1.6	1.9	2.0	2.0	1.9	1.9	1.9	2.3	2.5	2.7	2.9	3.1	64	4	678	36
Small	Charleston-North Charleston, SC	1.2	1.7	2.6	2.8	3.2	3.3	3.4	3.4	3.3	3.5	3.9	4.1	4.2	4.2	4.4	4.8	5.0	4.9	16	57	308	73
Medium	Charlotte, NC-SC	1.0	1.9	3.2	3.4	3.9	3.7	3.8	3.9	4.7	6.0	6.9	8.2	9.9	10.8	12.5	13.0	14.3	14.3	45	22	1,274	12
Very large	Chicago, IL-IN	24.3	37.6	60.6	62.4	64.9	65.9	68.0	79.2	90.8	92.3	98.9	99.6	96.3	100.7	119.5	125.0	132.6	141.6	47	19	482	49
Large	Cincinnati, OH-KY-IN	1.4	2.5	6.2	6.7	7.8	9.2	11.1	11.4	12.3	14.6	15.2	15.2	16.1	15.8	16.5	17.7	17.3	17.4	8	67	1,119	14
Large	Cleveland, OH	1.4	1.5	4.2	4.8	5.1	6.3	7.2	9.0	9.7	11.3	10.6	11.3	10.6	9.3	8.7	8.5	9.7	8.8	-17	84	536	47
Small	Colorado Springs, CO	0.3	0.3	0.5	0.6	0.8	0.9	1.2	1.4	1.5	2.0	2.4	3.0	3.5	3.7	3.7	3.7	3.4	4.4	25	41	1,503	9
Small	Columbia, SC	0.3	0.6	0.8	0.9	1.0	1.0	1.1	1.1	1.2	1.4	1.4	1.7	1.9	1.9	2.1	2.3	2.3	2.4	27	38	688	34
Large	Columbus, OH	1.0	1.5	4.8	5.0	5.8	7.0	7.9	8.9	9.7	10.6	10.9	11.0	10.7	12.0	12.7	13.9	15.7	15.5	45	20	1,511	8
Small	Corpus Christi, TX	0.3	0.4	0.5	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.9	0.8	0.9	0.9	1.0	1.1	1.1	36	31	259	77
Very large	Dallas-Fort Worth-Arlington, TX	7.1	13.6	26.3	29.4	31.4	34.8	36.8	39.0	41.5	46.0	52.8	60.5	63.9	66.4	71.4	78.6	92.2	106.2	66	3	1,395	11
Medium	Dayton, OH	1.6	1.8	3.0	3.1	3.3	3.8	3.4	4.3	4.3	4.7	4.8	5.3	5.0	4.5	4.4	4.2	5.1	4.6	-8	80	195	81
Large	Denver-Aurora, CO	5.8	7.7	10.0	11.7	12.9	15.7	17.6	21.3	24.2	26.8	29.0	32.0	34.3	36.3	35.1	36.4	38.0	42.5	24	42	628	40
Very large	Detroit, MI	21.8	26.8	47.6	50.9	57.4	61.0	58.4	58.3	61.5	63.6	64.9	68.3	67.1	71.4	75.6	78.1	77.2	76.1	13	62	248	78
Medium	El Paso, TX-NM	0.4	0.5	1.0	1.3	1.6	1.7	2.1	1.9	1.8	2.1	2.4	3.2	3.7	4.2	4.3	4.5	5.4	5.7	54	10	1,518	7
Small	Eugene, OR	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.6	0.6	0.8	1.0	0.8	0.9	1.0	0.9	1.1	14	60	301	74
Medium	Fresno, CA	0.9	1.1	1.9	2.0	2.1	2.4	2.4	2.6	2.9	3.1	3.8	4.1	4.3	3.7	4.0	4.0	3.9	4.2	-2	77	338	64
Medium	Grand Rapids, MI	0.5	0.8	1.6	1.7	2.3	3.0	2.9	2.7	2.9	3.2	3.8	4.0	3.9	4.0	4.0	4.1	4.4	4.4	12	64	760	28
Medium	Hartford, CT	0.9	1.3	2.0	2.2	3.6	2.9	3.3	3.6	3.9	4.5	5.1	5.6	6.0	5.8	5.9	5.8	6.4	6.5	9	65	617	41
Medium	Honolulu, HI	2.0	2.6	4.7	4.7	5.3	5.4	5.4	5.8	5.8	5.3	5.4	5.3	5.0	5.1	4.9	5.5	5.7	6.3	26	40	207	80
Very large	Houston, TX	23.5	33.1	36.2	32.4	30.5	31.2	34.6	36.7	42.0	49.7	53.3	59.7	61.4	71.3	78.1	80.3	82.7	92.6	51	12	294	76
Large	Indianapolis, IN	3.8	4.4	7.5	8.5	10.1	13.1	15.3	16.3	17.1	18.8	16.9	16.5	16.4	16.8	16.8	17.0	17.1	16.1	-2	76	323	68
Medium	Jacksonville, FL	2.4	3.5	6.0	6.4	7.6	7.9	8.5	9.7	10.3	10.0	9.7	9.7	9.7	9.8	11.4	12.6	14.0	14.0	45	23	475	50

Table 4-27: Annual Wasted Fuel Due to Congestion

Population group	Urban area	Gallons wasted (millions)																		Percent change[a] Short-term 1998-2003		Long term 1982-2003	
		1982	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	Percent	Rank	Percent	Rank
Large	Kansas City, MO-KS	0.9	1.6	3.4	3.3	4.0	6.1	6.5	6.6	7.6	8.5	8.7	10.3	9.7	9.7	9.7	10.2	8.8	8.6	-11	82	877	24
Small	Laredo, TX	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.4	0.4	0.5	0.5	0.6	0.5	0.7	0.7	0.7	43	26	1,724	4
Large	Las Vegas, NV	1.0	1.5	5.0	5.9	6.7	7.9	9.4	10.6	11.5	11.9	13.1	14.3	14.7	15.6	16.9	18.4	19.6	20.0	36	29	1,835	2
Small	Little Rock, AR	0.3	0.3	0.5	0.6	0.6	0.8	0.9	0.9	1.1	1.1	1.4	1.7	1.5	1.8	1.5	1.8	2.4	2.3	51	13	736	31
Very large	Los Angeles-Long Beach-Santa Ana, CA	123.9	154.5	314.3	309.7	308.8	292.3	280.0	298.9	310.4	318.0	320.7	331.7	331.1	348.0	357.4	354.4	371.8	383.7	16	58	210	79
Medium	Louisville, KY-IN	3.5	3.7	4.3	5.5	6.8	8.0	8.6	8.7	10.0	10.8	11.6	12.2	12.2	11.1	12.6	13.5	14.8	14.4	19	50	315	70
Medium	Memphis, TN-MS-AR	1.1	1.2	3.4	3.5	3.9	4.6	5.6	6.3	6.7	7.1	7.4	7.4	7.9	8.4	8.7	9.5	10.1	9.2	17	54	746	29
Very Large	Miami, FL	13.1	17.3	37.2	36.9	42.6	42.5	45.6	50.1	52.4	55.9	59.3	69.4	77.5	83.8	89.3	95.8	100.8	105.2	36	32	702	32
Large	Milwaukee, WI	2.3	3.2	6.4	6.9	8.0	8.2	7.9	8.8	9.0	9.2	9.8	11.1	11.2	10.8	10.9	10.8	11.1	10.8	-3	78	369	59
Large	Minneapolis-St. Paul, MN	2.7	5.2	11.5	11.9	14.6	17.7	21.5	23.7	24.8	31.6	34.5	37.1	36.8	40.1	37.9	38.4	38.5	41.8	14	61	1,438	10
Medium	Nashville-Davidson, TN	2.7	2.8	4.6	4.5	4.4	4.6	6.3	6.9	7.2	8.2	7.8	8.8	9.5	10.3	11.8	13.1	13.4	13.5	42	27	402	56
Medium	New Haven, CT	0.5	0.8	1.2	1.3	1.6	1.9	2.0	2.1	2.1	2.6	3.1	3.6	3.7	4.2	4.3	4.3	3.8	4.2	15	59	681	35
Large	New Orleans, LA	4.1	5.6	6.0	6.3	6.0	6.0	6.6	6.7	6.3	6.8	7.1	7.4	6.7	6.5	6.6	6.7	6.6	6.9	3	73	70	84
Very large	New York-Newark, NY-NJ-CT	37.2	47.2	94.9	92.1	92.6	99.2	109.7	122.4	130.5	147.2	153.1	173.5	163.3	163.4	173.5	194.3	224.5	242.0	48	17	550	45
Large	Oklahoma City, OK	0.8	1.3	1.8	2.2	2.3	2.7	2.7	3.9	4.4	5.1	5.3	6.2	5.7	6.5	6.8	6.3	6.3	6.2	9	66	665	38
Medium	Omaha, NE-IA	0.7	1.0	2.0	2.1	2.6	2.6	3.0	3.1	3.4	3.3	3.9	4.2	4.4	4.9	5.3	5.3	5.4	5.3	22	43	667	37
Large	Orlando, FL	2.6	4.8	11.3	13.3	13.8	13.9	15.1	16.5	18.2	20.7	22.3	23.3	24.3	26.6	26.1	25.7	25.8	26.0	7	68	894	23
Medium	Oxnard-Ventura, CA	0.5	1.0	1.9	2.0	2.5	2.8	3.7	3.9	4.5	4.1	4.3	5.3	5.4	6.3	6.7	7.1	7.8	8.4	54	11	1,534	6
Small	Pensacola, FL-AL	0.3	0.3	0.8	0.7	0.9	1.0	1.0	1.2	1.5	1.7	1.7	1.8	1.8	1.9	2.1	2.3	2.5	2.7	48	18	931	21
Very large	Philadelphia, PA-NJ-DE-MD	16.3	19.9	28.5	28.9	31.9	31.0	32.8	34.7	37.4	41.9	48.2	50.2	49.5	57.1	62.3	65.8	68.1	70.9	43	25	336	65
Very Large	Phoenix, AZ	11.7	13.2	18.0	18.7	21.2	21.4	22.3	21.8	26.3	28.3	30.7	36.5	39.3	44.0	41.5	44.6	48.5	58.9	50	15	404	55
Large	Pittsburgh, PA	4.4	4.9	8.1	8.0	7.6	7.5	7.5	8.9	8.9	8.9	8.5	9.4	8.8	9.2	9.5	9.3	9.6	9.2	5	69	110	83
Large	Portland, OR-WA	3.4	3.9	7.8	8.4	10.5	11.5	12.1	13.9	15.9	17.6	18.2	20.0	20.0	20.6	19.9	21.3	22.5	24.0	20	47	600	44
Large	Providence, RI-MA	0.9	1.1	2.7	2.9	3.2	3.7	3.9	4.1	5.1	5.2	6.9	8.0	8.6	9.5	10.3	11.5	11.9	11.7	36	33	1,181	13
Medium	Raleigh-Durham, NC	0.7	1.3	3.2	3.2	3.2	3.9	4.4	4.8	5.2	6.2	6.2	6.8	7.6	8.2	9.4	9.9	10.8	11.7	55	8	1,579	5
Medium	Richmond, VA	1.0	1.1	2.2	2.4	2.8	3.0	3.8	4.7	5.0	4.6	4.5	4.5	4.3	4.7	5.0	5.7	6.3	6.4	50	16	549	46
Large	Riverside-San Bernardino, CA	1.3	2.7	11.7	13.9	14.7	14.9	13.1	15.0	16.4	16.2	18.8	20.9	21.4	22.2	24.9	29.3	36.7	39.6	85	2	2,916	1
Medium	Rochester, NY	0.4	0.6	1.0	1.1	1.2	1.2	1.3	1.5	1.5	1.7	1.5	1.7	1.8	1.8	1.8	2.0	2.4	2.4	34	34	472	52
Large	Sacramento, CA	2.9	4.5	12.4	12.9	12.5	12.4	14.1	14.0	15.9	15.1	16.3	17.5	18.6	20.4	21.9	24.7	27.7	29.2	57	6	914	22
Small	Salem, OR	0.1	0.1	0.3	0.4	0.5	0.6	0.6	0.6	0.6	0.6	0.7	0.8	0.9	1.1	1.1	1.0	1.0	1.0	21	45	985	19
Medium	Salt Lake City, UT	1.3	2.2	3.9	4.6	5.5	6.5	7.8	8.5	8.5	8.3	7.9	8.6	9.4	10.2	10.9	11.4	9.9	9.3	-1	75	604	43
Large	San Antonio, TX	1.7	3.4	3.9	3.9	4.7	4.9	5.5	7.1	8.6	9.8	11.8	14.7	17.1	15.9	16.4	17.1	20.1	20.4	20	49	1,117	15
Large	San Diego, CA	6.0	10.6	30.6	29.8	32.6	31.8	31.1	32.4	35.2	36.2	39.2	47.2	49.0	54.6	61.5	60.5	72.4	71.1	45	21	1,086	17
Very large	San Francisco-Oakland, CA	22.6	43.2	72.1	67.7	69.0	70.9	67.0	73.0	75.6	71.4	77.1	78.8	83.3	81.8	87.4	89.5	93.3	100.5	21	46	345	62
Large	San Jose, CA	8.7	15.1	24.3	24.9	23.2	22.0	23.6	26.0	26.2	25.6	28.0	32.7	33.3	34.5	33.8	34.4	32.1	34.7	4	70	297	75
Medium	Sarasota-Bradenton, FL	1.1	1.8	2.0	2.3	2.3	2.6	2.7	2.6	3.1	3.4	3.5	4.1	4.0	4.2	4.4	4.7	5.1	5.3	33	35	369	60
Large	Seattle, WA	6.3	12.2	32.6	35.4	37.8	40.5	41.6	43.3	43.9	47.8	48.7	48.8	46.3	45.4	46.5	50.7	50.6	54.7	18	52	768	27
Small	Spokane, WA	0.2	0.3	0.5	0.6	0.8	1.0	1.1	0.9	0.9	1.0	1.1	1.1	1.1	1.0	1.0	1.0	1.0	0.9	-19	85	329	67
Medium	Springfield, MA-CT	0.9	1.0	1.3	1.4	1.6	1.7	1.6	1.7	1.7	1.7	1.9	2.1	2.1	2.0	2.2	2.1	2.2	2.5	17	55	166	82
Large	St. Louis, MO-IL	5.5	7.5	9.2	9.0	10.9	15.0	19.6	23.7	24.3	26.0	26.3	27.9	27.7	25.4	25.7	24.2	23.4	23.3	-16	83	322	69
Large	Tampa-St Petersburg, FL	8.6	10.5	15.5	18.1	18.5	19.7	20.4	21.6	21.8	21.3	22.3	23.5	23.4	26.5	29.2	31.1	35.6	35.3	50	14	308	72
Medium	Toledo, OH-MI	0.2	0.3	0.6	0.6	0.7	0.9	1.3	1.8	2.0	2.2	2.5	2.7	2.9	2.9	2.8	2.6	3.0	2.6	-9	81	1,102	16

Table 4-27: Annual Wasted Fuel Due to Congestion

Population group	Urban area	Gallons wasted (millions)																		Percent change[a] Short-term 1998-2003		Long term 1982-2003	
		1982	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	Percent	Rank	Percent	Rank
Medium	Tucson, AZ	2.6	3.0	3.8	3.7	3.9	4.0	3.9	4.1	4.4	5.7	6.1	6.3	6.7	7.4	8.1	9.5	9.5	10.5	56	7	310	71
Medium	Tulsa, OK	0.9	1.8	2.5	2.4	2.5	2.6	2.6	3.0	3.8	4.0	4.2	4.3	4.6	5.0	5.2	5.4	4.8	4.8	4	71	412	54
Large	Virginia Beach, VA	3.7	5.5	7.9	7.8	7.8	8.2	9.9	11.5	13.5	14.5	15.3	16.2	14.1	15.8	16.8	16.9	16.7	17.1	21	44	356	61
Very large	Washington, DC-MD-VA	12.4	24.8	42.0	47.0	55.6	58.5	61.4	63.7	69.0	68.8	67.6	72.6	70.7	77.6	83.7	88.9	90.3	90.9	29	37	634	39
NA	437-Area Average	1.3	1.8	3.2	3.3	3.4	3.7	3.8	4.2	4.5	5.0	5.3	5.6	5.7	6.0	6.4	6.2	6.4	6.6	15	NA	411	NA
NA	85-Area Average	5.4	7.6	13.9	14.2	15.1	15.6	16.3	17.6	18.8	20.0	21.1	22.6	22.8	24.0	25.4	26.5	28.2	29.6	29	NA	445	NA
NA	Very Large Area Average	24.4	33.9	61.7	62.1	65.0	65.9	67.2	72.1	76.8	81.1	85.1	90.7	91.1	95.8	102.0	106.4	113.2	120.1	32	NA	393	NA
NA	Large Area Average	3.2	4.8	9.3	9.9	10.6	11.6	12.6	14.0	15.0	16.0	16.9	18.5	18.8	19.8	20.7	21.5	22.8	23.4	24	NA	621	NA
NA	Medium Area Average	1.2	1.6	2.5	2.7	3.1	3.4	3.8	4.1	4.5	4.9	5.2	5.6	5.8	6.0	6.5	6.8	7.1	7.3	27	NA	527	NA
NA	Small Area Average	0.3	0.4	0.6	0.6	0.7	0.8	0.9	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.5	1.6	1.7	1.8	32	NA	536	NA

KEY: NA = not applicable; NM = not meaningful

Very large urban areas - over 3 million population.

Large urban areas - over 1 million and less than 3 million population.

Medium urban areas - over 500,000 and less than 1 million population.

Small urban areas - less than 500,000 population.

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

NOTES

"Wasted" fuel is the difference between the fuel consumed under estimated existing conditions and the fuel consumed under free-flow conditions. Previous editions of this table were calculated on the basis of total fuel consumed during congested trips. Calculations are made for peak period speeds and for free-flow speeds on both the freeway and principal arterial systems. For a more detailed description of the formulas used, see the source document.

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

Methodology and data sources have been changed in 2007 and applied retroactively to past years, these figures are not comparable to those in past editions of NTS.

SOURCE

Texas Transportation Institute, *The 2007 Annual Urban Mobility Report* (College Station, TX: 2007), Internet site http://mobility.tamu.edu as of Dec 5, 2007

Table 4-28: Annual Wasted Fuel Per Person

Urban Area	Population group	Gallons wasted																			Percent change[a]			
																					Short-term 2000-2005		Long term 1982-2005	
		1982	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	Percent	Rank	Percent	Rank
Akron OH	Med	1	2	4	4	5	6	7	6	8	9	9	9	9	8	8	7	8	7	-22.2	82	600.0	11
Albany-Schenectady NY	Med	2	2	4	4	4	4	5	5	5	5	6	6	7	7	8	9	10	10	42.9	3	400.0	20
Albuquerque NM	Med	6	8	13	13	15	16	17	19	20	21	22	22	19	18	17	17	19	21	10.5	41	250.0	45
Allentown-Bethlehem PA	Med	5	6	7	7	9	10	12	13	14	15	16	14	14	14	14	13	14	14	0.0	55	180.0	56
Anchorage AK	Sml	6	6	5	5	6	5	5	5	5	5	6	6	6	6	6	6	6	5	-16.7	77	-16.7	85
Atlanta GA	Vlg	16	23	28	31	34	39	44	47	50	52	54	53	52	51	50	47	46	44	-15.4	76	175.0	59
Austin TX	Med	8	12	15	16	15	16	19	22	25	26	25	27	28	31	29	30	31	33	17.9	30	312.5	38
Bakersfield CA	Sml	1	1	3	3	3	4	4	4	5	5	5	5	5	5	6	6	8	8	60.0	1	700.0	5
Baltimore MD	Lrg	7	11	21	20	20	20	21	22	22	23	22	23	23	25	30	31	31	32	39.1	9	357.1	28
Beaumont TX	Sml	2	3	2	3	3	3	3	3	4	4	4	5	5	6	6	6	6	7	40.0	7	250.0	45
Birmingham AL	Med	5	6	7	8	9	10	12	13	14	15	19	19	19	19	20	21	22	22	15.8	35	340.0	33
Boston MA-NH-RI	Vlg	7	10	17	17	19	19	20	20	20	22	23	24	24	25	27	27	30	31	29.2	17	342.9	31
Boulder CO	Sml	4	5	6	6	7	9	8	9	9	10	10	10	10	10	9	9	9	9	-10.0	71	125.0	68
Bridgeport-Stamford CT-I	Med	6	10	13	13	15	15	16	18	17	20	22	23	23	23	25	24	23	24	4.3	50	300.0	39
Brownsville TX	Sml	1	1	2	2	2	2	2	2	3	3	3	3	4	4	4	4	4	4	0.0	55	300.0	39
Buffalo NY	Lrg	2	2	4	3	3	4	4	4	4	4	5	6	6	6	6	7	7	7	16.7	31	250.0	45
Cape Coral FL	Sml	5	5	7	8	9	11	13	15	16	15	13	13	12	13	13	14	14	14	16.7	31	180.0	56
Charleston-North Charles	Sml	9	11	15	15	17	17	17	17	16	16	18	18	18	17	18	19	20	19	5.6	49	111.1	70
Charlotte NC-SC	Med	7	12	16	16	16	15	15	15	17	20	22	25	28	29	30	30	31	31	10.7	40	342.9	31
Chicago IL-IN	Vlg	9	13	20	20	20	20	20	22	25	24	25	25	24	24	28	29	30	32	33.3	12	255.6	44
Cincinnati OH-KY-IN	Lrg	3	5	12	12	14	16	18	18	18	21	21	20	20	19	19	20	19	19	-5.0	67	533.3	13
Cleveland OH	Lrg	2	2	5	6	6	8	9	10	11	13	12	12	11	10	9	9	10	9	-18.2	78	350.0	29
Colorado Springs CO	Sml	2	3	4	4	5	6	7	8	8	10	11	13	15	15	15	14	13	16	6.7	47	700.0	5
Columbia SC	Sml	2	4	6	6	7	6	6	6	7	7	7	8	9	9	9	10	10	10	11.1	38	400.0	20
Columbus OH	Lrg	3	4	12	12	13	15	17	18	19	20	20	20	18	20	20	21	24	24	33.3	12	700.0	5
Corpus Christi TX	Sml	3	3	4	4	5	4	4	4	4	5	5	5	5	6	5	6	6	6	20.0	25	100.0	73
Dallas-Fort Worth-Arlingt	Vlg	7	11	17	19	19	21	21	22	22	23	25	28	28	28	29	31	35	40	42.9	3	471.4	16
Dayton OH	Med	6	7	11	11	11	13	11	14	13	14	14	15	14	12	11	11	13	11	-21.4	81	83.3	80
Denver-Aurora CO	Lrg	10	12	14	16	17	20	21	24	26	28	29	31	32	31	29	29	30	33	3.1	53	230.0	52
Detroit MI	Vlg	15	18	29	31	34	35	33	32	33	34	34	35	34	35	37	37	36	35	2.9	54	133.3	67
El Paso TX-NM	Med	2	2	4	5	6	6	8	7	6	7	8	10	11	12	12	13	15	16	45.5	2	700.0	5
Eugene OR	Sml	3	4	5	4	4	4	4	4	4	5	6	7	8	7	7	7	7	8	0.0	55	166.7	60
Fresno CA	Med	6	6	9	9	9	10	10	10	11	11	14	15	15	13	13	12	12	12	-20.0	80	100.0	73
Grand Rapids MI	Med	3	5	8	8	11	14	13	11	12	13	15	15	14	14	13	13	14	14	0.0	55	366.7	24
Hartford CT	Med	3	4	5	6	9	7	8	9	9	11	12	13	13	13	13	12	13	14	7.7	43	366.7	24
Honolulu HI	Med	8	10	16	15	17	16	16	17	17	15	15	15	14	14	13	15	15	16	14.3	36	100.0	73
Houston TX	Vlg	20	27	23	21	19	20	21	22	24	28	29	31	31	35	37	37	38	42	35.5	11	110.0	71
Indianapolis IN	Lrg	11	12	18	20	23	29	33	34	35	37	33	32	31	31	30	30	30	28	-9.7	70	154.5	62
Jacksonville FL	Med	9	12	18	18	21	22	23	25	26	24	23	22	22	21	24	25	27	26	18.2	29	188.9	54
Kansas City MO-KS	Lrg	2	3	7	6	7	10	10	10	12	13	13	15	13	13	12	12	11	10	-23.1	83	400.0	20
Laredo TX	Sml	1	1	2	2	2	2	3	4	4	5	5	5	5	6	5	6	6	6	20.0	25	500.0	14
Las Vegas NV	Lrg	6	7	16	18	18	20	22	23	23	22	23	24	22	23	24	25	26	27	22.7	19	350.0	29
Little Rock AR	Sml	2	3	4	4	5	6	6	6	7	7	9	10	9	11	8	9	12	11	22.2	20	450.0	17

Los Angeles-Long Beach	Vlg	31	36	64	60	58	54	51	53	53	53	53	54	53	54	55	53	55	57	7.5	44	83.9	79
Louisville KY-IN	Med	11	11	12	15	18	20	22	22	25	26	28	28	28	25	27	28	31	29	3.6	52	163.6	61
Memphis TN-MS-AR	Lrg	3	4	9	9	10	11	13	14	14	15	15	15	15	16	16	17	18	16	6.7	47	433.3	19
Miami FL	Vlg	9	11	21	20	23	22	23	24	24	25	26	29	30	31	32	33	34	35	16.7	31	288.9	41
Milwaukee WI	Lrg	4	6	11	11	13	13	13	14	14	14	15	16	16	15	14	14	14	14	-12.5	75	250.0	45
Minneapolis-St. Paul MN	Lrg	4	7	13	13	15	18	21	22	23	28	30	31	30	31	29	28	28	30	0.0	55	650.0	10
Nashville-Davidson TN	Med	12	12	18	17	16	16	21	22	22	24	21	22	23	23	25	26	26	25	8.7	42	108.3	72
New Haven CT	Med	3	4	6	6	8	9	9	9	8	10	12	14	14	15	15	15	13	14	0.0	55	366.7	24
New Orleans LA	Lrg	10	13	13	13	12	12	13	13	12	13	13	13	12	11	11	11	11	11	-8.3	69	10.0	84
New York-Newark NY-N	Vlg	7	8	16	15	15	15	17	18	19	21	22	24	22	21	22	24	27	29	31.8	14	314.3	37
Oklahoma City OK	Med	3	4	6	7	7	8	8	11	12	13	14	15	14	15	16	14	14	13	-7.1	68	333.3	34
Omaha NE-IA	Med	3	4	8	8	11	10	11	11	12	11	13	13	14	15	16	16	16	15	7.1	45	400.0	20
Orlando FL	Lrg	10	17	30	32	32	31	32	33	35	38	40	40	39	41	38	36	36	35	-10.3	74	250.0	45
Oxnard-Ventura CA	Med	3	6	9	9	10	12	15	15	17	16	16	16	19	22	23	23	25	27	42.1	6	800.0	2
Pensacola FL-AL	Sml	3	3	6	6	7	8	8	9	11	12	11	12	12	11	12	13	14	14	16.7	31	366.7	24
Philadelphia PA-NJ-DE-M	Vlg	10	11	15	15	16	15	16	16	17	18	20	20	19	21	22	23	23	24	26.3	18	140.0	65
Phoenix AZ	Vlg	21	20	23	23	24	23	23	22	24	25	25	28	28	30	28	29	30	34	21.4	22	61.9	82
Pittsburgh PA	Lrg	6	7	11	11	10	10	9	11	11	10	10	10	10	10	10	9	10	9	-10.0	71	50.0	83
Portland OR-WA	Lrg	8	9	16	16	20	21	21	23	26	26	26	28	27	26	25	25	26	27	0.0	55	237.5	51
Providence RI-MA	Lrg	2	2	5	6	6	7	7	7	9	9	11	13	14	15	16	17	18	17	21.4	22	750.0	4
Raleigh-Durham NC	Med	4	7	14	13	13	14	16	16	17	19	18	19	19	20	22	21	22	23	21.1	24	475.0	15
Richmond VA	Med	4	4	7	8	9	9	11	14	14	13	12	12	10	11	11	12	13	13	30.0	15	225.0	53
Riverside-San Bernardin	Lrg	4	7	22	24	25	24	21	23	25	24	27	28	28	27	29	32	39	40	42.9	3	900.0	1
Rochester NY	Med	2	2	4	4	4	4	4	5	5	5	5	5	5	5	5	6	7	7	40.0	7	250.0	45
Sacramento CA	Lrg	8	12	25	25	23	22	24	24	26	23	24	25	25	26	26	27	30	30	20.0	25	275.0	42
Salem OR	Sml	1	2	4	5	6	7	7	7	7	7	7	8	8	10	10	9	8	8	0.0	55	700.0	5
Salt Lake City UT	Med	5	7	11	12	15	17	20	21	20	19	17	19	20	21	22	23	19	18	-10.0	71	260.0	43
San Antonio TX	Lrg	4	8	7	7	9	9	10	12	14	16	19	23	26	24	24	24	27	27	3.8	51	575.0	12
San Diego CA	Lrg	8	13	30	27	29	27	26	26	28	28	29	34	34	37	40	39	46	44	29.4	16	450.0	17
San Francisco-Oakland (	Vlg	17	32	46	42	41	42	38	41	42	38	40	40	42	40	42	42	44	47	11.9	37	176.5	58
San Jose CA	Lrg	16	27	39	37	34	31	32	35	34	32	34	38	38	39	37	38	35	38	0.0	55	137.5	66
Sarasota-Bradenton FL	Med	8	12	10	11	10	12	11	11	13	13	13	15	14	14	15	15	15	15	7.1	45	87.5	77
Seattle WA	Vlg	8	14	33	34	35	36	36	36	36	38	37	36	34	32	31	32	32	34	0.0	55	325.0	36
Spokane WA	Sml	2	3	4	5	6	7	7	6	6	6	6	7	7	6	6	5	5	5	-28.6	85	150.0	63
Springfield MA-CT	Med	4	4	5	5	6	6	6	6	6	6	6	7	7	6	6	6	6	7	0.0	55	75.0	81
St. Louis MO-IL	Lrg	7	9	11	10	12	16	21	25	25	26	26	27	26	23	23	21	20	20	-23.1	83	185.7	55
Tampa-St. Petersburg FL	Lrg	15	16	20	23	23	24	24	25	24	23	24	24	23	25	27	28	29	28	21.7	21	86.7	78
Toledo OH-MI	Med	1	1	2	2	3	4	6	7	8	9	10	11	11	11	10	9	11	9	-18.2	78	800.0	2
Tucson AZ	Med	13	15	16	15	15	14	13	14	14	18	18	18	19	20	21	24	24	26	36.8	10	100.0	73
Tulsa OK	Med	5	7	8	8	8	8	8	8	10	11	11	11	11	12	12	12	11	11	0.0	55	120.0	69
Virginia Beach VA	Lrg	8	11	13	13	12	13	15	17	19	20	21	22	18	20	20	20	20	20	11.1	38	150.0	63
Washington DC-VA-MD	Vlg	10	18	27	29	33	34	35	36	39	38	36	38	36	39	40	42	43	43	19.4	28	330.0	35
437 Urban Area Averag	All 437	9	12	18	18	19	19	20	21	22	22	23	24	23	24	24	24	25	26	13.0	NA	188.9	NA
85 Urban Area Average	All 85	10	13	22	22	22	22	23	24	25	26	26	27	27	27	28	28	30	31	14.8	NA	210.0	NA
Very Large Urban Area	Vlg	14	18	29	28	29	28	28	30	31	31	32	33	32	33	34	35	36	38	18.8	NA	171.4	NA
Large Urban Area Aver	Lrg	7	7	9	9	10	12	13	15	16	16	17	18	19	20	21	22	22	24	26.3	NA	242.9	NA
Medium Urban Area Av	Med	5	7	10	10	11	12	13	14	14	15	16	16	16	17	17	17	18	18	12.5	NA	260.0	NA
Small Urban Area Aver	Sml	3	4	5	6	6	7	7	7	8	8	8	9	9	9	10	10	10	10	11.1	NA	233.3	NA

KEY: NA = not applicable; NM= not meaningful.
Very large urban areas - over 3 million population.
Large urban areas - over 1 million and less than 3 million population.
Medium urban areas - over 500,000 and less than 1 million population.
Small urban areas - less than 500,000 population.

[a] Percent changes were calculated using the numbers in this table and were not obtained from the source. Rank is based on the calculated percent

NOTES

"Wasted" fuel is the difference between the fuel consumed under estimated existing conditions and the fuel consumed under free-flow conditions.
The urban areas included are those containing over 500,000 people and several smaller places mostly chosen by previous sponsors of the Texas Transportation Institute study on mobility.

SOURCE

Texas Transportation Institute, The 2007 Annual Urban Mobility Report (College Station, TX: 2007), Internet site http://mobility.tamu.edu as of Dec 5, 2007

Section D
Air Pollution

Table 4-29: Federal Exhaust Emission Certification Standards for Newly Manufactured Gasoline- and Diesel-Powered Light-Duty Vehicles[a,b] (Grams per mile)

Engine type and pollutant	Prior to control[d]	1968-1969	1970-1971	1972	1973-1974	1975-1976	1977-1979	1980	1981	1982-1986	1987-1993	Tier 1[i] 1994-2003[b]	Interim Tier 2[i] 2004-2006	Tier 2[i] 2007+
Gasoline														
HC (total)	11	[g]	2.2	3.4		1.5		0.41				0.41 [(h)]	[h]	
NMHC	[e]	[h]										0.25 (0.31)	[h]	
NMOG	[e]	[h]											0.125 (0.156)	0.100 (0.125)
CO	80	[g]	23	39		15		7.0	3.4			3.4 (4.2)		
Cold-temp. CO[c]	[e]	[h]										10 [(h)]		
NO_x	4	[h]			3.0	3.1	2.0		1.0			0.4 (0.6)		0.14 (0.20)
Particulates	[e]	[h]										0.08 (0.10)	0.08 (0.08)	0.02 (0.02)
Formaldehyde	[e]	[h]											0.015 (0.018)	
Diesel														
HC (total)	11	[h]				1.5		0.41				0.41 [(h)]	[h]	
NMHC	[e]	[h]										0.25 (0.31)	[h]	
NMOG	[e]	[h]											[h] (0.156)	0.100 (0.125)
CO	80	[h]				15		7.0	3.4			3.4 (4.2)	[h] (4.2)	3.4 (4.2)
NO_x	4	[h]				3.1	2.0		1.0			1.0 (1.25)	[h] (0.6)	0.14 (0.20)
Particulates	[e]	[h]								0.60	0.20	0.08 (0.10)	[h] (0.10)	0.02 (0.02)
Formaldehyde	[e]	[h]											[h] (0.018)	0.015 (0.018)
Test procedure		7-mode		CVS-72		CVS-75								
Useful life, intermediate[b]		[h]										5 years/50,000 miles		
Useful life, full		5 years/50,000 miles										10 years/100,000 miles		10 years/120,000 miles

KEY: CO = carbon monoxide; CVS = constant volume sampler; HC = hydrocarbons; NMHC = non-methane hydrocarbons; NMOG = nonmethane organic gases; NOx = nitrogen oxides.

[a] The test procedure for measuring exhaust emissions has changed several times over the course of vehicle emissions regulations. The 7-mode procedure was used through model year 1971 and was replaced by the CVS-72 procedure beginning in model year 1972. The CVS-75 procedure became the test procedure as of model year 1975. While it may appear that the total HC and CO standards were relaxed in 1972-74, these standards were actually more stringent due to the more stringent nature of the CVS-72 test procedure. Additional standards for CO and composite standards for NMHC and NOx tested under the new Supplemental Federal Test Procedure will be phased-in beginning with model year 2000; these standards are not shown in this table.

[b] All emissions standards must be met for a useful life of 5 years/50,000 miles. Beginning with model year 1994, a second set of emissions standards must also be met for a full useful life of 10 years/100,000 miles; these standards are shown in parentheses. Tier 1 exhaust standards were phased-in during 1994-96 at a rate of 40%, 80%, and 100%, respectively.

[c] The cold CO emissions standard is measured at 20 ^{0}F (rather than 75 ^{0}F) and is applicable for a 5-year/50,000-mile useful life.

[d] The "Prior to control" column reports emissions estimates of a typical newly manufactured car in the years before exhaust emissions certification standards were implemented.

[e] No estimate available.

[f] Manufacturers can opt to certify vehicles for a full useful life of 15 years/150,000 miles and have either 1) intermediate useful life standards waived or 2) receive additional NOx credits.

[g] In 1968-69, exhaust emissions standards were issued in parts per million rather than grams per mile and are, therefore, incompatible with this table.

[h] No standard has been set.

[i] The term "tier" refers to a level of standards and is associated with specific years. Interim Tier 2 refers to an intermediate level of standards that move manufacturers toward compliance with Tier 2 standards. Interim Tier 2 and Tier 2 standards are established as "bins." Each bin is a set of standards for NOx, CO, NMOG, formaldehyde, and particulate matter; HC and NMHC standards are dropped for Tier 2 and Interim Tier 2. Manufacturers may certify any given vehicle family to any of the bins available for that vehicle class as long as the resulting sales-weight corporate average NOx standard is met for the full useful life of the vehicle. The Tier 2 corporate average NOx standard is 0.07 grams/mile. Interim corporate-based average NOx standards are based on vehicle type. The interim sales-weighted average for light-duty vehicles (LDVs) is 9.3 grams/mile. For LDVs, Tier 2 standards will be phased in at a rate of 25% in 2004, 50% in 2005, 75% in 2006, and 100% in 2007. During this period, all LDVs not meeting the Tier 2 standards must meet Interim Tier 2 standards.

SOURCES

40 CFR 86, Subpart A (July 1, 2000).

Federal Register, Vol. 65, No. 28, pp. 6851-6858.

Table 4-30a: Federal Exhaust Emission Certification Standards for Newly Manufactured Gasoline- and Diesel-Powered Light-Duty Trucks (Category LDT1)[a,b,c] (Grams per mile)

Engine type and pollutant	Prior to control[g]	1968-1969	1970-1971	1972	1973-1974	1975	1976-1978	1979-1981	1982-1983	1984	1985-1986	1987	1988-1993	Tier 1[k] 1994	1995-2003	Interim Tier 2[k] 2004-2006	Tier 2[k] 2007+
Gasoline																	
HC (total)	11	[i]	2.2	3.4		2.0		1.7		0.80				[j] [R](0.80)		[j]	
NMHC	[h]	[j]												0.25 (0.31)		[j]	
NMOG	[h]	[j]														0.125 (0.156)	0.100 (0.125)
CO	80	[i]	23	39		20		18		10				3.4 (4.2)			
Cold-temp. CO[d]	[e]	[j]												10 [j]			
NO_x	4	[j]			3.0	3.1		2.3					1.2	0.4 (0.6)			0.14 (0.20)
Particulates	[h]	[j]													0.08 (0.10)	0.08 (0.08)	0.02 (0.02)
Formaldehyde	[h]	[j]														0.015 (0.018)	
Diesel																	
HC (total)	11	[j]					2.0	1.7		0.80				[j] (0.80)		[j]	
NMHC	[h]	[j]												0.25 (0.31)		[j]	
NMOG	[h]	[j]														[j] (0.156)	0.100 (0.125)
CO	80	[j]					20	18		10				3.4 (4.2)		[j] (4.2)	3.4 (4.2)
NO_x	4	[j]					3.1	2.3					1.2	1.0 (1.25)		[j] (0.6)	0.14 (0.20)
Particulates	[h]	[j]							0.60		0.26				0.08 (0.10)	[j] (0.10)	0.02 (0.02)
Formaldehyde	[h]	[j]														[j] (0.018)	0.015 (0.018)
LDT1 weight critera[e]		GVWR up through 6,000 pounds						GVWR up through 8,500 pounds					GVWR up through 6,000 lbs; LVW up through 3,750 pounds				
Test procedure [b]		7-mode		CVS-72		CVS-75											
Useful life, intermediate[c,f]		[j]												5 years/50,000 miles		5 years/50,000miles	
Useful life, full		5 years/50,000 miles									11 years/120,000 miles			10 years/100,000 miles			10 years/ 20,000 miles

KEY: CO=carbon monoxide; CVS = constant volume sampler; GVWR=gross vehicle weight rating; HC=hydrocarbons; LVW=loaded vehicle weight; NMHC=nonmethane hydrocarbons; NMOG= nonmethane organic gases; NOx=nitrogen oxides.

[a] Light-duty truck categories LDT1-LDT4 were not created until 1994. From 1968 to 1978, all trucks with a GVWR up to 6,000 pounds were classified as light-duty trucks and were required to meet the same standards. As of 1979, the maximum weight was raised to 8,500 pounds GVWR. During 1988-93, light duty trucks were divided into two subcategories that coincide with the current LDT1-LDT4 categories. The standards for LDT2, LDT3, and LDT4 are shown in tables 4-30b through 4-30d.

[b] The test procedure for measuring exhaust emissions has changed several times over the course of vehicle emissions regulation. The 7-mode procedure was used through model year 1971 and was replaced by the CVS-72 procedure beginning in model year 1972. The CVS-75 procedure became the test procedure as of model year 1975. While it may appear that total HC and CO standards were relaxed in 1972-74, these standards were actually more stringent due to the more stringent nature of the CVS-72 test procedure. Additional standards for CO and composite standards for NMHC and NOx tested over the new Supplemental Federal Test Procedure will be phased-in beginning with model year 2000. These standards are not shown in this table.

[c] Emissions standards had to be met for a useful life of 5 years/50,000 miles through model year 1983, and a full useful life of 11 years/120,000 miles was defined for 1985-93 (several useful life options were available for 1984). Beginning in model year 1994, emissions standards were established for an intermediate useful life of 5 years/50,000 miles as well as a full useful life (full useful life standards are shown in parentheses). HC standards, however, were established only for full useful life. Tier 1 exhaust standards, except particulates standards, were phased in during 1994-96 at a rate of 40%, 80%, and 100%, respectively. Particulate matter standards were phased-in at a rate of 40%, 80%, and 100% during 1995-97.

[d] The cold CO emissions standard is measured at 20 ^{0}F (rather than 75 ^{0}F) and is applicable for a 5-year/50,000-mile useful life.

[e] GVWR is the maximum design loaded weight. LVW is the curb weight (nominal vehicle weight) plus 300 pounds.

[f] Manufacturers can opt to certify vehicles for a full useful life of 15 years/150,000 miles and either have (1) intermediate useful life standards waived or (2) receive additional NOx credits.

[g] The "Prior to controls" column reports emissions estimates of a typical newly manufactured car in the years before exhaust emissions certification standard were implemented.

[h] No estimate available.

[I] In 1968-69, exhaust emissions standards were issued in parts per million rather than grams per mile and are, therefore, incompatible with this

[j] No standard has been set.

[k] The term "tier" refers to a level of standards for specific years. Interim Tier 2 refers to an intermediate level of standards that move manufacturers toward compliance with Tier 2 standards. Interim Tier 2 and Tier 2 standards are established as "bins." Each bin is a set of standards for NOx, CO, NMOG, formaldehyde, and particulates (HC and NMHC standards are dropped for Tier 2 and Interim Tier 2). Manufacturers may certify any given vehicle family to any of the bins available for that vehicle class as long as the resulting sales-weighted corporate average NOx standard is met for the full useful life. The Tier 2 corporate average NOx standard is 0.07 grams/mile. Interim corporate-based average NOx standards are based on vehicle type. The interim corporate sales-weighted average for LDT1 vehicles is 0.3 grams/mile. Tier 2 standards will be phased in at a rate of 25% in 2004, 50% in 2005, 75% in 2006, and 100% in 2007. During this period, all LDT1 vehicles not meeting the Tier 2 standards must meet Interim Tier 2 standards.

SOURCES

40 CFR 86, Subpart A (July 1, 2000).
Federal Register, Vol. 65, No. 28, pp. 6851-6858.

Table 4-30b: Federal Exhaust Emission Certification Standards for Newly Manufactured Gasoline- and Diesel-Powered Light-Duty Trucks (Category LDT2)[a,b,c] (Grams per mile)

Engine type and pollutant	Prior to control[g]	1968-1969	1970-1971	1972	1973-1974	1975	6-197	9-198	1982-1983	1984	1985-1986	1987	8-199	1991-1993	Tier 1k 1994	Tier 1k 1995-2003	Interim Tier 2[k] 2004-2006	Tier 2[k] 2007+
Gasoline																		
HC (total)	11	[e]	2.2	3.4		2.0		1.7		0.80					[j] (0.80)		[j]	
NMHC	[h]	[j]													j (0.40)		[j]	
NMOG	[h]	[j]															0.125 (0.156)	0.100 (0.125)
CO	80	[l]	23	39		20		18		10					4.4 (5.5)		3.4 (4.2)	
Cold-temp. CO[d]	[h]	[j]													13 [(j)]			
NO_x	4	[j]			3.0	3.1		2.3					1.7		0.7 (0.97)		0.4 (0.6)	0.14 (0.20)
Particulates	[h]	[j]														0.1 (0.10)	0.08 (0.08)	0.02 (0.02)
Formaldehyde	[h]	[j]															0.015 (0.018)	
Diesel																		
HC (total)	11	[j]					2.0	1.7		0.80					[j] (0.80)		[j]	
NMHC	[h]	[j]													0.3 (0.40)		[j]	
NMOG	[h]	[j]															[j] (0.156)	0.100 (0.125)
CO	80	[j]					20	18		10					4.4 (5.5)		[j] (4.2)	3.4 (4.2)
NO_x	4	[j]					3.1	2.3					1.7		[j] (0.97)		[j] (0.6)	0.14 (0.20)
Particulates	[h]	[j]							0.60		0.50		0.5	0.13		0.1 (0.10)	[j] (0.10)	0.02 (0.02)
Formaldehyde	[h]	[j]															[j] (0.018)	0.015 (0.018)
LDT2 weight criteria[e]		GVWR up through 6,000 pounds						GVWR up through 8,500 pounds					GVWR up through 6,000 pounds; LVW over 3,750 pounds					
Test procedure[b]		7-mode		CVS-72		CVS-75												
Useful life, intermediate[c, f]		[j]													5 years/50,000 miles		5 years/50,000miles	
Useful life, full		5 years/50,000 miles									11 years/120,000 miles				10 years/100,000 miles			10 years/120,000 miles

KEY: CO=carbon monoxide; GVWR=gross vehicle weight rating; HC=hydrocarbons; LVW=loaded vehicle weight; NMHC=non-methane hydrocarbons; NMHC=nonmethane hydrocarbons; NMOG=nonmethane organic gases; NOx=nitrogen oxides.

[a] Light-duty truck categories LDT1-LDT4 were not created until 1994. From 1968 to 1978 all trucks with a GVWR up to 6,000 pounds were classified as light-duty trucks and were required to meet the same standards. As of 1979, the maximum weight was raised to 8,500 pounds GVWR. During 1988-93, light-duty trucks were divided into two subcategories that coincide with the current LDT1-LDT4 categories. The standards for LDT1, LDT3, and LDT4 are shown in tables 4-30a, 4-40c, and 4-30d.

[b] The test procedure for measuring exhaust emissions has changed several times over the course of vehicle emissions regulation. The 7-mode procedure was used through model year 1971 and was replaced by the CVS-72 procedure beginning in model year 1972. The CVS-75 procedure became the test procedure as of model year 1975. While it may appear that the total HC and CO standards were relaxed in 1972-74, these standards were actually more stringent due to the more stringent nature of the CVS-72 test procedure. Additional standards for CO and composite standards for NMHC and NOx tested over the new Supplemental Federal Test Procedure will be phased-in beginning with model year 2000. These standards are not shown in this table.

[c] Emissions standards had to be met for a useful life of 5 years/50,000 miles through model year 1983, and a full useful life of 11 years/120,000 miles was defined for 1985-93 (several useful life options were available for 1984). Beginning in model year 1994, emissions standards were established for an intermediate useful life of 5 years/50,000 miles as well as a full useful life (full useful life standards are shown in parentheses). HC standards, however, were established only for full useful life. Tier 1 exhaust standards, except particulates standards were phased-in during 1994-96 at a rate of 40%, 80%, and 100%, respectively. Particulates standards were phased-in at a rate of 40%, 80%, and 100% during 1995-97.

[d] The cold CO emissions standard is measured at 20 ^{0}F (rather than 75 ^{0}F) and is applicable for a 5-year/50,000-mile useful life.

[e] GVWR is the maximum design loaded weight. LVW is the curb weight (nominal vehicle weight) plus 300 pounds.

[f] Manufacturers can opt to certify vehicles for a full useful life of 15 years/150,000 miles and either have (1) intermediate useful life standards waived or (2) receive additional NOx credits.

[g] The "Prior to controls" reports emissions estimates of a typical newly manufactured car in the years before exhaust emissions certification standards were implemented

[h] No estimate available.

[i] In 1968-69, exhaust emissions standards were issued in parts per million rather than grams per mile and are, therefore, incompatible with this table

[j] No standard has been set.

[k] The term "tier" refers to a level of standards for specific years. Interim 2 refers to an intermediate level of standards that move manufacturers toward compliance with Tier 2 standards. Interim Tier 2 and Tier 2 standards are established as "bins." Each bin is a set of standards for NOx, CO, NMOG, formaldehyde, and particulates (HC and NMHC standards are dropped for Tier 2 and Interim Tier 2). Manufacturers may certify any given vehicle family to any of the bins available for that vehicle class as long as the resulting sales-weighted corporate average NOx standard is met for the full useful life. The Tier 2 corporate average NOx standard is 0.07 grams/mile. Interim corporate-based average NOx standards are based on vehicle type. The interim corporate sales-weighted average for LDT2 vehicles is 0.3 grams/mile. Tier 2 standards will be phased in at a rate of 25% in 2004, 50% in 2005, 75% in 2006, and 100% in 2007. During this period all LDT2 vehicles not meeting the Tier 2 standards must meet Interim Tier 2 standards.

SOURCES

40 CFR 86, Subpart A (July 1, 2000).

Federal Register, Vol. 65, No. 28, pp. 6851-6858.

Table 4-30c: Federal Exhaust Emission Certification Standards for Newly Manufactured Gasoline- and Diesel-Powered Light-Duty Trucks (Category LDT3)[a,b,c] (Grams per mile)

Engine type and pollutant	Prior to control[g]	1968-1969	1970-1971	1972	1973-1974	1975	1976-1978	1979-1981	1982-1983	1984	1985-1986	1987	1988-1989	1990	1991-1995	Tier 1[k] 1996-2007	Interim Tier 2[k] 2008	Tier 2[k] 2009+
Gasoline																		
HC (total)	11	[l]	2.2	3.4		2.0		1.7		0.80						[j] (0.80)	[j]	
NMHC	[h]	[j]														0.32 (0.46)	[j]	
NMOG	[h]	[j]															0.160 (0.230)	0.125 (0.156)
CO	80	[i]	23	39		20		18		10						4.4 (6.4)		3.4 4.2
Cold-temp. CO[d]	[h]	[j]														12.5 [(j)]		
NO_x	4	[j]			3.0	3.1		2.3					2.3	1.7		0.7 (0.98)	0.4 (0.6)	0.14 (0.20)
Particulates	[h]	[j]														[j] (0.10)	0.08 (0.08)	0.02 (0.02)
Formaldehyde	[h]	[j]															0.018 (0.027)	0.015 (0.018)
Diesel																		
HC (total)	11	[j]					2.0	1.7		0.80						[j] (0.80)	[j]	
NMHC	[h]	[j]														0.32 (0.46)	[j]	
NMOG	[h]	[j]															[j] (0.230)	0.125 (0.156)
CO	80	[j]					20	18		10						4.4 (6.4)	[j]	3.4 4.2
NO_x	4	[j]					3.1	2.3					2.3	1.7		[j] (0.98)	[j] (0.6)	0.14 (0.20)
Particulates	[h]	[j]							0.60		0.50		0.45		0.13	[j] (0.10)	[j] (0.08)	0.02 (0.02)
Formaldehyde	[h]	[j]															[j] (0.027)	0.015 (0.018)
LDT3 weight criteria[e]		GVWR up through 6,000 pounds						GVWR up through 8,500 pounds					Any ALVW			ALVW up through 5,750 pounds		
													GVWR 6,001-8,500 pounds					
Test procedure[b]		7-mode		CVS-72		CVS-75												
Useful life, intermediate[c]		[j]														5 years/50,000 miles		
Useful life, full		5 years/50,000 miles									11 years/120,000 miles							

KEY: ALVW=adjusted loaded vehicle weight; CO = carbon monoxide; GVWR=gross vehicle weight rating; HC = hydrocarbons; NMHC=nonmethane hydrocarbon; NMOG=nonmethane organic gases; NOx=nitrogen oxides.

[a] Light-duty truck categories LDT1-LDT4 were not created until 1994. From 1968 to 1978 all trucks with a GVWR up to 6,000 pounds were classified as light-duty trucks and were required to meet the same standards. As of 1979, the maximum weight was raised to 8,500 pounds GVWR. During 1988-93, light-duty trucks were divided into two subcategories that coincide with the current LDT1-LDT4 categories. The standards for LDT1, LDT2, and LDT4 are given in tables 4-30a, 4-40b, and 4-30d.

[b] The test procedure for measuring exhaust emissions has changed several times over the course of vehicle emissions regulation. The 7-mode procedure was used through model year 1971 and was replaced by the CVS-72 procedure beginning in model year 1972. The CVS-75 procedure became the test procedure as of model year 1975. While it may appear that the total HC and CO standards were relaxed in 1972-74, these standards were actually more stringent due to the more stringent nature of the CVS-72 test procedure. Additional standards for CO and composite standards for NMHC and NOx tested over the new Supplemental Federal Test Procedure will be phased-in beginning with model year 2002. These standards are not shown in this table.

[c] Emissions standards had to be met for a full useful life of 5 years/50,000 miles through model year 1983, and a full useful life of 11 years/120,000 miles was defined for 1985-93 (several useful life options were available for 1984). Beginning in model year 1996, emissions standards were established for an intermediate useful life of 5 years/50,000 miles as well as a full useful life of 11 years/120,000 miles (intermediate and full useful life standards are shown in parentheses). This applied to all pollutants except HC and particulates for all LDT3 vehicles and NOx for diesel-powered LDT3 vehicles, which were only required to meet full useful life standards. Tier 1 exhaust standards were phased-in during 1996-97 at a rate of 50% and 100%, respectively.

[d] The cold CO emissions standard is measured at 20 ^{0}F (rather than 75 ^{0}F) and is applicable for a 5-year/50,000-mile useful life.

[e] GVWR is the maximum design loaded weight. ALVW is the numerical average of the GVWR and the curb weight.

[f] Manufacturers can opt to certify vehicles for a full useful life of 15 years/150,000 miles and either have (1) intermediate useful life standards waived or (2) receive additional NO_x credits.

[g] The "Prior to controls" column reports emissions estimates of a typical newly manufactured car in the years before exhaust emissions certifcation standards were implemented.

[h] No estimate available.

[i] In 1968-69, exhaust emissions standards were issued in parts per million rather than grams per mile and are, therefore, incompatible with this table.

[j] No standard has been set.

[k] The term "tier" refers to a level of standards for specific years. Interim 2 refers to an intermediate level of standards that moves manufacturers toward compliance with Tier 2 standards. Interim Tier 2 and Tier 2 standards are established as "bins." Each bin is a set of standards for NOx, CO, NMOG, formaldehyde, and particulates (HC and NMHC standards are dropped for Tier 2 and Interim Tier 2). Manufacturers may certify any given vehicle family to any of the bins available for that vehicle class as long as the resulting sales-weighted corporate average NOx standard is met for full useful life. The Tier 2 corporate average NOx standard is 0.07 grams/mile. Interim corporate-based average NOx standards are based on vehicle type. The interim corporate sales-weighted average for LDT3 vehicles is 0.6 grams/mile. Tier 2 LDT3 standards will be phased in during 2008 and 2009. In 2008, 50% of LDT3 vehicles must meet Tier 2 standards; the others must meet Interim Tier 2 standards. Beginning in 2009, all LDT3 vehicles must meet Tier 2 standards.

SOURCES

40 CFR 86, Subpart A (July 1, 2000).
Federal Register, Vol. 65, No. 28, pp. 6851-6858.

Table 4-30d: Federal Exhaust Emission Certification Standards for Newly Manufactured Gasoline- and Diesel-Powered Light-Duty Trucks (Category LDT4)[a,b,c] (Grams per mile)

Engine type and pollutant	Prior to control[g]	1968-1969	1970-1971	1972	1973-1974	1975	1976-1978	1979-1981	1982-1983	1984	1985-1986	1987	1988-1989	1990	1991-1995	Tier 1[k] 1996-2007	Interim Tier 2[k] 2008	Tier 2k 2009+
Gasoline																		
HC (total)	11	[l]	2.2	3.4		2.0		1.7		0.80						[j] (0.80)	[j]	
NMHC	[h]	[j]														0.4 (0.56)	[j]	
NMOG	[h]	[j]															0.160 (0.230)	0.125 (0.156)
CO	80	[i]	23	39		20		18		10						5.0 (7.3)	4.4 (6.4)	3.4 (4.2)
Cold-temp. CO[d]	[h]	[j]														13 [(j)]		
NO_x	4	[j]			3.0	3.1		2.3					2.3	1.7		1.1 (1.53)	0.4 (0.6)	0.14 (0.20)
Particulates	[h]	[j]														[j] (0.12)	0.08 (0.08)	0.02 (0.02)
Formaldehyde	[h]	[j]															0.018 (0.027)	0.015 (0.018)
Diesel																		
HC (total)	11	[j]					2.0	1.7		0.80						[j] (0.80)	[j]	
NMHC	[h]	[j]														0.4 (0.56)	[j]	
NMOG	[h]	[j]															[j] (0.230)	0.125 (0.156)
CO	80	[j]					20	18		10						5.0 (7.3)	[j] (6.4)	3.4 (4.2)
NO_x	4	[j]					3.1	2.3					2.3	1.7		[j] (1.53)	[j] (0.6)	0.14 (0.20)
Particulates	[h]	[j]							0.60		0.50		0.5		0.1	[j] (0.12)	[j] (0.08)	0.02 (0.02)
Formaldehyde	[h]	[j]															[j] (0.027)	0.015 (0.018)
LDT4 weight criteria[e]		GVWR up through 6,000 pounds						GVWR up through 8,500 pounds					Any ALVW GVWR 6,001-8,500 pounds			ALVW over 5,750 pounds		
Test procedure[b]		7-mode		CVS-72		CVS-75												
Useful life, intermediate		[j]														5 years/50,000 miles		
Useful life, full		5 years/50,000 miles									11 years/120,000 miles							

KEY: ALVW=adjusted loaded vehicle weight; CO = carbon monoxide; GVWR=gross vehicle weight rating; HC = hydrocarbons; NMHC=nonmethane hydrocarbon; NMOG=nonmethane organic gases; NOx=nitrogen oxides.

[a] Light-duty truck categories LDT1-LDT4 were not created until 1994. From 1968 to 1978 all trucks with a GVWR up to 6,000 pounds were classified as light-duty trucks and were required to meet the same standards. As of 1979, the maximum weight was raised to 8,500 pounds GVWR. During 1988-93, light-duty trucks were divided into two subcategories that coincide with the current LDT1-LDT4 categories. The standards for LDT1, LDT2, and LDT3 are given in tables 4-30a, 4-40b, and 4-30c.

[b] The test procedure for measuring exhaust emissions has changed several times over the course of vehicle emissions regulation. The 7-mode procedure was used through model year 1971 and was replaced by the CVS-72 procedure beginning in model year 1972 The CVS-75 procedure became the test procedure as of model year 1975. While it may appear that the total HC and CO standards were relaxed in 1972-74, these standards were actually more stringent due to the more stringent nature of the CVS-72 test procedure.

Additional standards for CO and composite standards for NMHC and NOx tested over the new Supplemental Federal Test Procedure will be phased-in beginning with model year 2002. These standards are not shown in this table.

[c] Emissions standards had to be met for a full useful life of 5 years/50,000 miles through model year 1983, and a full useful life of 11 years/120,000 miles was defined for 1985-93 (several useful life options were available for 1984). Beginning in model year 1996, emissions standards were established for an intermediate useful life of 5 years/50,000 miles as well as a full useful life of 11 years/120,000 miles (intermediate and full useful life standards are shown in parentheses). This applied to all pollutants except HC and particulates for all LDT4 vehicles and NOx for diesel-powered LDT4 vehicles, which were only required to meet full useful life standards. Tier 1 exhaust standards were phased-in during 1996-97 at a rate of 50% and 100%, respectively.

[d] The cold CO emissions standard is measured at 20 ^{0}F (rather than 75 ^{0}F) and is applicable for a 5-year/50,000-mile useful life.

[e] GVWR is the maximum design loaded weight. ALVW is the numerical average of the GVWR and the curb weight.

[f] Manufacturers can opt to certify vehicles for a full useful life of 15 years/150,000 miles and either have (1) intermediate useful life standards waived or (2) receive additional NOx credits.

[g] The "Prior to control" column reports emissions estimates of a typical newly manufactured car in the years before exhaust emissions certification standards were implemented.

[h] No estimate available.

[i] In 1968-69, exhaust emissions standards were issued in parts per million rather than grams per mile and are, therefore, incompatible with this table.

[j] No standard has been set.

[k] The term "tier" refers to a level of standards for specific years. Interim 2 refers to an intermediate level of standards that moves manufacturers toward compliance with Tier 2 standards. Interim Tier 2 and Tier 2 standards are established as "bins." Each bin is a set of standards for NOx, CO, NMOG, formaldehyde, and particulate matter (HC and non-methane HC standards are dropped for Tier 2 and interim Tier 2). Manufacturers may certify any given vehicle family to any of the bins available for that vehicle class as long as the resulting sales-weighted corporate average NOx standard is met for full useful life. The Tier 2 corporate average NOx standard is 0.07 grams/mile. Interim corporate-based average NOx standards are based on vehicle type. The interim corporate sales-weighted average for LDT4 vehicles is 0.6 grams/mile. Tier 2 standards will be phased in during 2008 and 2009. In 2008, 50% of LDT4 vehicles must meet Tier 2 standards; the others must meet Interim Tier 2 standards. Beginning in 2009, all LDT4 vehicles must meet Tier 2 standards.

SOURCES

40 CFR 86, Subpart A (July 1, 2000).
Federal Register, Vol. 65, No. 28, pp. 6851-6858.

Table 4-31: Federal Exhaust Emission Certification Standards for Newly Manufactured Gasoline- and Diesel-Powered Medium-Duty Passenger Vehicles (MDPV)[a,b]
(Grams per mile)

	Interim Tier 2[f]		Tier 2[f]	
Engine type and pollutant	**2004**	**2008**	**2009+**	
Gasoline				
NMOG	0.195 (0.280)		0.125	(0.156)
CO	5.0 (7.3)		3.4	(4.2)
Cold-temp. CO[c]	12.5			
NO_x	0.6 (0.9)		0.14	(0.20)
Particulates	0.12 (0.12)		0.02	(0.02)
Formaldehyde	0.022 (0.032)		0.015	(0.018)
Diesel				
HC	1.3 g/bhp-hr			
NMHC + NO_x	2.4 g/bhp-hr			
NMOG		[g] (0.280)	0.125	(0.156)
CO	15.5 g/bhp-hr	[g] (7.3)	3.4	(4.2)
NO_x	4.0 g/bhp-hr	[g] (0.9)	0.14	(0.20)
Particulates	0.10 g/bhp-hr	[g] (0.12)	0.02	(0.02)
Formaldehyde		[g] (0.032)	0.015	(0.018)
Smoke opacity (acceleration / lugging / peak)[d]	20/15/50			
Weight Criteria	Greater than 8,500 pounds GVWR; less than 10,000 pounds GVWR			
Test procedure, gasoline	CVS-75			
Test procedure, diesel	EPA Transient	CVS-75		
Useful life-gasoline, intermediate[b,e]	5 years/50,000 miles			
Useful life-gasoline, full	11 years/120,000 miles			
Useful life-diesel, intermediate[b,e]	[g]		5 years/50,000 miles	
Useful life-diesel, full	8 years/110,000 miles	11 years/120,000 miles		

KEY: CO = carbon monoxide; g/bhp-hr = grams per brake horsepower/hour; GVWR = gross vehicle weight rating; HC = hydrocarbons; NMHC=nonmethane hydrocarbon; NMOG = nonmethane organic gases; NOx = nitrogen oxides.

[a] The MDPV category was created for the Interim Tier 2 and Tier 2 vehicle emissions standards. This category was specifically designed to help bring passenger vehicles (such as large sport utility vehicles and passenger vans) over 8,500 pounds GVWR into the Tier 2 program. MDPVs are defined as any complete heavy-duty vehicle less than 10,000 pounds GVWR designed primarily for transportation of persons, including conversion vans (i.e., vans which are intended to be converted to vans used primarily for transporting people). This does not include vehicles that have 1) a capacity of more than 12 persons total, or 2) are designed to accommodate more than 9 persons seated rearward of the driver's seat, or 3) have a cargo box (i.e., a pickup-bed or box) of six feet or more in interior length. Prior to Tier 2 standards, these vehicles would have been regulated as light heavy-duty trucks.

[b] Diesel MDPVs can continue to use light heavy-duty truck standards for new vehicle certification until 2008. Note that these standards are measured in grams per brake horsepower-hour (g/bhp-hr). Beginning in 2008, MDPVs must use the same on-chassis testing procedure as heavy light-duty trucks (catgories LDT3 and LDT4) and must meet standards for MDPVs. Beginning in 2009, MDPVs must meet the same standards as light heavy-duty trucks, except MDPVs are not required to meet Supplemental Federal Test Procedure standards.

[c] The cold CO emissions standard is measured at 20 ^{0}F (rather than 75 ^{0}F) and is applicable for a full useful life of 5-years/50,000-miles.

[d] Smoke opacity is expressed as a percentage for acceleration, lugging, and peak operation modes. Lugging occurs when a vehicle is carrying a load.

[e] Manufacturers can opt to certify vehicles for a useful life of 15 years/150,000 miles and have either 1) intermediate useful life standards waived or 2) receive additional NO_x credits.

[f] The term "tier" refers to a level of standards for specific years. Interim 2 refers to an intermediate level of stndards that moves manufacturers toward compliance with Tier 2 standards. Tier 2 and interim Tier 2 standards are established as "bins." Each bin is a set of standards for NO_x, CO, NMOG, formaldehyde, and particulates (HC and NMHC standards are dropped for Tier 2 and Interim Tier 2). Manufacturers may certify any given vehicle family to any of the bins available for that vehicle class as long as the resulting sales-weighted corporate average NO_x standard is met for full useful life. The Tier 2 corporate average NO_x standard is 0.07 grams/mile. Interim corporate-based average NOx standards are based on vehicle type. The interim corporate sales-weighted average for MDPVs is 0.6 grams/mile. Tier 2 MDPV standards will be phased in during 2008 and 2009. In 2008, 50% of MDPVs must meet Tier 2 standards; the other 50% of MDPVs must meet interim Tier 2 standards. Beginning in 2009, all MDPVs must meet Tier 2 standards.

[g] Diesel MDPVs are not required to meet intermediate life standards during this time period.

SOURCE
40 CFR 86, Subpart A (July 1, 2000) Federal Register, Vol. 65, No. 28, pp. 6851-6858.

Table 4-32a: Federal Exhaust Emissions Certification Standards for Newly Manufactured Gasoline- and Diesel-Powered Light Heavy-Duty Trucks (Grams per brake horsepower-hour)

Engine type and pollutant	1970-73	1974-78	1979-83	1984	1985-86	1987	1988-89	1990	1991-93	1994-97	1998-2003	2004	2005-06	2007	2008+
Gasoline															
HC + NO_x	j	16	10	j											
NO_x + NMHC	j												1.0		j
NMHC	j														0.14
HC	k	j	1.5		1.9	1.1							j		
NO_x	j				10.6			6.0	5.0		4.0		j		0.20
CO	k	40	25		37.1	14.4									
Particulates	j														0.01
Diesel															
HC + NO_x	j	16	10	j											
HC	k	j	1.5	1.3								j			
NO_x	j			10.7				6.0	5.0		4.0	j		0.20	
NO_x + NMHC	j											2.4[l]		j	
NMHC	j													0.14	
CO	k	40	25	15.5											
Particulates	j						0.60		0.25		0.10			0.01	
Smoke opacity (acceleration / lugging / peak)[a]	40/20/[j]	20/15/50													
Weight criteria for light heavy-duty trucks[b]	GVWR over 6,000 lbs		GVWR over 8,500 lbs		GVWR 8,501 through 14,000 lbs										
Test procedure, gasoline[c]	9-mode steady-state				MVMA transient										
Test procedure, diesel[c]	13-mode steady-state			EPA transient											
Useful life (gasoline)[d]	5 years/50,000 miles				8 years/110,000 miles							10 years/110,000 miles			

Complete Vehicles - (Grams per mile)[e,f]

Weight range and pollutant	2005-06	2007	2008+
GVWR 8,500 through 10,000 lbs			
NMOG[g]	0.28		e
NMHC[h]	e		0.195
CO	7.3		
NO_x	0.9		0.2
Particulates	e		0.02
HCHO	e		0.032
GVWR 10,001 lbs through 14,000 lbs			
NMOG[i]	0.33		e
NMHC[i]	e		0.230
CO	8.1		
NO_x	1.0		0.4
Particulates	e		0.02
HCHO	e		0.040
Test procedure[i]	EPA HD-UDDS		

KEY: CO = carbon monoxide; HC = hydrocarbon; NO_x = nitrogen oxides; NMHC = nonmethane hydrocarbons; NMOG = nonmethane organic gas; HCHO = formaldeyhyde.

[a] Smoke opacity is expressed in percentage for acceleration, lugging, and peak modes (acceleration/lugging/peak). Lugging is when a vehicle is carrying a load.

[b] Gross vehicle weight rating (GVWR) is the maximum design loaded weight.

[c] Several testing procedures have been used during the course of exhaust emissions control. A steady-state 9-mode test procedure (13-mode for diesel) was used for 1970-83 standards. For 1984, either the steady-state tests or the U.S. Environmental Protection Agency (EPA) transient test procedure could be used. For diesels, the EPA transient test was required from 1985 to the present. For gasoline-powered vehicles, either the EPA or the Motor Vehicle Manufacturers Association (MVMA transient test procedure could be used during 1985-86, and the MVMA procedure was required thereafter.

[d] Emissions standards apply to the useful life of the vehicle. Useful life was 5 years/50,000 miles through 1983 and became 8 years/110,000 miles beginning in model year 1985. 1984 was a transitional year in which vehicles could meet the older standard (and test procedure) or the newer one. Useful life requirement for gasoline-powered trucks meeting NOx standards for 1998 and after is 10 years/110,000 miles. Starting in 2004, the useful life will be 10 years/110,000 miles. The useful life requirements for heavy-duty diesel truck standards are more complex and vary by vehicle weight, pollutant, test procedure, and year. Consult the U.S. Code of Federal Regulations for further information.

[e] No standard set.

[f] Although emissions standards for HC and CO were in effect for these years, they were not measured in grams per brake horsepower-hour and are, therefore, incompatible with the engine certification section of this table.

[g] Vehicles can meet a NMHC + NO_x standard of 2.5 g/bhp-h, given they meet a NMHC standard of no more than 0.5 g/bhp-h.

[h] Starting in 2005, complete gasoline heavy-duty vehicles of 14,000 lbs GVWR or below will have to be chassis certified.

[i] The manufacturer has the option of satisfying this standard by measurement of nonmethane hydrocarbons or total hydrocarbons.

[j] The manufacturer has the option of satisfying this standard by measurement of nonmethane organic gas or total hydrocarbons.

[k] This test procedure currently exists to test complete vehicles that have been optionally chassis certified. However, chassis certification is not required until 2005.

[l] Required for complete gasoline heavy-duty vehicles only.

NOTE

Tables 4-32a and 4-32b are identical for heavy-duty diesel engines.

SOURCES

40 CFR 86, Electronic Code of Federal Regulations, Internet site at http://www.access.gpo.gov/nara/cfr/cfrhtml_00/Title_40/40cfr86_00.html as of Oct. 9, 2001.

U.S. Environmental Protection Agency, Office of Transportation and Air Quality, personal communication, October 2001.

Table 4-32b: Federal Exhaust Emissions Certification Standards for Newly Manufactured Gasoline- and Diesel-Powered Heavy-Duty Trucks
(Grams per brake horsepower-hour)

Engine type and pollutant	1970-73	1974-78	1979-83	1984	1985-86	1987	1988-89	1990	1991-93	1994-97	1998-2003	2004	2005-2006	2007	2008+
Gasoline															
HC + NO_x	e	16	10	e											
NOx + NMHC	e												1.0		e
NMHC	e														0.14
HC	f	e	1.5	1.9									e		
NO_x	e				10.6			6.0	5.0		4.0		e		0.20
CO	f	40	25	37.1											14.4
Particulates	e														0.01
Diesel															
HC + NO_x	e	16	10	e											
HC	f	e	1.5	1.3								e			
NO_x	e			10.7				6.0	5.0		4.0	e		0.20	
NOx + NMHC	e											2.4[g]		e	
NMHC														0.14	
CO	f	40	25	15.5											
Particulates	e						0.60		0.25		0.10			0.01	
Smoke opacity (acceleration / lugging / peak)[a]	40/20[e]	20/15/50													
Weight criteria for heavy heavy-duty trucks[b]	GVWR over 6,000 lbs		GVWR over 8,500 lbs		GVWR over 14,000 lbs										
Test procedure, gasoline[c]	13-mode steady-state				MVMA transient										
Test procedure, diesel[c]	13-mode steady-state			EPA transient											
Useful life (gasoline)[d]	5 years/50,000 miles				8 years/110,000 miles							10 years/110,000 miles			

KEY: CO = carbon monoxide; HC = hydrocarbon; NO_x = nitrogen oxides; NMHC = nonmethane hydrocarbons.

[a] Smoke opacity is expressed in percentage for acceleration, lugging, and peak modes (acceleration/lugging/peak). Lugging is when a vehicle is carrying a load.

[b] Gross vehicle weight rating (GVWR) is the maximum design loaded weight.

[c] Several testing procedures have been used during the course of exhaust emissions control. A steady-state 9-mode test procedure (13-mode for diesel) was used for 1970-83 standards. For 1984, either the steady-state tests or the U.S. Environmental Protection Agency (EPA) transient test procedure could be used. For diesels, the EPA transient test was required from 1985 to the present. For gasoline-powered vehicles, either the EPA or the Motor Vehicle Manufacturers Association (MVMA) transient test procedure could be used during 1985-86, and the MVMA procedure was required thereafter.

[d] Emissions standards apply to the useful life of the vehicle. Useful life was 5 years/50,000 miles through 1983 and became 8 years/110,000 miles beginning in model year 1985. 1984 was a transitional year in which vehicles could meet the older standard (and test procedure) or the newer one. Useful life requirement for gasoline-powered trucks meeting NOx standards for 1998 and after is 10 years/110,000 miles. Starting in 2004, the useful life will be 10 years/110,000 miles. The useful life requirements for heavy-duty diesel truck standards are more complex and vary by vehicle weight, pollutant, test procedure, and year. Consult the U.S. Code of Federal Regulations for further information.

[e] No standard set.

[f] Although emissions standards for HC and CO were in effect for these years, they were not measured in grams per brake horsepower-hour and are, therefore, incompatible with this table.

[g] Vehicles can meet a NMHC + NO_x standard of 2.5 g/bhp-h, given they meet a NMHC standard of no more than 0.5 g/bhp-h.

NOTE

Tables 4-32a and 4-32b are identical for heavy-duty diesel engines.

SOURCES

40 CFR 86, Electronic Code of Federal Regulations, internet site at http://www.access.gpo.gov/nara/cfr/cfrhtml_00/Title_40/40cfr86_00.html as of Oct. 9, 2001.
U.S. Environmental Protection Agency, Office of Transportation and Air Quality, personnal communication, Oct. 2001.

Table 4-33: Federal Exhaust Emissions Standards for Newly Manufactured Motorcycles[a] (g/km)[b]

Pollutant	Engine displacement	Emissions prior to controls[c]	1978-79	1980-89	1990-96	1997+
Gasoline-powered						
HC	50-169 cc	1.0-13.8	5			
	170-749 cc		5 + 0.0155(D-170)[d]	5.0		
	750 cc and greater		14	5.0		
CO	50 cc and greater	11.0-31.0	17	12		
Methanol-powered						
Total HC equivalent	50 cc and greater				5.0	
CO	50 cc and greater				12	
Natural gas and LPG-powered						
HC	50 cc and greater					5.0
CO	50 cc and greater					12
Useful life (Class I)	50-169 cc		5 years or 12,000 km (7,456 mi), whichever comes first			
(Class II)	170-279 cc		5 years or 18,000 km (11,185 mi), whichever comes first			
(Class III)	280 cc and greater		5 years or 30,000 km (18,641 mi), whichever comes first			

KEY: cc = cubic centimeters; D = engine displacement; g = gram; HC = hydrocarbon; h = hour; kg = kilogram; km = kilometer; lb = pound; LPG = liquefied petroleum gas; mi = miles; mph = miles per hour.

[a] A motorcycle is any motor vehicle with a headlight, taillight, and stoplight, and having two or three wheels and a curb mass less than or equal to 793 kg (1,749 lb). (The limit was 680 kg, or 1,499 lb prior to the 1998 model year.) A motorcycle is excluded from the standards if it has a displacement of less than 50 cc (3.1 cubic inches) or if with a 80 kg (176 lb) driver it cannot start from a dead stop using only the engine or exceed a speed of 40 km/h (25 mph) on a level, paved surface.

[b] Readers who wish to compare motorcycle regulations with passenger car and truck regulations should note that 5.0 g/km = 8.0 g/mi and 12 g/km = 19 g/mi. The formula for 1978-79 HC emissions by motorcycles 170-749 cc becomes, in g/mi., approximately 8.0 + 0.025(D-170).

[c] Estimates of emissions rates prior to controls are ranges of emissions for all engine displacements. Not available for motorcycles powered by fuels other than gasoline.

[d] D = engine displacement in cubic centimeters (cc). For example, the standard for a 300 cc engine would be 5.0 + 0.0155(300-170) = 7.0 g/km.

SOURCE:
40 CFR 86 Subpart E (July 1, 2000). U.S. Environmental Protection Agency, Office of Air and Radiation, personal communication, Aug. 28, 2001.

Table 4-34: Federal Exhaust Emissions Standards for Newly Manufactured and In-Use Aircraft Engines [a,b]

Engine type[c]	Pollutant	Year of engine manufacture						
		1974-75	1976-77	1978-82	1983	1984-96	1997-99	2000+
Turboprop								
	Smoke					[g] $187(rO)^{-0.168}$		
Class T3 turbojet								
	CO (g/kN)[d]						118	
	HC (g/kN)[d]					19.6		
	NO_x (g/kN)[d]						[e] 40 + 2(rPR)	[f] 32 + 1.6(rPR)
	Smoke			25		[h] $83.6(rO)^{-0.274}$		
Class T8 turbojet								
	CO (g/kN)[d]						118	
	HC (g/kN)[d]					19.6		
	NO_x (g/kN)[d]						[e] 40 + 2(rPR)	[f] 32 + 1.6(rPR)
	Smoke	30				[h] $83.6(rO)^{-0.274}$		
Turbofan and turbojet engines other than Classes T3, T8, and TSS								
	CO (g/kN)[d]						118	
	HC (g/kN)[d]					19.6		
	NO_x (g/kN)[d]						[e] 40 + 2(rPR)	[f] 32 + 1.6(rPR)
	Smoke		[i] $83.6(rO)^{-0.274}$		[j] $83.6(rO)^{-0.274}$	[h] $83.6(rO)^{-0.274}$		
TSS engines (supersonic aircraft engines)								
	HC (g/kN)					$140(0.92)^{rPR}$		
	Smoke					[h] $83.6(rO)^{-0.274}$		

KEY: CO = carbon monoxide; g = gram; g/kN = grams of pollutant per kilonewtons of thrust; HC = hydrocarbon, kN = kilonewtons; kW = kilowatt; NOx = nitrogen oxides; rO = rated output, which is the maximum power or thrust available for takeoff; rPR = rated pressure ratio.

[a] Federal standards apply to all planes operating in the United States, regardless of where they were manufactured. This table primarily displays exhaust emissions standards for newly manufactured aircraft engines. Only two standards (smoke standards) have been set for in-use aircraft engines (see footnotes i and k). Therefore, unless otherwised noted, emissions in this table apply to new aircraft engines only.

[b] HC, CO, and NOx are measured using the International Civil Aviation Organization (ICAO) Gaseous Emissions Test Procedure. Smoke is measured using the ICAO Smoke Emission Test Procedure. There is no useful life or warranty period for purposes of compliance with emissions standards.

[c] Examples of commercial aircraft that use each engine type include the following:

Class T3 turbojet–Boeing 707-320s (Class T3 engines are currently out of production, though some are still in use).
Class T8 turbojet–Boeing 727s and 737-200s, and McDonnell-Douglas MD-80s and DC-9s.
Turbofans and turbojets other than T3, T8, and TSS–Boeing 747-400s, 757s, 767-200s and 777s, and McDonnell-Douglas MD-11s; Canadair Regional Jets.
Turboprops–Used mostly in regional airliners such as ATR 72, Dornier 328, and Saab SF 340.

TSS–British Aircraft Corp./Aerospatiale Concorde (the only supersonic aircraft currently used in commercial civil aviation).

[d] Applies to engines with rO>26.7 kN.

[e] Effective as of July 7, 1997. This standard applies only to those engines of a type or model for which the date of manufacture of the first individual production model was on or before Dec. 31, 1995 and for which the date of manufacture of the individual engine was on or before Dec. 31, 1999.

[f] Effective as of July 7, 1997. This standard also applies to engines of a type or model for which the date of manufacture of the first individual production model was after Dec. 31, 1995 and for which the date of manufacture of the individual engine was after Dec. 31, 1999.

[g] Engines with rO>=1,000 kW.

[h] Engines manufactured on or after Jan. 1, 1984 and with rO>=26.7 kN. Smoke number may not exceed 50.

[i] Engines with rated output rO>=129 kN. This is also the in-use standard for all such aircraft engines.

[j] Engines with rO<26.7 kN. Smoke number may not exceed 50.

[k] Class T8 turbojet engines shall not exceed a smoke number of 30 beginning Feb. 1, 1974.

SOURCE:

40 CFR 87, Subparts A-D (July 1, 2000), and U.S. Environmental Protection Agency, Office of Air and Radiation, personal communication, Aug. 28, 2001.

Table 4-35: Federal Exhaust Emissions Standards for Locomotives[a]
(g/bhph except where noted)

Pollutant	Duty-cycle [f]	Tier 0 1973-2001[h]	Tier 1 2002-2004	Tier 2 2005+
Total HC[b]	Line-haul	1.00	0.55	0.30
	Switch	2.10	1.20	0.60
Nonmethane HC[c]	Line-haul	1.00	0.55	0.30
	Switch	2.10	1.20	0.60
Total HC equivalent[d]	Line-haul	1.00	0.55	0.30
	Switch	2.10	1.20	0.60
CO	Line-haul	5.0	2.2	1.5
	Switch	8.0	2.5	2.4
	Line-haul (optional standard)	10.0	10.0	10.0
	Switch (optional standard) [g]	12.0	12.0	12.0
NO_x	Line-haul	9.5	7.4	5.5
	Switch	14.0	11.0	8.1
Particulates	Line-haul	0.60	0.45	0.20
	Switch	0.72	0.54	0.24
	Line-haul (optional standard)	0.30	0.22	0.10
	Switch (optional standard) [g]	0.36	0.27	0.12
Smoke opacity (% opacity-normalized) [h]	Steady-state	30%	25%	20%
	30-second peak	40%	40%	40%
	3-second peak	50%	50%	50%
Useful life		7.5 MWh per hp or 10 years [i, j]		

KEY: bhp = brake horsepower; bhph = brake horsepower hour; CO = carbon monoxide; g = gram; h = hour; MW = megawatt; MWh = megawatt hour; NOx = nitrogen oxides; PM = particulate matter.

[a] Locomotive standards apply to both new and remanufactured locomotives, except as noted.

[b] The line-haul duty-cycle is weighted toward operation in the higher power notches and is typical of line-haul applications. The switch duty-cycle is typical of switch operations, with more emphasis on idle and low power notch emissions. Locomotives generally are required to meet the standards for both duty-cycles. However, Tier 0 dedicated switch locomotives rated at 2,300 hp or less are only required to meet the switch duty-cycle standard.

[c] Tier 0 standards apply to all new production locomotives in the 2001 model year, as well as for any 1994 through 2001 model year freight locomotives remanufactured on or after Jan. 1, 2001. They also apply to all other 1973 through 2001 model year locomotives remanufactured on or after Jan. 1, 2002. Other phase-in options are also available for manufacturers (see 40 CFR 92 for more detail on phase-in options).

[d] Total HC standards apply to locomotives powered by any fuel except alcohol or natural gas or fuels primarily composed of alcohol or natural gas.

[e] Nonmethane HC standards apply to locomotives powered by natural gas or fuels that are primarily composed of natural gas.

[f] Total HC equivalent standards apply to locomotives powered by alcohol or fuels that are primarily composed of alcohol.

[g] Manufacturers and remanufacturers can elect to comply with the alternate CO and PM standards. However, a manufacturer or remanufacturer using the alternate standards must meet both the CO and the PM standards. This allows locomotives to have higher CO emissions in exchange for meeting more stringent PM standards.

[h] Smoke opacity values are normalized to be equivalent to a 1 meter path length.

[i] For Tier 0 locomotives not equipped with MW/h meters, the minimum useful life is 750,000 miles or 10 years, whichever comes first.

[j] This is a minimum standard. The certifying manufacturer or remanufacturer must specify a longer useful life if the locomotive or locomotive engine is designed to last longer than the applicable minimum useful life.

SOURCE: 40 CFR 92, Jul. 1, 2000, and U.S. Environmental Protection Agency, Office of Air and Radiation, personal communication, Aug. 28, 2001.

Table 4-36: Federal Exhaust Emissions Standards for Newly Manufactured Marine Spark-Ignition Outboard, Personal Watercraft[e], and Jet-Boat Engines[a] (g/kWh)

Year	HC + NOx (g/kWh)		Warranty period	Useful life[d]
	Rated power < 4.3 kW	Rated power >= 4.3 kW [c,d]		
1998[b]	278.00	(0.917 x (151 + 557/$P^{0.9}$)) + 2.44	yr for all emissions-related component	Outboard engines: 350 hr/10 yr; Personal watercraft: 350 hr/5 yr
1999	253.00	(0.833 x (151 + 557/$P^{0.9}$)) + 2.89		
2000	228.00	(0.750 x (151 + 557/$P^{0.9}$)) + 3.33		
2001	204.00	(0.667 x (151 + 557/$P^{0.9}$)) + 3.78	1 yr for all emission-related components; 3 yr/200 hr for specified major emissions control components	
2002	179.00	(0.583 x (151 + 557/$P^{0.9}$)) + 4.22		
2003	155.00	(0.500 x (151 + 557/$P^{0.9}$)) + 4.67		
2004	130.00	(0.417 x (151 + 557/$P^{0.9}$)) + 5.11	2 yr/200 hr for all emissions-related components; 3 yr/200 hr for specified major emissions control components	
2005	105.00	(0.333 x (151 + 557/$P^{0.9}$)) + 5.56		
2006+	81.00	(0.250 x (151 + 557/$P^{0.9}$)) + 6.00		

KEY: g = gram; hr = hour; HC = hydrocarbon; hp = horsepower; kW = kilowatt; kWh = kilowatt hour; NOx = nitrogen oxide; yr = year.

[a] The standards apply to marine spark-ignition outboard, personal watercraft, and jet-boat engines only. There are currently no federal standards for marine spark-ignition sterndrive/inboard engines (previously proposed standards have not been finalized). Marine compression-ignition engines under 50 hp are covered under the proposed nonroad compression-ignition engine standards. Federal standards are in development for marine compression-ignition engines over 50 hp.

[b] P = the average power of the engine family in kilowatts (sales-weighted).

[c] As an example, the standards for an outboard engine of 125 hp (just over 93 kW) would be 149.53 g/kWh in 1998, 123.63 g/kWh in 2000, 97.74 g/kWh in 2002, 72.00 g/kWh in 2004, and 46.10 g/kWh in 2006.

[d] All emissions standards must be met for the useful life of the engine.

[e] The standards for personal watercraft did not go into effect until 1999, although the standard went into effect for outboard engines in 1998.

SOURCE

40 CFR 91 July 1, 2000 edition, pp. 301-302, 398, and U.S. Environmental Protection Agency, Office of Air and Radiation, personal communication, Aug. 28, 2001.

Table 4-37: Tier 2 Federal Exhaust Emissions Standards for Newly Manufactured Commercial Marine Compression-Ignition Engines[a,b]

Engine category[c]	Displacement (liters/cylinder)	Rated power (kW)	Year	NOx + THC (g/kW-hr)	PM (g/kW-hr)	CO (g/kW-hr)	Useful Life[d]	Warranty Period
1	< 0.9	37 kW and above	2005	7.5	0.40	5.0	10 yrs or 10,000 hrs operation	5 yrs or 5,000 hrs operation
	0.9 to < 1.2		2004	7.2	0.30			
	1.2 to < 2.5		2004	7.2	0.20			
	2.5 to < 5.0		2007	7.2	0.20			
2	5.0 to < 15.0	37 kW and above	2007	7.8	0.27	5.0	10 yrs or 20,000 hrs operation	5 yrs or 10,000 hrs operation
				8.7	0.50			
	15.0 to < 20.0	37 kW to < 3,300 kW						
	15.0 to < 20.0	3,300 kW and above		9.8	0.50			
	20.0 to < 25.0	37 kW and above		9.8	0.50			
	25.0 to < 30.0	37 kW and above		11.0	0.50			
3	30 and above	37 kW and above	No Tier 2 emissions standards have been set for Category 3 commercial marine vessels					

KEY: CO=carbon monoxide; disp=displacement; g/kW-hr=gram per kilowatt-hour; hrs=hours;kW=kilowatt; NOx=nitrogen oxides; PM=particulate matter; THC=total hydrocarbons; yrs=years.

[a] Tier 2 emissions standards established by Congress apply to commercial compression-ignition (diesel) engines with a power rating of at least 37 kW. Both propulsion and auxiliary engines are covered under these standards, but land-based engines used in portable auxiliary equipment must meet standards for land-based engines. Smaller compression-ignition engines are covered under a separate rule. The U.S. Environmental Protection Agency (EPA) also intends to regulate recreational marine diesel engine emissions under a separate rule and is establishing provisions to allow exemptions for category 1 and 2 engines used as auxiliary engines in U.S.-flagged vessels engaged in foreign trade or overseas operations at least 75 percent of the time (i.e., operation will occur more than 320 nautical kilometers outside the United States, not including trips between U.S. ports in Alaska, Hawaii, the continental United States, or its territories).

[b] MARPOL Annex VI nitrogen oxide (NOx) standards (international standards adopted by the International Maritime Convention on the Prevention of Pollution from Ships) are referred to as Tier 1 emissions standards. These standards apply to any diesel engine over 130 kW installed on a vessel constructed on or after Jan. 1, 2000 and to any engine that undergoes major conversion after that date. MARPOL standards are currently voluntary for ships engaged in domestic travel but will be required for ships engaged in foreign trade with countries that ratify MARPOL standards. Although they have not yet been ratified by the United States, the EPA encourages engine manufacturers to make compliant engines and encourages owners to purchase them. If ratified by the United States, MARPOL Annex VI NOx standards will be retroactively effective Jan. 1, 2000.

[c] Emissions standards are based on displacement/cylinder and rated power. The three standards categories are as follows:

Category 1 (< 5 liters displacement/cylinder and rated power >=37 kW): These engines are typically used as propulsion engines on relatively small commercial vessels (fishing vessels, tugboats, crewboats, etc.). They are also used as auxiliary engines on vessels of all sizes and applications.

Category 2 (>= 5 liters displacement/cylinder to < 30 liters displacement/cylinder and rated power >=37 kW): The largest engines that are widely used as propulsion engines in harbor and coastal vessels in U.S. waters. These engines also provide auxiliary power on very large vessels. Many of these engines are of similar size and configuration as locomotive engines or use comparable emissions control technologies.

Category 3 (>= 30 liters displacement/cylinder and rated power .=37kW): These are very large high-power engines that are used almost exclusively for propulsion on vessels engaged in international trade.

[d] Manufacturers must demonstrate that the engine or engine family will meet all standards for its useful life. Certification for useful life is accomplished by testing a sample of engines. The warranty period applies to each engine manufactured. The manufacturer of each engine must provide a warranty to the ultimate purchaser or owner (and each subsequent purchaser or owner) that the engine is designed, built, and equipped so as to conform at the time of sale with Tier 2 standards and is free from defects in materials and workmanship that would cause the engine to fail to conform to these standards for the warranty period. Furthermore, this warranty cannot be shorter than any mechanical warranty on the engine and must be at least one half of the useful life period.

SOURCE:

Federal Register, Vol. 64, No. 249, Dec. 29, 1999, pp 73,299 to 73,373, and U.S. Environmental Protection Agency, Office of Air and Radiation, personal communication, Aug. 28, 2001.

Table 4-38: Estimated National Average Vehicle Emissions Rates per Vehicle by Vehicle Type using Gasoline and Diesel(Grams per mile)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
GASOLINE (assuming zero RFG)																		
Light-duty vehicles																		
Exhaust HC	2.79	2.50	2.23	1.98	1.77	1.57	1.39	1.25	1.14	1.05	0.97	0.89	0.81	0.74	0.61	0.52	0.46	0.42
Nonexhaust HC	1.21	1.17	1.12	1.09	1.07	1.05	1.03	1.01	0.98	0.95	0.91	0.88	0.84	0.81	0.77	0.72	0.68	0.62
Total HC	4.00	3.67	3.35	3.07	2.84	2.62	2.41	2.26	2.12	2.00	1.88	1.77	1.65	1.54	1.37	1.25	1.13	1.04
Exhaust CO	42.89	39.15	35.54	32.23	29.32	26.60	24.18	22.38	20.86	19.54	18.53	17.80	16.98	16.14	13.79	12.57	10.87	10.28
Exhaust NO_x	2.70	2.47	2.27	2.09	1.94	1.78	1.64	1.55	1.46	1.35	1.29	1.25	1.20	1.14	1.00	0.92	0.79	0.73
Light-duty trucks																		
Exhaust HC	3.68	3.33	3.00	2.71	2.45	2.21	1.96	1.80	1.65	1.54	1.45	1.35	1.24	1.13	0.96	0.78	0.69	0.64
Nonexhaust HC	1.37	1.30	1.21	1.17	1.13	1.11	1.08	1.05	1.02	1.00	0.98	0.95	0.90	0.84	0.80	0.76	0.71	0.66
Total HC	5.05	4.63	4.21	3.88	3.59	3.32	3.04	2.85	2.68	2.54	2.43	2.30	2.14	1.98	1.76	1.54	1.40	1.31
Exhaust CO	56.23	51.99	47.93	44.34	40.77	37.51	34.47	32.20	30.23	28.28	26.81	25.43	23.85	21.51	18.76	16.23	14.33	13.52
Exhaust NO_x	2.62	2.42	2.26	2.11	1.98	1.84	1.73	1.65	1.59	1.55	1.54	1.53	1.50	1.45	1.32	1.21	1.09	1.02
Heavy-duty vehicles																		
Exhaust HC	3.66	3.34	3.03	2.76	2.39	2.16	1.94	1.73	1.51	1.35	1.22	1.09	0.98	0.82	0.73	0.64	0.53	0.48
Nonexhaust HC	2.74	2.60	2.34	2.25	2.16	2.07	1.97	1.87	1.79	1.69	1.62	1.54	1.48	1.41	1.35	1.24	1.14	1.07
Total HC	6.40	5.94	5.37	5.00	4.55	4.24	3.91	3.60	3.29	3.04	2.84	2.63	2.46	2.24	2.08	1.88	1.67	1.54
Exhaust CO	85.61	78.64	72.12	65.92	60.01	54.16	48.52	43.26	38.82	34.54	31.08	27.59	24.73	20.60	18.46	16.73	14.51	13.55
Exhaust NO_x	7.19	6.96	6.72	6.52	6.35	6.11	5.89	5.73	5.56	5.40	5.26	5.13	5.01	4.91	4.62	4.28	3.73	3.33
Motorcycles																		
Exhaust HC	2.01	1.88	1.82	1.75	1.72	1.69	1.63	1.63	1.62	1.61	1.61	1.61	1.61	1.61	1.61	1.61	1.61	1.61
Nonexhaust HC	0.74	0.73	0.72	0.72	0.71	0.71	0.70	0.69	0.70	0.70	0.70	0.70	0.70	0.70	0.69	0.69	0.69	0.68
Total HC	2.74	2.60	2.54	2.46	2.43	2.40	2.34	2.32	2.32	2.31	2.31	2.31	2.31	2.31	2.31	2.30	2.30	2.29
Exhaust CO	15.15	14.78	14.77	14.76	14.76	14.67	14.59	14.59	14.59	14.59	14.59	14.59	14.59	14.59	14.59	14.58	14.59	14.59
Exhaust NO_x	1.26	1.28	1.28	1.28	1.28	1.26	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
DIESEL																		
Light-duty vehicles																		
Exhaust HC	0.68	0.69	0.71	0.73	0.75	0.77	0.79	0.81	0.81	0.82	0.80	0.76	0.73	0.73	0.60	0.58	0.48	0.36
Exhaust CO	1.49	1.52	1.56	1.60	1.64	1.69	1.73	1.76	1.78	1.79	1.78	1.75	1.73	1.74	1.59	1.57	1.41	1.21
Exhaust NO_x	1.83	1.85	1.86	1.87	1.89	1.89	1.89	1.88	1.86	1.85	1.81	1.72	1.62	1.54	1.43	1.32	1.11	0.85
Light-duty trucks																		
Exhaust HC	1.59	1.60	1.64	1.64	1.68	1.67	1.69	1.63	1.51	1.42	1.02	0.88	0.96	0.97	0.98	0.80	0.79	0.63
Exhaust CO	2.67	2.70	2.76	2.77	2.85	2.85	2.89	2.79	2.60	2.44	1.77	1.54	1.66	1.68	1.68	1.37	1.34	1.06
Exhaust NO_x	2.71	2.66	2.62	2.56	2.53	2.46	2.42	2.31	2.17	2.07	1.76	1.64	1.67	1.66	1.59	1.37	1.30	1.09
Heavy-duty vehicles																		
Exhaust HC	2.21	1.97	1.74	1.55	1.38	1.23	1.10	1.00	0.92	0.85	0.79	0.74	0.69	0.61	0.58	0.54	0.51	0.48
Exhaust CO	10.06	9.22	8.43	7.71	7.00	6.32	5.73	5.23	4.80	4.43	4.10	3.82	3.58	3.37	3.19	3.05	2.90	2.66
Exhaust NO_x	23.34	22.14	21.47	21.10	20.75	20.49	20.24	20.04	19.84	19.14	18.05	16.68	15.52	13.92	12.50	11.45	10.55	9.60
Average Emissions Per Vehicle, RFG and Diesel Fleet																		
Exhaust HC	2.98	2.70	2.42	2.18	1.96	1.76	1.56	1.43	1.32	1.23	1.16	1.08	0.99	0.91	0.77	0.65	0.581	0.543
Nonexhaust HC	1.21	1.16	1.10	1.06	1.04	1.01	0.99	0.97	0.94	0.91	0.89	0.86	0.82	0.77	0.74	0.69	0.65	0.604
Total HC	4.20	3.86	3.52	3.24	3.00	2.77	2.55	2.40	2.26	2.14	2.04	1.93	1.81	1.68	1.51	1.35	1.23	1.147
Exhaust CO	45.07	41.43	37.93	34.76	31.84	29.12	26.65	24.90	23.40	22.00	20.94	20.02	18.94	17.49	15.24	13.56	11.95	11.318
Exhaust NO_x	4.15	3.92	3.75	3.61	3.49	3.36	3.24	3.18	3.12	3.02	2.91	2.78	2.65	2.48	2.25	2.07	1.87	1.726

KEY: CO = carbon monoxide; HC = hydrocarbon; NO_x = nitrogen oxide; RFG = reformulated gasoline.

NOTES

As of July 1 of each year. Vehicles types are defined as follows: light-duty vehicles (passenger cars up to 6,000 lb GVWR); light-duty trucks (pickups and minivans up to 8,500 lb GVWR); heavy-duty vehicles (8,501 lbs or more GVWR); motorcycle (highway only). This table is based on MOBILE6, the U.S. Environmental Protection Agency's (EPA) latest highway vehicle emissions factor model. Interested readers can learn more about the MOBILE6 model at the following USEPA Internet site http://www.epa.gov/otaq/m6.htm.

Emissions factors are national averages based on the following assumptions: ambient temperature 75 ºF, daily temperature range 60-84 ºF, average traffic speed 27.6 mph (representative of overall traffic in urban areas), standard operating mode (cold-start, hot-start, stabilized), vehicle-miles traveled fractions, no inspection/maintenance or antitampering programs, and gasoline volatility 9.0 per square inch RVP (Reid vapor pressure).

See Table 4-39 for emissions from vehicles operating on reformulated gasoline.

Data for nonexhaust HC is negligible for diesel light-duty vehicles, light-duty trucks, and heavy-duty vehicles.

Average emissions per vehicle rates assume a fleet comprised exclusively of gasoline and diesel vehicles. For emissions estimates of a fleet using RFG and diesel, see table 4-39.

SOURCE

U.S. Environmental Protection Agency, National Vehicle and Fuel Emissions Laboratory, personal communication, Nov. 29, 2007.

Table 4-39: Estimated National Average Vehicle Emissions Rates per Vehicle by Vehicle Type using Reformulated Gasoline and Diesel (Grams per mile)

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
RFG (assuming 100% RFG)													
Light-duty vehicles													
Exhaust HC	1.45	1.28	1.15	1.04	0.97	0.84	0.76	0.68	0.62	0.55	0.47	0.41	0.38
Nonexhaust HC	0.89	0.87	0.86	0.84	0.82	0.64	0.63	0.61	0.59	0.57	0.54	0.51	0.47
Total HC	2.34	2.15	2.01	1.88	1.78	1.48	1.39	1.29	1.21	1.12	1.02	0.921	0.852
Exhaust CO	22.78	20.84	19.43	18.25	17.21	15.36	14.68	13.88	13.17	12.49	11.44	9.81	9.29
Exhaust NO_x	1.78	1.64	1.55	1.46	1.35	1.24	1.19	1.12	1.06	1.00	0.90	0.77	0.72
Light-duty trucks													
Exhaust HC	2.09	1.85	1.69	1.55	1.44	1.27	1.18	1.07	0.97	0.89	0.71	0.63	0.59
Nonexhaust HC	0.93	0.91	0.89	0.87	0.85	0.68	0.67	0.64	0.62	0.59	0.56	0.53	0.50
Total HC	3.02	2.75	2.58	2.42	2.29	1.96	1.84	1.71	1.59	1.48	1.28	1.633	1.086
Exhaust CO	31.86	29.46	27.70	26.19	24.63	22.25	21.09	19.71	17.78	16.66	14.47	15.79	12.03
Exhaust NO_x	1.84	1.73	1.65	1.59	1.55	1.47	1.45	1.41	1.36	1.31	1.20	1.07	1.01
Heavy-duty vehicles													
Exhaust HC	2.14	1.91	1.70	1.48	1.32	1.16	1.03	0.92	0.77	0.70	0.62	0.51	0.45
Nonexhaust HC	1.72	1.64	1.56	1.50	1.43	1.12	1.07	1.03	1.01	0.97	0.90	0.83	0.78
Total HC	3.86	3.55	3.26	2.98	2.75	2.28	2.10	1.96	1.78	1.67	1.51	1.337	1.233
Exhaust CO	46.02	41.15	36.62	32.80	29.12	25.87	22.88	20.41	16.87	15.33	13.89	12.01	11.25
Exhaust NO_x	6.13	5.90	5.74	5.57	5.41	5.18	5.01	4.86	4.75	4.63	4.36	3.79	3.39
Motorcycles													
Exhaust HC	1.69	1.63	1.63	1.62	1.61	1.61	1.61	1.61	1.61	1.61	1.61	1.61	1.61
Nonexhaust HC	0.55	0.54	0.53	0.53	0.53	0.43	0.43	0.43	0.44	0.44	0.43	0.43	0.42
Total HC	2.24	2.17	2.16	2.16	2.14	2.04	2.04	2.04	2.05	2.05	2.04	2.04	2.03
Exhaust CO	12.64	12.56	12.56	12.56	12.56	12.56	12.56	12.56	12.56	12.56	12.56	12.56	12.56
Exhaust NO_x	1.26	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
DIESEL													
Light-duty vehicles													
Exhaust HC	0.77	0.79	0.81	0.81	0.82	0.80	0.76	0.73	0.73	0.60	0.58	0.48	0.36
Exhaust CO	1.69	1.73	1.76	1.78	1.79	1.78	1.75	1.73	1.74	1.59	1.57	1.41	1.21
Exhaust NO_x	1.89	1.89	1.88	1.86	1.85	1.81	1.72	1.62	1.54	1.43	1.32	1.11	0.85
Light-duty trucks													
Exhaust HC	1.67	1.69	1.63	1.51	1.42	1.02	0.88	0.96	0.97	0.98	0.80	0.79	0.63
Exhaust CO	2.85	2.89	2.79	2.60	2.44	1.77	1.54	1.66	1.68	1.68	1.37	1.34	1.06
Exhaust NO_x	2.46	2.42	2.31	2.17	2.07	1.76	1.64	1.67	1.66	1.59	1.37	1.30	1.09
Heavy-duty vehicles													
Exhaust HC	1.23	1.10	1.00	0.92	0.85	0.79	0.74	0.69	0.61	0.58	0.54	0.51	0.48
Exhaust CO	6.32	5.73	5.23	4.80	4.43	4.10	3.82	3.58	3.37	3.19	3.05	2.90	2.66
Exhaust NO_x	20.49	20.24	20.04	19.84	19.14	18.05	16.68	15.52	13.92	12.50	11.45	10.55	9.60
Average Emissions Per Vehicle, RFG and Diesel Fleet													
Exhaust HC	1.65	1.46	1.34	1.23	1.15	1.02	0.94	0.86	0.78	0.71	0.60	0.53	0.50
Nonexhaust HC	0.86	0.84	0.82	0.80	0.78	0.62	0.60	0.58	0.57	0.54	0.52	0.49	0.46
Total HC	2.51	2.30	2.16	2.03	1.93	1.64	1.55	1.44	1.35	1.26	1.12	1.019	0.953
Exhaust CO	24.92	22.93	21.56	20.38	19.27	17.44	16.62	15.64	14.43	13.62	12.18	10.66	10.12
Exhaust NO_x	3.36	3.24	3.18	3.12	3.02	2.85	2.71	2.58	2.40	2.24	2.06	1.86	1.71

KEY: CO = carbon monoxide; HC = hydrocarbon; NOx = nitrogen oxide; RFG = reformulated gasoline.

NOTES

As of July 1 of each year. Vehicle types are defined as follows: light-duty vehicles (passenger cars up to 6,000 lb gross vehicle weight rating GVWR) ; light-duty trucks (pickups and minivans up to 8,500 lb GVWR); heavy-duty vehicles (8,501 lb or more GVWR); motorcycle (on-highway only). The data in this table are based on MOBILE6, and reflect the introduction of RFG starting in 1995. Interested readers can learn more about the MOBILE6 model at the following USEPA Internet site http://www.epa.gov/otaq/m6.htm.

Emissions factors are national averages based on the following assumptions: ambient temperature 75 ºF, daily temperature range 60 -84 ºF, average traffic speed 27.6 mph (representative of overall traffic in urban areas), standard operating mode (cold-start, hot-start, stabilized), vehicle-miles traveled fractions and no inspection/maintenance or antitampering programs.

Emissions estimates in this table assume 100% RFG.

Average emissions per vehicle rates assume a fleet comprised exclusively of reformulated gasoline and diesel vehicles. For emissions estimates of a fleet using gasoline and diesel, see table 4-38.

SOURCE

U.S. Environmental Protection Agency, National Vehicle and Fuel Emissions Laboratory, personal communication, Nov. 29, 2007.

Table 4-40: Estimated National Emissions of Carbon Monoxide (Million short tons)

	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	(R) 2002	(R) 2003	(R) 2004	(R) 2005	(R) 2006	2007
TOTAL all sources	204.04	188.40	185.41	176.85	154.19	147.13	140.90	135.90	133.56	126.78	128.86	117.91	115.38	114.54	114.47	106.26	111.06	106.24	101.43	96.62	92.13	88.25
Highway vehicles	163.23	153.56	143.83	134.19	110.26	104.98	99.71	94.43	89.16	83.88	78.61	75.85	73.24	68.71	68.06	63.48	60.60	56.47	52.35	48.22	44.73	41.61
Off-Highway	11.37	14.33	16.69	19.03	21.45	21.93	22.42	22.90	23.39	23.87	24.36	23.67	23.69	23.32	24.18	24.68	22.66	22.04	21.42	20.80	19.67	18.76
Fuel combustion	4.63	4.48	7.30	8.49	5.51	5.86	6.15	5.59	5.52	5.93	4.34	4.33	4.33	5.54	4.78	4.83	5.47	5.41	5.34	5.27	5.28	5.30
Industrial processes[a]	9.84	7.54	6.95	5.28	4.77	4.62	4.55	4.65	4.61	4.61	3.64	3.80	3.81	2.55	2.63	2.76	2.24	2.24	2.24	2.24	2.24	2.24
Waste disposal and recycling	7.06	3.23	2.30	1.94	1.08	1.12	1.14	1.25	1.23	1.19	2.90	2.95	3.12	3.02	1.85	1.85	1.59	1.59	1.59	1.59	1.59	1.59
Miscellaneous	7.91	5.26	8.34	7.93	11.12	8.62	6.93	7.08	9.66	7.30	15.02	7.32	7.18	11.41	12.96	8.68	18.49	18.49	18.49	18.49	18.62	18.75

Key R = Revised.

[a] Industrial processes consists of chemical and allied product manufacturing, metals processing, petroleum and related industries, other industrial processes; and solvent utilization, storage, and transport.

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 December 2008.

Table 4-41: Estimated National Emissions of Nitrogen Oxides (Million short tons)

	(R) 1970	(R) 1975	(R) 1980	(R) 1985	(R) 1990	(R) 1991	(R) 1992	(R) 1993	(R) 1994	(R) 1995	(R) 1996	(R) 1997	(R) 1998	(R) 1999	(R) 2000	(R) 2001	(R) 2002	(R) 2003	(R) 2004	(R) 2005	(R) 2006	2007
TOTAL	26.88	26.38	27.08	25.76	25.53	25.18	25.26	25.36	25.35	24.96	24.79	24.71	24.35	22.84	22.60	21.55	21.14	20.33	19.52	18.71	17.69	17.03
Highway vehicles	12.62	12.06	11.49	10.93	9.59	9.45	9.31	9.16	9.02	8.88	8.73	8.79	8.62	8.37	8.39	7.77	7.87	7.38	6.90	6.41	5.97	5.56
Off-Highway	2.65	2.97	3.35	3.58	3.78	3.85	3.92	3.98	4.05	4.11	4.18	4.18	4.16	4.08	4.17	4.16	4.51	4.47	4.44	4.40	4.27	4.16
Fuel combustion	10.06	10.49	11.32	10.05	10.89	10.78	10.93	11.11	11.02	10.83	10.51	10.55	10.38	9.20	8.82	8.45	7.49	7.20	6.92	6.63	6.17	6.00
Industrial processes[a]	0.78	0.54	0.56	0.80	0.80	0.72	0.76	0.74	0.77	0.77	0.80	0.84	0.85	0.78	0.81	0.85	0.95	0.95	0.95	0.95	0.93	0.92
Waste disposal and recycling	0.44	0.16	0.11	0.09	0.10	0.10	0.10	0.12	0.11	0.10	0.16	0.16	0.16	0.16	0.13	0.13	0.11	0.11	0.11	0.11	0.11	0.11
Miscellaneous	0.33	0.17	0.25	0.31	0.37	0.29	0.26	0.24	0.39	0.27	0.41	0.19	0.18	0.25	0.28	0.18	0.21	0.21	0.21	0.21	0.24	0.26

KEY: R = revised.

[a] Industrial processes consists of chemical and allied product manufacturing, metals processing, petroleum and related industries, and other industrial processes; and solvent utilization, storage, and transport.

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 December 2008.

Table 4-42: Estimated National Emissions of Volatile Organic Compounds (Million short tons)

	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	(R) 2002	(R) 2003	(R) 2004	(R) 2005	(R) 2006	2007
Total all sources	34.66	30.77	31.11	27.40	24.11	23.58	23.07	22.73	22.57	22.04	20.87	19.53	18.78	18.27	17.51	17.11	21.16	20.77	20.37	19.98	19.16	18.42
Highway vehicles	16.91	15.39	13.87	12.35	9.39	8.86	8.33	7.80	7.28	6.75	6.22	5.99	5.86	5.68	5.33	4.95	4.92	4.64	4.36	4.08	3.82	3.60
Off-Highway	1.62	1.92	2.19	2.44	2.66	2.71	2.75	2.80	2.85	2.89	2.94	2.75	2.67	2.68	2.64	2.62	3.06	2.99	2.93	2.86	2.74	2.65
Fuel combustion	0.72	0.66	1.05	1.57	1.01	1.08	1.12	0.99	0.99	1.07	1.12	1.12	1.12	1.15	1.18	1.19	1.72	1.68	1.63	1.58	1.60	1.63
Industrial processes[a]	12.33	11.10	12.10	9.50	9.01	9.18	9.37	9.53	9.69	9.71	8.14	8.34	7.88	7.49	7.21	7.40	7.10	7.10	7.10	7.10	6.98	6.88
Waste disposal and recycling	1.98	0.98	0.76	0.98	0.99	1.00	1.01	1.05	1.05	1.07	0.51	0.52	0.54	0.49	0.42	0.42	0.40	0.39	0.40	0.40	0.39	0.38
Miscellaneous	1.10	0.72	1.13	0.57	1.06	0.76	0.49	0.56	0.72	0.55	1.94	0.82	0.72	0.79	0.73	0.53	3.97	3.97	3.97	3.97	3.63	3.28

Key R = Revised.

[a] Industrial processes consists of chemical and allied product manufacturing, metals processing, petroleum and related industries, and other industrial processes; and solvent utilization, storage, and transport.

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 December 2008.

Table 4-43: Estimated National Emissions of Particulate Matter (PM-10) [a] (Million short tons)

	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	(R) 1999	(R) 2000	(R) 2001	(R) 2002	(R) 2003	(R) 2004	(R) 2005	(R) 2006	2007
Total all sources	13.02	7.56	7.01	41.32	27.75	27.35	27.10	27.36	28.61	25.82	22.86	22.91	22.89	22.57	22.96	22.94	18.43	18.43	18.42	18.42	16.41	14.46
Highway vehicles	0.48	0.46	0.43	0.41	0.39	0.37	0.35	0.34	0.32	0.30	0.29	0.27	0.26	0.24	0.23	0.21	0.20	0.20	0.19	0.19	0.16	0.15
Off-Highway	0.16	0.21	0.26	0.30	0.33	0.33	0.33	0.34	0.34	0.34	0.34	0.34	0.33	0.34	0.32	0.32	0.31	0.31	0.31	0.31	0.27	0.27
Fuel combustion	2.87	2.25	2.45	1.54	1.20	1.15	1.18	1.12	1.11	1.18	0.91	0.91	0.84	0.85	0.89	0.94	0.54	0.54	0.54	0.54	0.51	0.48
Industrial processes[b]	7.67	3.70	2.75	1.06	1.04	0.99	0.99	0.91	0.91	0.95	0.65	0.67	0.67	0.50	0.51	0.54	1.05	1.05	1.05	1.05	1.04	1.03
Waste disposal and recycling	1.00	0.37	0.27	0.28	0.27	0.28	0.28	0.33	0.31	0.29	0.45	0.47	0.49	0.47	0.36	0.36	0.24	0.24	0.24	0.24	0.23	0.23
Miscellaneous	0.84	0.57	0.85	37.74	24.54	24.23	23.96	24.33	25.62	22.77	20.22	20.25	20.31	20.18	20.64	20.57	16.10	16.10	16.10	16.10	14.20	12.30

Key: R = revised.

[a] Fine particulate matter less than 10 microns. Data include PM without condensibles.

[b] Industrial processes consists of chemical and allied product manufacturing, metals processing, petroleum and related industries, other industrial processes; solvent utilization; and storage and transport.

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 December 2008.

Table 4-44: Estimated National Emissions of Particulate Matter (PM-2.5)[a] (Million short tons)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	(R) 2002	(R) 2003	(R) 2004	(R) 2005	(R) 2006	2007
Total	7.56	7.32	7.20	7.15	7.54	6.93	6.73	6.26	6.26	6.40	6.50	6.22	3.102	3.095	3.089	3.082	2.998	2.958
Highway vehicles	0.32	0.31	0.29	0.28	0.26	0.25	0.23	0.22	0.20	0.18	0.17	0.16	0.15	0.14	0.14	0.13	0.11	0.10
Off-Highway	0.30	0.30	0.31	0.31	0.31	0.31	0.31	0.31	0.30	0.31	0.30	0.29	0.29	0.29	0.29	0.29	0.26	0.25
Fuel combustion	0.91	0.89	0.93	0.85	0.84	0.90	0.67	0.67	0.63	0.67	0.72	0.74	0.29	0.29	0.29	0.29	0.25	0.22
Industrial processes[b]	0.56	0.57	0.58	0.50	0.50	0.50	0.37	0.38	0.39	0.30	0.31	0.32	0.36	0.36	0.36	0.36	0.36	0.35
Waste disposal and recycling	0.23	0.24	0.24	0.29	0.27	0.25	0.43	0.44	0.46	0.44	0.33	0.33	0.22	0.22	0.22	0.22	0.22	0.22
Miscellaneous	5.23	5.00	4.85	4.93	5.36	4.73	4.72	4.24	4.28	4.50	4.68	4.38	1.80	1.80	1.80	1.80	1.81	1.82

Key: R = revised.

[a] Particulate matter less than 2.5 microns in size. Data include PM without condensibles

[b] Industrial processes consists of chemical and allied product manufacturing, metals processing, petroleum and related industries, and othe industrial processes; solvent utilization; and storage and transportation.

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 December 2008.

Table 4-45: Estimated National Emissions of Sulfur Dioxide (Million short tons)

	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	(R) 2002	(R) 2003	(R) 2004	(R) 2005	(R) 2006	2007
TOTAL all sources	31.22	28.04	25.93	23.31	23.08	22.37	22.08	21.77	21.35	18.62	18.39	18.84	18.94	17.54	16.35	15.93	14.78	14.76	14.74	14.71	13.51	12.93
Highway vehicles	0.27	0.33	0.39	0.46	0.50	0.47	0.44	0.40	0.37	0.34	0.30	0.30	0.30	0.30	0.26	0.25	0.25	0.21	0.18	0.15	0.12	0.09
Off-Highway	0.28	0.30	0.32	0.35	0.37	0.38	0.39	0.39	0.40	0.41	0.41	0.42	0.43	0.48	0.44	0.44	0.51	0.51	0.51	0.52	0.46	0.40
Fuel combustion	23.46	22.66	21.39	20.02	20.29	19.80	19.49	19.25	18.89	16.23	16.25	16.65	16.74	15.34	14.16	13.74	12.80	12.81	12.82	12.83	11.74	11.26
Industrial processes[a]	7.09	4.68	3.77	2.43	1.86	1.68	1.72	1.65	1.62	1.59	1.37	1.43	1.43	1.33	1.38	1.43	1.06	1.06	1.06	1.06	1.05	1.03
Waste disposal and recycling	0.01	0.05	0.03	0.03	0.04	0.04	0.04	0.07	0.06	0.05	0.03	0.03	0.03	0.03	0.03	0.04	0.03	0.03	0.03	0.03	0.03	0.03
Miscellaneous	0.11	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.02	0.01	0.01	0.07	0.07	0.04	0.14	0.14	0.14	0.14	0.13	0.13

Key: R = revised.

[a] Industrial processes consists of chemical and allied product manufacturing, metals processing, petroleum and related industries, and other industrial processes; solvent utilization; and storage and transport.

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 December 2008.

Table 4-46: Estimated National Emissions of Lead (Thousand short tons)

	1970	1975	1980	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
TOTAL all sources	**220.88**	**159.67**	**74.16**	**22.89**	**14.77**	**7.68**	**7.05**	**5.49**	**4.98**	**4.17**	**3.81**	**3.92**	**4.05**	**3.93**	**4.08**	**4.14**	**4.06**	**4.20**	**4.23**
Transportation, total	**173.36**	**131.33**	**61.39**	**18.74**	**11.06**	**3.95**	**3.24**	**1.64**	**1.04**	**0.59**	**0.59**	**0.55**	**0.55**	**0.56**	**0.52**	**0.52**	**0.52**	**0.54**	**0.56**
Highway vehicles	171.96	130.21	60.50	18.05	10.25	3.32	2.57	0.98	0.42	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aircraft	1.40	1.12	0.89	0.69	0.81	0.63	0.67	0.66	0.62	0.57	0.57	0.53	0.53	0.54	0.51	0.50	0.50	0.52	0.55
Nontransportation, total	**47.52**	**28.34**	**12.77**	**4.15**	**3.71**	**3.73**	**3.81**	**3.85**	**3.94**	**3.58**	**3.22**	**3.37**	**3.50**	**3.37**	**3.55**	**3.61**	**3.54**	**3.66**	**3.66**
Fuel combustion	10.62	10.35	4.30	0.52	0.52	0.51	0.51	0.51	0.50	0.50	0.49	0.50	0.50	0.49	0.49	0.49	0.49	0.50	0.50
Industrial processes[a]	26.36	11.38	3.94	2.53	2.13	2.16	2.27	2.40	2.48	2.27	1.92	2.05	2.18	2.27	2.27	2.32	2.24	2.35	2.35
Waste disposal and recycling	2.20	1.60	1.21	0.87	0.84	0.84	0.82	0.77	0.80	0.81	0.81	0.83	0.83	0.60	0.79	0.80	0.81	0.81	0.81
Miscellaneous[b]	8.34	5.01	3.32	0.23	0.22	0.22	0.21	0.17	0.16	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01

[a] Industrial processes comprise chemical and allied product manufacturing, metals processing, and other industrial processes.

[b] Miscellaneous comprises other nonroad gasoline, engines and vehicles that could not be accurately allocated to specific source categories.

NOTES

Total lead emissions decreased sharply from 1970 to 1995 as a result of regulatory actions. The lead content of leaded gasoline was reduced dramatically in 1985. In addition, unleaded gasoline was introduced in 1975 for use in automobiles equipped with catalytic control devices. By 1995, unleaded gasoline sales accounted for 99% of the gasoline market.

The EPA now treats lead as a hazardous air pollutant (HAP) and the HAPs emission inventory report is published every three years.

The methodologies used to estimate emissions constantly evolve and undergo major changes. Improved methods are often used to revise estimates for previous years. Therefore, some estimates in this table may not match estimates produced in previous reports, and some trends may not be consistent across years in which major changes in methodology have occurred.

Numbers may not add to totals due to rounding.

SOURCES

1970, 1975: U.S. Environmental Protection Agency, *National Air Quality and Emissions Trends Report: 1999* (EPA-454/R-01-004) (Research Triangle Park, NC: March 2001), table A-2; available at Internet website http://www.epa.gov/oar/aqtrnd99/toc.html as of Sept. 5, 2001.

1980, 1985 and 1989-2000: Ibid, Current Emission Trends Summaries, available at internet website http://www.epa.gov/ttn/chief/trends/trends00/trends2000.pdf as of Oct. 17, 2002.

1986-87: Ibid, National Emission Trends source reports database; available at Internet website www.epa.gov/air/data/nettier.html as of Sept. 5, 2001.

1988: Ibid, *National Air Pollutant Emission Trends: 1900-1998* (EPA-454/R-00-002) (Research Triangle Park, NC: March 2000), table A-2; available at Internet website http://www.epa.gov/ttn/chief/trends/trends98/browse.html as of Sept. 5, 2001.

Table 4-47: Air Pollution Trends in Selected Metropolitan Statistical Areas
(Number of days with AQI values greater than 100 at trend sites and all monitoring sites)

	All sites		Trend sites													
Metropolitan Statistical Area	Total number of sites	AQI days > 100 (2005)	Number of trend sites	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Akron,OH	18	13	7	8	12	11	6	14	25	9	22	24	(R) 6	(R) 6	13	0
Albany-Schenectady-Troy,NY	25	5	5	6	3	4	3	3	6	1	11	8	5	2	3	1
Albuquerque,NM	68	3	18	1	0	0	0	0	1	0	2	4	2	2	0	1
Allentown-Bethlehem-Easton,PA	22	12	5	3	7	6	12	18	19	10	20	25	8	5	(R) 10	4
Atlanta,GA	49	19	19	15	35	25	31	50	73	39	24	20	12	12	11	18
Austin-San Marcos,TX	21	3	1	4	10	0	0	5	8	6	0	5	3	2	1	3
Bakersfield,CA	53	90	15	98	105	109	55	76	(R) 130	132	123	150	141	(R) 131	(R) 85	97
Baltimore,MD	71	27	20	40	36	28	30	51	41	23	33	42	20	16	(R) 25	20
Baton Rouge,LA	33	15	12	7	15	9	12	14	17	29	5	10	15	(R) 10	12	14
Bergen-Passaic,NJ	17	14	6	0	0	0	0	1	2	1	1	1	2	1	4	2
Birmingham,AL	48	31	21	6	32	15	8	23	51	49	(R) 29	(R) 16	(R) 9	13	(R) 29	20
Boston,MA-NH	75	10	10	0	0	0	0	0	(R) 4	0	3	9	8	1	(R) 4	1
Buffalo-Niagara Falls,NY	33	9	10	4	6	3	1	13	8	5	13	(R) 21	8	0	(R) 8	3
Charleston-North Charleston,SC	21	4	12	2	1	3	3	3	5	7	0	3	0	1	4	1
Charlotte-Gastonia-Rock Hill,NC-SC	59	20	10	9	11	16	24	47	34	22	(R) 13	27	4	5	(R) 11	8
Chicago,IL	141	23	46	7	23	6	9	10	19	13	33	(R) 20	10	9	23	5
Cincinnati,OH-KY-IN	84	20	17	16	19	10	11	13	18	15	16	(R) 30	10	4	(R) 13	2
Cleveland-Lorain-Elyria,OH	80	28	27	23	24	17	10	20	(R) 35	21	(R) 27	30	(R) 14	(R) 16	(R) 20	6
Columbus,OH	30	12	7	9	15	13	7	17	24	12	14	21	9	1	8	1
Dallas,TX	81	32	7	24	20	8	20	24	16	20	14	7	5	9	10	13
Dayton-Springfield,OH	22	11	10	14	11	18	9	19	(R) 17	9	(R) 10	(R) 25	7	(R) 2	(R) 9	1
Denver,CO	82	2	23	2	3	0	0	7	3	2	8	7	(R) 17	0	1	6
Detroit,MI	75	25	31	11	14	13	11	17	23	(R) 15	31	(R) 26	19	(R) 5	(R) 24	6
El Paso,TX	56	6	14	6	3	6	2	6	5	5	8	12	7	3	(R) 4	5
Fort Lauderdale,FL	34	0	13	1	1	1	0	1	4	3	3	3	0	0	0	2
Fort Worth-Arlington,TX	33	27	7	31	28	14	14	17	19	17	17	23	25	11	22	19
Fresno,CA	43	64	20	55	61	70	75	67	133	(R) 128	(R) 136	(R) 150	(R) 125	(R) 46	(R) 62	71
Gary,IN	62	13	14	6	17	11	11	9	21	(R) 17	(R) 32	21	(R) 8	(R) 6	(R) 11	0
Grand Rapids-Muskegon-Holland,MI	39	21	13	14	18	9	10	19	23	7	18	24	12	4	(R) 19	9
Greensboro-Winston Salem-High Point,NC	57	6	10	7	6	6	13	25	22	14	11	24	4	(R) 1	2	4
Greenville-Spartanburg-Anderson,SC	24	5	8	5	7	7	9	28	19	15	15	29	4	2	(R) 4	6
Harrisburg-Lebanon-Carlisle,PA	15	16	9	12	13	3	9	22	19	16	22	(R) 20	(R) 9	5	(R) 11	7
Hartford,CT	32	11	7	18	14	5	16	10	18	7	18	23	8	6	11	6
Honolulu,HI	30	3	11	0	0	0	0	0	2	2	2	2	2	2	(R) 2	1
Houston,TX	92	40	22	38	65	26	46	38	51	42	(R) 28	21	31	22	28	18
Indianapolis,IN	85	20	26	22	19	13	12	19	23	8	(R) 13	24	11	1	(R) 17	2
Jacksonville,FL	26	3	14	0	0	0	0	3	2	1	3	0	0	0	(R) 3	0
Jersey City,NJ	16	10	7	12	16	5	9	7	20	4	7	8	5	1	8	10
Kansas City,MO-KS	75	16	16	10	21	6	16	14	3	10	(R) 4	7	11	0	(R) 9	11
Knoxville,TN	52	18	18	16	24	20	36	54	(R) 60	34	(R) 22	43	14	3	14	11
Las Vegas,NV-AZ	86	10	9	2	0	2	0	0	0	0	1	2	(R) 2	(R) 0	2	2
Little Rock-North Little Rock,AR	26	12	4	2	7	1	1	2	6	16	4	(R) 9	1	0	(R) 8	4
Los Angeles-Long Beach,CA	120	80	52	127	103	77	42	49	54	63	81	81	88	65	(R) 43	34
Louisville,KY-IN	53	17	17	28	24	11	18	29	47	15	18	28	(R) 11	3	(R) 15	7
Memphis,TN-AR-MS	40	15	13	10	21	19	17	27	35	28	15	17	9	2	12	9
Miami,FL	19	1	15	1	2	1	3	8	7	2	1	1	1	3	(R) 0	1
Middlesex-Somerset-Hunterdon,NJ	13	15	4	9	16	8	18	21	23	9	(R) 13	(R) 20	(R) 8	6	12	5
Milwaukee-Waukesha,WI	53	18	17	9	14	5	4	10	18	5	(R) 20	(R) 10	9	6	(R) 16	4
Minneapolis-St. Paul,MN-WI	121	6	17	2	3	0	0	1	0	(R) 6	6	1	1	0	2	0
Monmouth-Ocean,NJ	5	16	4	13	20	17	21	31	27	11	21	32	13	8	16	10

Nashville,TN	50	11	17	21	26	22	20	30	(R) 37	(R) 20	7	16	7	1	(R) 10	6
Nassau-Suffolk,NY	19	10	7	15	10	8	12	11	18	5	5	14	7	3	10	5
New Haven-Meriden,CT	36	16	8	13	14	8	19	9	(R) 18	(R) 8	15	25	16	3	13	8
New Orleans,LA	51	5	14	8	20	8	7	7	18	20	6	2	8	5	4	4
New York,NY	104	16	15	13	17	11	22	14	22	19	(R) 19	(R) 27	(R) 11	6	15	11
Newark,NJ	43	15	15	12	20	11	13	22	26	12	(R) 18	(R) 29	(R) 11	7	(R) 11	13
Norfolk-Virginia Beach-Newport News,VA_NC	24	1	12	6	6	4	17	15	17	5	7	15	4	2	1	3
Oakland,CA	81	5	17	1	8	4	0	6	(R) 17	(R) 10	(R) 11	(R) 21	(R) 7	(R) 7	(R) 5	10
Oklahoma City,OK	30	4	10	5	13	2	4	7	4	7	2	(R) 2	(R) 2	0	2	11
Omaha,NE-IA	36	1	13	1	1	0	0	5	5	(R) 1	2	0	(R) 1	1	1	0
Orange County,CA	30	9	8	14	8	6	3	5	4	5	6	4	5	3	0	5
Orlando,FL	22	5	14	3	1	1	4	11	4	3	4	1	0	0	5	1
Philadelphia,PA-NJ	91	27	43	26	30	22	32	37	(R) 33	21	(R) 34	35	(R) 19	(R) 9	(R) 21	18
Phoenix-Mesa,AZ	145	19	25	6	16	14	12	14	9	(R) 14	(R) 8	(R) 10	8	1	(R) 6	7
Pittsburgh,PA	121	48	44	19	25	11	20	39	40	32	(R) 50	50	37	39	48	36
Portland-Vancouver,OR-WA	49	4	14	2	2	6	0	3	5	(R) 6	(R) 2	6	0	3	(R) 2	2
Providence-Fall River-Warwick,RI-MA	47	8	6	0	0	0	0	0	(R) 8	(R) 5	(R) 14	(R) 13	3	(R) 2	(R) 6	2
Raleigh-Durham-Chapel Hill,NC	56	10	6	2	1	1	13	21	27	8	4	18	5	1	(R) 3	0
Richmond-Petersburg,VA	26	7	10	9	14	5	19	22	21	5	12	21	3	1	(R) 5	7
Riverside-San Bernardino,CA	139	106	42	149	124	118	104	95	121	144	(R) 153	146	138	(R) 116	103	97
Rochester,NY	16	0	6	1	6	0	6	4	(R) 7	1	5	(R) 10	(R) 2	0	0	0
Sacramento,CA	91	53	21	36	41	40	14	27	65	41	47	57	(R) 36	26	39	43
St, Louis,MO-IL	134	35	43	31	34	20	15	23	31	20	20	(R) 33	13	2	(R) 27	12
Salt Lake City-Ogden,UT	70	34	13	11	4	8	1	12	(R) 12	(R) 19	(R) 25	(R) 27	10	37	(R) 24	11
San Antonio,TX	23	4	2	3	17	2	3	6	9	0	0	17	4	4	3	2
San Diego,CA	57	9	29	46	48	30	14	32	33	31	30	20	20	16	7	15
San Francisco,CA	26	2	11	0	2	0	0	0	(R) 10	(R) 4	(R) 12	(R) 17	(R) 1	(R) 4	(R) 5	2
San Jose,CA	31	10	5	2	11	7	0	5	17	20	12	9	6	2	6	5
SanJuan-Bayamon,PR	52	0	14	0	0	1	1	0	0	0	1	0	0	0	0	0
Scranton-Wilkes Barre-Hazleton,PA	18	4	12	7	12	4	11	7	12	3	12	(R) 22	6	1	4	1
Seattle-Bellevue-Everett,WA	63	1	9	1	0	0	0	3	6	(R) 8	6	(R) 7	2	1	(R) 3	5
Springfield,MA	39	13	11	12	9	4	9	7	14	4	17	17	9	4	(R) 11	6
Syracuse,NY	19	2	5	1	5	0	2	3	4	1	4	10	2	0	2	0
Tacoma,WA	17	3	4	2	0	1	0	4	1	(R) 15	(R) 10	(R) 9	(R) 3	3	(R) 4	8
Tampa-St. Petersburg-Clearwater,FL	63	11	24	3	2	3	4	11	10	8	4	0	5	0	4	2
Toledo,OH	17	10	5	8	9	11	4	5	(R) 11	5	(R) 13	15	(R) 9	2	10	0
Tucson,AZ	52	2	20	0	3	0	1	0	7	0	0	3	1	0	(R) 1	0
Tulsa,OK	27	7	8	11	19	12	5	7	13	10	6	5	7	0	4	7
Ventura,CA	38	12	16	63	65	62	43	29	24	31	24	10	22	13	11	13
Washington,DC-MD-VA-WV	117	23	42	21	32	18	30	46	(R) 41	(R) 20	(R) 27	(R) 33	(R) 12	10	(R) 18	18
West Palm Beach-Boca Raton,FL	23	0	5	0	0	0	0	2	1	1	1	0	0	0	0	0
Wilmington-Newark,DE-MD	41	13	8	24	27	13	21	24	22	21	(R) 24	22	11	4	12	10
Youngstown-Warren,OH	29	11	8	1	8	6	7	15	15	5	18	18	6	0	5	2

KEY: AQI = Air Quality Index; R = revised.

NOTES

The Air Quality Index (AQI) integrates information on 6 major pollutants (particulate matter less than 10 microns in diameter, particulate matter less than 2.5 microns in diameter, sulfur dioxide, carbon monoxide, ozone, and nitrogen dioxide) across an entire monitoring network into a single number that represents the worst daily air quality experienced in an urban area. An AQI greater than 100 indicates that at least 1 criteria pollutant exceeded air quality standards on a given day; therefore, air quality would be in the unhealthful range on that day. Air quality monitoring sites are selected as "trend sites" if they have complete data for at least 8 of the 10 last years.

SOURCE

U.S. Environmental Protection Agency, Office of Air and Radiation, Air Trends, *Factbook and Related Information*, available at http://www.epa.gov/airtrends/factbook.html as of Nov.28, 2007.

Table 4-48: Areas in Nonattainment of National Ambient Air Quality Standards for Criteria Pollutants
(Condensed nonattainment area list as of September 2003)

Ref. no.	States	Consolidated nonattainment area name [a]	Number of areas in nonattainment [d]						Area population, in 1,000s [h]					
			O_3 [e]	CO	SO_2	PM-10	Pb	NO_2	O_3	CO	SO_2	PM-10	Pb	Total exposed
1	AK	Anchorage	.	1	.	1	.	.		255		195		255
2	AK	Fairbanks	.	1	.	.	.	.		39				39
3	AK	Juneau	.	.	.	1	.	.				13		13
4	AL	Birmingham	1	.	.	.	.	.	805					805
5	AZ	Ajo	.	.	1	1	.	.			7	7		7
6	AZ	Douglas	.	.	1	1	.	.			15	15		15
7	AZ	Miami-Hayden	.	.	2	1	.	.			4	4		4
8	AZ	Morenci	.	.	1	.	.	.			8			8
9	AZ	Nogales	.	.	.	1	.	.				24		24
10	AZ	Paul Spur	.	.	.	1	.	.				1		1
11	AZ	Phoenix	1	1	.	1	.	.	3,028	3,028		3,111		3,111
12	AZ	Rillito	.	.	.	1	.	.				0		0
13	AZ	San Manuel	.	.	1	.	.	.			7			7
14	AZ	Yuma	.	.	.	1	.	.				82		82
15	CA	Imperial Valley	.	.	.	1	.	.				119		119
16	CA	Los Angeles-South Coast Air Basin	1	1	.	1	.	.	14,550	14,550		14,550		14,550
17	CA	Mono Basin (in Mono Co.)	.	.	.	1	.	.				0		0
18	CA	Owens Valley	.	.	.	1	.	.				7		7
19	CA	Sacramento Metro	1	.	.	1	.	.	1,978			1,223		1,978
20	CA	San Diego	1	.	.	.	.	.	2,813					2,813
21	CA	San Francisco-Oakland-San Jose	1	.	.	.	.	.	6,541					6,541
22	CA	San Joaquin Valley	2	.	.	1	.	.	3,302			3,080		3,302
23	CA	Santa Barbara-Santa Maria-Lompoc	1	.	.	.	.	.	399					399
24	CA	Searles Valley	.	.	.	3	.	.				22		22
25	CA	Southeast Desert Modified AQMA	1	.	.	2	.	.	1,024			424		1,024
26	CA	Ventura Co.	1	.	.	.	.	.	753					753
27	CO	Aspen	.	.	.	1	.	.				5		5
28	CO	Denver-Boulder	.	.	.	1	.	.				2,389		2,389
29	CO	Fort Collins	.	1	.	.	.	.		143				143
30	CO	Lamar	.	.	.	1	.	.				8		8
31	CO	Steamboat Springs	.	.	.	1	.	.				9		9
32	CT	Greater Connecticut	1	.	.	1	.	.	2,532			123		2,532
33	DC-MD-VA	Washington	1	.	.	.	.	.	4,544					4,544
34	DE	Sussex County	1	.	.	.	.	.	156					156
35	GA	Atlanta	1	.	.	.	.	.	3,698					3,698
36	GU [b]	Piti Power Plant	.	.	1	.	.	.			1			1
37	GU [b]	Tanguisson Power Plant	.	.	1	.	.	.			1			1
38	ID	Boise	.	1	.	.	.	.		197				197
39	ID	Bonner Co. (Sandpoint)	.	.	.	1	.	.				36		36
40	ID	Pocatello Area	.	.	.	2	.	.				66		66
41	ID	Shoshone Co.	.	.	.	2	.	.				12		12
42	IL-IN	Chicago-Gary-Lake County	1	.	1	3	.	.	8,757		484	322		8,757
43	KY-WV	Ashland-Huntington	.	.	1	.	.	.			49			49
44	LA	Baton Rouge	1	.	.	.	.	.	636					636
45	MA	Boston-Lawrence	1	.	.	.	.	.	5,883					5,883
46	MA	Springfield (W. Mass)	1	.	.	.	.	.	814					814
47	MD	Baltimore	1	.	.	.	.	.	2,512					2,512
48	MD	Kent and Queen Anne Cos.	1	.	.	.	.	.	59					59
49	ME	Knox/Lincoln County	1	.	.	.	.	.	73					73
50	ME	Lewiston-Auburn	1	.	.	.	.	.	220					220
51	ME	Portland	1	.	.	.	.	.	487					487
52	MO	Liberty-Arcadia	.	.	.	.	1	.					6	6
53	MO-IL	St. Louis	1	.	.	.	[g]1	.	2,482				2	2,482
54	MT	Billings/Laurel (Yellowstone Co.)	.	.	1	.	.	.			6			6
55	MT	Butte	.	.	.	1	.	.				34		34
56	MT	Columbia Falls	.	.	.	.	.	1				3		3
57	MT	East Helena (Lewis & Clark Co.)	.	.	1	.	1	.			2		2	2
58	MT	Kalispell	.	.	.	1	.	.				15		15
59	MT	Lame Deer	.	.	.	.	1	.				0		0
60	MT	Libby	.	.	.	1	.	.				3		3
61	MT	Missoula	.	1	.	1	.	.		52		52		52
62	MT	Polson	.	.	.	1	.	.				3		3
63	MT	Ronan	.	.	.	1	.	.				2		2
64	MT	Thompson Falls	.	.	.	1	.	.				1		1
65	MT	Whitefish	.	.	.	1	.	.				5		5
66	NH	Manchester	1	.	.	.	.	.	364					364
67	NH	Portsmouth-Dover-Rochester	1	.	.	.	.	.	192					192
68	NJ	Atlantic City	1	.	.	.	.	.	354					354
69	NM	Anthony	.	.	.	1	.	.				2		2
70	NM	Grant Co.	.	.	1	.	.	.			31			31
71	NM	Sunland Park	[f]1	.	.	.	.	.	10					10

Table 4-48: Areas in Nonattainment of National Ambient Air Quality Standards for Criteria Pollutants
(Condensed nonattainment area list as of September 2003)

Ref. no.	States	Consolidated nonattainment area name [a]	Number of areas in nonattainment [d]						Area population, in 1,000s [h]					
			O_3 [e]	CO	SO_2	PM-10	Pb	NO_2	O_3	CO	SO_2	PM-10	Pb	Total exposed
72	NV	Lake Tahoe	.	1	.	.	.	.		29				29
73	NV	Las Vegas	.	1	.	1	.	.		478		1,375		1,375
74	NV	Reno	1	1	.	1	.	.	339	178		339		339
75	NY	Albany-Schenectady	1	.	.	.	.	.	892					892
76	NY	Buffalo-Niagara Falls	1	.	.	.	.	.	1,170					1,170
77	NY	Essex City, Whiteface	1	.	.	.	.	.	0					0
78	NY	Jefferson Co.	1	.	.	.	.	.	111					111
79	NY	Poughkeepsie	1	.	.	.	.	.	600					600
80	NY-NJ-CT	New York-N. New Jersey-Long Island	1	.	.	1	.	.	19,171			1,537		19,171
81	OH	Cleveland-Akron-Lorain	.	.	1		.	.			1,095			1,095
82	OH	Lucas Co. (Toledo)	.	.	1	.	.	.			455			455
83	OH-KY	Cincinnati-Hamilton	1	.	.	.	.	.	1,514					1,514
84	OH-PA	Youngstown-Warren	1	.	.	.	.	.	120					120
85	OR	Grants Pass	.	.	.	1	.	.				20		20
86	OR	Klamath Falls	.	.	.	1	.	.				19		19
87	OR	LaGrande	.	.	.	1	.	.				12		12
88	OR	Lakeview	.	.	.	1	.	.				3		3
89	OR	Medford	.	.	.	1	.	.				78		78
90	OR	Oakridge	.	.	.	1	.	.				3		3
91	OR	Springfield-Eugene	.	.	.	1	.	.				179		179
92	OR	Salem	.	1	.	.	.	.		135				135
93	PA	Altoona	1	.	.	.	.	.	129					129
94	PA	Erie	1	.	.	.	.	.	280					280
95	PA	Harrisburg-Lebanon	1	.	.	.	.	.	629					629
96	PA	Johnstown	1	.	.	.	.	.	232					232
97	PA	Lancaster	1	.	.	.	.	.	470					470
98	PA	Pittsburgh-Beaver Valley	.	1	2	1	.	.		335	410	21		410
99	PA	Scranton-Wilkes-Barre	1	.	.	.	.	.	763					763
100	PA	Warren Co	.	.	2	.	.	.			20			20
101	PA	York	1	.	.	.	.	.	473					473
102	PA-DE-NJ-MD	Philadelphia-Wilmington-Trenton	1	.	.	.	.	.	6,311					6,311
103	PA-NJ	Allentown-Bethlehem	1	.	1				740		102			740
104	PR	Guaynabo Co.	.	.	.	1	.	.				92		92
105	RI	Providence (all of RI)	1	.	.	.	.	.	1,048					1,048
106	TX	Beaumont-Port Arthur	1	.	.	.	.	.	385					385
107	TX	Dallas-Fort Worth	1	.	.	.	.	.	4,589					4,589
108	TX	El Paso	1	1	.	1	.	.	679	62		563		679
109	TX	Houston-Galveston-Brazoria	1	.	.	.	.	.	4,669					4,669
110	UT	Ogden	.	.	.	1	.	.				77		77
111	UT	Salt Lake City	.	.	1	1	.	.			898	898		898
112	UT	Tooele Co.	.	.	1	.	.	.			40			40
113	UT	Utah Co. (Provo)	.	1	.	1	.	.		118		368		368
114	VA	Smyth Co., White Top	1	.	.	.	.	.		0				0
115	WA	Spokane	.	1	.	1	.	.		322		204		322
116	WA	Wallula	.	.	.	1	.	.				0		0
117	WA	Yakima	.	1	.	1	.	.				63		63
118	WI	Door Co.	1	.	.	.	.	.	27					27
119	WI	Manitowoc Co.	1	.	.	.	.	.	82					82
120	WI	Milwaukee-Racine	1	.	.	.	.	.	1,839					1,839
121	WV	Follansbee	.	.	.	1	.	.				2		2
122	WV	New Manchester Gr. (in Hancock Co)	.	.	1	.	.	.			9			9
123	WV	Wier.-Butler-Clay (in Hancock Co)	.	.	1	1	.	.			16	15		16
124	WY	Sheridan	.	.	.	1	.	.				15		15
National totals (124 areas)[c]			56	16	24	67	3	0	116,228	19,921	3,660	31,850	10	125,730

KEY: CO = carbon monoxide; NO_2 = nitrogen dioxide; O_3 = ozone; Pb = lead; PM-10 = particulate matter smaller than 10 microns; SO_2 = sulfur dioxide; . = all areas in attainment for a particle or pollutant.

[a] This is a simplified listing of classified nonattainment areas. Unclassified and Section 185a (transitional) nonattainment areas are not included. Names of nonattainment areas are listed alphabetically within each state. Note that several smaller nonattainment areas may be inside one larger nonattainment area. In these cases, the smaller nonattainment areas are listed on the same line as the larger one, and the number of nonattainment areas are indicated under each pollutant.

[b] Guam (U.S. territory)

[c] National total includes Guam (U.S. territory).

[d] The number of nonattainment areas for each of the criteria pollutants is listed. A dot (.) indicates that all areas are in attainment for that pollutant.

[e] 1-hour ozone standard.

[f] Ozone nonattainment area is a portion of Dona Ana County, New Mexico.

[g] Lead nonattainment area is Herculaneum, Missouri in Jefferson County.

[h] Population figures were obtained from the 2000 census data. For nonattainment areas defined as only partial counties, population figures for just the nonattainment area were used when these were available. Otherwise, whole county population figures were used. When a larger nonattainment area encompasses a smaller one, double counting the population in the "Total exposed" column is avoided by only counting the population of the larger nonattainment area.
The "Total exposed" values represent estimated population living in areas that are in nonattainment for at least one pollutant.

NOTE
Reference numbers 1-124 do not indicate ranking.

SOURCE

U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, *National Air Quality and Emissions Trends Report, 2003* (Research Triangle Park, NC: 2003), table A-19. Internet website http://www.epa.gov/airtrends/ as of Nov. 17, 2006.

Table 4-49: U.S. Carbon Dioxide Emissions from Energy Use by Sector (Million metric tons of carbon)

Sector	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	(P) 2006
Total U.S. CO_2 Emissions from energy use by sector	1,358.6	1,347.4	1,375.2	1,398.6	1,419.3	1,433.5	1,484.8	1,503.2	1,514.9	1,535.2	1,580.0	1,557.5	1,568.4	(R) 1,599.7	1,624.7	1,631.3	1,606.4
Transportation	428.0	422.5	428.3	433.8	445.0	453.1	465.0	469.8	479.4	492.5	502.9	500.6	508.9	(R) 518.6	534.2	541.7	542.7
Natural gas	9.8	8.9	8.8	9.3	10.2	10.4	10.6	11.2	9.6	9.7	9.7	9.2	10.1	(R) 10.3	8.8	9.1	8.9
Electricity	0.7	0.7	0.7	0.7	0.9	0.9	0.9	0.9	0.9	0.9	1.0	1.0	0.9	(R) 1.3	1.3	1.3	1.4
Petroleum	417.5	412.9	418.8	423.8	433.9	441.8	453.6	457.7	468.9	481.9	492.3	490.4	497.8	(R) 507.0	524.1	531.3	532.5
Motor gasoline	260.5	259.2	263.0	268.9	272.1	276.9	282.0	284.3	292.6	299.9	301.6	303.0	310.5	(R) 316.2	322.0	322.4	323.5
Liquid petroleum gas	0.4	0.3	0.3	0.3	0.5	0.3	0.2	0.2	0.3	0.2	0.2	0.2	0.2	(R) 0.3	0.3	0.3	0.3
Jet fuel	60.1	58.1	57.6	58.1	60.4	60.0	62.7	63.3	64.2	66.2	68.5	65.6	63.9	(R) 63.1	65.4	67.2	65.3
Distillate fuel	72.3	71.1	72.8	75.0	79.6	82.8	88.3	92.3	95.0	98.8	102.0	104.5	106.5	(R) 113.0	118.3	121.2	123.3
Residual fuel	21.6	21.8	22.8	19.2	18.8	19.4	18.1	15.1	14.3	14.2	17.5	14.8	14.4	(R) 12.3	15.9	18.0	17.9
Lubricants	1.8	1.6	1.6	1.6	1.7	1.7	1.6	1.7	1.8	1.8	1.8	1.6	1.6	(R) 1.5	1.5	1.5	1.5
Aviation gas	0.8	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.6	(R) 0.6	0.6	0.7	0.6
Industrial	460.0	448.3	470.0	465.0	472.7	472.2	486.7	490.9	486.4	483.5	484.0	461.2	455.8	(R) 467.1	473.4	457.4	450.2
Residential	258.6	263.6	263.9	280.0	278.2	279.9	296.2	293.8	295.4	301.9	319.2	317.2	325.6	(R) 333.8	333.1	341.7	328.4
Commercial	211.9	213.0	213.0	219.9	223.5	228.3	236.8	248.7	253.7	257.3	273.9	278.4	278.1	(R) 280.1	284.1	290.6	285.1
Total U.S. CO_2 Emissions (Incl. adj. and other sources)[a]	1,360.8	1,352.3	1,383.3	1,412.6	1,435.1	1,447.2	1,498.6	1,515.7	1,524.6	1,546.7	1,593.9	1,575.4	1,588.4	(R) 1,620.1	1,641.8	1,648.6	1,618.5

KEY: CO_2 = carbon dioxide; P = preliminary; R = revised.

[a] "Adjustments" comprise the addition of U.S. territories and the subtraction of military bunker fuels and international bunker fuels. "Other sources" comprise the addition of gas flaring, CO_2 in natural gas, cement production, other industrial, and waste combustion.

NOTES

Electric utility emissions are distributed across end-use sectors.
Numbers may not add to totals due to rounding.
Tons of carbon can be converted to tons of carbon dioxide gas by multiplying by 3.667. One ton of carbon equals 3.667 tons of carbon dioxide gas.

SOURCE

U.S. Department of Energy, Energy Information Administration, *Emissions of Greenhouse Gases in the United States 2006,* Washington, DC: 2007, Internet website http://www.eia.doe.gov/oiaf/1605/ggrpt/index.html as of December 19, 2007.

Section E
Water Pollution, Noise, and Solid Waste

Table 4-50: Petroleum Oil Spills Impacting Navigable U.S. Waterways

	1985		1990		1995		1996		1997		1998		1999		2000		2001		**2002**		**2003**		**2004**	
Source	Incidents	Gallons spilled	Incidents	Gallons spilled	Incidents	Gallons spilled	Incidents	Gallons spilled	Incidents	Gallons spilled	Incidents	Gallons spilled	Incidents	Gallons spilled	Incidents	Gallons spilled	Incidents	Gallons spilled	Incidents	Gallons spilled	Incidents	Gallons spilled	Incidents	Gallons spilled
TOTAL all spills	6,169	8,436,248	8,177	7,915,007	9,038	2,638,229	9,335	3,117,831	8,624	942,574	8,315	885,303	8,539	1,172,449	8,354	1,431,370	7,559	854,520	4,497	638,882	4,192	401,140	3,897	1,416,714
Vessel sources, total	1,662	4,862,911	2,485	6,387,158	5,478	1,624,153	5,586	1,681,020	5,347	380,879	5,172	621,235	5,680	576,475	5,560	1,033,643	5,021	569,856	1,816	247,382	1,715	210,805	1,705	1,306,557
Tankship	164	732,397	249	4,977,251	148	125,491	122	219,311	124	22,429	104	56,673	92	8,414	111	608,176	95	125,217	55	4,753	38	4,450	35	636,834
Tank barge	385	3,683,548	457	992,025	353	1,101,938	313	1,163,258	252	165,649	220	248,089	227	158,977	229	133,540	246	212,298	126	30,219	156	102,874	143	215,822
Other vessels[a]	1,113	446,966	1,779	417,882	4,977	396,724	5,151	298,451	4,971	192,801	4,848	316,473	5,361	409,084	5,220	291,927	4,680	232,341	1,635	212,410	1,521	103,481	1,527	453,901
Nonvessel sources, total	2,802	3,250,229	2,584	1,408,472	1,116	958,222	1,078	1,408,303	1,356	501,265	1,553	246,716	1,615	551,381	1,645	373,761	1,465	270,523	1,286	200,871	1,140	78,563	1,137	70,456
Offshore pipelines	23	17,977	73	46,228	7	1,143	4	386	13	810	10	843	5	35,707	4	17	13	1,241	0	0	1	14,952	0	0
Onshore pipelines	362	759,040	76	270,700	23	10,751	13	978,006	19	223,312	35	47,020	20	433	21	17,004	21	12,336	0	0	0	0	1	15,000
Other[b]	2,417	2,473,212	2,435	1,091,544	1,086	946,328	1,061	429,911	1,324	277,143	1,508	198,853	1,590	515,241	1,620	356,740	1,431	256,946	1,286	200,871	1,139	63,611	1,136	55,456
Mystery[c]	1,705	323,108	3,108	119,377	2,444	55,854	2,671	28,508	1,921	60,430	1,590	17,352	1,244	44,593	1,149	23,966	1,073	14,141	1,395	190,630	1,337	96,819	1,055	39,700

[a] Other vessels include commercial vessels, fishing boats, freight barges, freight ships, industrial vessels, oil recovery vessels, passenger vessels, unclassified public vessels, recreational boats, research vessels, school ships, tow and tug boats, mobile offshore drilling units, offshore supply vessels, publicly owned tank and freight ships, as well as vessels not fitting any particular class (unclassified).

[b] Other nonvessel sources include designated waterfront facilities, nonmarine land facilities, fixed offshore and inshore platforms, mobile facility, municipal facility, aircraft, land vehicles, railroad equipment, bridges, factories, fleeting areas, industrial facilities, intakes, locks, marinas, MARPOL reception facilities, nonvessel common carrier facilities, outfalls, sewers, drains, permanently moored facilities, shipyards, ship repair facilities.

[c] Mystery spills are spills from unknown or unidentified sources. U.S. Coast Guard investigators are unable to identify the vessel or facility that spilled the oil into U.S. navigable waters.

SOURCE

U.S. Coast Guard, Oil Spill Compendium 2004, available at http://www.uscg.mil/hq/g-m/nmc/response/stats/aa.htm as of Aug. 7, 2007.

Table 4-51: Leaking Underground Storage Tank Releases and Cleanups

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Total confirmed releases	87,528	126,816	184,457	237,022	270,567	303,635	317,488	341,773	371,387	397,821	412,392	418,918	427,307	439,385	447,233	452,041	464,728	474,127
Cleanups initiated	51,770	79,506	129,074	171,082	209,797	238,671	252,615	292,446	314,965	346,300	367,603	379,243	384,029	403,558	412,657	421,924	435,631	446,940
Cleanups not initiated	35,758	47,310	55,383	65,940	60,770	64,964	64,873	49,327	56,422	51,521	44,789	39,675	43,278	35,827	34,576	30,117	29,097	27,187
Cleanups completed	16,905	26,666	55,444	87,065	107,448	131,272	152,683	178,297	203,247	228,925	249,759	268,833	284,602	303,120	317,405	332,799	350,813	365,361
Releases not cleaned up	70,623	100,150	129,013	149,957	163,119	172,363	164,805	163,476	168,140	168,896	162,633	150,085	142,705	136,265	129,828	119,242	113,915	108,766

NOTES

All numbers are cumulative.

Data represent fiscal year, October 1 through September 30.

SOURCES

1990: U.S. Environmental Protection Agency, Office of Underground Storage Tanks, personal communications, Nov. 17 and 18, 1998.

1991-2006: Ibid., Internet site http://www.epa.gov/swerust1/cat/camarchv.htm as of Feb. 22, 2008.

Table 4-52: Highway Noise Barrier Construction (Miles)

	Unknown	1963-1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	Total 1963-2004
TOTAL length	6	328	54	45	65	54	106	103	64	99	(R) 143	88	89	(R) 133	54	(R) 102	(R) 140	(R) 54	(R) 82	(R) 132	78	89	105	2,205
Type I barriers[a]	[d]6	210	39	30	40	35	83	88	44	78	114	63	47	(R) 95	37	(R) 70	(R) 116	(R) 31	(R) 67	(R) 95	63	78	88	1,613
Type II barriers[b]	0	114	14	14	24	16	8	8	19	18	18	21	16	32	15	31	23	(R) 18	(R) 11	(R) 18	13	4	14	471
All other types[c]	N	4	1	1	1	3	15	7	1	3	(R) 11	4	26	(R) 6	2	(R) 1	1	(R) 5	(R) 4	(R) 19	2	7	3	121
Cost (2004 $ millions)	0	329	67	57	106	72	168	163	108	176	228	144	135	203	79	180	242	110	147	207	190	171	159	3,442

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

[a] A Type I barrier is built on a new highway project or a physically altered existing highway.

[b] A Type II barrier is built to abate noise along an existing highway (often referred to as retrofit abatement) and is not mandatory.

[c] All other types of barriers are nonfederally funded.

[d] Have not been assigned a year of construction or a cost.

NOTES

Forty-five miles of barriers, while assigned a year of construction, cannot be assigned a cost.

California did not provide data for the years 1999 - 2004 and therefore these years may not be comparable with previous years.

SOURCE

U.S. Department of Transportation, Federal Highway Administration, Office of Environment and Planning, *Highway Traffic Noise Barrier Construction Trends* (Washington, DC: May 2006), tables 1 and 3.

Table 4-53: Number of People Residing in High Noise Areas Around U.S. Airports[a,b,c] (Within 65 dB DNL noise-level contours)

Year	Exposure		U.S. resident population (millions)
	People (thousands)	Percent of U.S. resident population	
1975	7,000	3.24	216.0
1980	5,200	2.29	227.2
1985	3,400	1.43	237.9
1990	2,700	1.08	249.6
1995	1,700	0.64	266.3
1996	1,500	0.56	269.4
1997	1,300	0.48	272.6
1998	1,100	0.40	275.9
1999	680	0.24	279.0
2000	440	0.16	282.2
2001	411	0.14	285.1
2002	294	0.10	287.9
2003	289	0.10	290.8
2004[d]	208	0.07	293.7
2005[d]	148	0.05	296.4

KEY: dB = decibels; DNL = day-night sound level; R = revised; N = Not applicable.

[a] Noise-level contours are graphical representations of noise levels on a map, similar to elevation contours on a topographic map. Noise-level contours are lines that join points of equal sound levels. Areas between given noise-level contour lines would have a noise level between the two contour values. The U.S. Department of Transportation, Federal Aviation Administration (FAA) has identified DNL 65 dB as the highest threshold of airport noise exposure that is normally compatible with indoor and outdoor activity associated with a variety of land uses, including residential, recreational, schools, and hospitals.

[b] Estimates are for areas surrounding airport property of 250 of the largest civil airports with jet operations in the United States. They exclude exposure to aircraft noise within an airport boundary.

[c] 1975 exposure estimates were made by the U.S. Environmental Protection Agency. 1980–2003 estimates were made by FAA.

[d] As of 2004, the FAA no longer publishes the number of people exposed to noise. These are now tracked as percent reduction numbers, which were used to compute the exposure values for these years.

SOURCES

Exposure:

1975-2005: U.S. Department of Transportation, Federal Aviation Administration, Office of Environment and Energy (AEE-12), personal communications, Sept. 19, 2002 , Jan. 18, 2004, Mar. 15, 2005 and June 21, 2007. Performance and Accountability Report

Population:

1975-85: U.S. Department of Commerce, Census Bureau, *Historical National Population Estimates* , Internet site http://www.census.gov/popest/archives/1990s/popclockest.txt as of Mar. 17, 2005.

1990-99: Ibid., *National Intercensal Estimates* , Internet site http://www.census.gov/popest/archives/EST90INTERCENSAL/US-EST90INT.html as of Mar. 17, 2005.

2000-05: Ibid., *Monthly Population Estimates for the United States,* Internet site http://www.census.gov/popest/national/NA-EST2004-01.html as of June 19, 2007.

Table 4-54: Motor Vehicles Scrapped[a] (Thousands)

	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
TOTAL motor vehicles	8,298	6,576	10,137	9,829	11,073	10,850	12,781	8,413	12,369	10,332	10,811	12,509	11,665	11,664	14,299	14,122	13,296	12,085	11,903	9,989	12,008
Passenger cars	7,461	5,669	8,405	7,729	8,897	8,565	11,194	7,366	7,824	7,414	7,527	8,244	6,819	7,216	8,085	7,650	U	U	U	U	U
Trucks	837	908	1,732	2,100	2,177	2,284	1,587	1,048	4,545	2,918	3,284	4,265	4,846	4,447	6,214	6,472	U	U	U	U	U

KEY: U = data are not available.

[a] Data are for the period July 1 to June 30 of the given year.

NOTES

Figures represent vehicles that are not re-registered.

Numbers may not add to totals due to rounding.

SOURCE

1970-2001: The Polk Co., personal communication, July 31, 2002.

2002-07: National Automobile Dealers Association, "NADA Data: Vehicles in Operation and Scrappage,"Internet site http://www.nada.org/Publications/NADADATA/ as of Dec.6, 2007.

Metric Conversion Tables

Table 1-1M: System Kilometers Within the United States

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Highway[a]	5,706,240	5,937,942	6,002,985	6,176,897	6,211,806	6,218,364	6,223,214	6,250,563	6,278,181	6,284,828	6,287,055	6,296,117	6,308,068	6,350,265	6,286,564	6,304,192	6,334,735	6,354,229	6,383,439	6,395,705	6,407,622	6,430,351	6,464,318
Class I rail[b,c]	333,672	321,544	316,202	308,222	265,255	234,584	192,732	187,691	181,946	177,712	175,953	174,234	170,235	164,359	161,852	160,017	159,727	157,421	161,136	159,528	157,172	154,223	152,794
Amtrak[c]	N	N	N	N	38,624	38,624	38,624	40,234	40,234	40,234	40,234	38,624	40,234	40,234	35,406	37,015	37,015	37,015	37,015	36,492	35,818	35,417	34,936
Transit[d]																							
Commuter rail[c]	N	N	N	N	N	5,752	6,649	6,498	6,457	6,583	6,583	6,695	5,926	7,108	8,324	8,354	8,383	8,382	10,993	10,959	11,065	11,455	11,220
Heavy rail	N	N	N	N	N	2,081	2,174	2,203	2,258	2,336	2,342	2,346	2,379	2,457	2,457	2,478	2,507	2,530	2,530	2,571	2,569	2,610	2,613
Light rail	N	N	N	N	N	618	777	887	898	865	904	913	1,027	1,061	1,088	1,291	1,343	1,444	1,544	1,603	1,910	1,912	2,060
Navigable channels[e]	40,234	40,234	41,843	41,843	41,843	41,843	41,843	41,843	41,843	41,843	41,843	41,843	41,843	41,843	41,843	41,843	41,843	41,843	41,843	41,843	41,843	41,843	41,843
Oil pipeline[f]	307,295	339,358	351,917	363,533	351,469	343,764	335,954	328,029	316,309	312,181	306,339	292,759	285,715	289,478	287,506	285,599	284,847	(R) 254,675	(R) 259,088	(R) 257,316	260,183	256,710	272,536
Gas pipeline[g]	1,015,416	1,235,204	1,469,761	1,575,971	1,692,666	1,800,655	1,913,832	1,944,409	1,957,123	2,055,454	2,073,479	2,056,098	2,130,128	2,143,324	2,174,546	2,157,004	2,203,675	2,210,434	2,271,428	2,292,028	2,353,344	2,313,432	2,469,216

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

[a] All public road and street kilometers in the 50 states and the District of Columbia. For years prior to 1980, some kilometers of nonpublic roadways are included. No consistent data on private road kilometers are available. Beginning in 1998, approximately 70,000 kilometers of Bureau of Land Management Roads are excluded.

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

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

[d] Transit system length is measured in directional route-kilometers. Directional route-kilometers is the distance in each direction over which public transportation vehicles travel while in revenue service. Directional route-kilometers are computed with regard to direction of service, but without regard to the number of traffic lanes or rail tracks existing in the right-of-way. Beginning in 2002, directional route-kilometers data for the commuter and light rail modes include purchased transportation. The 2002 data has been revised to include purchased transportation data.

[e] These are estimated sums of all domestic waterways which include rivers, bays, channels, and the inner route of the Southeast Alaskan Islands, but does not include the Great Lakes or deep ocean traffic. The Waterborne Commerce Statistics Center monitored 20,297 kilometers as commercially significant inland shallow-draft waterways in 2001.

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

[g] Excludes service pipelines. Data not adjusted to common diameter equivalent. Kilometers as of the end of each year. Includes gathering, transmission, and distribution mains. Prior to 1990 data also include field lines. See table 1-10 for a more detailed breakout of oil and gas pipeline kilometers. Length data reported in *Gas Facts* prior to 1990 was taken from the American Gas Association's member survey, the Uniform Statistical Report, supplemented with estimates for companies that did not participate in *Gas Facts*. Length data is now based on information reported to the U.S. Department of Transportation on Form 7100.

NOTE

1.609344 kilometers = 1 mile.

SOURCES

Highway:

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

1996-2006: Ibid., *Highway Statistics*, table HM-20, (Washington, DC: Annual issues), Internet site http://www.fhwa.dot.gov/policy/ohpi/hss/index.htm as of Feb. 18, 2008.

Class I rail:

1960-2006: Association of American Railroads, *Railroad Facts 2006* (Washington, DC: 2006), p. 45, and similar tables in earlier editions.

Amtrak:

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

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

2002-06: Association of American Railroads, *Railroad Facts 2007* (Washington, DC: 2007), p. 77, and similar tables in earlier editions.

Transit:

1985-2006: U.S. Department of Transportation, Federal Transit Administration, *National Transit Database 2005* (Washington, DC: 2006), table 23 and similar tables in earlier editions, Internet site http://www.ntdprogram.gov/ntdprogram as of Nov. 9, 2007.

Navigable channels:

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

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

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

2005-06: U.S. Army Corps of Engineers, personal communication, Dec. 12, 2006.(Pending confirmation for 2006)

Oil pipeline:

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

2001-06: U.S. Department of Transportation, Pipeline and Hazardous Materials Administration, Office of Pipeline Safety, Pipeline Statistics, Internet site http://ops.dot.gov/stats.htm as of March 31, 2008.

Gas pipeline:

1960-2006: American Gas Association, *Gas Facts, 2005* (Arlington, VA: 2006), table 5-1 and similar tables in earlier editions.

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

	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	[d]1998	1999	2000	2001	2002	2003	2004	2005	2006
TOTAL lane-kilometers	12,749,503	12,903,711	12,956,959	13,016,041	13,074,455	13,087,501	13,104,911	13,129,436	13,162,268	13,264,917	13,133,628	13,161,188	13,235,639	13,280,060	13,349,784	13,381,890	13,420,032	13,472,974	13,551,624
Urban, total	2,245,429	2,482,154	2,688,403	2,708,127	2,830,403	2,902,894	2,938,464	2,961,365	2,989,596	3,029,873	3,044,248	3,051,294	3,082,703	3,165,655	3,229,046	3,393,543	3,539,197	3,642,525	3,715,335
Interstates	77,986	92,207	100,124	101,109	108,254	111,341	113,993	114,870	115,535	116,286	117,492	117,954	118,950	119,837	120,873	128,089	133,456	138,381	141,532
Other arterials[b]	536,995	598,111	642,733	647,536	673,041	700,686	712,093	717,491	723,368	730,035	730,739	724,866	734,152	736,383	744,893	779,198	813,247	843,036	857,673
Collectors	233,561	261,320	270,000	266,005	283,465	289,123	295,078	297,780	300,823	303,925	301,805	299,876	303,474	305,032	307,132	333,707	350,274	362,984	373,131
Local	1,396,888	1,530,515	1,675,546	1,693,477	1,765,643	1,801,744	1,817,300	1,831,224	1,849,870	1,879,627	1,894,212	1,908,598	1,926,127	2,004,404	2,056,148	2,152,549	2,242,220	2,298,124	2,342,999
Rural, total	10,504,074	10,421,557	10,268,556	10,307,914	10,244,052	10,184,606	10,166,447	10,168,070	10,172,671	10,235,043	10,089,380	10,109,894	10,152,936	10,114,405	10,120,738	9,988,347	9,880,835	9,830,449	9,836,290
Interstates	210,792	212,284	218,663	219,680	214,794	212,655	211,252	212,298	213,983	214,308	214,415	215,971	216,597	216,679	216,569	209,833	205,817	202,076	200,170
Other arterials[b]	816,095	820,773	832,581	833,339	847,664	846,364	852,659	854,089	857,549	864,200	865,816	867,908	869,781	872,807	875,501	859,837	856,243	852,236	846,010
Collectors[c]	2,303,401	2,360,568	2,361,876	2,361,810	2,319,815	2,308,561	2,304,885	2,281,129	2,279,896	2,283,075	2,278,467	2,275,537	2,276,686	2,275,862	2,267,167	2,234,598	2,222,041	2,210,189	2,209,478
Local	7,173,786	7,027,931	6,855,435	6,893,084	6,861,779	6,817,027	6,797,650	6,820,554	6,821,243	6,873,460	6,730,682	6,750,479	6,789,872	6,749,058	6,761,501	6,684,079	6,596,733	6,565,948	6,580,632

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

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

[c] Includes minor and major collectors.

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

NOTE

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

SOURCES

1980-95: U.S. Department of Transportation, Federal Highway Administration, Office of Highway Information Management, table HM-260 (unpublished).

1996-2006: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics* (Washington, DC: Annual issues), table HM-60, Internet site www.fhwa.dot.gov/policy/ohpi as of Jan. 4, 2008.

Table 1-32M: U.S. Vehicle-Kilometers (Millions)

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Air																							
Air carrier, large certificated, domestic, all services	1,381	1,825	3,328	3,135	4,060	4,902	6,378	6,202	6,429	6,690	7,049	7,450	7,743	7,903	8,103	8,582	9,115	8,929	9,039	9,793	10,544	10,806	10,652
General aviation[a]	2,847	4,123	5,161	6,820	8,375	7,520	7,319	7,081	5,576	5,235	5,404	6,107	5,671	6,239	N	N	N	N	N	N	N	N	N
Highway[b], total	1,156,735	1,428,795	1,785,928	2,136,668	2,457,943	2,856,306	3,451,016	3,495,576	3,616,439	3,695,662	3,794,170	3,898,951	4,000,585	4,122,648	4,235,024	4,330,835	4,420,747	4,501,797	4,595,495	4,651,728	4,771,364	(R) 4,811,021	4,850,749
Passenger car[b,c]	944,704	1,163,066	1,475,286	1,663,981	1,788,940	2,006,527	2,266,384	2,185,787	2,207,326	2,212,380	2,262,881	2,314,710	2,365,501	2,418,129	2,493,802	2,525,222	2,575,412	2,620,546	2,669,055	2,690,950	2,735,708	(R) 2,749,437	2,707,996
Motorcycle[c]	h	h	4,794	9,059	16,438	14,622	15,381	14,771	15,381	15,942	16,480	15,767	15,965	16,224	16,549	17,033	16,848	15,512	15,372	15,413	16,290	(R) 16,824	19,957
Other 2-axle 4-tire vehicle[b]	h	h	198,410	322,995	468,214	629,191	924,682	1,045,098	1,137,586	1,200,168	1,230,559	1,271,428	1,314,094	1,369,132	1,397,353	1,450,054	1,485,519	1,517,945	1,554,681	1,583,746	1,653,060	(R) 1,675,409	1,752,597
Truck, single-unit 2-axle 6-tire or more	158,602	207,234	43,583	55,693	64,073	73,130	83,527	85,131	86,702	91,366	98,627	100,914	103,114	107,654	109,469	113,143	113,459	116,594	122,094	125,138	126,239	(R) 126,327	129,280
Truck, combination	46,436	50,960	56,543	75,195	110,527	125,630	151,827	155,535	160,146	165,949	175,309	185,800	191,349	200,499	206,574	213,051	217,294	219,811	223,276	225,566	229,122	(R) 231,791	229,663
Bus	6,994	7,533	7,313	9,745	9,751	7,207	9,215	9,254	9,299	9,857	10,314	10,332	10,562	11,011	11,277	12,331	12,215	11,389	11,016	10,916	10,945	(R) 11,233	11,256
Transit[d], total	3,449	3,232	3,031	3,502	3,680	4,492	5,217	5,321	5,399	5,528	5,580	5,714	5,875	(R) 6,029	(R) 6,106	(R) 6,394	(R) 6,569	6,753	(R) 6,889	(R) 7,029	(R) 7,181	(R) 7,420	7,539
Motor bus[e]	2,537	2,460	2,268	2,456	2,699	2,998	3,428	3,487	3,505	3,556	3,479	3,514	3,574	3,612	3,500	3,663	3,726	3,825	3,880	3,896	3,977	4,015	4,015
Light rail	120	67	54	38	28	27	39	44	46	45	55	56	61	66	70	78	85	87	98	103	108	111	120
Heavy rail	629	636	655	681	619	725	864	848	846	840	856	865	874	898	910	930	958	979	999	1,014	1,014	1,040	1,049
Trolley bus	162	69	53	25	21	25	22	22	22	21	22	22	22	23	22	23	24	21	(R) 23	22	22	21	20
Commuter rail	N	N	N	278	288	295	342	346	352	360	371	383	389	403	418	428	436	446	457	460	474	488	507
Demand responsive[e]	N	N	N	N	N	398	492	539	585	653	746	815	882	942	1,080	1,156	1,221	1,270	1,292	1,390	1,432	1,574	1,630
Ferry boat	N	N	N	N	i	i	4	4	4	4	3	5	4	5	5	5	5	5	5	6	6	6	6
Other	N	N	N	24	25	24	26	31	39	48	47	55	69	80	101	111	114	121	(R) 135	136	149	(R) 165	192
Rail																							
Class I freight, train-kilometers	650	678	687	649	689	558	612	604	628	653	710	737	754	764	764	789	811	804	804	830	861	881	905
Class I freight, car-kilometers	45,335	47,212	48,103	44,508	47,117	40,105	42,099	41,244	42,049	43,264	45,842	48,897	51,040	50,952	52,556	54,478	55,667	55,109	55,812	57,220	59,660	60,692	62,692
Intercity/Amtrak[f], train-kilometers	336	277	150	48	48	48	53	55	55	56	55	51	48	51	53	55	56	58	61	60	60	58	58
Intercity/Amtrak[f] car-kilometers	3,554	2,857	1,110	407	378	404	484	504	494	488	489	470	444	463	502	550	592	608	609	534	496	426	425
Total train-kilometers[g]	987	954	837	697	737	607	665	658	682	709	764	789	803	816	818	843	867	862	865	891	920	939	963

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

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

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

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

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

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

[f] Amtrak began operations in 1971.

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

[h] 1960–65, motorcycle data are included in passenger car, and other 2-axle 4-tire vehicle data included in single-unit 2-axle 6-tire or more truck.

[i] Ferry boat included with other.

NOTE

Numbers may not add to totals due to roundin

1 mile = 1.609344 kilometer

SOURCES

Air:

Air carrier:

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

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

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

1985-2006: U.S. Department of Transportation, Bureau of Transportation Statistics, Office of Airline Information, *Air Carrier Traffic Statistics* (Washington, DC: Annual December issues), p. 3, line 25 plus line 46.

General aviation:

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

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

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

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

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

Highway:

Passenger car and motorcycle:

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

1995-2006: Ibid., Highway Statistics (Washington, DC: Annual issues), table VM-1, and Internet site http://www.fhwa.dot.gov/policy/ohpi/index.htm.

Motorcycle:

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

1985-2005: Ibid., Highway Statistics (Washington, DC: Annual issues), table VM-1, and Internet site http://www.fhwa.dot.gov/policy/ohpi/index.htm.

Other 2-axle 4-tire vehicle:

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

1995-2006: Ibid., Highway Statistics (Washington, DC: Annual issues), table VM-1, and Internet site http://www.fhwa.dot.gov/policy/ohpi/index.htm.

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

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

1995-2006: Ibid., Highway Statistics (Washington, DC: Annual issues), table VM-1, and Internet site http://www.fhwa.dot.gov/policy/ohpi/index.htm.

Transit:

1960-2006: American Public Transit Association, *Public Transportation Fact Book* (Washington, DC: Annual issues), table 10, 54, and similar tables in earlier editions.

Rail:

Class I rail freight train- and car-miles:

1960-2006: Association of American Railroads, *Railroad Facts 2007* (Washington, DC: 2006), p. 33 (train-miles) and p. 34 (car-miles).

Intercity/Amtrak train-miles:

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

1975-2001: Amtrak, *Amtrak Annual Report,* Statistical Appendix (Washington, DC: Annual issues).

2002-06: Association of American Railroads, *Railroad Facts 2007* (Washington, DC: 2006), p. 77.

Intercity/Amtrak car-miles:

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

1980-2000: Amtrak, Amtrak Corporate Reporting, Route Profitability System, personal communication, 2001.

2001-06: Association of American Railroads, *Railroad Facts 2007* (Washington, DC: 2006), p. 77.

TABLE 1-33M: Roadway Vehicle-Kilometers Traveled (VKT) and VKT per Lane-Kilometers by Functional Class

	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Urban VKT, total (millions)	1,376,416	1,680,313	2,052,693	2,073,635	2,193,623	2,268,647	2,332,337	2,397,173	2,452,457	2,499,240	2,567,901	2,619,397	2,677,583	2,697,870	2,780,296	2,905,683	3,045,305	3,141,230	3,181,749
Interstate	259,494	347,921	448,848	459,186	488,058	510,804	532,012	549,636	565,812	581,670	602,896	616,796	633,221	643,561	657,607	696,255	731,262	754,895	768,113
Other arterials[a]	779,227	930,635	1,125,306	1,138,640	1,199,956	1,245,597	1,284,094	1,311,889	1,343,196	1,362,514	1,388,857	1,413,250	1,449,040	1,470,499	1,508,530	1,567,398	1,641,674	1,686,945	1,706,062
Collector	133,645	144,162	171,068	172,652	186,789	189,721	193,263	204,272	208,104	209,450	212,281	211,794	217,860	221,964	228,324	247,438	260,888	270,431	278,754
Local	204,050	257,595	307,470	303,157	318,821	322,525	322,968	331,375	335,345	345,607	363,868	377,557	377,462	361,847	385,835	394,592	411,482	428,959	428,819
Rural VKT, total (millions)	1,081,527	1,175,993	1,398,324	1,421,941	1,422,816	1,427,015	1,461,833	1,501,983	1,545,282	1,608,180	1,661,693	1,710,126	1,743,164	1,778,459	1,815,598	1,746,758	1,722,397	1,670,398	1,669,001
Interstate	217,397	248,414	322,147	329,933	330,812	335,239	346,923	359,498	374,277	386,653	404,782	418,697	431,594	440,999	450,555	434,434	429,688	416,482	415,071
Other arterials[a]	422,894	455,127	532,477	538,736	553,714	562,574	575,065	593,196	609,695	630,955	649,345	665,174	676,888	687,101	698,141	670,446	659,741	642,019	634,885
Collector[b]	304,919	332,602	386,983	395,303	378,051	364,188	371,000	380,043	387,900	408,934	414,998	425,596	430,067	436,071	442,581	424,323	419,928	404,890	404,549
Local	136,318	139,850	156,716	157,968	160,239	165,014	168,844	169,245	173,410	181,639	192,568	200,659	204,615	214,287	224,320	217,554	213,040	207,007	214,497
Urban VKT per lane-kilometer, total (thousands)	987	1,089	1,229	1,233	1,247	1,259	1,278	1,304	1,320	1,327	1,358	1,382	1,398	1,372	1,386	1,378	1,385	1,388	1,378
Interstate	5,355	6,072	7,215	7,310	7,255	7,384	7,511	7,699	7,881	8,050	8,258	8,415	8,567	8,643	8,756	8,748	8,818	8,779	8,734
Other arterials[a]	2,335	2,504	2,818	2,829	2,869	2,861	2,902	2,943	2,988	3,004	3,059	3,138	3,176	3,214	3,259	3,237	3,249	3,220	3,201
Collector	921	888	1,020	1,044	1,061	1,056	1,054	1,104	1,113	1,109	1,132	1,137	1,155	1,171	1,196	1,193	1,199	1,199	1,236
Local	235	271	295	288	291	288	286	291	292	296	309	318	315	291	302	295	295	300	295
Rural VKT per lane-kilometer, total (thousands)	166	182	219	222	224	225	232	238	244	253	265	272	276	283	289	281	281	273	273
Interstate	1,660	1,883	2,371	2,417	2,478	2,536	2,643	2,725	2,815	2,904	3,038	3,120	3,207	3,275	3,348	3,332	3,360	3,317	3,337
Other arterials[a]	834	892	1,029	1,040	1,051	1,070	1,085	1,118	1,144	1,175	1,207	1,233	1,252	1,267	1,283	1,255	1,240	1,212	1,198
Collector[b]	213	227	264	269	262	254	259	268	274	288	293	301	304	308	314	306	304	295	296
Local	31	32	37	37	37	39	40	40	41	43	46	48	48	51	53	52	52	51	52

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

[b] Collector is the sum of major and minor collectors (rural only).

NOTE

See table 1-6 for estimated highway lane-miles by functional class.

1 Mile=1.609344 Kilometers

SOURCES

1980-94: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1995,* FHWA-PL-97-009 (Washington, DC: July 1997), table VM-202.

1995-2006: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics* (Washington, DC: Annual issues), table VM-2, Internet site www.fhwa.dot.gov/policy/ohpi as of Jan. 4, 2008.

Lane-miles:

1980-95: U.S. Department of Transportation, Federal Highway Administration, Office of Highway Information Management, unpublished data, 1997, table HM-260.

1996-2006: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics* (Washington, DC: Annual issues), table HM-60, Internet site www.fhwa.dot.gov/policy/ohpi as of Jan. 4, 2008.

Table 1-35M: Average Length of Haul, Domestic Freight and Passenger Modes (Kilometers)

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Freight																				
Air carrier	1,534	1,518	1,632	1,741	1,693	1,862	2,235	2,166	2,239	2,168	1,965	1,867	1,901	1,733	1,735	1,611	1,580	1,566	U	U
Truck[a]	438	417	423	460	584	589	629	641	660	655	631	669	686	700	711	737	761	781	U	U
Class I rail	742	810	829	870	991	1,069	1,168	1,209	1,227	1,278	1,315	1,356	1,355	1,369	1,344	1,344	1,357	1,382	1,373	1,388
Coastwise (water)	2,408	2,416	2,429	2,192	3,082	3,174	2,582	2,744	2,835	2,656	2,658	2,658	2,456	2,140	2,030	2,059	2,013	1,976	1,961	2,009
Lakewise (water)	840	795	814	853	863	843	890	861	836	827	817	827	817	815	812	806	814	818	851	852
Internal (water)	454	478	531	576	652	700	753	777	771	752	775	795	768	750	759	785	775	766	777	735
Intraport (water)	U	U	U	26	27	24	20	21	20	20	25	26	27	25	25	25	25	24	24	25
Crude (oil pipeline)	523	515	483	1,019	1,402	1,250	1,307	1,323	1,336	1,271	1,252	1,283	1,254	1,257	1,234	1,233	U	U	U	U
Petroleum products (oil pipeline)	433	539	575	830	666	629	623	610	610	653	666	647	665	665	676	673	U	U	U	U
Passenger																				
Air carrier, domestic, scheduled	938	988	1,091	1,123	1,184	1,220	1,292	1,297	1,297	1,286	1,267	1,273	1,291	1,315	1,307	1,326	1,340	1,356	1,368	1,355
Bus, intercity	127	151	171	182	201	195	227	230	219	222	222	225	230	232	232	230	230	U	U	U
Commuter rail	33	34	36	37	37	38	35	37	37	35	34	39	39	37	37	37	37	37	37	38
Amtrak[b]	N	N	N	380	348	372	439	459	460	451	449	431	412	412	404	399	393	381	376	372

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

[a] Total Class I and Class II motor carriers of freight (less-than-truckload, specialized carrier for truckload, and others).

[b] Amtrak began operations in 1971. Data are reported for fiscal years.

NOTES

Average length of haul for freight is calculated by dividing ton-miles in table 1-46 by estimates of tonnage from the various data sources. The calculation of average length of haul for passenger trips varies by mode: for air carrier it is calculated by dividing revenue passenger-miles by revenue passenger enplanements; for commuter rail, intercity bus, and Amtrak it is calculated by dividing passenger-miles by number of passengers. These numbers were then converted to kilometers.
1.609344 kilometers = 1 mile.

SOURCES

Freight:
Air carrier, truck:
Eno Transportation Foundation, Inc., Transportation In America, 2002 (Washington, DC: 2002), p. 65.
Class I rail:
Association of American Railroads, Railroad Facts (Washington, DC: 2004), p. 36.
Water:
U.S. Army Corps of Engineers, Waterborne Commerce of the United States, Part 5 (New Orleans, LA: Annual issues), section 1, table 1-4 .
Oil pipeline:
1960-70: Transportation Policy Associates, Washington, DC, personal communication.
1975-99: Eno Transportation Foundation, Inc., *Transportation in America, 2002* (Washington, DC: 2002), p. 65.
Passenger:
Air carrier:
U.S. Department of Transportation, Bureau of Transportation Statistics, Office of Airline Information, Air Carrier Traffic Statistics (Washington, DC:
Intercity bus:
Eno Transportation Foundation, Inc., Transportation in America, 2002 (Washington, DC: 2002), p. 64.
Commuter Rail:
1960-2000: Eno Transportation Foundation, Inc., *Transportation in America, 2002* (Washington, DC: 2002), p. 64.
2001-03: U.S. Department of Transportation, Federal Transit Administration, *National Transit Database* (Washington, DC: Annual issues), table 19
Amtrak:
1970-85: Amtrak, corporate communication, Jan. 26, 1999.
1990-2002: Amtrak, *Amtrak Annual Report* (Washington, DC: 2003), Statistical Appendix.
2003: Association of American Railroads, *Railroad Facts* (Washington, DC: 2004), p. 77.

Table 1-37M: U.S. Passenger-Kilometers (Millions)

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2,004	2005	2006
Air, total	53,750	92,740	189,166	237,217	352,556	466,929	577,550	563,568	588,318	598,885	640,839	667,376	718,817	745,307	766,630	808,626	855,091	808,544	776,202	812,974	897,841	939,357	950,532
Air carrier, certificated, domestic, all services	50,049	85,659	174,520	218,871	328,898	447,134	556,629	544,095	570,937	582,953	625,068	649,995	699,505	725,190	745,548	785,934	830,629	782,956	776,202	812,974	897,841	939,357	950,532
General aviation[a]	3,701	7,081	14,645	18,347	23,657	19,795	20,921	19,473	17,381	15,933	15,772	17,381	19,312	20,117	21,082	22,692	24,462	25,589	U	U	U	U	U
Highway, total[b]	2,047,212	2,502,912	3,286,284	3,870,399	4,270,411	4,848,878	5,731,210	5,794,157	5,950,903	6,064,114	6,175,877	6,225,055	6,386,498	6,581,197	6,760,267	6,927,051	7,065,142	7,473,462	7,510,870	7,599,112	7,796,390	(R) 7,866,385	7,940,003
Passenger car[b,c]	1,842,173	2,244,718	2,817,796	3,144,925	3,237,982	3,370,965	3,671,543	3,540,975	3,553,795	3,561,931	3,620,609	3,680,388	3,761,146	3,844,827	3,965,147	4,015,104	4,094,907	4,114,257	4,217,107	4,251,702	4,322,420	(R) 4,344,110	4,278,636
Motorcycle[b,c]	g	g	5,274	9,965	19,725	19,009	19,995	18,759	19,226	19,609	19,940	17,344	17,561	17,846	18,203	18,736	18,533	18,926	19,523	19,574	20,688	(R) 21,367	25,347
Other 2-axle 4-tire vehicle[c]	h	h	363,090	584,622	838,104	1,107,376	1,608,947	1,797,569	1,933,896	2,016,283	2,042,728	2,021,571	2,089,410	2,176,919	2,221,791	2,305,586	2,361,976	2,701,852	2,695,316	2,745,707	2,865,873	(R) 2,904,621	3,038,437
Truck, single-unit 2-axle 6-tire or more	158,602	207,234	43,583	55,693	64,073	73,130	83,527	85,131	86,702	91,366	98,627	100,914	103,114	107,654	109,469	113,143	113,459	137,581	122,094	125,138	126,239	(R) 126,327	129,280
Truck, combination	46,436	50,960	56,543	75,195	110,527	125,630	151,827	155,535	160,146	165,949	175,309	185,800	191,349	200,499	206,574	213,051	217,294	259,376	223,276	225,566	229,122	(R) 231,791	229,663
Bus[d]	N	N	N	N	N	152,767	195,371	196,189	197,138	208,977	218,663	219,038	223,918	233,451	239,081	261,430	258,974	241,469	233,554	231,425	232,048	(R) 238,170	238,642
Transit, total[e]	N	N	N	N	64,139	63,699	66,213	65,505	64,762	63,382	63,706	64,065	66,591	68,138	71,017	73,800	76,711	78,971	77,770	77,092	78,975	79,952	(P) 83,934
Motor bus[d]	N	N	N	N	35,068	34,055	33,766	33,941	32,728	32,584	30,307	30,285	30,732	31,550	32,766	34,126	34,184	35,441	35,150	34,218	34,403	35,124	(P) 36,727
Light rail	N	N	N	N	613	563	919	1,065	1,128	1,135	1,341	1,384	1,540	1,666	1,815	1,941	2,182	2,313	2,305	2,375	2,536	2,736	(P) 3,003
Heavy rail	N	N	N	N	16,991	16,781	18,467	16,943	17,280	16,465	17,168	16,993	18,556	19,402	19,769	20,764	22,280	22,817	21,988	21,897	23,101	23,204	(P) 23,691
Trolley bus	N	N	N	N	352	492	311	314	320	303	301	301	296	304	293	299	309	301	303	283	278	278	(P) 264
Commuter rail	6,754	6,643	7,390	7,263	10,486	10,515	11,397	11,819	11,780	11,169	12,868	13,267	13,440	12,936	14,008	14,108	15,131	15,366	15,295	15,384	15,641	15,245	(P) 16,674
Demand responsive[d]	N	N	N	N	N	586	694	731	797	904	929	977	1,056	1,213	1,183	1,308	1,350	1,376	1,373	1,497	1,548	1,703	(P) 1,735
Ferry boat	N	N	N	N	i	i	460	454	436	418	418	418	426	473	473	499	531	523	535	634	633	634	(P) 644
Other	N	N	N	N	628	707	200	238	293	404	373	439	546	594	710	755	744	834	821	805	835	1,028	(P) 1,196
Rail																							
Intercity / Amtrak[f]	27,462	21,340	9,944	6,326	7,247	7,765	9,748	10,095	9,803	9,976	9,529	8,924	8,127	8,314	8,536	8,578	8,848	8,946	8,800	9,141	8,869	8,660	8,706

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

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

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

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

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

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

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

[g] Included in passenger car.

[h] Included in other single-unit 2-axle 6-tire or more truck.

[i] Ferryboat included in other.

NOTES

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

Numbers may not add to totals due to rounding.
1 mile = 1.609344 kilometers

SOURCES

Air:

Air carrier, domestic, all services:

1960: Civil Aeronautics Board, *Handbook of Airline Statistics, 1969* (Washington, DC: 1970), part III, table 2.
1965-70: Ibid., *Handbook of Airline Statistics, 1973* (Washington, DC: 1974), part III, table 2.
1975-80: Ibid., *Air Carrier Traffic Statistics* (Washington, DC: 1976, 1981), p. 4 (December 1976) and p. 2 (December 1981).
1985-2005: U.S. Department of Transportation, Bureau of Transportation Statistics, Office of Airline Information, *Air Carrier Traffic Statistics* (Washington, DC: Annual December issues), page 3, line1.

General aviation:

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

Highway:

Passenger car and motorcycle:

1960-94: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1995*, Internet site http://www.fhwa.dot.gov/ohim/summary95/index.html as of July 28, 2000, table VM-201A.
1995-2005: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1, and Internet site http://www.fhwa.dot.gov/policy/ohpi/hss/index.htm.

Motorcycle:

1970-80: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1985* (Washington, DC: 1986), table VM-201A.
1985-2005: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1, and Internet site http://www.fhwa.dot.gov/policy/ohpi/hss/index.htm.

Other 2-axle 4-tire vehicle:

1970-94: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1995* , Internet site http://www.fhwa.dot.gov/ohim/summary95/index.html as of July 28, 2000, table VM-201A.
1995-2005: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1, and Internet site http://www.fhwa.dot.gov/policy/ohpi/hss/index.htm.

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

1960-94: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1995* , Internet site http://www.fhwa.dot.gov/ohim/summary95/index.html as of July 28, 2000, table VM-201A.
1995-2006: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1, and Internet site http://www.fhwa.dot.gov/policy/ohpi/hss/index.htm

Transit:

Ferryboat:

1992: American Public Transit Association, personal communication, July 19, 2000.
1996-99: American Public Transit Association, personal communication, Aug. 13, 2001.
2000-06: Ibid., *2005 Public Transportation Fact Book* (Washington, DC: Annual issues), table 54 and similar tables in earlier editions.

All other data:

1960-2006: American Public Transportation Association, *Public Transportation Fact Book* (Washington, DC: Annual issues), table 6 and similar tables in earlier editions.

Rail, Intercity / Amtrak:

1960-80: Association of American Railroads, *Railroad Facts* (Washington, DC: Annual issues).
1985: Amtrak, *Amtrak FY95 Annual Report* Statistical Appendix (Washington, DC: 1996), p. 4.
1990-2002: Ibid., *Amtrak Annual Report* Statistical Appendix (Washington, DC: Annual issues).
2003-06: American Association of Railroads, *Railroad Facts 2006* (Washington, DC: 2007), p. 77.

Table 1-46a M: U.S. Tonne-Kilometers of Freight (Millions)

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
TOTAL U.S. tonne-kilometers of freight (millions)	U	2,706,838	3,221,739	3,335,607	4,363,158	4,306,056	(R) 4,839,335	(R) 4,888,912	(R) 4,990,309	(R) 5,020,175	(R) 5,277,541	(R) 5,502,687	(R) 5,582,528	(R) 5,555,831	(R) 5,594,959	(R) 5,704,438	(R) 5,704,172	(R) 5,738,487	U	U	U	U	U	U
Air carrier, domestic, all services[a]	807	1,975	3,955	5,066	6,611	7,528	13,233	12,935	14,337	15,585	17,232	18,279	18,777	19,857	20,206	20,735	21,874	19,400	20,267	22,236	24,019	(R) 22,982	22,421	22,043
Intercity truck[b]	416,092	524,130	601,508	662,827	810,284	890,583	(R) 1,246,816	(R) 1,276,016	(R) 1,308,135	(R) 1,366,534	(R) 1,454,132	(R) 1,521,291	(R) 1,563,630	(R) 1,633,709	(R) 1,677,508	(R) 1,731,527	(R) 1,756,346	(R) 1,787,006	1,832,265	1,845,405	U	U	U	U
Class I rail	835,555	1,018,882	1,116,600	1,101,187	1,341,653	1,280,372	1,509,566	1,516,728	1,557,470	1,619,560	1,752,990	1,906,268	1,979,686	1,969,394	2,010,092	2,092,813	2,140,261	2,183,347	2,200,194	2,265,056	2,427,347	2,476,733	2,586,920	2,584,946
Domestic water transportation[c,d]	U	715,099	870,428	826,321	1,345,855	1,303,711	1,216,951	1,238,639	1,250,736	1,152,878	1,189,759	1,179,260	1,116,421	1,032,799	982,262	957,539	942,849	907,644	893,620	884,957	906,891	863,248	819,962	U
Coastwise	U	441,708	525,275	461,126	921,460	892,009	699,522	733,100	733,360	654,658	668,084	642,892	595,794	510,761	459,692	427,378	414,445	400,848	384,977	407,213	408,584	384,650	331,640	U
Lakewise	U	110,838	115,946	100,033	90,149	70,347	88,956	80,794	81,444	82,398	85,063	87,166	85,168	90,760	90,014	83,284	84,502	74,245	78,332	69,406	81,369	75,808	77,532	U
Internal	U	160,161	227,487	263,378	331,914	339,746	426,886	423,332	434,544	414,477	434,725	447,232	433,306	429,265	430,540	444,889	441,727	430,489	428,371	406,387	414,772	400,568	408,468	U
Intraport	U	2,392	1,721	1,785	2,331	1,609	1,587	1,413	1,387	1,346	1,887	1,970	2,153	2,012	2,016	1,989	2,176	2,063	1,940	1,950	2,167	2,221	2,323	U
Oil pipeline[d]	334,334	446,751	629,248	740,206	858,756	823,862	852,770	844,594	859,632	865,617	863,427	877,589	904,015	900,073	904,891	901,825	842,842	841,090	855,836	861,675	875,399	U	U	U

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

[a] Includes freight, express, and mail revenue ton-miles as reported on U.S. DOT Form 41.
[b] Methodology was changed in 1990 for intercity trucks. Therefore figures prior to 1990 are not comparable to those after 1990.
[c] Excludes intraterritorial traffic, for which ton-miles were not compiled.
[d] The large increase between1975 and 1980 was a result of a new Alaska pipeline and consequent water transportation of crude petroleum from

NOTES

Numbers may not add to totals due to roundings.
1.459972 tonne-kilometers = 1 ton-mile.

SOURCES

Air carrier, domestic, all services:
1960-65: Civil Aeronautics Board, *Handbook of Airline Statistics, 1969* (Washington, DC: 1970).
1970-80: Ibid., *Air Carrier Traffic Statistics* (Washington, DC: Annual issues), p. 2, line 3.
(Washington, DC: Annual issues), p. 3, line 3.
Intercity truck:
Eno Transportation Foundation, Inc., *Transportation in America, 2007* (Washington, DC: 2007), p. 40.
Class I rail:
Association of American Railroads, *Railroad Facts* (Washington, DC: Annual Issues), p. 27.
Domestic water transportation:

U.S. Army Corps of Engineers, *Waterborne Commerce of the U.S.* (New Orleans, LA: Annual issues), part 5, section 1, table 1-4, and similar tables in earlier editions available at http://www.iwr.usace.army.mil/ndc/wcsc/wcsc.htm as of December 2008.
Oil pipeline:
1960-70: Eno Transportation Foundation, Inc., *Transportation in America, 1998* (Washington, DC: 1998), p. 44.
1975: Association of Oil Pipe Lines, *Shifts in Petroleum Transportation* (Washington, DC: Annual issues), table 4.
1980-2004: Ibid., *Shifts in Petroleum Transportation* (Washington, DC: Annual issues), table 1.

Table 1-46bM: U.S. Tonne-Kilometers of Freight (BTS Special Tabulation) (Millions)

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
TOTAL U.S. tonne-kilometers of freight	4,969,767	4,915,691	4,665,465	4,747,804	4,876,660	4,838,300	4,859,347	5,072,849	5,251,728	5,209,065	5,287,935	5,308,610
Air	7,066	7,431	7,504	8,570	9,490	9,796	10,716	12,658	13,622	14,906	15,213	14,541
Truck	919,308	921,095	944,153	984,052	1,032,048	1,046,520	1,073,390	1,131,365	1,169,230	1,209,598	1,239,194	1,267,165
Railroad	1,360,694	1,349,014	1,182,577	1,227,836	1,314,108	1,279,241	1,301,177	1,389,806	1,497,469	1,526,588	1,554,005	1,521,187
Domestic water transportation	1,345,853	1,356,917	1,294,220	1,342,541	1,296,045	1,303,713	1,275,141	1,307,281	1,299,417	1,190,680	1,216,951	1,238,639
Coastwise	921,460	926,739	923,735	948,617	867,111	892,009	848,082	856,738	819,913	706,464	699,522	733,100
Lakewise	90,149	90,734	52,009	62,907	72,683	70,347	63,068	73,111	84,912	85,128	88,956	80,793
Internal	331,914	337,522	316,853	329,411	354,562	339,747	362,244	375,703	392,785	397,342	426,886	423,332
Intraport	2,330	1,921	1,623	1,606	1,689	1,609	1,748	1,729	1,807	1,746	1,587	1,413
Pipeline	1,336,846	1,281,234	1,237,010	1,184,805	1,224,970	1,199,030	1,198,922	1,231,739	1,271,990	1,267,292	1,262,572	1,267,078
Oil and oil products	858,464	823,424	826,344	811,744	829,264	823,424	843,864	857,004	877,443	852,624	852,770	844,594
Natural Gas	478,383	457,809	410,666	373,060	395,706	375,606	355,058	374,736	394,547	414,669	409,802	422,484

KEY: R = revised.

NOTES

BTS is developing more comprehensive and reliable estimates of tonne-kilometers for the air, truck, rail, water, and pipeline modes than are presented in table 1-46a. These improved estimates are not comparable to data in table 1-46a. Improved estimates for 1960-1989, which will allow more comprehensive and reliable data for the entire period from 1960 to present, are still under development and will be reported when they are completed.

Numbers may not add to totals due to rounding.

1.459972 tonne-kilometers = 1 ton mile.

SOURCE

U.S. Department of Transportation, Bureau of Transportation Statistics, special tabulation.

1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
5,469,636	5,500,263	5,759,543	5,992,069	6,094,063	6,101,824	6,173,578	6,278,800	6,319,696	6,361,787	6,437,017	6,445,480	(R) 6,629,875	(R) 6,678,935	6,770,639
16,045	16,848	17,563	18,571	20,089	20,294	20,644	21,170	23,082	19,400	20,202	22,040	24,018	(R) 22,982	22,421
1,299,712	1,354,824	1,442,339	1,509,671	1,550,420	1,621,378	1,664,042	1,717,494	1,741,491	1,771,250	1,818,456	1,846,534	1,871,060	(R) 1,885,576	1,889,923
1,603,603	1,657,092	1,782,732	1,922,797	2,010,520	2,030,951	2,114,554	2,195,309	2,257,582	2,334,980	2,344,032	2,341,159	2,459,266	2,531,266	2,705,084
1,250,733	1,152,877	1,189,756	1,179,260	1,116,422	1,032,799	982,262	957,539	942,848	907,646	893,620	884,956	906,891	863,246	819,962
733,360	654,657	668,083	642,891	595,794	510,761	459,693	427,378	414,445	400,848	384,977	407,214	408,583	384,650	331,640
81,443	82,398	85,062	87,166	85,167	90,761	90,013	83,284	84,502	74,245	78,332	69,406	81,369	75,808	77,532
434,543	414,477	434,724	447,232	433,307	429,265	430,540	444,889	441,726	430,489	428,370	406,386	414,772	400,568	408,468
1,387	1,345	1,886	1,971	2,153	2,012	2,016	1,988	2,175	2,063	1,940	1,951	2,167	2,221	2,323
1,299,542	1,318,621	1,327,152	1,361,770	1,396,612	1,396,402	1,392,076	1,387,290	1,354,692	1,328,511	1,360,707	1,350,792	(R) 1,368,640	(R) 1,375,866	1,333,249
859,632	865,617	863,427	877,589	904,015	900,073	904,891	902,263	842,404	840,944	855,544	861,383	875,399	(R) 886,933	853,646
439,911	453,004	463,724	484,181	492,598	496,330	487,185	485,027	512,288	487,568	505,163	489,409	(R) 493,240	(R) 488,933	479,603

Table 1-50M: U.S. Waterborne Freight (Million short tonnes)

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
TOTAL freight	997.8	1,154.8	1,389.5	1,537.7	1,813.4	1,622.4	1,963.0	2,092.1	1,934.2	1,930.7	2,009.2	2,032.5	2,072.1	2,116.6	2,122.4	2,107.0	2,199.5	2,393.3	2,123.1	2,172.0	2,315.1	2,293.0	2,348.2
Foreign	307.8	402.5	527.0	679.2	835.9	702.5	944.9	919.5	941.2	961.7	1,012.2	1,040.9	1,073.6	1,107.3	1,129.8	1,143.8	1,229.0	1,225.4	1,196.8	1,250.2	1,365.2	1,359.6	1,419.7
Imports	191.7	244.8	307.8	432.3	469.5	374.4	544.3	503.9	532.2	588.6	652.7	610.2	664.6	715.1	762.7	780.9	852.5	863.5	848.1	911.5	988.0	995.1	1,025.9
Exports	116.1	157.8	219.2	246.9	366.4	328.1	400.6	415.7	409.0	373.1	359.4	430.6	409.0	392.2	367.1	362.9	376.5	362.0	348.6	338.7	377.2	364.5	393.7
Domestic	690.0	752.2	862.5	858.5	977.5	920.0	1,018.1	978.4	993.0	969.0	997.0	991.6	998.5	1,009.3	992.6	963.2	970.5	945.7	926.2	921.8	949.9	933.4	928.5
Inland	264.0	335.3	428.3	457.2	485.3	485.0	564.8	544.7	563.4	550.9	561.0	562.7	564.3	572.0	567.0	566.6	570.1	562.3	551.6	553.0	568.1	566.1	569.3
Coastal	189.8	182.8	216.3	210.4	299.0	281.0	270.9	267.2	258.7	246.5	251.3	241.9	242.6	238.7	226.5	207.6	205.9	202.9	196.3	202.7	200.1	193.8	183.1
Great Lakes	140.7	139.4	142.5	117.3	104.4	83.4	99.9	93.8	97.4	99.7	104.1	105.3	104.2	111.3	110.8	103.3	103.7	90.7	92.0	81.4	93.9	87.3	87.9
Intraport	94.5	93.3	73.9	71.0	85.4	67.4	78.4	68.6	69.7	67.5	75.2	75.4	80.7	81.5	81.7	80.4	85.8	84.6	81.7	78.8	82.8	81.8	82.9
Intraterritory	0.9	1.3	1.5	2.6	3.3	3.1	4.1	4.1	3.9	4.5	5.4	6.2	6.6	5.7	6.5	5.3	5.0	5.3	4.6	5.8	5.0	4.4	5.3

KEY: R = revised.

NOTES

Beginning in 1996, shipments of fish are excluded from domestic tonnage totals.

Numbers may not add to totals due to rounding.

Conversion: 1 short ton=.90718474 short tonnes

SOURCES

1960-2003: U.S. Army Corps of Engineers, *Waterborne Commerce of the United States, Calendar Year 2004* (New Orleans, LA), part 5, tables 1-1, 1-3, and 1-6.

2004-2006 Ibid., *Preliminary Waterborne Commerce Statistics for Calendar Year 2006* (New Orleans, LA), Internet site http://www.iwr.usace.army.mil/ndc as of May 9, 2008.

Table 1-55M: Crude Oil and Petroleum Products Transported in the United States by Mode (billions)

	1975		1980		1985		1990		1995		1996		1997		1998		1999		2000		2001		2002		2003		2004	
	Tonne-kilometers	Percent	Tonne-kilometers	Percent	Tonne-kilometers	Percent	Tonne-kilometers	Percent	Tonne-kilometers	Percent	Tonne-kilometers	Percent	Tonne-kilometers	Percent	Tonne-kilometers	Percent	Tonne-kilometers	Percent	Tonne-kilometers	Percent	Tonne-kilometers	Percent	Tonne-kilometers	Percent	Tonne-kilometers	Percent	Tonne-kilmoeters	Percent
Crude oil, total	484.0	100.0	1,099.4	100.0	1,147.8	100.0	917.2	100.0	855.5	100.0	793.1	100.0	710.9	100.0	663.0	100.0	617.6	100.0	548.9	100.0	549.8	100.0	560.6	100.0	555.4	100.0	546.2	100.0
Pipelines[a]	420.5	86.9	529.4	48.2	488.2	42.5	488.8	53.3	490.4	57.3	493.9	62.3	492.6	69.3	487.8	73.6	468.8	75.9	413.8	75.4	404.4	73.6	418.4	74.6	415.4	74.8	414.2	75.8
Water carriers	59.3	12.2	(c) 565.6	51.4	655.8	57.1	425.1	46.4	361.6	42.3	295.5	37.3	215.1	30.3	172.1	26.0	146.0	23.6	132.9	24.2	143.2	26.0	139.7	24.9	137.4	24.7	129.5	23.7
Motor carriers[b]	2.0	0.4	3.6	0.3	2.6	0.2	2.2	0.2	2.5	0.3	2.5	0.3	2.5	0.3	2.3	0.4	2.0	0.3	1.8	0.3	1.6	0.3	1.8	0.3	1.9	0.3	1.8	0.3
Railroads	2.2	0.5	0.7	0.1	1.2	0.1	1.0	0.1	1.2	0.1	1.2	0.1	0.7	0.1	0.7	0.1	0.7	0.1	0.6	0.1	0.6	0.1	0.7	0.1	0.7	0.1	0.7	0.1
Refined petroleum products, total	752.2	100.0	718.7	100.0	597.6	100.0	654.9	100.0	670.0	100.0	699.3	100.0	685.6	100.0	694.5	100.0	715.2	100.0	726.0	100.0	720.1	100.0	701.7	100.0	734.2	100.0	771.4	100.0
Pipelines[a]	319.7	42.5	329.4	45.8	335.6	56.2	364.0	55.6	387.2	57.8	410.1	58.6	407.5	59.4	417.1	60.1	433.0	60.5	429.1	59.1	436.7	60.6	437.4	62.3	446.3	60.8	461.2	59.8
Water carriers	375.8	50.0	336.4	46.8	206.1	34.5	230.4	35.2	223.7	33.4	225.0	32.2	216.5	31.6	214.8	30.9	215.3	30.1	224.0	30.8	213.0	29.6	192.6	27.4	213.2	29.0	231.0	29.9
Motor carriers[b]	38.3	5.1	35.5	5.0	39.3	6.6	41.2	6.3	35.9	5.4	40.9	5.8	38.0	5.5	39.0	5.6	40.3	5.6	43.9	6.1	43.4	6.0	42.9	6.1	46.6	6.3	48.5	6.3
Railroads	18.4	2.4	17.5	2.4	16.5	2.7	19.4	2.9	23.2	3.5	23.4	3.3	23.7	3.4	23.7	3.4	26.6	3.7	29.1	4.0	27.0	3.8	28.8	4.1	28.2	3.8	30.8	4.0
Combined crude and petroleum products, total	1,236.2	100.0	1,818.1	100.0	1,745.4	100.0	1,572.1	100.0	1,525.5	100.0	1,492.4	100.0	1,396.5	100.0	1,357.5	100.0	1,332.8	100.0	1,275.0	100.0	1,269.9	100.0	1,262.3	100.0	1,289.6	100.0	1,317.6	100.0
Pipelines[a]	740.2	59.9	858.8	47.2	823.9	47.2	852.8	54.2	877.6	57.5	904.0	60.6	900.1	64.5	904.9	66.7	901.8	67.7	842.8	66.1	841.1	66.2	855.8	67.8	861.7	66.8	875.4	66.4
Water carriers	435.1	35.2	(c) 902.0	49.6	862.0	49.4	655.5	41.7	585.3	38.4	520.5	34.9	431.6	30.9	386.9	28.5	361.3	27.1	356.8	28.0	356.2	28.1	332.3	26.3	350.5	27.2	360.5	27.4
Motor carriers[b]	40.3	3.3	39.1	2.2	41.9	2.4	43.4	2.8	38.4	2.5	43.4	2.9	40.4	2.9	41.3	3.0	42.3	3.2	45.7	3.6	45.0	3.5	44.7	3.5	48.5	3.8	50.2	3.8
Railroads	20.6	1.7	18.2	1.0	17.7	1.0	20.4	1.3	24.2	1.6	24.5	1.6	24.4	1.7	24.4	1.8	27.3	2.0	29.6	2.3	27.6	2.2	29.5	2.3	28.9	2.2	31.5	2.4

[a] The amount carried by pipeline is based on ton-miles of crude and petroleum products transported through federally regulated pipelines (84%), plus estimated ton-miles of crude and petroleum products transported through nonfederally regulated pipelines (16%).

[b] The amount carried by motor carriers is estimated

[c] Reflects the entrance between 1975 and 1980 of the Alaska pipeline, moving crude petroleum for water transportation to U.S. refinerie

NOTES

Numbers may not add to totals due to rounding.
1.459972 tonne-kilometers = 1 ton mile.

SOURCES

1975: Association of Oil Pipe Lines, *Shifts in Petroleum Transportation* (Washington, DC), table 6.
1980-2004: Ibid., (Annual issues), tables 1, 2, and 3.

Table 4-3M: Domestic Demand for Refined Petroleum Products by Sector (Petajoules)

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Total petroleum demand	21,016	24,541	31,156	34,533	36,086	32,625	35,400	34,654	35,373	35,705	36,579	36,456	37,726	38,262	38,967	40,050	40,518	40,444	40,516	41,197	42,829	(R) 42,617	(R) 42,158	42,010
Transportation	10,688	12,524	16,153	18,584	20,055	20,543	22,815	22,550	22,867	23,287	23,848	24,339	24,949	25,234	25,888	26,607	27,241	26,963	27,520	27,744	28,713	(R) 28,813	(R) 29,079	29,094
Industrial	6,067	7,164	8,219	8,595	10,049	8,164	8,734	8,426	9,053	8,882	9,285	9,089	9,552	9,802	9,617	9,913	9,623	9,728	9,720	9,745	10,415	(R) 10,206	(R) 10,363	10,199
Residential and commercial	3,682	4,083	4,547	4,014	3,203	2,767	2,490	2,413	2,407	2,351	2,329	2,232	2,363	2,249	2,083	2,252	2,447	2,406	2,262	2,437	2,422	(R) 2,296	(R) 2,033	2,019
Electric utilities	579	771	2,237	3,340	2,779	1,150	1,360	1,264	1,045	1,186	1,117	796	862	978	1,378	1,278	1,207	1,347	1,014	1,271	1,279	(R) 1,303	(R) 684	696
Transportation as percent of total petroleum demand	50.9	51.0	51.8	53.8	55.6	63.0	64.5	65.1	64.6	65.2	65.2	66.8	66.1	65.9	66.4	66.4	67.2	66.7	67.9	67.3	67.0	(R) 67.6	(R) 69.0	69.3

KEY: P = preliminary; R = revised.

NOTES

Transportation's share of U.S. petroleum demand in this table differs slightly from table 4-1 because this table takes into account differences within sectors in the use of various grades of petroleum-based fuel that have different joule content per unit volume.

1,055.06 petajoules = 1 quadrillion British thermal unit (Btu).

SOURCES

1960-70: U.S. Department of Energy, Energy Information Administration, *Annual Energy Review 1997*, DOE/EIA-0384(97) (Washington, DC: July 1998), tables 2.1, 5.12b, and A3.

1975-2007: Ibid., *Monthly Energy Review*, DOE/EIA-0035(2006/05) (Washington, DC: March 2008), tables 1.3, 2.2, 2.3, 2.4, 2.5, 2.6, and similar tables in earlier editions, Internet site http://www.eia.doe.gov as of Apr. 16, 2008.

Table 4-5M: Fuel Consumption by Mode of Transportation

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Air																							
Certificated carriers[a]																							
Jet fuel (million liters)	7,397	14,721	29,742	28,610	32,249	38,289	46,648	43,557	44,527	45,268	46,880	47,967	50,033	51,341	50,479	54,518	56,193	53,062	48,636	49,054	51,567	52,197	50,944
General aviation[b]																							
Aviation gasoline (million liters)	916	1,105	2,086	1,560	1,968	1,594	1,336	1,340	1,189	1,014	1,007	1,086	1,092	1,106	1,178	1,307	1,260	1,057	1,047	1,031	1,033	967	993
Jet fuel (million liters)	N	212	787	1,715	2,900	2,616	2,510	2,184	1,870	1,719	1,756	2,120	2,300	2,430	3,084	3,662	3,679	3,476	3,552	3,529	4,659	4,752	4,879
Highway																							
Gasoline, diesel and other fuels (million liters)																							
Passenger car and motorcycle	155,849	188,222	256,950	281,078	265,683	271,414	264,067	244,163	248,425	254,554	257,707	258,424	262,781	265,335	272,175	278,207	277,375	279,180	286,413	286,352	(R) 286,192	280,442	U
Other 2-axle 4-tire vehicle	N	e	46,610	72,229	90,078	103,580	134,802	144,667	154,933	162,209	166,982	172,632	179,255	186,953	191,019	200,093	200,395	202,602	209,031	229,994	(R) 240,059	247,638	U
Single-unit 2-axle 6-tire or more truck	N	52,420	15,021	20,517	26,206	28,008	31,635	30,934	31,180	32,131	34,190	34,887	35,617	36,249	25,805	35,477	36,200	36,595	39,068	33,616	(R) 33,914	34,228	U
Combination truck	N	25,203	27,815	34,739	49,350	53,015	61,070	63,629	65,170	67,183	70,609	74,865	76,437	76,850	95,233	92,884	97,155	96,573	100,236	90,151	(R) 91,573	92,406	U
Bus	3,131	3,312	3,104	3,986	3,854	3,157	3,388	3,271	3,324	3,517	3,649	3,663	3,747	3,886	3,937	4,347	4,210	3,883	3,784	3,668	(R) 5,148	5,031	U
Transit[c]																							
Electricity (million kWh)	2,908	2,584	2,561	2,646	2,446	4,216	4,837	4,853	4,716	4,865	5,081	5,068	5,007	4,988	5,073	5,237	5,510	5,610	5,649	5,643	5,825	5,954	U
Motor fuel (million liters)																							
Diesel	787	939	1,026	1,382	1,632	2,304	2,464	2,518	2,593	2,568	2,567	2,568	2,622	2,714	2,800	2,890	2,975	2,819	2,743	2,698	2,766	2,763	U
Gasoline and other nondiesel fuels[d]	727	469	257	30	42	174	129	129	141	173	227	230	232	225	199	184	183	174	216	175	200	220	U
Compressed natural gas	N	N	N	N	N	N	N	N	4	6	18	41	57	90	141	168	207	251	307	379	423	466	U
Rail, Class I (in freight service)																							
Distillate / diesel fuel (million liters)	13,109	13,597	13,419	13,843	14,778	11,773	11,792	11,000	11,375	11,689	12,621	13,173	13,548	13,533	13,563	14,063	14,006	14,044	14,120	14,483	15,365	15,513	U
Amtrak																							
Electricity (million kWh)	N	N	N	180	254	295	330	303	300	301	309	304	293	282	275	283	350	377	U	U	U	U	U
Distillate / diesel fuel (million liters)	N	N	N	238	242	246	310	310	310	314	284	250	269	284	284	280	288	283	U	U	U	U	U
Water																							
Residual fuel oil (million liters)	14,960	11,708	14,286	15,369	33,887	17,375	23,947	25,639	24,844	19,994	20,390	22,282	21,582	18,965	21,276	22,100	24,264	20,477	18,351	14,664	17,755	19,603	U
Distillate / diesel fuel oil (million liters)	2,979	2,468	3,100	4,156	5,595	6,431	7,817	7,745	8,398	8,157	8,288	8,854	9,429	9,743	9,823	9,158	8,560	7,738	7,870	8,392	8,099	7,592	U
Gasoline (million liters)	N	N	2,264	2,763	3,982	3,986	4,921	6,473	4,982	3,307	3,314	4,014	3,761	3,737	3,620	4,157	4,256	3,762	4,093	4,192	3,804	4,773	U
Pipeline																							
Natural gas (million cubic meters)	10,412	15,016	21,665	17,489	19,039	15,113	19,794	18,039	17,631	18,729	20,561	21,010	21,343	22,544	19,064	19,360	19,266	18,749	20,008	17,745	16,986	17,543	U

KEY: kWh = kilowatt-hour; N = data do not exist; R = revised; U = data are not available. 1gallon = 3.7854 litres 1 Cubic Foot= .028316 Cubic Metres

[a] Domestic operations only.

[b] Includes fuel used in air taxi operations, but not commuter operations. Data for 1996 are estimated using new information on nonrespondents and are therefore not comparable to earlier years. See the accuracy statement in the appendix for more detailed information.

[c] Prior to 1984, excludes commuter rail, automated guideway, ferryboat, demand responsive vehicles, and most rural and small systems.

[d] Gasoline and all other nondiesel fuels such as liquefied natural gas, methanol, and propane, except compressed natural gas.

[e] Included in single-unit 2-axle 6-tire or more truck category.

SOURCES

Air:

Certificated air carriers:

1960-2006: U.S. Department of Transportation, Bureau of Transportation Statistics, Office of Airline Information, *Fuel Cost and Consumption,* Internet site http://www.bts.gov/programs/airline_information as of Sept. 4, 2007.

General aviation:

1960-70: U.S. Department of Transportation, Federal Aviation Administration, *FAA Statistical Handbook of Aviation - 1972 edition* (Washington, DC: 1973), table 9.12.

1975-93: Ibid., *General Aviation and Air Taxi Activity Survey* (Washington, DC: Annual issues), table 5.1, and similar tables in earlier editions.

1994-2006: Ibid., *FAA Aerospace Forecasts Fiscal Years 2007-2020* (Washington, DC: Dec. 2007), table 34 and similar tables in earlier editions.

Highway:

1960-94: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics, Summary to 1995,* FHWA-PL-97-009 (Washington, DC: July 1997), table VM-201A. (Revised data obtained from Internet site http://www.fhwa.dot.gov/ohim/ohimstat.htm as of August 2001).

1995-2005: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1.

Transit:

Electricity / motor fuel / compressed natural gas:

1960-2005: American Public Transportation Association, *2007 Public Transportation Fact Book* (Washington, DC: April 2007), tables 26, 27, 28 and simila tables in earlier editions.

Rail:

1960-2005: Association of American Railroads, *Railroad Facts* (Washington, DC: 2005), p. 40.

Amtrak:

1975-2001: Amtrak, Energy Management Department, personal communication.

Water:

Residual and distillate / diesel fuel oil:

1960-80: American Petroleum Institute, *Basic Petroleum Data Book* (Washington, DC: Annual issues), tables 10, 10a, 12, and 12a.
and similar tables in earlier editions.

Gasoline:

1970-2005: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics* (Washington, DC: Annual issues), table MF-24 and similar tables in earlier editions.

Pipeline:

1960-2005: U.S. Department of Energy, *Natural Gas Annual 2005,* DOE/EIA-0131(04) (Washington, DC: Nov. 2006), table 15 and similar tables in earlier editions.

Table 4-6M: Energy Consumption by Mode of Transportation (Petajoules)

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Air																						
Certificated carriers[a]																						
Jet fuel	278	554	1,119	1,077	1,213	1,441	1,755	1,639	1,675	1,703	1,764	1,805	1,883	1,932	1,899	2,051	2,114	1,997	1,830	1,846	1,940	1,964
General aviation[b]																						
Aviation gasoline	31	37	70	52	66	53	45	45	40	34	34	36	37	37	39	44	42	35	35	(R) 35	(R) 36	37
Jet fuel	N	8	30	65	109	98	94	82	70	65	66	80	87	91	116	138	138	136	140	(R) 134	(R) 138	144
Highway																						
Gasoline, diesel and other fuels																						
Passenger car and motorcycle	5,430	6,558	8,952	9,793	9,256	9,456	9,200	8,507	8,655	8,869	8,978	9,003	9,155	9,244	9,482	9,693	9,664	9,727	9,978	9,976	(R) 9,971	9,771
Other 2-axle 4-tire vehicle	N	e	1,624	2,516	3,138	3,609	4,696	5,040	5,398	5,651	5,818	6,014	6,245	6,513	6,655	6,971	6,982	7,059	7,283	8,013	(R) 8,364	8,628
Single-unit 2-axle 6-tire or more truck	N	2,026	581	793	1,013	1,083	1,223	1,196	1,205	1,242	1,322	1,349	1,377	1,401	998	1,371	1,399	1,415	1,361	1,171	(R) 1,181	1,193
Combination truck	N	974	1,075	1,343	1,908	2,049	2,361	2,460	2,519	2,597	2,730	2,894	2,955	2,971	3,682	3,591	3,756	3,733	3,875	3,485	(R) 3,540	3,572
Bus	121	128	120	154	149	122	131	126	128	136	141	142	145	150	152	168	163	150	146	142	(R) 199	195
Transit[c]																						
Electricity	10	9	9	10	9	15	17	17	17	18	18	18	18	18	18	19	20	20	20	20	21	21
Motor fuel																						
Diesel	30	36	40	53	63	89	95	97	100	99	99	99	101	105	108	112	115	109	106	104	107	107
Gasoline and other nondiesel fuels[d]	25	16	9	1	1	6	4	4	5	6	8	8	8	8	7	6	6	6	8	6	7	8
Compressed natural gas	N	N	N	N	N	N	N	N	<1	<1	1	2	2	3	5	6	8	10	12	15	16	18
Rail, Class I (in freight service)																						
Distillate / diesel fuel	507	526	519	535	571	455	456	425	440	452	488	509	524	523	524	544	541	543	546	560	594	600
Amtrak																						
Electricity	N	N	N	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	U	U	U	U
Distillate / diesel fuel	N	N	N	9	9	10	12	12	12	12	11	10	10	11	11	11	11	11	U	U	U	U
Water																						
Residual fuel oil	624	489	596	641	1,414	725	999	1,070	1,037	834	851	930	900	791	888	922	1,012	854	766	612	741	818
Distillate / diesel fuel oil	115	95	120	161	216	249	302	299	325	315	320	342	364	377	380	354	331	299	304	324	313	293
Gasoline	N	N	79	96	139	139	171	226	174	115	115	140	131	130	126	145	148	131	143	146	133	166
Pipeline																						
Natural gas	378	544	786	634	690	548	718	654	639	679	746	762	774	817	691	702	699	680	725	643	622	636

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

[a] Domestic operations only.

[b] Includes fuel used in air taxi operations, but not commuter operations.

[c] Prior to 1984, excludes commuter rail, automated guideway, ferryboat, demand responsive vehicles, and most rural and smaller systems.

[d] Gasoline and all other nondiesel fuels such as liquefied natural gas, methanol, and propane, except

[e] Included in other single-unit 2-axle 6-tire or more truck category.

NOTES

The following conversion rates were used:

Jet fuel = 37,626,700 joules/liter
Aviation gasoline = 33,501,698 joules/liter
Automotive gasoline = 34,839,537
Diesel motor fuel = 38,657,950 joules/liter
Compressed natural gas = 38,657,950 joules/liter
Distillate fuel = 38,655,829 joules/liter
Residual fuel = 41,723,829 joules/liter
Natural gas = 38,413,974 joules/m^3

Electricity 1kWh = 3,600,000 joules/kWh, negating electrical system losses. To include approximate electrical system losses, multiply this conversion factor by 3.

1.055056 petajoules = 1 trillion British thermal unit (Btu).

SOURCES

Air:

Certificated air carriers:

1960-2005: U.S. Department of Transportation, Bureau of Transportation Statistics, Office of Airline Information, Internet site http://www.bts.gov/programs/airline_information as of June 1, 2006.

General aviation:

1960-70: U.S. Department of Transportation, Federal Aviation Administration, *FAA Statistical Handbook of Aviation - 1972 edition* (Washington, DC: 1973), table 9.12.

1975-93: Ibid., *General Aviation and Air Taxi Activity Survey* (Washington, DC: Annual issues), table 5.1, and similar tables in earlier editions.

1994-2004: Ibid., *FAA Aerospace Forecasts Fiscal Years 2005-2016* (Washington, DC: Dec. 2005), table 34 and similar tables in earlier editions.

2005: Ibid., *FAA Aerospace Forecasts Fiscal Years 2006-2017* (Washington, DC: Dec. 2006), table 30.

Highway:

1960-94: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics, Summary to 1995,* FHWA-PL-97-009 (Washington, DC: July 1997), table VM-201A. (Revised data obtained from Internet site http://www.fhwa.dot.gov/ohim/ohimstat.htm as of August 2001).

1995-2005: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1.

Transit:

Electricity / motor fuel / compressed natural gas:

1960-2005: American Public Transportation Association, *2006 Public Transportation Fact Book* (Washington, DC: April 2006), tables 26, 27, 28 and similar tables in earlier editions.

Rail:

1960-2005: Association of American Railroads, *Railroad Facts* (Washington, DC: 2005), p. 40.

Amtrak:

1975-2001: Amtrak, Energy Management Department, personal communication.

Water:

Residual and distillate / diesel fuel oil:

1960-80: American Petroleum Institute, *Basic Petroleum Data Book* (Washington, DC: Annual issues), tables 10, 10a, 12, and

1985-2005: U.S. Department of Energy, Energy Information Administration, *Fuel Oil and Kerosene Sales* (Washington, DC: Annual issues), tables 2, 4, and similar tables in earlier editions.

Gasoline:

1970-2005: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics* (Washington, DC: Annual issues), table MF-24 and similar tables in earlier editions.

Pipeline:

1960-2005: U.S. Department of Energy, *Natural Gas Annual 2005,* DOE/EIA-0131(04) (Washington, DC: Dec. 2006), table 15 and similar tables in earlier editions.

Table 4-7M: Domestic Demand for Gasoline (Million liters) by Mode

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
TOTAL demand	230,005	269,471	339,178	389,882	396,854	407,121	430,044	424,806	434,878	441,300	449,392	455,209	464,074	470,279	484,449	498,845	499,261	506,261	519,585	524,688	534,432	529,914	529,135
Highway	209,820	253,541	324,025	376,094	383,019	391,960	414,614	408,496	420,084	430,282	437,904	443,125	452,412	457,800	472,018	487,345	487,879	490,900	503,288	507,591	516,540	511,697	510,410
Nonhighway, total	20,185	15,930	15,152	13,788	13,834	15,160	15,430	16,310	14,795	11,018	11,488	12,083	11,662	12,479	12,431	11,500	11,382	15,361	16,297	17,098	17,892	18,217	18,725
Agriculture	8,675	7,432	7,313	5,924	4,009	4,091	2,579	2,949	3,049	3,204	3,452	3,508	3,475	3,727	3,433	2,661	2,469	3,034	3,149	3,229	4,141	4,080	4,651
Aviation[a]	5,011	1,898	1,488	1,551	1,563	1,444	1,366	1,282	1,303	1,289	1,379	1,389	1,301	1,267	1,329	1,219	1,120	1,347	1,293	1,153	1,175	1,264	1,309
Marine	230	365	2,264	2,762	3,983	3,986	4,923	6,472	4,994	3,307	3,394	4,014	3,761	3,737	3,619	4,156	4,256	3,762	4,093	4,192	3,804	4,773	4,684
Other[b]	6,270	6,235	4,087	3,551	4,280	5,639	6,562	5,608	5,448	3,218	3,263	3,172	3,124	3,749	4,050	3,464	3,537	7,218	7,762	8,523	8,772	8,100	7,696

[a] Does not include aviation jet fuel.

[b] Includes state, county, and municipal use, industrial and commercial use, construction use, and miscellaneous.

NOTES

All nonhighway uses of gasoline were estimated by the U.S. Department of Transportation, Federal Highway Administration.
These estimates may not be comparable to data for prior years due to revised estimation procedures.
Numbers may not add to totals due to rounding.

SOURCES

Highway:

1960-95: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics* , *Summary to 1995* (Washington, DC: 1996), table MF-221.
1996-2006: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table MF-21, Internet site www.fhwa.dot.gov/policy/ohpi as of Jan. 30, 2008.

Nonhighway:

1960-2006: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table MF-24, Internet site www.fhwa.dot.gov/policy/ohpi as of Jan. 30, 2008 and unpublished revisions.

Table 4-8M: Certificated Air Carrier Fuel Consumption and Travel[a]

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Number of aircraft	2,135	2,125	2,679	2,495	3,808	4,678	6,083	6,054	7,320	7,297	7,370	7,411	7,478	7,616	8,111	8,228	8,055	8,497	8,194	8,176	8,186	8,225	U	U
Average kilometers flown per aircraft (thousands)	784	1,074	1,528	1,500	1,236	1,191	1,250	1,239	1,077	1,129	1,170	1,222	1,260	1,273	1,236	1,283	1,388	1,291	1,344	1,446	1,560	1,614	U	U
Aircraft-Kilometers (millions)																								
Domestic operations	1,381	1,825	3,328	3,135	4,060	4,902	6,378	6,202	6,429	6,690	7,049	7,450	7,743	7,903	8,103	8,581	9,115	8,929	9,039	9,793	10,544	10,806	(R) 10,661	10,825
International operations	293	457	764	607	645	668	1,223	1,299	1,455	1,547	1,577	1,606	1,679	1,793	1,918	1,971	2,063	2,037	1,971	2,031	2,228	2,472	(R) 2,557	2,705
Fuel consumption (million liters)																								
Domestic operations	7,397	14,721	29,742	28,610	32,249	38,289	46,648	43,557	44,527	45,268	46,880	47,967	50,033	51,341	50,479	54,518	(R) 56,272	(R) 52,496	(R) 48,930	(R) 49,520	(R) 53,339	(R) 52,852	(R) 51,415	51,314
International operations	2,143	4,845	8,491	7,378	6,614	9,418	14,797	14,913	15,596	15,571	16,196	16,817	17,483	18,605	18,636	19,875	(R) 20,850	(R) 20,198	(R) 19,211	(R) 19,755	(R) 21,169	(R) 22,616	(R) 22,781	23,485
Aircraft-Kilometers flown per liters																								
Domestic operations	0.19	0.12	0.11	0.11	0.13	0.13	0.14	0.14	0.14	0.15	0.15	0.16	0.15	0.15	0.16	0.16	(R) 0.16	(R) 0.17	(R) 0.18	(R) 0.20	(R) 0.20	(R) 0.20	(R) 0.21	0.21
International operations	0.14	0.09	0.09	0.08	0.10	0.07	0.08	0.09	0.09	0.10	0.10	0.10	0.10	0.10	0.10	0.10	(R) 0.10	(R) 0.10	(R) 0.10	(R) 0.10	(R) 0.11	(R) 0.11	(R) 0.11	0.12

KEY: R = revised. U = data are unavailable

[a] Aircraft operating under 14 CFR 121 and 14 CFR 135.

NOTES

1.609344 kilometers = 1 mile.

3.785412 liters = 1 gallon.

SOURCES

Number of aircraft:

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

1970-75: Ibid., *FAA Statistical Handbook of Aviation, Calendar Year 1979* (Washington, DC: 1979), table 5.1.

1980-85: Ibid., *FAA Statistical Handbook of Aviation, Calendar Year 1986* (Washington, DC: 1986), table 5.1.

1990-97: Ibid., *FAA Statistical Handbook of Aviation, Calendar Year 1997* (Washington, DC: unpublished), personal communication, Mar. 19, 1999.

1998-2005: Aerospace Industries Association,*Aerospace Facts and Figures* (Washington DC: Annual Issues), "Active U.S. Air Carrier Fleet", p. 90 and similar pages in earlier editions.

Aircraft-miles flown:

1960: Civil Aeronautics Board,*Handbook of Airline Statistics 1969* (Washington, DC: 1970), part III, tables 2 and 13.

1965-70: Ibid., *Handbook of Airline Statistics 1973* (Washington, DC: 1974), part III, tables 2 and 13.

1975-80: Ibid., *Air Carrier Traffic Statistics* (Washington, DC: December 1976), pp. 4 and 14; and (December 1981), pp. 2 and 3.

1985-2001: U.S. Department of Transportation, Bureau of Transportation Statistics, Office of Airline Information,*Air Carrier Traffic Statistics* (Washington, DC: Annual issues, December), pp. 2 and 3, line 27 plus line 50.

2002-07: U.S. Department of Transportation, Bureau of Transportation Statistics, Office of Airline Information,*Air Carrier Traffic Statistics* (Washington, DC: Annual issues, January), pp. 3 and 4, line 25 plus line 46.

Fuel consumption:

1960-70: U.S. Department of Transportation, Bureau of Transportation Statistics, Office of Airline Information, Internet site http://www.bts.gov/programs/oai/fuel/fuelyearly.html as of June 25, 2004.

1980-2007: Ibid., Internet site http://www.bts.gov/xml/fuel/report/src/index.xml as of Jun. 26, 2008.

Table 4-9M: Motor Vehicle Fuel Consumption and Travel

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Vehicles registered (thousands)[a]	73,858	90,358	111,242	137,913	161,490	177,133	193,057	192,314	194,427	198,041	201,802	205,427	210,441	211,580	215,496	220,461	225,821	235,331	234,624	236,760	237,243	(R) 247,421	241,194
Vehicle-kilometers traveled (millions)	1,156,735	1,428,795	1,785,928	2,136,668	2,457,943	2,856,306	3,451,016	3,495,576	3,616,439	3,695,662	3,794,170	3,898,951	4,000,585	4,122,648	4,235,024	4,330,835	4,420,747	4,501,797	4,595,495	4,651,728	4,771,364	(R) 4,811,021	4,850,749
Fuel consumed (million liters)	219,100	269,158	349,503	412,549	435,171	459,174	494,962	486,664	503,036	519,593	533,134	544,471	557,837	569,273	588,174	611,007	615,334	618,833	638,532	643,781	675,834	(R) 661,640	662,182
Average kilometers traveled per vehicle (thousands)	15.7	15.8	16.1	15.5	15.2	16.1	17.9	18.2	18.6	18.7	18.8	19.0	19.0	19.5	19.7	19.6	19.6	19.1	19.6	19.6	20.1	(R) 19	20
Average kilometers traveled per gallon	5.3	5.3	5.1	5.2	5.6	6.2	7.0	7.2	7.2	7.1	7.1	7.2	7.2	7.2	7.2	7.1	7.2	7.3	7.2	7.2	7.1	(R) 7.3	7.3
Average fuel consumed per vehicle (liters)	2,966	2,979	3,142	2,991	2,695	2,592	2,564	2,531	2,587	2,624	2,642	2,650	2,651	2,691	2,729	2,771	2,725	2,630	2,722	2,719	2,849	(R) 2,674	2,745

KEY: R = revised.

[a] Includes personal passenger vehicles, buses, and trucks.

NOTE

See tables 4-11, 4-12, 4-13, 4-14, and 4-15 for individual highway vehicles.

SOURCES

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

1995-2006: Ibid., *Highway Statistics* (Washington, DC: Annual issues), tables MF-21, MV-1, and VM-1.

Table 4-11M: Passenger Car and Motorcycle Fuel Consumption and Travel

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Vehicles registered (thousands)																							
Passenger cars	61,671	75,258	89,244	106,706	121,601	127,885	133,700	128,300	126,581	127,327	127,883	128,387	129,728	129,749	131,839	132,432	133,621	137,633	135,921	135,670	136,431	136,568	135,400
Motorcycles	574	1,382	2,824	4,964	5,694	5,444	4,259	4,177	4,065	3,978	3,757	3,897	3,872	3,826	3,879	4,152	4,346	4,903	5,004	5,370	5,370	6,227	6,686
Vehicle-kilometers traveled (millions)																							
Passenger cars	944,685	1,163,556	1,475,768	1,664,062	1,789,591	2,006,852	2,265,956	2,185,489	2,208,020	2,212,848	2,262,738	2,314,237	2,365,501	2,418,129	2,493,802	2,525,222	2,575,412	2,620,546	2,669,055	2,690,950	2,735,708	(R) 2,749,437	2,707,996
Motorcycles	[a]	[a]	4,828	9,012	16,415	14,645	15,450	14,806	15,450	15,933	16,415	15,772	15,965	16,224	16,549	17,033	16,848	15,512	15,372	15,413	16,290	(R) 16,824	19,957
Fuel consumed (million liters)																							
Passenger cars	155,849	188,222	256,723	280,650	264,911	270,725	263,344	243,466	247,702	253,804	256,931	257,681	262,030	264,571	271,396	277,406	276,582	278,450	285,690	285,627	285,427	(R) 293,059	283,841
Motorcycles	[a]	[a]	227	428	772	689	723	697	723	750	776	742	751	763	779	801	793	731	723	725	766	(R) 715	837
Average kilometers traveled per vehicle (thousands)																							
Passenger cars	15.3	15.5	16.5	15.6	14.7	15.7	16.9	17.0	17.4	17.4	17.7	18.0	18.2	18.6	18.9	19.1	19.3	19.0	19.6	19.8	20.1	(R) 20.1	20.0
Motorcycles	[a]	[a]	1.7	1.8	2.9	2.7	3.6	3.5	3.8	4.0	4.4	4.0	4.1	4.2	4.3	4.1	3.9	3.2	3.1	2.9	3.0	(R) 2.7	3.0
Average kiloemeters traveled per liter																							
Passenger cars	6.1	6.2	5.7	5.9	6.8	7.4	8.6	9.0	8.9	8.7	8.8	9.0	9.0	9.1	9.2	9.1	9.3	9.4	9.3	9.4	9.6	(R) 9.4	9.7
Motorcycles	[a]	[a]	21.3	21.1	21.3	21.3	21.4	21.3	21.4	21.3	21.2	21.3	21.3	21.3	21.3	21.3	21.3	21.2	21.3	21.3	21.3	(R) 21.3	21.3
Average fuel consumed per vehicle (liters)																							
Passenger cars	2527	2501	2877	2630	2179	2117	1970	1898	1957	1993	2009	2007	2020	2039	2059	2095	2070	2023	2102	2105	2092	(R) 2,146	2096
Motorcycles	[a]	[a]	80	86	136	127	170	167	178	188	207	190	194	199	201	193	182	149	145	135	143	(R) 115	125

KEY: R = revised.

[a] Included in passenger car.

NOTES

See table 4-12 for other 2-axle 4-tire vehicles.

Average miles traveled per vehicle, average miles traveled per gallon, average fuel consumed per vehicle are derived by

SOURCES

Passenger car:

Number registered:

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

1995-2005: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1.

All other categories:

1960-94: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1995,* FHWA-PL-97-009 (Washington, DC: July 1997), table VM-201A. For 1970-94, the unrevised motorcycle vehicle-miles and fuel consumed are subtracted from the combined passenger car and motorcycle vehicle-miles and fuel consumed from VM-201A.

1995-2006: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1.

Motorcycle:

Number registered:

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

1995-2005: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1.

All other categories:

1970-85: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1985,* table VM-

1990-2006: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1.

Table 4-12M: Other 2-Axle 4-Tire Vehicle Fuel Consumption and Travel

	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2,004	2005	2006
Number registered (thousands)	14,211	20,418	27,876	37,214	48,275	53,033	57,091	59,994	62,904	65,738	69,134	70,224	71,330	75,356	79,085	84,188	85,011	87,187	87,187	95,337	99,125
Vehicle-kilometers traveled (millions)	197,949	323,478	468,319	629,254	925,373	1,044,464	1,137,806	1,200,571	1,231,148	1,271,382	1,314,094	1,369,132	1,397,353	1,450,054	1,485,519	1,517,945	1,554,681	1,583,746	1,583,746	(R) 1,675,409	1,752,597
Fuel consumed (million liters)	46,610	72,229	90,078	103,580	134,802	144,667	154,933	162,209	166,982	172,634	179,255	186,953	191,020	200,093	200,395	202,602	209,031	229,994	229,994	(R) 222,843	229,631
Average kilometers traveled per vehicle (thousands)	13.9	15.8	16.8	16.9	19.2	19.7	19.9	20.0	19.6	19.3	19.0	19.5	19.6	19.2	18.8	11.2	18.3	18.2	18.2	(R) 17.6	17.7
Average kilometers traveled per liter	4.2	4.5	5.2	6.1	6.9	7.2	7.3	7.4	7.4	7.4	7.3	7.3	7.3	7.2	7.4	7.5	7.4	6.9	6.9	(R) 7.5	7.6
Average fuel consumed per vehicle (liters)	3,280	3,537	3,231	2,783	2,792	2,728	2,714	2,704	2,655	2,626	2,593	2,662	2,678	2,655	2,534	636	2,459	2,638	2,638	(R) 2,337	2,317

KEY: R = revised.

NOTE

Nearly all vehicles in this category are light trucks, which include vans, pickup trucks, and sport utility vehicles. In 1995, the U.S. Department of Transportation, Federal Highway Administration revised its vehicle categories beginning with 1993 data. They are passenger car, other 2-axle 4-tire vehicle, single-unit 2-axle 6-tire or more truck, and combination truck. Prior to 1993, some minivans and sport utility vehicles were included under the passenger car category.

SOURCES

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

1995-2006: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1.

Table 4-13M: Single-Unit 2-Axle 6-Tire or More Truck Fuel Consumption and Travel [a]

	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Number registered (thousands)	3,681	4,232	4,374	4,593	4,487	4,481	4,370	4,408	4,906	5,024	5,266	5,293	5,735	5,763	5,926	5,704	5,651	5,849	6,161	6,395	6,649
Vehicle-kilometers (millions)	43,613	55,683	64,052	73,064	83,525	85,134	86,744	91,411	98,653	100,914	103,114	107,654	109,469	113,143	113,459	116,594	122,094	125,138	126,239	(R) 126,327	129,280
Fuel consumed (million liters)	15,021	20,517	26,206	28,008	31,635	30,934	31,180	32,131	34,190	34,886	35,617	36,249	25,807	35,477	36,200	36,595	39,068	33,616	33,912	(R) 35,965	37,260
Average kilometers traveled per vehicle (thousands)	11.8	13.2	14.6	15.9	18.6	19.0	19.9	20.7	20.1	20.1	19.6	20.3	19.1	19.6	19.1	20.4	21.6	21.4	20.5	(R) 19.8	19.4
Average kilometers traveled per liter	2.9	2.7	2.4	2.6	2.6	2.8	2.8	2.8	2.9	2.9	2.9	3.0	4.2	3.2	3.1	3.2	3.1	3.7	3.7	(R) 3.5	3.5
Average fuel consumed per vehicle (liters)	4,080	4,848	5,992	6,098	7,050	6,904	7,135	7,289	6,968	6,944	6,763	6,848	4,500	6,156	6,109	6,416	6,914	5,748	5,504	(R) 5,624	5,604

KEY: R = revised.

[a] Beginning in 1998, the Federal Highway Administration (FHWA) used the Census Bureau's *1997 Vehicle Inventory and Use Survey* (VIUS) for its baseline estimate of single-unit 2-axle 6-tire or more trucks. Prior to 1998, the FHWA used the Census Bureau's *1992 Transportation Inventory and Use Survey* (TIUS) for its baseline estimates. Therefore, post-1997 data may not be comparable to 1997 and earlier years.

NOTES

In 1995, the U.S. Department of Transportation, Federal Highway Administration revised its vehicle categories beginning with 1993 data to include passenger cars, other 2-axle 4-tire vehicles, single-unit 2-axle 6-tire or more trucks, and combination trucks. Single-unit 2-axle 6-tire or more trucks are on a single frame with at least 2 axles and 6 tires. Pre-1993 data have been reassigned to the most appropriate category.

SOURCES

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

1995-2006: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1.

Table 4-14M: Combination Truck Fuel Consumption and Travel [a]

	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Number registered (thousands)	787	905	1,131	1,417	1,403	1,709	1,691	1,675	1,680	1,682	1,696	1,747	1,790	1,997	2,029	2,097	2,154	2,277	1,908	2,010	2,087	2,170
Vehicle-kilometers traveled (millions)	51,016	56,488	75,156	110,562	125,690	151,761	155,463	160,130	165,923	175,258	185,879	191,349	200,499	206,574	213,051	217,294	219,811	223,276	225,566	229,122	(R) 231,791	229,663
Fuel consumed (million liters)	25,203	27,815	34,739	49,350	53,015	61,070	63,629	65,170	67,183	70,609	74,864	76,437	76,850	95,233	92,884	97,155	96,573	100,236	90,151	91,573	(R) 104,814	106,275
Average kilometers traveled per vehicle (thousands)	64.9	62.4	66.5	78.0	89.6	88.8	91.9	95.6	98.7	104.2	109.6	109.6	112.0	103.4	105.0	103.6	102.0	98.1	118.2	114.0	(R) 111.1	105.8
Average kilometers traveled per liter	2.0	2.0	2.2	2.2	2.4	2.5	2.4	2.5	2.5	2.5	2.5	2.5	2.6	2.2	2.3	2.2	2.3	2.2	2.5	2.5	(R) 2.2	2.2
Average fuel consumed per vehicle (liters)	32,044	30,732	30,722	34,831	37,780	35,737	37,621	38,899	39,983	41,992	44,148	43,764	42,934	47,680	45,788	46,339	11,843	44,028	47,240	45,551	(R) 50,228	48,975

KEY: R = revised.

[a] Beginning in 1998, the Federal Highway Administration (FHWA) used the Census Bureau's *1997 Vehicle Inventory and Use Survey* (VIUS) for its baseline estimate of combination trucks. Prior to 1998, the FHWA used the Census Bureau's *1992 Transportation Inventory and Use Survey* (TIUS) for its baseline estimates. Therefore, post-1997 data may not be comparable to 1997 and earlier years.

SOURCES

1965-94: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1995,* FHWA-PL-97-009 (Washington, DC: July 1997), table VM-201A.

1995-2006: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1.

Table 4-15M: Bus Fuel Consumption and Travel

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Number registered (thousands)	272	314	378	462	529	593	627	631	645	654	670	686	695	698	716	729	746	750	761	777	795	807	822
Vehicle-kilometers traveled (millions)	6,920	7,564	7,242	9,817	9,817	7,242	9,173	9,334	9,334	9,817	10,300	10,300	10,562	11,011	11,277	12,331	12,215	11,389	11,016	10,916	10,945	(R) 11,233	11,256
Fuel consumed (million liters)	3,131	3,312	3,104	3,986	3,854	3,157	3,388	3,271	3,324	3,517	3,649	3,664	3,747	3,886	3,938	4,347	4,210	3,883	3,784	3,668	5,149	(R) 4,240	4,342
Average kilometers traveled per vehicle (thousands)	25.4	24.1	19.2	21.2	18.6	12.2	14.6	14.8	14.5	15.0	15.4	15.0	15.2	15.8	15.8	16.9	16.4	9.4	14.5	14.1	13.8	(R) 13.9	13.7
Average kilometers traveled per liter	2.2	2.3	2.3	2.5	2.5	2.3	2.7	2.9	2.8	2.8	2.8	2.8	2.8	2.8	2.9	2.8	2.9	6.9	2.9	3.0	2.1	(R) 2.6	2.6
Average fuel consumed per vehicle (liters)	11,504	10,539	8,221	8,625	7,287	5,319	5,404	5,181	5,155	5,374	5,443	5,345	5,394	5,571	5,504	5,965	5,642	1,369	4,974	4,723	6,474	(R) 5,253	5,282

KEY: R = revised.

NOTE

Includes both publicly and privately owned school, transit, and other commercial buses.

SOURCES

1960-94: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1995,* FHWA-PL-97-009 (Washington, DC: July 1997), table VM-201A.
1995-2006: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1.

Table 4-16M: Transit Industry Electric Power and Primary Energy Consumption[a] and Travel

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Number of vehicles (thousands)	65	62	61	62	75	94	93	97	103	108	116	116	123	126	124	129	131	135	135	138	144	121
Vehicle-kilometers traveled (millions)	3,449	3,232	3,030	3,502	3,681	4,492	5,217	5,321	5,399	5,528	5,580	5,713	5,875	6,028	6,105	6,393	6,567	6,753	6,883	7,022	7,195	7,405
Electric power consumed (million kWh)	2,908	2,584	2,561	2,646	2,446	4,216	4,837	4,853	4,716	4,865	5,081	5,068	5,007	4,988	5,073	5,237	5,510	5,610	5,649	5,643	5,825	5,954
Primary energy consumed (thousand liters)																						
Diesel	787,744	940,296	1,024,332	1,381,903	1,633,027	2,304,324	2,464,417	2,517,897	2,592,795	2,568,444	2,567,365	2,567,592	2,622,208	2,713,959	2,799,770	2,889,666	2,975,428	2,818,856	2,742,663	2,698,041	2,766,023	2,763,040
Gasoline and other nondiesel fuels[b]	726,421	470,148	258,165	28,678	43,154	173,008	128,348	130,472	140,738	172,887	227,136	229,888	231,716	225,092	199,169	184,327	182,775	173,648	193,624	175,242	200,275	220,008
Compressed natural gas	N	N	N	N	N	N	N	N	3,819	5,977	18,302	40,655	57,129	90,494	141,075	168,065	207,418	250,651	306,811	378,810	423,247	465,806

KEY: kWh = kilowatt hour; N = data do not exist.

[a] Prior to 1984, excludes commuter rail, automated guideway, urban ferryboat, demand responsive vehicles, and most rural and smaller systems.

[b] 1992 to 2003 data include propane, liquid petroleum gas, liquefied natural gas, kerosene, and all other nondiesel fuels except compressed natural gas. 1960 to 1991 data include propane. Series not continuous between 1991 and 199

NOTES

The heat equivalent factors used in joule conversions are: diesel = 38,657,950 joules/liter; electric = 3,600,000 joules/kWh, negating electrical system loses (to include electrical system loses, multiply this conversion factor by approximately three); gasoline = 34,839,537 joules/liter.
1.609344 kilometers = 1 mile.
3.785412 liters = 1 gallon.

SOURCE
American Public Transportation Association *2006 Public Transportation Fact Book* (Washington, DC: Annual issues), tables 12, 18, 26, 27, 28 and similar tables in earlier editions, Internet site http://www.apta.com/ as of Dec 5, 2007.

Table 4-17M: Class I Rail Freight Fuel Consumption and Travel

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Number in use																							
Locomotives[a]	29,031	27,780	27,077	27,846	28,094	22,548	18,835	18,344	18,004	18,161	18,505	18,812	19,269	19,684	20,261	20,256	20,028	19,745	20,506	20,774	22,015	22,779	23,732
Cars[b]	1,965,486	1,800,662	1,784,181	1,723,605	1,710,827	1,421,686	1,212,261	1,189,660	1,173,136	1,173,132	1,192,412	1,218,927	1,240,573	1,270,419	1,315,667	1,368,836	1,380,796	1,314,136	1,299,670	1,278,980	1,287,920	1,312,245	1,346,507
Kilometers traveled (millions)																							
Freight train-kilometers[c]	651	677	687	648	690	559	611	603	628	653	710	738	754	764	764	789	811	804	804	830	861	(R) 881	906
Locomotive unit-kilometers	N	N	N	2,380	2,464	1,976	2,060	1,992	2,057	2,124	2,261	2,326	2,358	2,290	2,317	2,420	2,419	2,378	2,323	(R) 2,388	2,476	(R) 2,555	2,671
Car-kilometers	45,335	47,212	48,103	44,508	47,117	40,105	42,099	41,244	42,049	43,264	45,842	48,897	51,040	50,952	52,556	54,478	55,667	55,109	55,812	57,220	59,660	60,692	62,692
Average kilometers traveled per vehicle (thousands)																							
Locomotives	N	N	N	85.5	87.7	87.6	109.4	108.6	114.2	117.0	122.2	123.6	122.4	116.3	114.4	119.5	120.8	120.4	113.3	115.0	112.5	112.2	112.6
Cars	23	26.2	27.0	25.8	27.5	28.2	34.7	34.7	35.8	36.9	38.4	40.1	41.1	40.1	39.9	39.8	40.3	41.9	42.9	44.7	46.3	(R) 46.3	46.6
Average kilometers traveled per liter																							
Trains	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Cars	3.46	3.47	3.58	3.22	3.19	3.41	3.57	3.75	3.70	3.70	3.63	3.71	3.77	3.77	3.87	3.87	3.97	3.92	3.95	3.95	3.88	3.91	3.95
Fuel consumed (million liters)	13,109	13,597	13,419	13,843	14,778	11,773	11,792	11,000	11,375	11,689	12,621	13,173	13,548	13,533	13,563	14,063	14,006	14,044	14,120	14,483	15,365	15,513	15,868
Average fuel consumed per locomotive[a] (thousand liters)	451.5	489.5	495.6	497.1	526.0	522.1	626.0	599.7	631.8	643.7	682.0	700.3	703.1	687.5	669.4	694.3	699.3	711.3	688.6	697.2	(R) 697.9	681.0	668.7

KEY: N = data do not exist.

[a] For 1960-80, the total includes a small number of steam and electric units, which are not included in the per locomotive fuel consumption figure.
[b] Includes cars owned by Class I railroads, other railroads, car companies, and shippers.
[c] Based on the distance run between terminals and / or stations; does not include yard or passenger train-kilometers.

NOTES
1.609344 kilometers = 1 mile.
3.785412 liters = 1 gallon.

SOURCES
All data except for locomotive unit-kilometers:
Association of American Railroads, *Railroad Facts 2007* (Washington, DC: 2007), pp. 33, 34, 40, 49, and 51, and similar tables in earlier editions.
Locomotive unit-kilometers:
1975-92, 2002: Ibid., *Railroad Ten-Year Trends* (Washington, DC: Annual issues).
1993-2001, 2003-04: Ibid., *Analysis of Class I Railroads* (Washington, DC: Annual issues).
2005: Association of American Railroads, personal communication, June 13, 2007.
2006: Association of American Railroads, personal communication, Apr. 24, 2008.

Table 4-18M: Amtrak Fuel Consumption and Travel

	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Number in use																			
Locomotives	355	419	291	318	316	336	360	338	313	299	332	345	329	378	401	372	442	276	258
Cars	1,913	2,128	1,854	1,863	1,786	1,796	1,853	1,852	1,722	1,730	1,728	1,962	1,992	1,894	2,084	2,896	1,623	1,211	1,186
Kilometers traveled (millions)																			
Train-kilometers	48	48	48	53	55	55	56	55	51	48	51	53	55	56	58	61	60	60	58
Car-kilometers	407	378	404	484	504	494	488	489	470	444	463	502	550	592	608	609	534	496	426
Locomotive fuel consumed																			
Electric (million of kWh hours)	180	254	295	330	303	300	301	309	304	293	282	275	283	350	U	U	U	U	U
Diesel (million litres)	238	242	246	310	310	310	314	284	250	269	284	284	280	288	U	U	U	U	U
Average kilometers traveled per car	213,000	178,000	218,000	260,000	282,000	275,000	263,000	264,000	273,000	257,000	268,000	256,000	276,000	313,000	292,000	210,000	329,000	306,000	352,000

KEY: kWh = kilowatt hour; U = data are not available.

SOURCES

Number of locomotives and cars:

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

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

2001–05: Association of American Railroads, *Railroad Facts 2006* (Washington, DC: 2006), p. 77 and similar pages in earlier editions.

Miles traveled:

Train-miles:

1975–2002: Amtrak, *Amtrak Annual Report,* Statistical Appendix (Washington, DC: Annual issues).

2003–05: Association of American Railroads, *Railroad Facts 2006* (Washington, DC: 2006), p. 77 and similar pages in earlier editions.

Car-miles:

1975: Association of American Railroads, *Yearbook of Railroad Facts 1975* (Washington, DC: 1976), p. 40.

1980–85: Amtrak, State and Local Affairs Department and Public Affairs Department, personal communication.

1990–2000: Ibid., Amtrak Corporate Reporting, Route Profitability System, personal communication, Aug. 22, 2001.

2001–05: Association of American Railroads, *Railroad Facts 2006* (Washington, DC: 2006), p. 77 and similar pages in earlier editions.

Locomotive fuel consumed:

1975–2000: Amtrak, State and Local Affairs Department, personal communication.

Table 4-19M: U.S. Government Energy Consumption by Agency and Source (Petajoules)

	Petroleum								
	Motor gasoline	Distillate and residual fuel oil	Jet fuel and aviation gas	Other[d]	Total	Electricity	Natural gas	Coal and other[e]	Total
FY 1996, total	29.1	180.0	541.2	22.9	773.6	194.7	155.5	45.8	1,169.5
Agriculture	4.5	0.5	0.0	0.2	5.3	2.1	1.7	0.4	9.6
Defense	3.5	164.5	532.6	14.3	715.0	109.7	96.7	32.8	954.3
Energy	1.1	1.8	0.3	0.3	3.6	18.7	17.6	7.3	47.1
GSA	0.1	0.3	0.0	0.0	0.4	9.5	3.6	1.7	15.3
Health and Human Services	0.0	1.7	0.0	0.1	1.8	2.6	2.5	0.0	7.0
Interior	0.9	1.1	0.1	0.4	2.6	1.4	0.4	0.1	4.5
Justice	2.8	0.5	0.9	0.0	4.2	3.7	4.5	0.4	12.8
NASA	0.2	0.7	1.3	0.0	2.3	6.6	2.8	0.2	12.1
Postal Service	13.0	2.6	0.0	0.0	15.6	15.9	6.2	0.6	38.4
Transportation	0.5	0.8	5.1	7.3	13.8	5.6	1.3	0.1	20.7
Veterans Affairs	0.6	2.3	0.0	0.0	3.0	9.4	14.6	1.4	28.3
Other[a]	1.7	3.1	0.9	0.1	5.9	9.3	3.7	0.6	19.5
FY 2005[P], total	48.7	252.7	519.7	9.4	830.4	198.2	138.3	43.0	1,210.0
Agriculture	0.4	0.6	0.0	0.1	1.2	3.7	3.8	1.5	10.1
Defense	17.5	233.5	511.4	4.2	766.6	106.6	79.4	30.8	983.4
Energy	12.8	4.4	0.0	0.2	17.5	19.2	5.9	0.4	42.9
GSA	0.0	0.1	0.0	0.0	0.1	10.4	7.1	1.9	19.4
Health and Human Services	0.5	0.2	0.6	0.0	1.5	3.1	0.7	0.0	5.3
Interior	2.3	0.7	0.1	0.7	4.0	2.2	1.6	0.3	8.1
Justice	2.4	1.2	0.1	1.2	5.0	2.3	1.2	0.6	9.1
NASA	0.2	0.4	0.8	0.0	1.5	5.9	3.3	0.3	10.9
Postal Service	2.0	2.1	0.2	0.1	4.4	17.6	6.5	3.5	32.1
Transportation	3.0	0.4	1.6	0.0	5.1	5.3	8.3	0.9	19.5
Veterans Affairs	0.8	1.3	0.0	0.0	2.1	11.2	16.5	1.7	31.4
Other[c]	6.6	7.6	4.6	2.6	21.6	10.8	4.1	1.2	37.7
FY 2006[P], total	50.4	219.3	467.1	5.0	742.6	201.7	136.9	43.9	1,125.2
Agriculture	2.3	0.4	0.0	0.2	3.1	2.1	1.8	0.0	7.2
Defense	18.3	201.8	460.3	2.3	682.8	107.3	72.4	0.3	890.2
Energy	0.8	2.0	0.1	0.2	3.3	22.2	7.8	27.6	41.9
GSA	0.0	0.1	0.0	0.0	0.2	10.4	6.8	8.8	19.1
Health and Human Services	0.3	0.4	0.0	0.1	0.8	3.1	5.4	1.8	9.8
Interior	2.2	1.3	0.1	1.1	4.6	2.4	1.4	0.4	8.5
Justice	5.0	1.1	0.1	0.1	6.2	6.4	11.3	0.1	24.8
NASA	0.2	0.4	0.8	0.1	1.5	5.8	3.2	0.8	10.9
Postal Service	14.1	2.6	0.0	0.2	17.0	17.7	6.5	0.3	41.9
Transportation	0.4	0.2	0.5	0.0	1.3	2.8	0.7	0.6	4.9
Veterans Affairs	0.8	1.3	0.0	0.0	2.1	11.0	15.9	0.1	30.9
Other[c]	5.9	7.6	5.1	0.5	19.5	10.6	4.0	1.9	35.1

KEY: Btu = British thermal unit; FY = fiscal year; GSA = General Services Administration; NASA = National Aeronautics and Space Administration; P = preliminary.

1 Trillion BTU=1.05506 Petajouls

[a] Includes U.S. Department of Commerce, Panama Canal Commission, Tennessee Valley Authority, U.S. Department of Labor, U.S Information Agency, U.S. Department of Housing and Urban Development, Federal Communications Commission, Office of Personnel Management, U.S. Department of State, Federal Emergency Management Agency, U.S. Department of the Treasury, National Archives and Records Administration, Nuclear Regulatory Commission, Railroad Retirement Board, Federal Trade Commission, Equal Employment Opportunity Commission, and Environmental Protection Agency.

[b] Includes National Archives and Records Administration, U.S. Department of Commerce, U.S. Department of Labor, U.S. Department of State, Environmental Protection Agency, Federal Communications Commission, Federal Trade Commission, Social Security Administration, International Broadcasting Bureau, Equal Employment Opportunity Commission, Nuclear Regulatory Commission, Office of Personnel Management, U.S. Department of Housing and Urban Development, U.S. Department of the Treasury, Railroad Retirement Board, Tennessee Valley Authority, Federal Emergency Management Agency, Central Intelligence Agency, and National Science Foundation.

[c] Includes National Archives and Records Administration, U.S. Department of Commerce, U.S. Department of Labor, U.S. Department of State, Environmental Protection Agency, Federal Communications Commission, Federal Trade Commission, Social Security Administration, International Broadcasting Bureau, Nuclear Regulatory Commission, U.S. Department of Homeland Security, U.S. Department of Housing and Urban Development, U.S. Department of the Treasury, Railroad Retirement Board, and Tennessee Valley Authority.

[d] Includes liquefied petroleum gases.

[e] Includes purchased steam, chilled water from district heating and cooling systems, and any other energy type, such as renewable energy.

NOTES

Numbers may not add to totals due to rounding.

These data include energy consumed at foreign installations and in foreign operations, including aviation and ocean bunkering, primarily by the U.S. Department of Defense. U.S. government energy use for electricity generation and uranium enrichment is excluded. Other energy used by U.S. agencies that produce electricity or enriched uranium is included. The U.S. government's fiscal year runs from October 1 through September 30.

This table uses a conversion factor for electricity of 3,600,000 joules per kilowatt-hour, and a conversion factor for purchased steam of 2,326 kilojoules per kilogram.

SOURCE

1996, 2004-06: U.S. Department of Energy, Energy Information Administration,*Annual Energy Review 2005,* table 1.13, Internet site http://www.eia.doe.gov/emeu/aer/ as of Nov. 6, 2006.

Table 4-20M: Energy Intensity of Passenger Modes (Kilojoule per passenger-kilometer)

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Air, certificated carrier																							
Domestic operations	5,659	6,633	6,677	5,078	3,764	3,308	3,233	3,062	2,992	2,988	2,913	2,873	2,742	2,731	2,703	2,655	2,546	2,550	2,358	(R) 2,292	(R) 2,235	(R) 2,112	2,031
International operations	6,031	6,748	7,202	5,550	2,845	3,345	2,980	3,022	2,792	2,687	2,718	2,736	2,693	2,733	2,804	2,703	2,513	2,599	2,570	(R) 2,739	(R) 2,549	(R) 2,500	2,419
Highway[a]																							
Passenger car	2,947	2,921	3,174	3,109	2,850	2,799	2,498	2,395	2,428	2,481	2,472	2,439	2,418	2,397	2,384	2,407	2,353	2,358	2,360	(R) 2,341	2,301	(R) 2,350	2,311
Other 2-axle 4-tire vehicle	N	N	4,465	4,308	3,743	3,259	2,976	2,804	2,790	2,803	2,849	2,975	2,977	2,992	2,995	3,024	2,956	2,612	2,702	(R) 2,918	2,918	(R) 2,673	2,633
Motorcycle	b	b	1,639	1,543	1,393	1,243	1,460	1,257	1,305	1,352	1,400	1,491	1,489	1,490	1,490	1,490	1,490	1,343	1,291	1,291	1,291	(R) 1,170	1,150
Transit motor bus	N	N	N	N	1,798	2,222	2,441	2,470	2,647	2,586	2,728	2,724	2,751	2,772	2,709	2,651	2,719	2,424	2,327	2,304	(R) 2,341	(R) 2,224	2,138
Amtrak	N	N	N	1,562	1,408	1,370	1,354	1,297	1,334	1,326	1,269	1,205	1,411	1,442	1,402	1,381	1,399	U	U	U	U	U	U

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

[a] For 1995 and subsequent years, highway passenger-miles were taken directly from *Highway Statistics* rather than derived from vehicle-miles and average

[b] Included in passenger car.

NOTES

To calculate total joules, multiply fuel consumed (see tables 4-21, 4-22, 4-24, 4-25) by 37,626,700 joules/liter for air carrier, 34,839,537 joules/liter for passenger car, other 2-axle 4-tire vehicle, and motorcycle, and 38,657,950 joules/liter for transit motor bus and Amtrak diesel consumption; and 3,599,851 joules/KwH for Amtrak electric consumption

1.609344 kilometers = 1 mile.

SOURCES

Air:

Certificated air carriers:

Passenger-kilometers:

1960-80: Air Transport Association, Internet site http://www.airlines.org as of Aug. 30, 2004.

1985-2006: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, Office of Airline Information, *Air Carrier Traffic Statistics* (Washington DC: Annual December issues).

Fuel consumed:

U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, Office of Airline Information, Internet site http://www.bts.gov/oai/fuel/fuelyearly.html as of Mar. 27, 2008.

Highway:

Passenger car:

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

1995-2006: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1.

Other 2-axle 4-tire vehicle:

1970-94: Ibid., *Highway Statistics Summary to 1995,* FHWA-PL-97-009 (Washington, DC: July 1997), table VM-201A.

1995-2006: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1.

Motorcycle:

1970-85: Ibid., *Highway Statistics Summary to 1985,* FHWA-PL-97-009 (Washington, DC: July 1997), table VM-201A.

1990-2006: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1.

Transit motor bus:

American Public Transportation Association, *2008 Public Transportation Fact Book* (Washington, DC: Annual issues), tables 2 and 28, and similar tables in earlier editions.

Amtrak:

Amtrak, State and Local Affairs Department, personal communication April 22, 2008.

Table 4-21M: Energy Intensity of Certificated Air Carriers, All Services[a]

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Aircraft-kilometers (millions)																							
Domestic operations	1,381	1,825	3,328	3,135	4,060	4,902	6,378	6,202	6,429	6,690	7,049	7,450	7,743	7,903	8,103	8,581	9,116	8,929	9,039	9,792	10,608	(R) 10,550	10,478
International operations	293	457	764	607	645	668	1,223	1,299	1,455	1,547	1,577	1,606	1,679	1,793	1,918	1,971	2,063	2,037	1,971	2,031	2,258	(R) 2,134	2,298
Available seat-kilometers (millions)																							
Domestic operations	84,040	152,545	343,048	388,306	556,878	717,487	906,165	874,901	897,996	919,722	942,171	971,910	1,008,075	1,049,160	1,065,889	1,125,463	1,170,046	1,118,816	1,089,443	1,108,943	1,193,608	(R) 1,210,429	1,194,875
International operations	21,480	47,529	83,622	99,335	139,220	164,094	274,087	276,101	313,474	322,112	320,087	326,954	335,841	368,039	382,280	391,040	408,850	378,696	346,984	329,521	369,808	(R) 404,879	429,252
Passenger-kilometers (millions)																							
Domestic operations	49,177	83,504	167,608	211,996	322,334	435,463	547,549	535,213	559,941	569,993	609,925	635,221	684,930	725,190	745,548	785,934	830,629	782,956	776,202	812,974	897,841	(R) 941,460	952,465
International operations	13,367	27,019	44,358	50,022	87,489	105,925	189,412	185,701	210,216	218,079	225,937	234,881	246,337	272,552	277,218	290,115	310,278	287,015	276,582	271,344	312,491	(R) 340,422	354,277
Fuel consumed (million liters)																							
Domestic operations	7,397	14,721	29,742	28,610	32,249	38,289	46,648	43,557	44,527	45,268	46,880	47,967	50,033	51,341	50,479	54,518	56,193	53,062	48,636	49,054	(R) 51,567	52,197	50,944
International operations	2,143	4,845	8,491	7,378	6,614	9,418	14,797	14,913	15,596	15,571	16,196	16,817	17,483	18,605	18,636	19,875	20,724	19,826	18,892	18,308	(R) 18,668	(R) 20,899	22,059
Seats per aircraft																							
Domestic operations	60.9	83.6	103.1	123.9	137.1	146.4	142.1	141.1	139.7	137.5	133.7	130.5	130.2	132.7	131.5	131.2	128.4	125.3	120.5	113.2	112.5	(R) 114.7	114.0
International operations	73.3	104.0	109.4	163.7	215.7	245.7	224.1	212.6	215.5	208.3	203.0	203.6	200.1	205.3	199.3	198.4	198.2	185.9	176.1	162.3	163.7	(R) 189.7	186.8
Seat-kilometers per liter																							
Domestic operations	11	10	12	14	17	19	19	20	20	20	20	20	20	20	21	21	21	21	22	23	(R) 23	(R) 23	23
International operations	10	10	10	13	21	17	19	19	20	21	20	19	19	20	21	20	20	19	18	18	(R) 20	(R) 19	19
Energy intensity (Kilojoule/passenger-kilometer)																							
Domestic operations	20,305	23,800	23,956	18,219	13,506	11,870	11,501	10,987	10,735	10,722	10,376	10,194	9,861	9,558	9,141	9,365	9,133	9,149	8,459	8,146	(R) 7,754	(R) 7,485	7,221
International operations	21,638	24,209	25,840	19,911	10,206	12,003	10,546	10,842	10,016	9,639	9,677	9,666	9,581	9,215	9,075	9,249	9,017	9,325	9,221	9,108	(R) 8,065	(R) 8,288	8,406
Load factor (percent)																							
Domestic operations	58.5	54.7	48.9	54.6	58.0	60.7	60.4	61.2	62.4	62.0	64.7	65.4	67.9	69.1	69.9	69.8	71.0	69.1	70.3	72.6	74.4	(R) 77.3	79.0
International operations	62.2	56.8	53.0	50.4	62.8	64.6	69.1	67.3	67.1	67.6	70.6	71.8	73.3	74.1	72.5	74.2	75.9	72.8	76.6	76.5	79.1	(R) 79.4	79.9

KEY: Btu = British thermal unit; R = revised.

[a] U.S. owned carriers only. Operation of foreign-owned carriers in or out of the United States not included.

NOTES

Aircraft-kilometers includes all four air-carrier groups (majors, nationals, large regionals, and medium regionals), scheduled and charter, passenger, and all-cargo. Fuel consumed includes majors, nationals, and large regionals, scheduled and charter, passenger, Passenger-kilometers includes all four air-carrier groups, scheduled and charter, passenger service only.
International operations include operations outside the United States, including those between the United States and foreign countries and the United States and its territories or possessions.
Heat equivalent factor used for Btu conversion is 135,000 Btu/gallon.

SOURCES

Aircraft-miles, available seat-miles, passenger-miles, and load factor:

1960-80: Air Transport Association, Internet site http://www.air-transport.org/public/industry, as of July 31, 2002.
1985-2006: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, Office of Airline Information, *Air Carrier Traffic Statistics* (Washington DC: Annual December issues).

Fuel consumed:

1960-75: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, Office of Airline Information, Internet site http://www.bts.gov/oai/fuel/fuelyearly.html as of July 21, 2004.
1980-2006: Ibid., Internet site http://www.bts.gov/xml/fuel/report/src/index.xml as of Apr. 25, 2007.

Seats per aircraft, seat-miles per gallon, and energy intensiveness:

Derived by calculation.

Table 4-22M: Energy Intensity of Passenger Cars, Other 2-Axle 4-Tire Vehicles, and Motorcycles

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	(R) 2005	2006
Vehicle-kilometers (millions)																							
Passenger car	944,685	1,163,556	1,475,768	1,664,062	1,789,591	2,006,852	2,265,956	2,185,489	2,208,020	2,212,848	2,262,738	2,314,237	2,365,736	2,418,844	2,494,483	2,525,061	2,575,412	2,620,546	2,669,055	2,690,950	2,735,708	2,749,437	2,707,996
Other 2-axle 4-tire vehicle	N	N	197,949	323,478	468,319	629,254	925,373	1,044,464	1,137,806	1,200,571	1,231,148	1,271,382	1,314,834	1,369,552	1,396,911	1,450,019	1,485,519	1,517,945	1,554,681	1,583,746	1,653,060	1,675,409	1,752,597
Motorcycle	[b]	[b]	4,828	9,012	16,415	14,645	15,450	14,806	15,450	15,933	16,415	15,772	15,933	16,254	16,576	17,059	16,848	15,512	15,372	15,413	16,290	16,824	19,957
Passenger-kilometers (millions)[a]																							
Passenger car	1,842,699	2,245,035	2,817,961	3,144,658	3,238,000	3,369,966	3,672,523	3,540,557	3,553,432	3,561,478	3,621,024	3,680,570	3,761,037	3,844,723	3,965,424	4,015,313	4,094,907	4,114,257	4,217,107	4,251,702	4,322,420	4,344,110	4,278,636
Other 2-axle 4-tire vehicle	N	N	363,712	584,192	838,468	1,107,229	1,609,344	1,797,637	1,934,431	2,016,508	2,042,258	2,021,336	2,088,929	2,177,442	2,222,504	2,306,190	2,361,976	2,701,852	2,695,316	2,745,707	2,865,873	2,904,621	3,038,437
Motorcycle	[b]	[b]	4,828	9,656	19,312	19,312	19,312	19,312	19,312	19,312	19,312	17,703	17,703	17,703	17,703	19,312	18,533	18,926	19,523	19,574	20,688	21,367	25,347
Average occupancy rate																							
Passenger car	1.95	1.93	1.91	1.89	1.81	1.68	1.62	1.62	1.61	1.61	1.60	1.59	1.59	1.59	1.59	1.59	1.59	1.57	1.58	1.58	1.58	1.58	1.58
Other 2-axle 4-tire vehicle	N	N	1.84	1.81	1.79	1.76	1.74	1.72	1.70	1.68	1.66	1.59	1.59	1.59	1.59	1.59	1.59	1.78	1.73	1.73	1.73	1.73	1.73
Motorcycle	[b]	[b]	1.00	1.07	1.18	1.32	1.25	1.30	1.25	1.21	1.18	1.12	1.11	1.09	1.07	1.13	1.10	1.22	1.27	1.27	1.27	1.27	1.27
Fuel consumed (million liters)																							
Passenger car	155,849	188,222	256,723	280,650	264,911	270,725	263,344	243,466	247,702	253,804	256,931	257,681	262,030	264,570	271,395	277,406	276,582	278,450	285,690	285,627	285,427	293,063	283,841
Other 2-axle 4-tire vehicle	N	N	46,610	72,229	90,078	103,580	134,802	144,667	154,933	162,209	166,982	172,634	179,254	186,954	191,019	200,093	200,395	202,602	209,031	229,994	240,060	222,843	229,631
Motorcycle	[b]	[b]	227	428	772	689	723	697	723	750	776	742	750	765	780	801	793	730	723	725	766	715	833
Energy intensity (Btu/passenger-kilometer)[c]																							
Passenger car	2,793	2,768	3,008	2,947	2,702	2,653	2,368	2,271	2,302	2,353	2,343	2,312	2,301	2,272	2,260	2,281	2,230	2,235	2,237	2,218	2,181	2,228	2,191
Other 2-axle 4-tire vehicle	N	N	4,232	4,083	3,548	3,089	2,766	2,657	2,645	2,656	2,700	2,820	2,834	2,835	2,838	2,865	2,802	2,476	2,561	2,766	2,766	2,533	2,496
Motorcycle	[a]	[a]	1,553	1,463	1,320	1,178	1,236	1,191	1,236	1,282	1,327	1,384	1,398	1,426	1,455	1,370	1,412	1,273	1,223	1,223	1,223	1,106	1,085

KEY: Btu = British thermal unit; N = data do not exist; R = revised.

[b] Included in passenger car.

[c] Energy Intensity (Btu/passenger-kilometer) is calculated by converting the fuel consumption in liters to the energy equivalent Btu units and dividing by the passenger-miles. The heat equivalent factor used for Btu conversion is 33,021.5046605 Btus/liter.

NOTES:

In 1995, the U.S. Department of Transportation, Federal Highway Administration revised its vehicle type categories for 1993 and later data. These new categories include passenger car, other 2-axle 4-tire vehicle, single-unit 2-axle 6-tire or more truck, and combination truck. [illegible] car category. Single-unit 2-axle 6-tire or more trucks are on a single frame with at least 2 axles and 6 tires. Pre-1993 data have been reassigned to the closest available category.

Vehicle-miles and passenger-miles data for 1960 through 1999 have been rounded to the nearest billion miles.

SOURCES:

Vehicle-miles:

Passenger car:

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

1995-2006: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1.

Other 2-axle 4-tire vehicle:

1970-94: Ibid., *Highway Statistics, Summary to 1985* (Washington, DC: 1986), table VM-201A.

1995-2006: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1.

Motorcycle:

1970-94: Ibid., *Highway Statistics, Summary to 1985* (Washington, DC: 1986), table VM-201A.

For 1970-94, the unrevised motorcycle vehicle-miles are subtracted from the combined passenger car and motorcycle vehicle-miles from VM-201A.

1995-2006: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1.

Passenger-miles:

1960-97: Vehicle-miles multiplied by vehicle occupancy rates.

1998-2006: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1.

Fuel consumed:

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

For 1970-94, the unrevised motorcycle fuel consumed is subtracted from the combined passenger car and motorcycle fuel consumed from VM-201A.

1995-2006: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1.

Table 4-23M: Average Fuel Efficiency of U.S. Passenger Cars and Light Trucks

	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Average U.S. passenger car fuel efficiency (kmpl) (calendar year)																					
Passenger car[a]	6.8	7.4	8.6	9.0	8.9	8.8	8.8	9.0	9.0	9.1	9.2	9.1	9.3	9.4	9.4	9.5	9.6	9.4	9.5	U	U
Other 2-axle 4-tire vehicle	5.2	6.1	6.8	7.2	7.4	7.4	7.4	7.4	7.3	7.3	7.3	7.2	7.4	7.5	7.4	7.5	6.9	7.5	7.7	U	U
New vehicle fuel efficiency (kmpl)[b] (model year)																					
Light-duty vehicle																					
Passenger car	10.3	11.7	11.9	12.1	11.9	12.1	12.0	12.2	12.1	12.2	12.2	12.0	12.1	12.2	12.3	12.5	12.5	12.9	(R) 12.8	13.3	13.3
Domestic	9.6	11.2	11.4	11.6	11.5	11.8	11.7	11.8	11.9	11.8	12.2	11.9	12.2	12.2	12.4	12.3	12.7	13.0	(R) 12.9	(R) 13.0	13.2
Imported	12.6	13.4	12.7	12.8	12.4	12.6	12.6	12.9	12.6	12.8	12.4	12.3	12.0	12.3	12.2	12.7	12.2	12.7	12.6	13.6	13.3
Light truck (<8,500 lbs GVWR)[c]	7.9	8.8	8.8	9.1	8.8	8.9	8.8	8.7	8.8	8.8	9.0	8.9	9.1	8.9	9.1	9.2	9.1	9.4	9.6	9.8	9.9
CAFE standards (kmpl)[b] (model year)																					
Passenger car	8.5	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7
Light truck	[d]6.8 / 6.0	8.3	8.5	8.6	8.6	8.7	8.7	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.9	9.2	9.4	9.6

KEY: CAFE = Corporate Average Fuel Economy; GVWR = gross vehicle weight rating; kmpl = kilometers per liter; R = revised; U = data are not available.

[a] From 1980 to 1994, passenger car fuel efficiency includes motorcycles.

[b] Assumes 55% city and 45% highway-miles. The source calculated average miles per gallon for light-duty vehicles by taking the reciprocal of the sales-weighted average of gallons per mile. This is called the harmonic average. These data were then converted to metric units.

[c] Beginning with FY 1999, the total light truck fleet ceased to be categorized by either domestic or import fleets.

[d] 2 Wheel Drive/4 Wheel Drive. No combined figure available for this year.

NOTES

The fuel efficiency figures for light duty vehicles represent the sales-weighted harmonic average of the combined passenger car and light truck fuel economies.
1.609344 kilometers = 1 mile.
3.785412 liters = 1 gallon.

SOURCES

Average U.S. passenger car fuel efficiency:

1980-94: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1995,* FHWA-PL-97-009 (Washington, DC: July 1997), table VM-201A (Revised data obtained from Internet site http://www.fhwa.dot.gov/ohim/ohimstat.htm as of Aug. 2, 2001).

1995-2006: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1.

New vehicle fuel efficiency (based on model year production) and CAFE standards:

U.S. Department of Transportation, National Highway Traffic Safety Administration, *Summary of Fuel Economy Performance* (Washington, DC: Annual Issues), available at http://www.nhtsa.dot.gov/portal/site/nhtsa/menuitem.43ac99aefa80569eea57529cdba046a0/ as of Sep. 17, 2008.

Table 4-24M: Energy Intensity of Transit Motor Buses

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Vehicle-kilometers (millions)	2,536	2,459	2,268	2,456	2,699	2,998	3,428	3,487	3,505	3,556	3,479	3,514	3,574	3,612	3,500	3,663	3,725	3,825	3,880	3,896	3,977	4,015
Passenger-kilometers (millions)	N	N	N	N	35,084	34,118	33,766	33,941	32,728	32,584	30,307	30,285	30,732	31,550	32,766	34,126	34,184	35,441	35,150	34,218	34,403	35,124
Fuel consumed (million liters diesel)	787	939	1,026	1,382	1,632	1,961	2,132	2,169	2,241	2,179	2,139	2,134	2,187	2,262	2,296	2,340	2,404	2,223	2,116	2,039	2,084	2,021
Energy intensity (kilojoules / passenger-kilometers)	N	N	N	N	1,798	2,222	2,441	2,470	2,647	2,586	2,728	2,724	2,751	2,772	2,709	2,651	2,719	2,424	2,327	2,304	2,341	2,225

KEY: N = data do not exist.

NOTES

Heat equivalent factor used for joule conversion is 38,657,950 joules/liter.
1.609344 kilometers = 1 mile.
3.785412 liters = 1 gallon.
0.6555814 kilojoule per passenger-kilometer = 1 British thermal unit (Btu) per passenger-mile.

SOURCE

American Public Transportation Association, *2007 Public Transportation Fact Book* (Washington, DC: 2007), tables 55, 10, 12, 27, and similar tables in earlier editions, Internet site http://www.apta.com/ as of Nov. 27, 2007.

Table 4-25M: Energy Intensity of Class I Railroad[a] Freight Service

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Revenue freight tonne-kilometers (millions)	835,555	1,018,882	1,116,600	1,101,187	1,341,653	1,280,372	1,509,566	1,516,728	1,557,470	1,619,560	1,752,990	1,906,268	1,979,686	1,969,394	2,010,092	2,092,813	2,140,261	2,183,347	2,200,194	2,265,056	2,427,347	2,730,131	2,586,920
Car-kilometers (millions)	45,335	47,212	48,103	44,508	47,117	40,105	42,099	41,244	42,049	43,264	45,842	48,897	51,040	50,952	52,556	54,478	55,667	55,109	55,812	57,220	59,660	60,692	62,692
Tonnes per car load	44.4	48.9	54.9	60.8	67.1	67.7	66.6	66.2	66.0	64.4	63.4	65.3	66.6	63.4	64.1	63.4	62.6	64.0	63.3	62.3	61.3	61.0	60.9
Fuel consumed (million liters)	13,109	13,597	13,419	13,843	14,778	11,773	11,792	11,000	11,375	11,689	12,621	13,173	13,548	13,533	13,563	14,063	14,006	14,044	14,120	14,483	15,365	15,513	15,868
Energy intensity (kilojoule / revenue freight tonne-kilometer)	606	516	465	486	426	355	302	280	282	279	278	267	265	266	261	260	253	249	248	247	245	242	237
Energy intensity (kilojoule / car-kilometer)	11,178	11,134	10,784	12,024	12,125	11,348	10,828	10,311	10,458	10,445	10,643	10,415	10,261	10,268	9,976	9,979	9,726	9,852	9,780	9,785	9,956	9,881	9,784

[a] Class I railroads are those that have operating revenues of $289.4 million or more in 2004.

NOTES

The heat equivalent factor used for joule conversion is 38,655.900 joules/liter.
1.459972 tonne-kilometer = 1 ton-mile.
1.609344 kilometers = 1 mile.
0.9071847 tonnes = 1 ton.
3.785412 liters = 1 gallon.

SOURCE

Association of American Railroads, *Railroad Facts* 2007 (Washington, DC: 2007), pp. 34, 37, and 40, and similar tables in earlier editions.

Glossary

14 CFR 121 (Air): Code of Federal Regulations, Title 14, part 121. Prescribes rules governing the operation of domestic, flag, and supplemental air carriers and commercial operators of large aircraft.

14 CFR 135 (Air): Code of Federal Regulations, Title 14, part 135. Prescribes rules governing the operations of commuter air carriers (scheduled) and on-demand air taxi (unscheduled).

ACCIDENT (Aircraft): As defined by the National Transportation Safety Board, an occurrence incidental to flight in which, as a result of the operation of an aircraft, any person (occupant or nonoccupant) receives fatal or serious injury or any aircraft receives substantial damage.

ACCIDENT (Automobile): See Crash (Highway)

ACCIDENT (Gas): 1) An event that involves the release of gas from a pipeline or of liquefied natural gas (LNG) or other gas from an LNG facility resulting in personal injury necessitating inpatient hospitalization or a death; or estimated property damage of $50,000 or more to the operator or others, or both, including the value of the gas that escaped during the accident; 2) An event that results in an emergency shutdown of an LNG facility; or 3) An event that is significant in the judgment of the operator even though it did not meet the criteria of 1) or 2).

ACCIDENT (Hazardous liquid or gas): Release of hazardous liquid or carbon dioxide while being transported, resulting in any of the following: 1) An explosion or fire not intentionally set by the operator; 2) Loss of 50 or more barrels of hazardous liquid or carbon dioxide; 3) Release to the atmosphere of more than 5 barrels a day of highly volatile liquids; 4) Death of any person; 5) Bodily harm resulting in one or more of the following: a) The loss of consciousness, b) The necessity of carrying person from the scene, c) The necessity for medical treatment, d) Disability that prevents the discharge of normal duties; and 6) Estimated damage to the property of the operators and/or others, exceeding $50,000.

ACCIDENT (Highway-Rail Grade-Crossing): An impact between on-track railroad equipment and an automobile, bus, truck, motorcycle, bicycle, farm vehicle, or pedestrian or other highway user at a designated crossing site. Sidewalks, pathways, shoulders, and ditches associated with the crossing are considered to be part of the crossing site.

ACCIDENT (Rail): A collision, derailment, fire, explosion, act of God, or other event involving operation of railroad on-track equipment (standing or moving) that results in railroad damage exceeding an established dollar threshold.

ACCIDENT (Recreational Boating): An occurrence involving a vessel or its equipment that results in 1) A death; 2) An injury that requires medical treatment beyond first aid; 3) Damage to a vessel and other property, totaling to more than $500 or complete loss of a vessel; or 4) The disappearance of the vessel under circumstances that indicate death or injury. Federal regulations (33 CFR 173-4) require the operator of any vessel that is numbered or used for recreational purposes to submit an accident report.

ACCIDENT (Transit): An incident involving a moving vehicle. Includes a vehicle, object, or person (except suicides) or a derailment/left roadway.

ACTIVE AIRCRAFT (General Aviation): All legally registered civil aircraft that flew one or more hours.

AERIAL APPLICATION FLYING (General Aviation): The operation of aircraft for the purposes of dispensing any substances required for agriculture, health, forestry, seeding, firefighting, and insect control purposes.

AERIAL OBSERVATION FLYING (General Aviation): Any use of an aircraft for aerial mapping and photography, surveying, patrolling, fish spotting, search and rescue, hunting, sightseeing, or highway traffic advisory not included under Federal Aviation Regulations (FAR) Part 135.

AIR CARRIER: A person who undertakes directly, by lease, or other arrangement to engage in air transportation. More specifically, the commercial system of air transportation comprising large certificated air carriers, small certificated air carriers, commuter air carriers, on-demand air taxis, supplemental air carriers, and air travel clubs.

AIR ROUTE TRAFFIC CONTROL CENTER: A facility established to provide air traffic control service to aircraft operating on an IFR (instrument flight rule) flight plan within controlled airspace and principally during the en route phase of flight.

AIR TAXI: An aircraft operator who conducts operations for hire or compensation in accordance with 14 CFR 135 (for safety purposes) or FAR Part 135 (for economic regulations/reporting purposes) in an aircraft with 30 or fewer passenger seats and a payload capacity of 7,500 pounds or less. An air taxi operates on an on-demand basis and does not meet the flight scheduled qualifications of a commuter air carrier (see below).

AIRCRAFT REVENUE HOURS: The airborne hours in revenue service, computed from the moment an aircraft leaves the ground until it lands.

AIRCRAFT REVENUE MILES: The miles (computed in airport-to-airport distances) for each interairport hop actually completed in revenue service, whether or not performed in accordance with the scheduled pattern. For this purpose, operation to a flag stop is a hop completed even if a landing is not actually made. In cases where the interairport distances are inapplicable, aircraft-miles flown are determined by multiplying the normal cruising speed for the aircraft type by the airborne hours.

AIRPORT: A landing area regularly used by aircraft for receiving or discharging passengers or cargo.

AIRPORT/AIRWAY TRUST FUND: See Trust Funds.

ALTERNATIVE FUELS: The Energy Policy Act of 1992 defines alternative fuels as methanol, denatured ethanol, and other alcohol; mixtures containing 85 percent or more (but not less than 70 percent as determined by the Secretary of Energy by rule to provide for requirements relating to cold start, safety, or vehicle functions) by volume of methanol, denatured ethanol, and other alcohols with gasoline or other fuels. Includes compressed natural gas, liquid petroleum gas, hydrogen, coal-derived liquid fuels, fuels other than alcohols derived from biological materials, electricity, or any other fuel the Secretary of Energy determines by rule is substantially not petroleum and would yield substantial energy security and environmental benefits.

AMTRAK: Operated by the National Railroad Passenger Corporation of Washington, D.C., this rail system was created by the Rail Passenger Service Act of 1970 (P.L. 91-518, 84 Stat. 1327) and given the responsibility for the operation of intercity, as distinct from suburban, passenger trains between points designated by the Secretary of Transportation.

ARTERIAL HIGHWAY: A major highway used primarily for through traffic.

ASPHALT: A dark brown to black cement-like material containing bitumens as the predominant constituent. The definition includes crude asphalt and finished products such as cements, fluxes, the asphalt content of emulsions, and petroleum distillates blended with asphalt to make cutback asphalt. Asphalt is obtained by petroleum processing.

AVAILABLE SEAT-MILES (Air Carrier): The aircraft miles flown in each interairport hop multiplied by the number of seats available on that hop for revenue passenger service.

AVERAGE HAUL: The average distance, in miles, one ton is carried. It is computed by dividing ton-miles by tons of freight originated.

AVERAGE PASSENGER TRIP LENGTH (Bus/Rail): Calculated by dividing revenue passenger-miles by the number of revenue passengers.

AVIATION GASOLINE (General Aviation): All special grades of gasoline used in aviation reciprocating engines, as specified by American Society of Testing Materials (ASTM) Specification D910 and Military Specification MIL-G5572.

Includes refinery products within the gasoline range marketed as or blended to constitute aviation gasoline.

BARREL (oil): A unit of volume equal to 42 U.S. gallons.

BLOOD ALCOHOL CONCENTRATION (Highway): A measurement of the percentage of alcohol in the blood by grams per deciliter.

BRITISH THERMAL UNIT: The quantity of heat needed to raise the temperature of 1 pound of water by 1 °F at or near 39.2 °F.

BULK CARRIER (Water): A ship with specialized holds for carrying dry or liquid commodities, such as oil, grain, ore, and coal, in unpackaged bulk form. Bulk carriers may be designed to carry a single bulk product (crude oil tanker), or accommodate several bulk product types (ore/bulk/oil carrier) on the same voyage or on a subsequent voyage after holds are cleaned.

BUS: Large motor vehicle used to carry more than 10 passengers, includes school buses, intercity buses, and transit buses.

BUSINESS TRIP (American Travel Survey): A trip taken for business or business combined with pleasure, or for attending a convention, conference, or seminar.

CAFE STANDARDS: See Corporate Average Fuel Economy Standards.

CAR-MILE (Rail): The movement of a railroad car a distance of 1 mile. An empty or loaded car-mile refers to a mile run by a freight car with or without a load. In the case of intermodal movements, the designation of empty or loaded refers to whether the trailers/containers are moved with or without a waybill.

CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY (Air Carrier): A certificate issued by the Department of Transportation to an air carrier under Section 401 of the Federal Aviation Act authorizing the carrier to engage in air transportation.

CERTIFICATED AIR CARRIER: An air carrier holding a Certificate of Public Convenience and Necessity issued by the U.S. Department of Transportation (DOT) to conduct scheduled services interstate. These carriers may also conduct nonscheduled or charter operations. Certificated air carriers operate large aircraft (30 seats or more or a maximum load of 7,500 pounds or more) in accordance with FAR Part 121. See also Large Certificated Air Carrier.

CERTIFICATED AIRPORTS: Airports that service air carrier operations with aircraft seating more than 30 passengers.

CHAINED DOLLARS: A measure used to express real prices, defined as prices that are adjusted to remove the effect of changes in the purchasing power of the dollar. Real prices usually reflect buying power relative to a reference year. The "chained-dollar" measure is based on the average weights of goods and services in successive pairs of years. It is "chained" because the second year in each pair, with its weights, becomes the first year of the next pair. Prior to 1996, real prices were expressed in constant dollars, a weighted measure of goods and services in a single year. See also Constant Dollars and Current Dollars.

CLASS I RAILROAD: A carrier that has an annual operating revenue of $250 million or more after applying the railroad revenue deflator formula, which is based on the Railroad Freight Price Index developed by the U.S. Department of Labor, Bureau of Labor Statistics. The formula is the current year's revenues x 1991 average index/current year's average index.

COASTWISE TRAFFIC (Water): Domestic traffic receiving a carriage over the ocean, or the Gulf of Mexico (e.g., between New Orleans and Baltimore, New York and Puerto Rico, San Francisco and Hawaii, Alaska and Hawaii). Traffic between Great Lakes ports and seacoast ports, when having a carriage over the ocean, is also considered coastwise.

COEFFICIENT OF VARIATION: Ratio of the sampling error (or standard error) of a statistic to the value of that statistic. Also referred to as relative standard error.

COLLECTOR (Highway): In rural areas, routes that serve intracounty rather than statewide travel. In urban areas, streets that provide direct access to neighborhoods and arterials.

COLLISION WITH OBJECT (Transit): An incident in which a transit vehicle strikes an obstacle other than a vehicle or person (e.g., building, utility pole). Reports are made if the accident results in a death, injury, or property damage over $1,000.

COLLISION WITH PEOPLE (Transit): An incident in which a transit vehicle strikes a person. Excludes suicides and suicide attempts. Reports are made if the incident results in death, injury, or property damage over $1,000.

COLLISION WITH VEHICLE (Transit): An incident in which a transit vehicle strikes or is struck by another vehicle. Reports are made if the incident results in a death, injury, or property damage over $1,000.

COMBINATION TRUCK: A power unit (truck tractor) and one or more trailing units (a semitrailer or trailer).

COMMERCIAL BUS: Any bus used to carry passengers at rates specified in tariffs; charges may be computed per passenger (as in regular route service) or per vehicle (as in charter service).

COMMERCIAL SERVICE AIRPORT: Airport receiving scheduled passenger service and having 2,500 or more enplaned passengers per year.

COMMUTER AIR CARRIER: Different definitions are used for safety purposes and for economic regulations and reporting. For safety analysis, commuter carriers are defined as air carriers operating under 14 CFR 135 that carry passengers for hire or compensation on at least five round trips per week on at least one route between two or more points according to published flight schedules, which specify the times, days of the week, and points of service. On March 20, 1997, the size of the aircraft subject to 14 CFR 135 was reduced from 30 to fewer than 10 passenger seats. (Larger aircraft are subject to the more stringent regulations of 14 CFR 121.) Helicopters carrying passengers or cargo for hire, however, are regulated under CFR 135 whatever their size. Although, in practice, most commuter air carriers operate aircraft that are regulated for *safety purposes* under 14 CFR 135 and most aircraft that are regulated under 14 CFR 135 are operated by commuter air carriers, this is not necessarily the case.

For economic regulations and reporting requirements, commuter air carriers are those carriers that operate aircraft of 60 or fewer seats or a maximum payload capacity of 18,000 pounds or less. These carriers hold a certificate issued under section 298C of the Federal Aviation Act of 1958, as amended.

COMMUTER RAIL (Transit): Urban passenger train service for short-distance travel between a central city and adjacent suburb. Does not include rapid rail transit or light rail service.

COMPACT CAR: An automobile industry designation usually consisting of cars with a wheelbase between 100 and 104 inches.

COMPRESSED NATURAL GAS: Natural gas compressed to a volume and density that is practical as a portable fuel supply. It is used as a fuel for natural gas-powered vehicles.

CONSTANT DOLLAR: Dollar value adjusted for changes in the average price level by dividing a current dollar amount by a price index. See also Chained Dollar and Current Dollar.

CORPORATE AVERAGE FUEL ECONOMY STANDARDS (CAFÉ): Originally established by Congress for new automobiles and later for light trucks. Under CAFE, automobile manufacturers are required by law to produce vehicle fleets with a composite sales-weighted fuel economy not lower than the CAFE standards in a given year. For every vehicle that does not meet the standard, a fine is paid for every one-tenth of a mile per gallon that vehicle falls below the standard.

CORPORATE FLYING (General Aviation): Corporate aircraft piloted by a professional crew.

CRASH (Highway): An event that produces injury and/or property damage, involves a motor vehicle in transport, and occurs on a trafficway or while the vehicle is still in motion after running off the trafficway.

CRUDE OIL: A mixture of hydrocarbons that exists in the liquid phase in natural underground reservoirs and remains liquid at atmospheric pressure after passing through surface-separating facilities.

CURRENT DOLLAR: Dollar value of a good or service in terms of prices current at the time the good or service is sold. See also Chained Dollar and Current Dollar.

DEADWEIGHT TONNAGE (Water): The carrying capacity of a vessel in long tons (2,240 pounds). It is the difference between the number of tons of water a vessel displaces "light" and the number of tons it displaces when submerged to the "load line."

DEMAND-RESPONSIVE VEHICLE (Transit): A nonfixed-route, a nonfixed-schedule vehicle that operates in response to calls from passengers or their agents to the transit operator or dispatcher.

DERAILMENT/LEFT ROADWAY (Transit): A noncollision incident in which a transit vehicle leaves the rails or road on which it travels. This also includes rollovers. Reports are made for all occurrences.

DESTINATION OF TRIP (American Travel Survey): The place the survey respondent names as the destination of the trip. If more than one location is visited on the same trip, the farthest point from the origin is considered the destination.

DIESEL FUEL: A complex mixture of hydrocarbons with a boiling range between approximately 350 and 650 °F. Diesel fuel is composed primarily of paraffins and naphthenic compounds that auto-ignite from the heat of compression in a diesel engine. Diesel is used primarily by heavy-duty road vehicles, construction equipment, locomotives, and by marine and stationary engines.

DISTILLATE FUEL OIL: A general classification for one of the petroleum fractions produced in conventional distillation operations. Included are No. 1, No. 2 and No. 4 fuel oils and No. 1, No. 2, and No. 4 diesel fuels. Distillate fuel oil is used primarily for space heating, on- and off-highway diesel engine fuel (including railroad engine fuel and fuel for agricultural machinery), and electric power generation.

DISTRIBUTION MAINS (Gas): A network of pipelines, services, and equipment that carry or control the supply of gas from the point of local supply to, and including, the sales meters.

DOMESTIC FREIGHT (Water): All waterborne commercial movements between points in the United States, Puerto Rico, and the Virgin Islands, excluding traffic with the Panama Canal Zone. Cargo moved for the military in commercial vessels is reported as ordinary commercial cargo; military cargo moved in military vessels is omitted.

DOMESTIC OPERATIONS (Air Carrier): All air carrier operations having destinations within the 50 United States, the District of Columbia, the Commonwealth of Puerto Rico, and the U.S. Virgin Islands.

DOMESTIC PASSENGER (Water): Any person traveling on a public conveyance by water between points in the United States, Puerto Rico, and the Virgin Islands.

DRY CARGO BARGES (Water): Large flat-bottomed, nonself-propelled vessels used to transport dry-bulk materials such as coal and ore.

EMERGENCY PREPAREDNESS TRUST FUND: See Trust Funds.

ENERGY EFFICIENCY: The ratio of energy inputs to the outputs from a process; for example, miles traveled per gallon of fuel (mpg).

ENPLANED PASSENGERS (Air Carrier): See Revenue Passenger Enplanements.

ETHANOL: A clear, colorless, flammable oxygenated hydrocarbon with a boiling point of 78.5 °C. in the anhydrous state. It is used in the United States as a gasoline octane enhancer and oxygenate (10-percent concentration). Ethanol can be used in high concentrations in vehicles optimized for its use. Otherwise known as ethyl alcohol, alcohol, or grain-spirit.

FATAL CRASH (Highway): A police-reported crash involving a motor vehicle in transport on a trafficway in which at least one person dies within 30 days of the crash as a result of that crash.

FATAL INJURY (Air): Any injury that results in death within thirty days of the accident.

FATALITY: For purposes of statistical reporting on transportation safety, a fatality shall be considered a death due to injuries in a transportation crash, accident, or incident that occurs within 30 days of that occurrence.

FATALITY (Rail): 1) Death of any person from an injury within 30 days of the accident/incident (may include nontrain accidents/incidents); or 2) Death of a railroad employee from an occupational illness within 365 days after the occupational illness was diagnosed by a physician.

FATALITY (Recreational Boating): All deaths (other than deaths by natural causes) and missing persons resulting from an occurrence that involves a vessel or its equipment.

FATALITY (Transit): A transit-caused death confirmed within 30 days of a transit incident. Incidents include collisions, derailments, personal casualties, and fires associated with transit agency revenue vehicles, transit facilities on transit property, service vehicles, maintenance areas, and rights of way.

FATALITY (Water): All deaths and missing persons resulting from a vessel casualty.

FEDERAL ENERGY REGULATORY COMMISSION (FERC): The Federal agency with jurisdiction over, among other things, gas pricing, oil pipeline rates, and gas pipeline certification.

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

FIELD AND GATHERING GAS PIPELINES: A network of pipelines (mains) transporting natural gas from individual wells to a compressor station, processing point, or main trunk pipeline.

FLAG STOP (Air): A drop-off or pick-up point along a predetermined route that is visited only by request or if a signal to stop is given.

FOSSIL FUELS: Any naturally occurring organic fuel formed in the Earth's crust, such as petroleum, coal, and natural gas.

FREIGHT REVENUE (Rail): Revenue from the transportation of freight and from the exercise of transit, stopoff, diversion, and reconsignment privileges as provided for in tariffs.

FREIGHTERS (Water): General cargo carriers, full containerships, partial containerships, roll-on/rolloff ships, and barge carriers.

FULL-SIZE CAR: As designated by the automobile industry, cars with a wheelbase between 110 and 114 inches.

GAS TRANSMISSION PIPELINES: Pipelines installed for the purpose of transmitting gas from a source or sources of supply to one or more distribution centers, or to one or more large volume customers; or a pipeline installed to interconnect sources of supply. Typically, transmission lines differ from gas mains in that they operate at higher pressures and the distance between connections is greater.

GASOHOL: A blend of finished motor gasoline (leaded or unleaded) and alcohol (generally ethanol but sometimes methanol) limited to 10 percent by volume of alcohol.

GASOLINE: A complex mixture of relatively volatile hydrocarbons, with or without small quantities of additives that have been blended to produce a fuel suitable for use in spark ignition engines. Motor gasoline includes both leaded or unleaded grades of finished motor gasoline, blending components, and gasohol. Leaded gasoline is no longer used in highway motor vehicles in the United States.

GENERAL AVIATION: 1) All facets of civil aviation, except facets of those air carriers holding a Certificate of Public Convenience and Necessity. 2) All civil aviation activity except that of air carriers certificated in accordance with Federal Aviation Regulations (FAR) Parts 121, 123, 127, and 135. The types of aircraft used in general aviation range from corporate multiengine jet aircraft piloted by professional crews to amateur-built single-engine piston-driven acrobatic planes to balloons and dirigibles. 3) All civil aviation operations other than scheduled air services and nonscheduled air transport operations for taxis, commuter air carriers, and air travel clubs that do not hold Certificates of Public Convenience and Necessity.

GENERAL ESTIMATES SYSTEM: A data collection system that uses a nationally representative probability sample selected from all police-reported highway crashes. It began operation in 1988.

GROSS DOMESTIC PRODUCT: The total output of goods and services produced by labor and property located in the United States, valued at market prices. As long as the labor and property are located in the United States, the suppliers (workers and owners) may be either U.S. residents or residents of foreign countries.

GROSS VEHICLE WEIGHT RATING (gvwr) (Truck): The maximum rated capacity of a vehicle, including the weight of the base vehicle, all added equipment, driver and passengers, and all cargo.

HARBOR MAINTENANCE TRUST FUND: See Trust Funds.

HAZARDOUS MATERIAL: Any toxic substance or explosive, corrosive, combustible, poisonous, or radioactive material that poses a risk to the public's health, safety, or property-particularly when transported in commerce.

HEAVY RAIL (Transit): An electric railway with the capacity to transport a heavy volume of passenger traffic and characterized by exclusive rights-of-way, multicar trains, high speed, rapid acceleration, sophisticated signaling, and high-platform loading. Also known as "subway," "elevated (railway)," or "metropolitan railway (metro)."

HIGHWAY-RAIL GRADE CROSSING (Rail): A location where one or more railroad tracks are crossed by a public highway, road, or street or a private roadway at grade, including sidewalks and pathways at or associated with the crossing.

HIGHWAY TRUST FUND: A grant-in-aid type fund administered by the U.S. Department of Transportation, Federal Highway Administration. Most funds for highway improvements are apportioned to States according to formulas that give weight to population, area, and mileage.

HOUSEHOLD TRIP (American Travel Survey): A trip in which one or more members of a household travel together.

HIGHWAY-USER TAX: A charge levied on persons or organizations based on their use of public roads. Funds collected are usually applied toward highway construction, reconstruction, and maintenance.

INCIDENT (Hazmat): Any unintentional release of hazardous material while in transit or storage.

INCIDENT (Train): Any event involving the movement of a train or railcars on track equipment that results in a death, a reportable injury, or illness, but in which railroad property damage does not exceed the reporting threshold.

INCIDENT (Transit): Collisions, derailments, personal casualties, fires, and property damage in excess of $1,000 associated with transit agency revenue vehicles; all other facilities on the transit property; and service vehicles, maintenance areas, and rights-of-way.

INJURY (Air): See SERIOUS INJURY (air and general aviation).

INJURY (Gas): Described in DOT Forms 7100.1 or 7100.2 as an injury requiring "in-patient hospitalization" (admission and confinement in a hospital beyond treatment administered in an emergency room or out-patient clinic in which confinement does not occur).

INJURY (Hazardous Liquid Pipeline): An injury resulting from a hazardous liquid pipeline accident that results in one or more of the following: 1) Loss of consciousness, 2) A need to be carried from the scene, 3) A need for medical treatment, and/or 4) A disability that prevents the discharge of normal duties or the pursuit of normal duties beyond the day of the accident.

INJURY (Highway): Police-reported highway injuries are classified as follows:

Incapacitating Injury: Any injury, other than a fatal injury, that prevents the injured person from walking, driving, or normally continuing the activities the person was capable of performing before the injury occurred. Includes severe lacerations, broken or distorted limbs, skull or chest injuries, abdominal injuries, unconsciousness at or when taken from the accident scene, and inability to leave the accident scene without assistance. Exclusions include momentary unconsciousness.

Nonincapacitating Evident Injury: Any injury, other than a fatal injury or an incapacitating injury, evident to observers at the scene of the accident. Includes lumps on head, abrasions, bruises, minor lacerations, and others. Excludes limping.

Possible Injury: Any injury reported or claimed that is not evident. Includes momentary unconsciousness, claim of injuries not obvious, limping, complaint of pain, nausea, hysteria, and others.

INJURY (Highway-Rail Grade Crossing): 1) An injury to one or more persons other than railroad employees that requires medical treatment; 2) An injury to one or more employees that requires medical treatment or that results in restriction of work or motion for one or more days, or one or more lost work days, transfer to another job, termination of employment, or loss of consciousness; 3) Any occupational illness affecting one or more railroad employees that is diagnosed by a physician.

INJURY (Rail): 1) Injury to any person other than a railroad employee that requires medical treatment, or 2) Injury to a railroad employee that requires medical treatment or results in restriction of work or motion for one or more workdays, one or more lost workdays, termination of employment, transfer to another job, loss of consciousness, or any occupational illness of a railroad employee diagnosed by a physician.

INJURY (Recreational Boating): Injury requiring medical treatment beyond first aid as a result of an occurrence that involves a vessel or its equipment.

INJURY (Transit): Any physical damage or harm to a person requiring medical treatment or any physical damage or harm to a person reported at the time and place of occurrence. For employees, an injury includes incidents resulting in time lost from duty or any definition consistent with a transit agency's current employee injury reporting practice.

INJURY (Water): All personal injuries resulting from a vessel casualty that require medical treatment beyond first aid.

INLAND AND COASTAL CHANNELS: Includes the Atlantic Coast Waterways, the Atlantic Intracoastal Waterway, the New York State Barge Canal System, the Gulf Coast Waterways, the Gulf Intracoastal Waterway, the Mississippi River System (including the Illinois Waterway), Pacific Coast Waterways, the Great Lakes, and all other channels (waterways) of the United States, exclusive of Alaska, that are usable for commercial navigation.

INSTRUCTIONAL FLYING: Flying under the supervision of a flight instructor (excludes proficiency flying).

INTERCITY CLASS BUS I: As defined by the Bureau of Transportation Statistics, an interstate motor carrier of passengers with an average annual gross revenue of at least $1 million.

INTERCITY TRUCK: Truck that carries freight beyond local areas and commercial zones.

INTERMEDIATE -SIZE CAR: As designated by the automobile industry, a car with a wheelbase between 105 and 109 inches.

INTERNAL TRAFFIC (Water): Vessel movements (origin and destination) that take place solely on inland waterways located within the boundaries of the contiguous 48 states or within the state of Alaska. The term "internal traffic" also applies to carriage on both inland waterways and the water of the Great Lakes; carriage between offshore areas and inland waterways; and carriage occurring within the Delaware Bay, Chesapeake Bay, Puget Sound, and the San Francisco Bay, which are considered internal bodies of water rather than arms of the ocean.

INTERSTATE HIGHWAY: Limited access, divided highway of at least four lanes designated by the Federal Highway Administration as part of the Interstate System.

INTRAPORT (Water): Movement of freight within the confines of a port whether the port has one or several channels included in the port definition. Does not include car-ferries and general ferries moving within a port.

INTRATERRITORY TRAFFIC (Water): Traffic between ports in Puerto Rico and the U.S. Virgin Islands, which are considered a single unit.

JET FUEL: The term includes kerosene-type jet fuel and naphtha-type jet fuel. Kerosene-type jet fuel is used primarily for commercial turbojet and turboprop aircraft engines. Naphtha-type jet fuel is used primarily for military turbojet and turboprop aircraft engines.

LAKEWISE OR GREAT LAKES TRAFFIC: Waterborne traffic between U.S. ports on the Great Lakes system. The Great Lakes system is treated as a separate waterways system rather than as a part of the inland system.

LARGE CERTIFICATED AIR CARRIERS: An air carrier holding a certificate issued under section 401 of the Federal Aviation Act of 1958, as amended, that: 1) Operates aircraft designed to have a maximum passenger capacity of more than 60 seats or a maximum payload capacity of more than 18,000 pounds, or 2) Conducts operations where one or both terminals of a flight stage are outside the 50 states of the United States, the District of Columbia, the Commonwealth of Puerto Rico, and the U.S. Virgin Islands. Large certificated air carriers are grouped by annual operating revenues: 1) Majors (more than $1 billion in annual operating revenues), 2) Nationals (between $100 million and $1 billion in annual

operating revenues), Large regionals ($20 million and $99,999,999 in annual operating revenues), and 4) Medium regionals (less than $20 million in annual operating revenues).

LARGE REGIONALS (Air): Air carrier groups with annual operating revenues between $20 million and $99,999,999.

LARGE CAR: As designated by the automobile industry, a car with a wheelbase greater than 114 inches.

LARGE TRUCK: Trucks over 10,000 pounds gross vehicle weight rating, including single-unit trucks and truck tractors.

LEASE CONDENSATE: A mixture consisting primarily of pentanes and heavier hydrocarbons, which are recovered as a liquid from natural gas in lease or field separation facilities. This category excludes natural gas liquids, such as butane and propane, which are recovered at natural gas processing plants or facilities.

LIGHT-DUTY VEHICLE: A vehicle category that combines light automobiles and trucks.

LIGHT RAIL: A streetcar-type vehicle operated on city streets, semiexclusive rights-of-way, or exclusive rights-of-way. Service may be provided by step-entry vehicles or by level boarding.

LIGHT TRUCK: Trucks of 10,000 pounds gross vehicle weight rating or less, including pickups, vans, truck-based station wagons, and sport utility vehicles.

LIQUEFIED NATURAL GAS (LNG): Natural gas, primarily methane, that has been liquefied by reducing its temperature to -260 °F. at atmospheric pressure.

LIQUEFIED PETROLEUM GAS (LPG): Propane, propylene, normal butane, butylene, isobutane, and isobutylene produced at refineries or natural gas processing plants, including plants that fractionate new natural gas plant liquids.

LOCOMOTIVE: Railroad vehicle equipped with flanged wheels for use on railroad tracks, powered directly by electricity, steam, or fossil fuel, and used to move other railroad rolling equipment.

LOCOMOTIVE-MILE: The movement of a locomotive unit, under its own power, the distance of 1 mile.

MAINS (Gas): A network of pipelines that serves as a common source of supply for more than one gas service line.

MAJORS (Air): Air carrier groups with annual operating revenues exceeding $1 billion.

MEDIUM REGIONALS (Air): Air carrier groups with annual operating revenues less than $20 million.

MERCHANDISE TRADE EXPORTS: Merchandise transported out of the United States to foreign countries whether such merchandise is exported from within the U.S. Customs territory, from a U.S. Customs bonded warehouse, or from a U.S. Foreign Trade Zone. (Foreign Trade Zones are areas, operated as public utilities, under the control of U.S. Customs with facilities for handling, storing, manipulating, manufacturing, and exhibiting goods.)

MERCHANDISE TRADE IMPORTS: Commodities of foreign origin as well as goods of domestic origin returned to the United States with no change in condition or after having been processed and/or assembled in other countries. Puerto Rico is a Customs district within the U.S. Customs territory, and its trade with foreign countries is included in U.S. import statistics. U.S. import statistics also include merchandise trade between the U. S. Virgin Islands and foreign countries even though the Islands are not officially a part of the U.S. Customs territory.

METHANOL: A light, volatile alcohol produced commercially by the catalyzed reaction of hydrogen and carbon monoxide. Methanol is blended with gasoline to improve its operational efficiency.

METHYL TERTIARY BUTYL ETHER (MTBE): A colorless, flammable, liquid oxygenated hydrocarbon that contains 18.15 percent oxygen. It is a fuel oxygenate produced by reacting methanol with isobutylene.

MID-SIZE CAR: See Intermediate-Size Car.

MINI-COMPACT CAR: An automobile industry designation usually consisting of cars with a wheelbase of less than 95 inches.

MINOR ARTERIALS (Highway): Streets and highways linking cities and larger towns in rural areas, in distributing trips to small geographic areas in urban areas (not penetrating identifiable neighborhoods).

MOTOR BUS (Transit): A rubber-tired, self-propelled, manually steered bus with fuel supply onboard the vehicle. Motor bus types include: intercity, school, and transit.

MOTORCYCLE: A two- or three-wheeled motor vehicle designed to transport one or two people, including motor scooters, minibikes, and mopeds.

NATIONALS (Air): Air carrier groups with annual operating revenues between $100 million and $1 billion.

NATURAL GAS: A naturally occurring mixture of hydrocarbon and nonhydrocarbon gases found in porous geologic formations beneath the Earth's surface, often in association with petroleum. The principal constituent is methane.

NATURAL GAS PLANT LIQUIDS: Liquids recovered from natural gas in processing plants or field facilities, or extracted by fractionators. They include ethane, propane, normal butane, isobutane, pentanes plus, and other products, such as finished motor gasoline, finished aviation gasoline, special naphthas, kerosene, and distillate fuel oil produced at natural gas processing plants.

NEAR MIDAIR COLLISION (Air): An incident in which the possibility of a collision occurred as a result of aircraft flying with less than 500 feet of separation, or a report received from a pilot or flight crew member stating that a collision hazard existed between two or more aircraft.

NONOCCUPANT (Automobile): Any person who is not an occupant of a motor vehicle in transport (e.g., bystanders, pedestrians, pedalcyclists, or an occupant of a parked motor vehicle).

NONRESPONSE ERROR: Error that results from some members of the sample or census not providing information. Nonresponse bias results from a systematic difference between those who do and those who do not respond to the measurement instrument.

NONSAMPLING ERROR: All sources of bias or inaccuracy in a study other than sampling error. Examples of nonsampling errors include processing, recording, or dataentry errors; nonresponse error; and response error.

NONSCHEDULED SERVICE (Air): Revenue flights not operated as regular scheduled service, such as charter flights, and all nonrevenue flights incident to such flight.

NONSELF-PROPELLED VESSEL (Water): A vessel without the means for self- propulsion. Includes dry cargo and tanker barges.

NONTRAIN INCIDENT: An event that results in a reportable casualty, but does not involve the movement of ontrack equipment, and does not cause reportable damage above the threshold established for train accidents.

NONTRESPASSERS (Rail): A person lawfully on any part of railroad property used in railroad operations, or a person adjacent to railroad premises when injured as the result of railroad operations.

NONVESSEL-CASUALTY-RELATED DEATH: A death that occurs onboard a commercial vessel but not as a result of a vessel casualty, such as a collision, fire, or explosion.

OCCUPANT: Any person in or on a motor vehicle in transport. Includes the driver, passengers, and persons riding on the exterior of a motor vehicle (e.g., a skateboard rider holding onto a moving vehicle). Excludes occupants of parked cars unless they are double parked or motionless on the roadway.

OCCUPATIONAL FATALITY: Death resulting from a job-related injury.

OPERATING EXPENSES (Air): Expenses incurred in the performance of air transportation, based on overall operating revenues and expenses. Does not include nonoperating income and expenses, nonrecurring items, or income taxes.

OPERATING EXPENSES (Rail): Expenses of furnishing transportation services, including maintenance and depreciation of the plant used in the service.

OPERATING EXPENSES (Transit): The total of all expenses associated with operation of an individual mode by a given operator. Includes distributions of "joint expenses" to individual modes and excludes "reconciling items," such as interest expenses and depreciation. Should not be confused with "vehicle operating expenses."

OPERATING EXPENSES (Truck): Includes expenditures for equipment maintenance, supervision, wages, fuel, equipment rental, terminal operations, insurance, safety, and administrative and general functions.

OPERATING REVENUES (Air): Revenues from the performance of air transportation and related incidental services. Includes l) Transportation revenues from the carriage of all classes of traffic in scheduled and nonscheduled services, and 2) Nontransportation revenues consisting of federal subsidies (where applicable) and services related to air transportation.

OTHER FREEWAYS AND EXPRESSWAYS (Highway): All urban principal arterials with limited access but not part of the Interstate system.

OTHER PRINCIPAL ARTERIAL (Highway): Major streets or highways, many of multilane or freeway design, serving high-volume traffic corridor movements that connect major generators of travel.

OTHER RAIL REVENUE: This includes revenues from miscellaneous operations (i.e., dining- and bar-car services), income from lease of road and equipment, miscellaneous rental income, income from nonoperating property, profit from separately operated properties, dividend income, interest income, income from sinking and other reserve funds, release or premium on funded debt, contributions from other companies, and other miscellaneous income.

OTHER REVENUE VEHICLES (Transit): Other revenue-generating modes of transit service, such as cable cars, personal rapid transit systems, monorail vehicles, inclined railway cars, etc., not covered otherwise.

OTHER 2-AXLE 4-TIRE VEHICLES (Truck): Includes vans, pickup trucks, and sport utility vehicles.

OTHER WORK (General Aviation): Con-struction work (not Federal Aviation Regulations, Part 135), helicopter hoist, parachuting, aerial advertising, and towing gliders.

OXYGENATES: Any substance that when added to motor gasoline increases the amount of oxygen in that gasoline blend. Includes oxygen-bearing compounds such as ethanol, methanol, and methyl tertiary butyl ether. Oxygenated fuel tends to give a more complete combustion of carbon into carbon dioxide (rather than monoxide), thereby reducing air pollution from exhaust emissions.

PASSENGER CAR: A motor vehicle designed primarily for carrying passengers on ordinary roads, includes convertibles, sedans, and stations wagons.

PASSENGER-MILE: 1) Air: One passenger transported 1 mile; passenger-miles for one interairport flight are calculated by multiplying aircraft miles flow by the number of passengers carried on the flight. The total passenger-miles for all flights is the sum of passenger-miles for all interairport flights. 2) Auto: One passenger traveling 1 mile; e.g., one car transporting two passengers 4 miles results in eight passenger-miles. 3) Transit: The total number of miles traveled by transit passengers; e.g., one bus transporting five passengers 3 miles results in 15 passenger-miles.

PASSENGER REVENUE: 1) Rail: Revenue from the sale of tickets. 2) Air: Revenues from the transport of passengers by air. 3) Transit: Fares, transfer, zone, and park-and-ride parking charges paid by transit passengers. Prior to 1984, fare revenues collected by contractors operating transit services are not included.

PASSENGER VESSELS: A vessel designed for the commercial transport of passengers.

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

PEDESTRIAN: Any person not in or on a motor vehicle or other vehicle. Excludes people in buildings or sitting at a sidewalk cafe. The National Highway Traffic Safety Administration also uses an "other pedestrian" category to refer to pedestrians using conveyances and people in buildings. Examples of pedestrian conveyances include skateboards, nonmotorized wheelchairs, roller-skates, sleds, and transport devices used as equipment.

PERSON-MILES (American Travel Survey): An estimate of the aggregate distances traveled by all persons on a given trip based on the estimated transportation-network-miles traveled on that trip.

PERSON TRIP (American Travel Survey): A trip taken by an individual. For example, if three persons from the same household travel together, the trip is counted as one household trip and three person trips.

PERSONAL BUSINESS TRIP (American Travel Survey): A trip taken for a school-related activity or for personal or family business, including weddings and funerals.

PERSONAL-USE VEHICLE TRIP (American Travel Survey): A trip in which the principle means of transportation is a car, pickup truck, or van; other truck; rental car, truck, or van; recreational vehicle or motor home; or motorcycle or moped.

PLEASURE TRIP (American Travel Survey): A trip taken to visit friends or relatives or for leisure.

PERSONAL CASUALTY (Transit): 1) An incident in which a person is hurt while getting on or off a transit vehicle (e.g., falls or door incidents), but not as a result of a collision, derailment/left roadway, or fire. 2) An incident in which a person is hurt while using a lift to get on or off a transit vehicle, but not as a result of a collision, derailment/left roadway, or fire. 3) An incident in which a person is injured on a transit vehicle, but not as a result of a collision, derailment/left roadway, or fire. 4) An incident in which a person is hurt while using a transit facility. This includes anyone on transit property (e.g., patrons, transit employees, trespassers), but does not include incidents resulting from illness or criminal activity.

PERSONAL WATERCRAFT: Craft less than 13 feet in length designed to be operated by a person or persons sitting, standing, or kneeling on the craft rather than within the confines of a hull.

PETROLEUM (Oil): A generic term applied to oil and oil products in all forms, such as crude oil, lease condensate, unfinished oils, petroleum products, natural gas plant liquids, and nonhydrocarbon compounds blended into finished petroleum products.

PROPERTY DAMAGE (Transit): The dollar amount required to repair or replace transit property (including stations, right of way, bus stops, and maintenance facilities) damaged during an incident.

PUBLIC ROAD: Any road under the jurisdiction of and maintained by a public authority (federal, state, county, town, or township, local government, or instrumentality thereof) and open to public travel.

RAIL MOTOR CARS: Self-propelled passenger rail cars that are driven by electric motors energized from an electrified roadway or by a generator driven by a diesel or gas turbine engine.

RAPID RAIL TRANSIT: Transit service using rail cars driven by electricity usually drawn from a third rail, configured for passenger traffic, and usually operated on exclusive rights-of-way. It generally uses longer trains and has longer station spacing than light rail.

REFORMULATED GASOLINE: Gasoline whose composition has been changed to meet performance specifications regarding ozone-forming tendencies and release of toxic substances into the air from both evaporation and tailpipe emissions. Reformulated gasoline includes oxygenates and, compared with gasoline sold in 1990, has a lower content of olefins, aromatics, volatile components, and heavy hydrocarbons.

RESIDUAL FUEL OIL: The heavier oils that remain after the distillate fuel oils and lighter hydrocarbons are distilled away in refinery operations and that conform to American Society for Testing and Materials (ASTM) Specifications D396 and 976. Includes, among others, Navy Special oil used in steam-powered vessels in government service and No. 6 oil used to power ships. Imports of residual fuel oil include imported crude oil burned as fuel.

RESPONSE ERROR: Error that results from the tendency of people to answer a question falsely, deliberate misrepresentation, unconscious falsification, or misunderstanding of what is required.

REVENUE: Remuneration received by carriers for transportation activities.

REVENUE PASSENGER: 1) Air: Person receiving air transportation from an air carrier for which remuneration is received by the carrier. Air carrier employees or others, except ministers of religion, elderly individuals, and handicapped individuals, receiving reduced rate charges (less than the applicable tariff) are considered nonrevenue passengers. Infants, for whom a token fare is charged, are not counted as passengers. 2) Transit: Single-vehicle transit rides by initial-board (first-ride) transit passengers only. Excludes all transfer rides and all nonrevenue rides. 3) Rail: Number of one-way trips made by persons holding tickets.

REVENUE PASSENGER ENPLANEMENTS (Air): The total number of passengers boarding aircraft. Includes both originating and connecting passengers.

REVENUE PASSENGER LOAD FACTOR (Air): Revenue passenger-miles as a percent of available seat-miles in revenue passenger services. The term is used to represent the proportion of aircraft seating capacity that is actually sold and utilized.

REVENUE PASSENGER-MILE: One revenue passenger transported 1 mile.

REVENUE PASSENGER TON-MILE (Air): One ton of revenue passenger weight (including all baggage) transported 1 mile. The passenger weight standard for both domestic and international operations is 200 pounds.

REVENUE TON-MILE: One short ton of freight transported 1 mile.

REVENUE VEHICLE-MILES (Transit): One vehicle (bus, trolley bus, streetcar) traveling 1 mile while revenue passengers are on board generates one revenue vehicle-mile. Revenue vehicle-miles reported represent the total mileage traveled by vehicles in scheduled or unscheduled revenue-producing services.

ROAD OIL: Any heavy petroleum oil, including residual asphaltic oil, that is used as a dust palliative and surface treatment on roads and highways. It is generally produced in 6 grades from 0, the most liquid, to 5, the most viscous.

ROLL ON/ROLL OFF VESSEL: Ships that are designed to carry wheeled containers or other wheeled cargo and use the roll on/roll off method for loading and unloading.

ROUND-TRIP DISTANCE (American Travel Survey): The estimated transportation network-miles traveled at the time of the trip from the household residence to the destination and back.

RURAL HIGHWAY: Any highway, road, or street that is not an urban highway.

RURAL MILEAGE (Highway): Roads outside city, municipal district, or urban boundaries.

SAMPLING ERROR: The estimated inaccuracy of the results of a study when a population sample, rather than a census, is used to explain the behavior of the total population. (Also referred to as margin of error and standard error.)

SCHEDULED SERVICE (Air): Transport service operated pursuant to published flight schedules.

SCHOOL BUS: A passenger motor vehicle that is designed or used to carry more than 10 passengers, in addition to the driver, and, as determined by the Secretary of Transportation, is likely to be significantly used for the purpose of transporting pre-primary, primary, or secondary school students between home and school.

SCHOOL-BUS-RELATED CRASH: Any crash in which a vehicle, regardless of body design, used as a school bus is directly or indirectly involved, such as a crash involving school children alighting from a vehicle.

SCOW (Water): Any flat-bottomed, nonself-propelled, rectangular vessel with sloping ends. Large scows are used to transport sand, gravel, or refuse.

SELF-PROPELLED VESSEL: A vessel that has its own means of propulsion. Includes tankers, containerships, dry bulk cargo ships, and general cargo vessels.

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

SMALL CERTIFICATED AIR CARRIER: An air carrier holding a certificate issued under section 401 of the Federal Aviation Act of 1958, as amended, that operates aircraft designed to have a maximum seating capacity of 60 seats or fewer or a maximum payload of 18,000 pounds or less.

STATE AND LOCAL HIGHWAY EXPENDITURES: Disbursements for capital outlay, maintenance and traffic surfaces, administration and research, highway law enforcement and safety, and interest on debt.

STREETCARS: Relatively lightweight passenger rail cars operating singly or in short trains, or fixed rails in right-of-way that are not always separated from other traffic for much of the way. Streetcars do not necessarily have the right-of-way at grade crossings with other traffic.

SUBCOMPACT CAR: As designated by the automobile industry, a car with a wheelbase between 95 and 99 inches.

SUPPLEMENTAL AIR CARRIER: An air carrier authorized to perform passenger and cargo charter services.

TANKER: An oceangoing ship designed to haul liquid bulk cargo in world trade.

TON-MILE (Truck): The movement of 1 ton of cargo the distance of 1 mile. Ton-miles are calculated by multiplying the weight in tons of each shipment transported by the miles hauled.

TON-MILE (Water): The movement of 1 ton of cargo the distance of 1 statute mile. Domestic ton-miles are calculated by multiplying tons moved by the number of statute miles moved on the water (e.g., 50 short tons moving 200 miles on a waterway would yield 10,000 ton-miles for that waterway). Ton-miles are not computed for ports. For coastwise traffic, the shortest route that safe navigation permits between the port of origin and destination is used to calculate ton-miles.

TRAFFICWAY (Highway): Any right-of-way open to the public as a matter of right or custom for moving persons or property from one place to another, including the entire width between property lines or other boundaries.

TRAIN LINE MILEAGE: The aggregate length of all line-haul railroads. It does not include the mileage of yard tracks or sidings, nor does it reflect the fact that a mile of railroad may include two or more parallel tracks. Jointly-used track is counted only once.

TRAIN-MILE: A train-mile is the movement of a train, which can consist of many cars, the distance of 1 mile. A train-mile differs from a vehicle-mile, which is the movement of one car (vehicle) the distance of 1 mile. A 10-car (vehicle) train traveling 1 mile is measured as 1 train-mile and 10 vehicle-miles. Caution should be used when comparing train-miles to vehicle-miles.

TRANSIT VEHICLE: Includes light, heavy, and commuter rail; motor bus; trolley bus; van pools; automated guideway; and demand-responsive vehicles.

TRANSSHIPMENTS: Shipments that enter or exit the United States by way of a U.S. Customs port on the northern or southern border, but whose origin or destination was a country other than Canada or Mexico.

TRAVEL PARTY (American Travel Survey): Household and nonhousehold members traveling together on a trip.

TRESPASSER (Rail): Any person whose presence on railroad property used in railroad operations is prohibited, forbidden, or unlawful.

TRIP (American Travel Survey): Roundtrip travel to a destination at least 100 miles from home. The following types of trips are excluded: 1) travel as part of an operating crew on a train, airplane, truck, bus, or ship; 2) regular commuting to work or school; 3) one-way trips to move to a new destination; and 4) trips by members of the Armed Forces while on active duty.

TROLLEY BUS: Rubber-tired electric transit vehicle, manually steered and propelled by a motor drawing current, normally through overhead wires, from a central power source.

TRUST FUNDS: Accounts that are specifically designated by law to carry out specific purposes and programs. Trust Funds are usually financed with earmarked tax collections.

TUG BOAT: A powered vessel designed for the towing or pushing of ships, dumb barges, pushed-towed barges, and rafts, but not for the carriage of goods.

U.S. FLAG CARRIER OR AMERICAN FLAG CARRIER (Air): One of a class of air carriers holding a Certificate of Public Convenience and Necessity issued by the U.S. Department of Transportation and approved by the President, authorizing scheduled operations over specified routes between the United States (and/or its territories) and one or more foreign countries.

UNLEADED GASOLINE: See Gasoline.

UNLINKED PASSENGER TRIPS (Transit): The number of passengers who board public transportation vehicles. A passenger is counted each time he/she boards a vehicle even if on the same journey from origin to destination.

URBAN HIGHWAY: Any road or street within the boundaries of an urban area. An urban area is an area including and adjacent to a municipality or urban place with a population of 5,000 or

more. The boundaries of urban areas are fixed by state highway departments, subject to the approval of the Federal Highway Administration, for purposes of the Federal-Aid highway program.

VANPOOL (Transit): Public-sponsored commuter service operating under prearranged schedules for previously formed groups of riders in 8- to 18-seat vehicles. Drivers are also commuters who receive little or no compensation besides the free ride.

VEHICLE MAINTENANCE (Transit): All activities associated with revenue and nonrevenue (service) vehicle maintenance, including administration, inspection and maintenance, and servicing (cleaning, fueling, etc.) vehicles. In addition, it includes repairs due to vandalism or to revenue vehicle accidents.

VEHICLE-MILES (Highway): Miles of travel by all types of motor vehicles as determined by the states on the basis of actual traffic counts and established estimating procedures.

VEHICLE-MILES (Transit): The total number of miles traveled by transit vehicles. Commuter rail, heavy rail, and light rail report individual car-miles, rather than train-miles for vehicle-miles.

VEHICLE OPERATIONS (Transit): All activities associated with transportation administration, including the control of revenue vehicle movements, scheduling, ticketing and fare collection, system security, and revenue vehicle operation.

VESSEL CASUALTY (Water): An occurrence involving commercial vessels that results in 1) Actual physical damage to property in excess of $25,000; 2) Material damage affecting the seaworthiness or efficiency of a vessel; 3) Stranding or grounding; 4) Loss of life; or 5) Injury causing any person to remain incapacitated for a period in excess of 72 hours, except injury to harbor workers not resulting in death and not resulting from vessel casualty or vessel equipment casualty.

VESSEL-CASUALTY-RELATED DEATH: Fatality that occurs as a result of an incident that involves a vessel or its equipment, such as a collision, fire, or explosion. Includes drowning deaths.

WATERBORNE TRANSPORTATION: Transport of freight and/or people by commercial vessels under U.S. Coast Guard jurisdiction.

WAYBILL: A document that lists goods and shipping instructions relative to a shipment.

WEEKEND TRIP (American Travel Survey): Travel by persons who stay one or two nights away, including a Friday and/or Saturday night. Travel over three to five nights including a Friday and/or Saturday night stay is defined as a long-weekend trip.

Acronyms and Initialisms

AAA	American Automobile Association
AADT	Annual Average Daily Traffic
AAMA	American Automobile Manufacturers Association
AAR	Association of American Railroads
AAS	Air Activity Statistics of Certificated Air Carriers
AGA	American Gas Association
AI	Alcohol Involvement
AIA	Aerospace Industries Association
ALVW	Adjusted Loaded Vehicle Weight
AMIO	Alien Migrant Interdiction Operations
AOPL	Association of Oil Pipelines
APTA	American Public Transit Association
ATS	American Travel Survey
ATV	All-Terrain Vehicle
BAC	Blood Alcohol Concentration
BEA	Bureau of Economic Analysis
BMA	Bicycle Manufacturer's Association
BTS	Bureau of Transportation Statistics
Btu	British Thermal Unit
CFR	U.S. Code of Federal Regulation
CFS	Commodity Flow Survey
CNG	Compressed Natural Gas
CO	Carbon Monoxide
CVS	Certification Vehicle Standard
dB	Decibels
DNL	Day Night Sound Level
dwt	Deadweight Tons
EPA	U.S. Environmental Protection Agency
EIA	Energy Information Administration
FAA	Federal Aviation Administration
FARS	Fatality Analysis Reporting System Database
FERC	Federal Energy Regulatory Commission
FHWA	Federal Highway Administration
FRA	Federal Railway Administration
FTA	Federal Transit Administration
FTP	Federal Test Procedure
FTZ	Foreign Trade Zone
GAATA	General Aviation and Air Taxi Activity
GAMA	General Aviation Manufacturers Association
GES	General Estimates System
GIS	Geographic Information System
g/mi	Grams Per Mile
GVWR	Gross Vehicle Weight Rating
HC	Hydrocarbon
HPMS	Highway Performance Monitoring System
ICC	Interstate Commerce Commission
INM	Integrated Noise Model
IO	Investigative Officer
IRI	International Roughness Index
LDT	Light-Duty Truck
LMIS	Lloyd's Maritime Information System
LPG	Liquefied Petroleum Gas
LR	Lloyd's Register
LVW	Loaded Vehicle Weight
MARAD	Maritime Administration
MCMIS	Motor Carrier Management Information System
MDPV	Medium-Duty Passenger Vehicles
MIC	Motorcycle Industry Council, Inc.
mmbd	Million Barrels Per Day
MOBILE	Mobile Source Emissions Factor Model

mpg Miles Per Gallon
MSIS Marine Safety Information System
MTBE Methyl Tributyl Ether
MVMA Motor Vehicle Manufacturers Association

NANIM Nationwide Airport Noise Impact Model
NBDA National Bicycle Dealers Association
NDC Navigation Data Center
NHS National Highway System
NHTSA National Highway Traffic Safety Administration
NMAC Near Mid-Air Collision
NO_x Nitrogen Oxides
NOPS National Operations Center
NOPUS National Occupant Protection Use Survey
NPIAS National Plan of Integrated Airport Systems
NPTS Nationwide Personal Transportation Survey
NTD National Transit Database
NTS National Transportation Statistics
NTSB National Transportation Safety Board

OAG Official Airline Guide
OAI Office of Airline Information
OIG Office of the Inspector General
OPS Office of Pipeline Safety
ORNL Oak Ridge National Laboratory
OST Office of the Secretary of Transportation

PAR Police Accident Report
PIRS Pollution Incident Reporting System
PMT Passenger Miles of Travel
PSI Pollutant Standard Index
PSR Present Serviceability Rating

RFG Reformulated Gasoline
RO/RO Roll-On/Roll-Off
RSPA Research and Special Programs Administration
RTECS Residential Transportation Energy Consumption Survey
RVP Reid Vapor Pressure

SAMIS Safety Management Information Statistics
SEC Securities and Exchange Commission
SHA State Highway Agencies
SO_2 Sodium Dioxide
STB Surface Transportation Board

TAF Terminal Area Forecast
TIUS Truck Inventory and Use Survey
TMG Traffic Monitoring Guide
TRFD Transportation-Related Final Demand
TSFD Transborder Surface Freight Data
TTI Texas Transportation Institute

USACE U.S. Army Corps of Engineers
USCG U.S. Coast Guard
USDOC U.S. Department of Commerce
USDOD U.S. Department of Defense
USDOT U.S. Department of Transportation
USSR Union of Soviet Social Republic

Modal Profiles

Air Carrier Profile

Financial	1960	1970	1980	1990	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Operating revenues (thousand dollars) [1]																	
Domestic total [a]	2,178,339	7,180,161	26,440,297	58,201,660	66,672,151	71,424,865	77,396,919	82,599,270	86,856,624	91,351,103	98,899,810	86,573,051	79,336,448	88,870,097	100,902,509	110,269,243	120,279,816
Majors, all services	1,942,635	6,272,775	23,012,073	56,138,825	59,846,676	63,226,187	69,515,318	74,942,391	77,650,810	80,800,698	89,293,771	78,599,844	71,730,250	77,196,343	85,605,321	95,955,258	110,175,124
Nationals, all services	146,481	736,831	3,182,418	1,251,559	4,888,701	6,329,602	6,109,778	5,940,674	7,225,393	9,230,210	9,016,171	7,494,385	6,961,517	10,580,912	14,064,227	13,171,292	9,200,672
Large regionals, all services	N	N	245,806	703,526	1,031,404	1,148,504	1,230,628	1,366,503	1,617,586	902,160	589,869	478,822	644,680	1,092,842	1,232,961	1,142,693	904,019
International total	705,938	2,109,497	6,442,144	17,824,538	22,364,429	23,432,883	25,046,819	27,318,034	26,611,331	27,958,958	31,348,410	28,706,979	27,837,150	28,897,918	33,719,280	39,535,274	44,388,011
Majors, all services	705,938	2,109,497	5,976,221	17,083,295	19,222,842	19,820,215	20,960,305	23,608,853	23,356,233	24,447,607	28,097,698	25,883,361	24,528,512	24,964,860	29,735,873	34,226,000	38,988,147
Nationals, all services	N	N	465,923	380,294	2,568,643	2,819,653	3,751,539	3,338,903	2,668,243	3,026,884	2,801,690	2,503,678	2,959,809	3,408,860	3,399,904	4,803,265	5,160,564
Large regionals, all services	N	N	N	357,761	572,944	793,015	334,975	370,278	586,855	484,468	449,022	319,940	348,828	524,198	583,502	506,009	239,299
Total large-certificated [a]	2,884,877	9,289,658	32,882,441	76,026,198	89,036,580	94,857,748	102,443,738	109,917,304	113,467,954	119,310,062	130,248,220	115,280,030	107,173,597	117,768,015	134,621,789	149,804,516	164,667,827
Operating expenses (thousand dollars) [1]																	
Domestic total [a]	2,052,094	7,001,668	26,465,999	59,183,777	64,456,644	66,667,151	72,145,242	76,125,467	78,796,175	84,816,236	93,548,937	94,949,876	86,826,833	91,520,149	104,621,676	112,363,170	116,140,022
Majors, all services	1,907,785	6,256,039	23,150,527	57,138,322	57,824,115	58,694,406	64,143,384	68,307,270	70,114,852	74,834,600	84,206,809	86,611,140	79,196,985	80,810,165	89,877,864	98,352,872	106,259,194
Nationals, all services	144,309	745,629	3,058,289	1,258,274	4,666,546	6,178,809	6,058,307	5,921,639	6,672,705	8,638,079	8,726,001	7,814,067	6,958,543	9,677,656	13,501,703	12,849,910	8,985,641
Large regionals, all services	N	N	257,183	676,688	1,077,578	1,055,905	1,328,760	1,502,305	1,600,958	858,956	616,126	524,670	671,305	1,032,329	1,242,109	1,160,389	895,187
International total	665,660	2,065,605	6,642,095	18,757,740	21,842,021	22,335,258	24,155,202	25,249,593	25,387,024	26,157,262	29,685,280	30,649,400	28,922,103	28,340,403	31,490,257	37,059,043	41,001,911
Majors, all services	665,660	2,065,605	6,171,366	18,086,050	18,875,302	18,997,478	20,406,144	21,688,642	22,321,441	22,993,261	26,647,046	27,664,641	25,687,398	24,606,982	27,783,564	32,207,742	35,951,166
Nationals, all services	N	N	470,729	325,273	2,372,138	2,582,833	3,414,618	3,209,074	2,514,464	2,714,754	2,556,866	2,663,591	2,914,105	3,253,707	3,157,046	4,349,805	4,818,660
Large regionals, all services	N	N	N	344,097	594,581	754,947	334,440	351,877	551,119	449,247	481,367	321,169	320,601	479,714	549,646	501,496	232,085
Total large-certificated [a]	2,717,754	9,067,273	33,108,094	77,941,517	86,298,665	89,002,409	96,300,444	101,375,060	104,183,200	110,973,499	123,234,216	125,599,276	115,748,936	119,860,552	136,111,932	149,422,213	157,141,933
Inventory for large-certificated carriers [b]																	
Number of carriers [c,2]																	
Total domestic and international	55	39	(R) 52	(R) 58	(R) 66	(R) 84	(R) 88	(R) 72	(R) 74	(R) 75	(R) 66	(R) 61	(R) 62	65	69	67	66
Majors	N	N	14	12	11	11	12	13	13	13	14	(R) 14	13	14	14	17	20
Nationals	N	N	(R) 16	15	(R) 22	27	31	(R) 28	27	(R) 28	(R) 29	(R) 26	(R) 25	26	28	28	25
Regionals	N	N	(R) 22	(R) 31	(R) 33	(R) 46	(R) 45	(R) 31	(R) 34	(R) 34	(R) 23	(R) 21	(R) 24	25	27	22	21
Number of aircraft available for service [3]																	
Total domestic and international	2,135	2,690	2,818	4,727	5,221	5,567	5,961	5,770	6,144	6,254	6,522	6,081	5,819	6,675	7,051	6,750	6,758
Majors	N	N	2,071	3,854	4,085	4,039	4,422	4,352	4,605	4,711	5,118	4,996	4,530	4,948	4,904	5,018	5,626
Nationals	N	N	432	650	819	1,143	1,167	967	1,113	1,319	1,182	952	1,079	1,299	1,858	1,478	940
Regionals	N	N	315	223	317	385	372	451	426	224	222	133	210	428	289	254	192
Number of full-time equivalent employees [c,2]																	
Total domestic and international	169,872	304,690	347,335	555,262	535,394	555,537	575,937	593,542	631,147	659,689	667,778	599,531	590,779	558,246	563,588	547,795	539,833
Majors	118,189	214,021	312,842	517,754	481,041	484,870	511,270	540,039	564,388	590,197	612,814	557,422	537,776	489,036	478,114	478,142	490,631
Nationals	12,470	24,913	29,269	30,225	42,785	54,447	51,921	43,630	54,205	60,756	51,384	38,446	48,685	64,348	78,090	63,246	41,908
Regionals	N	N	5,225	7,283	11,569	16,221	12,747	9,873	12,555	8,737	3,580	3,664	4,318	4,863	7,385	6,407	7,295

continued

Air Carrier Profile *continued*

Performance	1960	1970	1980	1990	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Aircraft revenue-miles (thousands) [4]																	
Domestic																	
Certificated, all services [a,d]	858,451	2,067,598	2,523,375	3,963,268	4,379,929	4,629,393	4,811,447	4,939,436	5,033,144	5,332,176	5,662,443	5,549,662	5,602,737	6,086,649	6,591,637	6,714,903	6,624,022
Majors, all services	716,961	1,778,065	2,113,669	3,767,330	3,760,067	3,854,368	4,062,122	4,218,049	4,260,051	4,445,133	4,784,664	4,680,578	4,432,285	4,267,107	4,632,828	4,923,387	5,388,726
Nationals, all services	94,794	247,055	330,528	120,599	447,024	592,345	591,638	572,654	613,823	801,719	805,439	810,665	915,170	1,259,491	1,498,161	1,434,676	901,647
Large regionals, all services	N	N	56,995	70,881	100,478	100,004	110,976	133,571	134,852	58,329	52,390	37,399	37,516	76,478	101,418	121,016	148,692
International																	
Certificated, all services [a,d]	181,605	474,666	400,971	760,334	979,769	997,656	1,043,312	1,114,063	1,186,222	1,225,217	1,281,702	1,263,543	1,221,086	1,261,917	1,403,378	1,535,929	1,594,357
Majors, all services	N	N	330,391	694,479	809,243	815,701	853,424	917,108	1,003,727	1,043,730	1,117,709	1,119,126	1,050,808	1,028,158	1,148,209	1,250,037	1,325,504
Nationals, all services	N	N	66,499	24,301	108,392	125,951	145,847	142,658	127,037	134,370	127,550	124,765	141,670	185,397	197,334	231,735	216,064
Large regionals, all services	N	N	2,948	33,893	46,040	48,867	32,005	39,516	51,100	41,440	30,848	15,409	25,896	41,241	49,211	40,654	36,701
Other certificated, all services,																	
domestic and international [d]	N	N	23,204	12,120	88,454	89,811	58,747	29,942	28,775	32,674	25,545	25,264	220,478	490,693	367,854	249,326	201,045
Total certificated [d]	1,040,056	2,542,264	2,924,346	4,723,602	5,359,697	5,627,048	5,854,760	6,053,499	6,219,366	6,557,393	6,944,145	6,813,205	6,823,823	7,348,566	7,995,015	8,250,831	8,218,378
Aircraft revenue-hours [4]																	
Domestic																	
Certificated, all services [a,d]	3,672,900	5,133,161	6,247,795	9,717,375	10,721,577	11,378,503	11,871,886	12,133,348	12,443,855	13,090,460	13,901,641	13,510,998	13,676,524	15,294,961	16,405,347	16,694,269	16,415,836
Majors, all services	2,802,317	4,066,480	4,941,327	9,053,789	8,864,840	9,023,772	9,512,983	9,898,147	9,957,390	10,349,992	11,308,820	11,028,054	10,328,412	9,862,773	10,758,395	11,519,750	12,709,883
Nationals, all services	606,146	908,935	919,187	458,621	1,362,863	1,832,909	1,934,433	1,828,382	2,002,173	2,515,044	2,403,184	2,305,781	2,407,006	3,383,803	3,917,027	3,761,623	2,373,121
Large regionals, all services	N	N	267,522	192,944	273,642	269,811	298,415	366,439	422,770	156,201	137,993	104,522	99,411	187,758	252,384	318,276	381,713
International																	
Certificated, all services [a,d]	608,736	977,325	819,518	1,556,760	1,978,378	2,021,060	2,113,467	2,235,792	2,381,246	2,456,580	2,595,893	2,565,169	2,487,258	2,593,915	2,881,257	3,155,013	3,281,909
Majors, all services	N	N	668,199	1,410,263	1,607,155	1,619,755	1,699,958	1,819,583	1,992,776	2,071,507	2,229,167	2,240,214	2,105,500	2,067,148	2,317,972	2,541,139	2,692,590
Nationals, all services	N	N	140,329	50,293	227,077	262,285	319,919	303,335	275,180	281,706	288,953	282,776	319,353	417,332	431,858	492,092	466,897
Large regionals, all services	N	N	7,583	75,786	108,717	122,659	68,418	82,063	103,813	88,224	66,058	33,173	57,086	91,932	109,372	87,461	80,143
Other certificated, all services,																	
domestic and international [d]	N	N	123,411	32,439	255,661	268,372	151,227	71,191	70,999	84,366	63,359	81,647	847,014	1,878,130	1,499,596	1,128,941	993,398
Total certificated [d]	4,281,636	6,110,486	7,190,724	11,274,135	12,699,955	13,399,563	13,985,353	14,369,140	14,825,101	15,547,040	16,497,534	16,076,167	16,163,782	17,888,876	19,286,604	19,849,282	19,697,745
Revenue passenger-miles (thousands) [4]																	
Domestic																	
Certificated, all services [a,d]	31,098,944	108,441,978	204,367,599	345,872,950	388,410,210	403,911,656	434,651,687	452,827,860	462,753,505	488,356,869	515,621,596	486,506,043	481,195,481	505,221,674	557,890,670	583,757,943	590,634,648
Majors, all services	29,430,428	99,903,229	182,984,795	340,628,946	352,063,855	360,719,108	395,099,254	413,060,869	421,217,665	440,442,129	472,284,794	440,413,336	426,401,276	424,165,007	462,025,653	498,200,614	527,266,645
Nationals, all services	1,170,779	7,642,071	20,466,712	2,655,442	27,508,958	33,696,612	30,396,752	31,989,076	34,070,192	43,371,272	39,560,329	43,541,665	48,687,149	67,906,918	84,458,947	78,505,474	55,504,378
Large regionals, all services	N	N	711,868	2,285,750	5,915,731	5,646,715	6,366,240	6,860,718	6,000,206	3,205,826	2,731,996	1,747,222	1,748,996	3,595,739	5,915,613	4,850,116	5,754,152

continued

Air Carrier Profile *continued*

Performance (continued)	1960	1970	1980	1990	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
International																	
Certificated, all services [a,d]	8,950,672	39,695,392	63,354,387	126,362,697	149,107,689	154,882,007	161,512,010	169,356,100	172,179,498	180,269,038	192,797,653	178,343,116	171,998,786	168,601,124	194,173,889	211,359,416	219,471,625
Majors, all services	N	N	54,318,160	121,910,801	133,299,897	137,389,923	145,330,811	153,564,956	157,398,986	166,320,739	181,585,899	169,335,392	163,576,484	156,267,732	179,788,447	195,635,675	206,669,607
Nationals, all services	N	N	8,659,592	3,152,239	12,939,400	15,509,364	14,681,127	13,616,245	12,232,424	11,504,031	7,793,324	7,710,903	6,803,586	8,995,296	11,101,736	14,120,367	12,074,172
Large regionals, all services	N	N	330,288	988,679	2,484,738	1,685,684	505,337	760,809	2,261,005	2,034,607	3,218,488	1,185,896	1,540,681	3,211,186	3,200,033	1,528,876	394,327
Other certificated, all services, domestic and international [d]	N	N	250,571	613,790	3,305,320	4,146,257	3,784,176	2,331,287	1,752,525	1,747,303	1,244,419	914,745	4,436,095	9,680,920	5,574,130	2,276,237	2,442,992
Total certificated [d]	40,049,616	148,137,370	267,972,557	472,235,647	537,517,899	558,793,663	596,163,697	622,183,960	634,933,003	668,625,907	708,419,249	664,849,159	653,194,267	673,822,798	752,064,559	795,117,359	810,106,273
Average passenger revenue / passenger-mile [5]																	
(Domestic, scheduled service)	6.09	6.00	11.49	13.44	13.25	12.90	13.81	13.19	13.55	13.82	13.92	14.11	13.97	(R) 14.57	13.26	12.10	12.51
Average passenger fare [5]																	
(Domestic, scheduled service)	30.01	40.65	84.60	107.96	106.82	103.99	110.37	103.77	107.14	110.81	113.31	114.58	115.10	(R) 121.33	111.68	103.93	108.43
Revenue passenger enplanements (thousands) [4]																	
Domestic																	
Certificated, all services [a,d]	56,352	153,662	275,182	428,769	489,357	506,775	538,397	553,160	566,377	589,168	616,397	574,882	564,552	596,871	645,674	674,061	675,212
Majors, all services	48,678	122,866	223,237	411,797	428,329	432,076	466,743	482,656	486,902	502,305	537,377	496,455	468,938	453,112	487,525	523,288	567,108
Nationals, all services	5,949	26,726	47,145	13,374	46,461	57,670	58,383	59,690	67,237	80,995	75,156	75,600	81,722	112,715	132,037	131,142	87,167
Large regionals, all services	N	N	3,748	3,190	8,854	10,127	9,122	9,665	10,276	4,234	2,444	1,383	1,338	3,542	6,623	7,930	9,383
International																	
Certificated, all services [a,d]	5,904	16,620	26,514	46,121	51,330	52,863	54,519	56,759	57,758	57,694	60,830	56,641	56,904	58,837	67,479	73,090	75,449
Majors, all services	N	N	23,949	43,871	42,701	43,590	46,304	48,615	49,608	49,769	53,157	50,097	50,637	50,202	57,929	63,203	67,009
Nationals, all services	N	N	2,343	964	6,183	7,235	7,402	6,887	6,228	6,274	5,273	5,664	5,471	6,868	6,931	8,309	7,676
Large regionals, all services	N	N	149	825	2,168	1,790	405	631	1,751	1,322	2,151	779	718	1,600	2,379	1,290	364
Other certificated, all services, domestic and international [d]	N	N	1,125	871	5,992	7,150	4,558	1,776	2,133	1,964	1,668	1,546	12,631	27,669	19,729	11,989	11,953
Total certificated [d]	62,256	169,922	302,821	474,891	540,688	559,638	592,916	609,919	624,135	646,863	677,227	631,522	621,456	655,708	713,153	747,151	750,660
Revenue passenger																	
Load factor (%) (scheduled service) [4]																	
Domestic																	
Certificated [a,d]	58.5	48.9	58.0	60.4	64.7	65.4	67.9	69.1	70.0	69.8	71.2	69.1	70.3	72.6	74.4	77.0	79.0
Majors	59.5	49.3	58.1	60.5	65.0	65.8	68.5	69.6	70.4	70.2	71.6	69.3	70.6	72.9	74.8	77.7	79.4
Nationals	41.9	43.6	58.4	49.4	63.6	61.8	62.0	63.1	65.1	66.4	66.5	67.0	68.2	72.5	73.6	74.4	77.2
Large regionals	N	N	47.7	54.7	56.3	63.0	58.1	61.9	63.5	58.7	46.8	71.3	60.4	71.2	70.3	70.1	72.6
International																	
Certificated [a,d]	62.2	53.0	62.8	69.1	70.6	71.8	73.3	74.1	72.8	74.4	76.0	72.8	76.6	76.5	79.1	79.5	79.9
Majors	N	N	62.8	69.0	70.8	72.2	73.7	74.4	72.9	74.5	76.1	72.9	76.8	76.8	79.3	79.8	80.3
Nationals	N	N	65.5	85.7	68.3	67.9	67.8	69.6	70.9	73.7	73.4	70.0	68.3	64.8	70.4	71.4	70.8
Large regionals	N	N	73.9	63.9	46.2	53.1	N	57.2	46.0	0.0	58.0	67.0	59.1	70.4	77.6	0.0	64.3
Other certificated, all services, domestic and international [d]	N	N	46.7	56.8	57.6	52.5	62.8	59.3	49.6	47.6	48.8	52.2	61.4	60.1	58.9	51.4	52.9

continued

Air Carrier Profile *continued*

Performance (continued)	1960	1970	1980	1990	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
U.S. international passenger travel [e,6]																	
Total passenger-arrivals (thousands)																	
Flag of carrier																	
United States	1,332	5,531	10,031	19,145	23,291	24,582	25,148	26,744	27,390	27,462	29,837	27,985	26,953	26,557	29,992	31,657	33,364
Foreign	1,234	4,343	10,231	17,269	20,527	22,328	24,704	27,571	28,791	30,324	32,380	28,715	26,912	27,395	29,591	29,042	29,587
Total passenger-departures (thousands)																	
Flag of carrier																	
United States	1,200	4,949	9,369	17,628	21,355	22,231	22,901	24,302	24,513	25,457	27,431	25,483	23,610	24,070	27,249	29,668	31,492
Foreign	1,136	4,147	9,886	16,418	18,993	20,795	22,884	25,382	26,350	28,399	30,068	27,111	24,996	25,897	28,682	28,877	27,985
Total revenue ton-miles (thousands) [f,4]																	
Domestic																	
Certificated, all services [a,d]	3,732,949	13,876,802	24,964,907	43,654,400	50,632,739	52,916,214	56,326,750	58,920,010	60,165,036	63,032,298	66,544,502	61,834,963	62,051,071	65,753,373	72,240,509	74,117,030	74,923,193
Majors, all services	3,332,483	12,589,057	21,427,534	42,027,064	44,952,734	46,142,919	49,892,293	52,478,725	53,424,348	55,599,788	59,095,406	54,883,338	54,411,945	54,251,883	58,514,663	61,959,817	65,627,369
Nationals, all services	121,157	850,477	3,336,057	640,398	3,967,715	4,957,793	5,073,195	5,068,024	5,299,740	6,577,361	6,699,944	6,211,281	6,073,565	8,192,062	11,142,320	10,131,320	7,860,786
Large regionals, all services	N	N	180,042	944,830	1,256,308	1,353,436	1,048,507	1,231,075	1,161,148	611,809	628,394	597,407	684,963	1,584,694	1,193,008	1,136,544	1,200,010
International																	
Certificated, all services [a,d]	1,291,336	6,308,701	9,689,067	19,975,913	24,879,793	26,296,958	28,177,722	30,950,867	31,192,066	32,810,134	35,161,434	32,782,793	33,771,616	35,168,498	40,923,680	44,696,422	45,806,946
Majors, all services	N	N	7,377,733	18,348,692	20,681,990	21,456,604	22,705,604	24,971,379	25,794,347	27,764,444	30,683,566	28,459,230	28,020,656	27,099,570	30,614,976	32,690,861	34,565,570
Nationals, all services	N	N	2,261,534	803,083	2,935,386	3,509,127	4,504,772	4,557,048	4,109,500	3,989,939	3,749,703	3,868,703	5,090,922	7,101,794	8,820,202	9,980,412	9,229,784
Large regionals, all services	N	N	44,438	704,369	918,447	1,186,218	668,766	1,038,610	1,211,260	993,874	621,161	303,700	636,385	812,738	1,256,237	1,421,590	1,618,112
Other certificated, all services, domestic and international [d]	N	N	28,178	161,878	799,950	607,077	611,336	526,016	356,761	305,217	227,762	294,098	904,251	1,879,129	1,622,782	1,492,908	628,507
Total certificated [d]	5,024,285	20,185,503	34,682,153	63,630,313	75,512,531	79,213,173	84,504,472	89,870,877	91,357,103	95,842,432	101,705,936	94,617,756	95,822,687	100,921,870	113,164,189	118,813,452	120,730,139
Revenue ton-miles of freight (thousands) [g,4]																	
Domestic																	
Certificated, all services [a,d]	552,756	2,708,900	4,528,316	9,067,099	11,802,776	12,524,772	12,860,845	13,640,994	13,886,053	14,201,505	14,982,612	13,172,867	13,931,509	15,231,204	16,451,441	15,741,236	15,859,729
Majors, all services	321,176	U	3,129,087	7,964,164	9,746,353	10,071,016	10,382,373	11,172,436	11,302,581	11,555,576	11,866,926	10,834,520	11,771,815	11,835,383	12,312,098	12,139,755	12,900,706
Nationals, all services	3,850	U	1,289,510	374,853	1,227,775	1,588,798	2,033,376	1,869,146	1,889,221	2,240,026	2,743,705	1,856,834	1,205,023	1,401,369	2,696,425	2,280,772	2,310,348
Large regionals, all services	N	N	108,864	716,256	664,768	787,828	411,285	549,046	561,109	296,660	356,013	422,682	510,401	1,225,120	601,447	651,532	624,594
International																	
Certificated, all services [a,d]	268,156	1,566,105	3,353,371	7,340,033	9,970,191	10,855,442	12,031,635	14,015,255	13,980,493	14,782,230	15,880,424	14,948,684	16,572,205	18,308,387	21,506,293	23,560,482	23,859,784
Majors, all services	N	N	1,945,660	6,157,984	7,352,000	7,717,612	8,172,522	9,614,884	10,054,447	11,132,370	12,524,975	11,525,689	11,663,007	11,472,799	12,636,132	13,127,294	13,898,610
Nationals, all services	N	N	1,395,575	487,873	1,641,444	2,004,875	3,041,774	3,195,422	2,892,634	2,838,536	2,970,370	3,097,665	4,410,564	6,202,264	7,710,029	8,568,375	8,022,366
Large regionals, all services	N	N	11,409	605,504	671,144	1,017,649	618,232	962,529	985,159	790,413	298,069	185,111	482,784	491,619	936,234	1,268,703	1,578,680
Other certificated, all services, domestic and international [d]	N	N	3,124	100,498	469,484	192,437	232,918	292,786	181,393	130,155	102,978	199,051	460,121	911,037	1,065,369	1,265,286	384,208
Total certificated [d]	820,907	3,755,436	7,884,811	16,407,132	21,772,967	23,380,215	24,892,480	27,656,249	27,866,545	28,983,735	30,863,036	28,121,551	30,503,714	33,539,592	37,957,734	39,301,718	39,719,513

continued

Air Carrier Profile *continued*

Safety [7]	1960	1970	1980	1990	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Air carrier fatalities																	
Operating under 14 CFR 121 (airlines)																	
Scheduled services	N	N	0	39	239	160	342	3	1	12	89	531	0	22	13	22	50
Nonscheduled services	N	N	1	0	0	8	38	5	0	0	3	0	0	0	1	0	0
Operating under 14 CFR 135																	
Scheduled services (commuters)	N	N	37	6	25	9	14	46	0	12	5	13	0	2	0	0	2
Nonscheduled services (on–demand air taxis)	N	N	105	51	63	52	63	39	45	38	71	60	35	42	64	18	16
Total	499	146	143	96	327	229	457	93	46	62	168	604	35	66	78	40	68
Air carrier accidents																	
Operating under 14 CFR 121 (airlines)																	
Scheduled services	N	N	15	21	18	30	31	43	41	40	49	41	35	51	(R) 24	(R) 34	25
Nonscheduled services	N	N	4	3	5	6	6	6	9	11	7	5	6	3	(R) 6	(R) 6	6
Operating under 14 CFR 135																	
Scheduled services (commuters)	N	N	38	15	10	12	11	16	8	13	12	7	7	2	4	6	3
Nonscheduled services (on–demand air taxis)	N	N	171	107	85	75	90	82	77	74	80	72	60	(R) 73	66	66	54
Total	90	55	228	146	118	123	138	147	135	138	148	125	108	(R) 129	100	(R) 112	88
Fatal air carrier accidents																	
Operating under 14 CFR 121 (airlines)																	
Scheduled services	N	N	0	6	4	2	3	3	1	2	3	6	0	2	1	3	2
Nonscheduled services	N	N	1	0	0	1	2	1	0	0	0	0	0	0	1	0	0
Operating under 14 CFR 135																	
Scheduled services (commuters)	N	N	8	3	3	2	1	5	0	5	1	2	0	1	0	0	1
Nonscheduled services (on–demand air taxis)	N	N	46	29	26	24	29	15	17	12	22	18	18	18	(R) 23	11	10
Total	17	8	55	38	33	29	35	24	18	19	26	26	18	(R) 21	25	14	13

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

[a] Some totals include data not in the table; thus totals may not equal sum of table data.

[b] Includes scheduled and nonscheduled (charter) operators. By Sec. 2 of the Airline Deregulation Act of 1978 "charter air carrier" and "charter air transportation" replaced supplemental air carriers and supplemental air transportation, which were formerly Sec. 101(36) and (37) of the Act. The 24 pre-deregulation supplemental carriers now have scheduled service authority.

[c] Total includes only those carriers who have reported employment statistics to BTS' Office of Airline Information. Full-time equivalent employees count two part-time employees as one full-time equivalent employee. Prior to 1980, there was no breakout for part-time employees so earlier numbers will overstate full-time equivalent employees.

[d] Data does not include small-certificated and commuter carriers prior to 2002. Small-certificated and commuter carriers began reporting T1 data in January of 2002 for Alaskan carriers and in October of 2002 for the remainder of the U.S.

[e] Passenger travel totals do not include Canada because the source does not record departures and arrivals to and from Canada.

[f] Total Revenue Ton-Miles includes passenger, freight, express, and mail.

[g] Total revenue ton-miles of freight includes freight, express, and mail.

NOTES

Domestic encompasses operations within and between the 50 states of the United States, the District of Columbia, Puerto Rico, and the Virgin Islands. It also encompasses Canadian and Mexican transborder operations (U.S. airlines only). All other operations are considered international.

Data in the Financial and Performance (excluding International Air Passengers) sectins was revised for 1990 to 2005 to be consistent with the online source as of Nov. 2, 2007.

SOURCES

Unless otherwise noted, refer to chapter tables for sources.

[1] 1960-1970: Civil Aeronautics Board,*Handbook of Airline Statistics, 1969 and 1973* (Washington, DC), pp. 69 and 71. 1980: Civil Aeronautics Board,*Air Carrier Financial Statistics* , December 1981 (Washington, DC), pp. 3/28, 42, and 44. 1990-2006: U.S. Department of Transportation, Bureau of Transportation Statistics, Form 41 Air Carrier Financial Reports, Schedules P11 and P12, available at http://www.transtats.bts.gov/databases.asp?Mode_ID=1&Mode_Desc=Aviation&Subject_ID2=0, as of Nov. 2, 2007

[2] 1960: U.S. Department of Transportation, Bureau of Transportation Statistics, Office of Airline Information, http://www.bts.gov/oai/employees/employcov.html as of Oct. 14, 2003. 1970-2006: U.S. Department of Transportation, Bureau of Transportation Statistics, Office of Airline Information, http://www.bts.gov/programs/airline_information/number_of_employees/certificated_carriers/ as of Nov. 2, 2007.

[3] Ibid., personal communication, Oct. 17, 2003, Sept. 10, 2004, Feb. 1, 2007, and Nov. 2, 2007

[4] 1960-1970: Civil Aeronautics Board,*Handbook of Airline Statistics, 1969 and 1973* (Washington, DC), Part III, tables 2, 4, 7, and 13. 1980: Civil Aeronautics Board,*Air Carrier Financial Statistics* , December 1981 (Washington, DC), pp. 2, 5, 46, and 86. 1990-2006: U.S. Department of Transportation, Bureau of Transportation Statistics,*T1: U.S. Air Carrier Traffic and Capacity Summary by Service Class,* available at http://www.transtats.bts.gov/Tables.asp?DB_ID=130&DB_Name=Air%20Carrier%20Summary%20Data%20%28Form%2041%20and%20298C%20Summary%20Data%29&DB_Short_Name=Air%20Carrier%20Summary, as of Nov. 2, 2007

[5] See sources 1 and 4.

[6] 1960-70: U.S. Department of Justice, Immigration and Naturalization Service,*Report of Passenger Travel Between the U.S. and Foreign Countries* , 1960, 1970 (Washington, DC). 1980-2006: U.S. Department of Transportation, Research and Special Programs Administration,*U.S. International Air Travel Statistics* (Washington, DC: Annual issues), tables IIa and IId. 2006: U.S. Department of Commerce, Office of Travel and Tourism Industries*U.S. International Air Travel Statistics.*

[7] National Transportation Safety Board, Internet site http://www.ntsb.gov/aviation/stats.htm as of November 2007 and personal communication.

General Aviation Profile

FINANCIAL[1]	1960	1970	1980	1990	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Expenditures, total ($ millions)	895	2,035	8,053	9,907	9,332	10,379	11,605	13,797	16,372	17,553	21,909	26,499	U	U	U	U	U
Aircraft	202	339	2,853	3,398	3,910	4,260	5,298	7,174	9,573	11,262	14,291	18,524	U	U	U	U	U
Operating costs	693	1,696	5,200	6,509	5,422	6,119	6,307	6,623	6,799	6,291	7,618	7,975	U	U	U	U	U
INVENTORY[2]																	
Number of active aircraft by primary use, total	76,549	131,743	211,045	196,800	173,400	188,100	187,312	192,414	204,710	219,464	217,533	211,446	211,244	209,708	219,426	224,352	221,943
Corporate	N	6,835	14,860	10,100	9,400	9,800	9,286	10,411	11,250	10,804	11,003	10,544	10,810	10,493	10,212	10,553	11,054
Business	N	26,900	49,391	33,100	26,500	26,200	28,236	27,716	32,611	24,543	25,169	25,525	24,153	25,042	24,189	25,524	24,413
Instructional	N	10,727	14,862	18,600	15,000	14,800	14,261	14,663	11,375	16,081	14,883	14,254	13,203	12,714	13,099	13,399	14,316
Personal	N	65,398	96,222	112,600	102,500	109,300	109,619	115,630	124,347	147,085	148,192	144,031	145,996	146,722	149,700	151,408	149,026
Aerial application	N	5,455	7,294	6,200	4,300	5,100	5,361	4,858	4,550	4,254	4,294	3,779	3,971	3,250	3,202	3,548	3,430
Aerial observation	N	N	N	4,900	5,100	4,700	3,225	3,311	3,242	3,240	5,093	5,039	4,535	4,223	4,814	4,663	4,407
External load	N	N	N	N	100	200	424	186	313	190	234	202	151	194	215	226	212
Other work[a]	N	2,054	2,813	1,400	1,200	1,100	1,118	679	1,116	2,363	1,787	1,528	1,733	1,726	930	732	729
Air taxi / air tours[b]	N	N	N	5,800	3,800	4,100	3,963	4,948	5,190	4,569	4,019	4,004	4,157	2,791	6,550	7,539	7,814
Sightseeing[c]	N	N	N	N	1,300	900	889	677	679	832	881	918	641	862	1,050	945	906
Other[d]	N	8,249	17,045	4,100	4,200	6,300	6,718	5,250	6,010	1,200	1,952	1,573	1,895	1,691	1,835	1,787	2,100
Public use	N	N	N	N	N	N	4,206	4,130	4,029	4,138	[j]N	[j]N	[j]N	[j]N	[j]N	[j]N	[j]N
PERFORMANCE																	
Number of flight hours by actual use, total[3] (thousands)	13,121	26,030	36,430	30,763	24,092	26,612	26,909	27,713	28,100	31,231	29,960	27,017	27,040	27,329	28,126	26,982	26,982
Corporate	N	N	5,332	2,913	2,486	3,069	2,898	2,878	3,213	3,535	3,341	2,657	3,275	3,227	2,849	3,072	3,072
Business	5,699	7,204	8,434	4,417	3,012	3,335	3,259	3,006	3,523	3,602	3,588	3,579	3,287	3,377	3,249	3,244	3,244
Instructional	1,828	6,791	5,748	7,244	4,156	4,410	4,759	4,956	3,961	5,795	5,050	4,307	4,182	4,393	4,035	3,635	3,635
Personal	3,172	6,896	8,894	9,276	8,248	9,659	9,037	9,644	9,781	11,072	11,477	11,266	11,025	11,251	10,239	9,266	9,266
Aerial application	N	N	2,044	1,872	1,364	1,526	1,713	1,562	1,306	1,408	1,318	1,038	1,182	1,099	1,142	1,031	1,031
Aerial observation	N	N	N	1,745	1,746	1,391	1,057	1,261	812	1,244	1,545	1,442	1,366	1,262	1,457	1,265	1,265
External load	N	N	N	N	135	128	191	112	153	123	161	131	97	103	125	134	134
Other work[a]	N	N	1,053	572	241	280	265	139	286	605	496	256	369	414	264	176	176
Air taxi / air tours[b]	N	N	N	2,249	1,545	1,527	1,834	2,122	2,583	1,985	2,122	1,587	1,495	1,332	2,764	3,210	3,210
Sightseeing[c]	N	N	N	N	309	179	195	127	169	218	197	183	134	175	204	191	191
Other[d]	2,422	5,139	4,925	475	622	1,107	656	819	940	535	665	664	628	697	617	753	753
Public use[e]	N	N	N	N	N	N	1,047	1,096	1,373	1,109	[j]N	[j]N	[j]N	[j]N	[j]N	[j]N	[j]N
Vehicle-miles (millions)[f,1]	1,769	3,207	5,204	4,548	3,358	3,795	3,524	3,877	U	U	U	U	U	U	U	U	U
Passenger-miles (millions)[f,1]	2,300	9,100	14,700	13,000	9,800	10,800	12,000	12,500	13,100	14,100	15,200	15,900	U	U	U	U	U
Fuel consumed, total (million gallons)[f, 5]	242	759	1,286	1,016	731	847	896	934	1,126	1,313	1,305	(R) 1,198	(R) 1,215	(R) 1,205	(R) 1,504	(R) 1,511	(E) 1,551
Aviation gasoline	242	551	520	353	266	287	289	292	311	345	333	(R) 279	(R) 277	(R) 272	(R) 273	(R) 255	(E) 262
Jet fuel	N	208	766	663	464	560	608	642	815	967	972	(R) 918	(R) 938	(R) 932	(R) 1,231	(R) 1,255	(E) 1,289

SAFETY																		
Fatalities, total[9,6]	787	1,310	1,239	770	730	735	636	631	625	619	596	562	581	632	558	(R) 563	696
Corporate	N	28	66	21	6	15	20	3	0	30	13	12	5	5	10	8	3
Business	N	148	126	80	64	73	44	45	42	55	43	50	39	33	45	14	37
Instructional	N	93	73	62	47	44	40	38	38	38	64	40	42	71	31	(R) 45	47
Personal	N	726	808	492	472	488	413	432	432	383	386	376	407	444	369	(R) 415	369
Aerial application	N	41	32	17	17	15	10	17	6	14	19	14	14	6	10	14	8
Other	N	174	134	95	138	112	119	106	112	105	87	73	77	84	95	72	234
Accidents, total[7]	4,793	4,712	3,590	2,242	2,021	2,056	1,908	1,844	1,905	1,905	1,837	1,727	1,715	(R) 1,740	(R) 1,619	1,669	1,484
Fatal	429	641	618	444	404	413	361	350	365	340	345	325	345	352	314	321	301
Accident rate (per 100,000 flight hours)[h,i]	36.5	18.1	9.9	(R) 7.3	(R) 8.4	7.7	7.1	6.7	6.8	6.1	6.1	6.4	6.3	(R) 6.4	(R) 5.8	(R) 6.2	5.5
Fatal	3.3	2.5	1.7	(R) 1.4	(R) 1.7	1.6	1.3	1.3	1.3	1.1	1.2	1.2	1.3	1.3	1.1	(R) 1.2	1.1

KEY: N = data do not exist; R = revised; U = data are not available, E = estimated by source..

[a] In 1960, 1970, 1980, classified as "Industrial."

[b] Includes air tours done under 14 CFR 135: air taxi operators and commercial operators.

[c] Includes sightseeing done under 14 CFR 91: general operating and flight rules.

[d] Significant decrease in "Other" can be attributed to a redefining of the category to only include "Aerial Other" and "Medical Use."

[e] Federal, state or local government-owned or leased aircraft used for the purpose of fulfilling a government position.

[f] Includes air taxi operations. Nautical miles in source multiplied by 1.151 to convert from nautical miles.

[g] Sum of fatalities does not necessarily equal total due to aircraft involved in midair and on-ground collisions.

[h] Suicide/sabotage cases are included in accidents and fatalities data but are excluded from accident rates.

[i] Accident rates are calculated by BTS using the formula: Accident Rates (per 100,000 flight hours) = Accidents or Fatalities/Flight Hours (thousands)*100.

[j] Beginning in 2000, "Public Use" was included in "Other Work".

NOTES

Numbers may not add to totals due to rounding.

Total fatalities in this profile may not match those in table 2-14, due to when the total fatalities data were received and the data breakdown by type of flying. NTSB constantly updates and reclassifies accident and fatality data.

1994-95 data for active aircraft by use, and flight hours, have been revised to reflect changes in adjustment for nonresponse bias with 1996 telephone survey factors. 1996 vehicle-miles and fuel consumption data are estimated using new information on nonrespondents and are not comparable to earlier years.

SOURCES

Unless otherwise noted, refer to chapter tables for sources.

[1] 1960-2001: Eno Transportation Foundation, Inc., *Transportation in America,* Annual Issues (Washington, DC), pp. 40 and 45, and similar tables in earlier editions.

[2] U.S. Department of Transportation, Federal Aviation Administration, *General Aviation and Air Taxi Activity and Avionics Survey* (Washington, DC: 1990-2004 issues), table 1.1.

[3] Ibid., table 1.4 and similar tables in earlier editions.

[4] Ibid., table 3.3 and similar tables in earlier editions.

[5] 1960-1990: U.S. Department of Transportation, Federal Aviation Administration, *General Aviation and Air Taxi Acitivity and Avionics Survey* (Washington, DC: 1990-2000 issues), table 5.1. 1994-2006: Ibid., *FAA Aerospace Forecasts,* (Washington, DC: Annual issues), table 30 and similar tables in earlier editions.

[6] 1960-1970: National Transportation Safety Board, RE-50, personal communication. 1980-2002: Ibid., *Annual Review of Aircraft Accident Data, U.S. General Aviation, Calendar Year 1998* (Washington, DC: July 2000), charts 27, 39, 40, 41, 42 and 43, and personal communications on Sept. 10, 2002, Dec. 22, 2003, April 30, 2004, Mar. 24, 2005, Nov. 7, 2006, and Oct. 30, 2007.

[7] 1960-80: National Transportation Safety Board, RE-50, personal communication. *Annual Review of Aircraft Accident Data, U.S. General Aviation, Calendar Year 1998* (Washington, DC: July 2000), available at Internet site http://www.ntsb.gov/aviation/ as of July 22, 2004, table 10. 1990-2006: Ibid., *Aviation Accident Statistics*, table 10, Internet site http://www.ntsb.gov/aviation/Stats.htm as of Oct. 30, 2007.

Highway Profile

FINANCIAL	1960	1970	1980	1990	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Government receipts, total ($ millions)[1]	11,193	21,763	39,834	75,444	91,312	96,347	102,771	107,421	111,581	121,650	131,115	132,324	134,765	138,384	145,315	154,690	165,443
Federal, total	2,771	6,160	9,949	14,576	17,854	19,851	23,196	21,648	24,509	26,008	30,819	27,670	28,527	29,875	30,911	33,070	34,171
Highway trust fund[a]	2,531	5,464	7,615	13,380	16,582	18,835	22,036	20,500	23,396	25,085	29,445	26,365	26,808	27,755	28,576	31,194	32,333
Other	240	696	2,334	1,196	1,272	1,016	1,160	1,148	1,113	923	1,374	1,305	1,719	2,120	2,335	1,876	1,838
State and local, total	8,422	15,603	29,885	60,868	73,458	76,496	79,575	85,773	87,072	95,642	100,296	104,654	106,238	108,509	114,404	121,620	131,272
State and D.C.	6,055	11,737	19,666	40,026	47,699	50,064	52,808	58,087	58,806	63,274	66,434	68,873	68,430	67,792	72,860	77,725	83,685
Local	2,367	3,866	10,219	20,842	25,759	26,432	26,767	27,686	28,266	32,368	33,862	35,781	37,808	40,717	41,544	43,895	47,587
Government expenditures, total ($ millions)[1]	10,757	20,829	41,763	75,408	90,192	93,478	98,082	101,953	107,975	116,011	122,697	129,900	135,919	(R) 143,807	147,489	152,699	161,061
Federal, total	197	425	874	664	1,306	1,402	1,598	1,315	1,375	1,428	1,680	1,913	1,761	(R) 2,383	3,470	1,902	2191
Highway trust fund[a]	27	83	315	358	965	1,092	1,384	1,103	1,170	1,249	1,304	1,463	1,261	(R) 1,685	2,436	758	1236
Other[b]	170	342	559	306	341	310	214	212	205	179	376	450	500	698	1,034	1,144	955
State and local, total	10,560	20,404	40,889	74,744	88,886	92,076	96,484	100,638	106,600	114,583	121,017	127,987	134,158	141,424	144,019	150,797	158,870
State and D.C.	7,125	14,100	25,936	45,609	55,569	56,981	59,709	61,534	65,507	71,415	76,997	81,803	85,653	88,377	88,026	94,484	100,090
Local	3,435	6,304	14,953	29,135	33,317	35,095	36,775	39,104	41,093	43,168	44,020	46,184	48,505	53,047	55,993	56,313	58,780
State highway user tax revenues[c], total ($ millions)	5,323	10,284	17,178	35,944	46,437	47,424	49,756	51,381	54,507	56,269	57,144	58,508	58,299	59,642	62,830	64,801	67,519
Motor fuel tax[2]	3,374	6,433	9,485	19,658	25,860	26,881	27,555	28,477	29,803	30,753	31,981	32,519	33,046	34,016	35,272	35,831	36,632
Other motor fuel receipts[d, 2]	22	44	92	220	101	108	63	55	58	134	179	298	297	277	194	202	952
Motor vehicle registration fees [3]	1,514	2,873	5,173	10,257	12,388	11,942	13,234	13,631	14,552	14,882	13,704	14,437	13,316	13,606	14,443	15,377	16,117
Other motor vehicle fees[e, 3]	235	577	1,490	3,353	4,505	4,416	4,689	4,704	5,068	5,350	5,696	5,764	6,077	5,885	6,373	6,451	6,769
Motor carrier taxes[f, 3]	110	176	323	695	875	770	726	729	861	740	784	753	703	709	730	786	811
Miscellaneous fees[3]	68	181	615	1,761	2,708	3,307	3,489	3,785	4,165	4,410	4,800	4,737	4,860	5,149	5,819	6,154	6,239
INVENTORY																	
Rural / urban mileage by ownership, total[4]	3,545,693	3,730,082	3,859,837	3,866,926	3,906,595	3,912,226	3,919,652	3,944,601	3,906,304	3,917,245	3,936,241	3,948,335	3,966,494	3,974,103	3,981,521	3,995,644	4,016,734
Rural mileage, total	3,116,125	3,169,412	3,230,936	3,122,282	3,092,810	3,092,520	3,092,887	3,108,493	3,064,650	3,071,181	3,084,000	3,071,332	3,071,768	3,033,133	3,000,247	2,985,804	2,987,371
Under state control	658,896	707,002	750,479	702,486	690,372	690,924	691,156	692,767	660,834	660,682	661,798	663,134	662,855	652,522	648,555	636,339	635,114
Under federal control[g]	111,912	187,696	246,130	178,188	173,650	170,568	168,938	167,369	118,369	116,846	116,698	119,270	117,751	120,208	117,740	123,413	123,370
Under local control	2,345,317	2,274,714	2,234,327	2,241,608	2,228,788	2,231,029	2,232,793	2,248,357	2,285,447	2,293,653	2,305,504	2,288,928	2,291,162	2,260,403	2,233,952	2,226,052	2,228,887
County roads	1,742,404	1,732,981	1,542,984	1,616,634	1,624,982	1,626,927	1,627,639	1,642,468	1,647,025	1,649,291	1,656,906	1,637,616	1,628,510	1,623,786	1,608,094	1,598,718	1,605,540
Town, township and municipal roads[h]	538,651	510,174	458,231	437,460	423,908	424,529	426,170	426,433	426,340	590,206	592,623	595,197	606,398	580,825	573,871	575,569	571,922
Other local roads[h]	64,262	31,559	233,112	187,514	179,898	179,573	178,984	179,456	212,082	54,156	55,975	56,115	56,254	55,792	51,987	51,765	51,425
Urban mileage, total	429,568	560,670	628,901	744,644	813,785	819,706	826,765	836,108	841,654	846,064	852,241	877,003	894,726	940,970	981,274	1,009,840	1,029,363
Under state control	50,158	74,103	97,287	95,778	109,947	111,766	111,924	112,226	110,017	109,956	110,195	109,136	110,434	120,033	126,132	140,913	143,960
Under federal control[g]	N	N	1,495	1,024	1,484	1,509	1,470	1,464	1,485	1,503	1,484	2,234	2,819	3,560	3,561	3,783	4,979
Under local control	N	N	530,119	647,842	702,354	706,431	713,371	722,418	730,152	734,605	740,562	765,633	781,473	817,377	851,581	865,144	880,424
County roads	N	N	71,357	95,929	115,388	117,518	117,181	117,487	117,016	117,105	116,918	144,065	144,615	156,598	175,601	182,696	185,582
Town and township roads[h]	N	N	37,583	42,752	74,630	60,561	60,926	74,402	75,195	605,255	611,473	608,859	624,163	647,448	662,366	668,337	680,424
Other local roads[h]	379,410	486,567	421,179	509,161	512,336	528,352	535,264	530,529	537,941	12,245	12,171	12,709	12,695	13,331	13,614	14,111	14,418
Rural / urban mileage by functional system, total[5]	3,545,693	3,730,082	3,859,837	3,866,926	3,906,595	3,912,226	3,919,652	(R) 3,944,597	(R) 3,906,292	3,917,240	(R) 3,936,222	3,948,335	3,966,485	3,974,107	3,981,512	3,995,635	4,016,741
Rural mileage, total	3,116,125	3,169,412	3,230,936	3,122,282	3,092,810	3,092,520	3,092,887	(R) 3,108,488	(R) 3,064,649	3,071,181	(R) 3,083,979	3,071,331	3,071,761	3,033,138	3,000,236	2,985,796	2,987,375
Interstate	N	N	31,905	33,547	32,457	32,580	32,820	(R) 32,819	(R) 32,808	32,974	33,048	33,061	32,992	32,048	31,443	30,905	30,586
Other principal arterial	N	N	82,569	83,802	97,175	97,948	98,131	98,257	(R) 98,858	98,856	(R) 98,919	99,185	98,853	97,038	95,946	95,156	94,937
Minor arterial	N	N	149,057	144,774	138,120	137,151	137,359	(R) 137,498	137,308	137,463	(R) 137,575	137,587	137,568	135,596	135,449	135,408	135,386
Major collector	N	N	439,000	436,352	431,115	431,712	432,117	(R) 432,728	432,408	432,954	433,121	433,284	430,946	424,288	420,046	419,999	419,117
Minor collector	N	N	299,613	293,922	282,011	274,081	273,198	(R) 272,350	272,140	271,690	(R) 271,803	271,377	270,700	267,524	267,842	264,387	262,841
Local	N	N	2,228,792	2,129,885	2,111,932	2,119,048	2,119,262	(R) 2,134,836	2,091,127	2,097,244	(R) 2,109,513	2,096,837	2,100,702	2,076,644	2,049,510	2,039,941	2,044,508
Urban mileage, total	429,568	560,670	628,901	744,644	813,785	819,706	826,765	(R) 836,109	(R) 841,643	846,059	(R) 852,243	877,004	894,724	940,969	981,276	1,009,839	1,029,366
Interstate	N	N	9,215	11,527	13,126	13,164	13,217	(R) 13,249	(R) 13,276	13,343	13,379	13,406	13,491	14,460	15,129	15,703	16,044
Other freeways and expressways	N	N	6,774	7,668	8,994	8,970	9,027	(R) 9,062	(R) 9,163	9,125	9,140	9,126	9,323	9,870	10,246	10,560	10,748
Other principal arterial	N	N	44,155	51,968	53,110	52,796	52,983	(R) 53,230	53,132	53,206	(R) 53,314	53,056	53,439	56,870	59,695	61,803	62,830
Minor arterial	N	N	66,377	74,659	87,857	88,510	89,020	(R) 89,196	89,496	89,399	89,789	89,962	90,411	93,888	97,433	101,673	102,975
Collector	N	N	68,387	78,254	86,089	87,331	87,790	(R) 88,042	88,071	88,008	88,200	88,713	89,247	97,114	102,150	106,109	108,833
Local	N	N	433,993	520,568	564,609	568,935	574,728	(R) 583,330	(R) 588,505	592,978	598,421	622,741	638,813	668,767	696,623	713,991	727,936
U.S. roads and streets by surface[6]																	
Paved mileage, total	1,230,469	1,658,421	2,072,692	2,254,822	2,342,179	2,378,268	2,380,650	2,409,935	2,420,344	2,451,426	(R) 2,501,716	(R) 2,523,479	2,577,693	2,612,069	2,577,963	2,601,490	2,629,638
Rural	919,082	1,188,080	1,490,050	1,550,283	1,561,649	1,591,334	1,582,166	1,605,804	1,612,251	1,641,877	(R) 1,682,140	(R) 1,678,795	1,714,714	1,702,175	1,629,423	1,625,390	1,637,819
Urban	311,387	470,341	582,642	704,539	780,530	786,934	798,484	804,131	808,093	809,549	(R) 819,576	(R) 844,684	862,979	909,894	948,540	976,100	991,819
Percent paved	34.7%	44.5%	53.7%	58.3%	60.0%	60.8%	60.5%	60.9%	61.3%	62.4%	63.3%	63.7%	64.8%	65.5%	64.5%	64.9%	65.2%
Unpaved mileage, total	2,315,224	2,071,661	1,787,145	1,612,104	1,564,416	1,533,958	1,553,537	1,548,349	1,528,549	1,478,977	(R) 1,448,319	(R) 1,438,723	1,402,995	1,376,283	1,417,527	1,408,757	1,401,791
Rural	2,197,043	1,981,332	1,740,886	1,571,999	1,531,161	1,501,186	1,518,310	1,510,330	1,490,488	1,436,969	(R) 1,409,279	(R) 1,400,129	1,364,900	1,333,969	1,373,622	1,363,383	1,352,456
Urban	118,181	90,329	46,259	40,105	33,255	32,772	35,227	38,019	38,061	42,008	39,040	(R) 38,594	38,095	42,314	43,905	45,374	49,335
Percent unpaved	65.3%	55.5%	46.3%	41.7%	40.0%	39.2%	39.5%	39.1%	38.7%	37.6%	36.7%	36.3%	35.2%	34.5%	35.5%	35.1%	34.8%
Number of employees																	
State and local govt. streets and highways[7]	532,000	607,000	559,000	569,000	544,233	543,143	U	548,486	530,097	542,612	546,215	551,706	545,249	(R) 545,617	542,642	546,220	545,089
Highway, street and bridge construction[i,8]	U	U	U	U	274,000	278,100	287,500	294,200	308,000	336,300	340,100	345,800	345,900	340,100	347,000	(R) 350,800	348,300
PERFORMANCE																	
Vehicle-miles of travel by functional system (millions), total[i,9]	718,762	1,109,724	1,527,295	2,144,362	2,357,588	2,422,696	2,484,080	2,552,233	2,628,148	2,690,241	2,746,925	2,781,462	2,855,756	2,890,893	2,962,513	2,989,807	3,014,116
Rural mileage, total	400,463	539,472	672,030	868,878	908,341	933,289	960,194	999,277	1,032,528	1,062,623	1,083,152	1,105,083	1,128,160	1,085,385	1,070,248	1,037,937	1,037,069
Interstate	10,514	79,516	135,084	200,173	215,568	223,382	232,565	240,255	251,520	260,166	268,180	274,024	279,962	269,945	266,996	258,790	257,913
Other principal arterial	N	N	132,958	175,133	207,569	215,567	221,403	228,716	237,704	244,045	248,725	253,056	257,587	245,345	241,046	233,999	231,865
Minor arterial	N	N	129,816	155,733	149,760	153,028	157,444	163,341	165,780	169,275	171,874	173,889	176,218	171,251	168,898	164,933	162,634
Major collector	N	N	150,186	190,512	182,000	186,212	190,923	201,790	203,580	206,831	209,659	211,312	213,503	203,368	200,792	193,288	193,287
Minor collector	N	N	39,282	49,948	48,529	49,936	50,107	52,310	54,288	57,622	57,572	59,650	61,504	60,294	60,139	58,299	58,088
Local	N	N	84,704	97,379	104,915	105,164	107,752	112,865	119,656	124,684	127,142	133,152	139,386	135,182	132,377	128,628	133,282
Urban mileage, total	318,299	570,252	855,265	1,275,484	1,449,247	1,489,407	1,523,886	1,552,956	1,595,620	1,627,618	1,663,773	1,676,379	1,727,596	1,805,508	1,892,265	1,951,870	1,977,047
Interstate	13,365	81,532	161,242	278,901	330,577	341,515	351,579	361,433	374,622	383,259	393,465	399,890	408,618	432,633	454,385	469,070	477,283
Other freeways and expressways	N	N	79,690	127,465	147,534	151,509	157,502	159,572	165,632	171,515	177,222	182,758	189,634	199,520	(R) 207,929	213,727	217,067
Other principal arterial	N	N	229,469	335,543	364,200	370,365	377,776	385,123	388,071	392,688	398,772	401,037	408,336	425,622	450,142	463,100	466,949
Minor arterial	N	N	175,030	236,225	286,165	293,228	299,345	301,932	309,293	313,950	324,398	329,931	339,387	348,794	362,018	371,392	376,082
Collector	N	N	83,043	106,297	120,088	126,883	129,310	130,146	131,905	131,603	135,372	137,922	141,874	153,751	162,108	168,038	173,210
Local	N	N	126,791	191,053	200,683	205,907	208,374	214,750	226,097	234,603	234,544	224,841	239,747	245,188	255,683	266,543	266,456
Highway demand for petroleum, total (thousand barrels)	1,488,095	2,361,310	2,882,143	3,289,554	3,530,071	3,602,159	3,669,491	3,765,003	3,889,758	4,042,708	4,062,573	4,081,742	4,203,095	4,233,039	4,328,176	(R) 4,360,995	4,355,057
Motor fuel[10]	1,378,095	2,198,310	2,737,143	3,113,214	3,353,320	3,424,616	3,492,285	3,580,620	3,699,500	3,843,128	3,870,337	3,892,341	4,016,243	4,049,263	4,131,695	(R) 4,161,592	4,165,008
Asphalt and road oil[11]	110,000	163,000	145,000	176,340	176,751	177,543	177,206	184,383	190,258	199,580	192,236	189,401	186,852	183,776	196,481	(R) 199,403	190,049
SAFETY[12]																	
Fatalities	36,399	52,627	51,091	44,599	40,716	41,817	42,065	42,013	41,501	41,717	41,945	42,196	43,005	42,884	42,836	(R) 43,510	42,642
Injured persons	N	N	N	3,231,000	3,266,000	3,465,000	3,483,000	3,348,000	3,192,000	3,236,000	3,189,000	3,033,000	2,926,000	2,889,000	2,788,000	2,699,000	2,575,000
Crashes	N	N	N	6,471,000	6,496,000	6,699,000	6,770,000	6,624,000	6,335,000	6,279,000	6,394,000	6,323,000	6,316,000	6,328,000	6,181,000	6,159,000	5,973,000

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

[a] The Federal Highway Trust Fund was created with the enactment of the Highway Revenue Act of 1956. The total receipts shown for 1995 are overstated by approximately $1.59 billion due to a fiscal year (FY) 1994 error by the Treasury Department in reconciling estimated deposits to the actual tax revenue. The correction was made after the close of FY1994 and is shown in FY1995 receipts.
[b] Figures obtained by addition/subtraction and may not appear directly in data source.

[c] Gross amounts collected by state governments from highway users. Does not include tolls. Not all revenues are allocated to highway expenditures.
[d] Includes distributor and dealer licenses, inspection fees, fines and penalties, and miscellaneous receipts.

[e] Includes driver licenses, title fees, special title taxes, fines and penalties; estimated service charges and local collections.

[f] Includes carrier gross receipt taxes; mileage, ton-mile and passenger-mile taxes; special license fees and franchise taxes; and certificate or permit fees.
[g] Mileage in federal parks, forests, and reservations that are not a part of the state and local highway system.
[h] Prior to 1999, mileage for municipal roads is included with the "other local roads" jurisdiction. Mileage for municipal roads is included in "Town, Township and Municipal Road" jurisdiction after 1999.
[i] Data for years 1994 and later are based on the North American Industry Classification System (NAICS). Prior to 1994, data are based on the Standard Industrial Classification System (SIC).

[j] Highway category classifications changed several times before 1980. Actual 1960 data categories were: Main Rural Roads, Local Rural Roads and Urban Streets; 1970 data categories were: Rural Interstate, Rural Other Arterial, Other Rural, Urban Interstate and Other Urban.

NOTES

Total system mileage may differ when categorized by ownership and functional system due to rounding at different levels of aggregation. Additionally, total system mileage categorized by surface type is based on sampling and is not comparable to the totals based on the other categorizations.

Motor vehicle injury and crash data in this profile come from the National Highway Traffic Safety Administration's General Estimates System (GES). The data fror GES, which began operation in 1988, are obtained from a nationally representative probability sample selected from all police-reported crashes, and the GES sample includes only crashes where a police accident report was completed and the crash resulted in property damage, injury, or death. The resulting figures do not take into account crashes which were not reported to the police or which did not result in at least property damage.

Earlier editions of NTS, particularly the 1993 Historical Compendium, used crash and injury figures estimated by the National Safety Council, which employed a different set of methods to arrive at its figures. Thus, the injury and crash figures in this edition of NTS may not be comparable with those found in earlier editions.
In 1998, FHWA instituted a new method of creating mileage based tables derived from the Highway Performance Monitoring System (HPMS). See Chapter 1 accuracy profiles for more information about the HPMS.

SOURCES
Unless otherwise noted, please refer to chapter tables for sources.
[1] 1960-94: U.S. Department of Transportation, Federal Highway Administration,*Highway Statistics, Summary to 1995*, FHWA-PL-97-009 (Washington, DC: July 1997), table HF-210.
1995-2006: Ibid.,*Highway Statistics* (Washington, DC: Annual issues), tables HF-10A and HF-10.
[2] 1960-95: Ibid.,*Highway Statistics, Summary to 1995*, FHWA-PL-97-009 (Washington, DC: July 1997), table MF-201.
1996-2006: Ibid., *Highway Statistics* (Washington, DC: Annual isssues), table MF-1.
[3] 1960-95: Ibid.,*Highway Statistics, Summary to 1995*, FHWA-PL-97-009 (Washington, DC: July 1997), table MV-202.
1996-2006: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table MV-2.
[4] 1960-70: *Highway Statistics, Summary to 1985* (Washington, DC: July 1997), table M-203.
1980-95: Ibid.,*Highway Statistics, Summary to 1995*, FHWA-PL-97-009 (Washington, DC: July 1997), table HM-210.
1996-2006: Ibid.,*Highway Statistics* (Washington, DC: Annual issues), table HM-10.

[5] 1960-95: Ibid.,*Highway Statistics, Summary to 1995*, FHWA-PL-97-009 (Washington, DC: July 1997), tables HM-212 and HM-220.
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[6] 1960-95: Ibid.,*Highway Statistics, Summary to 1995*, FHWA-PL-97-009 (Washington, DC: July 1997), table HM-212.
1996-2006: Ibid.,*Highway Statistics* (Washington, DC: Annual issues), table HM-12.
[7] 1960-90: U.S. Department of Commerce, U.S Census Bureau,*Statistical Abstract of the United States*, (Washington, DC: Annual issues), State and Local Government Section.
1994-2006: U.S. Department of Commerce, U.S. Census Bureau,*State and Local Government Employment and Payroll Data* (Washington, DC: Annual issues), Internet site http://www.census.gov/govs/www/apesstl.html as of Apr. 15, 2008.
[8] U.S. Department of Labor, Bureau of Labor Statistics, Internet site http://www.bls.gov/data/sa.htm as of Apr. 15, 2008.
[9] 1960-70: U.S. Department of Transportation, Federal Highway Administration,*Highway Statistics, Summary to 1985*, FHWA-PL-97-009 (Washington, DC: April 1987), table VM-201.
1980-2006: Ibid.,*Highway Statistics* (Washington, DC: Annual issues), tables VM-2 and VM-2A.
[10] 1960-90: Ibid.,*Highway Statistics, Summary to 1995*, FHWA-PL-97-009 (Washington, DC: July 1997), table VM-201A (total fuel consumed in thousands of gallons divided by 42).
1994-2006: Ibid.,*Highway Statistics* (Washington, DC: Annual issues), table VM-1 (total fuel consumed in thousands of gallons divided by 42).
[11] 1960-80: U.S. Department of Energy, Energy Information Administration,*State Energy Data Report* (Washington, DC: July 1982), p. 13.

1990-2006: U.S. Department of Energy, Energy Information Administration,*Petroleum Supply Annual: Volume 1* (Washington, DC: Annual issues), table 1.
[12] 1960-80: U.S. Department of Transportation, National Highway Traffic Safety Administration, National Center for Statistics and Analysis, NRD-30, personal communication.
1990-2006: Ibid.,*Traffic Safety Facts* (Washington, DC: Annual issues), tables 1 and 4.

Automobile Profile

FINANCIAL	1960	1970	1980	1990	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	(R) 2005	2006
Personal auto expenditures, total[a] ($ millions)	(R) 39,886	(R) 73,390	(R) 209,563	(R) 377,492	(R) 442,346	(R) 462,166	(R) 494,691	(R) 519,828	(R) 529,047	(R) 573,429	(R) 628,952	(R) 631,527	(R) 622,369	(R) 646,756	(R) 695,320	772,607	828,900
New and used cars[a,1]	16,600	26,700	57,200	119,000	133,200	132,600	136,000	139,400	147,300	158,400	164,300	162,900	162,100	152,000	152,600	161,600	165,100
Tires, tubes, accessories, and parts[1]	2,500	6,100	17,900	29,900	36,000	37,800	40,300	41,900	43,900	47,000	49,000	49,100	50,300	52,000	54,400	57,900	59,800
Gasoline and oil[1]	12,000	21,900	86,700	111,200	116,200	120,200	130,400	134,400	122,400	137,900	175,700	171,600	164,500	192,700	230,400	280,700	318,600
Tolls[1]	300	700	1,100	2,300	3,400	3,700	4,000	4,400	4,400	4,800	5,100	5,100	5,300	5,500	5,700	6,500	6,900
Insurance premiums less claims paid[1]	2,000	3,800	9,400	23,500	32,800	34,500	36,700	37,800	40,400	43,200	43,000	44,600	45,800	49,200	53,700	57,800	60,100
Repair, greasing, washing, parking, storage, rental, and leasing[1]	5,500	12,300	34,000	84,900	112,500	125,500	138,700	152,900	161,100	172,600	183,500	189,100	186,000	186,800	189,500	198,400	208,400
Auto registration fees[2]	867	1,668	2,893	6,054	7,423	7,043	7,698	8,163	8,630	8,625	7,607	8,278	7,415	7,478	7,826	8,484	8,774
Driver's license fees[2]	119	222	370	638	823	823	893	865	917	904	745	849	954	1,078	1,194	1,223	1,226
Taxi expenditures ($ millions)[1]	600	1,200	1,900	2,600	2,800	3,000	3,200	3,300	3,500	3,300	3,100	3,200	3,300	3,500	3,600	3,900	4,200
INVENTORY																	
Number of vehicle registrations																	
Passenger car[3]	61,671,390	89,243,557	121,600,843	133,700,496	127,883,469	128,386,775	129,728,341	129,748,704	131,838,538	132,432,044	133,621,420	137,633,467	135,920,677	135,669,897	136,430,651	136,568,083	135,399,945
Other 2-axle 4-tire vehicle[3]	e	14,210,591	27,875,934	48,274,555	62,903,589	65,738,322	68,933,798	70,224,082	71,330,205	75,356,376	79,084,979	84,187,636	85,011,305	87,186,663	91,845,327	95,336,839	99,124,775
Motorcycle[4]	574,032	2,824,098	5,693,940	4,259,462	3,756,555	3,897,191	3,871,237	3,826,373	3,879,450	4,152,433	4,346,068	4,903,056	5,004,156	5,370,035	5,767,934	6,227,146	6,686,147
Motor vehicle licensed drivers[5]	87,252,563	111,542,787	145,295,036	167,015,250	175,403,465	176,628,482	179,539,340	182,709,204	184,860,969	187,170,420	190,625,023	191,275,719	194,295,633	196,165,667	198,888,912	200,665,267	202,810,438
Number of employees[6] (based on SIC)																	
Taxicabs	120,700	106,400	52,500	32,400	30,800	30,700	30,500	30,600	31,200	31,600	31,900	31,800	30,800	N	N	N	N
Automotive dealers and service stations	1,267,200	1,617,400	1,688,500	2,063,100	2,116,200	2,189,600	2,266,700	2,310,800	2,332,300	2,368,100	2,409,600	2,424,800	2,432,200	N	N	N	N
Motor vehicles, parts, and supplies	N	N	434,300	456,000	471,400	492,100	502,800	513,000	516,600	523,700	516,800	502,100	498,000	N	N	N	N
Auto repair, services, and parking	N	N	570,900	913,700	968,300	1,020,100	1,080,000	1,119,600	1,145,200	1,196,400	1,234,200	1,257,200	1,263,200	N	N	N	N
Number of employees[7] (based on NAICS)																	
Taxi service	N	N	N	33,600	31,600	31,600	31,400	31,600	32,300	32,700	33,100	33,100	31,800	31,400	30,600	30,300	30,600
Wholesale motor vehicles and parts	N	N	N	309,400	319,900	334,600	342,500	350,200	353,600	359,500	355,700	347,300	345,600	342,100	340,700	344,200	349,200
Retail motor vehicle and parts dealers	N	N	N	1,494,400	1,564,700	1,627,100	1,685,600	1,723,400	1,740,900	1,796,600	1,846,900	1,854,600	1,879,400	1,882,900	1,902,300	1,918,600	1,907,900
Gasoline stations	N	N	N	910,200	902,300	922,300	946,400	956,200	961,300	943,500	935,700	925,300	895,900	882,000	875,600	871,100	861,000
Parking lots and garages	N	N	N	67,600	71,100	74,800	78,400	81,800	84,700	88,900	92,800	95,500	95,900	99,600	101,800	103,400	104,800
Automotive repair and maintenance	N	N	N	659,400	701,300	737,900	781,400	810,500	828,300	864,200	888,100	903,900	899,600	894,200	890,600	886,100	887,400
PERFORMANCE																	
Vehicle-miles, total (millions)	587,012	1,042,965	1,412,745	1,992,394	2,276,276	2,238,120	2,294,703	2,363,376	2,428,135	2,480,706	2,533,815	2,581,178	2,634,060	2,665,750	2,737,176	2,759,926	2,784,085
Passenger car, total[a, 8]	(c) 587,012	(c) 919,679	(c) 1,121,810	(c) 1,417,823	1,501,402	1,438,294	1,468,854	1,502,556	1,549,577	1,569,100	1,600,287	1,628,332	1,658,474	1,672,079	1,699,890	1,708,421	1,682,671
Rural highway, total	(c) 313,623	(c) 424,088	(c) 450,659	(c) 547,910	526,764	523,834	535,951	551,080	574,979	584,765	593,391	604,677	608,939	580,059	564,509	543,179	535,670
Rural interstate	N	(c) 62,342	(c) 89,488	(c) 117,519	119,535	114,933	119,268	120,045	127,335	130,856	134,466	135,966	138,819	132,101	129,415	122,789	122,337
Rural other arterial	(c) 233,452	(c) 182,213	(c) 180,857	(c) 211,066	212,418	210,553	216,074	220,180	228,847	231,117	234,743	236,337	238,009	225,437	217,495	210,331	206,708
Other rural roads	(c) 80,171	(c) 179,533	(c) 180,314	(c) 219,325	194,810	198,348	200,609	210,855	218,797	222,792	224,182	232,374	232,111	222,522	217,599	210,059	206,625
Urban highway, total[b]	(c) 273,389	(c) 495,591	(c) 671,151	(c) 869,912	974,638	914,460	932,903	951,476	974,598	984,335	1,006,896	1,023,655	1,049,535	1,092,020	1,135,381	1,165,242	1,147,001
Urban interstate	N	(c) 69,369	(c) 124,480	(c) 184,783	217,174	204,035	210,302	214,016	220,487	224,132	230,510	236,983	243,521	251,904	258,666	266,834	267,336
Other urban	N	(c) 426,222	(c) 546,671	(c) 685,129	757,465	710,425	722,601	737,460	754,111	760,203	776,386	786,672	806,014	840,117	876,715	898,408	879,665
Other 2-axle 4-tire vehicle, total[9]	e	123,286	290,935	574,571	764,634	790,029	815,936	850,739	868,275	901,022	923,059	943,207	966,034	984,094	1,027,164	1,041,051	1,089,013
Rural highway, total	e	73,591	149,560	227,831	285,325	295,472	306,891	327,316	334,806	351,658	360,355	374,736	384,185	372,891	374,515	361,562	372,940
Rural interstate	e	6,766	19,952	46,298	60,849	63,329	65,779	69,030	72,343	76,190	79,088	82,356	85,132	82,513	83,181	80,173	81,830
Rural other arterial	e	29,808	56,137	87,474	113,595	118,305	122,211	129,890	132,043	138,475	141,257	146,525	150,758	148,100	148,802	143,976	145,566
Other rural roads	e	37,017	73,471	94,059	110,881	113,838	118,901	128,396	130,420	136,993	140,010	145,855	148,295	142,278	142,532	137,413	145,544
Urban highway, total[b]	e	49,695	141,375	346,739	479,308	494,557	509,045	523,423	533,469	549,364	562,704	568,471	581,849	611,203	652,649	679,490	716,073
Urban interstate	e	6,252	23,067	71,500	105,317	109,807	112,908	116,680	121,700	124,399	128,291	127,989	130,174	142,472	155,714	160,470	166,637
Other urban	e	43,443	118,308	275,239	373,991	384,750	396,136	406,743	411,769	424,965	434,413	440,482	451,675	468,731	496,935	519,020	549,436
Motorcycle, total[a, 8]	f	f	f	f	10,240	9,797	9,913	10,081	10,283	10,584	10,469	9,639	9,552	9,577	10,122	10,454	12,401
Rural highway, total	f	f	f	f	4,402	4,098	4,070	4,147	4,279	4,448	4,507	4,383	4,445	4,289	4,381	4,335	4,750
Rural interstate	f	f	f	f	1,279	1,058	1,056	1,050	1,112	1,100	1,164	1,121	1,212	1,279	1,354	1,356	1,425
Rural other arterial	f	f	f	f	1,698	1,510	1,500	1,552	1,588	1,662	1,680	1,649	1,623	1,472	1,435	1,413	1,628
Other rural roads	f	f	f	f	1,425	1,530	1,513	1,545	1,579	1,686	1,663	1,613	1,610	1,538	1,593	1,566	1,696
Urban highway, total[b]	f	f	f	f	5,838	5,699	5,843	5,934	6,004	6,136	5,962	5,256	5,107	5,288	5,741	6,120	7,652
Urban interstate	f	f	f	f	1,420	1,454	1,516	1,509	1,579	1,690	1,692	1,546	1,670	1,962	2,089	2,270	2,509
Other urban	f	f	f	f	4,418	4,245	4,327	4,425	4,425	4,446	4,270	3,710	3,437	3,326	3,652	3,849	5,143

Passenger-miles, total (millions)[3]	1,145,000	1,979,787	2,545,020	3,037,244	3,623,364	3,553,810	3,643,719	3,752,829	3,855,696	3,939,137	4,023,637	4,247,094	4,307,312	4,360,151	4,479,453	2,699,305	2,658,621
Passenger cars	(a,c) 1,145,000	(a.c) 1,754,174	(a,c) 2,024,246	(c) 2,140,913	(c) 2,600,050	2,286,887	2,335,478	2,389,065	2,463,828	2,494,870	2,544,457	2,556,481	2,620,389	2,641,885	2,685,827	2,699,305	2,658,621
Other 2-axle 4-tire vehicle	e	225,613	520,774	896,331	1,012,050	1,256,146	1,297,337	1,352,675	1,380,557	1,432,625	1,467,664	1,678,853	1,674,792	1,706,103	1,780,771	1,804,848	1,887,997
Motorcycle	f	f	f	f	11,264	10,777	10,904	11,089	11,311	11,642	11,516	11,760	12,131	12,163	12,855	13,277	15,750
Average miles traveled per vehicle[3]																	
Passenger car	(c) 9,518	(c) 9,989	(c) 8,813	(c) 10,277	(c) 10,759	11,203	11,323	11,581	11,754	11,848	11,976	11,831	12,202	12,325	12,460	12,510	12,427
Other 2-axle 4-tire vehicle	e	8,676	10,437	11,902	12,156	12,018	11,837	12,115	12,173	11,957	11,672	11,204	11,364	11,287	11,184	10,920	10,986
Motorcycle	f	f	f	f	2,726	2,514	2,561	2,635	2,651	2,549	2,409	1,966	1,909	1,783	1,755	1,679	1,855
Fuel consumed (million gallons)[3]																	
Passenger cars	(c) 41,171	(c) 67,879	(c) 70,186	(c) 69,759	(c) 68,079	68,072	68,897	69,892	71,695	73,283	73,065	73,559	75,471	75,455	75,402	77,418	74,983
Other 2-axle 4-tire vehicle	e	12,313	23,796	35,611	44,112	45,605	47,133	49,388	50,462	52,859	52,939	53,522	55,220	60,758	63,417	58,869	60,662
Motorcycle	f	f	f	f	205	196	198	202	206	212	209	193	191	192	202	189	221
Average fuel consumption per vehicle (gallons)[3]																	
Passenger cars	(c) 668	(c) 737	(c) 551	(c) 506	(c) 517	530	531	539	544	553	547	534	555	556	553	567	554
Other 2-axle 4-tire vehicle	e	866	854	738	701	694	684	703	707	701	669	636	650	697	690	617	612
Motorcycle	f	f	f	f	55	50	51	53	53	51	48	39	38	36	35	30	33
Average miles traveled per gallon of fuel consumed[3]																	
Passenger cars	(c) 14	(c) 14	(c) 16.0	(c) 20.3	(c) 21	21.1	21.3	21.5	21.6	21.4	21.9	22.1	22.0	22.2	22.5	22	22
Other 2-axle 4-tire vehicle	e	10.0	12.2	16.1	17.3	17.3	17.3	17.2	17.2	17.0	17.4	17.6	17.5	16.2	16.2	18	18
Motorcycle	f	f	f	f	50	50	50	50	50	50	50	50	50	50	50	55	56
SAFETY[10]																	
Number of occupants and nonoccupant fatalities																	
Passenger car	N	N	27,449	24,092	21,997	22,423	22,505	22,199	21,194	20,862	20,699	20,320	20,569	19,725	19,192	18,512	17,800
Light Truck	N	N	7,486	8,601	8,904	9,568	9,932	10,249	10,705	11,265	11,526	11,723	12,274	12,546	12,674	13,037	12,721
Motorcycle	790	2,280	5,144	3,244	2,320	2,227	2,161	2,116	2,294	2,483	2,897	3,197	3,270	3,714	4,028	4,576	4,810
Bicycle[d]	490	760	965	859	802	833	765	814	760	754	693	732	665	629	727	786	773
Pedestrian[d]	7,210	8,950	8,070	6,482	5,489	5,584	5,449	5,321	5,228	4,939	4,763	4,901	4,851	4,774	4,675	4,892	4,784
Occupant fatality rates																	
Per 100 million vehicle-miles[9]																	
Passenger car	4.7	3.8	2.5	1.7	1.5	1.5	1.5	1.5	1.4	1.3	1.3	1.3	1.3	1.2	1.2	1.2	1.1
Light Truck	N	N	2.5	1.6	1.3	1.3	1.3	1.2	1.2	1.3	1.2	1.2	1.2	1.2	1.2	1.2	1.1
Motorcycle	N	76.5	50.4	33.9	22.7	22.7	21.8	21.0	22.3	23.5	27.7	33.2	34.2	38.8	39.8	43.8	38.8
Per 10,000 registered vehicles																	
Passenger car	5.1	3.9	2.6	2.0	1.8	1.8	1.8	1.8	1.7	1.6	1.6	1.6	1.6	1.5	1.4	1.4	1.3
Light Truck	N	N	2.5	1.7	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.4	1.4	1.3
Motorcycle	13.8	8.1	9.0	7.6	6.2	5.7	5.6	5.5	5.9	6.0	6.7	6.5	6.5	6.9	7.0	7.3	7.2
Fatal Crashes																	
Total Fatal Crashes	U	U	U	39,836	36,254	37,241	37,494	37,324	37,107	37,140	37,526	37,862	38,491	38,477	38,444	39,252	38,588
Number of vehicles involved in fatal crashes																	
Passenger car	U	U	39,059	34,085	30,273	30,940	30,727	30,059	29,040	28,027	27,802	27,586	27,374	26,562	25,682	25,169	24,087
Light Truck	U	U	12,680	15,620	16,353	17,587	18,246	18,628	19,363	19,959	20,498	20,831	21,668	22,299	22,486	22,964	22,290
Motorcycles	U	U	5,194	3,276	2,339	2,268	2,176	2,160	2,334	2,532	2,975	3,265	3,365	3,802	4,121	4,682	4,935
Vehicle involvement rate (fatal crashes)																	
Per 100 million vehicle-miles																	
Passenger car	N	5.6	3.5	2.4	2.1	2.1	2.1	2.0	1.9	1.8	1.8	1.7	1.7	1.7	1.6	1.6	1.5
Light Truck	N	N	4.3	2.8	2.3	2.4	2.3	2.3	2.3	2.2	2.2	2.1	2.1	2.1	2.1	2.0	1.9
Motorcycle	N	22.9	50.9	34.3	22.8	23.2	21.9	21.4	22.7	23.9	28.4	33.9	35.2	39.7	40.7	44.8	39.8
Per 10,000 registered vehicles																	
Passenger car	N	5.6	3.7	2.8	2.5	2.5	2.5	2.4	2.3	2.2	2.2	2.1	2.1	2.0	1.9	1.9	1.8
Light Truck	N	N	4.2	3.1	2.7	2.8	2.8	2.8	2.8	2.7	2.7	2.6	2.6	2.6	2.5	2.4	2.3
Motorcycle	N	8.2	9.1	7.7	6.2	5.8	5.6	5.6	6.0	6.1	6.8	6.7	6.7	7.1	7.1	7.5	7.4

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

NOTES

[a] Figures obtained by addition / subtraction and may not appear directly in data source.
[b] Urban consists of travel on all roads and streets in urban places of 5,000 or greater population.
[c] Includes motorcycle data.
[d] Involvement only with motor vehicle.
[e] Included in single-unit 2-axle 6-tire or more truck category.
[f] Included in passenger cars.
[g] Rates come directly from the source and may differ slightly from rates that could be calculated from the information displayed in this table.

Truck Profile

FINANCIAL	1960	1970	1980	1990	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Operating revenues, total[a] (based on SIC) ($ millions)	N	N	N	127,314	155,713	161,806	172,743	183,153	197,490	N	N	N	N	N	N	N	N
Local trucking	N	N	N	31,397	40,903	43,830	46,589	49,972	55,553	N	N	N	N	N	N	N	N
Trucking, except local	N	N	N	74,465	89,369	91,675	97,586	103,847	109,351	N	N	N	N	N	N	N	N
Local trucking with storage	N	N	N	4,115	4,757	5,154	5,502	5,860	6,144	N	N	N	N	N	N	N	N
Courier services, except by air	N	N	N	17,337	20,684	21,147	23,066	23,474	26,442	N	N	N	N	N	N	N	N
Operating expenses, total[a] (based on SIC) ($ millions)	N	N	N	118,968	145,216	151,628	162,825	170,998	179,907	N	N	N	N	N	N	N	N
Local trucking	N	N	N	28,049	36,455	38,695	41,325	43,871	47,478	N	N	N	N	N	N	N	N
Trucking, except local	N	N	N	70,965	84,682	88,061	94,390	98,570	101,584	N	N	N	N	N	N	N	N
Local trucking with storage	N	N	N	3,885	4,543	4,817	5,121	5,439	5,638	N	N	N	N	N	N	N	N
Courier services, except by air	N	N	N	16,069	19,536	20,055	21,989	23,118	25,207	N	N	N	N	N	N	N	N
Operating revenues, total[b] (based on NAICS) ($ millions)	N	N	N	N	N	N	N	N	(R) 197,314	(R) 207,751	(R) 223,197	(R) 221,355	(R) 222,383	(R) 228,311	(R) 248,191	273,574	291,316
Truck transportation	N	N	N	N	N	N	N	N	(R) 148,121	(R) 155,871	(R) 165,421	(R) 162,871	(R) 164,218	(R) 168,486	(R) 185,945	206,550	219,539
Couriers and messengers	N	N	N	N	N	N	N	N	49,193	(R) 51,880	57,776	58,484	58,165	59,825	62,246	67,024	71,777
Truck highway-user taxes, total[c] ($ millions)	2,830	5,632	9,888	19,356	23,836	25,117	U	28,010	28,697	30,502	31,769	30,689	30,216	31,266	32,780	35,178	37,351
State	1,709	3,429	6,731	12,691	13,157	13,844	U	15,750	15,611	16,266	16,476	17,686	16,566	14,312	17,923	18,632	19,573
Federal	1,121	2,203	3,157	6,665	10,679	11,273	U	12,260	13,086	14,236	15,293	13,003	13,650	16,954	14,857	16,546	17,778
INVENTORY																	
Number of truck registrations, total	11,914,249	4,586,487	5,790,653	6,195,876	6,587,885	6,719,421	7,012,615	7,083,326	7,732,270	7,791,426	8,022,649	7,857,675	7,927,280	(R) 7,756,888	8,171,363	8,481,999	8,819,007
Single-unit truck	N	3,681,405	4,373,784	4,486,981	4,906,385	5,023,670	5,266,029	5,293,358	5,734,925	5,762,864	5,926,030	5,703,501	5,650,619	(R) 5,848,523	6,161,028	6,395,240	6,649,337
Combination truck	N	905,082	1,416,869	1,708,895	1,681,500	1,695,751	1,746,586	1,789,968	1,997,345	2,028,562	2,096,619	2,154,174	2,276,661	(R) 1,908,365	2,010,335	2,086,759	2,169,670
Number of employees																	
Trucking and courier services, except air (based on SIC)	N	998,500	1,182,000	1,273,900	1,384,200	1,440,000	1,482,100	1,514,200	1,568,800	1,613,700	1,630,500	1,619,800	1,590,000	N	N	N	N
Truck transportation (based on NAICS)	N	N	N	1,122,400	1,206,200	1,249,100	1,282,400	1,308,200	1,354,400	1,391,500	1,405,800	1,386,800	1,339,300	(R) 1,325,600	(R) 1,351,700	1,397,600	1,435,800
Couriers and messengers (based on NAICS)	N	N	N	375,000	466,200	516,800	539,900	546,000	568,200	585,900	605,000	587,000	560,900	(R) 561,700	(R) 556,600	571,400	582,400
Truck drivers and sales workers[d] (based on NAICS)	1,477,000	1,565,000	1,931,000	2,148,000	2,321,000	2,861,000	2,542,000	2,602,000	3,012,000	3,028,660	2,983,950	2,992,700	2,867,530	2,869,770	2,899,010	2,963,550	3,012,220
Number of trucking and courier establishments[a]	N	64,756	69,796	90,709	108,971	112,887	116,861	121,111	119,572	120,687	122,713	122,669	124,481	125,744	128,121	131,086	134,053
PERFORMANCE																	
Vehicle-miles,total rural and urban (millions)	127,404	62,215	108,491	146,242	170,216	178,156	182,971	191,477	196,380	202,688	205,520	209,032	214,603	217,917	(R) 220,811	222,524	223,037
Rural highway, total	84,508	39,244	68,776	89,692	100,865	106,031	109,480	114,698	115,142	117,941	120,410	122,736	125,884	123,689	(R) 121,330	119,684	120,086
Rural interstate	N	10,069	25,111	35,789	40,034	43,351	45,721	49,336	49,896	51,049	52,484	53,225	54,503	52,925	(R) 51,296	51,378	51,385
Rural other arterial	N	17,625	24,789	31,331	35,040	37,056	37,875	39,193	39,724	40,691	41,649	41,838	42,436	41,342	(R) 40,690	39,762	39,626
Other rural roads	N	11,550	18,876	22,572	25,791	25,624	25,884	26,169	25,522	26,201	26,277	27,673	28,945	29,422	(R) 29,344	28,544	29,075
Urban highway, total[e]	42,896	22,971	39,715	56,550	69,351	72,125	73,491	76,779	81,238	84,747	85,110	86,296	88,719	94,227	(R) 99,481	102,840	102,951
Urban interstate	N	5,634	13,135	22,163	25,045	25,639	26,256	28,549	30,193	32,286	32,181	32,690	33,040	35,487	(R) 38,083	40,289	39,731
Other urban streets	N	17,337	26,580	34,387	44,306	46,486	47,235	48,230	51,045	52,461	52,929	53,606	55,679	58,740	(R) 61,398	62,551	63,220
Passenger-miles, total[f] (millions)	127,405	62,215	108,491	146,242	170,216	178,156	182,971	191,477	196,380	202,688	205,520	209,032	214,603	217,917	(R) 220,811	222,524	223,037
Single-unit truck[g]	98,551	27,081	39,813	51,901	61,284	62,705	64,072	66,893	68,021	70,304	70,500	72,448	75,866	77,757	(R) 78,441	78,496	80,331
Combination truck	28,854	35,134	68,678	94,341	108,932	115,451	118,899	124,584	128,359	132,384	135,020	136,584	138,737	140,160	(R) 142,370	144,028	142,706
Ton-miles (millions)	U	U	(R) 629,675	(R) 848,779	(R) 987,923	(R) 1,034,041	(R) 1,061,952	(R) 1,110,554	(R) 1,139,777	(R) 1,176,388	(R) 1,192,825	(R) 1,213,208	(R) 1,245,542	(R) 1,264,773	1,281,573	1,291,515	1,294,492
Fuel consumed, all trucks (million gallons)	15,882	11,316	19,960	24,490	27,685	28,993	29,601	29,878	31,975	33,909	35,229	35,179	36,800	32,696	(R) 33,150	37,190	37,918
Single-unit truck	N	3,968	6,923	8,357	9,032	9,216	9,409	9,576	6,817	9,372	9,563	9,667	10,321	8,880	(R) 8,959	9,501	9,843
Combination truck	N	7,348	13,037	16,133	18,653	19,777	20,192	20,302	25,158	24,537	25,666	25,512	26,480	23,815	(R) 24,191	27,689	28,075
Average fuel consumption per vehicle, all trucks (gallons)	1,333	2,467	3,447	3,953	4,202	4,315	4,221	4,218	4,135	4,352	4,391	4,477	4,642	4,215	(R) 4,057	4,385	4,300
Single-unit truck	N	1,078	1,583	1,862	1,841	1,835	1,787	1,809	1,189	1,626	1,614	1,695	1,826	1,518	(R) 1,454	1,486	1,480
Combination truck	N	8,119	9,201	9,441	11,093	11,663	11,561	11,342	12,596	12,096	12,241	11,843	11,631	12,479	(R) 12,033	13,269	12,940
Average miles traveled per gallon of fuel consumed, all trucks	8.0	5.5	5.4	6.0	6.1	6.1	6.2	6.4	6.1	6.0	5.8	5.9	5.8	6.7	6.7	6.0	5.9
Single-unit truck	N	6.8	5.8	6.2	6.8	6.8	6.8	7.0	10.0	7.5	7.4	7.5	7.4	8.8	8.8	8.3	8.2
Combination truck	N	4.8	5.3	5.8	5.8	5.8	5.9	6.1	5.1	5.4	5.3	5.4	5.2	5.9	5.9	5.2	5.1
Average miles traveled per vehicle, all trucks	10,693	13,565	18,736	23,603	25,838	26,514	26,092	27,032	25,397	26,014	25,617	26,602	27,071	28,093	(R) 27,023	26,235	25,290
Single-unit truck	N	7,356	9,103	11,567	12,491	12,482	12,167	12,637	11,861	12,199	11,897	12,702	13,426	13,295	(R) 12,732	12,274	12,081
Combination truck	N	38,819	48,472	55,206	64,783	68,083	68,075	69,601	64,265	65,260	64,399	63,404	60,939	73,445	(R) 70,819	69,020	65,773
Average length of haul (domestic freight) (miles)	272	263	363	391	392	416	426	435	442	458	473	485	U	U	U	U	U
SAFETY																	
Occupant fatalities, large truck	N	N	1,262	705	670	648	621	723	742	759	754	708	689	726	(R) 766	804	805
Occupant fatality rate																	
Per 100 million vehicle-miles, large truck	N	N	1.2	0.5	0.4	0.4	0.3	0.4	0.4	0.4	0.4	0.3	0.3	0.3	(R) 0.4	0.4	0.4
Per 10,000 registered vehicles, large truck	N	N	2.2	1.1	1.0	1.0	0.9	1.0	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Vehicle involvement rate (fatal crashes)																	
Per 100 million vehicle-miles, large truck	N	N	5.0	3.3	2.7	2.5	2.6	2.6	2.5	2.4	2.4	2.3	2.1	2.2	2.2	2.2	2.1
Per 10,000 registered vehicles, large truck	N	N	9.3	7.7	7.0	6.7	6.8	6.9	6.4	6.3	6.2	6.1	5.8	6.1	6.0	5.8	5.4

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

[a] **Local trucking (SIC 4212)** - Establishments primarily engaged in furnishing trucking or transfer services without storage for freight generally weighing more than 100 pounds.

Trucking, except local (SIC 4213) - Establishments primarily engaged in furnishing "over-the-road" trucking services or trucking services and storage services, including household goods either as common carriers or under special or individual contracts or agreements, for freight generally weighing more than 100 pounds.

Local trucking, without storage (SIC 4214) - Establishments primarily engaged in furnishing both trucking and storage services, including household goods.

Courier services, except by air (SIC 4215) - Establishments primarily engaged in the delivery of individually addressed letters, parcels, and packages (generally under 100 pounds).

[b] **Truck transportation (NAICS 484)** - Industries primarily engaged in over-the-road transportation of cargo using motor vehicles, truck-tractors, and trailers.

Couriers and messengers (NAICS 492) - Establishments primarily engaged in providing air, surface, or combined courier delivery services of parcels or primarily engaged in furnishing local messenger and delivery services of small items within a single metropolitan area or urban center.

[c] Numbers may not equal totals due to rounding.

[d] In 1999, the Occupational Employment Statistics survey began using the Standard Occupational Classification (SOC) system to organize occupational data. Therefore, estimates from 1999 and subsequent years are not directly comparable to previous occupational data.

[e] Urban consists of travel on all roads and streets in urban places of 5,000 or greater population.

[f] As cited on the Federal Highway Administration (FHWA), highway passenger-miles are calculated by multiplying vehicle-miles of travel and the average number of occupants for each vehicle type.

[g] Includes other 2-axle 4-tire vehicle in 1960.

NOTES

In 1995, FHWA revised its vehicle type categories. These new categories include passenger car, other 2-axle 4-tire vehicle, single-unit 2-axle 6-tire or more truck, and combination truck. Other 2-axle 4-tire vehicles include vans, pickup trucks, and sport/utility vehicles. In previous years, some minivans and sport/utility vehicles were included in the passenger car category. Single-unit 2-axle 6-tire or more trucks are on a single frame with at least 2 axles and 6 tires. Occupant fatality rate (OFR) for Light Trucks has been removed, but that it is in the Automobile profile. The remaining fatality rates are calculated by NHTSA and may be different from what would be calculated from the data presented.

SOURCES

Unless otherwise noted, refer to chapter tables for sources.

Operating revenues, total and Operating expenses, total (based on SIC):

U.S. Census Bureau, *Transportation Annual Survey* (Washington, DC: December 1998), table 1.

Operating revenues, total (based on NAICS):

Ibid., Service Annual Survey, 2006 (Washington, DC: Annual issues), table 2.1 and similar tables in earlier editions, available at http://www.census.gov/svsd/www/services/sas/sas_data/sas48.htm as of May 2008.

Truck highway-user taxes:

1960-1999: American Trucking Association, American Trucking Trends, (Washington, DC: Annual issues).

2000-2006: American Trucking Association, *American Trucking Trends* unpublished data, personal communication, June 30, 2008.

Number of truck registrations:

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

1995-2006: Ibid., Federal Highway Administration, *Highway Statistics* (Washington, DC: Annual issues), table VM-1.

Number of employees: Trucking and courier services, except air (based on SIC):

1960-90: U.S. Department of Labor, Bureau of Labor Statistics, *Employment, Hours and Earnings*, United States, 1909-1994 (Washington, DC: September 1994), SIC 421.

1994-2006: Ibid., *Employment, Hours and Earnings* available at www.bls.gov as of May 23, 2008, SIC 421.

Number of employees: Truck transportation (based on NAICS) and Couriers and messengers (based on NAICS):

1990-2006: U.S. Department of Labor, Bureau of Labor Statistics, Database and Tables, available at http://www.bls.gov/data/sa.htm as of May 2008; NAICS codes "484 Truck transportation" and "492 Couriers and messengers."

Number of employees: Truck drivers and sales workers (based on NAICS):

1960-2001: Eno Transportation Foundation, Inc., *Transportation in America*, 2000 (Washington, DC: 2001), p. 35.

2002-06: U.S. Department of Labor, Bureau of Labor Statistics, Occupational Employment Statistics, *Occupational Employment and Wages, 2003* (Washington, DC: November 2003), available at http://www.bls.gov/oes as of May 21, 2008.

Number of trucking and courier establishments:

U.S. Bureau of the Census, *County Business Patterns* (Washington, DC: Annual issues), NAICS 484 and 492/SIC 421, available at http://censtats.census.gov/cbpnaic/cbpnaic.shtml as of December 2008.

Vehicle-miles, total rural and urban:

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

1995-2006: Ibid. Federal Highway Administration, *Highway Statistics* (Washington, DC: Annual issues), table VM-1.

Ton-miles:

1960-70: Eno Transportation Foundation, Inc., *Transportation in America*, 2000 (Washington, DC: 2001), p. 12.

1980-2006: U.S. Department of Transportation, Bureau of Transportation Statistics, special tabulation, as of October, 2008.

Fuel consumed, Average fuel consumption per vehicle, Average miles traveled per gallon of fuel consumed, and Average miles traveled per vehicle:

1960: Ibid., *Transportation in America*, 2000 (Washington, DC: 2001), p. 35.

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

1995-2006: Ibid.Federal Highway Administration, *Highway Statistics* (Washington, DC: Annual issues), table VM-1.

Average length of haul:

Eno Transportation Foundation, Inc., *Transportation in America*, 2001 (Washington, DC: 2001), p.65.

Safety:

U.S. Department of Transportation, National Highway Traffic Safety Administration, *Traffic Safety Facts 2006*, DOT HS 810 818 (Washington, DC: Annual issues), tables 3, 8 and 9, May 29, 2008.

Bus Profile

FINANCIAL	1960	1970	1980	1990	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Expenditures ($ thousands)																	
School bus[1]	486,000	1,219,000	3,833,000	8,031,000	7,847,000	9,889,000	9,082,000	10,353,000	10,326,000	10,340,000	12,104,000	12,624,000	U	U	U	U	U
Operating revenues ($ thousands)																	
Intercity bus, Class I[2,a]	463,100	721,700	1,397,378	943,268	1,161,479	1,189,235	985,537	1,080,083	1,074,582	1,326,909	1,133,822	1,117,526	1,120,422	1,345,056	U	U	U
Operating expenses ($ thousands)																	
Intercity bus, Class I[2,a]	405,400	639,000	1,318,372	1,026,213	1,289,834	1,253,537	941,014	1,022,680	1,016,208	1,313,900	1,078,386	1,080,186	1,092,596	1,321,407	U	U	U
INVENTORY																	
Number of operating companies																	
Intercity bus, Class I[2,a]	143	71	61	31	26	24	20	22	20	18	15	15	16	36			
Number of vehicles, all buses[3]	272,129	377,562	528,789	626,987	670,423	685,503	694,781	697,548	715,540	728,777	746,125	749,548	760,717	776,550	795,274	807,053	U
Number of employees[4] (SIC based)																	
Intercity and rural bus transportation	40,500	43,400	37,900	26,100	23,600	23,800	23,800	22,200	24,400	23,800	24,700	25,100	23,000	N	N	N	N
School buses	N	N	79,900	111,200	125,900	131,100	132,200	136,500	141,000	146,100	146,700	147,700	148,700	N	N	N	N
Number of employees[5] (NAICS based)																	
Interurban and rural bus transportation	38,200	40,900	35,800	24,600	22,300	22,500	22,500	21,000	23,000	22,500	23,400	23,600	22,800	(R) 21,900	20,100	20,200	19,600
School and employee bus transportation	N	N	81,400	114,200	130,000	135,500	136,900	141,500	146,200	151,400	152,000	153,000	161,100	(R) 164,800	166,600	168,800	169,600
Charter bus industry	N	N	14,800	26,100	28,300	29,200	31,000	32,000	33,900	36,100	38,200	36,800	35,500	(R) 33,200	32,200	31,400	30,300
PERFORMANCE																	
Vehicle-miles, all buses (millions)[6]	4,346	4,544	6,059	5,726	6,409	6,420	6,538	6,842	7,007	7,662	7,590	7,077	6,845	6,783	6,801	6,646	U
Rural highway, total	2,332	2,549	3,035	3,444	3,730	3,854	3,933	4,109	4,251	4,667	4,489	4,165	3,941	3,806	3,691	3,589	U
Interstate rural	N	339	533	567	683	711	742	794	834	971	978	951	943	995	999	971	U
Other arterial rural	N	944	991	995	1,154	1,171	1,186	1,243	1,282	1,375	1,270	1,133	1,104	1,001	992	961	U
Other rural	N	1,266	1,511	1,882	1,893	1,972	2,005	2,072	2,135	2,321	2,241	2,081	1,894	1,810	1,700	1,658	U
Urban highway[b], total	2,014	1,995	3,024	2,283	2,679	2,566	2,605	2,733	2,756	2,995	3,101	2,912	2,904	2,977	3,110	3,057	U
Interstate urban	N	277	560	455	627	580	598	647	663	752	791	775	803	943	986	964	U
Other urban	N	1,718	2,464	1,828	2,052	1,986	2,007	2,086	2,093	2,243	2,310	2,137	2,101	2,033	2,124	2,093	U
Passenger-miles (millions), all buses[6]	N	N	N	121,398	135,871	136,104	138,613	145,060	148,558	162,445	160,919	150,042	145,124	143,801	144,188	140,910	U
Number of revenue passengers (thousands)																	
Intercity bus, total[1]	366,000	401,000	370,000	334,000	343,200	366,500	347,900	350,600	357,600	358,900	364,600	356,900	U	U	U	U	U
Average miles traveled per vehicle, all buses[6]	15,970	12,035	11,458	9,133	9,560	9,365	9,386	9,809	9,793	10,515	10,173	9,442	8,998	8,734	8,552	8,235	U
Fuel consumed (million gallons), all buses[6]	827	820	1,018	895	964	968	985	1,027	1,040	1,148	1,112	1,026	1,000	969	1,360	1,329	U
Average fuel consumption per vehicle (gallons), all buses[6]	3,039	2,172	1,925	1,427	1,438	1,412	1,414	1,472	1,454	1,576	1,490	1,369	1,314	1,248	1,710	1,647	U
Average miles traveled per gallon of fuel consumed, all buses[6]	5.3	5.5	6.0	6.4	6.6	6.6	6.6	6.7	6.7	6.7	6.8	6.9	6.8	7	5.0	5.0	U
Average revenue per passenger-mile (cents) (intercity)[1]	2.71	3.60	7.26	11.55	11.61	12.19	12.30	12.56	12.75	12.76	12.79	12.91	U	U	U	U	U
SAFETY																	
Number of fatalities[7]																	
School bus-related	N	N	150	115	107	123	136	131	128	167	147	141	129	138	130	134	U
School bus occupants	N	N	9	11	4	13	10	10	6	10	21	18	3	11	7	10	U
Other vehicle																	
Occupants	N	N	88	64	64	72	101	97	91	127	99	95	100	99	90	87	U
Nonoccupants	N	N	53	40	39	38	25	24	31	30	27	28	26	28	33	37	U
Occupant fatalities, all buses[7]	N	N	46	32	21	33	21	18	38	59	22	34	45	41	42	58	27
School buses	N	N	14	13	2	12	10	8	6	8	16	16	2	7	7	8	U
Cross country buses	N	N	23	2	7	6	3	5	13	32	3	3	20	3	23	33	U
Transit buses	N	N	6	3	6	1	5	3	2	6	1	4	6	11	1	3	U
Other and unknown	N	N	3	14	6	14	3	2	17	13	2	11	17	19	10	14	U
Fatalities in vehicular accidents[c], all buses[8]	N	N	390	340	286	311	367	339	329	373	(R) 357	(R) 331	(R) 331	(R) 337	(R) 315	(R) 340	331
Occupant fatality rate																	
Per 100 million vehicle-miles, all buses[6, 7]	N	N	0.8	0.6	0.3	0.5	0.3	0.3	0.5	0.8	0.3	0.5	0.7	0.6	0.6	0.9	U
Per 10,000 registered vehicles, all buses[3, 7]	N	N	0.9	0.5	0.3	0.5	0.3	0.3	0.5	0.8	0.3	0.5	0.6	0.5	0.5	0.7	U
Vehicle involvement rate (fatal crashes)																	
Per 100 million vehicle-miles, all buses[6, 8]	N	N	6.4	5.9	4.5	4.8	5.6	5.0	4.7	4.9	3.8	3.1	5.0	4.3	4.1	4.2	U
Per 10,000 registered vehicles, all buses[3, 8]	N	N	7.4	5.4	4.3	4.5	5.3	4.9	4.6	5.2	3.9	2.9	4.5	3.7	3.5	3.5	U

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

[a] In 2003, the Federal Motor Carrier Safety Administration implemented a program to improve reporting by Class I intercity bus carriers. This accounts for the large increase in the number of operating companies between 2002 and 2003, and as a result the large increase in operating revenues and expenses.

[b] Urban consists of travel on all roads and streets in urban places of 5,000 or greater population.

[c] Includes all fatalities that occurred in an accident in which a bus was involved.

NOTE

See transit profile for transit bus data.

SOURCES

Unless otherwise noted, refer to chapter tables for source

[1] Eno Transportation Foundation, Inc., *Transportation In America, 19th edition* (Washington, DC: 2002), p. 40, 46, and 48.

[2] 1960-95: Interstate Commerce Commission, *Annual Report of the ICC* (Washington, DC: Annual issues), Appendix F, tables 1 and 6. 1996-2002: U.S. Department of Transportation, Bureau of Transportation Statistics, *Selected Earnings Data, Class I Motor Carriers of Passengers* (Washington, DC: Annual issues). 2003: U.S. Department of Transportation, Federal Motor Carrier Safety Administration, personal communication as of Feb. 16, 2005.

[3] U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics* (Washington, DC: Annual issues), table MV-10.

[4] 1960-2002: U.S. Department of Labor, Bureau of Labor Statistics, *Employment, Hours, and Earnings from the Current Employment Statistics Survey*, Internet site http://www.bls.gov/data/archived.htm as of January 2005; SIC codes: "413 Intercity and rural bus transportation" and "415 School buses."

[5] 1960-2006: U.S. Department of Labor, Bureau of Labor Statistics, *Employment, Hours, and Earnings from the Current Employment Statistics Survey*, Internet site http://www.bls.gov/data/sa.htm as of October 2007; NAICS codes: "4852 Interurban and rural bus transportation," "4854 School and employee bus transportation," and "4855 Charter bus industry."

[6] 1960-95: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics, Summary to 1995,* FHWA-PL-97-009 (Washington, DC: July 1997), table VM-201A. 1996-2005: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1.

[7] 1980-98: Ibid., National Highway Traffic Safety Administration, *Traffic Safety Facts 1998,* DOT HS 808 983 (Washington, DC: October 1999), tables 74 and 93. 1999-2005: Ibid., *Traffic Safety Facts 2005*, DOT HS 809 775 (Washington, DC: January 2007).

[8] Ibid., Fatality Analysis Reporting System (FARS) Query, Internet site, http://www-fars.nhtsa.dot.gov as of Dec. 2007.

Transit Profile

FINANCIAL	1960	1970	1980	1990	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Passenger operating revenues[1], total ($ millions)	1,407	1,707	6,510	16,053	17,968	18,241	19,151	19,515	21,062	22,220	24,243	25,288	26,632	28,021	29,718	31,708	U
Operating revenues, total	1,407	1,707	2,805	6,786	9,027	9,613	10,345	10,854	11,654	11,930	12,963	12,471	13,251	14,215	14,735	15,252	U
Passenger fares, total	1,335	1,639	2,556	5,891	6,756	6,801	7,416	7,546	7,970	8,282	8,746	8,891	8,649	9,149	9,775	10,269	U
Motor bus	N	N	N	2,967	3,250	3,287	3,515	3,558	3,991	4,175	4,376	4,357	4,106	4,270	4,547	4,764	U
Heavy rail	N	N	N	1,741	1,976	2,018	2,322	2,351	2,297	2,323	2,483	2,533	2,493	2,654	2,903	3,007	U
Light rail	N	N	N	83	135	127	144	139	150	164	181	204	226	229	233	249	U
Trolley bus	N	N	N	46	55	54	55	57	55	60	60	60	59	54	55	57	U
Demand responsive	N	N	N	41	171	146	157	170	142	159	172	182	194	244	254	286	U
Ferryboat[a]	N	N	N	56	41	60	54	51	41	48	60	71	78	99	111	114	U
Commuter rail	N	N	N	952	1,083	1,078	1,146	1,178	1,255	1,309	1,375	1,439	1,447	1,552	1,615	1,728	U
Other[b]	N	N	N	6	46	31	24	43	38	46	41	47	46	47	57	64	U
Other operating revenue	72	68	248	895	2,271	2,812	2,928	3,308	3,685	3,648	4,217	3,580	4,602	5,065	4,960	4,983	U
Operating assistance[c], total	N	N	3,705	9,267	8,941	8,628	8,807	8,661	9,408	10,290	11,280	12,817	13,382	13,807	14,983	16,456	U
State and local	N	N	2,611	8,297	8,026	7,811	8,210	8,014	8,656	9,418	10,286	11,688	12,063	12,190	12,898	14,152	U
Federal	N	N	1,093	970	916	817	596	647	751	872	994	1,130	1,319	1,616	2,086	2,303	U
Operating expenses[2], total ($ millions)	1,377	1,996	6,711	15,742	17,920	17,849	18,341	18,936	19,739	20,512	22,646	23,517	24,834	26,852	28,506	30,295	U
Motor bus	N	N	N	8,903	10,144	10,321	10,575	10,944	11,429	11,714	12,966	13,335	14,066	15,240	16,022	16,787	U
Heavy rail	N	N	N	3,825	3,786	3,523	3,402	3,474	3,530	3,693	3,931	4,180	4,268	4,446	4,734	5,145	U
Light rail	N	N	N	237	413	376	442	473	500	546	606	682	778	815	887	978	U
Trolley bus	N	N	N	109	133	139	135	140	147	167	178	172	187	183	185	196	U
Demand responsive	N	N	N	518	943	1,000	1,187	1,285	1,405	1,419	1,805	1,754	1,949	2,363	2,524	2,828	U
Ferryboat[a]	N	N	N	171	200	210	183	221	214	238	268	324	354	355	358	350	U
Commuter rail	N	N	N	1,939	2,228	2,211	2,294	2,278	2,361	2,575	2,685	2,861	3,003	3,179	3,442	3,663	U
Other[b]	N	N	N	41	73	69	124	122	153	160	206	208	229	(R) 270	353	348	U
Average passenger revenue per passenger-mile[3], all modes ($)	N	N	N	0.14	0.17	0.17	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.19	0.20	0.21	U
Motor bus	N	N	N	0.14	0.17	0.17	0.18	0.18	0.20	0.20	0.21	0.20	0.19	0.20	0.21	0.22	U
Heavy rail	N	N	N	0.15	0.19	0.19	0.20	0.19	0.19	0.18	0.18	0.18	0.18	0.20	0.20	0.21	U
Light rail	N	N	N	0.14	0.16	0.15	0.15	0.13	0.13	0.14	0.13	0.14	0.16	0.16	0.15	0.15	U
Trolley bus	N	N	N	0.24	0.29	0.29	0.30	0.30	0.30	0.32	0.31	0.32	0.32	0.30	0.32	0.33	U
Demand responsive	N	N	N	0.09	0.30	0.24	0.24	0.23	0.19	0.20	0.20	0.21	0.23	0.26	0.26	0.27	U
Ferryboat[a]	N	N	N	0.20	0.16	0.23	0.21	0.17	0.14	0.16	0.18	0.22	0.23	0.25	0.28	0.29	U
Commuter rail	N	N	N	0.13	0.14	0.13	0.14	0.15	0.14	0.15	0.15	0.15	0.15	0.16	0.17	0.18	U
Other[b]	N	N	N	0.05	0.20	0.11	0.07	0.12	0.09	0.10	0.09	0.09	0.09	0.09	0.11	0.10	U
Average passenger fare, per unlinked trip[4], all modes ($)	0.14	0.22	0.30	0.67	0.85	0.87	0.93	0.89	0.91	0.90	0.93	0.92	0.89	0.97	1.02	1.02	U
Motor bus	N	N	N	0.52	0.62	0.66	0.70	0.70	0.74	0.74	0.77	0.74	0.70	0.72	0.75	0.78	U
Heavy rail	N	N	N	0.74	0.90	0.99	1.08	0.97	0.96	0.92	0.94	0.93	0.93	1.00	1.06	1.07	U
Light rail	N	N	N	0.47	0.66	0.50	0.55	0.53	0.54	0.56	0.57	0.61	0.67	0.68	0.67	0.65	U
Trolley bus	N	N	N	0.36	0.47	0.45	0.47	0.47	0.47	0.50	0.49	0.50	0.46	0.49	0.52	0.54	U
Demand responsive	N	N	N	0.60	2.04	2.26	2.21	1.83	1.49	1.59	1.64	1.73	1.87	2.14	2.17	2.22	U
Ferryboat[a]	N	N	N	1.11	0.87	1.31	1.12	0.99	0.80	0.91	1.13	1.32	1.36	1.50	1.69	1.69	U
Commuter rail	N	N	N	2.90	3.19	3.13	3.24	3.30	3.29	3.31	3.32	3.44	3.49	3.79	3.90	4.08	U
Other[b]	N	N	N	0.90	1.28	1.57	1.33	0.66	1.02	0.76	0.66	0.75	0.77	0.91	1.04	1.02	U

INVENTORY																	
Number of systems[d, 5], total	1,286	1,096	1,055	5,078	5,973	5,973	5,973	5,975	6,000	6,000	6,000	6,000	6,000	5,804	6,429	6,429	U
Motor bus	1,236	1,075	1,022	2,685	2,250	2,250	2,250	2,250	2,262	2,262	2,262	2,264	2,264	1,982	1,500	1,500	U
Heavy rail	31	15	11	12	14	14	14	14	14	14	14	14	14	14	14	15	U
Light rail	~	~	9	17	22	22	22	22	23	24	25	26	27	27	29	29	U
Trolley bus	19	6	5	5	5	5	5	5	5	5	5	5	5	4	4	4	U
Demand responsive	N	N	N	3,193	5,214	5,214	5,214	5,214	5,254	5,252	5,252	5,251	5,251	5,346	5,960	5,960	U
Ferryboat[a]	N	N	16	27	25	25	25	25	28	30	33	42	42	46	47	47	U
Commuter rail	N	N	18	14	16	16	16	18	18	20	19	21	20	21	21	22	U
Other[b]	N	N	5	35	69	69	69	70	72	81	81	82	82	86	85	87	U
Number of vehicles[6], total	65,292	61,298	75,388	93,430	116,416	116,341	122,750	126,473	124,048	128,937	131,241	134,789	135,107	138,290	143,822	150,827	U
Motor bus	49,600	49,700	59,411	58,714	68,123	67,107	71,678	72,770	72,142	74,228	75,013	76,075	76,190	77,328	81,033	82,027	U
Heavy rail	9,010	9,286	9,641	10,567	10,282	10,166	10,243	10,228	10,296	10,362	10,311	10,718	10,849	10,754	10,858	11,110	U
Light rail	2,856	1,262	1,013	910	1,051	1,048	1,114	1,078	1,076	1,180	1,327	1,371	1,448	1,482	1,622	1,645	U
Trolley bus	3,826	1,050	823	610	643	695	675	655	646	657	652	600	616	672	597	615	U
Demand responsive	N	N	N	16,471	28,729	29,352	30,804	32,509	29,646	31,884	33,080	34,661	34,699	35,954	37,078	41,958	U
Ferryboat[a]	N	N	N	108	110	110	109	134	113	112	119	125	125	131	160	171	U
Commuter rail[e]	N	N	4,500	4,982	5,126	5,164	5,240	5,426	5,536	5,550	5,498	5,572	5,724	5,959	6,228	6,392	U
Other[b]	N	N	N	1,068	2,352	2,699	2,887	3,673	4,593	4,964	5,241	5,667	5,456	6,010	6,246	6,909	U
Number of employees[f, 7], total	156,400	138,040	189,300	262,176	294,087	300,491	314,944	320,759	327,752	337,885	347,841	357,266	360,722	(R) 337,982	345,871	345,458	U
Motor bus	121,300	101,598	N	162,189	174,373	181,973	190,152	196,861	198,644	204,179	211,095	214,674	214,825	205,478	212,122	217,332	U
Heavy rail	35,100	36,442	N	46,102	51,062	45,644	45,793	45,935	45,163	46,311	47,087	47,865	48,464	48,327	47,211	47,806	U
Light rail	+	+	N	4,066	5,140	4,935	5,728	5,940	6,024	6,058	6,572	7,021	7,598	7,619	8,184	8,181	U
Trolley bus	+	+	N	1,925	1,848	1,871	2,084	2,037	2,053	2,140	2,223	2,008	2,027	1,964	1,928	1,942	U
Demand responsive	N	N	N	22,740	35,450	39,882	44,667	44,029	48,406	51,186	52,021	55,846	56,746	42,935	43,642	46,624	U
Ferryboat[a]	N	N	N	2,813	2,764	2,697	2,830	3,166	3,894	4,024	2,682	4,731	5,336	5,434	5,862	5,737	U
Commuter rail	N	N	N	21,443	22,596	22,320	22,604	21,651	22,488	22,896	23,518	23,851	24,391	24,813	25,296	25,321	U
Other[b]	N	N	N	898	854	1,169	1,086	1,140	1,080	1,091	2,643	1,270	1,335	(R) 1,414	1,626	1,516	U

PERFORMANCE

Vehicle-miles[8], total (millions)	2,143	1,883	2,287	3,242	3,468	3,550	3,650	3,746	3,794	3,972	4,081	4,196	4,277	4,363	4,471	4,601	U
Motor bus	1,576	1,409	1,677	2,130	2,162	2,184	2,221	2,245	2,175	2,276	2,315	2,377	2,411	2,421	2,471	2,485	U
Heavy rail	391	407	385	537	532	537	543	558	566	578	595	608	621	630	642	646	U
Light rail	75	34	18	24	34	35	38	41	44	49	53	54	61	64	67	69	U
Trolley bus	101	33	13	14	14	14	14	14	14	14	15	13	14	14	13	13	U
Demand responsive	N	N	N	306	464	507	548	585	671	718	759	789	803	864	890	978	U
Ferryboat[a]	N	N	2	2	2	3	3	3	3	3	3	3	3	4	4	4	U
Commuter rail	N	N	179	213	231	238	242	251	260	266	271	277	284	286	295	303	U
Other[b]	N	N	13	16	30	34	42	49	63	69	71	75	80	81	88	103	U
Unlinked passenger trips[9], total (millions)	N	7,332	8,567	8,799	7,949	7,763	7,948	8,374	8,750	9,168	9,363	9,653	9,623	9,434	9,575	9,815	U
Motor bus	N	5,034	5,837	5,677	4,871	4,848	4,887	5,013	5,399	5,648	5,678	5,849	5,868	5,692	5,731	5,855	U
Heavy rail	N	1,881	2,108	2,346	2,169	2,033	2,157	2,430	2,393	2,521	2,632	2,728	2,688	2,667	2,748	2,808	U
Light rail	N	124	133	175	284	251	261	262	276	292	320	336	337	338	350	381	U
Trolley bus	N	182	142	126	118	119	117	121	117	120	122	119	116	109	106	107	U
Demand responsive	N	N	N	68	88	88	93	99	95	100	105	105	103	111	114	125	U
Ferryboat[a]	N	N	63	50	47	47	48	51	52	53	53	54	57	66	65	66	U
Commuter rail	N	N	280	328	339	344	352	357	381	396	413	419	414	410	414	423	U
Other[b]	N	N	4	29	33	33	33	41	37	38	40	43	40	43	47	51	U
Passenger-miles[10], total (millions)	N	N	39,854	41,143	39,585	39,808	41,378	42,339	44,128	45,857	47,666	49,070	48,324	47,903	49,073	49,678	U
Motor bus	N	N	21,790	20,981	18,832	18,818	19,096	19,604	20,360	21,205	21,241	22,022	21,841	21,262	21,377	21,825	U
Heavy rail	N	N	10,558	11,475	10,668	10,559	11,530	12,056	12,284	12,902	13,844	14,178	13,663	13,606	14,354	14,418	U
Light rail	N	N	381	571	833	860	957	1,035	1,128	1,206	1,356	1,437	1,432	1,476	1,576	1,700	U
Trolley bus	N	N	219	193	187	187	184	189	182	186	192	187	188	176	173	173	U
Demand responsive	N	N	N	431	577	607	656	754	735	813	839	855	853	930	962	1,068	U
Ferryboat[a]	N	N	N	286	260	260	256	294	294	310	330	325	333	394	393	394	U
Commuter rail	N	N	6,516	7,082	7,996	8,244	8,351	8,038	8,704	8,766	9,402	9,548	9,504	9,559	9,719	9,473	U
Other[b]	N	N	390	124	232	273	348	369	441	469	462	518	510	499	518	639	U
Average trip length[11], all modes (miles)	N	N	N	N	5	5	5	5	5	5	5	5	5	5	5	5	U
Motor bus	N	N	N	N	4	4	4	4	4	4	4	4	4	4	4	4	U
Heavy rail	N	N	N	N	5	5	5	5	5	5	5	5	5	5	5	5	U
Light rail	N	N	N	N	4	3	4	4	4	4	4	4	4	4	5	5	U
Trolley bus	N	N	N	N	2	2	2	2	2	2	2	2	2	2	2	2	U
Demand responsive	N	N	N	N	7	8	9	10	8	8	8	8	8	8	9	9	U
Ferryboat[a]	N	N	N	N	6	6	5	6	6	6	6	6	6	6	6	6	U
Commuter rail	N	N	N	N	24	24	24	23	23	22	23	23	23	23	24	22	U
Vanpool	N	N	N	N	32	35	34	33	36	34	35	33	37	33	31	34	U
Other[g]	N	N	N	N	1	1	1	1	1	1	1	1	1	1	1	1	U

Average vehicle speed[12], all modes (miles per hour)	N	N	N	N	15	15	15	15	15	15	15	15	15	15	15	15	U
Motor bus	N	N	N	N	13	13	13	13	13	13	13	13	13	13	13	13	U
Heavy rail	N	N	N	N	21	21	21	21	21	21	21	20	20	21	20	20	U
Light rail	N	N	N	N	14	14	14	16	16	15	15	15	15	16	16	15	U
Trolley bus	N	N	N	N	8	8	8	8	8	7	7	7	7	7	8	7	U
Demand responsive	N	N	N	N	14	15	15	15	17	15	15	15	15	15	14	15	U
Ferryboat[a]	N	N	N	N	8	6	7	7	8	8	8	8	8	9	8	8	U
Commuter rail	N	N	N	N	34	34	33	34	32	33	29	32	32	32	32	32	U
Vanpool	N	N	N	N	33	35	37	36	37	38	31	39	38	33	38	38	U
Other[g]	N	N	N	N	6	6	7	7	7	7	8	8	8	7	6	7	U
Energy consumption, diesel[13], total (million gallons)	208	271	431	651	678	678	693	717	740	763	786	745	725	713	731	730	U
Motor bus	N	N	N	563	565	564	578	598	607	618	635	587	559	539	550	534	U
Heavy rail	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	U
Light rail	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	U
Trolley bus	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	U
Demand responsive	N	N	N	15	30	29	31	32	38	43	48	55	62	70	73	82	U
Ferryboat[a]	N	N	N	20	21	22	22	24	25	29	32	30	31	32	35	37	U
Commuter rail	N	N	N	53	62	63	62	63	69	73	71	72	73	72	72	77	U
Other[b]	N	N	N	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	U
Energy consumption, other[14], total (million gallons)	192	69	11	34	65	71	76	83	90	93	103	112	132	146	165	181	U
Gasoline and other nondiesel fuels[h]	192	68	11	33	60	61	61	59	53	49	48	46	51	46	53	58	U
Compressed natural gas	U	U	U	U	5	11	15	24	37	44	55	66	81	100	112	123	U
Energy consumption, electric power[15], total (million kWh)	2,908	2,561	2,446	4,837	5,081	5,068	5,007	4,988	5,073	5,237	5,510	5,610	5,649	5,643	5,825	5,954	U
Motor bus	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	U
Heavy rail	N	N	N	3,284	3,431	3,401	3,332	3,253	3,280	3,385	3,549	3,646	3,683	3,632	3,684	3,769	U
Light rail	N	N	N	239	282	288	321	361	381	416	463	487	510	507	553	571	U
Trolley bus	N	N	N	69	103	100	69	78	74	75	77	74	73	69	68	67	U
Demand responsive	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	U
Ferryboat[a]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	U
Commuter rail	N	N	N	1,226	1,244	1,253	1,255	1,270	1,299	1,322	1,370	1,354	1,334	1,383	1,449	1,484	U
Other[b]	N	N	N	19	21	26	30	26	39	39	51	49	49	51	72	63	U
SAFETY[k]																	
Fatalities, all modes[16]	N	N	N	339	320	274	264	275	286	299	295	267	280	234	248	236	213
Transit highway-rail grade crossing fatalities[i, 17]	N	N	N	N	N	17	7	12	26	21	20	13	24	21	29	23	21
Other transit fatalities	N	N	N	N	N	257	257	263	260	278	275	254	256	213	219	213	192
Injured persons, all modes[i, 16]	N	N	N	54,556	58,193	57,196	55,288	56,132	55,990	55,325	56,697	53,945	19,260	18,235	18,982	18,131	18,327
Transit highway-rail grade crossing injuries[i, 17]	N	N	N	N	N	195	184	126	58	159	123	74	108	117	153	194	172
Other transit injuries	N	N	N	N	N	57,001	55,104	56,006	55,932	55,166	56574	53871	19152	18118	18,829	17,937	18,155
Incidents, all modes[16]	N	N	N	90,163	70,693	62,471	59,392	61,561	60,094	58,703	59,898	58,149	30,331	19,797	20,939	21,016	22,275
Transit highway-rail grade crossing incidents[i, 17]	N	N	N	N	N	127	134	119	106	140	148	101	398	276	311	504	131
Other transit incidents	N	N	N	N	N	62,344	59,258	61,442	59,988	58,563	59,750	58,048	29,933	19,521	20,628	20,512	22,144
Major incidents[j]	N	N	N	N	N	N	N	N	N	N	N	N	2,282	1,913	2,515	U	U

KEY: ~ = included in heavy rail figure; + = included in motor bus figure; kWh = kilowatt hours; N = data do not exist; NA = not applicable; P = preliminary; R = revised; U = data are not available.

[a] Excludes international, rural, rural interstate, island and urban park ferries.

[b] Includes cable car, inclined plane, aerial tramway, monorail, vanpool, and automated guideway.

[c] Beginning in 1992, local operating assistance and other revenue declined by about $500 million due to change in accounting procedures at the New York City Transit Authority. Beginning in 1992, total operating expense declined by about $400 million due to a change in accounting procedures at the New York City Transit Authority.

[d] The total figure represents the number of transit agencies. It is not the sum of all modes since many agencies operate more than one mode.

[e] Includes locomotives which make up roughly 10 percent of commuter rail vehicles.

[f] Based on employee equivalents of 2,080 hours equals one employee; beginning in 1993, based on number of actual employees.

[g] Includes cable car, inclined plane, aerial tramway, monorail, and automated guideway.

[h] Liquefied natural gas, liquefied petroleum gas, methanol, propane, and other nondiesel fuels, except compressed natural gas.

[i] Beginning in 2002, the Federal Transit Administration changed the reporting threshold for injuries. Before 2002, essentially all injuries had to be reported to the National Transit Database. Beginning in 2002, only those injuries requiring immediate medical attention away from the scene of the incident are required to be reported.

[j] In 2002, the Federal Transit Administration defined major incidents as safety and/or security incidents resulting in: a fatality, two or more injuries transported for immediate med treatment, property damage exceeding $25,000 (all property), main-line derailments, evacuations due to life safety, grade crossing collisions with injury or $7,500 damage, or rail transit vehicle collisions resulting in one or more injuries.

[k] These data are for motor bus, commuter rail, heavy rail, light rail, automated guideway, demand response, and vanpool.

[l] Transit highway-rail grade crossing fatalities, injuries, and incidents are the result of public transit rail mode operations excluding commuter rail. Almost all transit highway-rail crossings are light rail crossings. The heavy rail system in Chicago has 5 crossings. For the most part heavy rail operates on rights-of-way that do not include crossings.

SOURCES

Unless otherwise noted, refer to chapter tables for sources

[1] American Public Transit Association,*Public Transportation Fact Book 2007*, (Washington, DC: 2007), tables 50, 52, 66 and similar tables in earlier years.

[2] Ibid., tables 48, 66 and similar tables in earlier years.

[3] Ibid., tables 10, 48, 76 and similar tables in earlier years.

[4] Ibid., table 49 and similar tables in earlier years.

[5] Ibid., table 2 and similar tables for prior years.

[6] Ibid., tables 17, 66 and similar tables in earlier years.

[7] Ibid., tables 22, 66 and similar tables in earlier years.

[8] Ibid., tables 11, 66 and similar tables in earlier years.

[9] Ibid., tables 6, 66 and similar tables in earlier years.

[10] Ibid., tables 7, 66 and similar tables in earlier years.

[11] Ibid., table 9 and similar tables in earlier years.

[12] Ibid., 13 and similar tables in earlier years.

[13] Ibid., table 27 and similar tables in earlier years.

[14] Ibid., table 28 and similar tables in earlier years.

[15] Ibid., table 26 and similar tables in earlier years.

[16] U.S. Department of Transportation, Federal Transit Administration*Transit Safety and Security Statistics and Analysis Annual Report* (previously Safety Management Information Statistics - SAMIS), Internet site http://transit-safety.volpe.dot.gov/Data/samis/default.asp Sept. 27. 2007.

[17] U.S. Department of Transportation, Federal Transit Administration, Office of Program Management, personal communication as of Sept. 5, 2007.

Rail Profile

FINANCIAL	1960	1970[f]	1980	1990	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	(R) 2005	2006
Class I[a,1]																	
Operating revenues, total ($ millions)	9,514	11,992	28,258	28,370	30,809	32,280	32,693	33,118	33,151	33,521	34,102	34,576	35,327	36,639	40,517	46,118	52,152
Passenger	640	421	446	94	88	89	59	60	61	61	62	62	61	62	63	65	70
Freight	8,025	10,922	26,350	27,471	29,931	31,356	31,889	32,322	32,247	32,680	33,083	33,533	34,110	35,413	39,131	44,457	50,315
Other	849	649	1,462	805	790	835	745	736	843	780	957	981	1,155	1,164	1,323	1,597	1,767
Operating expenses ($ millions)[b]	8,775	11,478	26,355	24,652	25,511	27,897	26,331	27,291	27,916	28,011	29,040	29,164	29,592	31,440	35,107	37,843	40,980
Amtrak[c,2]																	
Total revenue ($ millions)	N	162	429	1,308	1,413	1,490	1,550	1,669	2,244	2,011	2,111	2,109	2,228	(R) 1,994	(R) 1,865	1,886	2,042
Total expenses ($ millions)	N	301	1,103	2,012	2,246	2,257	2,258	2,359	2,548	2,660	2,876	3,288	3,224	(R) 3,100	(R) 2,950	2,940	3,005
INVENTORY																	
Class I[a,1]																	
Number of vehicles, total	(R) 1,994,517	(R) 1,811,258	(R) 1,738,921	(R) 1,231,096	(R) 1,210,917	(R) 1,237,739	(R) 1,259,842	(R) 1,290,103	(R) 1,335,928	(R) 1,389,092	(R) 1,400,824	(R) 1,333,881	(R) 1,320,176	(R) 1,299,751	(R) 1,309,935	1,335,024	1,370,239
Class I freight cars	1,658,292	1,423,921	1,168,114	658,902	590,930	583,486	570,865	568,493	575,604	579,140	560,154	499,860	477,751	467,063	473,773	474,839	475,415
Other nonclass I freight cars	307,194	360,260	542,713	553,359	601,482	635,441	669,708	701,926	740,063	789,696	820,642	814,276	821,919	811,917	814,147	837,406	871,092
Number of Locomotives	29,031	27,077	28,094	18,835	18,505	18,812	19,269	19,684	20,261	20,256	20,028	19,745	20,506	20,771	22,015	22,779	23,732
Number of companies	106	71	38	14	12	11	10	9	9	9	8	8	7	7	7	7	7
Number of employees	780,494	566,282	458,994	216,424	189,962	188,215	181,809	177,981	178,222	177,557	168,360	162,155	157,372	154,652	157,699	162,438	167,581
Miles of road owned	207,334	196,479	164,822	119,758	109,332	108,264	105,779	102,128	100,570	99,430	99,250	(R) 97,817	(R) 100,125	(R) 99,126	(R) 97,662	95,830	94,614
Amtrak																	
Number of passenger vehicles[3]																	
Train-cars	N	1,569	2,128	1,863	1,852	1,722	1,730	1,728	1,962	1,992	1,894	2,084	2,896	1,623	1,211	1,186	1,191
Locomotives	N	185	419	318	338	313	299	332	345	329	378	401	372	442	276	258	319
Number of employees[4]	N	1,500	21,416	24,000	25,049	23,646	23,278	23,555	24,528	25,291	25,624	27,316	22,649	20,905	20,938	19,234	18,659
System route mileage[5]	N	N	24,000	24,000	25,000	24,000	25,000	25,000	22,000	23,000	23,000	23,000	23,000	22,675	22,256	22,007	21,708
PERFORMANCE																	
Class I[a]																	
Car mileage, freight (thousands)[1]	28,170,000	29,890,000	29,277,000	26,159,000	28,485,000	30,383,000	31,715,000	31,660,000	32,657,000	33,851,000	34,590,000	34,243,000	34,680,000	35,555,000	37,071,000	37,712,000	38,955,000
Train mileage, freight (thousands)[1]	404,464	427,065	428,498	379,582	440,896	458,271	468,792	474,954	474,947	490,442	504,001	499,546	499,668	515,999	534,696	547,566	562,607
Locomotive mileage, total (thousands)[6]	N	N	1,531,050	1,280,365	1,404,706	1,444,691	1,465,149	1,423,229	1,439,703	1,503,947	1,502,819	1,477,546	1,443,531	1,484,074	1,538,385	U	U
Freight	421,900	1,278,200	1,319,010	1,144,559	1,261,482	1,293,851	1,311,351	1,281,768	1,285,706	1,349,580	1,354,590	1,327,669	1,300,574	1,353,885	1,398,450	U	U
Train and yard switching	N	N	212,040	135,806	143,224	150,840	153,798	141,461	153,997	154,367	148,229	149,876	142,957	130,190	139,935	U	U
Revenue ton-miles of freight (millions)[1]	572,309	764,809	918,958	1,033,969	1,200,701	1,305,688	1,355,975	1,348,926	1,376,802	1,433,461	1,465,960	1,495,472	1,507,011	1,551,438	1,662,598	1,696,425	1,771,897
Average length of haul, freight (miles)[1]	461	515	616	726	817	843	842	851	835	835	843	859	853	862	902	894	906
Fuel consumed in freight service (million gallons)[1]	3,463	3,545	3,904	3,115	3,334	3,480	3,579	3,575	3,583	3,715	3,700	3,710	3,730	3,826	4,059	4,098	4,192
Average miles traveled per vehicle																	
Car	14,124	16,502	16,836	21,249	23,523	24,547	25,174	24,541	24,445	24,369	24,693	25,672	26,269	27,355	28,300	28,248	28,429
Locomotive	N	N	54,497	67,978	75,910	76,796	76,037	72,304	71,058	74,247	75,036	74,831	70,396	71,449	69,879	U	U
Average miles traveled per gallon																	
Car	8.13	8.43	7.50	8.40	8.54	8.73	8.86	8.86	9.11	9.11	9.35	9.23	9.30	9.29	9.13	9.20	9.29
Train	0.12	0.12	0.11	0.12	0.13	0.13	0.13	0.13	0.13	0.13	0.14	0.13	0.13	0.13	0.13	0.13	0.13
Amtrak																	
Passenger train car-miles (millions)[7]	N	213	235	301	304	292	276	288	312	342	371	378	379	332	308	265	264
Passenger train-miles (millions)[2]	N	26	30	33	34	32	30	32	33	34	35	36	38	37	37	36	36
Passenger locomotive-miles (millions)[2]	N	N	41	49	51	48	U	U	U	U	U	U	U	U	U	U	U
Revenue passengers carried (millions)[2]	N	17	21	22	21	21	20	20	21	22	23	24	23	25	25	25	25
Revenue passenger-miles (millions)[2]	N	3,039	4,503	6,057	5,921	5,545	5,050	5,166	5,304	5,330	5,498	5,559	5,314	5,680	5,511	5,381	5,410
Average passenger fare (dollars)[2]	N	8.30	17.72	38.50	39.10	39.92	43.31	45.26	44.75	46.85	49.61	51.58	56.05	57.78	56.81	58.29	65.43
Average passenger revenue / passenger-mile (cents)[2]	N	4.5	8.2	14.1	14.0	14.9	16.9	17.7	17.8	18.9	20.3	21.8	24.5	25.0	26.0	27.16	29.69
Average passenger trip length (miles)[2]	N	182.6	217.0	273.0	279.3	267.9	256.3	255.7	251.4	247.9	244.4	236.6	228.4	230.9	218.6	214.6	220.4
Locomotive fuel consumed[8]																	
Diesel (million gallons)	N	N	64	82	75	66	71	75	75	74	76	75	86	78	70	68	U
Electric kWh (millions)	N	N	254	330	309	304	293	282	275	283	350	377	593	666	648	500	U

SAFETY [d,9]																		
Number of fatalities, railroads and grade crossings, total	2,345	2,331	1,424	1,300	1,226	1,146	1,039	1,063	1,008	932	937	971	951	(R) 868	(R) 895	887	910
Passengers on Trains	34	10	4	3	5	0	12	6	4	14	4	3	7	3	3	16	2
Employees on duty	215	179	97	40	31	34	33	37	27	31	24	22	20	19	25	25	16
Employees not on duty	N	N	4	0	0	2	0	0	2	0	1	0	1	1	0	0	0
Trespassers	637	607	566	700	682	660	620	646	644	570	570	673	646	634	(R) 621	600	665
Nontrespassers	1,459	1,535	746	554	505	443	365	363	326	305	(R) 335	269	(R) 267	(R) 206	(R) 242	241	220
Contractor employees	N	N	7	3	3	7	9	11	5	12	3	4	10	5	4	5	7
Grade crossing only	1,421	1,440	772	698	615	579	488	461	431	402	425	421	357	334	(R) 372	358	369
Railroad only[e]	924	785	645	599	611	567	551	602	577	530	512	550	594	(R) 534	(R) 523	529	541

KEY: kWh = kilowatt-hour; N = data do not exist; R = revised; U = data are not available.

[a] Excluding Amtrak and all non-Class I railroads, except for Section IV.
[b] Operating expenses include equipment, joint facility rents, leased roads and equipment, and all taxes except Federal income.
[c] Data for 2003 indicates operating revenues and expenses instead of total revenues and expenses, the data source has changed.
[d] Safety figures from U.S. Department of Transportation, Federal Railroad Administration are for all railroads.
[e] Figures may not appear directly in data source.
[f] Amtrak data in this column are for 1972, Amtrak's first full year of operation.

NOTE
Amtrak figures are based on Amtrak fiscal year (October 1-September 30).

SOURCES
(Unless otherwise noted, refer to chapter tables for sources)

[1] Association of American Railroads,*Railroad Facts 2006* (Washington, DC: 2004), pp. 3, 9, 10, 27, 33, 34, 36, 40, 49, 52, 77 and similar pages in earlier issues.

[2] 1970-2006: Amtrak, *National Railroad Passenger Corporation Annual Report, Statistical Appendix to Amtrak Annual Report,* Annual issues.
[3] 1970-80: Amtrak, *National Railroad Passenger Corporation Annual Report,* 1972, 1980, 1990, and 1993-95. 1990-2000: Ibid., *National Railroad Passenger Corporation Annual Report, Statistical Appendix to Amtrak Annual Report,* Annual issues. 2001-05: Association of American Railroads,*Railroad Facts 2006* (Washington, DC, 2006), p.77.

[4] 1970-90: Amtrak, Public Affairs, personal communication. 1994-1997: Ibid.,*National Railroad Passenger Corporation Annual Report,* 1972, 1980, 1990, and 1993-95. 1998-2005: Association of American Railroads,*Railroad Facts 2006* (Washington, DC: 2006), p. 77 and similar pages in earlier issues.

[5] 1980-90: Amtrak, Route Miles by Railroad, Corp. Planning & Development. 1994-2001: Amtrak,*National Railroad Passenger Corporation Annual Report, Statistical Appendix to Amtrak Annual Report,* Annual issues. 2002-05: Association of American Railroads,*Railroad Facts 2006* (Washington, DC, 2006), p. 77.
[6] 1980-2001: Association of American Railroads,*Analysis of Class 1 Railroads* (Washington, DC: Annual issues). 2002-04: Ibid.,*Railroad Ten-Year Trends* (Washington, DC: 2005), pp. 119 and 121, personal communication, Feb. 16, 2005.

[7] 1970-90: Amtrak, *Train Information System Reports.* 1994-99: Amtrak Corporate Reporting, Route Profitability System, Washington DC, personal communication, August 2001. 2000-05: Association of American Railroads,*Railroad Facts 2006* (Washington, DC: 2006), p. 77 and similar pages in earlier issues.

[8] Amtrak General Accounting, Pennsylvania, personal communication, June 1999. 2002-05: Amtrak, personal communications, Dec. 9, 2005 and Dec. 19, 2007

[9] 1960-80: U.S. Department of Transportation, Federal Railroad Administration, Systems Support Division, RRS-22, personal communication. 1990-94: Ibid*Accident / Incident Bulletin* (Washington, DC: Annual issues), tables 7 and 9. 1995-2005: Ibid.*Interim Railroad Safety Statistics, Annual Report 2005* (Washington, DC: 2005), table 1-3, and similar tables in earlier editions. 2006: Ibid, Office of Safety Analysis, table 4.08, at http://safetydata.fra.dot.gov/OfficeofSafety/Default.asp as of Dec. 12, 2007.

Water Transport Profile

FINANCIAL	1960	1970	1980	1990	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Operating revenues ($ millions)[1]																	
Domestic freight, total	1,722	2,070	7,219	7,940	7,745	7,712	7,283	6,940	6,824	6,795	6,930	6,235	U	U	U	U	U
Coastal waterways	747	834	3,155	3,066	2,929	2,774	2,571	2,169	1,952	1,828	1,817	1,784	U	U	U	U	U
Inland waterways	461	621	2,395	2,956	2,868	2,964	2,861	2,899	2,904	2,811	2,960	2,894	U	U	U	U	U
Great Lakes	227	239	513	615	577	585	572	615	610	549	556	486	U	U	U	U	U
Locks, channels	287	376	1,156	1,303	1,371	1,389	1,279	1,257	1,358	1,607	1,597	1,071	U	U	U	U	U
International freight[a]	1,765	3,187	8,279	12,181	13,405	14,997	17,281	14,091	15,679	17,699	21,740	21,397	U	U	U	U	U
Passenger, total	281	287	310	1,391	1,564	1,716	1,843	1,974	2,029	2,088	4,663	4,187	U	U	U	U	U
Domestic passenger, intercity	14	12	27	100	121	129	140	141	146	152	156	144	U	U	U	U	U
International passenger[b]	267	275	283	1,291	1,443	2,026	1,703	1,833	1,883	1,936	4,507	4,043	U	U	U	U	U
Revenues of U.S. commercial fishing fleet-domestic landings ($ millions)[2]	354	613	2,237	3,522	3,809	3,770	3,487	3,448	3,128	3,467	3,549	3,228	3,092	(R) 3,348	3,756	3,942	3,993
INVENTORY																	
Number of domestic inland vessel operators[c, 3]	228	380	403	565	555	557	554	U	U	U	U	U	U	U	U	U	U
Number of employees[4]																	
Ships, boat building, and repairing[d]	141,200	171,800	220,500	187,700	158,200	159,600	158,800	158,300	166,600	167,400	167,900	161,100	146,810	145,350	149,160	153,170	152,650
Water transportation[d]	N	212,300	211,200	176,600	172,400	174,500	174,100	178,700	181,300	185,500	193,900	192,400	145,370	145,400	145,340	154,980	160,160
Number of employees[e, f], total[5]	49,281	35,000	19,218	12,132	11,324	10,303	9,250	8,937	8,956	9,036	U	U	U	U	U	U	U
Passenger / combo	8,560	2,178	618	642	642	642	321	321	321	321	U	U	U	U	U	U	U
Cargo	28,668	22,257	9,878	7,019	6,056	5,400	4,964	4,831	4,924	4,757	U	U	U	U	U	U	U
Tankers	12,053	10,567	8,722	4,471	4,626	4,261	3,965	3,785	3,711	3,958	U	U	U	U	U	U	U
Mileage of commercially navigable channels[1]	25,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	U	U	U	U	U
Number of vessels[6]																	
Total nonself-propelled	16,777	19,377	31,662	31,017	30,723	31,360	32,811	33,011	33,509	33,387	33,152	33,042	32,381	31,335	31,296	32,052	U
Dry cargo barges and scows	14,025	15,890	27,426	27,091	26,723	27,342	28,743	29,006	29,526	29,383	29,107	28,888	28,281	27,272	27,197	27,876	U
Tankers	2,429	3,281	4,166	3,913	3,966	3,985	4,036	3,971	3,952	3,973	4,011	4,122	4,068	4,031	4,069	4,151	U
Railroad car floats	323	206	70	13	34	33	32	34	31	31	34	32	32	32	30	25	U
Total self-propelled	6,519	6,447	7,126	8,236	8,334	8,281	8,293	8,408	8,523	8,379	8,202	8,546	8,621	8,648	8,994	8,976	U
Dry cargo / passenger	1,796	1,761	2,036	2,678	2,785	2,804	2,782	2,905	2,938	2,910	2,780	2,697	2,738	2,765	2,948	2,967	U
Ferries, railroad car	31	17	67	135	175	172	173	183	213	229	292	579	595	607	629	619	U
Tankers	489	421	330	213	195	178	161	147	135	142	135	120	108	104	103	100	U
Towboats / tugs	4,203	4,248	4,693	5,210	5,179	5,127	5,177	5,173	5,237	5,098	4,995	5,150	5,180	5,172	5,314	5,290	U
U.S. merchant marine ships (over 1,000 gross tons)																	
Total U. S. flag[7]	2,926	1,579	864	636	543	509	495	477	470	463	454	443	426	(R) 418	412	U	U
Passenger / cargo	309	171	65	10	13	13	15	14	12	11	11	13	12	(R) 15	18	U	U
Freighters[9]	2,138	1,076	471	367	308	295	292	288	289	284	286	283	276	(R) 209	205	U	U
Bulk carriers	57	38	20	26	22	20	15	14	15	14	15	17	18	(R) 20	20	U	U
Tankers	422	294	308	233	200	181	173	161	154	154	142	130	120	(R) 109	104	U	U
Privately owned	1,008	U	578	408	354	319	302	285	281	277	U	U	U	U	U	U	U
Government owned	1,918	U	286	228	189	190	193	192	189	186	U	U	U	U	U	U	U
Number of recreational boats (thousands)[h,8]	2,500	7,400	8,578	10,996	11,430	11,735	11,878	12,313	12,566	12,738	12,782	12,876	12,854	12,795	12,781	12,942	12,746

PERFORMANCE																	
Ton-miles (thousands)[i, 9]																	
Domestic water freight, total	N	596,195,000	921,835,800	833,543,800	814,919,200	807,727,700	764,686,500	707,409,900	672,795,300	655,861,500	645,799,300	621,686,200	612,080,500	606,146,300	621,170	591,277	U
Coastwise	N	359,784,000	631,149,200	479,133,600	457,600,700	440,345,100	408,086,100	349,843,000	314,863,900	292,730,000	283,871,600	274,558,800	263,688,200	278,918,700	279,857	263,464	U
Internal	N	155,816,000	227,343,000	292,393,300	297,762,400	306,329,100	296,790,600	294,023,000	294,896,400	304,724,100	302,558,400	294,860,900	293,410,300	278,352,300	284,096	274,367	U
Lakewise	N	79,416,000	61,747,100	60,929,900	58,263,400	59,703,800	58,335,300	62,165,900	61,654,300	57,045,200	57,879,100	50,853,500	53,652,900	47,539,400	55,733	51,924	U
Intraport	N	1,179,000	1,596,400	1,087,000	1,292,700	1,349,600	1,474,500	1,378,100	1,380,700	1,362,200	1,490,200	1,413,000	1,329,000	1,335,900	1,484	1,521	U
Tons of freight hauled (thousands) [9]																	
Domestic, total	760,573	950,727	1,077,483	1,122,299	1,099,011	1,093,035	1,100,679	1,112,527	1,094,112	1,061,787	1,069,798	1,042,472	1,021,001	1,016,136	1,047,088	1,028,910	U
Coastwise	209,197	238,440	329,609	298,637	277,029	266,612	267,389	263,146	249,633	228,802	226,938	223,606	216,396	223,458	220,557	213,668	U
Internal	291,057	472,123	534,979	622,595	618,409	620,324	622,081	630,558	625,028	624,575	628,445	619,784	608,038	609,598	626,598	623,980	U
Lakewise	155,109	157,059	115,124	110,159	114,777	116,127	114,870	122,734	122,156	113,887	114,352	100,002	101,466	89,776	103,533	96,226	U
Intraport	104,193	81,475	94,184	86,378	82,870	83,104	89,011	89,816	90,077	88,650	94,558	93,222	90,004	86,909	91,267	90,166	U
Intraterritory	1,017	1,630	3,588	4,529	5,926	6,868	7,327	6,273	7,217	5,873	5,505	5,858	5,097	6,395	5,484	4,871	U
Exports, total	127,961	241,629	403,883	441,586	396,246	474,700	450,794	432,313	404,708	399,996	415,042	399,011	384,350	373,324	415,786	401,827	U
Great Lakes ports	23,150	35,932	45,077	32,898	27,108	32,968	31,855	33,209	36,876	40,233	40,131	40,519	38,066	32,943	36,090	37,291	U
Coastal ports	104,810	205,698	358,806	408,688	369,138	441,732	418,940	399,104	367,831	359,763	374,911	358,491	346,284	340,381	379,697	364,536	U
Imports, total	211,316	339,340	517,521	599,970	719,497	672,657	732,592	788,303	840,680	860,775	939,749	951,815	934,941	1,004,791	1,089,065	1,096,885	U
Great Lakes ports	12,851	26,406	15,515	17,558	23,028	18,897	24,503	24,532	25,558	22,196	23,917	21,391	21,548	23,336	26,086	24,114	U
Coastal ports	198,466	312,934	502,006	582,412	696,469	653,760	708,090	763,771	815,122	838,579	915,832	929,794	929,794	981,455	1,062,979	1,072,771	U
Average haul, domestic system (miles)[i, 9]																	
Coastwise	1,496	1,509	1,915	1,604	1,652	1,652	1,526	1,330	1,261	1,279	1,251	1,228	1,219	1,248	1,269	1,233	U
Internal	282	330	405	470	482	494	477	466	472	488	481	476	483	457	454	440	U
Lakewise	522	506	536	553	508	514	508	507	505	501	506	509	529	530	538	540	U
Cargo capacity (short tons)[6]																	
Total nonself-propelled vessels	16,355,657	24,026,024	44,875,116	(R) 49,066,020	49,708,960	(R) 51,254,259	54,086,973	54,974,961	55,999,952	56,468,065	56,581,364	57,341,226	56,721,816	55,053,776	55,527,696	57,035,748	U
Dry cargo barges	12,147,006	17,695,275	34,486,851	38,189,490	38,643,518	39,971,443	42,748,644	43,710,093	44,718,691	45,049,209	44,814,696	45,281,492	44,688,157	43,094,911	43,282,387	44,777,151	U
Tankers	4,208,651	6,330,749	10,388,265	10,757,295	11,065,442	11,169,087	11,338,329	11,264,868	11,281,261	11,418,856	11,678,593	11,957,598	11,925,863	11,860,144	12,158,254	12,172,542	U
Total self-propelled vessels	15,905,881	19,284,050	23,906,346	19,829,011	16,867,458	15,783,399	14,850,253	14,161,739	12,970,167	13,892,574	13,458,519	12,770,889	12,093,812	11,804,878	12,546,796	12,342,584	U
Dry cargo / passenger	12,188,956	10,815,977	8,011,587	7,147,054	7,118,193	6,484,707	6,208,011	6,685,719	6,371,425	6,928,684	6,740,153	6,544,807	6,452,715	6,570,281	7,293,500	6,614,973	U
Tankers	3,716,925	8,468,073	15,894,753	12,681,957	9,749,265	9,298,692	8,642,242	7,476,020	6,598,742	6,963,890	6,718,366	6,226,082	5,641,097	5,234,597	5,253,396	5,727,512	U
Fuel consumption (thousand barrels), total[1]	122,014	123,591	273,380	232,036	210,650	225,470	213,721	187,729	183,856	208,604	233,227	U	U	U	U	U	U
Diesel fuel and distillate	18,730	19,503	35,201	52,310	48,260	47,098	51,848	50,180	50,609	49,157	53,843	U	U	U	U	U	U
Residual fuel oil	94,084	89,850	213,131	148,764	141,544	153,125	138,214	114,044	110,480	133,301	152,616	U	U	U	U	U	U
Gasoline	9,200	14,238	25,048	30,962	20,846	25,247	23,659	23,505	22,767	26,146	26,768	U	U	U	U	U	U

SAFETY																	
Fatalities in waterborne transport (vessel casualties only), total[j,10]	N	178	206	85	77	52	55	48	67	51	45	31	61	54	48	45	48
Freight ship	N	30	8	0	0	0	1	2	2	0	0	1	3	3	8	2	1
Tank ship	N	4	4	5	3	0	0	0	1	0	0	0	0	0	3	0	0
Passenger vessel	N	1	5	3	4	4	8	1	3	14	0	3	6	29	9	6	3
Tug / towboat	N	22	14	13	1	1	1	3	0	5	0	4	8	0	1	10	6
Offshore supply	N	N	N	2	1	2	2	0	6	0	2	0	0	0	0	0	0
Fishing vessel	N	77	60	47	48	23	37	22	33	23	28	9	15	14	16	16	19
Recreational vessel	N	N	N	3	13	22	3	7	7	5	10	12	14	1	7	9	12
MODU[k]	N	N	N	0	0	0	0	4	0	0	0	1	0	2	1	0	1
Platform	N	N	N	1	U	U	U	U	U	0	0	0	0	U	U	U	U
Freight barge	N	N	N	0	2	0	0	2	1	0	1	0	0	0	1	1	2
Tank barge	N	N	N	0	0	0	0	0	0	1	0	1	0	2	0	0	0
Miscellaneous	N	44	56	11	5	0	3	7	14	3	4	0	2	0	0	1	2
Injuries in waterborne transport, total[j,10]	N	105	180	175	180	152	229	119	130	136	131	185	187	255	228	140	177
Freight ship	N	14	8	10	6	1	7	3	3	2	4	2	7	12	7	12	19
Tank ship	N	19	9	13	10	8	1	5	6	5	3	3	0	3	7	3	2
Passenger vessel	N	10	10	51	43	47	142	36	39	71	50	109	57	140	81	58	63
Tug / towboat	N	10	27	19	19	19	16	21	12	13	10	18	17	12	27	20	22
Offshore supply	N	N	N	9	2	10	7	3	5	1	5	13	0	5	5	1	6
Fishing vessel	N	13	28	31	55	41	36	25	35	19	24	15	41	29	37	29	33
Recreational vessel	N	N	N	2	17	20	9	6	9	11	26	15	14	11	37	8	13
MODU[k]	N	N	N	13	0	0	0	3	0	2	0	3	0	19	3	2	2
Platform	N	N	N	9	U	U	U	U	U	1	1	0	0	U	U	U	U
Freight barge	N	N	N	3	4	0	0	5	1	0	2	0	0	0	4	0	0
Tank barge	N	N	N	3	3	5	2	0	0	2	0	2	0	2	3	1	0
Miscellaneous	N	N	98	12	21	1	9	12	20	9	6	5	9	14	7	3	6
Fatalities in recreational boating (vessel casualties only), total[8]	739	1,418	1,360	865	748	829	709	821	815	734	701	681	750	703	676	697	710
Air thrust	N	N	N	N	N	4	1	6	11	2	4	2	1	6	4	3	3
Propeller	N	N	N	N	N	475	363	436	462	421	439	326	506	421	433	355	438
Inboard	N	119	100	50	36	N	N	N	N	50	48	34	60	40	39	24	39
Outboard	N	774	609	454	341	N	N	N	N	326	328	245	372	320	322	259	301
Inboard / outboard	N	28	47	53	49	N	N	N	N	35	49	32	47	47	43	61	69
Jet	N	N	10	25	58	68	61	83	82	75	70	45	75	66	65	72	74
Sail	N	44	43	20	13	4	8	15	5	7	14	19	3	7	11	21	11
Manual (oars, paddle)	N	205	272	182	140	148	109	150	151	114	137	144	107	113	130	134	135
Other	N	29	14	5	12	8	8	10	0	0	0	0	0	0	0	1	1
Propulsion unknown	N	219	265	76	135	122	159	121	104	115	37	145	58	90	33	111	48

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

[a] The international water freight operating revenues data was revised in *Transportation in America 1998* for all years except 1994 and 1996. Therefore, the international water freight data for years 1994 and 1996 may not be comparable to other years.
[b] Revenues paid by American travelers to U.S. and foreign flag carriers.
[c] Does not include vessel operators whose primary area of operation is fishing, towing, passenger transport, ferrying, or crew boat utility service.
[d] Data for 2002 is based on new NAICS classifications and therefore comparisons between 2002 data and data for prior years may be misleading. Prior to 2002 water transportation was calculated based on SIC classifications and included commercial port, marina, and other employees; excluding employees of not-for-hire private businesses. Data for water transportation in 2002 includes NAICS categories 483100, 483200, 488300. Data for ships, boat building, and repairing is based on the NAICS category 336600.

[e] Estimate based on established active jobs for licensed and unlicensed personnel aboard oceangoing ships of 1,000 gross-tons and over, privately owned and operated, government-owned ships under bare boat charters, ship managers and General Agency Agreement, supplemented by Military Sealift Command employment totals for ships with Civil Service crews.
[f] Data is current as of January 1 of the following year with the exception of 1999 data, which is current as of Apr. 1, 1999. Due to a change in the source's periodicity, the data for 1999 is not comparable to the data from years prior to 1999.
[g] Freighters data include bulk carriers prior to calendar year 1983.
[h] The U.S. Coast Guard changed its methodology for counting the number of recreational boats. Figures cited represent number of numbered boats, not estimates as previously noted for 1960 and 1970.
[i] Does not include intraterritorial traffic (traffic between ports in Puerto Rico and the Virgin Islands, which are considered a single unit).
[j] 1992-2002 data come from the Marine Safety Management Information System. Data for prior years may not be directly comparable. Beginning in 2000, numbers may not add to totals because data is now recorded in a new information system known as MISLE, which does not associate every fatality and injury with a specific vessel.
[k] Mobile Offshore Drilling Units.

SOURCES
Unless otherwise noted, refer to chapter tables for sources.

[1] Eno Transportation Foundation Inc., *Transportation in America, 2002* (Washington, DC: 2002), pp. 38, 40, 51, and 58.
[2] U.S. Department of Commerce, National Marine Fisheries Services, *Fisheries of the United States* (Silver Spring, MD: Annual issues), p. 4 and similar pages in earlier editions.
[3] U.S. Department of Transportation, Maritime Administration, MAR-450, personal communication.
[4] 1960-1990: U.S. Department of Labor, Bureau of Labor Statistics, *Employment, Hours and Earnings, United States, 1909-1994* (Washington, DC: September 1994) and *1988-1996* (Washington, DC: August 1996), SICs 373 and 44. 1994-2006: Ibid., Internet website http://www.bls.gov as of November 2007.
[5] U.S. Department of Transportation, Maritime Administration, *U.S. Merchant Marine Data Sheet* (Washington, DC: Annual issues).
[6] 1960-1998: U.S. Army Corps of Engineers, *Summary of U.S. Flag Passenger & Cargo Vessels* (New Orleans, LA: Annual issues). 1999-2005: Ibid., *Waterborne Transportation Lines of the United States* (New Orleans, LA: Annual issues) part 1, section 1, table 1 and 2.
[7] U.S. Department of Transportation, Maritime Administration, *Merchant Fleets of the World* (Washington, DC: Annual issues), and unpublished revisions.
[8] U.S. Coast Guard, *Boating Statistics* (Washington, DC: Annual issues).
[9] U.S. Army Corps of Engineers, *Waterborne Commerce of the United States* (New Orleans, LA: Annual issues), part 5, section 1, tables 2, 3, and 4.

[10] 1970-A321990: U.S. Coast Guard, Office of Investigations and Analysis, G-MAO-2, personal communication. 1994-2006: Ibid., Data Administration Division (G-MRI-1), personal communication, Feb. 13, 2002, July 2, 2003 and August 29, 2007.

Oil Pipeline Profile

FINANCIAL	1960	1970	1980	1990	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Operating revenues, total ($ millions) [1]	895	1,396	7,548	8,506	8,676	9,077	8,637	8,632	8,579	9,067	8,958	9,066	U	U	U	U	U
FERC-regulated	770	1,188	6,340	7,164	7,353	7,751	7,310	7,278	7,212	7,645	7,551	7,649	U	U	U	U	U
Nonregulated	125	208	1,208	1,342	1,323	1,326	1,327	1,354	1,367	1,422	1,407	1,417	U	U	U	U	U
INVENTORY																	
Number of FERC-regulated companies [2]	87	101	130	150	158	161	160	U	U	184	U	U	U	195	195	197	U
Number of employees, pipeline companies [a, 3]	23,100	17,600	21,300	18,500	17,100	15,100	14,500	14,200	13,800	13,060	13,230	13,680	12,360	12,500	12,840	13,040	12,770
Miles of pipeline (statute miles)[b], all lines [4]	190,944	218,671	218,393	208,752	190,350	181,912	177,535	179,873	178,648	177,463	176,996	U	U	U	U	U	U
Crude lines	141,085	146,275	129,831	118,805	103,277	97,029	92,610	91,523	87,663	86,369	85,480	U	U	U	U	U	U
Product lines	49,859	72,396	88,562	89,947	87,073	84,883	84,925	88,350	90,985	91,094	91,516	U	U	U	U	U	U
PERFORMANCE																	
Intercity ton-miles, total (millions) [5]	229,000	431,000	588,200	584,100	591,400	601,100	619,200	616,500	619,800	617,700	577,300	576,100	586,200	590,200	599,600	U	U
Crude oil	N	N	362,600	334,800	322,600	335,900	338,300	337,400	334,100	321,100	283,400	277,000	286,600	284,500	283,700	U	U
Petroleum products	N	N	225,600	249,300	268,800	265,200	280,900	279,100	285,700	296,600	293,900	299,100	299,600	305,700	315,900	U	U
Tons transported (millions) [5]	468.0	790.2	921.0	1,057.4	1,063.6	1,074.3	1,114.1	1,108.0	1,116.3	1,125.2	1,146.8	1,123.4	U	U	U	U	U
Average length of haul (statute miles)													U	U	U	U	U
Crude oil [6]	325	300	871	812	778	797	779	781	767	766	U	U	U	U	U	U	U
Petroleum products [6]	269	357	414	387	414	402	413	413	420	418	U	U	U	U	U	U	U
SAFETY [7]																	
Fatalities	N	4	4	3	1	3	5	0	2	4	1	0	1	0	5	2	0
Injured persons	N	21	15	7	[c] 7	11	13	5	6	20	4	10	0	5	16	2	2
Incidents	N	351	246	180	245	188	194	171	153	167	146	130	147	131	144	(R) 138	110

KEY: FERC = Federal Energy Regulatory Commission; N = data do not exist; R = revised; U = data are not available.

[a] Includes companies whose pipelines carry crude petroleum, petroleum products, and nonpetroleum pipeline liquids.

[b] Regulated plus unregulated mileage of crude oil trunk and gathering lines, plus refined oil trunk lines.

[c] Does not include the 1,851 injuries that required medical treatment, caused by severe flooding near Houston, Texas, reported for October, 1994.

NOTE

The Interstate Commerce Committee regulated oil pipelines in the 1960s and 1970s.

SOURCES

[1] Eno Transportation Foundation, Inc., *Transportation In America 2002* (Washington, DC: 2002), pp. 38 and 39, and similar tables in earlier editions.

[2] 1960-96: Federal Energy Regulatory Commission, personal communication.
1999: Ibid., Internet site www.ferc.fed.us/oil/oil_list.htm as of June 21, 2001.
2003: Ibid., Internet site www.ferc.gov/industries/oil/gen-info/reg-central.asp as of Aug. 26, 2004.
2004: Ibid., Internet site www.ferc.gov/industries/oil/gen-info/reg-central.asp as of Mar. 16, 2005.
2005: Ibid., Internet site www.ferc.gov/industries/oil/gen-info/reg-central.asp as of Oct. 27, 2006.

[3] 1960-80: U.S. Department of Labor, Bureau of Labor Statistics, *Employment, Hours and Earnings, United States, 1909-94* (Washington, DC: September 1994), SIC 46.
1990-1994: Ibid., *Hours and Earnings, United States, 1988-1996* (Washington, DC: July 1996), SIC 46.
1995-98: Ibid., Internet site www.bls.gov, SIC 46, as of Apr. 19, 1999.
1999-2001: Ibid., Internet site www.bls.gov/oes, SIC 46, as of June 30, 2003.
2002-03: Ibid, Internet site www.bls.gov/oes, NAICS 486100 and NAICS 486900, as of Mar. 16, 2005.
2004-06: Ibid, Internet site www.bls.gov/oes, NAICS 486100 and NAICS 486900, as of Oct. 26, 2007.

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

[5] 1960-70: Ibid., *Transportation in America, 1998* (Washington, DC: 1998), p. 44 and *Transportation in America, Supplement, 1999* (Washington, DC: 1999).
1980-98: Ibid., *Transpotation in America, 2002* (Washington, DC: 2002), p. 53, and similar tables in earlier editions.
1999-2004: Association of Oil Pipe Lines, *Shifts in Petroleum Transportation* (Washington, DC: 2004), Internet site http://www.aopl.org/pubs/facts.html as of Oct. 27, 2006.

Natural Gas Pipeline Profile

FINANCIAL ($ millions)	1960	1970	1980	1990	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Transmission pipeline companies [1]																
Total operating revenues	3,190	5,928	41,604	21,756	13,841	12,092	12,050	10,339	9,450	9,555	10,404	10,257	10,096	10,892	11,313	16,547
Total operating expenses [a]	2,698	5,088	39,709	19,484	11,333	9,534	9,603	7,862	6,875	6,897	7,856	7,296	7,369	7,822	8,284	10,336
Operation and maintenance	2,095	4,203	36,480	17,058	8,389	6,680	6,802	5,381	4,260	4,148	5,172	4,198	4,294	4,341	4,503	6,624
Operation expenses	2,031	4,094	36,075	16,429	7,811	6,121	6,314	4,975	3,909	3,823	4,880	3,850	3,971	3,997	4,130	6,077
Maintenance expenses	64	109	405	629	578	558	488	406	351	325	292	347	322	344	373	548
Taxes (federal, state, local) [b]	319	376	1,991	1,245	1,757	1,582	1,643	1,531	1,560	1,645	1,570	1,859	1,773	2,088	2,302	2,861
Federal taxes	223	202	1,327	768	1,172	1,048	1,085	1,076	1,035	1,109	1,029	1,249	1,243	1,603	1,701	2,048
State and local taxes	96	174	664	477	585	534	558	455	525	536	541	610	530	485	601	813
Distribution pipeline companies [2]																
Total operating revenues	N	N	14,013	18,750	20,911	19,421	30,407	30,864	28,182	28,135	34,696	39,179	31,210	38,199	(R) 40,410	48,957
Total operating expenses [a]	N	N	13,263	17,125	19,025	17,402	27,917	27,445	25,668	24,564	32,103	36,450	28,266	35,113	(R) 37,330	44,800
Operation and maintenance	N	N	11,791	14,544	15,868	14,170	23,301	23,155	21,396	20,226	27,093	31,486	23,655	29,994	(R) 32,149	40,099
Operation expenses	N	N	11,539	14,020	15,279	13,575	22,433	22,388	20,710	18,270	26,271	30,776	22,902	29,236	(R) 31,355	39,236
Maintenance expenses	N	N	252	524	589	596	868	767	687	1,956	821	710	753	757	(R) 794	862
Taxes (federal, state, local) [b]	N	N	1,136	1,625	1,931	1,888	2,668	2,415	2,524	2,355	2,916	2,908	2,437	2,914	(R) 2,901	3,222
Federal taxes	N	N	351	580	703	720	1,041	849	1,250	883	1,033	1,216	891	1,108	(R) 1,096	1,075
State and local taxes	N	N	785	1,045	1,228	1,168	1,627	1,566	1,274	1,472	1,883	1,692	1,546	1,806	(R) 1,805	2,147
Investor-owned, total industry [c, 3]																
Total operating revenues	N	N	85,918	66,027	63,446	58,435	63,600	62,660	57,548	59,142	72,075	79,276	68,594	75,567	(R) 80,331	102,062
Total operating expenses [a]	N	N	81,789	60,137	56,789	50,594	56,695	55,422	51,075	51,331	64,961	71,011	59,839	66,623	(R) 71,699	89,334
Operation and maintenance	N	N	74,508	51,628	45,953	40,041	45,785	44,851	41,360	41,415	54,630	58,908	48,675	55,067	(R) 59,952	77,710
Operation expenses	N	N	73,288	49,718	43,879	37,998	43,742	43,258	39,971	38,752	53,138	57,184	47,037	53,477	(R) 58,277	75,725
Maintenance expenses	N	N	1,220	1,910	2,074	2,043	2,043	1,593	1,390	2,664	1,492	1,722	1,637	1,590	(R) 1,675	1,985
Taxes (federal, state, local) [b]	N	N	4,847	4,957	6,603	5,981	6,362	6,384	5,293	5,605	6,106	7,201	5,870	6,493	(R) 6,420	7,421
Federal taxes	N	N	2,327	2,038	3,112	2,511	2,932	3,066	2,631	2,626	2,690	3,133	2,624	3,315	(R) 3,188	3,643
State and local taxes	N	N	2,520	2,919	3,491	3,470	3,430	3,318	2,662	2,979	3,416	4,068	3,246	3,178	(R) 3,232	3,778
INVENTORY																
Pipeline mileage, total [4]	630,950	913,267	1,051,774	1,189,200	1,288,400	1,277,600	1,323,600	1,331,800	1,351,200	1,340,300	1,369,300	1,373,500	1,411,381	1,424,177	1,462,349	1,457,438
Transmission	183,700	252,200	266,500	292,200	301,500	296,900	292,200	294,000	300,100	301,000	296,600	287,100	309,503	303,999	298,851	296,377
Distribution	391,400	594,800	701,800	864,600	955,600	949,800	1,001,800	1,003,100	1,022,100	1,007,500	1,045,600	1,066,300	1,079,565	1,097,870	1,139,756	1,117,784
Field and gathering	55,800	66,300	83,500	32,400	31,300	30,900	29,600	34,700	29,000	31,800	27,100	20,100	22,313	22,308	23,742	23,297
Number of employees [5]																
Gas utility industry totals	206,400	211,700	215,400	204,200	187,200	179,000	179,000	154,600	154,200	143,600	135,600	135,000	140,000	129,000	130,000	131,000
Investor-owned companies [d], total	N	N	202,700	192,100	175,700	168,900	163,400	145,400	142,400	133,100	125,100	123,000	123,000	114,000	111,000	119,000
Transmission pipeline companies	31,400	32,400	45,200	37,400	31,000	28,000	32,300	27,500	28,400	29,400	26,400	26,000	26,000	25,000	25,000	25,000
Distribution pipeline companies	N	N	52,100	64,700	62,400	61,600	79,700	75,000	71,300	71,400	69,500	53,000	55,000	51,000	51,000	51,000
Integrated pipeline companies	N	N	53,200	39,900	39,400	36,400	12,700	12,300	12,000	6,200	6,000	5,000	6,000	5,000	4,000	4,000
Combination pipeline companies	N	N	52,200	50,100	42,900	42,900	38,700	30,600	30,700	26,100	23,200	39,000	36,000	33,000	31,000	39,000
Number of interstate natural gas pipeline companies [e, 6]	87	89	91	132	79	92	84	101	97	U	U	U	U	U	U	U
PERFORMANCE (million cubic ft.) [7]																
Marketed production, total	12,771,038	21,920,642	20,179,724	18,593,792	19,709,525	19,506,474	19,812,241	19,866,093	19,961,348	19,804,848	20,197,511	20,570,295	19,884,780	19,974,360	(R) 19,517,491	18,950,734
Delivered to consumers, total	10,382,681	19,018,462	18,216,233	16,818,882	18,898,635	19,660,161	20,005,508	20,781,554	20,437,798	20,680,843	21,539,964	20,495,108	21,227,012	20,562,727	(R) 20,724,883	20,544,907
Consumed, total	11,966,537	21,139,386	19,877,293	18,715,090	20,707,717	21,580,665	21,966,616	22,736,203	22,245,956	22,405,151	23,333,121	22,238,624	23,007,014	22,276,502	(R) 22,388,975	22,241,202
Gas used as a pipeline fuel, total	347,075	722,166	634,622	659,816	685,362	700,335	711,446	751,470	635,477	645,319	642,210	624,964	666,920	591,492	(R) 566,187	584,779
SAFETY [8]																
Fatalities	N	26	15	6	21	18	48	10	19	18	37	7	11	12	18	14
Injured persons	N	233	177	69	113	53	114	72	75	88	77	51	49	(R) 66	44	45
Incidents	N	1,077	1,524	198	222	161	187	175	236	172	234	211	(R) 184	(R) 239	(R) 299	351

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

[a] Does not add due to omission of line from source table for depreciation and other noncash expenses.
[b] Figures obtained by addition / subtraction and may not appear directly in data source.

[c] Industry total includes integrated and combination company totals in addition to distribution and transmission company totals.

[d] Number of employees in investor-owned companies is the sum of employees in distribution, transmission, integrated and combination companies.

[e] Beginning in 1991 the number of interstate natural gas pipeline companies is calculated using the Federal Energy Regulatory Commission's FASTR database, which contains a listing by year of pipeline companies that are regulated and, therefore, required to pay tariff duties to the federal government. Data for the years prior to 1991 were collected from the Energy Information Administration's discontinued publication *Statistics of Interstate Natural Gas Pipeline Companies.* Data from the two sources may not be comparable.

NOTES

Numbers may not add to totals due to rounding.
Gas utility industry totals include employees of privately owned companies.

SOURCES

[1] 1960-70: American Gas Association, *Gas Facts, 1979* (Arlington, VA: 1980), table 134. 1980-2005: Ibid., *Gas Facts, 2006* (Washington, DC: 2007), table 11-2 and similar tables in earlier editions.
[2] 1980: American Gas Association, *Gas Facts, 1979* (Arlington, VA: 1980), table 134. 1990-2005: Ibid., *Gas Facts, 2006* (Washington, DC: 2007), table 11-1 and similar tables in earlier editions.
[3] 1980-2005: American Gas Association, *Gas Facts, 2006* (Washington, DC: 2007), tables 11-1, 11-2, 11-3, and 11-4 and similar tables in earlier editions.
[4] 1960-70: American Gas Association, *Gas Facts, 1979* (Arlington, VA: 1980), table 44. 1980-2005: Ibid., *Gas Facts, 2006* (Washington, DC: 2007), tables 5-1, 5-3, and similar tables in earlier editions.
[5] 1960-80: American Gas Association, *Gas Facts, 1979* (Arlington, VA: 1980), table 153. 1990-2005: Ibid., *Gas Facts, 2006* (Washington, DC: 2007), table 13-2, and similar tables in earlier editions.

[6] 1960-90: U.S. Department of Energy, Energy Information Administration, *Statistics of Interstate Natural Gas Pipeline Companies* (Washington, DC: Annual issues), preface. 1991-98: Federal Energy Regulatory Commission, *FERC Automated System for Tariff Retrieval* (FASTR database), Internet website http://www.ferc.gov/industries/gas/gen-info/fastr/index.asp as of Feb. 18, 2004.

[7] 1960-95: U.S. Department of Energy, Energy Information Administration, *Natural Gas Annual, 1998* (Washington, DC: October 1999), table 98. 1996-2004: Ibid., *Natural Gas Annual, 2004* (Washington, DC: 2005), table 1, Internet website http://www.eia.doe.gov/oil_gas/natural_gas/data_publications/natural_gas_annual/nga.html as of Sept. 26, 2007.
[8] U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration, Office of Pipeline Safety, Internet website http://ops.dot.gov/stats.htm as of Sept. 26, 2007.

Source and Accuracy Statements

Data Source and Accuracy Statements

Chapter 1 Extent, Condition, and Performance

TABLE 1-1. System Mileage Within the United States

Highway

The Highway Performance Monitoring System (HPMS) is the source of road mileage data and is considered reliable. (See box 1-1 for detailed information about the HPMS.) The Federal Highway Administration (FHWA) of the U.S. Department of Transportation (USDOT) collects and reviews state-reported HPMS data for completeness, consistency, and adherence to specifications. Some inaccuracy may arise from variations across states in their adherence to federal guidelines in the Traffic Monitoring Guide and the *Highway Performance Monitoring System Field Manual for the Continuing Analytical and Statistical Database*.

Beginning with the 1997 issue of *Highway Statistics,* FHWA instituted a new method for creating mileage-based tables derived from the HPMS. Previously, adjustments to tables developed from sample data were made using area-wide mileage information provided by states. These adjustments are now being made using universe totals from the HPMS dataset. In addition, FHWA has discontinued the process of spreading rounding and other differences across table cells. Thus, users may note minor differences in table-to-table totals. FHWA considers mileage totals from table HM-20, "Public Road Length, Miles by Functional System" to be the controlling totals should a single value be required.

Reliability may be diminished for comparisons with pre-1980 data, which were collected via different methods and special national studies. For instance, pre-1980 mileage data included some nonpublic roadways (95,000 miles in 1979) while post-1980 data reports only public road mileage (roads or streets governed and maintained by a public authority and open to public travel).

Class I Rail

These data are from *Railroad Facts,* published annually by the Association of American Railroads (AAR). AAR data are based on 100-percent reporting by Class I railroads to the Surface Transportation Board (STB) via Schedule 700 of the *R1 Annual Report*. The STB defines Class I railroads as having operating revenues at or above a threshold indexed to a base of $250 million (1991) and adjusted annually in concert with changes in the Railroad Freight Rate Index published by the Bureau of Labor Statistics. In 1999, the adjusted threshold for Class I railroads was $258.5 million. Declassification from Class I status occurs when a railroad falls below the applicable threshold for three consecutive years. Although Class I railroads encompasses only 2 percent of the number of railroads in the country, they account for over 71 percent of the industry's mileage operated.

To obtain railway mileage, AAR subtracts trackage rights from miles of rail traveled on line 57 in the Schedule 700 report. Historical reliability may vary due to changes in the railroad industry, including bankruptcies, mergers, and declassification by the STB. Small data errors may also exist because of because of independent rounding of this series by AAR.

Amtrak

These statistics originate from the Statistical Appendix to *Amtrak's Annual Report*. Amtrak estimates track mileage based on point-to-point city timetables that railroad companies provide for engineers. The figures are estimates, but are considered reliable.

Box 1-1.
Highway Performance Monitoring System

Sampling Frame Construction

The Highway Performance Monitoring System (HPMS) sample is a stratified simple random sample of highway links (small sections of roadway) selected from state inventory files. The 1997 sample consists of about 120,000 samples. Each state maintains an independent inventory of highway road links for those roads that the state is responsible for (in some cases this can be a low percentage of total road miles within the state). Lower jurisdictions (MPO's, counties, cities, national parks, Indian reservations, etc.) may also maintain inventories of highway links under their jurisdiction. The HPMS sample was originally selected in 1978 based on guidelines provided by the FHWA for sampling highway systems excluding those roads functionally classified as local. The sampling frame for the state systems were the state inventories. The estimates represent the highway systems of each state. The HPMS sample was designed as a fixed sample to minimize data collection costs but adjustments to maintain representativeness are carried out periodically. The HPMS also consists of universe reporting (a complete census) for the Interstate and the National Highway System, and tabular summary reporting of limited information. A small number of data items (about 30) are reported for the complete universe. The universe information contains no sampling error. There are 4 tables reported as part of the summary.

Stratification

The HPMS sample (and universe) is stratified by state, type of area (rural, urban, and individual urbanized areas), highway functional classification, and traffic (annual average daily traffic (AADT) volume groups). Complete information is provided in the HPMS *Field Manual*.

Weighting

The HPMS sample expansion factors are the ratio of universe mileage to sample mileage in each strata.

Data Collection

Data are collected independently by the 50 states, metropolitan planning organizations (MPOs), and lower jurisdictions. Many of the geometric data items rarely change, such as number of lanes. Others change frequently, such as traffic. Typically, the states maintain data inventories that are the repositories of a wide variety of data items. The HPMS data items are extracted from these inventories. For example, each State has a traffic volume counting program. Typically, equipment is installed or placed on the roads to measure traffic. The counts are then converted to annual average daily traffic (AADT) and stored in the state databases. AADT is one of the sample and universe items extracted from the inventories and reported to the HPMS. The FHWA provides guidelines for data collection in the HPMS *Field Manual*, which the states follow to varying extents depending on issues such as staff, resources, state perspective, uses of the data, state/MPO/local needs for data, etc. Traffic data collection, for example, is an expensive and dangerous undertaking, particularly in high volume urban areas.

State departments of transportation report HPMS data annually to the FHWA. There are about 80 data items reported for the sample component. The reporting deadline is June 15. Except for special cases where major problems occur, data items are reported for each sample. There is no provision for nonresponse since a number is available for each section in the state inventories; however, states do leave items blank to indicate that no data collection has taken place for a specific item (e.g., if no system to measure pavement has been implemented in the state, the pavement condition item may be left blank). The HPMS has gone through a major restructuring effort, and major data item reductions, modifications, and other changes will begin to be implemented with the 1999 data reported by June 15, 2000.

Sampling Error

The sample size is estimated based on traffic volume (AADT) within each stratum. Traffic volume is the most variable data item. Sampling error can be estimated directly based on the sample design for each stratum and aggregated by stratified random sample methods to total values. This exercise was done originally in 1980 for some of the most variable data items including vehicle-miles traveled. It has not been repeated since due to the work involved and the limited impact of sampling error as compared to nonsampling error.

Nonsampling Error

This is a major item of concern for the HPMS. For some of the most variable and important data items, such as AADT, guidelines for measurement and data collection have been produced. States have the option of using the guidelines or using their own procedures. Many data items are difficult and costly to collect and are reported as estimates not based on direct measurement. The data are collected and reported by many entities and individuals within the responsible organizations. Most do a reasonably good job, but staff turnover, cost, equipment issues, etc., can create difficulties identifying data problems. As mentioned before, a response is usually provided for each link as included in state inventories. For highway links not the responsibility of states, metropolitan planning organizations and lower jurisdictions using a wide variety of methods may collect the data. This is a major area of concern and efforts are underway within States to standardize data collection. The major effort with the HPMS is to ensure the collection and reporting of reliable annual data. The FHWA field offices in each state conduct annual verification of the data reported. Computer software is provided to build the database and conduct logic edits prior to submittal. The reported data are subjected to intense editing and comparison with previous reporting and a written annual report is provided to each state to document problems found and encourage correction. Data resubmittal is requested in cases where major problems are found. The process involves many people and substantial resources, but it provides extensive quality assurance. Complete information on data items, edits, processing, expansion, sample design, definitions, data reporting, etc., is included in the HPMS *Field Manual*.

Transit

These data are based on information in the U.S. Department of Transportation, Federal Transit Administration (FTA), National Transit Database (NTD). The legislative requirement for the NTD is found in Title 49 U.S.C. 5335(a). Transit agencies receiving funds through the Urbanized Area Formula Program are generally required to report financial and operating data, including vehicle inventories and directly operated mileage. Transit operators that do not report to FTA are those that do not receive Urbanized Area Formula Funding, typically private, small, and rural operators. The data are generally considered accurate because FTA reviews and validates information submitted by individual transit agencies. Reliability may vary because some transit agencies cannot obtain accurate information or may misinterpret certain data definitions.

Navigable Channels

These statistics originate from a mid-1950s U.S. Army Corps of Engineers (USACE) estimate that there were approximately 25,000 miles of commercially important navigable channels in the United States. That number has been adjusted from time to time, for example, by addition of the 234-mile Tennessee-Tombigbee Waterway in the early 1980s. The 25,000 plus mile number has been universally quoted for decades, but has definitional and methodological uncertainties. USACE is currently developing a rigorous, Global Information System (GIS)-based approach to facilitate tabulation of the lengths of shallow and deep-draft commercially navigable waterways in the United States; this calculation will be available in several years.

Oil Pipeline

The data are from *Transportation in America*, published by the Eno Transportation Foundation, Inc. (Eno). The numbers reprinted here for 1960, 1965, 1970, and 1975 are Eno estimates from the U.S. Department of Energy (DOE) *Energy Data Report* issues labeled "Crude-oil and Refined Products Mileage in the United States." Eno estimated the 1980 number based on the assumption that refinement of old, less profitable, and smaller lines exceeded in mileage the construction of new, larger, and more profitable lines. Post-1985 data were calculated using a base figure reported in a 1982 USDOT study entitled *Liquid Pipeline Director* and then combined with data from the Association of Oil Pipe Lines and the Oil Pipeline Research Institute. Lack of additional information raises definitional and methodological uncertainties for the data's reliability. Moreover, the three different information sources introduce data discontinuities, making time comparisons unreliable.

Gas Pipeline

These statistics originate from annual editions of *Gas Facts,* published by the American Gas Association (AGA). The data reported by the AGA are based on gas utilities participation and reporting to the *Uniform Statistical Report*. Utilities reporting represented 98 percent of gas utility industry sales while the remaining 2 percent was estimated for nonreporting companies based on recent historical experience. Varying percentages of nonreporters from year to year introduce minor reliability problems for time-series comparisons.

TABLE 1-2. Number of Air Carriers, Railroads, Interstate Motor Carriers, Marine Operators, and Pipeline Operators

Air Carriers

The data are from the *Air Carrier Financial Statistics Quarterly,* published by the Office of Airline Information of the U.S. Department of Transportation, Bureau of Transportation Statistics (BTS). The Alphabetical List of Air Carriers by Carrier Group at the beginning of each fourth quarter edition is used to determine the number of major air carriers and other air carriers in operation at the end of each calendar year. The publication draws its data from the T-100 and T-100(f) databases maintained by BTS. These databases include data obtained from a 100-percent census of BTS Form 41 schedule submissions by large certificated air carriers, which are carriers that hold a certificate issued under section 401 of the Federal Aviation Act of 1958 and that (1) operate aircraft designed to have a maximum passenger seating capacity of more than 60 seats or a maximum payload capacity of more than 18,000 pounds or (2) that conduct international operations. Carriers are grouped as major, national, large regional, or medium regional based on their annual operating revenues. The thresholds were last adjusted July 1, 1999 and the threshold for major air carriers is currently $1 billion. The table combines the number of national, large regional, and medium regional air carriers into the other air carrier category.

Railroads

The Association of American Railroads (AAR)'s *Railroad Ten-Year Trends* series is the source for the number of railroads. The number of Class I railroads is based on 100-percent reporting by Class I railroads to the Surface Transportation Board (STB) via Schedule 700 of the *R1 Annual Report*. The STB defines Class I railroads as having operating revenues at or above a threshold indexed to a base of $250 million (1991) and adjusted annually in concert with changes in the Railroad Freight Rate Index published by the Bureau of Labor Statistics. In 2000, the adjusted threshold for Class I railroads was $261.9 million. Declassification from Class I status occurs when a railroad falls below the applicable threshold for three consecutive years. Although Class I railroads encompasses only 1 percent of the number of railroads in the country, they account for over 71 percent of the industry's mileage operated.

The Association of American Railroads determines the number of non-Class I railroads through an annual survey sent to every U.S. freight railroad. By following up with nonrespondents, the AAR obtains essentially a census of railroads. Use of the current survey instrument began in 1986.

Interstate Motor Carriers

The Motor Carrier Management Information System (MCMIS), maintained by the U.S. Department of Transportation, Federal Motor Carrier Safety Administration, contains information on the safety of all commercial interstate motor carriers and hazardous material (HM) shippers subject to the Federal Motor Carrier Safety Regulations and the Hazardous Materials Regulations. All carriers operating in interstate or foreign commerce within 90 days of beginning operations must submit a Form MCS-150, Motor Carrier Identification Report. Carriers may also use the form to update their information. The Motor Carrier Safety Improvement Act of 1999 requires that reports be periodically updated, but not more than once every two years. MCMIS is updated as soon as information is provided and verified, and periodic archives are made. Historical data are available from summary information previously prepared, including tables and reports. MCMIS began operations in 1980. Safety data since 1990 are available to the public.

Marine Vessel Operators

The U.S. Army Corps of Engineers (USACE) provides the data for marine vessel operators

through the *Waterborne Transportation Lines of the United States*. Data are collected by the USACE's Navigation Data Center (NDC) by various means, including the U.S. Coast Guard's registry, maritime service directories, and waterway sector publications. However, an annual survey of companies that operate inland waterway vessels is the principle source of data. More than 3,000 surveys are sent to these companies and response rates are typically above 90 percent. However, a USACE official did report that less than 10 percent of the total number of companies operating inland water vessels either did not receive or respond to the annual survey.

Pipeline Operators

The Office of Pipeline Safety (OPS) in the U.S. Department of Transportation's Research and Special Programs Administration collects annual report data from natural gas transmission and distribution operators as required by 49 CFR 191.17 and 191.11, respectively. Annual data must be submitted by March 15 of the following calendar year. No annual report is required for hazardous liquid pipeline operators. However, information is available through the pipeline safety program. Since 1986, the program has been funded by fees assessed to each OPS-regulated pipeline operator based on per-mile of hazardous pipeline operated. Data for each operator and each mile of pipeline are stored in the OPS user-fee database, which is revised annually as updated fees are assessed.

Totals for pipeline operators in this table will differ from those in other tables due to differences in the regulatory authority of USDOT and the Federal Energy Regulatory Commission (FERC). FERC regulates only interstate pipelines, whereas DOT regulates both interstate and intrastate pipelines, except for rural gathering lines and some offshore pipelines, which fall under jurisdiction of the U.S. Coast Guard or the U.S. Department of the Interior's Minerals Management Service. An OPS official stated that FERC regulates about two-thirds the amount of pipeline mileage that USDOT regulates.

TABLE 1-3. Number of U.S. Airports

The Federal Aviation Administration (FAA), Office of Airport Safety and Standards *Administrator's Fact Book* (annual issues) furnished the data shown in this table and includes airports certified for air carrier operations with aircraft that seat 30 or more passengers. These airports include civil and joint civil-military use airports, heliports, STOLports (short takeoff and landing), and seaplane facilities. The FAA obtained this data via physical inspections and mail solicitations of all federally regulated landing facilities. Since this is a census of all U.S. airports, reliability should be high. Data, however, may be subject to reporting errors typical of administrative recordkeeping.

TABLE 1-4. Public Road and Street Mileage in the United States by Type of Surface

TABLE 1-5. U.S. Public Road and Street Mileage by Functional System

TABLE 1-6. Estimated U.S. Roadway Lane-Miles by Functional Class

The Highway Performance Monitoring System (HPMS) is the source of road mileage data and is considered reliable. (See box 1-1 for detailed information about the HPMS.) The U.S. Department of Transportation, Federal Highway Administration collects and reviews state-reported HPMS data for completeness, consistency, and adherence to specifications. Some inaccuracy may arise from variations across states in their adherence to federal guidelines in the Traffic Monitoring Guide and the *Highway Performance Monitoring System Field Manual for the Continuing Analytical and Statistical Database*.

Beginning with the 1997 issue of *Highway Statistics,* FHWA instituted a new method for creating mileage-based tables derived from the HPMS. Previously, adjustments to tables developed from sample data were made using area-wide mileage information provided by states. These adjustments are now being made using universe totals from the HPMS dataset. In addition, FHWA has discontinued the process of spreading rounding and other differences across table cells. Thus, users may note minor differences in table-to-table totals. FHWA considers mileage totals from table HM-20, "Public Road Length, Miles by Functional System" to be the controlling totals should a single value be required.

Lane-miles are calculated by multiplying the centerline length by the number of through lanes. Because the HPMS requires that the number of lanes be reported for all principal arterials, other National Highway System (NHS) roads, and all standard

samples, lane length can be computed for the Interstate, other principal arterials, and the NHS on a 100-percent basis. For minor arterials, rural major collectors, and urban collectors, lane length is calculated based on standard sample sections using the reported number of through lanes, length of section, and an expansion factor. FHWA uses the expanded sample to check that the centerline length of a state's functional system matches the universe functional system length. If the centerline length and functional system length do not match, FHWA may ask a state to make adjustments.

Reliability may be diminished for comparisons with pre-1980 data, which were collected via different methods and special national studies. For instance, pre-1980 mileage data included some nonpublic roadways (95,000 miles in 1979) while post-1980 data reports only public road mileage (roads or streets governed and maintained by a public authority and open to public travel).

TABLE 1-7. Number of Stations Served by Amtrak and Rail Transit, Fiscal Year

These numbers originate from Amtrak's Statistical Appendix to *Amtrak's Annual Report* and the U.S. Department of Transportation, Federal Transit Administration's National Transit Database.

Amtrak maintains a computer database with a record of every station, locomotive, and car it operates. Those records include for each vehicle the year built, its service status (operating or not on a daily basis), and location. These data should be considered very reliable.

TABLE 1-8. ADA Accessible Rail Transit Stations by Agency

TABLE 1-9. ADA Lift- or Ramp-Equipped Transit Buses

These data are based on information in the U.S. Department of Transportation, Federal Transit Administration (FTA), National Transit Database (NTD). The legislative requirement for the NTD is found in Title 49 U.S.C. 5335(a). Transit agencies receiving funds through the Urbanized Area Formula Program are generally required to report financial and operating data, including certain aspects of station and vehicle accessibility. Transit operators that do not report to FTA are those that do not receive Urbanized Area Formula Funding, typically private, small, and rural operators. The data are generally considered accurate because FTA reviews and validates information submitted by individual transit agencies. Reliability may vary because some transit agencies cannot obtain accurate information or may misinterpret certain data definitions.

TABLE 1-10. U.S. Oil and Gas Pipeline Mileage

Oil Pipeline

The data are from *Transportation in America,* published by the Eno Transportation Foundation, Inc. (Eno). The numbers reprinted here for 1960, 1965, 1970, and 1975 are Eno estimates from the U.S. Department of Energy's *Energy Data Report* issues labeled "Crude-oil and Refined Products Mileage in the United States." Eno estimated the 1980 number based on the assumption that refinement of old, less profitable, and smaller lines exceeded in mileage the construction of new, larger, and more-profitable lines. Figures from 1985 and later years are calculated from a base figure that Eno obtained from the 1982 U.S. Department of Transportation study *Liquid Pipeline Director* and then incorporated that figure with data from the Association of Oil Pipe Lines and the Oil Pipeline Research Institute. Lack of additional information raises definitional and methodological uncertainties for the data's reliability. Moreover, the three different information sources introduce data discontinuities making time comparisons less reliable.

Gas Pipeline

These statistics originate from annual editions of *Gas Facts* published by the American Gas Association (AGA). The data reported by AGA are based on gas utilities participation and reporting to the Uniform Statistical Report. Utilities reporting in 1991 represented 98 percent of total gas utility industry sales while the remaining 2 percent was estimated for the nonreporting companies based on recent historical experience. Varying percentages of nonreporters from year to year introduce minor reliability problems for time-series comparisons.

TABLE 1-11. Number of U.S. Aircraft, Vehicles, Vessels, and Other Conveyances

TABLE 1-12. Sales or Deliveries of New Aircraft, Vehicles, Vessels, and Other Conveyances

Civilian Aircraft

The Aerospace Industries Association (AIA) provided this data in their annual issues *Aerospace Facts and Figures,* "Civil Aircraft Shipments." AIA collects their data from aircraft company reports, the General Aviation Manufacturers Association (GAMA), and the U.S. Department of Commerce's (DOC) International Trade Administration. DOC data provide total number of shipments and exports, and the difference computed by AIA equals domestic shipments. DOC collects shipments data separately for individual factories or establishments and not at the company level. A potential limitation of this approach is when a factory producing aircraft for shipment also makes aircraft parts. If the establishment has 80 percent of its production in aircraft and 20 percent in parts, all of the output is attributed to aircraft shipments.

Transport

The Aerospace Industries Association (AIA) is the source of these data. AIA obtains quarterly data from Boeing Corp., now the sole U.S. manufacturer of transport aircraft, and publicly available financial disclosure information filed with the U.S. Securities and Exchange Commission (SEC) via Form 10-k. SEC requires a publicly traded company to file an annual report 90 days after the end of the company's fiscal year to provide an overview of that business.

Helicopters

AIA surveyed and received data from all 10 major helicopter manufacturers on their sales and deliveries.

General Aviation

The general aviation figures are taken from the *General Aviation Statistical Databook* published by the GAMA. General aviation refers usually to the small aircraft industry in the United States. GAMA collects quarterly data from the 10 to 14 manufacturers who nearly equal a census of the general aviation sector.

Passenger Car, Truck, Bus, and Recreational Vehicles

Ward's *Motor Vehicle Facts and Figures* is the source of these data. Ward's obtains sales data directly from manufacturers. Readers should note that automobile manufacturers have inflated sales figures in the past, but Ward's does contact companies to verify numbers that appear too high or low.

Motorcycle

The Motorcycle Industry Council, Inc. (MIC) publishes the *Motorcycle Statistical Annual*, which is the source for these data. MIC derived the estimate for new retail motorcycle sales for each state from the *MIC Retail Sales Report*, and adjusted for total retail sales. Motorcycle company reports provided sales data. Prior to 1985, all-terrain vehicles (ATVs) were included in the motorcycle total. In 1995, the Motorcycle Industry Council revised its data for the years 1985 to present to exclude all terrain vehicles from its totals.

Bicycle

The National Bicycle Dealers Association (NBDA) reported these data, which are based on Bicycle Manufacturers Association (BMA) information through 1996. BMA stopped reporting members' shipments in 1996. Moreover, BMA represents the largest bicycle manufacturers (Huffy, Roadmaster, and Murray), and thus the data do not reflect specialty bike makers or other manufacturers. The Bike Council estimated 1997 through 2001 figures in the table. According to a Bicycle Council representative, the estimates are a combination of domestic forecasts produced by a panel of industry experts and import data from monthly U.S. census databases.

Transit

The American Public Transit Association provided these figures, which are based on information in the U.S. Department of Transportation, Federal Transit Administration (FTA), National Transit Database. These data are generally considered accurate because the FTA reviews and validates information submitted by individual transit agencies. Reliability may vary because some transit agencies

cannot obtain accurate information or misinterpret data. APTA conservatively adjusts FTA data to include transit operators that do not report to the database (private, very small, and rural operators).

Class I Rail

The data are from Railroad Facts, published annually by the Association of American Railroads (AAR). AAR data are based on 100-percent reporting by Class I railroads to the Surface Transportation Board (STB) via Schedule 700 of the *R1 Annual Report*. STB defines Class I railroads as having operating revenues at or above a threshold indexed to a base of $250 million (1991) and adjusted annually in concert with changes in the Railroad Freight Rate Index published by the Bureau of Labor Statistics. In 2000, the threshold for Class I railroads was $261.9 million. Although Class I railroads encompasses only 2 percent of the number of railroads in the country, they account for over 71 percent of the industry's mileage operated. Historical reliability may vary due to changes in the railroad industry, including bankruptcies, mergers, and declassification by the STB. Small data errors may also have occurred because of independent rounding in this series by the AAR.

Amtrak

Amtrak maintains a computer database with a record of every locomotive and car it operates. For each vehicle, those records include the year built, its service status (operating or not on a daily basis), and location. These data should be considered very reliable.

Water Transportation

U.S. Department of Transportation, Maritime Administration (MARAD), which classifies vessels as merchant based on size and type, reports these data in annual issues of its *Merchant Fleets of the World*. MARAD compiles these figures from a data service provided by Lloyd's Maritime Information Service. The parent company, Lloyd's Register (LR), collects data from several sources: its 200 offices worldwide, data transfers and agreements with other classification societies, questionnaires to ship owners and shipbuilders, feedback from government agencies, and input from port agents. According to an LR official, consistent data gathering methods have been maintained for more than 30 years but cautioned that inconsistencies may occur in groupings of ship types over time. For example, tank barges are now included in the tanker ship-type grouping rather than the barge grouping.

TABLE 1-13. Active Air Carrier and General Aviation Fleet by Type of Aircraft

Air Carrier, Certificated, All Services

Prior to 1995, data originated from the U.S. Department of Transportation, Federal Aviation Administration (FAA), FAA *Statistical Handbook of Aviation*. Later data are from the Aerospace Industries Association (AIA), *Aerospace Facts and Figures*. However, Aerospace Facts and Figures is compiled from the FAA *Statistical Handbook of Aviation*. U.S. air carrier fleet data are based on reports collected by FAA field offices from carriers. The reports include information on the number of aircraft by type used in air carrier service. The FAA points out that this information is not an inventory of the aircraft owned by air carriers, but represents the aircraft reported to the FAA as being used in air carrier fleet service. The reported aircraft are all aircraft carrying passengers or cargo for compensation or hire under 14 CFR 121 and 14 CFR 135.

General Aviation

The 1960-1980 figures originated from the FAA *Statistical Handbook of Aviation*. Later data are from FAA annual issues of the *General Aviation* and *Air Taxi Activity* (GAATA) Survey report, table 3.1. The FAA collects both aircraft registration data and voluntary information about aircraft operation, equipment, and location. Before 1978, the FAA mandated owners to annually register their aircraft for the Aircraft Registration Master File. This was a complete enumeration of operating aircraft. Registrants were also asked to voluntarily report information on hours flow, avionics equipment, base location, and use. The FAA changed their data collection methodology in 1978. The annual registration requirement became triennial and the General Aviation Activity and Avionics Survey was initiated to sample aircraft operation and equipment data.

The General Aviation Activity and Avionics Survey was renamed the General Aviation and Air

Taxi Activity Survey in 1993 to reflect the fact that the survey includes air taxi aircraft. This survey is conducted annually and encompasses a stratified, systematic design from a random start to generate a sample of all general aviation aircraft in the United States. It is based on the FAA registry as the sampling frame. FAA established three stratification design variables in the survey: 1) the average annual hours flown per aircraft by aircraft type, 2) the aircraft manufacturer/model characteristics, and 3) the state of aircraft registration.

Data Reliability

Because of the change in 1978, the reliability of comparisons over time will be affected. The FAA asserted that the change to a triennial registration deteriorated the Aircraft Registration Master File in two ways. First, the resulting lag in registration updates caused the number of undeliverable questionnaires to steadily increase over the three-year period. Second, inactive aircraft would remain in the registry, inflating the general aviation fleet count. In addition, a new regulation added two categories of aircraft to the general aviation fleet. However, FAA concluded that these changes resulted in no more than a five-percent error in the fleet population estimate.

The reliability of the GAATA survey can be impacted by two factors: sampling and nonsampling error. A measure, called the standard error, is used to indicate the magnitude of sampling error. Standard errors can be converted for comparability by dividing the standard error value by the estimate (derived from sample survey results) and multiplying it by 100. This quantity, referred to as the percent standard error, totaled seven-tenths of a percent in 1997 for the general aviation fleet. A large standard error relative to an estimate indicates lack of precision and, inversely, a small standard error indicates precision.

Nonsampling errors could include problems such as nonresponse, respondent's inability or unwillingness to provide correct information, differences in interpretation of questions, and data-entry mistakes. Readers should note that nonresponse bias might be a component of reliability errors in the data from 1980 to 1990. The FAA conducted telephone surveys of nonrespondents in 1977, 1978, and 1979 and found no significant differences or inconsistencies in respondents' and nonrespondents' replies. The FAA discontinued the telephone survey of nonrespondents in 1980 to save costs. Nonresponse surveys were resumed in 1990, and the FAA found notable differences and thus adjusted its fleet estimates. The 1991 through 1996 data have been revised to reflect nonresponse bias. In 1997, a sample of 29,954 aircraft was identified and surveyed from an approximate population of 251,571 registered general aviation aircraft. Just over 65 percent of the sample responded to the survey.

Highway, Total (registered vehicles)

The 1960 to 1980 figures are from the U.S. Department of Transportation, Federal Highway Administration (FHWA) document, *Highway Statistics, Summary to 1985*, table MV-201 and related tables. Data quality and consistency will be less reliable for these years because of a diversity of registration practices from state to state. Users should recognize that motor vehicle statistical information is not necessarily comparable across all states or within a state from year to year. For instance, the FHWA reported that separate data on single-unit trucks and combinations was unobtainable from all states in 1990.

After 1980, the FHWA began to use the Highway Performance Monitoring System (HPMS) database, which improved data reliability. FHWA reviews state-reported HPMS data for completeness, consistency, and adherence to these specifications. Some inaccuracy may arise from variations across states in their adherence to federal guidelines in the *Highway Performance Monitoring System Field Manual for the Continuing Analytical and Statistical Database*.

If choosing to compare state data, the FHWA recommends that users carefully select a set of peer states that have characteristics similar to the specific comparison. Improperly selected peer states are likely to yield invalid data comparisons. Characteristics that a user needs to consider in determining compatibility of a peer state include similarities and differences in urban/rural areas, population densities, degrees of urbanization, climate, geography, state laws and practices that influence data definitions, administrative controls of public road systems, state economies, traffic volumes, and degrees of centralization of state functions. The FHWA has

developed a set of variables that users may use to determine appropriate peer states.

Other 2-Axle 4-Tire Vehicle (truck)

Sources for these figures included FHWA's *Highway Statistics, Summary to 1995* (table VM-201A) and annual issues of *Highway Statistics* (table VM-1). FHWA compiles these figures from the U.S. Bureau of the Census' Truck Inventory and Use Survey (TIUS). Since 1963, Census has conducted the TIUS every five years with the last survey completed in 1997. The Census Bureau changed the name of the survey to the Vehicle Inventory and Use Survey (VIUS) in 1997. The VIUS collects data and the physical and operational characteristics of the nation's truck population. In 1997, 131,000 trucks were surveyed from an estimated universe of over 75 million trucks. Chronological reliability may be diminished due to sampling design changes in 1977, 1982, and 1992. In 1977, the sampling universe was first stratified by the number of trucks in a state: large (> 1.5 million trucks), medium (700,000 to 1.5 million), and small (< 700,000); and then by two truck sizes.

Stratification in 1982 was then based on body type rather than vehicle weight. In 1992 and 1997, the sampling universe was first subdivided geographically and then into five strata: 1) pickups, 2) vans, 3) single-unit light, 4) single-unit heavy, and 5) truck tractor. Cases were then selected randomly within each stratum.

Census delivered a mail-out/mail-back survey to the owner identified in the vehicle registration records. Data collection is staggered as state records become available. Owners report data only for the vehicles selected. In the 1992 survey, a method was employed to also collect data on new truck purchases in the latter half of the year to estimate the fleet for the calendar year. This adjustment in the sampling frame had not been done in previous surveys and may diminish chronological reliability. The sample for 1997 was some 22,500 vehicles smaller than for 1992. The 1997 VIUS had two sampling stages. For the first stage, the Census Bureau surveyed about 131,000 trucks registered as of July 1, 1997. The second stage sampled a total of 3,000 truck owners with state mailing addresses different from the state of truck registration.

The accuracy and reliability of the VIUS survey depends jointly on sampling variability and non-sampling errors. Standard errors arising from sampling variability can be converted for comparability by dividing the standard error value by the estimate and multiplying it by 100. This quantity, referred to as the percent standard error, totaled two-tenths of a percent in 1992 and 1997 for the VIUS sample. A large standard error relative to an estimate indicates lack of precision and, inversely, a small standard error indicates precision. The 1992 TIUS achieved over 90.2 percent reporting and the 1997 response rate equaled 84.5 percent, thus reliability may have decreased in the most recent survey.

Transit

The American Public Transit Association (APTA) provided these data, which are based on the Federal Transit Administration (FTA), National Transit Database. These data are generally accurate because the FTA reviews and validates information submitted by individual transit agencies. Reliability may vary because some transit agencies cannot obtain accurate information or may misinterpret data. APTA conservatively adjusts FTA data to include transit operators that do not report to the database (private, very small, and rural operators).

Railroad (all categories)

The data are from *Railroad Facts*, published annually by the Association of American Railroads (AAR). AAR data are based on 100-percent reporting by Class I railroads to the Surface Transportation Board (STB) via Schedule 700 of the *R1 Annual Report*. Thus, data estimates are considered very reliable. The STB defines Class I railroads as having operating revenues at or above a threshold indexed to a base of $250 million (1991) and adjusted annually in concert with changes in the Railroad Freight Rate Index published by the Bureau of Labor Statistics. In 2000, the adjusted threshold for Class I railroads was $ 261.9 million. Declassification from Class I status occurs when a railroad falls below the applicable threshold for three consecutive years. Although Class I railroads encompasses only 2 percent of the number of railroads in the country, they account for over 71 percent of the industry's mileage operated.

AAR determines the number of non-Class I railroads through an annual, comprehensive survey sent to every U.S. freight railroad. By following up with nonrespondents, the AAR obtains essentially

a 100 percent census of all railroads. Use of the current survey instrument began in 1986.

Amtrak

Amtrak maintains a computer database with a record of every locomotive and car it operates. For each vehicle, those records include the year built, service status (operating or not operating on a daily basis), and location. This data should be considered very reliable.

Water Transportation

The source for Inland Nonself-Propelled Vessels, Self-Propelled Vessels, and flag passenger and cargo vessels is the U.S. Army Corps of Engineers (USACE), *Waterborne Transportation Lines of the United States*, annual issues. Data are collected by the USACE's Navigation Data Center (NDC) by various means, including the U.S. Coast Guard's registry, maritime service directories, and waterway sector publications. However, an annual survey of companies that operate inland waterway vessels is the principle source of data. More than 3,000 surveys are sent to these companies, and response rates are typically above 90 percent. However, a USACE official did report that less than 10 percent of the total number of companies operating inland vessels either did not receive or respond to the annual survey.

Oceangoing Steam Motor Ships

Merchant Fleets of the World, published annually by the U.S. Department of Transportation, Maritime Administration (MARAD), is the source of these data. MARAD, which classifies vessels as merchant based on size and type, compiles these figures from a data service provided by Lloyd's Maritime Information Service (LMIS). The parent company, Lloyd's Register (LR), collects data from 200 offices worldwide, from data transfers and agreements with other classification societies, from questionnaires to ship owners and ship builders, from feedback from government agencies, and from input from port agents. According to an LR official, consistent data-gathering methods have been maintained for more than 30 years. The same official did caution that there are sometimes inconsistencies in groupings of ship types over time. For example, propelled tank barges are now included in the tanker ship-type grouping.

Recreational Boats

Boating Statistics, published annually by the U.S. Coast Guard (USCG), is the source. The USCG derives these figures from state and other jurisdictional reporting of the actual count of valid boat numbers issued. In accordance with federal requirements, all 55 U.S. states and territories require motor-powered vessels to be numbered. However, over half the states do not require non-powered vessels to be numbered. Accuracy can also be diminished by noncompliance of boat owners with numbering and registration laws. In 1996, the USCG estimated that approximately eight million recreational boats are not numbered and, thus, are excluded from the reported number of recreational vessels. The USCG did not provide estimates for the number of boats without numbering in their reports after 1996. Some jurisdictions fail to report by publication deadlines, and the USCG provided estimates based on the previous year's estimate.

TABLE 1-14. U.S. Automobile and Truck Fleets by Use

These statistics originate from two sources. The R.L. Polk Co. provides numbers for commercial fleet vehicles from state registrations. Bobit Publishing Co. also obtains fleet vehicle sales data from automobile manufacturers. These two sources cover nearly 100 percent of fleet vehicles in the United States. Thus, the data should be very accurate.

TABLE 1-15. Annual U.S. Motor Vehicle Production and Factory (Wholesale) Sales

TABLE 1-16. Retail New Passenger Car Sales

TABLE 1-17. New and Used Passenger Car Sales and Leases

TABLE 1-18. Retail Sales of New Cars by Sector

The U.S. Department of Commerce, Bureau of Economic Analysis, uses data from Ward's Automotive Reports. The sectoral break down is derived from registration data obtained from R.L. Polk. Ward's obtains sales data directly from manufacturers. Readers should note that automobile manufacturers have inflated sales figures in the past, but Ward's does contact companies to verify numbers that appear too high or low.

TABLES 1-19 and 1-20. Period Sales, Market Shares, and Sales-Weighted Fuel Economies of New Domestic and Imported Automobiles and Light Trucks, Selected Sales Periods

These data originate from Oak Ridge National Laboratory's (ORNL) Light-Duty MPG and Market Shares System database, which relies on information from monthly Ward's Automotive Reports. Comparisons and observations are made on sales and fuel economy trends from one model year to the next. ORNL has adopted several conventions to facilitate these comparisons, such as the use of sales-weighted average to estimate fuel economy and vehicle characteristics. For example, "sales-weighted" miles per gallon refers to a composite or average fuel economy based on the distribution of vehicle sales. ORNL's methodology for sales-weighting can be found in the Appendix of the *Highway Vehicle MPG and Market Shares Report: Model Year 1990* (the latest published report). The method was changed dramatically in 1983, and data reliability prior to that year is questionable. This information is now published annually in ORNL's *Transportation Energy Data Book*.

TABLE 1-21. Number of Trucks by Weight

These data are derived from the Vehicle Inventory and Use Survey (VIUS) conducted in 1997 by the U.S. Bureau of the Census. This survey, formerly known as the Truck Inventory and Use Survey (TIUS), has been conducted every 5 years since 1963. The VIUS collects data and the physical and operational characteristics of the nation's truck population. In 1997, 131,000 trucks were surveyed from an estimated universe of over 75 million trucks. Chronological reliability may be diminished due to sampling design changes in 1977, 1982, and 1992. In 1977, the sampling universe was first stratified by the number of trucks in a state: large (> 1.5 million trucks), medium (700,000 to 1.5 million), and small (< 700,000); and then by two truck sizes.

Stratification in 1982 was then based on body type rather than vehicle weight. In 1992 and 1997, the sampling universe was first subdivided geographically and then into five strata: 1) pickups, 2) vans, 3) single-unit light, 4) single-unit heavy, and 5) truck tractor. Cases were then selected randomly within each stratum.

Census delivered a mail-out/mail-back survey to the owner identified in the vehicle registration records. Data collection is staggered as state records become available. Owners report data only for the vehicles selected. In the 1992 survey, a method was employed to also collect data on new truck purchases in the latter half of the year to estimate the fleet for the calendar year. This adjustment in the sampling frame had not been done in previous surveys and may diminish chronological reliability. The sample for 1997 was some 22,500 vehicles smaller than for 1992. The 1997 VIUS had two sampling stages. For the first stage, the Census Bureau surveyed about 131,000 trucks registered as of July 1, 1997. The second stage sampled a total of 3,000 truck owners with state mailing addresses different from the state of truck registration.

The accuracy and reliability of the VIUS survey depends jointly on sampling variability and non-sampling errors. Standard errors arising from sampling variability can be converted for comparability by dividing the standard error value by the estimate and multiplying it by 100. This quantity, referred to as the percent standard error, totaled two-tenths of a percent in 1992 and 1997 for the VIUS sample. A large standard error relative to an estimate indicates lack of precision and, inversely, a small standard error indicates precision. The 1992 TIUS achieved over 90.2 percent reporting and the 1997 response rate equaled 84.5 percent, thus reliability may have decreased in the most recent survey.

TABLE 1-22. World Motor Vehicle Production, Selected Countries

Motor Vehicle Production, Factory Sales, and New Passenger Car Retail Sales

Ward's Motor Vehicle Facts & Figures is the source of these data. Ward's obtains sales data directly from manufacturers. Readers should note that automobile manufacturers have inflated sales figures in the past, but Ward's does contact companies to verify numbers that appear too high or low.

Used Passenger Car Sales and Leased Passenger Cars

ADT Automotive Used Car Market Report is the source of these data. The *Wall Street Journal* (WSJ) is the original source of 1999 data. According to

an ADT representative, publishing deadlines require ADT to use WSJ numbers until they can be replaced with National Automotive Dealers Association data. ADT Automotive's Market Analysis Department also gathers figures from CNW Marketing/Research and the R.L. Polk Co. CNW estimates used car sales volumes by collecting state title transfer data and determining if a transaction was made between private individuals or between a consumer and a franchised or independent dealer. This estimate is evaluated by comparing total transactions with state automobile sales revenues. Polk, an additional source of data, maintains a state vehicle registration database. For 1998, the ADT representative stated that Polk's data were within 5 percentage points of CNW estimates.

TABLE 1-23. Number and Size of the U.S. Flag Merchant Fleet and Its Share of the World Fleet

The U.S. Department of Transportation, Maritime Administration, which classifies vessels as merchant based on size and type, compiles these figures from a data service provided by Lloyd's Maritime Information Service. The parent company, Lloyd's Register (LR), collects data from several sources: its 200 offices worldwide, data transfers and agreements with other classification societies, questionnaires to ship owners and shipbuilders, feedback from government agencies, and input from port agents. According to an LR official, consistent data gathering methods have been maintained for more than 30 years, but cautioned that inconsistencies may occur in groupings of ship types over time. For example, tank barges are now included in the tanker ship-type grouping rather than the barge grouping.

TABLE 1-24. U.S. Airport Runway Pavement Conditions

These data originate from the U.S. Department of Transportation, Federal Aviation Administration (FAA), National Plan of Integrated Airport Systems (NPIAS). The NPIAS includes all commercial service airports, all reliever airports, and selected general aviation airports. It does not include more than 1,000 publicly owned public use landing areas, privately owned public use airports, and other civil landing areas not open to the general public. NPIAS airports serve 92 percent of general aviation aircraft (based on an estimated fleet of 200,000 aircraft). In 1998, the NPIAS encompassed 3,344 of the 5,357 airports with public access. Runway pavement condition is classified as follows:

Good: All cracks and joints are sealed.

Fair: Mild surface cracking, unsealed joints, and slab edge spalling.

Poor: Large open cracks, surface and edge spalling, vegetation growing through cracks and joints.

On a rotating basis, the FAA arranges annual inspections for about 2,000 of the approximately 4,700 public-use airports. The inspections are based on funding availability and not on statistical criteria, and nearly all runways are inspected every two years. Inspections are primarily made to collect information for pilots on airport conditions. The FAA relies on state and local agencies to perform inspections, so some inaccuracy may arise from variation in their adherence to federal guidelines regarding pavement condition reporting. In 1998, the U.S. General Accounting Office found that Pavement Condition Index information was available for about 35 percent of NPIAS airports (GAO/RCED-98-226).

TABLE 1-25. Median Age of Automobiles and Trucks in Operation in the United States

The R.L. Polk Co. is a private enterprise that purchases state registration data to maintain a database of operational vehicles. Its data represent a near census of registered vehicles in the United States, and the age estimate should be considered very reliable.

TABLE 1-26. Condition of U.S. Roadways by Functional System

U.S. Department of Transportation, Federal Highway Administration (FHWA) collects pavement condition data from each state through the Highway Performance Monitoring System. The FHWA uses two rating schemes—the Present Serviceability Rating (PSR) and the International Roughness Indicator (IRI). IRI is used to measure the condition of Interstates, other principal arterials, rural minor arterials, and other National Highway System roadways. PSR is used to measure the condition of rural major collectors and urban minor arterials and collectors. Rural minor collectors are not measured. Where IRI data are not reported for sampled sections, the PSR data are

collected. Using the PSR, values range from 0.1 to 5.0, where 5.0 denotes new pavement in excellent condition and 0.1 denotes pavement in extremely poor condition. On the IRI scale however, lower values indicate smoother roads (e.g., <60 for interstate pavement in very good condition to >170 for interstate pavement in poor condition).

The IRI is an objective measure of pavement roughness developed by the World Bank. The PSR is a more subjective measure of a broader range of pavement characteristics and therefore less comparable. Prior to 1993, all pavement conditions were evaluated using PSR values. Beginning with data published in *Highway Statistics 1993*, the FHWA began a transition to the IRI, which should eventually replace the PSR. The change from PSR to IRI makes comparisons between pre-1993 pavement condition data and 1993 and later pavement condition data difficult. Thus, trend comparisons should be made with care.

FHWA indicates that the protocol of measuring pavement roughness is not followed by all states, and some did not report for all required mileage. Totals only reflect those states reporting usable or partially usable data. Column percentages may not sum to 100 and may differ slightly from percentages in source tables, which were adjusted so that they would add to 100. FHWA believes that the IRI data are of "reasonably good quality."

TABLE 1-27. Condition of U.S. Bridges

These figures are from the U. S. Department of Transportation, Federal Highway Administration (FHWA), National Bridge Inventory Database. State highway agencies are required to maintain a bridge inspection program and inspect most bridges on public roadways at a minimum of every two years. With FHWA approval, certain bridges may be inspected less frequently. A complete file of all bridges is collected and maintained, representing a very reliable assessment of bridge conditions. However, some inaccuracy may be attributable to variations in state inspector's adherence to the National Bridge Inspection Standards.

TABLE 1-28. Average Age of Urban Transit Vehicles

These figures are based on information in the U.S. Department of Transportation, Federal Transit Administration (FTA), National Transit Database. The legislative requirement for the NTD is found in Title 49 U.S.C. 5335(a). Transit agencies receiving funds through the Urbanized Area Formula Program are generally required to report financial and operating data, including vehicle inventories. Transit operators that do not report to FTA are those that do not receive Urbanized Area Formula Funding, typically private, small, and rural operators. The data are generally considered accurate because FTA reviews and validates information submitted by individual transit agencies. Reliability may vary because some transit agencies cannot obtain accurate information or may misinterpret certain data definitions.

TABLE 1-29. Class I Railroad Locomotive Fleet by Year Built

The data are from *Railroad Facts*, published annually by the Association of American Railroads (AAR). Figures reported by AAR are based on 100-percent reporting by Class I railroads to the Surface Transportation Board (STB) via Schedule 700 of the *R1 Annual Report*. STB defines Class I railroads as having operating revenues at or above a threshold indexed to a base of $250 million (1991) and adjusted annually in concert with changes in the Railroad Freight Rate Index published by the Bureau of Labor Statistics. In 2000, the threshold for Class I railroads was $261.9 million. Declassification from Class I status occurs when a railroad falls below the applicable threshold for three consecutive years. Although Class I railroads encompasses only 2 percent of the number of railroads in the country, they account for over 71 percent of the industry's mileage operated.

TABLE 1-30. Age and Availability of Amtrak Locomotive and Car Fleets

Amtrak maintains a computer database with a record of every locomotive and car it operates. For each vehicle those records include the year built, its service status (operating or not on a daily basis), and location. These data should be considered very reliable.

TABLE 1-31. U.S. Flag Vessels by Type and Age

The data are from the U.S. Army Corps of Engineers (USACE), *Waterborne Transportation Lines of the United States* (WTLUS), annual issues. The

WTLUS database contains information on vessel operators and characteristics and descriptions for all domestic vessel operations. Data are collected by the USACE's Navigation Data Center, primarily through a survey of vessel operating companies. More than 3,000 surveys are sent to these companies and response rates are typically above 90 percent. However, a USACE official did report that less than 10 percent of the total number of companies operating inland vessel fleets either did not receive and/or did not respond to the annual survey.

TABLE 1-32. U.S. Vehicle-Miles

TABLE 1-33. Roadway Vehicle-Miles Traveled (VMT) and VMT per Lane-Mile by Functional Class

TABLE 1-34. U.S. Passenger-Miles

Air Carrier, Certificated, Domestic, All Services

The U.S. Department of Transportation (USDOT), the Bureau of Transportation Statistics, Office of Airline Information, reports aircraft revenue-miles and passenger-miles in its publication *Air Traffic Statistics*. These numbers are based on 100-percent reporting of passengers and trip length by large certificated air carriers. Minor errors arise from nonreporting but amount to less than 1 percent of all air carrier passenger-miles. The figures do not include data for all airlines, such as most scheduled commuter airlines and all nonscheduled commuter airlines. These, if added, may raise total air passenger-miles by about 5 percent.

General Aviation

Passenger-mile numbers for 1975 to present are calculated by adjusting the Interstate Commerce Commission's 1974 figure for air passenger-miles by the percentage change in annual hours flown by general aviation aircraft as published in the USDOT, Federal Aviation Administration (FAA), *FAA Statistical Handbook of Aviation*. Numbers in the handbook are based on the General Aviation and Air Taxi Survey (GAATA). In 1993, the GAATA stopped including commuter aircraft. Commuter-miles collected before 1993 by the GAATA were, according to one FAA official, woefully underreported. Therefore, problems with the estimate of general aviation aircraft include: a break in the series between 1992 and 1993, a possible outdated factor used to calculate passenger-miles, and the classification of commuter operations.

Highway

Highway vehicle-miles of travel (vmt) are estimated using data from the Highway Performance Monitoring System (HPMS), a database maintained by FHWA that contains information on highway characteristics supplied by individual states. Annual vmt by highway functional system is calculated as the product of the annual average daily traffic (AADT) along each highway section, the centerline length of each highway section, and the number of days in the year. Also, expansion factors are used for roadways that are sampled rather than continuously monitored. Vmt by vehicle type is estimated using vehicle share estimates supplied by states.

FHWA has established methods for collecting, coding, and reporting HPMS data in two manuals: *Traffic Monitoring Guide* (TMG) and *Highway Performance Monitoring System Field Manual*. The prescribed sampling process for collecting highway volume data, which is used to estimate AADT, is based on statistical methods. However, in practice, several factors affect the ultimate quality of the data. FHWA discusses many of these issues in their annual *Highway Statistics* report and other publications. However, BTS is not aware of any study or report that has statistically quantified the accuracy of vmt estimates. Some of the primary issues related to data quality are noted here.

1. The sampling procedures suggested in the TMG and HPMS *Field Manual* are designed to produce traffic volume estimates with an average precision level of 80-percent confidence with a 10-percent allowable error at the state level. FHWA provides additional guidance to states through annual workshops and other avenues to help them follow these procedures as closely as possible. However, the actual data quality and consistency of HPMS information are dependent on the programs, actions, and maintenance of sound databases by numerous data collectors, suppliers, and analysts at the state, metropolitan, and other local area levels. Not all states follow the recommended sampling, counting, and estimating procedures contained in the *Traffic Monitoring Guide*, and the exact degree to which the states follow these guidelines overall is

unknown. However, FHWA believes that most states generally follow the guidelines.

2. Estimates for higher level roadway systems are more accurate than those for lower level ones, since traffic volumes on higher level roadways are sampled at a higher rate. The TMG recommends that traffic counts be collected for all Interstate and principal arterial sections on a three-year cycle. Under this scheme, about one-third of the traffic counts for these roadway sections in a given year are actually measured, while volumes on the remainder are factored to represent present growth. Although some States collect data at all traffic count locations every year, most use some variation of the TMG data collection guidelines. Volumes on urban and rural minor arterials, rural major collectors, and urban collectors are collected using a sampling procedure. States are not required to report volumes for rural/urban local systems and rural minor collectors, though most do so. However, the methods used to estimate travel on these roadways vary from state to state since there are no standard guidelines for calculating travel on these roadways.

3. Vmt estimates by vehicle type are less accurate than are estimates for total motor vehicle vmt for several reasons: 1) vehicle classification equipment can frequently misclassify vehicles (see B.A. Harvey et al, *Accuracy of Traffic Monitoring Equipment*, GDOT 9210, (Georgia Tech Research Institute:1995)); 2) vehicle shares are often determined by methods or by special studies that are not directly compatible with HPMS data definitions and/or purposes, and observed local-level vehicle classification counts are difficult to apply on a statewide basis; and 3) vehicle type definitions can vary among states.

4. Vmt estimates for combination trucks in HPMS differ from survey-based estimates from the Truck Inventory and Use Survey (TIUS), as much as 50 percent for some categories of combination trucks. Much of this discrepancy appears to be due to differences in truck classification definitions and biases introduced by data collection practices. See R.D. Mingo et al.1995. *Transportation Research Record*, No. 1511 (Washington, DC: National Academy Press), pp. 42-46.

5. FHWA adjusts questionable data using a variety of standard techniques and professional judgement. For example, national average temporal adjustment factors developed from HPMS and other national highway monitoring programs are applied to state data, when necessary, to compensate for temporal deficiencies in sampling practices. Also, in estimating vmt by vehicle type, FHWA employs an iterative process to reconcile vmt, fuel economy (miles per gallon), fuel consumption, and vehicle registration estimates. Fuel consumption, total vmt by highway functional class, and registrations by vehicle group are used as control totals. This process limits the size of errors and ensures data consistency.

6. Passenger-miles of travel (pmt) are calculated by multiplying vmt estimates by vehicle loading (or occupancy) factors from various sources, such as the Nationwide Personal Transportation Survey conducted by FHWA and TIUS. Thus, pmt data are subject to the same accuracy issues as vmt, along with uncertainties associated with estimating vehicle-loading factors.

Transit

The American Public Transit Association (APTA) figures are based on information in USDOT, Federal Transit Administration (FTA), National Transit Database. Transit data are generally considered accurate because FTA reviews and validates information submitted by individual transit agencies. However, reliability may vary because some transit agencies cannot obtain accurate information or may misinterpret data. APTA adjusts the FTA data to include transit operators that do not report to the FTA database (private, very small, and rural operators).

Class I Rail (vehicle-miles)

Data are from *Railroad Facts*, published annually by the Association of American Railroads (AAR). AAR data are based on 100-percent reporting by Class I railroads to the Surface Transportation Board (STB) via Schedule 700 of the *R1 Annual Report* required of Class I railroads. STB defines Class I railroads as having operating revenues at or above a threshold indexed to a base of $250 million (1991) and adjusted annually in concert with changes in the Railroad Freight Rate Index published by the Bureau of Labor Statistics. In 1999, the adjusted threshold for Class I railroads was $258.5 million. Declassification from Class I status occurs when a railroad falls below the applicable threshold for three consecutive

years. Although Class I railroads encompasses only 2 percent of the number of railroads in the country, they account for over 71 percent of the industry's mileage operated.

Intercity Train

The AAR passenger-miles number is based on an almost 100-percent count of tickets and, therefore, is considered accurate.

TABLE 1-36. Long-Distance Travel in the United States by Selected Trip Characteristics: 1995

TABLE 1-37. Long-Distance Travel in the United States by Selected Traveler Characteristics: 1995

The data presented in these tables are estimates derived from the 1995 American Travel Survey (ATS) conducted for the U.S. Department of Transportation, Bureau of Transportation Statistics. The survey's estimation procedure inflates unweighted sample results to independent estimates of the total population of the United States. Values for missing data are estimated through imputation procedures.

Since ATS estimates come from a sample, they are subject to two possible types of error: nonsampling and sampling. Sources of nonsampling errors include inability to obtain information about all sample cases, errors made in data collection and processing, errors made in estimating values for missing data, and undercoverage.

The accuracy of an estimate depends on both types of error, but the full extent of the nonsampling error is unknown. Consequently, the user should be particularly careful when interpreting results based on a relatively small number of cases or on small differences between estimates.

Standard errors for ATS estimates that indicate the magnitude of sampling error as well as complete documentation of the source and reliability of the data may be obtained from detailed ATS reports. Because of methodological differences, users should use caution when comparing these data with data from other sources.

TABLE 1-38. U.S. Air Carrier Departures, Enplaned Revenue Passengers, and Enplaned Revenue Tons

The *Airport Activity Statistics of Certificated Air Carriers* (AAS) is the source of these data. Published annually by the U.S. Department of Transportation, Bureau of Transportation Statistics, Office of Airline Information (OAI), the AAS presents traffic statistics for all scheduled and nonscheduled service by large certificated U.S. air carriers for each airport served within the 50 states, the District of Columbia, and other U.S. areas designated by the Federal Aviation Administration. The publication draws its data from the T-100 and T-3 databases maintained by OAI. These data are based on a 100-percent reporting of enplanements, departures, and tonnage information by large certificated U.S. air carriers via BTS Form 41.

Prior to 1993, the AAS included all scheduled and some nonscheduled enplanements for certificated air carriers but did not include enplanements for air carriers offering charter service only. Prior to 1990, the freight category was divided into both freight and express shipments and the mail category was divided into U.S. mail (priority and nonpriority) and foreign mail. Beginning in 1990, only aggregate numbers were reported for freight and mail.

Air traffic hubs are designated as geographical areas based on the percentage of total passengers enplaned in the area. A hub may have more than one airport. This definition of hub should not be confused with the definition used by airlines in describing their "hub-and-spoke" route structures.

TABLE 1-39. Passengers Boarded at the Top 50 U.S. Airports

The *Airport Activity Statistics of Certificated Air Carriers* (AAS) is the source of these data. Published by USDOT, Bureau of Transportation Statistics, Office of Airline Information (OAI), the AAS presents traffic statistics for all scheduled and nonscheduled service by large certificated U.S. air carriers for each airport served within the 50 states, the District of Columbia, and other U.S. areas designated by the Federal Aviation Administration. The publication draws its data from the T-100 and T-3 databases maintained by OAI. These data are based on a 100-percent reporting of enplanements, departures, and tonnage information by large certificated U.S. air carriers via BTS Form 41.

Prior to 1993, the AAS included all scheduled and some nonscheduled enplanements for certificated air carriers but did not include enplanements for air carriers offering charter service only. Prior

to 1990, the freight category was divided into both freight and express shipments and the mail category was divided into U.S. mail (priority and nonpriority) and foreign mail. Beginning in 1990, only aggregate numbers were reported for freight and mail.

TABLE 1-40. Air Passenger Travel Arrivals in the United States from Selected Foreign Countries

TABLE 1-41. Air Passenger Travel Departures from the United States to Selected Foreign Countries

The International Trade Administration in the U.S. Department of Commerce publishes the *U.S. International Air Travel Statistics Report* annually. The passenger data is based on information collected by the U.S. Immigration and Naturalization Service using the INS Form I-92. All passengers on international flights must complete the I-92 form with the exception of those passengers on flights arriving or departing from Canada.

The international passenger arrivals and departures data for Canada is obtained from *Air Carrier Traffic at Canadian Airports*, which is published by Statistics Canada. Three surveys are conducted by Statistics Canada in order to collect the necessary passenger data. Since all data is not received by the time of publication and data is occasionally updated or resubmitted by the participating carriers, data should be considered preliminary for the years referenced in the source publication.

TABLE 1-44. U.S. Ton-Miles of Freight

Air Carrier

Air Carrier Traffic Statistics, published by the U.S. Department of Transportation, Bureau of Transportation Statistics (BTS), Office of Airline Information (OAI), is the source of these data. Large certificated U.S. air carriers report domestic freight activities to OAI via BTS Form 41. The information reported in the table represents transportation of freight (excluding passenger baggage), U.S. and foreign mail, and express mail within the 50 states, the District of Columbia, Puerto Rico, and the Virgin Islands. It also covers transborder traffic to Canada and Mexico by U.S. carriers. The data does not include information on small certificated air carriers, which represent less than 5 percent of freight ton-miles.

Intercity Truck

The data are estimates from *Transportation in America*, published by the Eno Transportation Foundation, Inc. (Eno). Eno's estimates of intercity truck ton-miles are based on historic data from the former Interstate Commerce Commission (ICC), estimates from the American Trucking Association, and other sources. Eno supplements its estimates by using additional information on vehicle-miles of truck travel published in Highway Statistics by the Federal Highway Administration. Users should note that truck estimates in the tables do not include local truck movements.

Class I Rail

The data are from *Railroad Facts*, published annually by the Association of American Railroads (AAR). AAR data are based on 100-percent reporting by Class I railroads to the Surface Transportation Board (STB). The data represent all revenue freight activities of the Class I railroads and are not based on information from the Rail Waybill Sample. The STB defines Class I railroads as having operating revenues at or above a threshold indexed to a base of $250 million (1991) and adjusted annually in concert with changes in the Railroad Freight Rate Index published by the Bureau of Labor Statistics. In 2000, the adjusted threshold for Class I railroads was $ 261.9 million. Declassification from Class I status occurs when a railroad falls below the applicable threshold for three consecutive years. Although Class I railroads encompasses only 1 percent of the number of railroads in the country, they account for over 71 percent of the industry's mileage operated.

Domestic Water Transport

The data are from *Waterborne Commerce of the United States*, published by the U.S. Army Corps of Engineers (USACE). All vessel operators of record report their domestic waterborne traffic movements to USACE via ENG Forms 3925 and 3925b. Cargo movements are reported according to points of loading and unloading. Certain cargo movements are excluded: 1) cargo carried on general ferries, 2) coal and petroleum products loaded from shore facilities directly into vessels for fuel use, 3)

military cargo moved in U.S. Department of Defense vessels, and 4) cargo weighing less than 100 tons moved on government equipment. USACE calculates ton-miles by multiplying the cargo's tonnage by the distance between the points of loading and unloading.

Oil Pipeline

The data for 1960, 1965, and 1970 are from *Transportation in America*, published by the Eno Transportation Foundation, Inc., and the data for 1975 to 1998 are from *Shifts in Petroleum Transportation*, by the Association of Oil Pipe Lines (AOPL). Eno's data are based on information from the former Interstate Commerce Commission's *Transport Economics*. Common carrier oil pipelines reported all freight activities to the ICC.

AOPL obtains barrel-miles from the Federal Energy Regulatory Commission (FERC), which requires petroleum shippers to report annual shipments. AOPL then coverts barrel-miles to ton-miles using conversion figures in the American Petroleum Institute's (API's) *Basic Petroleum Data Book*. Since 16 percent of pipeline shipments are intrastate and not subject to FERC reporting requirements, AOPL makes adjustments to FERC data.

TABLE 1-45. Average Length of Haul: Domestic Freight and Passenger Modes

Freight

Air Carrier and Truck

The Eno Transportation Foundation, Inc. estimated these figures.

Class I Rail

The data are from *Railroad Facts*, published annually by the Association of American Railroads (AAR). AAR data are based on 100-percent reporting by Class I railroads to the Surface Transportation Board (STB) via Schedule 700 of the *R1 Annual Report* required of Class I railroads. The STB defined Class I railroads as having operating revenues at or above a threshold indexed to a base of $250 million (1991) and adjusted annually in concert with changes in the Railroad Freight Rate Index published by the Bureau of Labor Statistics. In 2000, the adjusted threshold for Class I railroads was $ 261.9 million. Declassification from Class I status occurs when a railroad falls below the applicable threshold for three consecutive years. Although Class I railroads encompasses only 1 percent of the number of railroads in the country, they account for over 71 percent of the industry's mileage operated.

Water

The data are from *Waterborne Commerce of the United States*, published by the U.S. Army Corps of Engineers (USACE). All vessel operators of record report their domestic waterborne traffic movements to USACE via ENG Forms 3925 and 3925b. Cargo movements are reported according to points of loading and unloading. Certain cargo movements are excluded: 1) cargo carried on general ferries, 2) coal and petroleum products loaded from shore facilities directly into vessels for fuel use, 3) military cargo moved in U.S. Department of Defense vessels, and 4) cargo weighing less than 100 tons moved on government equipment. USACE calculates ton-miles by multiplying the cargo's tonnage by the distance between points of loading and unloading.

Oil Pipeline

The Eno Transportation Foundation, Inc., provided these figures, which are estimates based on U.S. Department of Energy and Association of Oil Pipe Lines reports. Figures are derived by dividing estimated pipeline ton-miles by estimated crude and petroleum products tonnage.

Passenger

Air Carrier

The U.S. Department of Transportation (USDOT), the Bureau of Transportation Statistics, Office of Airline Information, reports average trip length in its publication *Air Traffic Statistics*. These numbers are based on 100-percent reporting of passengers and trip length by large certificated air carriers via BTS Form 41. The figures do not include data for all airlines, such as most scheduled commuter airlines and all nonscheduled commuter airlines.

Bus

The Eno Transportation Foundation, Inc. estimated these figures based on Class I carrier passen-

ger data and vehicle-miles data from *Highway Statistics*, an annually published report of the USDOT, Federal Highway Administration.

Commuter Rail

The American Public Transit Association (APTA) provided these data, which are based on the USDOT, Federal Transit Administration's (FTA's), National Transit Database. Transit data are generally accurate because the FTA reviews and validates information submitted by individual transit agencies. Reliability may vary because some transit agencies cannot obtain accurate information or may misinterpret data. APTA conservatively adjusts FTA data to include transit operators that do not report to the database (private, very small, and rural operators).

Intercity/Amtrak

The Statistical Appendix to the *Amtrak Annual Report* is the source of these data. Amtrak data are based on 100 percent of issued tickets, and thus should be accurate.

TABLE 1-46. Top U.S. Foreign Trade Freight Gateways by Value of Shipments: 2001

The value of U.S. air, maritime, and land imports and exports are captured from administrative documents required by the U.S. Departments of Commerce and Treasury. In 1990, the United States entered into a Memorandum of Understanding with Canada concerning the exchange of import data. As a consequence, each country is using the other's import data to replace its own export data. U.S. international merchandise trade statistics, therefore, are no longer derived exclusively from the administrative records of the Departments of Commerce and Treasury, but from Revenue Canada. Import value is for U.S. general imports, customs value basis. Export value is FAS (free along ship) and represents the value of exports at the U.S. port of export, including the transaction price and inland freight, insurance, and other charges. Trade levels reflect the mode of transportation as a shipment entered or exited a U.S. Customs port.

Truck, rail pipeline, mail, and miscellaneous modes are included in the total for land modes. Data present trade activity between the United States, Puerto Rico, and the U.S. Virgin Islands and Canada and Mexico. These statistics do not include traffic between Guam, Wake Island, and America Samoa and Canada and Mexico. These statistics also exclude imports that are valued at less than $1,250 and for exports that are valued at less than $2,500.

TABLE 1-49. U.S. Waterborne Freight

The data are from *Waterborne Commerce of the United States*, published by the U.S. Army Corps of Engineers (USACE). All vessel operators of record report their domestic waterborne traffic movements to USACE via ENG Forms 3925 and 3925b. Cargo movements are reported according to points of loading and unloading. Certain cargo movements are excluded: 1) cargo carried on general ferries, 2) coal and petroleum products loaded from shore facilities directly into vessels for fuel use, 3) military cargo moved in U.S. Department of Defense vessels, and 4) cargo weighing less than 100 tons moved on government equipment. USACE calculates ton-miles by multiplying the cargo's tonnage by the distance between points of loading and unloading.

Foreign waterborne statistics are derived from Census Bureau and U.S. Customs data, which excludes traffic between Guam, Wake Island, and American Samoa and any other foreign country, and imports and exports used by U.S. Armed Forces abroad. Individual vessel movements with origins and destinations at U.S. ports, traveling via the Panama Canal are considered domestic traffic.

TABLE 1-50. Tonnage of Top 50 U.S. Water Ports, Ranked by Total Tons

Data on the weight of U.S. maritime imports and exports are captured from administrative documents required by the U.S. Departments of Commerce and Treasury. In 1990, the United States entered into a Memorandum of Understanding with Canada concerning the exchange of import data. As a consequence, each country is using the other's import data to replace its own export data. The United States' merchandise trade statistics, therefore, are no longer derived exclusively from U.S. government administrative records, but from Revenue Canada. Maritime weight data are initially processed and edited by the Foreign Trade Division, U.S. Census Bureau (Census) as part of the overall edits and quality checks performed on all U.S. international merchandise trade data.

After Census processing, the U.S. Army Corps of Engineers (USACE) and the Maritime Administration (MARAD) perform additional maritime-specific processing and quality edits on maritime-related data elements, including the weight of maritime imports and exports. The USACE and MARAD began performing this function in October 1998 after the Foreign Waterborne Trade data program was transferred from the Census Bureau. Prior to October 1998, the USACE historically performed additional specialized edits at the port level, including reassignment of some tonnage data to the actual waterborne port rather than the reported U.S. Customs port.

TABLE 1-46. Modal Shares of Freight Shipments within the United States by Domestic Establishments: 1993 and 1997

TABLE 1-52. Value, Tons, and Ton-Miles of Freight Shipments within the United States by Domestic Establishment, 1997

TABLE 1-55. U.S. Hazardous Materials Shipments by Mode of Transportation, 1997

TABLE 1-56. U.S. Hazardous Materials Shipments by Hazard Class, 1997

These data are collected via the 1997 Commodity Flow Survey (CFS) undertaken through a partnership between the U.S. Department of Commerce, Census Bureau (Census), and the U.S. Department of Transportation, Bureau of Transportation Statistics. For the 1997 CFS, Census conducted a sample of 100,000 domestic establishments randomly selected from a universe of about 800,000 multiestablishment companies in the mining, manufacturing, wholesale trade, and selected retail industries. It excluded establishments classified as farms, forestry, fisheries, governments, construction, transportation, foreign, services, and most retail.

Reliability of the Estimates

An estimate based on a sample survey potentially contains two types of errors—sampling and nonsampling. Sampling errors occur because the estimate is based on a sample, not on the entire universe. Nonsampling errors can be attributed to many sources in the collection and processing of the data and occur in all data, not just those from a sample survey. The accuracy of a survey result is affected jointly by sampling and nonsampling errors.

Sampling Variability

Because the estimates are derived from a sample of the survey population, results are not expected to agree with those that might be obtained from a 100-percent census using the same enumeration procedure. However, because each establishment in the Standard Statistical Establishment List had a known probability of being selected for sampling, estimating the sampling variability of the estimates is possible. The standard error of the estimate is a measure of the variability among the values of the estimate computed from all possible samples of the same size and design. Thus, it is a measure of the precision with which an estimate from a particular sample approximates the results of a complete enumeration. The coefficient of variation is the standard error of the estimate divided by the value being estimated. It is expressed as a percent. Note that measures of sampling variability, such as the standard error or coefficient of variation, are estimated from the sample and are also subject to sampling variability. Standard errors and coefficients of variation for CFS data presented in this report are given in Appendix B of the 1997 Economic Census report, and are available online www.census.gov/econ/wwwse0700.html.

Nonsampling Errors

In the CFS, as in other surveys, nonsampling errors can be attributed to many sources, including 1) nonresponse; 2) response errors; 3) differences in the interpretation of questions; 4) mistakes in coding or recoding the data; and 5) other errors of collection, response, coverage, and estimation.

A potentially large source of nonsampling error is due to nonresponse, which is defined as the inability to obtain all intended measurements or responses from selected establishments. Nonresponse is corrected by imputation.

TABLE 1-53. Value of U.S. Land Exports to and Imports from Canada and Mexico by Mode

The Transborder Surface Freight Data (TSFD) is derived from official U.S. international merchan-

dise import and export data. (For a description of U.S. merchandise trade statistics, see www.census.gov/foreign-trade/www/index.html). As of December 1995, about 96 percent of the value of all U.S. imports has been collected electronically by the Automated Broker Interface System. About 55 percent of the value of all U.S. exports is collected electronically through the U.S./Canada Data Exchange and the Automated Export Reporting Program. The balance is collected from administrative records required by the U.S. Departments of Commerce and Treasury.

The TSFD incorporates all data, by surface mode, on shipments entering or exiting the United States from or to Canada or Mexico. Prior to January 1997, this dataset also included transshipments—shipments entering or exiting the United States by way of U.S. Customs ports on the northern or southern borders even when the actual origin or final destination of the goods was other than Canada or Mexico. (In other U.S. Bureau of the Census trade statistics, transshipments through Canada and Mexico are credited to the true country of origin or final destination.) To make this dataset more comparable to other U.S. Census Bureau trade statistics, detailed information on transshipments has been removed. The TSFD presents a summary of transshipments by country, direction of trade, and mode of transportation. Shipments that neither originate nor terminate in the United States (i.e., intransits) are beyond the scope of this dataset because they are not considered U.S. international trade shipments.

In general, the reliability of U.S. foreign trade statistics is very good. Users should be aware that trade data fields (e.g., value and commodity classification) are typically more rigorously reviewed than transportation data fields (e.g., the mode of transportation and port of entry/exit). Users should also be aware that the use of foreign trade data to describe physical transportation flows may not be accurate. For example, this dataset provides surface transportation information for individual U.S. Customs districts and ports on the northern and southern borders. However, because of filing procedures for trade documents, these ports may or may not record where goods physically cross the border. This is because the information filer may choose to file trade documents at one port while shipments actually enter or exit at another port. The TSFD, however, is the best publicly available approximation for analyzing transborder transportation flows. Since the dataset was introduced in April 1993, it has gone through several refinements and improvements. When improbabilities and inconsistencies were found in the dataset, extensive analytical reviews were conducted and improvements made. However, accuracy varies by direction of trade and individual field. For example, import data are generally more accurate than export data. This is primarily because the U.S. Customs Bureau uses import documents for enforcement purposes while it performs no similar function for exports. For additional information on TSFD, the reader is referred to the U.S. Department of Transportation, Bureau of Transportation Statistics Internet site at www.bts.gov/transborder.

TABLE 1-54. Crude Oil and Petroleum Products Transported in the United States by Mode

Pipelines

The Association of Oil Pipelines (AOPL) obtains barrel-miles from the Federal Energy Regulatory Commission (FERC), which requires petroleum shippers to report annual shipments. AOPL then converts barrel-miles to ton-miles using conversion figures in the American Petroleum Institute's (API's) *Basic Petroleum Data Book*. Since 16 percent of pipeline shipments are intrastate and not subject to FERC reporting requirements, AOPL makes adjustments to FERC data to include intrastate shipments. AOPL also conducts periodic studies to estimate intrastate shipments.

Water Carriers

Data are from *Waterborne Commerce of the United States*, published by the U.S. Army Corps of Engineers (USACE). All vessel operators of record report domestic freight and tonnage information to USACE via ENG Forms 3925 and 3925b. Cargo movements are reported according to points of loading and unloading. Certain cargo movements are excluded: 1) cargo carried on general ferries, 2) coal and petroleum products loaded from shore facilities directly into vessels for fuel use, 3) military cargo moved in U.S. Department of Defense vessels, and 4) cargo weighing less than 100 tons moved on government equipment. USACE calculates ton-miles by

multiplying the cargo's tonnage by the distance between the points of loading and unloading.

Motor Carriers

AOPL estimates ton-miles by multiplying tons by the average length of haul. For crude, the tonnage of the prior year is projected by using a growth rate established by data from the U.S. Department of Energy, Energy Information Administration's *Petroleum Supply Annual*, vol. 1, table 37. For products, the same calculation is made but with a growth rate estimated by the American Trucking Association in *Financial and Operating Statistics, Class I and II, Motor Carriers*, Summary table VI-B. Average length of haul is determined from the prior six years of data for ton-miles and tonnage of crude and petroleum products moved by motor carriers.

Railroad

AOPL calculates ton-miles by multiplying tonnage by average length of haul. Tonnage data for crude and products comes from the Association of American Railroad's *Freight Commodity Statistics*, U.S. Class I Railroads. The U.S. Department of Transportation, Federal Railroad Commission provides the average length of haul for crude and products in its Carload Way Bill Statistics.

TABLE 1-57. Worldwide Commercial Space Launches

The U.S. Department of Transportation, Federal Aviation Administration, Associate Administrator for Commercial Space Transportation (AST) licenses and regulates U.S. commercial space launches as authorized by the Commercial Space Launch Act of 1984 and Executive Order 12465. Every commercial space launch must be approved and monitored by AST. Thus, data reliability is high.

TABLE 1-58. Passengers Denied Boarding by the Largest U.S. Air Carriers

TABLE 1-59. Mishandled-Baggage Reports Filed by Passengers with the Largest U.S. Air Carriers

TABLE 1-60. Flight Operations Arriving On Time for the Largest U.S. Air Carriers

These numbers are based on data filed with the U.S. Department of Transportation on a monthly basis by the largest U.S. air carriers – those that have at least one percent of total domestic scheduled-service passenger revenues. Data cover nonstop scheduled service flights between points within the United States (including territories). The largest U.S. carriers account for more than 90 percent of domestic operating revenues. They include Alaska Airlines, America West Airlines, American Airlines, Continental Airlines, Delta Air Lines, Northwest Airlines, Trans World Airlines, Southwest Airlines, United Airlines, and US Airways. However, there are other carriers offering domestic scheduled passenger service that are not required to report. In some cases, major airlines sell tickets for flights that are actually operated by a smaller airline that is not subject to the reporting requirement.

TABLE 1-61. U.S. Air Carrier Delays Greater than 15 Minutes by Cause

The source of these data, the U.S. Department of Transportation (USDOT), Federal Aviation Administration (FAA), counts a flight as delayed if it departed or arrived more than 15 minutes after its scheduled gate departure and arrival times. FAA calculates delayed departures based on the difference between the time a pilot requests FAA clearance to taxi and the time an aircraft's wheels lift off the runway, minus the airport's standard unimpeded taxi-out time. Users should note that taxi-out time varies by airport due to differences in configurations. The cause of delay is also recorded, e.g., weather, terminal volume, closed runways, etc.

USDOT guidance defines departure as the time the aircraft parking brake is released and gate arrival as the time the brake is set. According to the USDOT's Office of the Inspector General (OIG), FAA's omission of part of a plane's ground movement compromises the data's validity. A recent OIG report noted that the FAA tracks ground time only after a pilot requests clearance and fails to track a plane's time in the ramp area. OIG found that ramp time comprised 28.7 percent to 40.5 percent of the average taxi-out time at the three major New York area airports (OIG Audit Report CR-2000-112), and would not be counted as an FAA delay.

Reliability

Several data collection changes complicate comparisons over time. For example, FAA modified its

method for calculating volume-related delays that resulted in a 17 percent drop in such delays. Decreases in volume-related delays from 1998 to 1999 totaled less than one percent. Moreover, prior to 1999, USDOT did not provide a clear definition of what a departure was. An OIG Audit (CE-1999-054) report noted that air carriers used four different departure events: 1) rolling of aircraft wheels; 2) release of parking brake; 3) closure of passenger and/or cargo doors; and 4) a combination of door closures and release of the parking break. The same report also noted errors in the reporting of departure times by the air carriers.

Data are now manually entered in FAA's Operations Network (OSPNET) database, and reporting errors may arise and decrease reliability. The FAA monitors data quality assurance by spot checking the reported delay data and requesting that discrepancies be reviewed by the responsible facility. According to an OIG Audit (CR-2000-112), however, mistakes are not reliably corrected and many air traffic controllers suggested that delays are underreported sometimes by as much as 30 percent.

TABLE 1-62. Major U.S. Air Carrier Delays, Cancellations, and Diversions

A second data source for air-carrier delay is the USDOT, Bureau of Transportation Statistics, Office of Airline Information (OAI). This information originates from the Airline Service Quality Performance data. These figures are collected from the largest airlines—those that have at least one percent or more of total domestic scheduled service passenger revenues. Delays are categorized by phase of flight (i.e., gate-hold, taxi-out, airborne, or taxi-in delays). These data differ from FAA's OSPNET information due to differences in definition of delay.

While the FAA tracks delays on the taxiway, runway, and in the air, BTS tracks delays at the departure and arrival gates. OAI calculates delays as the difference between scheduled and actual gate departure. If a flight leaves the gate within 15 minutes of its scheduled time, then OAI would record it as departed on-time even if it sat for several hours on the ramp or runway, in which case the delay would be accounted for as a late arrival.

TABLE 1-63. Annual Person-Hours of Delay Per Person

TABLE 1-64. Roadway Congestion Index

TABLE 1-65. Congestion Index and Cost Values

The Texas Transportation Institute's (TTI) *Urban Roadway Congestion Annual Report* provided figures for tables 1-60 through 62. TTI relies on data from the U.S. Department of Transportation, Federal Highway Administration, Highway Performance Monitoring System database (HPMS). TTI utilizes these data as inputs to its congestion estimation model. Detailed documentation for the TTI model and estimations can be found at this website http://mobility.tamu.edu.

Structure, Assumptions, and Parameters

Urban roadway congestion levels are estimated using a formula measuring traffic density. Average travel volume per lane on freeways and principal arterial streets are estimated using area wide estimates of vehicle-miles of travel (vmt) and lane miles of roadway. The resulting ratios are combined using the amount of travel on each portion of the system so that the combined index measures conditions on the freeway and principal arterial street systems. Values greater than one are indicative of undesirable congestion levels. Readers seeking the algorithm for the congestion index should examine this websitehttp://mobility.tamu.edu.

Annual person-hours of delay results from the multiplication of daily vehicle-hours of incident and recurring delay times 250 working days per year times 1.25 persons per vehicle. Two types of costs are incurred due to congestion: time delay and fuel consumption. Delay costs are the product of passenger vehicle hours of delay times $12.85 per hour person time value times 1.25 occupants per vehicle. Fuel costs are calculated for passenger and commercial vehicles from the multiplication of peak period congestion speeds, the average fuel economy, fuel costs, and vehicle-hours of delay.

In previous reports, the TTI methodology assumed that 45 percent of all traffic, regardless of the urban location, occurred in congested conditions. TTI indicated that this assumption overestimated travel in congested periods. Thus, their 2002 estimates now vary by urban area anywhere from 18 percent to 50 percent of travel that occurs

in congestion. TTI's model structure applies to two types of roads: freeways and principal arterial streets. The model derives estimates of vehicle traffic per lane and traffic speed for an entire urban area. Based on variation in these amounts, travel is then classified under 5 categories: uncongested, moderately congested, heavily congested, severely congested, and extremely congested (a new category in 1999). The threshold between uncongested and congested was changed in 2002. Previous editions classified congested travel when areawide traffic levels reached 14,000 vehicles per lane per day on highways and 5,500 vehicles per lane per day on principal arterial streets. For the current edition, these values are 15,500 and 5,500 vehicles per lane per day, respectively. Previous years values have been re-estimated based on these new assumptions. Readers should refer to the TTI Internet site for more detailed algorithms and estimation procedures at http://mobility.tamu.edu.

TTI reviews and adjusts the data used in their models. State and local officials also review the TTI data and estimations. Some of the limitations acknowledged in the TTI report include the macroscopic character of the index. Thus, it does not account for local variations in travel patterns that may affect travel times. The index also does not account for local improvements, such as ramp metering or travel speed advantages obtained with transit or carpool lanes.

TABLE 1-66. Amtrak On-Time Performance Trends and Hours of Delay by Cause

Amtrak determines on-time performance through its computer system maintained at the National Operations Center (NOPS) in Wilmington, Delaware. If a train is delayed, a call is made to the NOPS for recordkeeping. These data can be supplemented with computer entries made for locomotive or car malfunctions that cause delays. These data should be considered reliable.

Chapter 2 Safety

AIR DATA

TABLE 2-1. Transportation Fatalities by Mode

TABLE 2-2. Injured Persons by Transportation Mode

TABLE 2-3. Transportation Accidents by Mode

TABLE 2-4. Distribution of Transportation Fatalities by Mode

TABLE 2-7. Transportation-Related Occupational Fatalities

TABLE 2-9. U.S. Air Carrier Safety Data

TABLE 2-10. U.S. Commuter Air Carrier Safety Data

TABLE 2-11. U.S. Air Carrier Fatal Accidents by First Phase of Operation

TABLE 2-12. U.S. Commuter Air Carrier Fatal Accidents by First Phase of Operation

TABLE 2-13. U.S. On-Demand Air Taxi Safety Data

TABLE 2-14. U.S. General Aviation Safety Data

National Transportation Safety Board investigators perform onsite and offsite investigations of all accidents involving U.S. registered air carriers operating under 14 CFR 121, 14 CFR 135, and general aviation U.S. Department of Transportation (USDOT), Federal Aviation Administration (FAA) regulations. The investigators compile information on fatalities and injuries for all accidents. The counts for fatalities and serious injuries are expected to be extremely accurate. (See glossary for serious injury definition.)

Exposure data (aircraft-miles, aircraft-hours, and aircraft-departures) are obtained from the FAA, which in turn gets some of its exposure data from the USDOT, Bureau of Transportation Statistics, Office of Airline Information (OAI) and other exposure data from its own General Aviation and Air Taxi Activity and Avionics (GAATAA) Survey. The OAI data represent 100 percent reporting by airlines. Tables that include air carriers (14 CFR 121, scheduled and nonscheduled service) and commuter air carriers (14 CFR 135, scheduled service only) use OAI exposure data. Tables that include on-demand air taxi (14 CFR 135, nonscheduled service) and general aviation use GAATAA Survey results. For information about the GAATA Survey, please refer to the chapter 1 data accuracy statement for table 1-9.

The coefficients of variation for aircraft-hours vary by year, but are usually in the 9 to 10 percent range for on-demand air taxi and are approximately 2 percent for general aviation.

TABLE 2-15. Number of Pilot-Reported Near Midair Collisions by Degree of Hazard

Near Midair Collision reports are provided voluntarily by air carriers, general aviation companies, and the military, and this information is added to the Near Midair Collisions System database. Factors that may influence whether or not a near midair collision is reported include the pilot's or other crew member's perception of whether a reportable near midair collision occurred, which in turn can depend on factors such as visibility conditions; the reporter's flying experience; or the size of the aircraft involved. A reportable incident is one in which an aircraft is within 500 feet of another aircraft and a possibility of collision existed.

TABLE 2-16. Airline Passenger Screening Results by Type of Weapons Detected, Persons Arrested, and Bomb Threats Received

Federal Aviation Regulations (FARs) mandate that passenger screening be performed by each air carrier required to implement an approved security program. The USDOT, Federal Aviation Administration, monitors the records of passenger screening in accordance with FAR, and oversees compliance with the carriers' security programs through, for example, scheduled and unscheduled inspections. FAR requires the reporting of information on bomb threats.

HIGHWAY DATA

TABLE 2-1. Transportation Fatalities by Mode

TABLE 2-2. Transportation Injuries by Mode

TABLE 2-3. Transportation Accidents by Mode

TABLE 2-4. Distribution of Transportation Fatalities by Mode

TABLE 2-5. Highway-Rail Grade-Crossing Safety Data and Property Damage

TABLE 2-7. Transportation-Related Occupational Fatalities

TABLE 2-17. Motor Vehicle Safety Data

TABLE 2-18. Motor Vehicle Fatalities, Vehicle-Miles, and Associated Rates by Highway Functional System

TABLE 2-19. Occupant Fatalities by Vehicle Type and Nonoccupant Fatalities

TABLE 2-21. Passenger Car Occupant Safety Data

TABLE 2-22. Motorcycle Ride Safety Data

TABLE 2-23. Truck Occupant Safety Data

TABLE 2-24. Bus Occupant Safety Data

TABLE 2-25. Fatalities by Highest Blood Alcohol Concentration in Highway Crashes

TABLE 2-27. Motor Vehicle Fatal Crashes by Day of Week, Time of Day, and Weather and Light Conditions

TABLE 2-28. Motor Vehicle Fatal Crashes by Posted Speed Limit

TABLE 2-20. Occupant and Nonmotorist Fatalities in Crashes by Number of Vehicles and Alcohol Involvement

Fatalities

Highway fatality data come from the Fatality Analysis Reporting System (FARS), which is compiled by trained FARS analysts at USDOT, National Highway Traffic Safety Administration (NHTSA) regional offices. Data are gathered from a census of police accident reports (PARs), state vehicle registration files, state drivers licensing files, state highway department data, vital statistics, death certificates, coroner/medical examiner reports, hospital medical reports, and emergency medical service reports. A separate form is completed for each fatal crash. Blood alcohol concentration (BAC) is estimated when not known. Statistical procedures used for unknown data in FARS can be found in the NHTSA report: *Transitioning to Multiple Imputation - A New Method to Impute Missing Blood Alcohol Concentration (BAC) Values in FARS*, DOT HS 809 403 (Washington, DC: January 2002).

Data are collected from relevant state agencies and electronically submitted for inclusion in the FARs database on a continuous basis. Cross-verification of PARs with death certificates ensures that undercounting is rare. Moreover, when data are entered, they are checked automatically for acceptable range values and consistency, enabling quick corrections when necessary. Several programs continually monitor the data for completeness and accuracy. Periodically, sample cases are analyzed for accuracy and consistency.

Note that the FARS data do not include motor vehicle fatalities on nonpublic roads. However, previous NHTSA analysis found that these fatalities account for 2 percent or fewer of the total motor vehicle fatalities per year. (See glossary for highway fatality definition.)

Injuries and Crashes

NHTSA's General Estimates System (GES) data are a nationally representative sample of police-reported crashes that contributed to an injury or fatality or resulted in property damage, and involved at least one motor vehicle traveling on a trafficway. Trained GES data collectors randomly sample PARs and forward copies to a central contractor for coding into a standard GES system format. Documents such as police diagrams or supporting text provided by the officers may be further reviewed to complete a data entry.

NHTSA suggests that about half of motor vehicle crashes in the United States are not reported to police and that the majority of these unreported crashes involve minor property damage and no significant personal injury. A NHTSA study of injuries from motor vehicle crashes estimated the total count of nonfatal injuries at over 5 million compared with the GES's estimate of 3.2 million in 1998. (See glossary for highway crash and injury definitions.)

(See U.S. Department of Transportation, National Highway Traffic Safety Administration, *Traffic Safety Facts*, 2000, DOT HS 809 337 (Washington, DC: December 2001), appendices B

and C for further information on GES, including a table of standard errors applicable to GES data.)

TABLE 2-29. Safety Belt and Motorcycle Helmet Use

The National Occupant Protection Use Survey (NOPUS), conducted biennially between 1994 and 2000 by the U.S. Department of Transportation, National Highway Traffic Safety Administration is the source for these data.

In 1994 and 1996, NOPUS consisted of three separate studies: 1) the Moving Traffic Study, which provides information on overall shoulder belt use, 2) the Controlled Intersection Study, which provides more detailed information about shoulder belt use by type of vehicle, characteristics of the belt users, and child restraint use, and 3) the Shopping Center Study, which provides information on rear-seat belt use and shoulder belt misuse. In 1998, the Shopping Center Study was dropped from the survey. The Controlled Intersection Study includes the collection of license plate information to link seat belt use to vehicle type. As the results of the Controlled Intersection Study for 2000 were not available prior to publication, only the Moving Traffic Study data were used in this table.

In 1998, NOPUS separated pickups from the light truck category, thereby creating three categories of passenger vehicles: passenger cars, pickup trucks, and other passenger vehicles. Other passenger vehicles include vans, minivans, and sport utility vehicles. In this table, 1998 and 2000 data for pickup trucks and other passenger vehicles are combined into the light truck category to allow comparison to data from the earlier surveys.

In 1994, operators and riders wearing any type of helmet were counted as helmeted. In 1996, 1998, and 2000, motorcycle helmets that meet USDOT standards are counted as valid protection, whereas those that do not meet USDOT standards were treated as if the operator/rider were not wearing a helmet.

Data collection from the Moving Traffic Study was conducted at 2,063 sites across the country. Shoulder belt use was obtained for drivers and right-front passengers only. Three observers (two observers in 1994 and 1996) were stationed for 30 minutes at interstate/highway exit ramps, controlled (intersections with stop signs or traffic signals), and uncontrolled intersections. Every day of the week and all daylight hours (8 a.m. to 6 p.m.) were covered in each survey. Commercial and emergency vehicles were excluded.

NOPUS was designed as a multistage probability sample to ensure that the results would represent occupant protection use in the country. In the first stage, counties were grouped by regions (northeast, midwest, south, west), level of urbanization (metropolitan or not), and level of belt use (high, medium, or low). Fifty counties or groups of counties were selected based on vehicle miles of travel in those locations. In the next stage, roadways were selected from two categories: major roads and local roads. Of the originally selected sites, some were found to be ineligible during mapping and data collection, and at some sites no vehicles were observed. In 2000, a total of 157,694 passenger vehicles were observed: 93,916 passenger cars and 63,778 light trucks (of which 24,747 were pickup trucks and 39,031 were other passenger vehicles). 645 motorcycles were also observed during the 2000 NOPUS.

Each reported estimate has been statistically weighted according to the sample design. Two kinds of error can be attributed to all survey research: sampling and nonsampling. A measure, called the standard error, is used to indicate the magnitude of sampling error. The source information provides two standard errors along with each estimate. Nonsampling errors could include problems such as vehicles not counted, incorrect determination of restraint use, and data entry mistakes, among others.

TABLE 2-30. Estimated Number of Lives Saved by Use of Restraints

The U.S. Department of Transportation, National Highway Traffic Safety Administration (NHTSA) uses data obtained from the Fatality Analysis Reporting System to calculate the number of lives saved by the use of restraints. The methodology used is outlined in a NHTSA report, *Research Note, Estimating Lives Saved by Restraint Use in Potentially Fatal Crashes* (Washington, DC: June 1995). The general approach is to adjust the observed number of fatalities by a determined effectiveness rate for each type of restraint. This equates to subtracting the actual fatalities from the potential fatalities to determine the number of lives saved. This method is more

accurate than earlier estimation methods since all calculations are derived from NHTSA's count of fatalities in which restraints were used. Reported restraint use is believed to be accurate for fatalities.

The key to NHTSA's calculations is the effectiveness estimate for preventing fatalities for each type of restraint. With the exception of an adjustment in the effectiveness estimate for front outboard air bag-only restraint use in passenger cars (NHTSA, *Fourth Report to Congress, Effectiveness of Occupant Protection Systems and Their Use*, Washington, DC, May 1999), a list of effectiveness estimates can be found in a NHTSA report, *Estimating Alcohol Involvement in Fatal Crashes in Light of Increases in Restraint Use*, published in March 1998.This report also includes additional references describing the determination of these effectiveness estimates.

TRANSIT DATA

TABLE 2-1. Transportation Fatalities by Mode

TABLE 2-2. Transportation Injuries by Mode

TABLE 2-3. Transportation Accidents by Mode

TABLE 2-4. Distribution of Transportation Fatalities by Mode

TABLE 2-31. Transit Safety and Property Damage Data

TABLE 2-32. Transit Safety Data by Mode for All Reported Accidents

TABLE 2-33. Transit Safety Data by Mode for All Reported Incidents

TABLE 2-34. Reports of Violent Crime, Property Crime, and Arrests by Transit Mode

The data for this report are obtained from the U.S. Department of Transportation, Federal Transit Administration's (FTA's) National Transit Database (NTD) Reporting System. Transit agencies are required to file an NTD report at regular intervals if they are recipients of Urbanized Area Formula Funds. In 2000, 592 agencies reported to the NTD. Of that total, 67 transit agencies received exemptions from detailed reporting because they operated 9 or fewer vehicles, and 7 were deleted because their data were incomplete. Thus, 518 individual reporters were included in the NTD, accounting for 90 to 95 percent of passenger-miles traveled on transit. Of the transit agencies reporting, 23.7 percent contract for some or all of their transportation from private or public companies or organizations.

Transit operators report fatalities, injuries, accidents, incidents, and property damage in excess of $1,000. Electronic reporting has recently been implemented for the NTD. Certification from a company's Chief Executive Officer must accompany all NTD reports along with an independent auditor's statement. Upon receipt, an NTD report is reviewed and outstanding items noted in writing to the agency that submitted the form. (See glossary for transit fatality, injury, and accident definitions.)

Four major categories of transit safety are collected: 1) collisions, 2) derailments/buses going off the road, 3) personal casualties, and 4) fires. These major categories are divided into subcategories. The collisions category comprises collisions with vehicles, objects, and people (except suicides). Of the four major categories, only the first two are included in the definition of transit accidents adopted in this report (see glossary). Understanding this definition of accident is relevant to understanding how double counting is removed in the grand total of U.S. transportation fatalities and injuries. (See cross modal comments in box 2-1.)

Transit data submitted to the NTD are generally considered accurate because the FTA reviews and validates information submitted by individual transit agencies. However, reliability may vary because some transit agencies cannot obtain accurate information or misinterpret data.

Security

FTA collects security data from transit agencies serving urbanized areas of over 200,000 in population, using Form 405, and manages it in the National Transit Database (NTD). The reporting of security data follows the FBI *Uniform Crime Reporting Handbook* (Washington, DC: 1984) and is divided into two categories: 1) Reported Offenses, including violent and property crime, and 2) Arrests, consisting of less serious crimes. The figures for violent and property crime are based on records of calls for service, complaints, and/or investigations. They do not reflect the findings of a

court, coroner, jury, or decision of a prosecutor. Security data were first reported in 1995 and were not compiled for earlier years.

In 2000, the number of agencies reporting to this database was 592. Of that, 67 transit agencies received exemptions from detailed reporting because they operated nine or fewer vehicles, and seven were deleted because their data were incomplete. Thus, 518 individual reporters are included in the full database in 2000. Of the transit agencies reporting, 23.7 percent contract for some or all of their transportation from private or public companies or organizations.

RAILROAD DATA

TABLE 2-1. Transportation Fatalities by Mode

TABLE 2-2. Transportation Injuries by Mode

TABLE 2-3. Transportation Accidents by Mode

TABLE 2-4. Distribution of Transportation Fatalities by Mode

TABLE 2-5. Highway-Rail Grade-Crossing Safety Data and Property Damage

TABLE 2-7. Transportation-Related Occupational Fatalities

TABLE 2-35. Railroad and Grade-Crossing Fatalities by Victim Class

TABLE 2-36. Railroad and Grade-Crossing Injured Persons by Victim Class

TABLE 2-37. Train Fatalities, Injuries, and Accidents by Type of Accident

TABLE 2-38. Railroad Passenger Safety Data

TABLE 2-39. Railroad System Safety and Property Damage Data

TABLE 2-40. Fatalities and Injuries of On-Duty Railroad Employees

Railroads are required to file a report for each train accident resulting in property damage in excess of $6,600, each highway-rail accident, and each incident involving the operation of a railroad resulting in a fatality or a reportable injury. (See glossary for reportable injury, train accident and incident, and nontrain incident definitions.)

Reporting requirements, which are fixed in law, are very broad and encompass events not strictly related to transportation. For example, if a passenger falls on a staircase and breaks a leg in the station while going to a train, the injury would be reported and appear in the data as a rail injury.

Box 2-1.
Cross-Modal Comparisons

Caution must be exercised in comparing fatalities (and injuries) across modes because different definitions for reportable events are used among the modes. In particular, rail and transit facilities and injuries include deaths and injuries that are not, strictly speaking, caused by transportation accidents, but are caused by such events as a fall on a transit station escalator; or for railroad employees, a fire in a workshed. Similar fatalities for the air and highway modes (death at airports not caused by moving aircraft, or fatalities from accidents in automobile repair shops) are not counted towards the totals for these modes.

Total fatalities (injuries) in the tables are less than the sum of the modal totals because some deaths (injuries) are reported and counted in more than one mode. To avoid double counting, adjustments have been made to fatality totals (see table 2-4).

WATERBORNE TRANSPORTATION DATA

TABLE 2-1. Transportation Fatalities by Mode

TABLE 2-2. Transportation Injuries by Mode

TABLE 2-3. Transportation Accidents by Mode

TABLE 2-4. Distribution of Transportation Fatalities by Mode

TABLE 2-7. Transportation-Related Occupational Fatalities

TABLE 2-41. Waterborne Transportation Safety Data and Property Damage Related to Vessel Casualties

TABLE 2-42. Waterborne Transportation Safety Data Not Related to Vessel Casualties

U.S. waterborne fatality and injury data are based on reports required by CFR Part 4.05-10. This code requires that the owner, agent, master,

operator, or person in charge file a written report of any marine casualty or accident within five days of the accident. Reports must be delivered to Investigative Officers (IOs) at a U.S. Coast Guard Marine Safety Office or Marine Inspection Office at the U.S. Department of Transportation, who use these reports as guides to investigate the marine casualty or accident. The IO ensures that all the entries on the forms are filled out and errors are corrected. Regulations require IO notification of marine casualties for certain circumstances, including loss of life; injuries that require medical treatment beyond first aid; and, for individuals engaged or employed onboard a vessel in commercial service, injuries that render a person unfit to perform routine duties.

Incidents requiring an investigation include death, injury resulting in substantial impairment, and other incidents determined important to promoting the safety of life or property or to protect the marine environment. These incidents are investigated in accordance with procedures set forth in the regulations. Furthermore, the Federal Water Pollution Control Act mandates that certain incidents be reported to the U.S. Coast Guard. The reports are entered into the Marine Safety Information System, which is later analyzed and transferred to the Marine Safety Management System maintained in Washington, DC.

RECREATIONAL BOATING DATA

TABLE 2-1. Transportation Fatalities by Mode

TABLE 2-2. Transportation Injuries by Mode

TABLE 2-3. Transportation Accidents by Mode

TABLE 2-4. Distribution of Transportation Fatalities by Mode

TABLE 2-43. Recreational Boating Safety, Alcohol Involvement, and Property Damage Data

TABLE 2-44. Personal Watercraft Safety Data

TABLE 2-45. U.S. Coast Guard Search and Rescue Statistics, Fiscal Years

Operators of boats involved in an accident resulting in 1) a fatality, 2) an injury requiring medical treatment beyond first aid, 3) damage to the vessel or other property greater than $500 or complete loss of vessel, or 4) the disappearance of a person from the vessel under circumstances indicating death or injury are required to file a report with the U.S. Coast Guard. If a person dies within 24 hours of the occurrence, requires medical treatment beyond first aid, or disappears from the vessel, reports must be made within 48 hours of the occurrence. In cases involving only damage to the vessel and/or property, reports are to be submitted within 10 days of the occurrence. Although there is no quantitative estimate of the response rate, there may be considerable underreporting, especially of nonfatal accidents, because of the difficulty of enforcing the requirement and because boat operators may not always be aware of the law.

NATURAL GAS AND LIQUID PIPELINE DATA

TABLE 2-1. Transportation Fatalities by Mode

TABLE 2-2. Transportation Injuries by Mode

TABLE 2-3. Transportation Accidents by Mode

TABLE 2-4. Distribution of Transportation Fatalities by Mode

TABLE 2-46. Hazardous Liquid and Natural Gas Pipeline Safety and Property Damage Data

U.S. fatality and injury data for natural gas pipelines are based on reports filed with the U.S. Department of Transportation (USDOT), Office of Pipeline Safety (OPS). Accidents must be reported as soon as possible, but no later than 30 days after discovery. Reports are sent to the Information Systems Manager at the OPS. Possible sources of error include a release going undetected; even if subsequently detected and reported, it may not be possible to accurately reconstruct the accident. Property damage figures are estimates. (See glossary for gas and liquid pipeline fatality data and injury definitions.)

TABLE 2-6. Hazardous Materials Safety Data and Property Damage Data

Incidents resulting in certain unintentional releases of hazardous materials must be reported under 49 CFR 171.16. Each carrier must submit a

report to the U.S. Department of Transportation, Research and Special Programs Administration (RSPA) within 30 days of the incident, including information on the mode of transportation involved, results of the incident, and a narrative description of the accident. These reports are made available on the incident database within 60 days of receipt.

Fatalities and injuries are counted only if they are directly due to a hazardous material. For example, a truck operator killed by impact forces during a motor vehicle crash would not be counted as a hazardous-material fatality. RSPA verifies all reported fatalities and injuries by telephone with the carrier submitting the report.

Possible sources of error include a release going undetected; even if subsequently detected and reported, it may not be possible to accurately reconstruct the accident. Although RSPA acknowledges that there is some level of underreporting, it believes that the underreporting is limited to small, nonserious incidents. As incident severity increases, it is more likely that the incident will come to RSPA's attention and will ultimately be reported. Additionally, the reporting requirements were extended to intrastate highway carriers on October 1, 1998, and the response rate from this new group is expected to increase over time. Property damage figures are estimates determined by the carrier prior to the 30-day reporting deadline and are generally not subsequently updated. Property damage figures, therefore, may underestimate actual damages.

Chapter 3 Transportation and the Economy

TABLE 3-1a & 3-1b. U.S. Gross Domestic Product Attributed to For-Hire Transportation Services (Current and chained 1996 dollars)

TABLE 3-2a & 3-2b. U.S. Gross Domestic Product Attributed to Transportation-Related Final Demand (Current and chained 1996 dollars)

TABLE 3-3a & 3.3b. U.S. Gross Domestic Demand Attributed to Transportation-Related Final Demand (Current and chained 1996 dollars)

TABLE 3-4a & 3-4b. Contributions to Gross Domestic Product: Selected Industries (Current and chained 1996 dollars)

TABLE 3-5. Gross Domestic Product by Major Social Function

Tables 3-1 through 3-5 present data on transportation's contributions to the economy through consumption (or the money spent on transportation activity). The *Survey of Current Business* (SCB) published by the U.S. Department of Commerce, Bureau of Economic Analysis (BEA). The SCB is a monthly journal that contains estimates of U.S. economic activity, including industry contributions to the Gross Domestic Product (GDP). GDP is defined as the net value of the output of goods and services produced by labor and property located in the United States. BEA constructs two complementary measures of GDP-one based on income and the other on expenditures (product). Together, they represent the National Income and Product Accounts (NIPA), our nation's principle framework for macroeconomic estimates. The product side results from the addition of labor, capital, and taxes for producing output. Consumption derives from household, business, and government expenditures and net foreign purchases.

Table 3-3 presents transportation's economic impact in a different form, Gross Domestic Demand (GDD). Also derived from the national accounts, GDD is the sum of personal consumption, gross private domestic investment, and government purchases. GDD includes imports, but excludes exports, thus counting only what is consumed, purchased, or invested in the United States.

GDP Methodology

The 1960 through 1985 data in table 3-1 are from the November 1993 issue of the SCB. The 1990 through 1991 data and 1992 through 1996 data are from an August 1996 and November 1997 SCB issue respectively. The October 1999 issue introduced a revised methodology for GDP estimates (Yuskavage 1996). This section describes BEA's methodology for estimating transportation's share of GDP.

BEA's current-dollar estimates of GDP by industry rely on several sources, including the Bureau of Labor Statistics (BLS), the Health Care Financing Administration, and the Internal Revenue Service (IRS). Some of the tables in this chapter report chained-dollar figures. BEA derived chained dollars by using the Fisher Ideal Quantity Index to calculate changes between adjacent years (Parker and Triplett 1996; Landerfeld and Parker 1997). Annual changes are then chained to form a time series that incorporates the effects of relative price and output composition changes. Please refer to page 142 of the August 1996 issue of the S*urvey of Current Business* for the mathematical formulas (Yuskavage 1996). This method produced separate estimates of gross output and intermediate inputs for a sector's GDP calculation. BEA updated the reference year for the chained-dollar estimates from 1992 to 1996.

Transportation GDP in chained dollars was estimated using the double-deflation method, which relies on a chain-type quantity index formula, and requires gross output and intermediate input information. Principal source data for the transportation categories include: 1) operating revenues of air carriers and Federal Express from the U.S. Department of Transportation and public sources (air); 2) operating revenues for Class I motor carriers from historical records of the Interstate Commerce Commission and Census Bureau annual surveys (trucking and warehousing); 3) BEA personal consumption expenditures (PCE), BLS, and trade sources (local and interurban passenger transit); 4) operating revenues for Class I railroads and Amtrak (rail); and 5) other trade sources (pipelines). Data sources for water were not provided (Yuskavage, 1996).

Table 3-1 reported current dollar estimates from various SCB issues. BEA derived the 1991 data and subsequent years in four steps:

1. BEA's benchmark input-output (I-O) tables produced input compositions for 1977, 1982, and 1987.

2. BEA estimated 1978 through 1981 and 1983 through 1986 input compositions by interpolating the 1977, 1982, and 1987 figures.

3. BEA estimates the 1977 through 1987 imported and domestically imported shares of each detailed input.

4. BEA estimates the 1988 through 1994 input compositions based on the 1987 figures and the Economic Censuses of 1992.

For intermediate input estimations, BEA deflates each of the current-dollar inputs. (BEA deflates import and domestic production separately.) For deflation, quantities are approximated by real values (expressed at present with 1996 as the base period) that are calculated by dividing the current-dollar value of the component by its price index. BEA develops estimates for import prices with data from a variety of sources, but primarily from the BLS import price series.

Reliability and Accuracy

BEA views GDP as a reliable measure of output because of the source data underlying the estimates. The following reliability comments are based on the Valliant (1993) SCB article and Ritter (2000). GDP data originate from three types of sources. The foundational data come first from the economic censuses conducted every five years. These approach complete enumerations of sectoral activity in state and local governments, manufacturing, services, retail trade, wholesale trade, construction, transportation, communications and utilities, mining, finance, insurance, and real estate. Annual estimates from the second tier of GDP data and emanate from sources such as IRS tax returns and smaller surveys of establishments. The Annual Retail Trade Survey, for instance, forms one of the major components of the annual estimates. The U.S. Census Bureau collects sales and end-of-year inventory data from about 22,000 retail firms totaling $2 trillion of the $8.8 trillion GDP amount. While considered reliable by many economists, sampling variability may introduce errors into these annual estimates. Moreover, the Census Bureau imputes (substitutes estimates for missing or clearly incorrect data) about 11 percent of reported national annual retail sales because of accounting inconsistencies or raw survey data errors. The third component of the GDP flows from quarterly estimates.

In the October 1993 SCB, Valliant described the reliability and accuracy of the quarterly estimates of GDP, providing insights into the pre-1985 data in terms of dispersion and bias. BEA followed a schedule that produced three successive "current" estimates; advanced, preliminary, and final. BEA analysts developed a dispersion and bias measure based on the difference between these three estimates.

Dispersion is the average of the absolute values of the revisions, or, the difference between P, representing the percentage change in the current estimates, and L representing the percentage change in the latest available estimates, divided by n, representing the number of quarterly changes. Bias is the average of the revisions. According to the October 1993 SCB, dispersion averaged 1.6 percent from 1958 to 63 and dropped to 1.1 percent for 1968 to 1972. BEA stated that these declines in dispersion correspond with more accurate initial and final estimates subsequent to the late 1950s. For years after 1973 until 1991, the BEA concluded that more accurate source data for preliminary and final estimates did not improve reliability by much. BEA also determined that bias was not large enough from 1978 to 1991 to be significant under normality assumptions at the five-percent confidence level. Overall, for the period beginning in 1978 and covering the 1985 data from table 3-1, the BEA concluded there was no evidence of reliability increases. BEA also questioned its own estimating procedures and, in particular, the use of disparate sources of data, which may explain why reliability levels have not increased.

The NIPA framework also undergoes major updates referred to as comprehensive, or benchmark revisions. Eleven of these have been completed including one in 1996 and most recently on October 28, 1999 that provided the data for tables 3-1 through 3-5. The major change encompassed a definitional change reflecting our evolving economic system. Software became a business investment rather than just a "purchased input," or the equivalent of raw material. Unless the company increased the price of its product to cover software

purchases, no impact registered in the GDP. With this benchmark revision, the Census Bureau increased the 1996 estimate by $115 billion, or 1.5 percent—the amount of software investments made in that year. Another change involved the Census Bureau's interpretation of the value of "unpriced" banking services such as ATM (automatic teller machine) contributions to an establishment's productivity. Previously, banking service productivity relied only on an index constructed from labor input. Economists argued that this ignored productivity gains from technological improvements such as ATMs and electronic banking. The BLS developed a productivity based instead of bank transactions, and this was used in the 1999 revision. For more detail, readers should refer to Moulton and Seskin (1999).

Sources of Error for GDP Estimates

The GDP estimates can contain several kinds of error. One source of error arises from estimates based on preliminary or incomplete tabulations of source data or BEA judgment in the absence of data. Errors may also arise because of sampling errors and biases in monthly, quarterly, annual, or periodic tabulations. Another source of potential error may arise when data are seasonally adjusted. Readers should refer to the October 1993 SCB issue for more detail (Young 1993).

NIPA and Transportation-Related Final Demand

For table 3-2, transportation-related final demand (TRFD) is from NIPA reported in the SCB. It represents the sum of all consumer and government expenditures for transportation purposes, plus the value of goods and services purchased by business as investment for transportation purposes. Since TRFD includes only expenditures on the final products of the economy, it is comparable to GDP and provides a measure of transportation's importance from a consumption perspective.

NIPA tables report the composition of production and the distribution of incomes earned in production. The totals of these produce a GDP estimate that should theoretically be equal, but there is always a difference referred to as the "statistical discrepancy." NIPA is based on four subaccounts of national economic activity. These include 1) the personal income and outlay account, 2) the gross savings and investment account, 3) the government receipts and expenditures account, and 4) the foreign transactions account.

Personal Consumption Expenditures (PCE) for transportation include 1) road motor vehicles, such as new and used automobiles, and motorcycles; 2) motor vehicle parts, such as tires, tubes, accessories; 3) motor fuels and lubricants; and 4) transportation services, such as repair, greasing, washing, parking, storage, rental, leasing, tolls, insurance, and purchased local and intercity transportation services. Motor vehicles used primarily for recreation, boats, noncommercial trailers, and aircraft are excluded.

Gross private domestic fixed investment in transportation includes private purchases of transportation structures and equipment. Transportation structures include railroads and petroleum pipelines. Transportation equipment consists of automobiles, trucks, buses, truck trailers, aircraft, ships and boats, and railroad equipment.

Goods and services that are counted as part of transportation-related exports include 1) civilian aircraft, engines, and parts; 2) road motor vehicles, engines, and parts; 3) passenger fares, including receipts of U.S. air and ocean/cruise carriers for transporting non-U.S. residents between the United States and foreign countries or between two foreign points; and 4) other transportation. The total for road motor vehicles, engines and parts excludes boats, aircraft, and noncommercial trailers. Other transportation includes 1) the freight revenues of U.S.-operated ocean, air, and other carriers (e.g., rail, pipeline, and Great Lakes shipping) for international transport of U.S. exports and for transporting foreign freight between foreign points; 2) port expenditure receipts (representing payments for goods and services purchased in the United States by foreign-operated carriers); and 3) receipts of U.S. owners from foreign operators for the charter of vessels and rental of freight cars and containers.

Goods and services that are counted as part of transportation-related imports include 1) civilian aircraft, engines, and parts; 2) road motor vehicles, engines, and parts; 3) passenger fares, including payments to foreign air and ocean/cruise carriers for the transportation of U.S. residents between the United States and foreign countries or between two foreign points; and 4) other transportation. The total for road motor vehicle, engines and parts excludes boats, aircraft, and noncommercial trail-

ers. Other transportation includes 1) freight revenues of foreign-operated ocean, air, and other carriers (e.g., rail, pipeline, and Great Lakes shipping) for international transport of U.S. imports and for the transportation of foreign freight between foreign points; 2) port expenditure receipts (representing payments for goods and services purchased in foreign countries by U.S.-operated carriers); and 3) payments to foreign owners from U.S. operators for the charter of vessels and rental of freight cars and containers.

Transportation-related government purchases include federal, state, and local purchases of transportation services, and government expenditures on transportation-related structures and equipment. Federal, state, and local purchases represent the sum of consumption expenditures and gross inventory. Defense-related purchases include expenditures on the transportation of materials (care and movement of goods by water, rail, truck, and air); the rental of trucks and other transportation equipment and warehousing fees; and travel of persons (care and movement of Department of Defense military civilian employees), including tickets for all modes of travel, per diem, taxi fares, automobile rental, and mileage allowances for privately owned vehicles.

Further References

This data source and accuracy statement is based on several papers that have appeared in the SCB. Data users who desire more methodological detail can refer to the list of references at the end of this chapter.

TABLE 3-6. National Transportation and Economic Trends

The *Statistical Abstract of the United States* published by the U.S. Department of Commerce, Census Bureau, is the source of the population data. The *Current Population Reports* are the source of the *Abstract's* data that are collected through the *Current Population Survey* (CPS). This is a monthly survey administered by the Census Bureau of a scientifically selected sample representative of the noninstitutional civilian population in 754 areas covering every state and the District of Columbia. Like other surveys, the CPS is subject to sampling error. Readers should note that estimates based on the CPS may not agree with census counts because different procedures are used. Changes in the CPS also mean that annual comparisons must be made with caution. For instance, in 1994, the CPS methodology was dramatically changed, and the estimates began to incorporate 1990 census population controls, adjusted for the estimated undercount.

Industrial production data come from the Industrial Production Index, produced by the Board of Governors of the Federal Reserve System and published in the *Economic Report of the President*. For annual figures, individual industrial production (IP) indexes are constructed from a variety of sources, including the quinquennial Censuses of Manufactures and Mineral Industries; the Annual Survey of Manufactures, prepared by the Census Bureau; the Minerals Yearbook, prepared by the U.S. Department of the Interior; and publications of the U.S. Department of Energy. The Federal Reserve Board (FRB) uses these data in a modeling framework to produce estimates of industrial production. Below are brief discussions on three major sources for the IP indexes; the survey of manufactures, the census of manufactures, and the electric utility survey.

Annual Survey of Manufacturers

The Census Bureau conducts a mail survey of approximately 55,000 manufactures with three different sample strata. The sampling frame is based on previously surveyed firms and is updated annually based partially on IRS administrative records and other sources. Large manufactures (shipments > $500 million, and > 250 employees), some computer manufacturing firms, and all remaining firms with at least 250 employees are selected. Establishments with employment generally ranging from 20 to 250 employees are sampled with a probability proportional to a composite measure of establishment size. Approximately 5,000 of the smallest firms (5 to 20 employees) are also sampled and receive a shorter survey instrument. Additional information on the survey, readers should refer to www.census.gov/econ/www/ma0300.html.

Census of Manufacturers

The Census of Manufactures collects data through mail surveys from approximately 237,000 multiunit and single-unit firms with a minimum payroll figure. This census is supplemented by IRS

administrative data from over 142,000 firms not contacted by mail. For additional information on the census, readers should refer to www.census.gov/econ/www/ma0100.html.

Electric Utility Survey

Since 1971, the FRB has conducted the *Monthly Survey of Industrial Electricity Use* based on responses from utilities and manufacturing and mining firms that are cogenerators. This survey is the basis for estimates of the amount of electricity power used by 120 industrial sectors. More than 40 industrial production series estimates are based on data from this survey and compose 28 percent of the Industrial Production Index in 1994 value-added proportions.

Survey responses are voluntary and are gathered from a panel of 175 utilities and 186 cogenerating companies with a monthly response rate near 95 percent. In 1992, an additional 71 new cogenerators joined the panel. This resulted, according to an FRB statistical analysis, in a decrease of the standard deviation of errors for electricity growth rates from 3.0 to 1.9 percentage points. Overall, the estimates for total power use produce a standard error of about 0.5 percentage points. The panel accounts for approximately 73 percent of industrial electric power use in the United States.

The *Survey of Current Business*, published by the U.S. Department of Commerce, Bureau of Economic Analysis, is the source of GDP estimates. Readers should refer to the source and accuracy statement for tables 3-1 through 3-5 for information on GDP estimates.

TABLE 3-7. Passenger and Freight Transportation Expenditures

Detailed information from the source was not available at the time of publication. Readers should contact the Eno Transportation Foundation, Inc. directly for information about methodologies and reliability.

TABLE 3-8. Sales Price of Transportation Fuel to End-Users

The U.S. Department of Energy, Energy Information Administration's (EIA's) *Monthly Energy Review*, tables 9.4 and 9.7, provided price data, except for railroad fuel. Pre-1981 data were reported by the EIA from Bureau of Labor Statistics reports. Beginning in 1983, the EIA administered a series of surveys to collect data on petroleum prices, market distribution, supply, and demand. The EIA-782 series encompasses three surveys: 1) Form EIA-782A, Refiners'/Gas Plant Operators' Monthly Petroleum Product Sales Report; 2) Form EIA-782B, Resellers'/Retailers' Monthly Petroleum Product Sales Report; and 3) Form EIA-782C, Monthly Report of Prime Supplier Sales of Petroleum Products Sold for Local Consumption.

EIA developed a method for comparing data from the new surveys with older information gathered by various methods. As a result, a number of adjustment factors were developed and used to "backcast" price estimates. Readers who require a more detailed description of this methodology should refer to EIA's petroleum data publications web page (www.eia.doe.gov/oil_gas/petroleum/pet_frame.html) and the explanatory notes section.

Changes in sample elements or collection methods may affect data continuity. Two regulatory changes affected data collection in October 1993. The Clean Air Act Amendments of 1990 required that oxygenated gasoline be sold in the winter months in ozone nonattainment areas. Thus, the EIA-782 forms were modified to collect information on fuels divided among conventional, oxygenated, and reformulated categories. Second, requirements for the production and selling of low-sulfur diesel were required and necessitated the separation of diesel fuel into high- and low-sulfur categories. Moreover, surveys prior to October 1993 did not include propane. The EIA followed several different sampling designs during two periods in the 1980s and thus, there may be some price estimate discontinuity for periods between December 1983 and January 1984 as well as between August and September of 1988.

Data Collection

The 782 series occurs on a monthly schedule via mail. The 782A and 782C surveys reflect a census of about 115 and 190 firms, respectively. The 782B samples about 2,000 firms. The EIA first stratifies by sales volume for the form 782B survey to ensure that dealers with 5 percent or more of the market are captured with certainty. The remaining elements of the frame were assigned a probability of selection to form a 2,200 firm survey. These

"noncertainty" companies were poststratified by geographic area and type of sales category.

Data Reliability

EIA has studied its sampling effects on reliability and determined that the sample size of 2,000 should yield a less than 1-percent price coefficient of variation in its estimates. Errors can arise because of nonresponse, but an EIA official indicated that the response rates for the 1997-1999 782A, B, and C surveys averaged 95 percent, 86 percent, and 96 percent, respectively. Because survey data invariably contain incomplete data (because of reporting errors or nonresponse), EIA estimates or "imputes" missing data. Readers requiring imputation algorithms should refer to the 782 series explanatory notes referred to above.

TABLE 3-9. Price Trend of Gasoline v. Other Consumer Goods and Services

Data in this table were reproduced from the American Petroleum Institute's (API) *Basic Petroleum Data Book*. API noted that data reported prior to 1981 was obtained from Platt's *Oil Price Handbook and Oilmanac*. Platt's is part of Standard and Poor's, and an independent third party organization that tracks the petroleum industry. Platt's reported the retail price of gasoline based on telephone interviews with gas stations in 55 cities. More detailed historical information on their data collection methods could not be ascertained and the data's reliability is uncertain. API reported the Bureau of Labor Statistics (BLS) as its data source for 1981 to 2001 retail gasoline prices. The remainder of this section discusses the BLS Consumer Price Index (CPI) data collection and estimation methods used to derive the average retail price of gasoline.

BLS uses the CPI as a measure of average price changes paid by urban consumers for a fixed basket of goods and services. BLS estimates the CPI with a survey-based approach. Survey results define a categorization of goods and services, a representative sample of items to track, and weights according to the consumption of an average consumer during a base period.

Sample Design

BLS relies on two sampling frames for their CPI estimates. One represents the universe of retail outlets from which households may purchase defined groups of commodities and services including gasoline. A second represents households across urban areas. Moreover, the household frame is based on an "urban-consumer" population and consists of households in Metropolitan Statistical Areas (MSA's) and in urban places with more than 2,500 inhabitants. This "all urban" CPI (CPI-U) provides the estimates for retail gasoline prices shown in table 3-9. Thus, this frame does not represent non-urban consumers.

For the retail outlet sampling frame, BLS relies on the Point-of-Purchase Survey (CPOPS) conducted by the Census Bureau in 94 Primary Sampling Units (PSUs) identified by BLS. PSUs are based on urban counties, groups of contiguous urban counties, or MSAs. For the household sample, a noncompact clustering procedure was employed which dispersed households evenly within a Census enumeration district (ED). More detailed sampling design information can be found in BLS's *Handbook of Methods* at http://stats.bls.gov/opub/hom/homhome.htm.

Prices for the goods and services used to calculate the CPI are collected in 91 PSUs located in 85 urban areas throughout the country. The sample size for the CPOPS totals about 21,000 retail and service establishments-supermarkets, department stores, gasoline stations, hospitals, etc. Food, fuels, and a few other items are priced monthly in all 85 locations. BLS field representatives collect all price information through visits or telephone calls in the household surveys. Price changes are computed based on a sample of outlets selected from locations identified by consumers. Specific sample items are then selected from each sample outlet to ensure that the market basket is representative of where households shop.

Estimation

BLS routinely updates its price estimates for specific items among the collection of goods and services, for example, a new car model year. BLS employs three techniques to produce new price estimates. First, an item that is directly comparable to the previous discontinued good will be used to provide a price estimate. However, a substitute item may be inappropriate when goods change slightly in their characteristics. BLS relies on Hedonic regression modeling as a second "quality adjustment" for price estimates. This statistical technique can model

the importance of various quality characteristics that add value to a particular good (the fiber content and construction of apparel products for instance). A researcher can estimate a Hedonic regression model that identifies the factors most important is determining the price of a good, and BLS field representatives will note these in their data collection. Imputation is a third quality adjustment used for "noncomparable" substitutions where BLS estimates the price change from previous averages. Detailed algorithms can be found in chapter 17 of the BLS *Handbook of Methods* at http://stats.bls.gov/opub/hom/homhome.htm.

Effective January 1999, BLS began using a new formula for calculating the basic components of the Consumer Price Index for all Urban Consumers (CPI-U) and the Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W). The new formula, the geometric mean estimator, is used in index categories that comprise approximately 61 percent of total consumer spending represented by the CPI-U. Based on BLS research, it is expected that use of the new formula will reduce the annual rate of increase in the CPI by approximately 0.2 percentage points per year. Additional information on this change was published in the April 1998 CPI Detailed Report and is available on the Internet at http://stats.bls.gov/cpihome.htm.

Accuracy

One of the CPI's limitations is that it represents price movements for urban residents and may not correctly represent nonurban consumption patterns. The CPI may also contain sampling error because it is estimated from a sample of consumer purchases. Nonsampling error may occur if respondents provide BLS field representatives with inaccurate or incomplete information. Another potential source of error identified by BLS may occur because of a time lag between the Point-of-Purchase Survey and the initiation of price collection for commodities and services at resampled outlets. Because of the time lag, the products offered by the outlet at the time pricing is initiated may not coincide with the set from which the CPOPS respondents were purchasing.

The CPI is also subject to response error when data are not collected because of nonresponse. BLS established a nonresponse auditing program in 1986. It reported that response rates in 1990 for transportation commodities and services were above 90 percent.

Bias

Four categories of bias were identified in the BLS report, *Measurement Issues in the Consumer Price Index*, published in 1997. First, because of the fixed-weight nature of the index, the CPI creates substitution bias by placing too much weight on items measured in previous surveys from which consumers may have shifted away. Second, the study found that the index did not account for consumers switching to discount stores. Third, a quality change bias was also identified when the differences between goods priced in two different periods cannot be accurately measured nor deduced from the accompanying price difference between the goods. Finally, the report noted that the CPI also had a new product bias because the index inadequately reflected consumer value of products introduced into the market. The commission concluded that the CPI overstated the true cost-of-living change by 1.1 percentage points per year.

TABLE 3-10. Producer Price Indices for Transportation Services

TABLE 3-11. Producer Price Indices for Transportation Equipment

Data shown in these tables are drawn from annual issues of *The Supplement to Producer Price Indexes* published by the Bureau of Labor Statistics (BLS) in the U.S. Department of Labor. These indexes represent a measure of outputs in all goods-producing American industries as well as partial coverage of service industries including transportation. BLS defines a price as the net revenue accrued to a specified production establishment from a specified kind of buyer for a specific product shipped under specific transaction terms on a specified day of the month. BLS collects this data series through surveys of a sample of establishments that report their prices from economic transactions.

Data Collection

A BLS field economist visits an establishment or cluster of establishments selected for price sampling. The economist uses a disaggregation proce-

dure to select a sample of transactions from all the establishment's revenue-producing activities. This disaggregation procedure assigns a probability of selection to each shipping or receipt category proportionate to its value within a reporting unit. In most cases, the final price index produced by the BLS requires that 1) there are at least three different respondents to a survey, 2) at least two reporting units provide price information in a given month, and 3) no single respondent accounts for 50 percent or more of the weight for a given item.

BLS regional offices review field data for consistency and completeness. The national office then conducts a final review and a survey is then tailored specifically to establishments or clusters of establishments. BLS refers to these as repricing schedules and sends them to reporting establishments on a regular basis. Most prices refer to a reporting schedule on a particular day of the month, usually, the first Tuesday or the 13th of a month.

Estimation

BLS collects prices for over 100,000 items. It utilizes several different weighting schemes for the numerous indexes produced because some products will have a greater effect on the movement of groupings of individual products. BLS utilizes the net output of shipment values as weights for the 4-digit SIC industries. Net output values include only shipments from establishments in one industry to other industry establishments and, thus, differ from gross shipment values. The latter would include shipments among establishments in the same industry, even if those establishments are separate firms. BLS also makes seasonal adjustments if statistical tests and economic rationale justify them, and computes data when a participating company does not deliver a price report. BLS bases the missing price estimation on the average of price changes for similar products reported by other establishments.

Accuracy

As in all surveys, the accuracy of producer price indexes depends on the quality of information voluntarily provided by participating establishments. One of the accuracy concerns of BLS revolves around the preferred use of realistic transaction prices (including discounts, premiums, rebates, allowances, etc.) rather than list or book prices. Before BLS fully changed its data collection method in 1986, a survey indicated that about 20 percent of traditional commodity indexes were based on list prices. The newer and more systematic methodology decreased the use of list prices. BLS documentation (available at http://stats.bls.gov/opub/hom) provided no more details on sampling error, response rates, or the availability of generalized variance parameters or techniques for estimating them.

TABLE 3-12. Personal Expenditures by Category

TABLE 3-13. Personal Consumption Expenditures on Transportation by Subcategory

Data used in these tables are from the Bureau of Labor Statistics, *Annual Report of Consumer Expenditure Survey.* The Consumer Expenditure Survey (CEX) collects information from U.S. households and families on their buying habits (expenditures), income, and consumer characteristics. The strength of the survey is that it allows data users to relate the expenditures and income of consumers to the characteristics of those consumers. BLS uses 11 standard characteristics to classify consumers, including income, before-tax income class, age, size of the consumer unit, composition of the consumer unit, number of earners, housing tenure, race, type of area (urban or rural), region, and occupation.

The CEX is a national probability sample of households. The sampling frame (i.e., the list from which housing units are chosen) for this survey is generated from the 1990 census 100-percent detail file, which is augmented by a sample drawn from new construction permits. Coverage improvement techniques are also utilized to eliminate recognized deficiencies in the census.

Data Collection

The current survey consists of two separate surveys (Interview and Diary), each utilizing a different data collection technique and sample. Data is collected for each survey from approximately 5,000 households. In the Interview survey, each consumer unit (CU) in the sample is interviewed every three months over five calendar quarters. The interviewer uses a structured questionnaire to

collect both the demographic and expenditure data in the Interview survey. The interviewer collects the demographic data in the Diary survey whereas the respondent enters the expenditure data on the diary form. Both surveys accept proxy responses from any eligible household member who is at least 16 years old if an adult is not available after a few attempts to contact that person. The respondent family completes the Diary (or recordkeeping) survey at home for two consecutive one-week periods.

A reinterview program for the CEX provides quality control. The program provides a means of evaluating individual interviewer performance to determine how well the procedures are being carried out in the field. A member of the supervisory staff conducts the reinterview. Subsamples of approximately 6 percent of households in the Interview survey and 17 percent in the Diary survey are reinterviewed on an ongoing basis. A new diary form with more categories and expanded use of cues for respondents was introduced in 1991, based on results from earlier field and laboratory studies.

Estimation

Missing or invalid data on demographic or work experience are imputed. No imputation is done for missing data on expenditures or income. Selected portions of the Diary data are also adjusted by automated imputation and allocation routines when respondents report insufficient detail to meet publication requirements. These procedures are performed annually on the data. The imputation routines assign qualifying information to data items when there is clear evidence of invalid nonresponse.

The statistical estimation of the population quantities of interest, such as the average expenditure on a particular item by a CU or the total number of CUs in a particular demographic group, is conducted via a weighting scheme. Each CU included in the survey is assigned a weight that is interpreted as representing the number of similar families in the universe of interest, the U.S. civilian noninstitutional population. Readers should refer to http://stats.bls.gov/opub/hom/homch16_c.htm for the detailed weighting method.

Beginning with 1997 data, BLS introduced a new calibration method to compute weights in the Consumer Expenditure Survey. The weights are calculated using a model-assisted, design-based regression estimator.

Accuracy

The Consumer Expenditures Survey is a sample survey and hence is subject to two types of errors, nonsampling and sampling. Nonsampling errors can be attributed to many sources, such as differences in the interpretation of questions, inability or unwillingness of the respondent to provide correct information, mistakes in recording or coding the data obtained, and other errors of collection, response, processing, coverage, and estimation for missing data. The full extent of nonsampling error is unknown. Sampling errors occur because the survey data are collected from a sample and not from the entire population. Tables with coefficients of variation and other reliability statistics are available on request from the national office. However, because the statistics are shown at the detailed item level, the tables are extensive.

TABLE 3-14. Cost of Owning and Operating an Automobile

Your Driving Costs produced by the American Automobile Association (AAA) provided the data for this table. Prior to 1985, the cost figures are for a mid-sized, current model, American car equipped with a variety of standard and optional accessories. After 1985, the cost figures are for a composite of three current model American cars:

1. A 1999 Chevrolet Cavalier LS,
2. A 1999 Ford Taurus SEL Deluxe, and
3. A 1999 Mercury Grand Marquis LS.

Thus, the estimates are not reliable estimates for all cars.

Fuel costs were based on an average price of $1.195 per gallon of regular unleaded gasoline, weighted 20 percent full-serve and 80 percent self-serve. Insurance figures were based on personal use of vehicles driven less than 10 miles to or from work, with no young drivers. Normal depreciation costs were based on the vehicle's trade-in value at the end of four years or at 60,000 miles. American Automobile Association (AAA) analysis covers vehicles equipped with standard and optional accessories, including automatic transmission, air conditioning, power steering, power disc brakes, AM/FM stereo, driver-and passenger side air bag, anti-lock brakes, cruise control, tilt steering wheel, tinted glass, emission equipment, and rear window defogger.

TABLE 3-15a & 3-15b. Average Passenger Fare (Current and chained 1996 dollars)

TABLE 3-18. Total Operating Revenues

Air

The U.S. Department of Transportation, Bureau of Transportation Statistics (BTS), Office of Airline Information, reports passenger fares and operating revenues in its publication *Air Carrier Financial Statistics*. These numbers are based on 100 percent reporting by large certificated air carriers. Minor errors from nonreporting may occur but amount to less than one percent of all passenger or freight activity. The figures do not include data for all airlines; such as most scheduled commuter airlines and all nonscheduled commuter airlines.

Class I Bus

Class I passenger motor carriers are required to report financial and operating information to BTS using form MP-1. (Prior to 1996, Class I carriers were required to report to the Interstate Commerce Commission.) Class I passenger motor carriers are defined as those having annual gross operating revenues, as adjusted for inflation, of $5,000,000 or more. This table does not include Class I carriers whose data had not been received at the time of publication. Thus, these data do not represent total Class I passenger motor carrier activity.

Transit

The American Public Transit Association (APTA) reports these figures, which are based on the annual National Transit Database (NTD) report published by the USDOT, Federal Transit Administration (FTA). The legislative requirement for the NTD is found in Title 49 U.S.C. 5335(a). Transit agencies receiving funds through the Urbanized Area Formula Program are generally required to report financial and operating data, including capital expenditures, revenues and expenses. These data are generally considered accurate because the FTA reviews and validates information submitted by individual transit agencies. Reliability may vary because some transit agencies cannot obtain accurate information or misinterpret certain data definitions. APTA conservatively adjusts FTA data to include transit operators that do not report to the database (private and very small operators and rural operators).

Rail

Data are from *Railroad Facts* published annually by the Association of American Railroads (AAR). AAR figures are based on 100-percent reporting by all nine Class I railroads to the Surface Transportation Board (STB) via Schedule 700 of the *R1 Annual Report*. STB defines Class I railroads as having operating revenues at or above a threshold indexed to a base of $250 million in 1991 and adjusted annually in concert with changes in the "Railroad Freight Rate Index" published by the Bureau of Labor Statistics. In 2000, the adjusted threshold for Class I railroads was $ 261.9 million. Declassification from Class I status occurs when a railroad falls below the applicable threshold for three consecutive years. Although Class I railroads comprise only 1 percent of the number of railroads in the country, they account for over 71 percent of the industry's mileage operated, 91 percent of total freight rail revenue, and 88 percent of railroad employment.

Intercity/Amtrak

Average passenger fare data are based on 100 percent of issued tickets, and thus should be accurate. Created as a publicly-owned for-profit corporation, Amtrak collects its own financial data and reports this information in its annual report. Auditing should ensure the accuracy of the operating revenue figures.

Trucking and Courier Services (except air)

The Census Bureau's Transportation Annual Survey (formerly known as the Motor Freight Transportation and Warehousing Survey) is the source of this information. The sample survey represents all employer firms with one or more establishments engaged primarily in providing commercial motor freight transportation or public warehousing services. It excludes motor carriers that operate as auxiliary establishments to nontransportation companies, as well as independent owner-operators with no paid employees. Thus, the data do not represent the total trucking industry.

In 1999, Transportation Annual Survey was merged with the Census Bureau's Service Annual Survey (SAS) and is the source of data for years 1998 and later. SAS provides estimates of operating

revenue of taxable firms and revenue and expenses of firms exempt from federal income taxes for selected service industries. Unlike the Transportation Annual Survey, the SAS is based on the North American Industry Classification System (NAICS).

As with all sample surveys, two types of errors are possible: sampling and nonsampling. Nonsampling errors may include response errors and mistakes in coding or keying data. For additional information about the survey and data reliability, the reader is referred to the Census Bureau website at www.census.gov.

Water (Domestic)

Eno Transportation Foundation, Inc. is the source of these data. Eno estimates these figures by multiplying ton-mile figures by estimated revenue per ton-mile. The U.S. Army Corps of Engineers reports the ton-mile figures in its publication *Waterborne Commerce of the United States*, and the revenue per ton-miles figures are estimated by Eno.

Oil Pipeline

Eno Transportation Foundation, Inc., publishes these data, which are based on Federal Energy Regulatory Commission (FERC) data and reported by the Oil Pipeline Research Institute for years 1977 to the present. FERC data originates from required quarterly reports filed by pipeline companies. Prior to 1977, the data are based on the former Interstate Commerce Commission data for regulated pipelines, and estimated to be 16 percent of the total of nonregulated pipelines.

Gas Pipeline

These statistics originate from *Gas Facts*, published annually by the American Gas Association (AGA).AGA data are based on gas utilities participation and reporting to the Uniform Statistical Report and estimates for those companies not reporting based on recent historical experience. Varying percentages of nonreporters from year to year introduce minor reliability problems for time-series comparisons.

TABLE 3-19. Employment in For-Hire Transportation and Selected Transportation-Related Industries

Employment data by industry are from the National Employment, Hours, and Earnings estimates published by the Bureau of Labor Statistics (BLS), U.S. Department of Labor. These estimates originate from the Current Employment Statistics (CES) survey program. The CES is a monthly survey conducted by state employment security agencies in cooperation with the BLS. The survey provides employment, hours, and earnings estimates based on payroll records of nonfarm business establishments, including government.

BLS uses a stratified sample based on a sector's employment size, or the degree of variability among its establishments, or both. This ensures that BLS captures a more representative survey from employers with large payrolls. Thus, large establishments are certain of selection while smaller ones have less of chance.

Data Collection

Data are collected electronically from about two-thirds of the respondents and by mail or fax from the remainder. The primary type of electronic reporting is touch-tone phone self-response; others are computer-assisted phone interviews and phone voice recognition technology. Increasingly, data are collected through electronic data interchange from a small but growing number of companies that have a large number of establishments across the country. Mail respondents submit Form 790 to the BLS each month. It is then edited and returned to the respondent for use again the following month. All firms with 250 employees or more are asked to participate in the survey, as well as a sample of smaller firms.

Estimation

Employment estimates are made at what is termed the basic estimating cell level and aggregated upward to broader levels of industry detail by simple addition. Basic cells are defined by industry (usually at the 3- or 4-digit SIC level) and are stratified within industry by geographic region and/or size class in the majority of cases. Within the wholesale trade, retail trade, and services divisions, most industries are stratified into three to five size classes (beginning in 1984).

Most national employment estimates are multiplied by bias adjustment factors to produce the monthly published estimates. Bias adjustment factors are used primarily to compensate for the inability to capture the entry of new firms on a

timely basis. New firms contribute a substantial amount to employment growth each year, but there is a lag between the creation of a firm and its inclusion on the sample frame (i.e., the Unemployment Insurance universe file). It is, therefore, necessary to use modeling techniques to capture this segment of the population. BLS also performs seasonal adjustments for certain SIC industries.

Accuracy

BLS does not publish data reliability information along with estimates. Instead, it provides estimation formula and the necessary parameters so that users can estimate standard errors. For additional information, see the "Explanatory Notes and Estimates of Error" in the BLS monthly publication *Employment and Earnings*.

The CES survey, which began over 50 years ago, predates the introduction of probability sampling as the internationally recognized standard for sample surveys. Instead, a quota sample has been used since its inception. Quota samples are at risk for potentially significant biases, and recently completed BLS research suggests that, despite the large CES sample size, employment estimates based on that sample at times diverge substantially from those that a more representative sample would have been expected to produce. This leads to an over-reliance on bias adjustment in the estimation procedure. Because bias adjustment is primarily based on past experience, it is limited in its ability to accurately reflect changing economic conditions on a timely basis.

Government Employment

The Office of the Secretary provides employment figures for the U.S. Department of Transportation. State and local highway department employment figures are from the *State and Local Government Employment and Payroll Estimates*, published by the U.S. Department of Commerce, Bureau of the Census. The data are for the 50 states and the District of Columbia. Employment and payroll data pertain to the month of October. At present, data are collected for one pay period that includes October 12 (regardless of the period's length) through the Public Employment Survey (PES).

Employment refers to all persons gainfully employed by and performing services for a government. Employees include all persons paid for personal services performed from all sources of funds, including persons paid from federally funded programs, paid elected officials, persons in a paid leave status, and persons paid on a per meeting, annual, semiannual, or quarterly basis. Excluded from employment statistics are unpaid officials, pensioners, persons whose work is performed on a fee basis, and contractors and their employees.

The Census Bureau derives full-time equivalent (FTE) employment by summing the number of full-time employees reported and converting the number of hours worked by part-time employees to a full-time equivalent amount. Up until 1985 data, the method used to calculate FTEs was based solely on payroll data. Effective with 1986 data, the annual employment survey started collecting data on the number of hours worked by part-time employees in order to provide a more accurate representation of full-time equivalent employment. No October 1985 FTE employment data are available.

Beginning in 1999, the Public Employment Survey (PES) was conducted using a separate sample of approximately 11,000 government units to improve data accuracy and survey efficiency. Government units meeting any of the following criteria are included in the survey: 1) counties with populations greater than 100,000; 2) cities with populations greater than 75,000; 3) townships in New England and Mid-Atlantic with populations greater than 50,000; 4) special districts with FTEs greater than 1000; 5) independent school districts with enrollment greater than 10,000; and 6) all dependent and independent schools providing college level education. In 1999, government units were sampled to obtain a relative standard error of 3 percent or less for FTE and total payroll for each of the states by type of government groups.

Prior to 1993, the PES used a joint sample of approximately 24,000 units for both employment and finance. From 1993 to 1998, the sample size was reduced to around 14,000 units. The standard error for the PES prior to 1999 was designed to be around 3 percent for major state- or county-level estimates of finance variables (state-level for 1993-1998 and county-level prior to 1993). Employment estimates are made using regression, except when the number of noncertainty cases contributing to the estimate is less than 20, where a simple unbiased estimate is used.

TABLE 3-20. Employment in Transportation Occupations

TABLE 3-22. Median Weekly Earnings of Full-Time Wage and Salary Workers in Transportation by Detailed Occupation

Employment by detailed transportation occupation data are from the Occupational Employment Statistics (OES) survey, collected by the Bureau of Labor Statistics (BLS). The OES is a periodic mail survey of nonfarm establishments that collects occupational employment data on workers by industry. The OES program surveys approximately 725,000 establishments in 400 detailed industries. The average response rate for the last three years, according to a BLS official, averaged about 70 percent.

The sample is selected primarily from the list of business establishments reporting to the state unemployment insurance program. The OES sample initially stratifies the universe of establishments by three-digit industry code and size- class code. Establishments employing 250 employees or more are sampled with certainty. Establishments employing fewer than 250 employees but more than 4 employees are sampled with probability proportional to the size class employment within each three-digit industry. Establishments employing four or fewer employees (i.e., size class 1 establishments) are not sampled. Instead, the employment for these establishments are accounted for by assigning a larger sampling weight to establishments employing five to nine employees (i.e., size-class 2 establishments). Within each three-digit industry/size- class cell, establishments are systematically selected into the sample through a single random start.

Data Collection

Employers are the source of occupational data. Within establishments, the main source of occupational data reported by respondents is personnel records. Data are collected from respondents primarily by mail. Occasionally, visits are made to large employers and to other respondents who indicate particular difficulty in completing the questionnaires. Ordinarily, two mailings follow the initial mailing. After the third mailing, a subsample of the remaining nonrespondents is drawn and contacted by telephone. The OES survey follows a 3-year cycle. Three surveys are conducted alternately for manufacturing, nonmanufacturing, and the balance of nonmanufacturing industries.

Estimation

During the sample selection process, each sampled establishment is assigned a sampling weight that is equal to the reciprocal of its probability of selection. For example, if an establishment on the sampling frame had a 1 in 10 chance of being selected into the sample, then its sampling weight is 10. For establishments that did not respond to the survey, a nonresponse adjustment factor is calculated and applied against the sampling weights of the responding establishments within each state/3-digit industry/size-class cell. Multiplying these adjustment factors by sampling weights increases the weight of the responding establishments so they can account for the missing employment data of the nonresponding establishments.

Accuracy

The OES survey uses a subsample replication technique to estimate variances in occupational employment at the 3-digit industry/size-class level. For additional information on occupational employment estimates and measurements of sampling error associated with the estimates, the reader is referred to http://stats.bls.gov/oes/home.htm.

TABLE 3-21. Average Wage and Salary Accruals per Full-Time Equivalent Employee by Transportation Industry

TABLE 3-23. Total Wage and Salary Accruals by Transportation Industry

The *Survey of Current Business* (tables 6.3c and 6.6c) published by the U.S. Department of Commerce, Bureau of Economic Analysis, is the source of transportation wage and salary data. These estimates are based on BLS tabulations of employee wages that are covered by State unemployment insurance. As a component of the income side of National Income and Product Account, wages and salaries comprise part of the GDP calculation. These data reflect the monetary remuneration of employees in terms of wage accruals less disbursements. It is defined as the difference between wages and salaries on a "when-earned" basis, or accrued, and wages and salaries on a "when-paid," or dis-

bursed basis. This computation was instituted in 1992 because a significant portion of bonus payments were missed in previous calculations. Readers should also refer to the earlier discussion of GDP methods and reliability for more detail.

TABLE 3-24. Labor Productivity Indices for Selected Transportation Industries

The Bureau of Labor Statistic's (BLS) *Industry Productivity Measures* is the source of transportation labor productivity data. BLS develops industry productivity measures based on various data sources.

For rail, BLS uses freight ton-mile and passenger miles that are collected by the Surface Transportation Board (STB), the Association of American Railroads (AAR), and Amtrak. BLS also aggregates four different air transportation outputs to form a single productivity index: domestic passenger-miles, domestic freight ton-miles, international passenger-miles, and international freight ton-miles. Air transportation data come from *Air Carrier Traffic Statistics and Air Carrier Financial Statistics*, published by the U.S. Department of Transportation, Bureau of Transportation Statistics. For petroleum pipeline, BLS relies on data from the Association of Oil Pipelines and derived an output index based on trunkline barrel-miles. A barrel-mile is one barrel of petroleum moved through one mile of pipeline.

Estimation

BLS generally calculates labor productivity by dividing an index of output (in this case, ton-miles) by an index of hours. Output is derived with a weight adjusted Tornqvist formula that produces an output ratio for one year. BLS then combines these in a series that produces a chained output index. The hour indexes are developed from data in BLS's Current Employment Statistics (CES; see discussion above for table 3-12) and are the results of dividing the annual aggregate hours for each year by a base-period figure. Readers who need more detail, such as mathematical specifications or equations, should refer to Kunze and Jablonski (Kunze and Jablonski 1998) or call the Office of Productivity and Technology at BLS.

Accuracy

BLS provides no measures of reliability. However, BLS makes an assumption that transportation outputs should be measured using the production of passenger-miles or freight-miles. Another school of thought might assume that many transportation firms or facilities are actually providing capacity rather than actual use. Thus, an argument can be made that productivity should be based on capacity rather than use. In fact, this is how BEA measures transportation output. To evaluate the BLS assumption, one study compared the two approaches by examining the different growth rates produced by BLS and BEA and found that in 25 of 35 service industries, the differences are within one percentage point. For transportation, differences in growth rates across BLS and BEA estimates were two percentage points or less (Kunze and Jablonski 1998).

Beginning with 1997 data, the indices for bus and petroleum pipelines did not meet BLS publication standards and are considered less reliable than those for other modes. These industries had between 14,000 and 15,000 employees, far below the 50,000-employee threshold established for transportation industries by BLS. However, they both met a basic test of variability of the annual percent changes in the output per hour measure.

GOVERNMENT REVENUES AND EXPENDITURES

TABLE 3-25a &3-25b. Federal, State, and Local Government Transportation-Related Revenues and Expenditures, Fiscal Year (Current and constant 1996 dollars)

TABLE 3-26a & 3-26b. Federal Transportation-Related Revenues, Fiscal Years (Current dollars and constant 1996 dollars)

TABLE 3-27a & 3-27b. Federal Transportation-Related Expenditures by Mode, Fiscal Year (Current and constant 1996 dollars)

TABLE 3-28. Cash Balances of the Transportation-Related Federal Trust Funds, Fiscal Year

The main sources for federal-level data are the *Budget of the United States Government* and the *Appendix to the Budget*. These data are the actual figures as reported for the various transportation-related programs in the appendices of each year's

budget document.[1] The figures are consistent from year to year and follow the definitional structure required by the Office of Management and Budget (OMB).

Primary sources for state and local transportation-related revenues and expenditures data are censuses and surveys collected by the U.S. Census Bureau. All units of government are included in the Census of Governments, which is taken at five-year intervals for years ending in 2 or 7, and these data are full counts, which are not subject to sampling error.

State and local government data for noncensus years are obtained by annual surveys, which are subject to sampling error. For U.S. totals of local government revenues and expenditures in this report, sampling variability is less than 3 percent.

Federal figures in this report correspond to the federal fiscal year, which begins on October 1, while state and local data are for fiscal years that generally start in July. While this may create a small error in totals for any given year, the data are suitable for illustrating trends in public transportation finance. Programs terminated before 1985 are excluded from the tables. The totals for transportation revenues and expenditures in this report are the sum of the Census Bureau's state and local numbers plus the total of the federal numbers.

The source of the chained dollar deflators is *The National Income and Product Account Tables*, Bureau of Economic Analysis, table 7.1, "Quantity and Price Indexes for Gross Domestic Product." All inflation-adjusted data are for the base year 1996, instead of 1992 as in previous editions of *National Transportation Statistics*. Note that deflators used for the federal data differ from those used for state and local data. Thus, if expenditures are totaled across different levels of government in chained dollars before and after federal grant transfers, the totals will not match.

[1] The federal budget is broken down into 20 functional categories, of which one is transportation (function 400). Function 400 is not tied to any one department or agency, but instead aggregates transportation functions wherever in the federal government they occur. Thus, the transportation function may include many activities, such as highway construction and safety, airways and airports, maritime subsidies, U.S. Coast Guard operations, railroads, and mass transit. It also covers grants-in-aid programs to support state and local activities. A good summary of the federal budget process can be found in Stanley E. Collender, *The Guide to the Federal Budget, Fiscal Year 1996* (Washington, DC: Urban Institute Press. 1995).

Transportation Revenues

Transportation revenue estimates include transportation-related user charges, taxes, or fees earmarked for transportation-related expenditures. Estimates include transit fares from systems owned and operated by state and local governments, including those systems operated under contract by a private firm under day-to-day financial oversight by government.

Federal transportation revenues generally consist of trust-fund collections from user charges, such as fuel taxes, vehicle taxes, registration and licensing fees, and air passenger ticket taxes. Damage payments made by private parties are deposited in the funds to reimburse the government for related fund expenditures.

The five transportation-related Federal trust funds are established by law:

1. Highway Trust Fund (HTF), which includes both highway and transit accounts;
2. Airport and Airway Trust Fund (AATF);
3. Harbor Maintenance Trust Fund (HMTF);
4. Inland Waterways Trust Fund (IWATF); and
5. Oil Spill Liability Trust Fund (OSLTF).

Highway Revenues

The Highway Trust Fund (HTF) was established by the Highway Revenue Act of 1956. Highway Trust Fund revenues are derived from various excise taxes on highways users (e.g., motor fuel, motor vehicles, tires, and parts and accessories for trucks and buses) and interest earned on balances. The Transportation Equity Act for the 21st Century (TEA-21), which was enacted in June 1998, made important changes to the Federal Highway Trust Fund legislations (FHWA, 1999):

- extension of deposit provisions of almost all highway user taxes through September 30, 2005;
- after September 30, 1998, the HTF can no longer earn interest on balances, and the balance in the highway account would be transferred to the general fund;
- TEA-21 keys Federal-aid highway funds to receipts of the Highway Account of the HTF; and

- the Transit Account share of fuel tax rose from 2 cents per gallon to 2.86 cents per gallon.

The Excise tax on gasoline is the most important source of the HTF revenues and has changed five times since 1985. It increased from 9 cents per gallon in 1985 to 9.1 cents per gallon on January 1, 1987; to 14.1 cents per gallon on December 1, 1990; to 18.4 cents per gallon on October 1, 1993; to 18.3 cents per gallon on January 1, 1996; and to 18.4 cents per gallon on October 1, 1997 (FHWA, 1999).

Money paid into the fund is earmarked primarily for the Federal-aid Highway program, which is apportioned to states for planning, constructing, and improving the nation's highway system, roads, and bridges. Effective April 1983, the Highway Revenue Act of 1982 created the Mass Transit Account within the HTF.

Some portion of the HTF is dedicated to budget deficit reduction and the Leaking Underground Storage Tank Trust Fund (LUSTTF). For example, 4.3 cents per gallon of the federal excise tax on gasoline has been assigned to the general fund since January 1, 1996, and 0.1 cents per gallon was apportioned to the LUSTTF since October 1, 1997 (FHWA, 1999). These funds are not considered as transportation-related in this report.

State and local highway revenues include state and local taxes on motor fuels, motor vehicle licenses, and motor vehicle operator licenses, along with state and local charges for regular toll highways and local parking charges. Regular highway charges (revenues) include reimbursements for street construction and repairs, fees for curb cuts and special traffic signs, and maintenance assessments for street lighting, snow removal, and other highway or street services unrelated to toll facilities. Local governments use special assessments and property taxes that may be commingled with other local revenue in a general fund to finance local road and street programs. Consistent with federal revenues, state and local transportation revenues in this report do not include general funds that may be allocated to transportation.

Transit Revenues

As mentioned above, the Highway Revenue Act of 1982 created the Mass Transit Account within the HTF. Effective April 1983, the act provided one cent per gallon of the federal excise tax on gasoline sales to be set-aside for the Mass Transit Account to help finance transit capital projects. The rate was increased to 1.5 cents per gallon on December 1, 1990; to 2 cents per gallon on January 1, 1996; and to 2.86 cents per gallon on October 1, 1997 (FHWA, 1999). Although highway users pay these taxes, the funds are treated as federal transit revenues.

State and local transit revenues include revenues from operations of public mass transportation systems (rapid transit, subway, bus, railway, and commuter rail services), such as fares, charter fees, advertising income, and other operations revenues. They exclude subsidies from other governments to support either operations or capital projects.

Air Revenues

The Tax Equity and Fiscal Responsibility Act of 1982, as amended by Omnibus Budget Reconciliation Acts of 1990 and 1993, the Small Business Job Protection Act of 1996, and the Taxpayers Relief Act of 1997, provides for the transfer of receipts received in the U.S. Treasury from the passenger ticket tax and certain other taxes paid by airport and airway users to the Airport and Airways Trust Fund (AATF). Effective October 1, 1997, the Taxpayers Relief Act of 1997 extends aviation excise taxes for 10 years and includes the following major provisions (FAA, 1999):

1. retains existing freight way bill, general aviation fuel and gas taxes, and a 6-dollar departure tax on domestic flights to and from Alaska and Hawaii;

2. converts the 10 percent ad valorem tax on domestic passenger tickets to a combination of ad valorem and flight segment tax over three years beginning October 1, 1997;

3. imposes a new 7.5 percent tax on payments to airlines for frequent flyer and similar awards by banks and credit card companies, merchants, frequent flyer program partners—other airlines, hotels, or rental car companies and other businesses;

4. increases the current 6-dollar international departure tax to 12 dollars per passenger and adds a 12-dollar international arrival tax;

5. lowers tax rates on flights to certain rural airports to 7.5 percent without a flight segment component; and

6. transfers revenues from the 4.3 cents-per-gallon aviation fuel taxes currently dedicated to

reduce the national U.S. deficit from the general fund to the AATF.

Most of this trust fund is used to finance the Federal Aviation Administration's (FAA's) capital programs, namely, Facilities and Equipment; Research, Engineering, and Development; and Airport Improvement Program. Within certain limits set by Congress, some of the remaining money is used to cover FAA operation and maintenance expenses. The portion of the FAA's operation and Maintenance expenses not paid from the trust fund revenues are financed by U.S. Treasury general funds.

State and local revenues from air transportation are derived from airport charges. Beginning in 1992, local governments began collecting passenger facility charges and spending these revenues (both subject to FAA approval) to finance capital programs.

The collection of passenger facility charges was authorized by the Aviation Safety and Capacity Expansion Act of 1990.[1]

Waterway and Marine Revenues

Federal water revenues come from four primary sources: the Harbor Maintenance Trust Fund (HMTF), the Inland Waterways Trust Fund (IWATF), the Oil Spill Liability Trust Fund (OSLTF), and tolls and other charges collected by the Panama Canal Commission.

The Harbor Maintenance Trust Fund was established in accordance with the Harbor Maintenance Revenue Act of 1986. Revenues for this fund are derived from receipts of a 0.125 percent ad valorem user fee imposed on commercial users of specified U.S. ports, Saint Lawrence Seaway tolls. On March 31, 1998, per a U.S. Supreme Court ruling, the tax on exports was terminated (OMB, 2000). This fund is used to finance up to 100 percent of the U.S. Army Corps of Engineers' harbor operation and maintenance (O&M) costs, including O&M costs associated with Great Lakes navigational projects, and the fund fully finances the operation and maintenance of the Saint Lawrence Seaway Development Corp.

The Inland Waterways Trust Fund was established by the Inland Waterways Revenue Act of 1978 and amended by the Water Resources Development Act of 1986. The trust fund has been in effect since fiscal year 1981. The sources for the fund are taxes imposed on fuel for vessels engaged in commercial waterway transportation and investment interest. From this tax of 24.3 cents per gallon, 4.3 cents goes for deficit reduction, and a statutory maximum of 20 cents (raised to that level from the previous maximum of 19 cents at the beginning of 1995) goes to the Trust Fund. The funds are earmarked for financing one-half of the construction and rehabilitation costs of specified inland waterway projects.

The Oil Spill Liability Trust Fund was established by the Omnibus Budget Reconciliation Act of 1989. Revenues for this fund are raised through tax collection of 5 cents on each barrel of oil produced domestically or imported (OMB, 1999). The resources from this fund are used to finance oil pollution prevention and cleanup activities by various federal agencies. For the U.S. Coast Guard, the fund finances oil spill recovery and payment of claims. Beginning in 1997, the fund also finances the annual disbursement to the Prince William Sound Oil Spill Recovery Institute.

The Panama Canal Commission was established by the Panama Canal Act of 1979 to manage, operate, and maintain the Panama Canal under the Panama Canal Treaty of 1977. The treaty period ended on December 31, 1999, when the Republic of Panama assumed full responsibility for the canal. During the treaty period, the commission collected tolls and other revenues, which were deposited in the U.S. Treasury in an account known as the Panama Canal Revolving Fund. Money from this fund was used to finance canal operations and capital programs, which were reviewed annually by Congress. The revenues reported under this category for FY 2000 are for the first quarter (October 1999 – December 1999) of Panama Canal operations.

State and local water revenues are derived from canal tolls, rents from leases, concession rents, and other charges for use of commercial or industrial water transport and port terminal facilities and related services. Fees and rents related to water facilities provided for recreational purposes, such as marina and public docks, and toll ferries are not included.

[1] Public Law 101-508, 104 Stat. 1388 (Nov. 5, 1990).

Rail Revenues

There are no governmental transportation revenues for rail (Rail generates fuel taxes that are designated for deficit reduction and, thus, are not considered transportation revenues in these tables).

Pipeline Revenues

The Pipeline Safety Program is funded by user fees assessed on a per-mile basis. The assessments are made on each pipeline operator regulated by the Office of Pipeline Safety (OPS) of the Research and Special Programs Administration (RSPA) in the U.S. Department of Transportation. There are no state and local revenues for pipeline.

General Support Revenues

General support revenues come from the Emergency Preparedness Fund, which is generated from fees paid by registered shippers of hazardous materials. RSPA administers and distributes the revenues to states, territories, and tribes through the Hazardous Materials Emergency Preparedness (HMEP) grant program, which is authorized by Federal Hazardous Materials Transportation Law.

Transportation Expenditures

Expenditures, rather than obligations, are used in these tables because they represent the final, actual costs to the government, by year, for capital goods and operating services required by transportation programs. Obligations suggest government commitment to future transportation expenditures, but do not indicate when the funds will actually be disbursed or even if the amounts obligated will be spent.

It is important to recognize that in some accounts in the *Budget of the United States Government*, expenditures for a particular year understate total government disbursements. This is because certain offsetting collections of fees and assessments from the public are not treated as government revenues, but deducted from disbursements to determine expenditures. These collections are those mandated, by statute, to directly fund agency expenditures rather than be transferred to the U.S. Treasury. For this reason, expenditures do not necessarily indicate how much the federal government actually spends on transportation each year.

Highway Expenditures

Federal Highway Administration (FHWA) expenditures include funds for Federal Aid Highways (financed from the HTF) and the Interstate Substitution and Railroad Crossing Demonstration (financed from the general fund). The National Highway Traffic Safety Administration (NHTSA) expenditures include: operations, research, and highway traffic safety grants. Federal highway expenditures also include road construction activities managed by the Department of the Interior's National Park Service, Bureau of Indian Affairs, Bureau of Reclamation, and Bureau of Land Management; the Department of Agriculture's Forest Service; the Department of Housing and Urban Development; and other federal agencies.

State and local governments' highway expenditures reported by the Census Bureau are generally slightly lower than those reported in FHWA's *Highway Statistics* because the FHWA includes some highway expenditure data, such as law enforcement activities and patrols, and policing of streets and highways not included in the Census data. Box 3-1 outlines the major differences in Census Bureau and FHWA calculation of state and local highway transportation financial statistics.

Transit Expenditures

Federal expenditures include grants to states and local agencies for the construction, acquisition, and improvement of mass transportation facilities and equipment and for the payment of operating expenses. Several other items are also included: Federal Railroad Administration (FRA) commuter rail subsidies related to the transition of Conrail to the private sector; research and administrative expenses of the Federal Transit Administration (FTA); and Federal interest payment contribution to the Washington Metropolitan Area Transportation Authority (WMATA).

Air Expenditures

Federal expenditures reported here consist of all FAA expenditures, such as those associated with constructing, operating, and maintaining the national air traffic system; administration of the airport grant program; safety regulation; and research and development. NASA expenses related to air transportation are also included.

State and local expenditures for air include the operation and maintenance of airport facilities, as administered by local airport and port authorities quasigovernment agencies with responsibilities for promoting safe navigation and operations for air modes.

Waterway and Marine Expenditures

Federal expenditures comprise those parts of the U.S. Coast Guard's expenses that are transportation-related, such as aids to navigation, marine safety, and marine environmental protection. All expenses of the U.S. Maritime Administration are included, such as subsidies for construction and operation of vessels by U.S.-flag operators, research and development, and training of ship officers. Also included are those expenses of the U.S. Army Corps of Engineers for construction and operations and maintenance of channels, harbors, locks and dams; protection of navigation; the salaries and expenses of the Federal Maritime Commission; and the expenses of the Panama Canal Commission. Expenditures of the Panama Canal Commission for FY 2000 include outlays for the first quarter of operations, including severance pay and accumulated leave. FY 2001 expenses are for the settlement of remaining accident and contract claims against the Commission.

State and local governments incur water transportation expenditures by operating and maintaining water terminal facilities within ports and harbors.

Rail Expenditures

Federal rail transportation expenditures include:

1. expenses for rail safety enforcement;
2. inspection and program administration;
3. railroad research and development;
4. financial assistance to states for planning, acquisition, rail facility construction, and track rehabilitation with respect to low volume freight lines;
5. grants to Amtrak, including funds to upgrade the high-speed line between Boston, Massachusetts, and Washington, DC, owned by Amtrak (the Northeast Corridor Improvement Program); annual appropriations to cover operating losses; and funds to invest in new equipment and facilities;
6. the purchase of redeemable preference shares for track rehabilitation and line acquisition; and
7. loan guarantee defaults for railroad rehabilitation and improvement and Conrail labor protection.[1]

The local rail freight assistance program, a program of FRA grants to state governments, has had a 70:30 percent federal-state funding share since 1982.

Pipeline Expenditures

The Office of Pipeline Safety (OPS) reimburses state agencies up to 50 percent of their costs to carry out state pipeline safety programs. Federal expenditures are for the enforcement programs, research and development, and grants for state pipeline safety programs.

General Support Expenditures

General fund expenditures include all of the expenses of the following agencies: Office of Inspector General, National Transportation Safety Board, all expenses of the Research and Special Programs Administration, (except pipeline expenditures) and the Office of the Secretary of Transportation (except for payments to Air Carriers and the Commission on Aircraft Safety).

Limitations of the Source Data Sets

The database covers civilian transportation-related activities of government agencies including those of the U.S. Army Corps of Engineers and U.S. Coast Guard.

As mention earlier, federal government data are compiled for the federal fiscal year, which begins on October 1, while state and local data are for fiscal years that generally start in July except for four states with other starting dates (Alabama and Michigan in October, New York in April, and Texas in September). While this may create a small error in totals for any given year, the data are suitable for illustrating trends in public transportation finance.

Readers should note that state and local governments data for census years are full counts and not subject to sampling errors, whereas the data for

[1] Funds in the Conrail Labor Protection Program were provided for benefits to Conrail employees deprived of employment because of work force reductions and other actions. This program no longer exists since Conrail has been returned to the private sector. In 1988, the unobligated balances available from this program were transferred to the USCG, and in 1990 they were returned to the U.S. Treasury.

Box 3-1.
U.S. Census Bureau and Federal Highway Administration Calculations of State and Local Transportation Financial Statistics Differ in the Following Ways:

Item	Census	FHWA
Motor fuel tax revenues	Includes state and local tax revenues on any fuel used in motor vehicles and on gasoline used by aircraft.	Includes state and local fuel tax revenues attributed to highway use of fuels, including diesel fuel, gasohol, and liquefied petroleum gas used by private and commercial highway use motor vehicles and transit. Does not include revenues on gasoline used by aircraft.
Motor vehicle license tax revenues	Includes vehicle mileage and weight taxes on motor carriers; highway use taxes; or off-highway fees.	Does not include vehicle mileage and weight taxes on motor carriers; highway use taxes or off-highway fees.
Local parking charges revenues	Includes local parking revenues.	Not explicitly collected.
Highway expenditures	Excludes patrols or policing of streets and highways; traffic control activities of police or public safety agencies; law enforcement and safety activities of vehicle inspection enforcement, and vehicle size and weight enforcement; street cleaning activities; and roads within parks maintained by a park agency.	Includes patrols or policing of streets and highways; traffic control activities of police or public safety agencies; law enforcement and safety activities of vehicle inspection enforcement, and vehicle size and weight enforcement; street cleaning activities; and roads within parks maintained by a park agency.

noncensus years are estimated from annual surveys of the Bureau of the Census, which are subject to sampling variability of less than three percent. The Census Bureau's database also does not include detailed modal information on interest earnings and bond issue proceeds on the revenue side nor bond retirement and interest payments on the expenditure side

Revenues

Transportation-related revenues like local government property taxes on vehicles, equipment, and streets, and state income taxes to support rail and intercity bus services are not covered because they are not shown in the source materials used to compile the database. In addition, taxes collected from users of the transportation system that go into the general fund are not included. For example, rail generates fuel taxes that are designated for deficit reduction and hence are not considered as transportation revenues. The portion of the Highway Trust Fund (HTF) that goes to the general fund is not considered as transportation revenues.

Expenditures

It is important to recognize that in some accounts in the *Budget of the United States Government*, expenditures for a particular year understate total government disbursements. This is because certain offsetting collections of fees and assessments from the public are not treated as government revenues, but deducted from disbursements to determine expenditures. These collections are those mandated, by statute, to be applied directly to finance agency expenditures rather than being transferred to the Treasury.

In addition, the Census Bureau's highway expenditures data do not include highway law enforcement expenditures, which form a part of the state and local highway expenditures published in the

Highway Statistics. To maintain consistency between the different modes regarding the types of expenditures included, these additional data from the *Highway Statistics* report have not been used.

Data Adjustments

Revisions and corrections to previously published data have been made in most cases. The base year for chained dollar estimates for current data sets is 1996, while the earlier version was presented in chained 1992 dollars. Moreover, the following adjustments have been incorporated.

Revenues

Transportation-related revenues of the Aquatic Resources Fund have been added to water transportation revenues. In this case, only the excise tax charged on motor boat fuels for the Boat Safety Program is assumed to be transportation-related.

The preceding data series did not account for revenues of Pollution Fund, Off-Shore Oil Pollution Fund, and Deep Water Port Liability Fund prior to FY 1990. The current data sets includes revenues for these funds prior to FY 1990.

Expenditures

Not all expenditures for the U.S. Coast Guard (USCG), as reported by the Office of Management and Budget, are considered transportation-related. A new approach has been used to arrive at more accurate USCG transportation-related expenditures. Similar to the previous approach, the current approach includes all expenditures for Environmental Compliance and Restoration, Alteration of Bridges, and Oil Spill Recovery. Part of the expenditures for Operations, Acquisition, Construction and Improvement, Research & Development, and Test and Evaluation are considered as transportation. Within these program areas, only Aids to Navigation, Marine Safety, and Marine Environmental Protection activities are included in the earlier data sets. In the current version, more activities like Search and Rescue and Ice Operations have been included. In addition, Boat Safety Program expenditures have also been included.

Trust fund share of pipeline safety was added to the Research and Special Programs Administration expenditures since FY 1994. This item was not covered in the previously published data.

Federal Grants

Federal grants to state and local governments for the Boat Safety Program have been included. These were not included in the previously reported data.

Data for federal transit grants are obtained from the Office of Management and Budget public budget database. In the previous data series, they were estimated by deducting direct federal transit expenditures grants from the total federal transit expenditures.

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Chapter 4 Energy and the Environment

PETROLEUM SUPPLY

TABLE 4-1. Overview of U.S. Petroleum Production, Imports, Exports, and Consumption

The petroleum supply system is extremely complicated, with many different processes, products, and entities involved. Briefly, crude oil is produced or imported, transported to refineries where it is refined into various products, and then transported to markets. Imports and exports of crude oil and products must be accounted for, as must be nonpetroleum components of final products, such as natural gas plant liquids and ethanol for gasoline blending.

The U.S. Department of Energy, Energy Information Administration (EIA) collects extensive data at select points in the petroleum supply system. Sixteen surveys are conducted by EIA's Petroleum Supply Reporting System to track the supply and disposition of crude oil, petroleum products, and natural gas plant liquids:

- five weekly surveys cover refineries (form EIA-800), bulk terminal stocks (form EIA-801), product pipelines (form EIA-802), crude stocks (form EIA-803), and imports (form EIA-804).
- eight monthly surveys cover the same five points plus tanker and barge movement (form EIA-817), gas processing facilities (form EIA-816), and oxygenates (form EIA-819M).
- one survey (form EIA-807) collects propane data on a monthly basis in the warmer months (April-September) and on a weekly basis in the colder months.
- one annual survey determines production capacity of oxygenates and fuel ethanol (form EIA-819A), and
- one annual survey determines refinery fuel use, capacity, and crude oil receipts by transportation mode (form EIA-820).

The five weekly surveys target key points in the petroleum supply system. They do not include all companies, but sample 90 percent of volume at each selected point in the supply system. EIA rank-orders the companies involved in the survey and sends surveys as it scrolls down the list, stopping when it reaches the 90 percent level. Although 100 percent coverage is sacrificed, this method keeps the level of incoming data manageable and avoids burdening the smallest companies. All data are reviewed and anomalies checked.

Monthly surveys provide data that are used in the monthly and annual reports. They are similar to the weekly surveys, but are more exhaustive in both the range of data collected and the depth of the collection. Sample sizes and response rates for several of the key points in the supply system are shown in table A. The eight monthly surveys cover the industry more accurately than the weekly surveys and provide some double-check points that the other surveys do not. EIA expends considerable effort to ensure that its data are as accurate as possible. Revisions are made throughout the year. For example, EIA's *Annual Energy Review 1996*, released in July 1997, provided a preliminary 1996 number for total petroleum production of 8.30 million barrels per day (mmbd). The *Annual Energy Review 1997*, released a year later, revised that to 8.25 mmbd, and the 1999 Review reported 8.29 mmbd.

TABLE A.
Average Response Rates for Monthly Surveys, 1998

Survey Site	Average universe site	Average number of respondents	Percent
Refinery	252	243	96.3
Bulk terminal	300	287	95.6
Pipeline	81	80	99.3
Crude oil stocks	174	169	99.1
Refinery	252	243	96.3
Bulk terminal	300	287	95.6

NOTE: The average response rate is calculated by summing individual monthly response rates and dividing by 12.

SOURCE: Tammy G. Heppner and Carol L. French, Energy Information Administration, U.S. Department of Energy, Accuracy of Petroleum Supply Data (Washington, DC: 1998)

No complicated survey is likely to be 100 percent accurate. EIA lists four sources of potential systematic errors:

1. Some members of the target population are missed. EIA reports that it continually reviews the lists and searches industry periodicals and newspapers to identify new actors. Considering the nature

of the petroleum industry, it is very unlikely that companies with significant production are not surveyed.

2. Some members of the target population do not respond. EIA reports a 97 percent response rate for monthly surveys. For some points in the supply system, the average response is over 99 percent. Survey respondents are required by law to respond, but some nonresponse is inevitable, especially among small companies. EIA assumes that the nonrespondent's value for that month is the same as for the previous month except for imports. Since imports vary widely, with respondents frequently having no imports, EIA assumes a nonresponse means zero imports. It can be assumed that EIA is good at "filling in the blanks." Assuming for illustration purposes that 0.5 percent of production does not respond, and that EIA is 90 percent accurate in covering the gap, then there is a possibility of a 0.05 percent error. Applying that to total production of 8.29 mmbd in 1999 suggests that there could be an error of 0.0041 mmbd (4,100 barrels per day), which would not affect the published number.

3. The most serious problem may be response error. A company may have poor data, perhaps as a result of imperfect measurements, or it may transmit the wrong number. EIA has no control over a company's data quality. Companies have incentive to measure their inputs and products accurately. Otherwise, they may be cheating themselves or risking ill will with their customers or suppliers. However, no instrumentation is perfectly accurate. The high throughput of, say, a refinery with capacity of several hundred thousand barrels per day, with a variety of products changing density and some lost or used on site, is very complicated to measure. Instrumentation errors are likely to be systematic at any one site, although they will be more nearly random in the aggregate for all facilities. There is potential for small but significant overall errors.

Mistakes may be made in recording and transferring the data. EIA reviews the data and flags gross errors or missing data for review by the respondent. However, not all errors will be picked up by EIA and/or the respondent. Overall, response errors probably are several times as large as nonresponse errors, but it is beyond the scope of this profile to estimate them.

4. The final potential source of systematic error is in the clarity of the survey form, i.e., whether all respondents interpret it correctly. No doubt errors and ambiguities can creep into a form, but at least for petroleum supply, that does not appear to be a major risk. The supply system is not changing rapidly, and EIA should be able to keep with it and the terminology. However the final digit of EIA's published supply data is questionable.

For additional information on survey methodology and statistical reliability, the reader is referred to the EIA reference cited in the tables or the EIA Internet site at www.eia.doe.gov.

FUEL AND ENERGY CONSUMPTION

TABLE 4-1. Overview of U.S. Petroleum Production, Imports, Exports, and Consumption

TABLE 4-2. U.S. Consumption of Energy from Primary Sources by Sector

TABLE 4-3. Domestic Demand for Refined Petroleum Products by Sector

TABLE 4-4. U.S. Energy Consumption by the Transportation Sector

TABLE 4-7. Domestic Demand for Gasoline

Petroleum consumption is far more complex to measure than supply. Instead of a few hundred companies at most measuring points in the supply system, there are tens of millions of consumers. It would be impossible for any survey of individual consumers to produce the high rate of return of U.S. Department of Energy (DOE), Energy Information Administration's (EIA's) supply surveys. EIA's transportation data collection is further limited by the termination of the Residential Transportation Energy Consumption Survey (RTECS). Therefore, EIA uses surveys of sales of products (e.g., Form EIA-821: Annual Fuel Oil and Kerosene Sales Report) or tax collection data from the U.S. Department of Transportation, Federal Highway Administration (FHWA).

EIA reviewed the accuracy of its energy consumption data in a 1990 monograph *Energy Consumption by End-Use Sector, a Comparison of Measures by Consumption and Supply Surveys*. Unfortunately, this monograph does not discuss the

transportation sector because the consumption and supply surveys were not comparable. However, some of the results from other sectors indicate the discrepancies between supply and consumption surveys. Table B shows the ratio of fuel supplied to the sector to consumption reported by the sector in consumption surveys.

In most cases, supply is reported as substantially larger than consumption. Supplies of fuel oil to the commercial sector are reported at almost twice the level of consumption reported by that sector. Some of the discrepancies may be due to definition differences (e.g., fuel oil for apartment buildings is included in commercial supply surveys but not in consumption surveys). Overall, however, the differences are too large for great confidence in the accuracy of the data.

If transportation had been reviewed in the same format, it is likely that the discrepancies would have been larger. Most transportation fuel (gasoline for automobiles) is purchased in small quantities at irregular intervals and cannot be checked simply by looking at a utility bill. Hence, highway transportation energy consumption surveys must be extensive to avoid the risk of large uncertainties in the data. But, with the termination of the RTECS, EIA ceased conducting such surveys. Consumption data must be derived indirectly from sales of petroleum products and tax collection data. While petroleum supply may be accurate to one decimal place, it is likely that disaggregating by sector use may be within plus or minus several percentage points, or perhaps about half a quadrillion British thermal unit (Btu) in table 4-1.

TABLE B.
Reported Ratio of Fuel Supply to Reported Consumption

Sector	Electricity	Gas	Oil
Residential	1.05	0.92	0.92
Commercial	0.91	1.38	1.96
Industrial	1.18	1.28	1.34

SOURCE: U.S. Department of Energy, Energy Information Administration, Energy Consumption by End-Use Sector, A Comparison of Measures by Consumption and Supply Surveys, DOE/EIA-0533 (Washington, DC: 1990).

Motor Gasoline

Almost all gasoline is consumed in the transportation sector. Small amounts are used in the commercial sector for nonhighway use and the industrial sector, which includes agriculture, construction, and other uses. Subtracting estimates of those uses from the known total sales yields the transportation sector's total, which is further subdivided into highway and marine use. Aviation gasoline is, of course, used entirely in the transportation sector (for a very few high-performance automobiles as well as small aircraft).

Data on actual sales is collected by the states for revenue purposes. These data are forwarded to FHWA. EIA uses the data from FHWA to allocate highway consumption of motor gasoline among the states. For 1999, FHWA reported 124.7 billion gallons of gasoline sold nationally for highway use. EIA's table 5.12c of the *Annual Energy Review 2000* lists 8.33 mmbd of gasoline supplied for the transportation sector, the same as 127.7 billion gallons.

Such close agreement between supply and demand is not totally convincing. Definitions are unique to each state (e.g., whether gasohol is counted as pure gasoline or part gasoline and part renewables), measurement points vary from state to state, and each state handles losses differently. Hence, the total of all states' sales of gasoline is not entirely consistent.

Separation of highway from nonhighway uses of gasoline is, by necessity, based in part on careful estimates. Nevertheless, overall gasoline sales are well documented, and the separation is probably fairly accurate. Refinery output of motor gasoline was 7.93 mmbd in 1999, which is probably accurate to the first decimal place and maybe a little better. The transportation sector's 8.33 mmbd would have about the same accuracy.

Diesel Fuel

Diesel fuel is used in highway vehicles, railroads, boats, and military vehicles. Sales are only about 30 percent of gasoline in the transportation sector, but uncertainties are greater. More diesel than gasoline is used for nonhighway purposes, especially agriculture and construction. In addition, there has been more potential for cheating to avoid the tax; heating oil is virtually the same as diesel fuel and can easily be transferred to a vehicle. However, this is less significant now that tracers have been added to fuel oil. After the addition of tracers, the amount of transportation diesel fuel use jumped.

To estimate diesel fuel sales by mode, EIA starts with the total supply of distillate fuel and subtracts

the small amount sold to electric utilities (the most accurately known sector, as measured by EIA Form EIA-759). The remainder is divided among the other end-use sectors according to EIA's sales surveys (Form EIA-821: Annual Fuel Oil and Kerosene Sales Report, and Form EIA-863: Petroleum Product Sales Identification Survey).

This method introduces several potential elements of inaccuracy. First, the surveys of each sector are probably less accurate than the supply surveys noted earlier. Companies and individuals may inadvertently send incorrect data, or not respond at all. Then EIA has to determine what adjustment factor to use for each end-use sector. Since each sector will have a different response rate to the surveys, the adjustments will be different. Large adjustments can introduce large errors. EIA has not published its adjustments for the transportation sector. As shown in table 2, the adjustments in other sectors range from 5 to 96 percent of reported consumption. Even a 20 percent adjustment could introduce an error of one or two percentage points (plus or minus) for any one sector.

Overall, the accuracy of diesel fuel use in the transportation sector should be viewed with some skepticism.

Jet Fuel

Jet fuel is the only other petroleum-based fuel that is used in large quantities (over 1 million barrels/day) in the transportation sector. Virtually all of it is used by airlines. These data are accurate because airlines are required to report usage, and because there are relatively few certificated air carriers, data collection should be manageable.

NONPETROLEUM FUELS CONSUMPTION

TABLE 4-10. Estimated Consumption of Alternative and Replacement Fuels for Highway Vehicles

Collectively, oxygenates, natural gas, electricity, and various alternative fuels amount to only about 3 percent of all energy used in the transportation sector. While this may not be much greater than the error bars associated with petroleum use, it is important to track changes in these fuels accurately.

Oxygenates

Oxygenates, mostly methyl tributyl ether (MTBE), which is derived from natural gas and ethanol, are part of mainstream gasoline supply. They are measured routinely with petroleum supply (forms EIA-819A and 819M). Consumption is estimated from production, net imports, and stock changes. Refineries and other entities are required to report data on oxygenates, and EIA also monitors production capability to provide a crosscheck. Thus, oxygenates data are likely to be reasonably accurate.

Natural Gas

Natural gas is used in the transportation sector mainly as the fuel for compressor stations on natural gas transmission lines. A small but growing amount is used in compressed or liquefied form in vehicles. EIA collects data on natural gas much as it does for petroleum, but the system is much simpler. Natural gas transmission companies may not know exactly how much gas is used in compressor stations, but they have a good idea based on the size of the equipment and the load on the line. The reported numbers probably are reasonably accurate. Data on natural gas-fueled vehicles are collected by DOE via Form-886, which is sent to fuel suppliers, vehicle manufacturers, and consumers. In addition, private associations and newsletters are important sources of information on alternative vehicles and alternative fuels use. Since most groups work cooperatively with DOE, it is likely that the data reported are accurate. EIA tracks the number of natural gas vehicles and the number of refueling stations to provide a cross check on estimates of natural gas consumption.

Electricity

Electricity powers intercity trains (Amtrak) and intracity rail systems. In addition, the number of electric vehicles is growing. There is considerable uncertainty over the energy consumed by these modes. Amtrak no longer provides national totals of its electricity consumption. Data on intracity transit is based on U.S. Department of Transportation, Federal Transit Administration's (FTA's) National Transit Database (NTD). The legislative requirement for the NTD is found in Title 49 U.S.C. 5335(a). Transit agencies receiving funds through the Urbanized Area Formula Program are

generally required to report financial and operating data, including energy use. Although the data is generally considered accurate because FTA reviews and validates information submitted, reliability may vary because some transit agencies cannot obtain accurate information or may misinterpret certain data.

If electric vehicles become important over the next decade or two, dedicated charging stations may become commonplace, which could provide accurate data. Fleet owners (e.g., electric utilities) can keep accurate records, but individuals who plug their vehicles in at home may not. Electricity use must be estimated from the number of such vehicles and the expected driving cycles. Hence, data on electric power for transportation must be viewed as an estimate.

It should also be noted that electricity is a form of work that usually is generated from heat with the loss of about two-thirds of the energy. Automobile engines are equivalent to electric generators in that they convert chemical energy to heat and then to work, losing most of the energy as waste heat. When electrical energy is compared to petroleum in transportation, the waste heat must be included for consistency. A kilowatt-hour of electricity is equivalent to 3,413 British thermal units (Btu), but about 10,000 Btu of heat are required to produce it. This factor is dropping as generators become more efficient. High efficiency gas turbines may require 8,000 Btu or less, but the average is much higher. It is usually impossible to tell where the power for a specific use is generated, so average figures for a region are used to estimate the waste energy, a factor that further reduces the accuracy of the data.

Alternative Fuels

In addition to oxygenates, natural gas, and electricity, alternative fuels include ethanol and methanol. EIA tracks the numbers of such vehicles through Form-886, state energy offices, federal demonstration programs, manufacturers, and private associations. These numbers probably are fairly accurate although it is difficult to monitor retirements. Fuel consumption is estimated from the types of vehicles in operation, vehicle miles traveled, and expected fuel efficiency. Adjustments are necessary for the relatively few flexible-fuel vehicles. Obviously, the reported data are estimates only.

FUEL AND ENERGY CONSUMPTION BY MODE

TABLE 4-5. Fuel Consumption by Mode of Transportation

TABLE 4-6. Energy Consumption by Mode of Transportation

TABLE 4-8. Certificated Air Carrier Fuel Consumption and Travel

TABLE 4-9. Motor Vehicle Fuel Consumption and Travel

TABLE 4-11. Passenger Car and Motorcycle Fuel Consumption and Travel

TABLE 4-12. Other 2-Axle 4-Tire Vehicle Fuel Consumption and Travel

TABLE 4-13. Single-Unit 2-Axle 6-Tire or More Truck Fuel Consumption and Travel

TABLE 4-14. Combination Truck Fuel Consumption and Travel

TABLE 4-15. Bus Fuel Consumption and Travel

Fuel consumption data are collected quite differently than supply data collected by the U.S. Department of Energy, Energy Information Administration (EIA). Highway fuel consumption, for example, is based on U.S. Department of Transportation, Federal Highway Administration (FHWA) data collected from states in the course of revenue collection. EIA starts from the fuel delivered to transportation entities.

Highway

Highway fuel data (tables 4-5, 4-9, and 4-11 through 4-15) are collected mainly by FHWA. All states plus the District of Columbia report total fuel sold along with travel by highway category and vehicle registration. Data typically flows from state revenue offices to the state departments of transportation to FHWA. Even if reporting is reasonably accurate, some data are always anomalous or missing and must be modified to fit expected

patterns. In addition, as discussed earlier, there are some significant differences in methodology and definitions among the states. In particular, states differ in where the tax is applied in the fuel supply system, how gasohol is counted, how nonhighway use is treated, and how losses are handled.

Nonhighway use of gasoline and diesel fuel is a particularly large source of potential error. Some states designate nonhighway users as tax-exempt, others make the tax refundable. In either case, many people won't bother to apply if the amount of money is small. Nonhighway use of diesel fuel is especially large because many construction and agricultural vehicles are diesel powered. Thus, the fraction of petroleum attributed to transportation could be overestimated. On the other hand, some nonhighway fuel finds its way into the transportation system because heating oil can be used as diesel fuel, evading the tax. Tracers are now added to heating oil, which appears to have reduced the level of such tax evasion—if found in a truck's fuel tank, the tracer indicates diversion from a nontaxed source.

Breaking fuel use down by class of motor vehicle introduces the potential for error. FHWA must estimate the miles each class is driven and the fuel economy. Estimation of miles is based on the 1995 Nationwide Personal Transportation Survey (NPTS), administered by FHWA, and the Vehicle Inventory and Use Survey (formerly known as the Truck Inventory and Use Survey) conducted by the U.S. Census Bureau. For information about these two surveys, the reader is referred to the technical appendix of *Our Nation's Travel*, available from the FHWA, Office of Highway Information Management; and the 1997 Census of Transportation, available from the Economics and Statistics Administration within the Census Bureau. Fuel economy is based on state-supplied data, TIUS, and the National Highway Traffic Safety Administration data on new car fuel economy, which must be reduced by about 15 percent to reflect actual experience on the road. Overall, both vehicle-miles of travel and fuel economy are estimates.

Fuel consumption by buses is particularly uncertain. FHWA collects data on intercity buses, and the American Public Transit Association (APTA) covers local travel. Very little data are collected on school buses. APTA figures are based on data from the USDOT, Federal Transit Administration's (FTA's) National Transit Database, which covers about 90 to 95 percent of total passenger-miles. These data are generally accurate because FTA reviews and validates information submitted by individual transit agencies. Reliability may vary because some transit agencies cannot obtain accurate information or may misinterpret data. APTA conservatively adjusts the FTA data to include transit operators that do not report to FTA, such as private and very small operators and rural operators. Prior to 1984, APTA did not include most rural and demand responsive systems.

Air

The U.S. Department of Transportation, Bureau of Transportation Statistics, Office of Airline Information (OAI) is the source of these data. The numbers are based on 100-percent reporting of fuel use by large certificated air carriers (those with revenues of more than $100 million annually) via Form 41. The data are probably reasonably accurate because the airlines report fuel use regularly, and the limited number of airlines aids data management.

Smaller airlines, such as medium size regional and commuter air carriers, are not required to report energy data. OAI estimates that about 8 percent would have to be added to the total of the larger airlines to account for this use, but that has not been done in table 4-5 or 4-8.

General aviation aircraft and air taxis are covered in the General Aviation and Air Taxi and Avionics Survey, conducted by the Federal Aviation Administration (FAA). The survey is conducted annually and encompasses a stratified, systematic design from a random start to generate a sample of all general aviation aircraft in the United States. It is based on the FAA registry as the sampling frame. For instance, in 2000, a sample of 31,039 aircraft was identified and surveyed from an approximate population of 256,927 registered general aviation aircraft.

The reliability of the GAATA survey can be impacted by two factors: sampling and nonsampling error. A measure, called the standard error, is used to indicate the magnitude of sampling error. Standard errors can be converted for comparability by dividing the standard error by the estimate (derived from the sample survey results) and multiplying it by 100. This quantity, referred to as the percent standard error, totaled two and four-tenths

of a percent in 2000 for the general aviation fleet. A large standard error relative to an estimate indicates lack of precision, and inversely, a small standard error indicates precision.

Nonsampling errors could include nonresponse, a respondent's inability or unwillingness to provide correct information, differences in interpretation of questions, and data entry mistakes. The reliability of general aviation fleet data comparisons over time would decrease because of changes implemented in 1978 and sampling errors discussed above. Readers should note that nonresponse bias may be a component of reliability errors in the data from 1980 to 1990. The FAA conducted telephone surveys of nonrespondents in 1977, 1978, and 1979 and found no significant differences or inconsistencies between respondent and nonrespondent replies. The FAA discontinued the telephone survey of nonrespondents in 1980 to save costs. Nonresponse surveys were resumed in 1990; and the FAA found notable differences and make adjustments to its data to reflect nonresponse bias.

The U.S. Government, in particular the Department of Defense (DOD), uses a large amount of jet fuel as shown in table 4-19 (see discussion on government consumption below). However, DOD reports all fuel purchased, including from foreign sources for operations abroad. While the data may be accurate, it is not comparable to EIA's overall U.S. supply and consumption figures on jet fuel.

International operations are included in table 4-8 but not table 4-5. The fuel use for international operations includes that purchased by U.S. airlines for return trips. OAI does not collect data on foreign airline purchases of fuel in the United States. Thus, a significant use of U.S. jet fuel is missed. However, these two factors approximately balance each other out. As shown in table 1-34, foreign carrier traffic is just slightly less than U.S. carrier international traffic, so presumably the fuel purchased here by foreign carriers is very close to the fuel purchased abroad by U.S. carriers.

Rail

The data are from *Railroad Facts*, published annually by the Association of American Railroads (AAR). AAR figures are based on 100 percent reporting by Class I railroads to the Surface Transportation Board (STB) via Schedule 700 of the *R1 Annual Report*. Thus, the data are considered accurate. STB defines Class I railroads as having operating revenues at or above a threshold indexed to a base of $250 million (1991) and adjusted annually in concert with changes in the Railroad Freight Rate Index published by the Bureau of Labor Statistics. In 2001, the adjusted threshold for Class I railroads was $266.7 million. Although Class I railroads represent only 1 percent of the number of railroads in the country, they account for over 70 percent of the industry's mileage operated and more than 90 percent of all freight revenue; energy consumption should be of the same order. For passenger travel, information is unavailable. Amtrak no longer provides data on a national basis, and the regional data appears to be inconsistent.

Transit

The APTA figures are based on information in FTA's National Transit Database. APTA conservatively adjusts FTA data to include transit operators that do not report to the FTA Database (private and very small operators and rural operators), which accounts for about 90 to 95 percent of the total passenger-miles. The data are generally accurate because the FTA reviews and validates information submitted by individual transit agencies. Reliability may vary because some transit agencies cannot obtain accurate information or misinterpret certain data definitions in federal guidelines.

Water

The EIA collects data on residual and distillate fuel oils and diesel through its *Annual Fuel Oil and Kerosene Sales Report* survey, form EIA-821. The survey targets companies that sell fuel oil and kerosene to end users. This survey commenced in 1984 and data from previous years should be used with caution.

Sampling Frame and Design

The sample's target universe includes all companies that sell fuel oil and kerosene to end users. EIA derives the sampling frame from the EIA-863 database containing identity information for approximately 22,300 fuel oil and kerosene sellers. EIA stratifies the sampling frame into two categories: companies selected with certainty and uncertainty. Those in the certainty category varied but included the end use "vessel bunkering," or sales for the fueling of commercial and private watercraft.

Sampling Error, Imputation, and Estimates

EIA reported a 92.5 percent response rate for the 2000 survey. The EIA also provides estimates of the sampling error for geographic areas and U.S. averages are 1.8 for residential distillate fuel oil, 0.8 for nonresidential retail distillate fuel oil, and 0.1 for retail residual fuel oil. Some firms inevitably ignore survey requests, causing data gaps. EIA estimates the volumes of these firm's sales by imputation; more detailed information and the algorithm can be obtained at EIA's web site in the technical notes for the Annual Fuel Oil and Kerosene Sales Report. See http://www.eia.doe.gov/oil_gas/petroleum/data_publications/fuel_oil_and_kerosene_sales/foks.html.

TABLE 4-19. U.S. Government Energy Consumption by Agency and Source

Energy consumption data are collected by DOE's Office of Federal Energy Management Programs in cooperation with most departments and agencies. DOD is by far the largest consumer, accounting for about 80 percent of the total. As discussed above, the data includes fuel purchased abroad for military bases. Since government agencies are required to report these data, they are probably accurate. However, it is possible that some consumption is missed. For example, some agencies may report only fuel supplied directly, missing consumption such as gasoline purchased by employees while on government business for which they are then reimbursed. In addition, smaller agencies were neglected. Overall, however, the data should provide a fairly good approximation of government energy consumption.

ENERGY EFFICIENCY

TABLE 4-20. Energy Intensity of Passenger Modes

TABLE 4-21. Energy Intensity of Certificated Air Carriers, All Services

TABLE 4-22. Energy Intensity of Passenger Cars, Other 2-Axle 4-Tire Vehicles, and Motorcycles

TABLE 4-24. Energy Intensity of Transit Motor Buses

TABLE 4-25. Energy Intensity of Class I Railroad Freight Service

TABLE 4-26. Energy Intensity of Amtrak Service

Total energy consumed for each mode can be estimated with reasonable accuracy. Miles traveled are known for some modes, such as air carriers, but less accurately for others, most notably automobiles. When the numbers of passengers or tons are required to calculate energy efficiency, another uncertainty is introduced. Again, air carriers and intercity buses know how many passengers are on board and how far they travel, but only estimates are available for automobiles and intracity buses.

Thus, table 4-21 should be quite accurate for certificated air carriers, though it is missing small airlines and private aircraft. Table 4-22 is based on FHWA fuel tax data, derived from state fuel tax revenues. VMT is as discussed for tables 1-9 and 1-10. Data for motorcycles must be adjusted significantly more than for automobiles because less information is collected from the states or from surveys. Transit bus data (table 4-24) are very uncertain because, unlike intercity buses, the distance each passenger travels is not measured by ticket sales.

The intermodal comparison of passenger travel in table 4-20 must be viewed with considerable caution. Data for the different modes are collected in different ways, and the preparation of the final results is based on different assumptions. As noted above, airlines accurately record passenger miles, but the data on occupancy of private automobiles must be estimated from surveys. Even relatively certain data, such as state sales of gasoline, must be modified to resolve anomalies, and transit data are even harder to make consistent. Furthermore, different groups collect the data for the various modes, and they have different needs, assumptions, and methodologies. Thus, the comparisons are only approximate.

Freight service data (table 4-25) are from *Railroad Facts*, published annually by the Association of American Railroads (AAR). AAR figures are based on 100 percent reporting by Class I railroads to the Surface Transportation Board (STB) via Schedule 700 of the *R1 Annual Report*. STB defines Class I railroads as having operating revenues at or above a threshold indexed to a base of

$250 million (1991) and adjusted annually in concert with changes in the Railroad Freight Rate Index published by the Bureau of Labor Statistics. In 2000, the adjusted threshold for Class I railroads was $ 261.9 million. Although Class I railroads comprise only 1 percent of the number of railroads in the country, they account for over 71 percent of the industry's mileage and 91 percent of all freight revenue; energy data should be of the same order.

TABLE 4-27. Annual Wasted Fuel Due to Congestion

TABLE 4-28. Wasted Fuel per Eligible Driver

The Texas Transportation Institute's (TTI) *Urban Roadway Congestion Annual Report* provided figures for tables 4-27 and 4-28. TTI relies on data from the U.S. Department of Transportation, Federal Highway Administration, Highway Performance Monitoring System database (HPMS). (See box 1-1 for detailed information about the HPMS.) TTI utilizes these data as inputs for its congestion estimation model. Detailed documentation for the TTI model and estimations can be found at http://mobility.tamu.edu/.

The sum of fuel wasted in typical congestion (recurring delay) and incident related delays equal the annual wasted fuel for an urban area. Recurring delay is the product of recurring delay (annual hours in moderate, heavy, and severe delays) and average peak period system speed divided by average fuel economy. Incident delay hours are multiplied by the average peak period system speed and divided by the average fuel economy to produce the amount of incident fuel wasted.

Structure, Assumptions, and Parameters

Urban roadway congestion levels are estimated using a formula measuring traffic density. Average daily travel volume per lane on freeways and principal arterial streets are estimated using area wide estimates of vehicle-miles of travel and lane miles of roadway. The resulting ratios are combined using the amount of travel on each portion of the system (freeway and principal arterials) so that the combined index measures conditions overall. This variable weighting factor allows comparisons between areas such as Phoenix-where principal arterial streets carry 50 percent of the amount of travel of freeways-and cities such as Phoenix where the ratio is reversed. Values greater than one are indicative of undesirable congestion levels. Readers seeking the algorithm for the congestion index should examine http://mobility.tamu.edu/.

In previous reports, TTI assumed that 45 percent of all traffic, regardless of the urban location, occurred in congested conditions. TTI indicated that this presumption overestimated travel in congested periods. Its 2002 estimates now vary by urban area anywhere from 18 to 50 percent of travel that occurs in congestion. TTI's model structure applies to two types of roads: freeways and principal arterial streets. The model derives estimates of vehicle traffic per lane and traffic speed for an entire urban area. Based on variation in these amounts, travel is then classified under 5 categories: uncongested, moderately congested, heavily congested, severely congested, and extremely congested (a new category in 1999). The threshold between uncongested and congested was changed in 1999. Previous editions classified congested travel when area wide traffic levels reached 14,000 vehicles per lane per day on highways and 5,500 vehicles per lane per day on principal arterial streets. For the current edition these values are 15,500 and 5,500 vehicles per lane per day respectively. Previous years values have been re-estimated based on these new assumptions. Readers should refer to the TTI website for more detailed information on its estimation procedures http://mobility.tamu.edu/.

TTI reviews and adjusts the data used in its model, including statewide average fuel cost estimates (published by the American Automobile Association) and the number of eligible drivers for each urban area (taken from the Statistical Abstract of the United States, published by the U.S. Department of Commerce, Bureau of the Census). The model has some limitations because it does not include local variations (such as bottlenecks, local travel patterns, or transportation improvements) that affect travel times. TTI documentation does not provide information on peer-review, sensitivity analysis, or estimation errors for their model. Information about sensitivity analysis or external reviews of the model could not be obtained and users should interpret the data cautiously.

ENVIRONMENT

TABLE 4-38. Estimated National Average Vehicle Emissions Rates by Vehicle Type and Fuel

TABLE 4-39. National Average Vehicle Emissions Rates by Vehicle Type Using Reformulated Gasoline

The U.S. Environmental Protection Agency uses its Mobile Source Emissions Factor Model (MOBILE) to generate average emissions factors for each vehicle and fuel type. The methods used in the model are theoretically sound, the assumptions are reasonable, but the data vary in quality, and no formal analysis of the accuracy of these estimates has been performed. Emissions rate estimates for light-duty vehicles are considered more reliable than those for heavy-duty vehicles because in-use emissions tests are performed on a sample of vehicles each year. Deterioration for heavy-duty vehicles in the national fleet are based only on manufacturer's engine deterioration tests. In addition, because reformulated fuels (table 4-39) are newer than other gasoline fuels (table 4-38), in use emissions test data for reformulated fuels are not as extensive.

The estimates in the tables represent average emissions rates taking into account the characteristics of the nation's fleet, including vehicle type and age, and fuel used. The model also assumes Federal Test Procedure conditions. The model does not take into account actual travel distributions across different highway types with their associated average speeds and operating mode fractions, nor do they consider ambient local temperatures. However, fleet composition and deterioration because of age are considered. Thus, these rates illustrate only trends due to vehicle emissions control improvements and their increasing use in the national fleet and should not be used for other purposes.

TABLES 4-40, 4-41, 4-42, 4-43, 4-44, 4-45 and 4-46. Estimates of National Emissions of Carbon Monoxide, Nitrogen Oxides, Volatile Organic Compounds, Particular Matter, Sulfur Dioxide, and Lead

Emissions by sector and source are estimated using various models and calculation techniques and are based on a number of assumptions and on data that vary in precision and reliability. The methods used are theoretically sound, the assumptions are reasonable, but the data vary in quality, and no formal analysis of the accuracy of these estimates has been performed.

Carbon Monoxide (CO), Nitrogen Oxides (NOx), and Volatile Organic Compounds (VOCs)

Highway vehicle emissions of CO, NOx, and VOC are generated by the U.S. Environmental Protection Agency's (EPA's) Mobile Source Emissions Factor Model (MOBILE), which uses per-mile vehicle emissions factors and vehicle travel (vehicle-miles) to calculate county-level emissions. Emissions rates are then adjusted based on fuel characteristics, vehicle fleet composition, emissions control measures, average vehicle speed, and other factors that can affect emissions. (Emissions rates used in MOBILE are based on vehicle certification tests, emissions standards, and in-use vehicle tests and are updated approximately every three years.) The U.S. Department of Transportation, Federal Highway Administration's Highway Performance Monitoring System is the source of vehicle travel estimates used in the model. Although the methodology for this survey data is sound and well documented, analyses have shown that individual states vary in how rigorously they follow the established sampling guidelines.

The nonhighway vehicle emissions are calculated annually by running EPA's NONROAD model for all categories except aircraft, commercial marine vessels, and railroads, which are calculated via emission factors and relevant activity data. Inputs to the NONROAD model include average temperatures, Reid vapor pressure, fuel usage programs and controls.

Particulate Matter Under 10 Microns (PM-10) and 2.5 Microns (PM-2.5) in Size

Highway vehicle emissions are estimated using the U.S. Environmental Protection Agency's PART model, which estimates emissions factors for exhaust emissions and brake and tire wear by vehicle type. Exhaust emissions factors are based on certification tests, while brake wear (per vehicle) and tire wear (per tire) are assumed values, which are constant over all years. Per-mile emissions factors are multiplied by vehicle travel (vehicle-miles)

and adjusted to account for other factors that effect exhaust emissions (e.g., fuel composition, weather, etc.). The U.S. Department of Transportation, Federal Highway Administration's Highway Performance Monitoring System is the source of vehicle-miles of travel (VMT) estimates used in the model. While the methodology for this survey data is sound and well documented, analyses have shown that individual states vary in how rigorously they follow the established sampling guidelines.

Fugitive dust estimates for paved and unpaved roads are calculated by multiplying VMT on each type of road by emissions factors for each vehicle type and road type.

The non-highway vehicle emissions are calculated annually by running EPA's NONROAD model for all categories except aircraft, commercial marine vessels, and railroads, which are calculated via emission factors and relevant activity data. Inputs to the NONROAD model include average temperatures, Reid vapor pressure, fuel usage programs and controls.

Sulfur Dioxide (SO_2)

Highway vehicle SO_2 emissions are estimated by multiplying vehicle travel (for each vehicle type and highway type) by an emissions factor reflecting each vehicle type and highway type. Highway SO2 emissions factors are based on vehicle type and model year, sulfur content of fuel by type and year, fuel density by fuel type, and vehicle fuel efficiency by type and model year.

In general, estimates for nonhighway vehicles are calculated based on fuel consumption and sulfur content of fuel, though other factors may be considered.

Lead

In general, lead emissions are estimated by multiplying an activity level by an emissions factor that represents the rate at which lead is emitted for the given source category. This estimate is then adjusted by a factor that represents the assumed effectiveness of control technologies. For lead released during combustion, a top-down approach is used to share national estimates of fuel consumption by fuel type to each consumption category (e.g., motor fuel, electric utility, etc.) and, subsequently, each source (e.g., passenger cars, light-duty trucks, etc.).

TABLE 4-47. Air Pollution Trends in Selected Metropolitan Statistical Areas (MSAs)

TABLE 4-48. Areas in Nonattainment of National Ambient Air Quality Standards for Criteria Pollutants

The U.S. Environmental Protection Agency measures concentrations of pollutants in the ambient air at its air quality monitoring sites, which are operated by state and local agencies. These sites conform to uniform criteria for monitor siting, instrumentation, and quality assurance, and each site is weighted equally in calculating the composite average trend statistics. Furthermore, trend sites must have complete data for 8 of the 10 years in the trend time period to be included. However, monitoring devices are placed in areas most likely to observe significant concentrations of air pollutants rather than a random sampling of sites throughout the nation.

TABLE 4-49. U.S. Carbon Dioxide Emissions from Energy Use by Sector

The combustion of fossil fuels, such as coal, petroleum, and natural gas, is the principal anthropogenic (human caused) source of carbon dioxide (CO_2) emissions. Since fossil fuels are typically 75 percent to 90 percent carbon by weight, emissions from the combustion of these fuels can be easily measured in carbon units, as is shown in the table.

CO_2 emissions data are derived from estimates. The U.S. Department of Energy, Energy Information Administration (EIA), estimates CO_2 emissions by multiplying energy consumption for each fuel type by its carbon emissions coefficient, then subtracting carbon that is sequestered by nonfuel use of fossil fuels. Carbon emissions coefficients are values used for scaling emissions to specific activities (e.g., pounds of CO_2 emitted per barrel of oil consumed).

Emissions estimates are based on energy consumption data collected and published by EIA Several small adjustments are made to its energy consumption data to eliminate double counting or miscounting of emissions. For example, EIA subtracts the carbon in ethanol from transportation gasoline consumption because of its biological origin.

Emissions coefficients are based on the density, carbon content, and heat content of petroleum

products. For many fuels, except liquefied petroleum gas (LPG), jet fuel, and crude oil, EIA assumed coefficients to be constant over time. For LPG, jet fuel, and crude oil, EIA annualized carbon emissions coefficients to reflect changes in chemical composition or product mix.

Since the combustion of fossil fuels is a major producer of CO_2 emissions, sources of uncertainty are related to: 1) volumes of fuel consumed; 2) characteristics of fuel consumed; 3) emissions coefficients; and 4) coverage. EIA notes that volumetric fuel data are fairly reliable in the 3 percent to 5 percent range of uncertainty. The density and energy content of fuels are usually estimated. According to EIA, the reliability of these estimates vary. For example, estimates of the energy content of natural gas are reliable to 0.5 percent, while estimates for coal and petroleum products are lower because they are more heterogeneous fuels. The reliability of emissions coefficients depends on whether the characteristics of a fuel are difficult to measure accurately. Finally, uncertainties may result because data may be excluded or unknown sources of emissions not included.

EIA's estimation methods, emissions coefficients, and the reliability of emissions estimates are discussed in detail in U.S. Department of Energy, Energy Information Administration, *Emissions of Greenhouse Gases in the United States*, 1998 available on: www.eia.doe.gov/oiaf/1605/ggrpt/index.html.

TABLE 4-50. Petroleum Oil Spills Impacting U.S. Waterways

The U. S. Coast Guard's (USCG) Marine Safety Information System (MSIS) is the source of these data. It includes data on all oil spills impacting U.S. navigable waters and the Coastal Zone. The USCG learns of spills through direct observation, reports from responsible parties and third parties. Responsible parties are required by law to report spills to the National Response Center (NRC). Reports may be made to the USCG or Environmental Protection Agency predesignated On Scene Coordinator for the geographic area where the discharge occurs if direct reporting to the NRC is not practicable. There is no standard format for these reports, but responsible personnel face significant penalties for failing to do so. Most reports are made by telephone, and USCG personnel complete investigations based on the information provided. The type and extent of an investigation conducted varies depending on the type and quantity of the material spilled. Each investigation will determine as closely as possible source of the pollutant, the quantity of the material spilled, the cause of the accident, as well as whether there is evidence that any failure of material (either physical or design) was involved or contributed to the incident. These are so financial responsibility may be properly assigned for the incidents, as well as proper recommendations for the prevention of the recurrence of similar incidents may be made.

Some spills may not be entered into MSIS because they are either not reported to or discovered by the USCG. The probability of a spill not being reported is inversely proportional to its size. Large spills impact a large area and a large number of people, resulting in numerous reports of such spills. Small spills are less likely to be reported, particularly if they occur at night or in remote areas where persons other than the responsible party are unlikely to detect them. Responsible parties are required by law to report spills and face penalties for failing to do so, providing a strong incentive to report spills that might be detected by others. Experience with harbor patrols shows that the number of spills increases as the frequency of patrols increases. However, the volume of material spilled does not increase significantly, indicating that the spills discovered through increased harbor patrols generally involved very small quantities.

Data Collection

From 1973 to 1985, data were collected on forms completed by the investigator and later entered into the Pollution Incident Reporting System (PIRS) by data entry clerks at USCG headquarters. Since 1985, data have been entered directly into MSIS by the investigator. From 1985 to 1991, data were entered into a specific electronic form that captured information on the spilled substance and pollution response actions. Since 1995, a growing number of reports of pollution incidents of 100 gallons or less of oil have been captured on a Notice of Violation ticket form, which are then entered into MSIS.

The information shown in this table comes from the USCG Spill Compendium, which contains spill data from the applications described above. The Compendium contains summary data from 1969

through 2000 and is intended to provide general information to the public, the maritime industry and other interested persons about spills in and around U.S. waterways. For more information about spill data, please refer to the USCG Internet site at http://www.uscg.mil/hq/g-m/nmc/response/stats/aa.htm

Nonsampling Errors

According to the USCG, nonsampling errors, such as nonreporting and mistakes made in data collection and entry, should not have a major impact on most interpretations of the data, but the impact will vary depending on the data used. The error rate for volume spilled is estimated to be less than 5 percent because larger spills, which account for most of the volume of oil spilled, are thoroughly reviewed at several levels. The error rate for the number of spills is difficult to estimate primarily due to low reporting rates for small spills. Most of the error in spill counts involves spills of less than 100 gallons.

TABLE 4-51. Leaking Underground Storage Tank Releases and Cleanups

A national inventory of reported spills and corrective actions taken for leaking underground storage tanks is compiled biannually based on state counts of leaking tanks reported by owners as required by the Resource Conservation and Recovery Act of 1976.[1] These data may be affected by general accounting errors, some of which have changed semiannual counts by as many as 2,000 actions.

TABLE 4-52. Highway Noise Barrier Construction

State highway agencies (SHAs) provide data on highway noise barrier construction, extent, and costs to the U.S. Department of Transportation, Federal Highway Administration. Individual SHA definitions of barriers and costs may differ. This could lead to nonuniformity and/or anomalies among state data, which will in turn affect national totals.

[1] Public Law 94-580, 90 Stat. 2795 (Oct. 21, 1976).

TABLE 4-53. Number of People Residing in High-Noise Areas Around U.S. Airports

The number of the people exposed to aircraft noise around airports is estimated by computer modeling rather than by actual measurements. The U.S. Department of Transportation (USDOT), Federal Aviation Administration's (FAA's) Integrated Noise Model (INM) has been the primary tool for assessing aircraft noise around airports for nearly 30 years. This model uses information on aircraft mix, average daily operations, flight tracks, and runway distribution to generate and plot contours of Day Night Sound Level (DNL). With the addition of a digitized population census database, the model can estimate the number of residents exposed to noise levels of 65 decibels (db) DNL.

The U.S. Environmental Protection Agency (EPA) produced the first estimate of airport noise exposure in 1975. It reported that 7 million residents were exposed to significant levels of aircraft noise in 1978. This number became the "anchor point" for all future estimates of the nationwide noise impacts. In 1980, FAA developed another methodology for estimating the change in the number of people impacted by noise (from the 1975 anchor value) as a function of changes in both the national fleet and in the FAA's Terminal Area Forecast (TAF). In 1990, the FAA created an improved method of estimating the change in number of people impacted (relative to the 1980 estimates).

In 1993, the FAA began using its newly developed Nationwide Airport Noise Impact Model (NANIM) to estimate the impact of airplane noise on residential communities surrounding U.S. airports that support jet operations. FAA uses this model to determine the relative changes in number of people and land area exposed to 65 db DNL as a result of changes in nationwide aircraft fleet mix and operations. NANIM uses data on air traffic patterns found in the Official Airline Guide (OAG), air traffic growth projections found in FAA's TAF, population figures from the U.S. Census Bureau, and information on noise contour areas for the top 250 U.S. civil airports with jet operations.

The methodology used in NANIM has been peer reviewed and approved. However, a formal evaluation of the model's accuracy has not been conducted. Some data used in NANIM are updated manually, thus the possibility of data entry errors

does exist. Entries are reviewed and then corrected as appropriate. The aircraft mix and operations files from FAA's TAF and OAG are updated automatically. Changes to either of the sources could introduce errors. For example, it was recently discovered that OAG redefined some aircraft codes and altered some data fields in its database. These changes make it impossible for the NANIM utility program to accurately read the current OAG database. A rewrite of the source code is necessary to eliminate this error. Also, since airport authorities are not required to produce noise exposure maps and reports unless they intend to apply for Federal grants, 14 of the 50 busiest commercial airports, including JFK and LaGuardia, have not produced (for public consumption) noise exposure maps in several years. In the absence of actual data, the NANIM database contains approximations of the noise contours areas based on airports of similar size and similar operation. Without actual airport data, it is impossible to quantify the error introduced by the approximation.

The number of people exposed to aircraft noise for 1998 through 2001 was estimated by the FAA's latest version of its MAGENTA model. This new, more accurate model is based on 2000 census data and uses input data on aircraft and operations specific to U.S. airports. This revised model also uses the FAA Terminal Forecast (TAF), which provides information on how operations will increase on an airport specific basis. Updated monthly, the TAF allows a more accurate forecast of U.S. operations.

TABLE 4-54. Motor Vehicles Scrapped

The Polk Company's Vehicles in Operation database is the source of these data. This database is a census of vehicles that are currently registered in all states within the United States. It is based on information from state department of motor vehicles. Polk updates the database quarterly (March, June, September, and December).

Scrapped vehicles are those that Polk removes from its database when: 1) States indicate registered vehicles have suffered major damage (such as a flood or accident), or 2) No renewal (reregistration) notice is received by Polk within a state's allotted time (normally one year). In the latter case, if a vehicle is subsequently reregistered, it is returned to the database. The Polk data on motor vehicles is broken down into passenger cars and trucks, and this identification comes with the registration data from the DMV.

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